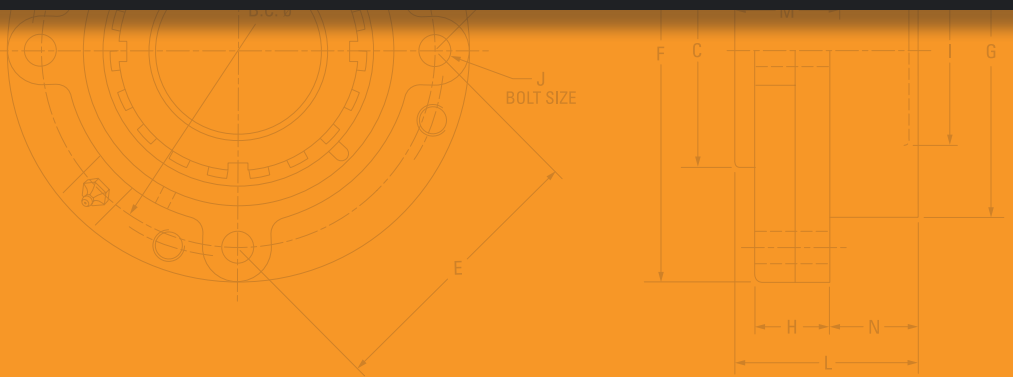


# TIMKEN



## TIMKEN® HOUSED UNIT CATALOG





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## ***GROW STRONGER WITH TIMKEN***

Every day, people around the world count on the strength of Timken. Our expertise in metallurgy, friction management and mechanical power transmission helps them accelerate improvements in productivity and uptime.

We supply products and services that can help keep your operations moving forward, whether you need drive train kits for commercial vehicles, durable housings for bearings in dirty environments, couplings that avoid metal-to-metal contact between motors and gearboxes, repair services for rail bearings, steel for an aircraft engine shaft, or other products and services for your applications.

When you choose Timken, you receive more than high-quality products and services: You gain a worldwide team of highly trained and experienced Timken people committed to working collaboratively with you to improve your business.

Globally, our 20,000 people provide reliable answers for a wide range of operations in manufacturing, mining, medical equipment, aerospace, transportation, oil and gas – and other diverse industries.



## ***INCREASE YOUR EQUIPMENT UPTIME***

In addition to high-quality bearings, engineered steel and mechanical power transmission components, we provide valuable integrated products and services. For example, we offer repair services and equipment monitoring equipment that can alert you to problems before they impact your uptime.

Additionally, we offer a broad selection of seals, premium lubricants, lubricators, couplings and chain to keep your operations moving smoothly.

Our 10 technology centers in the United States, Europe and Asia help pioneer tomorrow's innovations with extensive basic and applied scientific research programs. Through internal development and strategic acquisition of innovative companies, we continue to expand our portfolio of highly engineered bearings, steel and components.



## ***RUGGED TIMKEN® HOUSED UNITS HELP PROTECT YOUR BEARINGS***

When you choose sturdy Timken housings, your bearings can keep rolling smoothly, even in harsh environments impacted by dirt, debris, water and other contaminants. Timken engineers designed special housings to withstand tough challenges on the job.

Protected inside durable cast iron or steel, our highly engineered Timken® ball and roller bearings work hard to help you manufacture and transport materials, without excessive maintenance due to contaminants.

Choose from our selection of housed units designed with ball, tapered and spherical bearings. Select enhancements like Timken® seals, lubricants and housing covers best suited for each task. Our engineers help you choose the right combination of bearings and accessories to extend bearing life, increase uptime and reduce maintenance costs.

Of course, you can interchange existing products with Timken housed units because our bolt holes and shaft centerline dimensions are designed to conform to industry standards.

Timken® housed units reflect our strengths in metallurgy, engineering and manufacturing. We produce all our bearings in adherence with the Timken Quality Management System for consistency in all our facilities around the world.



## TIMKEN® BALL HOUSED UNITS OFFER EASY INSTALLATION, FLEXIBLE OPTIONS

Timken® ball housed units, available in a variety of sizes and types, feature wide-inner-ring ball bearings that provide additional shaft support and locking options. The Timken® wide-inner-ring ball bearing is designed for straight shafts and can be positioned without shoulders, locknuts or adapters.

For easy installation, our ball housed units can be ordered pre-assembled with bearings, housings, seals and locking systems. Choose from pillow blocks, flanged cartridges, take-up units and cylindrical cartridges. Our cast-iron, pressed-steel and other optional materials give you durable choices for the exterior covers. Timken® locking options include set screws, self-locking collars and concentric collars.

Timken® Shaft Guarding Technology™ deters set-screw damage to shafts by placing a hardened band in the groove along the inner ring of the bearing. The set screws press against the band to transfer gripping pressure onto the shaft, preventing nicks, as well as raised-metal or permanent shaft damage. The stainless-steel band resists corrosion on the shaft. This system is particularly helpful for applications where it would be expensive and time-consuming to replace shafts.

## TYPICAL INDUSTRIES AND APPLICATIONS

Use Timken ball bearing housed units in agricultural applications, fans, blowers, food processing devices and conveyors.



## TIMKEN® TYPE E HOUSED UNITS REPEL CONTAMINANTS, ENHANCE PERFORMANCE

Timken® Type E tapered roller bearing housed units feature double-lip seals and locking collars that protect against water and other contaminants. This double-lip seal design blocks debris and retains grease better than single-lip or triple-lip seals, according to Timken 2012 laboratory tests.

Its cast-iron exterior includes a corrosion-resistant electro-coat finish for the housing and collar, a more durable shield than industry-standard powder coating or black oxide. Set screws with nylon patches reduce back-out, even in rigorous applications.

Premium Timken® tapered roller bearings inside Type E housings are manufactured with advanced technology that results in longer predicted useful bearing life than other housed units with standard bearings. Designed with optimized bearing profiles and improved surface finishes, Timken tapered roller bearings operate efficiently within the housing.

### TYPICAL INDUSTRIES AND APPLICATIONS

Use Timken Type E housings for pulp and paper, power generation, mining, cement and aggregate industries. Our Type E housed units also are widely used in equipment for air-handling and treatment of water and waste water. Other common machine applications include mixers, washers, shredders, mills and oven/furnace roller beds.





## TIMKEN® SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS WITHSTAND HARSH CONDITIONS

Timken® spherical roller bearing solid-block housed units stand up to rugged conditions. Composed of solid steel, they withstand most falling debris and handle up to  $\pm 1.5$  degrees of misalignment. The steel used in these products is up to two times stronger than cast iron, which may break or pound out in tough applications.

Timken spherical roller bearing solid-block housed units come in five locking configurations: single and double set screws, eccentric locks for reversing applications, tapered-adaptor locks and double-tapered locks.

Choose from three sealing options: labyrinth seals (for high-speed, high-temperature applications) and triple-lip seals made of either nitrile or urethane. Timken® steel auxiliary covers provide an extra layer of protection, and they can be filled with Timken lubricants.

### TYPICAL INDUSTRIES AND APPLICATIONS

Use Timken spherical roller bearing solid-block housed units in metals mills, aggregate and cement, mining, power generation, agriculture, pulp, paper, sawmills and other forest industries.



### **TIMKEN® SAF SPLIT-BLOCK HOUSED UNITS BEAR HEAVY LOADS**

Timken® SAF split-block housed units are available in rugged cast iron, ductile iron or cast steel to match a range of industrial environments. Our Timken SAF housed units have separate, matched caps and bases. In larger sizes where housed units are heavier, this split-block design eases installation. Remove the cap using a pry-tool slot for bearing inspection, service and replacement.

Available in a variety of shaft sizes, Timken SAF units offer the choice of tapered-bore design for easy mounting or a straight-bore design for better axial location. The block can be converted from fixed to float by removing the stabilizing ring. Several sealing options protect against contamination, including a standard seal, which is a precision aluminum triple-ring labyrinth seal.

### **TYPICAL INDUSTRIES AND APPLICATIONS**

Use Timken SAF housed bearings in power generation, coal, mining, aggregate, cement, metals, pulp, paper and other forestry operations, water treatment and food processing industries. Applications include warehousing, conveyors, movable bridges/heavy structures, industrial fans and blowers.



## TIMKEN® SNT SPLIT PLUMMER BLOCKS CARRY HEAVY LOADS

Timken® SNT split plummer blocks are available in metric sizes. Their rugged cast iron, ductile iron or cast steel designs stand up to a range of industrial environments. Our Timken SNT plummer blocks have separate, matched caps and bases. In larger sizes where plummer blocks are heavier, this split-block design eases installation. Remove the cap using a pry-tool slot for bearing inspection, service and replacement.

Available in a variety of metric shaft sizes, Timken SNT plummer block units offer the choice of tapered-bore design for easy mounting or straight-bore design for better axial location. The block can be converted from fixed to float by adding or removing the locating rings. A variety of sealing options help protect against contamination including all-purpose elastomer seals, deflection-type V-ring seals, precision labyrinth seals and heavy-duty taconite seals for highly contaminated environments.

### TYPICAL INDUSTRIES AND APPLICATIONS

Use Timken SNT plummer blocks in power generation (coal), mining, aggregate, cement, metals, pulp, paper and other forestry operations, water treatment and food processing industries. Applications include warehousing, conveyors, bulk material handling and industrial fans and blowers.





## HOW TO USE THIS CATALOG

We designed this catalog to help you find the Timken housed units best suited to your specifications.

Timken offers an extensive range of bearings and accessories in both imperial and metric sizes. For your convenience, size ranges are indicated in millimeters and inches. Contact your Timken engineer to learn more about our complete line for the special needs of your application.

This publication contains dimensions, tolerances and load ratings, as well as engineering sections describing fitting practices for shafts and housings, internal clearances, materials and other bearing features. It provides valuable assistance in the initial consideration of the type and characteristics of the bearings that may best suit your particular needs.

ISO and ANSI/ABMA, as used in this publication, refer to the International Organization for Standardization and the American National Standards Institute/American Bearing Manufacturers Association.

**Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken® Housed Unit Catalog.**

### DISCLAIMER

*This catalog is provided solely to give you analysis tools and data to assist you in your product selection. Product performance is affected by many factors beyond the control of Timken. Therefore, you must validate the suitability and feasibility of all product selections for your applications.*

*Timken products are sold subject to Timken terms and conditions of sale, which include our limited warranty and remedy. You can find these at <http://www.timken.com/en-us/purchase/Pages/TermsandConditionsofSale.aspx>.*

*Please consult with your Timken engineer for more information and assistance.*

*Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.*

## ***SHELF LIFE AND STORAGE OF GREASE-LUBRICATED BEARINGS AND COMPONENTS***

To help you get the most value from our products, Timken provides guidelines for the shelf life of grease-lubricated ball and roller bearings, components and assemblies. Shelf life information is based on Timken and industry test data and experience.

### **SHELF LIFE**

Shelf life should be distinguished from lubricated bearing/component design life as follows:

- Shelf life of the grease-lubricated bearing/component represents the period of time prior to use or installation.
- The shelf life is a portion of the anticipated aggregate design life. It is impossible to accurately predict design life due to variations in lubricant bleed rates, oil migration, operating conditions, installation conditions, temperature, humidity and extended storage.
- Shelf life values, available from Timken, represent a maximum limit and assume adherence to the storage and handling guidelines suggested in this catalog or by a Timken associate. Deviations from the Timken storage and handling guidelines may reduce shelf life. Any specification or operating practice that defines a shorter shelf life should be used.

Timken cannot anticipate the performance of the grease lubricant after the bearing or component is installed or placed in service.

**TIMKEN IS NOT RESPONSIBLE FOR THE SHELF LIFE OF ANY BEARING/COMPONENT LUBRICATED BY ANOTHER PARTY.**

### **European REACH Compliance**

Timken lubricants, greases and similar products sold in standalone containers or delivery systems are subject to the European REACH (**R**egistration, **E**valuation, **A**uthorization and **R**estriction of **C**hemicals) directive. For import into the European Union, Timken can sell and provide only those lubricants and greases that are registered with ECHA (**E**uropean **C**hemical **A**gency). For further information, please contact your Timken engineer.



## STORAGE

Timken suggests the following storage guidelines for our finished products (bearings, components and assemblies, referred to as "products"):

- Unless directed otherwise by Timken, products should be kept in their original packaging until they are ready to be placed into service.
- Do not remove or alter any labels or stencil markings on the packaging.
- Products should be stored in such a way that the packaging is not pierced, crushed or otherwise damaged.
- After a product is removed from its packaging, it should be placed into service as soon as possible.
- When removing a product that is not individually packaged from a bulk pack container, the container should be resealed immediately after the product is removed.



- Do not use product that has exceeded its shelf life as defined in the Timken shelf life guidelines statement.
- The storage area temperature should be maintained between 0° C (32° F) and 40° C (104° F); temperature fluctuations should be minimized.
- The relative humidity should be maintained below 60 percent and the surfaces should be dry.
- The storage area should be kept free from airborne contaminants such as, but not limited to, dust, dirt, harmful vapors, etc.
- The storage area should be isolated from undue vibration.
- Extreme conditions of any kind should be avoided.



Due to the fact that Timken is not familiar with your particular storage conditions, we strongly suggest following these guidelines. However, you may be required by circumstances or applicable government requirements to adhere to stricter storage requirements.

Most bearing components typically ship protected with a corrosion-preventive compound that is not a lubricant. These components may be used in oil-lubricated applications without removal of the corrosion-preventive compound. When using some specialized grease lubrications, we advise you to remove the corrosion-preventive compound before packing the bearing components with suitable grease.

We pre-pack most housed unit types in this catalog with general-purpose grease suitable for their normal applications. It may be necessary for you to frequently replenish the grease for optimum performance.

Be careful in selecting lubrication, however, since different lubricants are often incompatible. You may order housed units pre-lubricated with a specified lubrication.

When you receive a bearing or housed unit shipment, do not remove products from their packaging until they are ready for mounting so they do not become corroded or contaminated.

Store bearings and housed units in an appropriate atmosphere so they remain protected for the intended period.

**WARNING**

***Failure to observe the following warnings could create a risk of death or serious injury.***

Proper maintenance and handling practices are critical. Failure to follow selection recommendations and installation instructions and to maintain proper lubrication can result in equipment failure.

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.

**CAUTION**

***Failure to follow these cautions could create a risk of injury.***

Do not use damaged housed units. The use of a damaged housed unit can result in equipment damage and/or injury.

**CAUTION**

***Failure to follow these cautions may result in property damage.***

If hammer and bar are used for installation or removal of a part, use a mild steel bar (e.g., 1010 or 1020 grade). Mild steel bars are less likely to cause release of high-speed fragments from the hammer, bar or the part being removed.

**NOTE**

*Do not use excessive force when mounting or dismantling the unit.*

*Follow all tolerance, fit, and torque recommendations.*

*Always follow the Original Equipment Manufacturer's installation and maintenance guidelines.*

*Ensure proper alignment.*

*Never weld housed units.*

*Do not heat components with an open flame.*

*Do not operate at bearing temperatures above 121° C (250° F).*

**Warnings for this product line are in this catalog and posted on [www.timken.com/en-us/products/warnings/Pages/TimkenHousedUnitWarnings.aspx](http://www.timken.com/en-us/products/warnings/Pages/TimkenHousedUnitWarnings.aspx).**





**BALL BEARING HOUSED UNITS**

Timken® ball bearing housed units feature a wide-inner-ring ball bearing for additional shaft support. Designed for mounting on straight shafts with a slip fit, these housed units are available in an extensive array of types and sizes to accommodate many industrial applications.

When set screws are used, Timken suggests using Shaft Guarding Technology™, a stainless-steel, hardened band that is inserted in a groove on the inner ring. When the set screws are tightened, they press against the band, tightening the grip on the shaft. Unlike traditional set screws, which can dig into the shaft, there are no nicks, raised metal or permanent shaft damage. The stainless band resists the formation of corrosion on the shaft.

Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken® Housed Unit Catalog.

**TYPICAL INDUSTRIES AND APPLICATIONS**

Common industries and applications include agriculture, food processing, fans, blowers, and conveyors.

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***ENGINEERING***

Antifriction bearings possess capabilities involving broad ranges of speed and many combinations of radial and thrust loads. Other important environmental conditions, such as low and high temperatures, dust and dirt, moisture and unusual conditions, affect bearing operation.

This engineering section is not intended to be comprehensive, but it does serve as a useful guide in bearing selection. Where more complex bearing applications are involved, contact your Timken engineer.

To view the complete engineering catalog, please visit [www.timken.com](http://www.timken.com). To order the catalog, please contact your Timken engineer and request a copy of the Timken Engineering Manual, order number 10424.

The following topics are covered within this section:

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## MATERIALS

### TEMPERATURE RANGES, RESISTANCE TO CORROSION AND OTHER OPERATING ENVIRONMENTS

To accommodate the needs of the rapidly expanding industrial world, the capability of bearings in various extreme environments becomes vitally important. No general recommendations can be made to cover all such applications. Each installation must be studied to determine peak and average operating temperatures, length of time at these temperatures, load, oscillation or rotation, and any other factors affecting bearing operation.

### RINGS, BALLS AND ROLLERS

Suggested materials for use in rings, balls and rollers at various operating temperatures together with data on chemical composition, hardness and dimensional stability are listed in table A-1 on page A-5. A temperature of 427° C (800° F) is generally the upper limit for successful bearing operating steels. Above 427° C (800° F), or below where lubricant is not permitted, cast or wrought-cobalt alloys are generally used. Although chosen primarily for their good retention of physical properties, they also possess good oxidation resistance at elevated temperatures.

### CAGES, SHIELDS AND SEALS

Recommended materials for cages, shields and seals with their temperature capabilities are in table A-3 on page A-7.

### DIMENSIONAL STABILITY

Dimensional stability of rings and balls is achieved by tempering the hardened steel until any further growth by transformation of austenite to martensite is balanced by shrinkage from tempering martensite. This balance is never perfect, and some size change will always occur. The amount depends upon the operating time and temperature of the bearings and the composition of and heat-treatment of the steel. The American Bearings Manufacturers Association (ABMA) definition for stabilized rings and balls permits a change of less than 0.0001 inch per inch after exposure to a temperature of 149° C (300° F) for 2500 hours. Rings and balls used at elevated temperatures are defined as stable by ABMA where there is a size change of less than 0.00015 inch per inch after 1500 hours of exposure at temperatures of 232° C, 316° C and 427° C (450° F, 600° F and 800° F).

### CORROSION RESISTANCE

Timken developed a premium coating named TDC™ (thin-dense chrome), which has excellent corrosion resistance, as well as other properties leading to improved bearing life. TDC-coated bearings are intended for use in applications where unprotected bearings do not survive. This proprietary coating, emanating from years of research and testing, is a real problem-solver.

Besides its corrosion resistance feature, this coating has a high hardness (HRC 70-72), reduced coefficient of friction and a dense modular texture.

TDC is resistant to most organic and inorganic compounds. The normal thin coating of less than 0.003 mm (0.0001 in.) will outlast 440C stainless steel. The very high hardness, lower coefficient of friction and surface texture provide extra resistance to wear under less-than-ideal lubrication and thus longer bearing life.

Under normal lubrication conditions, TDC-coated races can provide fatigue life that's two times longer than the life of standard bearings.

To order wide-inner-ring ball bearings with TDC-coated races, stainless-steel balls and nylon retainers, specify suffix TDC or TDCF, which includes food safe grease (i.e., G1100KRRB + COL TDCF). This coating also can be readily applied to various types of tapered, cylindrical and spherical roller bearings.

To ensure proper application of TDC, contact your Timken engineer.

In addition to the bearings mentioned above, Timken is able to supply specially coated housing for applications involving particularly harsh environments where Food and Drug Administration (FDA) and United States Department of Agriculture (USDA) regulations apply. These housings, named Survivor® are available as electroless nickel-plated or polymer depending on the situation. The electroless nickel units are required for food processing, medical and other applications and may be ordered by adding an -NT suffix to the part number. The polymer units are similar to the NT units but offer superior protection against corrosion. Add the suffix -PT to the part when ordering.

Both coatings offer excellent protection to a broad variety of corrosive environments and are vulnerable only to a very few aggressive materials.

A complete review of operating conditions is essential before specifying corrosion-resistance housed units and/or thin-dense chrome (TDC) coated bearings. Consult your Timken engineer for comprehensive recommendations.

## OTHER CONSIDERATIONS

Installations that operate at high temperatures for extended periods may lose the quality of shaft and housing fits. Carefully machined and heat-treated shafts and housings will minimize trouble from this source.

In some applications, the internal clearance of bearings may be partially absorbed. For example, during the first few seconds of rotation, a massive housing may keep the outer race cooler than the inner race and balls, even if the housing is already at some elevated temperature. Also, during heat soakback, when rotation stops, heat may flow back to the bearing along the shaft. If, while stationary, the effects of heat soakback nullify

the radial internal clearance, radial brinelling of the races may occur and the bearing will be rough during subsequent rotation. Bearings with greater internal looseness may be required to compensate for these conditions. Consult your Timken engineer for recommendations.

This table provides standard operating temperatures for common bearing component materials. It should be used for reference purposes only. Other bearing component materials are available on request.

Contact your Timken engineer for further information.

**TABLE A-1. OPERATING TEMPERATURES FOR BEARING COMPONENT MATERIALS – RINGS, BALLS AND ROLLERS**

Material	Approximate Chemical Analysis %	Temp. °C, (°F)	Hardness HRC	-73° C	-54° C	-17° C	38° C	93° C	121° C	149° C	204° C	260° C	316° C	371° C	427° C
				-100° F	-65° F	0° F	100° F	200° F	250° F	300° F	400° F	500° F	600° F	700° F	800° F
Low-alloy carbon-chromium bearing steels. 52100 and others per ASTM A295	1C 0.5 – 1.5Cr 0.35Mn	21 (70)	60	STANDARD DIMENSIONAL STABILIZATION <0.0001 in./in dimensional change in 2500 hours at 100° C (212° F). Good oxidation resistance.											
Low-alloy carbon-chromium bearing steels. 52100 and others per ASTM A295	1C 0.5 – 1.5Cr 0.35Mn	21 (70) 177 (350) 232 (450)	58 56 54	Heat stabilized per FS136. When given a stabilizing heat treatment, A295 steel is suitable for many applications in the 177°–232° C (350°–450° F) range; however, it is not as stable dimensionally as it is at temperatures below 177° C (350° F). If utmost stability is required, use materials in the 316° C (600° F) group below.											
Deep-hardening steels for heavy sections per ASTM A485	1C 1 – 1.8Cr 1 – 1.5Mn .06Si	21 (70) 232 (450) 316 (600)	58 55 52	After heat-treated and tempered, it is stabilized.											
Carburizing steels per ASTM A534 a) low alloy 4118, 8X19, 5019, 8620 (Ni-Moly grades) b) high nickel 3310	Ni-Moly: 0.2C, 0.4-2.0Mn, 0.3-0.8Cr, 0-2.0Ni, 0-0.3Mo  .01C, 1.5Cr, 0.4Mn, 3.5Ni	21 (70)	58	Nickel-Moly grades of steel frequently used to achieve extra ductility in inner rings for locking device bearings. 3311 and others used for extra-thick-section rings.											
Corrosion-resistant 440C stainless steel per ASTM A756	1C 18Cr	21 (70)	58	Excellent corrosion resistance.											
Corrosion-resistant 440C stainless steel per ASTM A756	1C 18Cr	21 (70) 232 (450) 316 (600)	58 55 52	Heat stabilized for maximum hardness at high temperatures (FS238). Good oxidation resistance at higher temperatures. Note load capacity drops off more rapidly at higher temperatures than M50 shown below, which should be considered if loads are high.											
M-50 medium high speed	4Cr 4Mo 1V 0.8C	21 (70) 232 (450) 316 (600)	60 59 57	Suggested where stable high hardness at elevated temperature is required.											

NOTE: Bearings have been made of special material for operation at temperatures above 427° C (800° F). Consult your Timken engineer regarding the application. ASTM A295 bearing steels are suitable for many applications up to 212° C (413° F) but are not as dimensionally stable as they are at the temperatures below 100° C (212° F).

# INTERNAL CLEARANCE

## RADIAL INTERNAL CLEARANCE

The radial internal clearance of radial contact ball bearings can be defined as the average outer ring raceway diameter minus the average inner ring raceway diameter minus twice the ball diameter.

## RADIAL BALL BEARINGS

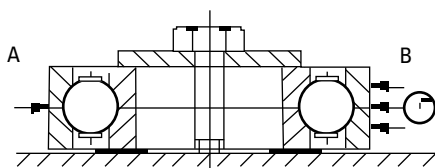
While manufacturing ball bearings, it is standard practice to assemble rings and balls with a specified internal clearance (table A-2). This characteristic is necessary to absorb the effect of press fitting the bearing rings at mounting.

Internal clearance is sometimes utilized to compensate for thermal expansion of bearings, shafts and housings, or to provide a contact angle in the bearing after mounting.

Internal clearance can be measured by gaging either radially or axially.

Radial measurement is accepted as the more significant characteristic because it is more directly related to shaft and housing fits. It also is the method prescribed by the American Bearing Manufacturers Association (ABMA).

Radial internal clearance can be measured mechanically by moving the outer ring horizontally, as shown in fig. A-1. The total movement of the outer ring when the balls are properly seated in the raceways determines the radial internal clearance. Several readings should be taken using different circumferential orientations of the rings to get a comprehensive average reading.



**Fig. A-1. Radial internal clearance. A and B are applied forces.**

**TABLE A-2. LIMITS FOR RADIAL INTERNAL CLEARANCE OF SINGLE-ROW RADIAL CONTACT BALL BEARINGS UNDER NO LOAD (APPLIES TO BEARINGS OF ABEC1 AND ABEC3 TOLERANCES)**

All tolerances in micrometers (µm) and ten-thousandths inches (0.0001 in.)

Timken Prefix (ABMA designation)		H (C2) Acceptance Limits		R (C0) Acceptance Limits <sup>(1)</sup>		P (C3) Acceptance Limits <sup>(1)</sup>		J (C4) Acceptance Limits		JJ (C5) Acceptance Limits	
Basic Bore Dia.											
Over	Incl.	Low	High	Low	High	Low	High	Low	High	Low	High
mm	mm	µm in.	µm in.	µm in.	µm in.	µm in.	µm in.	µm in.	µm in.	µm in.	µm in.
2.5	10	0	7	2	13	8	23	14	29	20	37
		0	3	1	5	3	9	6	11	8	15
10	18	0	9	3	18	11	25	18	33	25	45
		0	3.5	1	7	4	10	7	13	10	18
18	24	0	10	5	20	13	28	20	36	28	48
		0	4	2	8	5	11	8	14	11	19
24	30	1	11	5	20	13	28	23	41	30	53
		0.5	4.5	2	8	5	11	9	16	12	21
30	40	1	11	6	20	15	33	28	46	40	64
		0.5	4.5	2	8	6	13	11	18	16	25
40	50	1	11	6	23	18	36	30	51	45	73
		0.5	4.5	2.5	9	7	14	12	20	18	29
50	65	1	15	8	28	23	43	38	61	55	90
		0.5	6	3.5	11	9	17	15	24	22	35
65	80	1	15	10	30	25	51	46	71	65	105
		0.5	6	4	12	10	20	18	28	26	41
80	100	1	18	12	36	30	58	53	84	75	120
		0.5	7	4.5	14	12	23	21	33	30	47
100	120	2	20	15	41	36	66	61	97	90	140
		1	8	6	16	14	26	24	38	35	55
120	140	2	23	18	48	41	81	71	114	105	160
		1	9	7	19	16	32	28	45	41	63
140	160	2	23	18	53	46	91	81	130	120	180
		1	9	7	21	18	36	32	51	47	71
160	180	2	25	20	61	53	102	91	147	135	200
		1	10	8	24	21	40	36	58	53	79
180	200	2	30	25	71	63	117	107	163	150	230
		1	12	10	28	25	46	42	64	59	91
200	240	3	36	30	81	74	137	127	193	183	267
		1	14	12	32	29	54	50	76	72	105
240	280	3	41	33	97	86	157	147	224	213	310
		1	16	13	38	34	62	58	88	84	122
280	320	5	48	41	114	104	180	170	257	246	353
		2	19	16	45	41	71	67	101	97	139
320	370	5	53	46	127	117	208	198	295	284	409
		2	21	18	50	46	82	78	116	112	161
370	430	8	64	56	147	137	241	231	340	330	475
		3	25	22	58	54	95	91	134	130	187
430	500	10	74	66	170	160	279	269	396	386	551
		4	29	26	67	63	110	106	156	152	217
500	570	10	81	74	193	183	318	307	450	439	630
		4	32	29	76	72	125	121	177	173	248
570	640	13	91	85	216	206	356	345	505	495	706
		5	36	33	85	81	140	136	199	195	278
640	710	20	114	107	239	229	394	384	564	554	780
		8	45	42	94	90	155	151	222	218	307
710	800	20	140	130	269	259	445	434	630	620	879
		8	55	51	106	102	175	171	248	244	346
800	1060	28	211	201	353	345	587	577	833	823	1148
		11	83	79	139	136	231	227	328	324	452

<sup>(1)</sup>Standard fits for Timken® radial ball bearings. P(C3) for bearing O.D. greater than 52 mm (greater than 25 mm bore).

## CAGES

Cages (also referred to as rolling-element retainers) serve several purposes in the proper operation of a rolling-element bearing. Cages separate the rolling elements and prevent rolling-element-on-rolling-element contact and wear. Cages serve to maintain rolling-element spacing in the races of the inner and outer rings of the bearings as the rolling elements pass into and out of the load zones. For handling purposes, cages also can retain the rolling elements on the inner ring assembly to allow for bearing installation.

To meet the needs of the various service requirements of customers, Timken offers two reliable cage types for wide-inner-ring ball bearings – pressed-steel welded cages and molded-nylon finger-type cages.

### PRESSED-STEEL WELDED CAGES

This cage type consists of two formed cage halves welded together (fig. A-2). This type of cage is standard for most radial non-filling-slot ball bearings, providing high strength and rigidity, as well as good uniformity of ball-to-pocket clearance. It is suitable for very high-temperature applications, but does not accommodate application misalignment.



Fig. A-2. Pressed-steel welded cage.

### MOLDED-NYLON FINGER-TYPE CAGES

This type of cage consists of a one-piece molded design (fig. A-3). Rolling elements simply snap into place. Used in the majority of wide-inner-ring ball bearings, these cages are molded of nylon 6/6 that is heat-stabilized and moisture-conditioned. The polymer can withstand continuous operating temperatures up to 120° C (250° F) with spikes up to 150° C (300° F) and provides a non-corrosive, self-lubricating material with good resistance to abrasion, wear, most solvents, oils and greases. This cage type can accommodate application misalignment.



Fig. A-3. Molded-nylon cage.

Care needs to be exercised when using aggressive lubricants with extreme-pressure (EP) additives in combination with elevated temperatures greater than 107° C (225° F).

TABLE A-3. OPERATING TEMPERATURES FOR BEARING COMPONENT MATERIALS – CAGES, SHIELDS AND SEALS

	-54° C -65° F	-17° C 0° F	38° C 100° F	93° C 200° F	149° C 300° F	204° C 400° F	260° C 500° F	316° C 600° F	371° C 700° F	427° C 800° F
<b>CAGES</b>										
Molded 6/6 nylon (PRB)										
Molded 6/6 fiberglass reinforced nylon (PRC)										
Phenolic resin laminate										
Low-carbon pressed steel										
Pressed stainless steel										
Machined bronze										
Machined iron-silicon bronze										
Machined steel										
<b>SHIELDS</b>										
Low-carbon steel										
Stainless steel										
Nylon										
<b>SEALS</b>										
Buna N										
Polyacrylic										
Fluoroelastomer										
Stabilized TFE fluorocarbon <sup>(1)</sup>										
TFE fluorocarbon <sup>(1)</sup> (with glass fabric)										

<sup>(1)</sup>Limited life above these temperatures.

## LUBRICATION SPEED CAPABILITY

There is no precise method for determining the maximum speed at which a ball bearing may operate. Bearing characteristics and features of surrounding parts, shafts, housings and other components, as well as basic service conditions, are all variables that are dependent upon each other for continued satisfactory high-speed performance.

The safe operating speed of a ball bearing is often limited by the temperature within the bearing, which, in turn, is dependent upon the temperature surrounding the application, bearing seals, shaft and housing tolerances, auxiliary parts, etc., and the type and amount of lubricant.

Although the speed values shown in the table A-4 are based on many years of research and accumulated data, numerous bearing applications successfully operate with speed ratings in excess of those tabulated. Such applications should be reviewed by your Timken engineer.

The values in the following table may be used as a general guide for determining the safe maximum speed of standard types of wide-inner-ring ball bearings. To obtain the speed rating for any bearing size with inner ring rotation, multiply the bore in millimeters of the basic size bearing by the speed in revolutions per minute.

**TABLE A-4. MAXIMUM OPERATING SPEED RECOMMENDATIONS**

Timken Series	Maximum dN Values
Industrial Duty	
R series	175000
Y series	175000
Medium Y series	175000
Special Duty	
R-NT series	175000
SAL and SAOL series	275000
RAKH and RAKHL series	175000
Severe Duty	
R-PT series	175000
Y-PT series	175000
L series	250000
T series	500 RPM maximum <sup>(1)</sup>
Standard Duty	
V series	140000
S series	140000

<sup>(1)</sup>Please contact your Timken engineer for applications where speeds may exceed 500 RPM.

**Example:**

Find the maximum operating speed for an LAK1 pillow block.

1. Find the maximum dN value for an LAK1 from the above table.  
250000
2. Find the bore of an LAK1 in millimeter.  
1 in. = 25.4 mm

3. Apply the dN equation.

$$\begin{aligned} dN \text{ max.} &= \text{bearing bore (in.mm)} \times \text{max. operating speed} \\ 250000 &= 25.4 \times \text{maximum operating speed} \\ \text{Max. operating speed} &= 250000/25.4 = 9840 \text{ RPM} \end{aligned}$$

Thus, the maximum operating speed for an LAK1 is 9840 RPM.

## LUBRICANT SELECTION

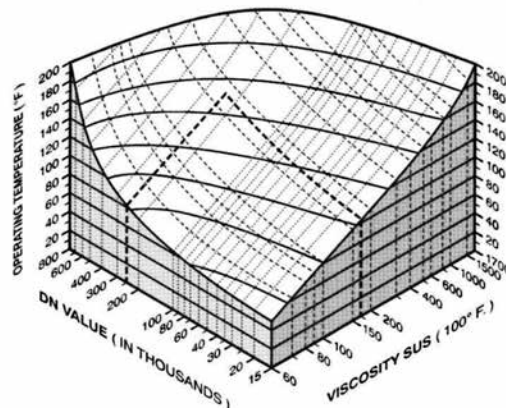
The successful application of lubricating fluids on bearings depends on the physical and chemical properties of the lubricant as they pertain to the bearing, its application, installation and general environmental factors.

## VISCOSITY

Generally, the most important single property of a lubricating fluid is its viscosity. Viscosity is the measure of the relative resistance of a fluid to flow and is a function of speed and temperature (fig. A-4).

The measurement of viscosity can be made by several different instruments called viscosimeters. A common unit of measure is the Saybolt Universal Second (SUS). This is the time, in seconds, required for 60 cc of a fluid to flow through a standardized orifice under a standard head, at a given temperature. The common temperatures for reporting viscosity are 37.78° C to 98.89° C (100° F to 210° F). The higher the viscosity number, the greater the resistance to flow.

Experience indicates that a lubricating fluid with a viscosity of at least 100 SUS at the operating temperature of the application will be adequate for normal bearing lubrication.



**Fig. A-4. Lubrication selection as a function of bearing dN and operating speed.**



## VISCOSITY INDEX

The ideal oil (as far as viscosity is concerned) would be the same viscosity at all temperatures. All oils become less viscous (thin-out) when heated and more viscous (thickened) when cooled.

However, oils do not vary in viscosity to the same extent. Some thicken or thin more rapidly than others.

The term viscosity index, or VI, is used to rate oils according to their temperature-viscosity behavior.

Oils with the highest viscosity index are more resistant to changes in viscosity with changes in temperature than lower viscosity index oils. Obviously, high viscosity-index lubricants are most suitable for bearing applications experiencing wide temperature variations.

The National Lubricating Grease Institute (NLGI) classification of grease consistency is shown below (table A-5):

**TABLE A-5. NLGI CLASSIFICATIONS**

NLGI Grease Grades	Penetration No.
0	355-385
1	310-340
2	265-295
3	220-250
4	175-205
5	130-160
6	85-115

## POUR POINT

The pour point is the lowest temperature at which a fluid will flow or can be poured. It is important in applications exposed to low temperatures that the lubricating fluid selected has a pour point lower than the minimum ambient temperature.



**WARNING**

*Failure to observe the following warnings could create a risk of death or serious injury.*

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

## TYPES OF LUBRICATION

Timken understands the importance of friction management. Our line of application- and environment-specific lubricants has been developed by leveraging our knowledge of tribology and antifriction bearings, as well as how these two elements affect overall system performance.

Timken® lubricants help bearings and related components operate effectively in demanding industrial operations. High-temperature, anti-wear and water-resistant additives offer superior protection in challenging environments.

Similar to our bearings, all Timken lubricants are backed by highly trained customer service and technical support associates. Industrial customers turn to Timken for comprehensive friction management solutions. We help customers analyze performance and suggest options that make sense for their unique operating conditions and maintenance intervals.

**TABLE A-6. STANDARD BALL-BEARING LUBRICATION**

Bearing Type	Grease Type	Grease Temperature Range
Radial bearings (double shielded, and single and double shielded)	Polyurea thickener Petroleum oil	-34.44° C to +135° C (-40° to +275° F)
Wide-inner-ring ball bearings (contact seal types)	Polyurea thickener Petroleum oil	-34.44° C to +135° C (-40° to +275° F)
Wide-inner-ring ball bearings (labyrinth seal types)	Synthetic thickener Synthetic hydrocarbon fluid	-53.89° F to +162.75° C (-65° F to +350° F)

NOTE: Open-type bearings and single-shielded types are not prelubricated. They have a rust-preventative coating only and must be lubricated by the customer or end-user before operation.

Bearings that have been factory pre-lubricated use a high-quality grease. Bearings with contacting lip seals and shields contain No. 2 polyurea base grease. Bearings with non-contacting labyrinth seals (suffix KLL in bearing part number) contain a No. 2 modified clay base grease. For normal conditions of service, these bearings require no further lubrication.

Normal service is considered as operating in a clean, dry environment at temperatures between -34° C to +82° C (-30° F to +180° F) and at dN values (bore in millimeter multiplied by speed in RPM) less than 175000.

If service is considered abnormal due to speed, temperature or exposure to moisture, dirt or corrosive chemicals, periodic relubrication may be advisable. Excessive relubrication may cause high operating temperatures due to grease churning. General guidelines for relubrication are provided in table A-7.

### TIMKEN BALL-BEARING PILLOW-BLOCK GREASE

Timken ball-bearing pillow-block grease is an NLGI No. 2 polyurea-thickened grease. It provides outstanding long life and moderately high-temperature lubrication to ball bearings. This grease maintains its mechanical shear stability and provides corrosion resistance, even in the presence of salt water. Timken ball-bearing pillow-block grease features low-noise characteristics and excellent pumpability. This grease does not contain extreme-pressure additives but inhibits rust and oxidation. Operating temperatures range from -40° C to 163° C (-40° F to 400° F). This grease is typically used in lightly loaded ball bearings in pillow blocks and conveyors that operate in high-temperature environments, including kiln and glasswork applications, electric motors, chemical manufacturing and noise-sensitive environments.

### SAL/SAOL LUBRICATION

SAL/SAOL housed units are intended for use with oil lubrication and are equipped with a filler cup located on top of the pillow block. Each housing assembly also has an overflow cup and a pipe plug located at the base. These can be interchanged as required to properly locate the overflow cup with respect to shaft rotation. The overflow cup should be placed on the downward side of the shaft rotation. Incorrect placement will cause oil to leak from the overflow cup during operation. Oil should be supplied through the filler cup until overflow is full. Please note to inspect and refill only when the shaft is stationary to avoid overfilling.

Inspection is necessary to determine the frequency of refilling, which is based on a number of factors, including speed, temperature and oil type. To avoid inadequate lubrication, maintain the oil level to the top of the overflow cup.

In general, a high-quality automotive or turbine oil with oxidation inhibitors is recommended. For normal operating conditions, an SAE 30 weight oil or equivalent is adequate. Contact your Timken engineer for abnormal service lubrication recommendations.

### SURVIVOR® PT, NT AND PS LUBRICATION

These housed units are specifically designed for use in conditions of corrosion and contamination. The premium bearing insert is factory-prelubricated with aluminum-complex, high-quality, type H1, food-grade grease. This grease is acceptable in applications with incidental food contact.

### GENERAL RELUBRICATION SUGGESTIONS

Periodic relubrication is advisable due to the nature of food-grade grease and the corrosive environments for which these units are designed. Consult your equipment manufacturer's operating manual for the relubrication cycle. General guidelines are found in table A-7.

**TABLE A-7. GENERAL RELUBRICATION RECOMMENDATIONS FOR GREASED BEARINGS<sup>(1)</sup>**

Condition	Relubrication Interval
Indoor service	Not required
Outdoor service	Two/three times per year
Severe outdoor exposure	Once a month
High contamination/washdown	Once a week

<sup>(1)</sup>As a guideline, relubricate until the first indication of grease is observed purging from either seal lip.

### SINGLE-POINT AND CENTRALIZED MULTI-POINT LUBRICATORS

Proper lubrication is critical to bearing and machine performance. To help prevent damage, Timken G-Power and M-Power single-point lubricators deliver periodic grease to bearings, chains, guideways and other industrial equipment components (fig. A-5). You can choose from gas-powered or electromechanical varieties to meet your operating specifications. C-Power multi-point lubricators are a centralized lubrication system capable of delivering grease to up to six lubrication points (fig. A-6). Oil is not an option for this unit.

G-Power, M-Power and C-Power canisters can be filled with Timken-formulated lubricants or many other types of commercial lubricants. A full line of accessories – including brackets, clamps, brushes, fittings and hose extensions – ease installation and offer a host of mounting options for hard-to-reach locations.



**Fig. A-5. G-Power and M-Power lubrication units with activators.**



**Fig. A-6. C-Power.**

## **LOAD RATINGS AND LIFE CALCULATIONS**

### **RADIAL BALL-BEARING LOAD RATINGS**

The load ratings published in this catalog are based on ABMA Standard Section 9, but they are increased to reflect improvements in materials and processing. These ratings are referred to as extended basic dynamic load ratings ( $C_E$ ). Care must be taken that the extended basic dynamic load ratings only be used in equations containing  $C_E$ .

### **NOTATIONS USED IN THIS SECTION**

- $C_N$  = Radial load rating of bearings at operating speed  $N$  – pounds or newtons =  $(N_f \times C_E)$
- $C_E$  = Extended basic dynamic load rating – radial ball bearings pounds or newtons
- $C_o$  = Basic static load rating – radial ball bearing pounds or newtons<sup>(1)</sup>
- $K_T$  = Relative thrust-load factor – ball bearings
- $L_f$  = Life factor
- $L_r$  = Fatigue life for reliability level  $r$  – hours
- $N$  = Operating speed – revolutions per minute (RPM)
- $N_f$  = Speed factor
- $R$  = Applied radial load on bearing pounds or newtons
- $P$  = Equivalent radial load on bearing pounds or newtons
- $T$  = Applied thrust load on bearing pounds or newtons
- $Y$  = Thrust-load factor
- $a_1$  = Life-adjustment factor for reliability<sup>(2)</sup>
- $a_2$  = Life-adjustment factor for bearing material<sup>(3)</sup>
- $a_3$  = Life-adjustment factor for application conditions<sup>(4)</sup>
- $f_B$  = Dynamic load rating adjustment factor for number of adjacently mounted bearings<sup>(5)</sup>
- $i_B$  = Number of adjacently mounted bearings
- $r$  = Percent reliability of survival life
- $\mu$  = Operating viscosity – centistokes
- $\mu_R$  = Reference viscosity – centistokes

<sup>(1)</sup> $C_E$  does **not** represent the maximum permissible radial load, which, in general, is equal to  $C_o$ , the static radial load ratings.

<sup>(2)</sup> $L_{10}$  rating life is based upon 90 percent survival of a group of bearings at the specified load and speed. The  $a_1$  value is 1.0 for  $L_{10}$  life calculations.

<sup>(3)</sup>The  $a_2$  value is 1.0 when using typical Timken® bearing steel. Bearings with thin-dense chrome-plated races may use an  $a_2$  factor of 3.0 for calculating life.

<sup>(4)</sup>The  $a_3$  factor of 1.0 may be acceptable to most users, but the factor can be made up of multiple application factors such as adequate lubrication, alignment, temperature or mounting conditions. ABMA standard suggests and  $a_3$  of 0.456 for insert ball bearings slip fitted to the shaft as a result of possible mounting variation.

<sup>(5)</sup> $f_B = 1.0$  for wide-inner-ring ball bearings.

### **FATIGUE LIFE**

Because of the dispersion in the life of identical bearings operating under identical conditions, a statistical result will be obtained for bearing fatigue life. For most calculations, life is expressed as the number of hours that 90 percent of a group of identical bearings will exceed under a given set of conditions, and is referred to as the  $L_{10}$  life.

The basic equation for radial ball bearings is:

$$L_r = 16667 \times \frac{a_1 \times a_2 \times a_3}{N} \frac{[f_B \times C_E]^3}{P} \text{ (Hours)} \quad \text{Formula } \mathbf{1}$$

In life calculations, the first step is to ascertain the equivalent radial load ( $P$ ) applied to the bearing from the following equations:

$$R_e = R \text{ or } P = 0.56R + YT \} \text{ use greater value of } P, \quad \text{Formula } \mathbf{2 \ 3}$$

Values of  $Y$  are selected from table A-8 for the appropriate  $K_T$ . For more intermediate values of  $K_T$ ,  $Y$  may be estimated by linear interpolation.

**TABLE A-8. REQUIRED Y FACTORS FOR BALL BEARING DYNAMIC EQUIVALENT RADIAL LOADS**

$K_T$	$Y$
0.015	2.30
0.020	2.22
0.025	2.10
0.030	2.00
0.040	1.86
0.050	1.76
0.060	1.68
0.080	1.57
0.100	1.48
0.120	1.42
0.150	1.34
0.200	1.25
0.250	1.18
0.300	1.13
0.400	1.05
0.500	1.00
0.600	–
0.800	–
1.000	–
1.200	–

For single-row bearings and tandem mountings: 
$$K_T = \frac{T}{i_B C_o}$$

For double-row and preloaded pair mountings: 
$$K_T = \frac{T}{C_o}$$

**RADIAL BALL BEARING LIFE**

The  $L_{10}$  (expected minimum life for 90 percent of the bearings of a given size and type in a given population) is calculated by the following formula, which is a condensed version of formula 1.

$$L_{10} = \frac{16700}{N} \left( \frac{C_E}{P} \right)^3 \quad \text{(Hours)} \quad \text{Formula 4}$$

The calculation of bearing life also can be performed by using logarithmic factors for rotational speed ( $N_f$ ) and life ( $L_f$ ) based on the formula.

$$L_{10} = 500 \left( \frac{C_N}{P} \right)^3 \quad \text{(Hours)} \quad \text{Formula 5}$$

In cases where the rating at a specific speed is not listed, determine  $C_N$  by  $C_N = N_f \times C_E$ ; thereby:

$$L_{10} = 500 \left( \frac{N_f C_E}{P} \right)^3 \quad \text{Formula 6}$$

where:

$$N_f = \left( \frac{1}{0.03N} \right)^{3/10} \quad \text{Formula 7}$$

The speed factor ( $N_f$ ) can be read directly from scale 1 (fig. A-7).

Scale 2 provides life factors ( $L_f$ ) for practical life requirements, where:

$$L_f = \frac{C_N}{1.44P} \quad \text{or} \quad L_f = \frac{N_f(C_E)}{1.44P}$$

Frequently it is necessary to determine the minimum bearing capacity that will meet a specific application requirement. For this purpose, formula 4 is rewritten:

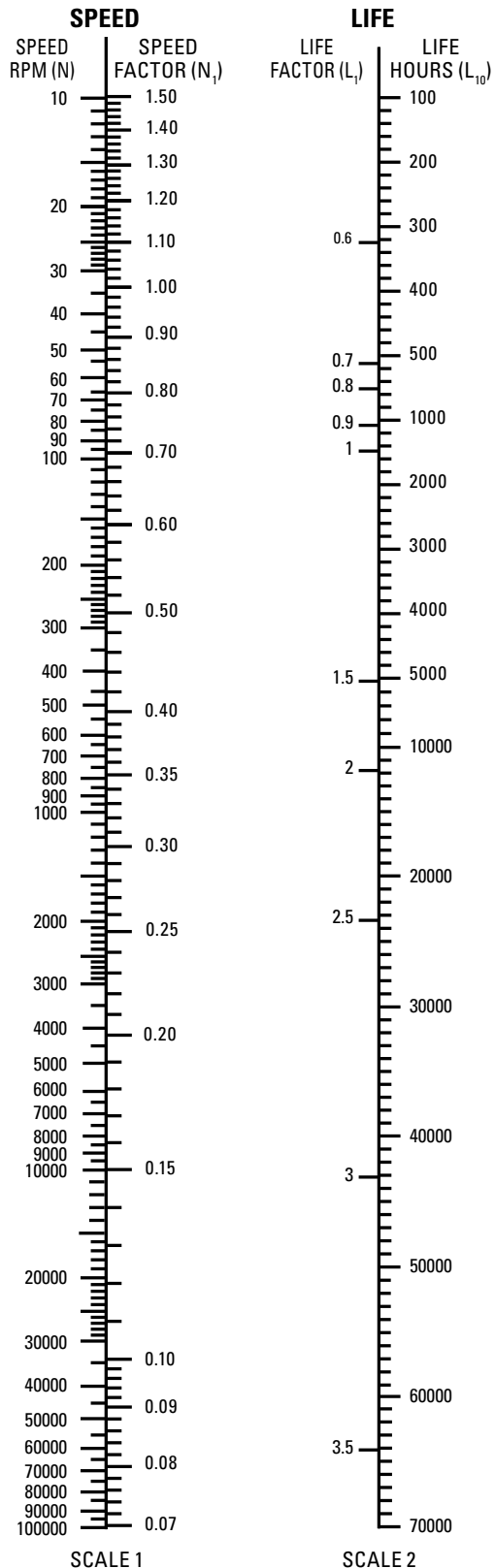
$$C_E = P \left( \frac{N \times L_{10}}{16700} \right)^{1/3} \quad \text{Formula 8}$$

**BEARING LIFE UNDER VARYING LOADS AND SPEEDS**

In many applications, bearings are required to run at a number of different loads and speeds. If the different loads and speeds and the portions of time that are in effect are known, the life can be found from the following relation:

$$L_r = \frac{1}{\frac{p_1}{L_{n_1}} + \frac{p_2}{L_{n_2}} + \frac{p_3}{L_{n_3}} + \dots + \frac{p_n}{L_{n_n}}}$$

Note:  $p_1 + p_2 + p_3 + \dots + p_n = 1.0$



**Fig. A-7. Wide-inner-ring ball bearing's speed and life factors.**

## **FREQUENCY COEFFICIENTS**

Predictive application maintenance requires knowledge of the frequencies that a bearing can emit, which are based on its specific design. The table below (table A-9) provides the most commonly used coefficients for this purpose. The frequencies are expressed as Orders. To obtain bearing defect frequencies in Hz, multiply the bearing coefficient by the rotating speed in revolutions per second.

**Example:**

9104-series bearing retainer frequency shaft running at 1200 RPM:

$$1200 \text{ RPM} \times 1 \text{ min}/60 \text{ seconds} \times 0.398 = 7.96 \text{ Hz.}$$

## **WIDE-INNER-RING BALL BEARINGS**

**FTF** **Fundamental Train Frequency:** The frequency at which the retainer will operate with inner ring rotation.

**BSF** **Ball Spin Frequency:** The frequency at which a single defect on a rolling element will be detected.

**BPFO** **Ball Pass Frequency Outer:** The frequency at which a single defect in the outer race will be detected.

**BPFI** **Ball Pass Frequency Inner:** The frequency at which a single defect in the inner race will be detected.

**OR ROT** **Fundamental Train Frequency:** The frequency at which the retainer will operate with outer-ring rotation. Also know as Outer-Ring ROTation.

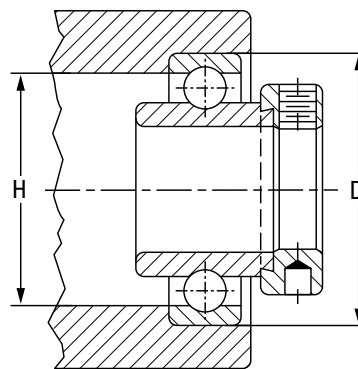
**TABLE A-9. FREQUENCY COEFFICIENTS OF WIDE-INNER-RING BALL BEARINGS**

Basic Outer-Ring Size	FTF	BSF	BPFO	BPFI	OR ROT FTF	Basic Outer-Ring Size	FTF	BSF	BPFO	BPFI	OR ROT FTF
9104	0.398	2.339	3.578	5.422	0.602	303K	0.364	1.696	2.545	4.455	0.636
9105	0.397	2.328	3.574	5.426	0.603	304K	0.368	1.757	2.574	4.426	0.632
9106	0.417	2.933	4.588	6.412	0.583	305K	0.367	2.328	3.574	5.426	0.603
202K	0.391	2.175	3.125	4.875	0.609	306K	0.368	1.757	2.574	4.426	0.632
203K	0.382	1.994	3.053	4.947	0.618	307K	0.376	1.888	3.006	4.994	0.624
204K	0.382	1.992	3.052	4.948	0.618	308K	0.378	1.925	3.023	4.977	0.622
205K	0.397	2.328	3.574	5.426	0.603	309K	0.380	1.955	3.037	4.963	0.620
206K	0.396	2.311	3.568	5.432	0.604	310K	0.381	1.981	3.047	4.953	0.619
207K	0.396	2.303	3.565	5.435	0.604	311K	0.382	2.002	3.057	4.943	0.618
208K	0.394	2.256	3.547	5.453	0.606	312K	0.383	2.020	3.064	4.936	0.617
209K	0.402	2.461	3.621	5.379	0.598	314K	0.385	2.050	3.076	4.924	0.615
210K	0.409	2.665	4.093	5.907	0.591	315K	0.385	2.062	3.081	4.919	0.615
211K	0.408	2.620	4.078	5.922	0.592	316K	0.386	2.073	3.086	4.914	0.614
212K	0.407	2.584	4.066	5.934	0.593	318K	0.387	2.091	3.093	4.907	0.613
213K	0.410	2.685	4.099	5.901	0.590	318W	0.381	1.982	4.572	7.428	0.619
214K	0.410	2.702	4.104	5.896	0.590	319W	0.382	1.993	4.198	6.802	0.618
215K	0.415	2.850	4.148	5.852	0.585	320K	0.384	2.041	3.073	4.927	0.616
216K	0.417	2.923	4.585	6.415	0.583	320W	0.379	1.946	4.549	7.451	0.621
217K	0.412	2.759	4.122	5.878	0.588	321W	0.380	1.958	4.557	7.443	0.620
219W	0.410	2.692	6.562	9.438	0.590	322W	0.382	2.002	4.203	6.797	0.618
220W	0.409	2.665	6.549	9.451	0.591	326W	0.384	2.036	4.222	6.778	0.616

### MOUNTING

#### STANDARD SERIES MOUNTING DATA

When shafts are selected for use with wide-inner-ring ball bearings, a minimum slip fit is desirable for the most satisfactory mounting. Special shaft limits are required in certain cases and a variety of standard fits can be used, including a press fit. The recommended figures are noted in table A-10. In some applications, it may be permissible to use increased shaft tolerances. In such cases, applications should be forwarded to your Timken engineer for complete recommendations.



#### Bearing bore tolerances:

- ½ in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.;
- 2 ¼ in. – 3 3/16 in., nominal to +0.015 mm, +0.0006 in.;

#### Recommended shaft tolerances:

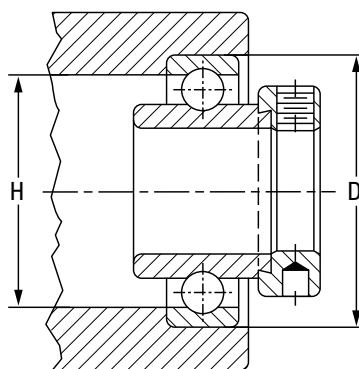
- ½ in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

**TABLE A-10. HOUSING, SHOULDER AND SHAFT DIAMETERS**

Bearing No.					Shaft Dia.	Basic Outer-Ring Size	Stationary Housing <sup>(1)</sup>			Shoulder Dia.	
KRR Type	G-KRR Type	RA-RR Type	GRA-RR Type	GYA-RR Type			Housing Bore D		Mean Fit	H	
							Max.	Min.		Loose	Max.
					in.		mm	mm	mm	mm	
					mm		in.	in.	in.	in.	
1008KRR	–	RA008RR	GRA08RR	GYA008RR	½	203	40.015 1.5754	40.000 1.5748	0.013 0.0005	34.8 1.37	34.0 1.34
–	–	RA009RR	GRA009RR	GYA009RR	9/16						
101KRR(KR)	G1010KRR	RA010RR	GRA010RR	GYA010RR	5/8						
1011KRR	G1011KRR	–	–	–	1 1/16						
E17KRR	GE17KRR	RAE17RR	GRAE17RR	GYAE17RR	17	204	47.015 1.8510	47.000 1.8504	0.013 0.0005	40.9 1.61	40.6 1.60
1012KRR(KR)	G1012KRR	RA012RR	GRA012RR	GYA012RR	¾						
E20KRR	GE20KRR	RAE20RR	GRAE20RR	GYAE20RR	20						
1013KRR	–	RA013RR	GRA013RR	GYA013RR	1 3/16						
1014KRR	G1014KRR	RA014RR	GRA014RR	GYA014RR	7/8	205	52.017 2.0479	51.999 2.0472	0.015 0.0006	46.0 1.81	45.7 1.80
1015KRR(KR)	G1015KRR	RA015RR	GRA015RR	GYA015RR	1 5/16						
1100KRR(KR)	G1100KRR	RA100RR	GRA100RR	GYA100RR	1						
E25KRR	GE25KRR	RAE25RR	GRAE25RR	GYAE25RR	25						
–	G1101KRR	RA101RR	GRA101RR	GYA101RR	1 1/16	206	62.017 2.4416	61.999 2.4409	0.015 0.0006	56.1 2.21	54.9 2.16
1102KRR(KR)	G1102KRR	RA102RR	GRA102RR	GYA102RR	1 1/8						
1103KRR(KR)	G1103KRR	RA103RR	GRA103RR	GYA103RR	1 3/16						
–	–	–	–	GYA103RR2	1 ¼						
E30KRR	GE30KRR	RAE30RR	GRAE30RR	GYAE30RR	30	207	72.017 2.8353	71.999 2.8346	0.015 0.0006	65.0 62.7	54.9 2.47
1104KRR(KR)	G1104KRR	RA104RR	GRA104RR	GYA104RR	1 1/4						
1105KRR	–	RA105RR	GRA105RR	GYA105RR	1 5/16						
1106KRR	G1106KRR	RA106RR	GRA106RR	GYA106RR	1 3/8						
1107KRR(KR)	G1107KRR	RA107RR	GRA107RR	GYA107RR	1 7/16						
E35KRR	GE35KRR	RAE35RR	GRAE35RR	GYAE35RR	35						

<sup>(1)</sup>When the housing revolves in relation to the shaft, the housing bore dimensions shown on page 131 of the Timken Engineering Manual (order no. 10424) should be used. Outer ring tolerances and housing fillet radii correspond to equivalent 200-series single-row radial bearings.

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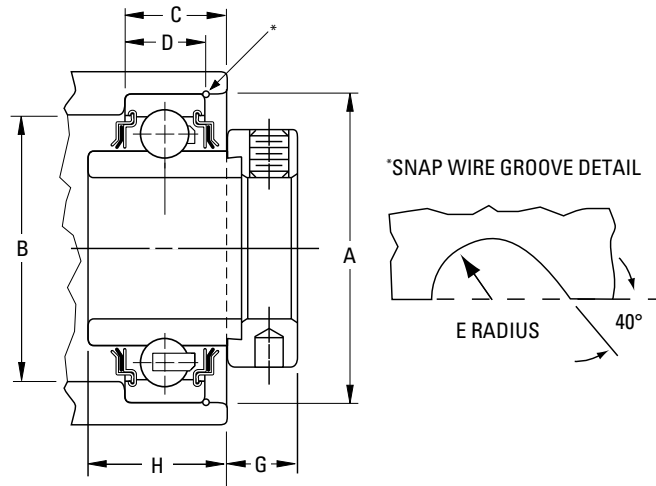
Bearing No.					Shaft Dia.	Basic Outer-Ring Size	Stationary Housing <sup>(1)</sup>			Shoulder Dia.	
KRR Type	G-KRR Type	RA-RR Type	GRA-RR Type	GYA-RR Type			Housing Bore D		Mean Fit	H	
							Max.	Min.		Loose	Max.
					in. mm	mm in.	mm in.	mm in.	mm in.		
1108KRR(KR)	G1108KRR	RA108RR	GRA108RR	GYA108RR	1 1/2	208	80.018 3.1503	80.000 3.1496	0.015 0.0006	72.9 2.87	70.6 2.78
–	–	RA109RR	GRA109RR	GYA109RR	1 9/16						
–	–	–	GRAE40RR	GYAE40RR	40						
1110KRR	G1110KRR	RA110RR	GRA110RR	GYA110RR	1 5/8	209	85.024 3.3474	85.001 3.3465	0.020 0.0008	78.0 3.07	75.4 2.97
1111KRR(KR)	G1111KRR	RA111RR	GRA111RR	GYA111RR	1 11/16						
1112KRR(KR)	G1112KRR	RA112RR	GRA112RR	GYA112RR	1 3/4						
E45KRR	–	–	GRAE45RR	GYAE45RR	45	210	90.023 3.5442	90.000 3.5433	0.020 0.0008	83.1 3.27	81.0 3.19
–	–	RA113RR	GRA113RR	GYA113RR	1 13/16						
1114KRR	–	RA114RR	GRA114RR	GYA114RR	1 7/8						
1115KRR(KR)	G1115KRR	RA115RR	GRA115RR	GYA115RR	1 15/16	211	100.023 3.9379	100.000 3.9370	0.020 0.0008	90.9 3.58	90.4 3.56
–	–	–	GRA115RR2	–	2						
E50KRR	GE50KRR	RAE50RR	GRAE50RR	GYAE50RR	50						
1200KRR(KR)	G1200KRR	RA200RR	GRA200RR	GYA200RR	2	212	110.023 4.3316	110.000 4.3307	0.020 0.0008	101.1 3.98	98.3 3.87
–	–	RA201RR	GRA201RR	GYA201RR	2 1/16						
1202KRR	–	RA202RR	GRA202RR	GYA202RR	2 1/8						
1203KRR(KR)	G1203KRR	RA203RR	GRA203RR	GYA203RR	2 3/16	215	130.025 5.1191	130.000 5.1181	0.023 0.0009	120.9 4.76	116.6 4.59
E55KRR	GE55KRR	RAE55RR	GRAE55RR	GYAE55RR	55						
1204KRR	–	–	–	–	2 1/4						
1207KRR(KR)	G1207KRR	–	–	–	2 7/16	215	130.025 5.1191	130.000 5.1181	0.023 0.0009	120.9 4.76	116.6 4.59
E60KRR	GE60KRR	–	–	–	60						
1215KRR	–	–	–	–	2 15/16						
E75KRR	–	–	–	–	75						

<sup>(1)</sup>When the housing revolves in relation to the shaft, the housing bore dimensions shown on page 131 of the Timken Engineering Manual (order no. 10424) should be used. Outer ring tolerances and housing fillet radii correspond to equivalent 200-series single-row radial bearings.

### SNAP WIRE MOUNTING

#### KR-KRR SERIES

When shafts are selected for use with wide-inner-ring ball bearings, a minimum slip fit is desirable for the most satisfactory mounting. Special shaft limits are required in certain cases and a variety of standard fits can be used, including a press fit. The recommended figures are noted in table A-11. For requirements, contact your Timken engineer.



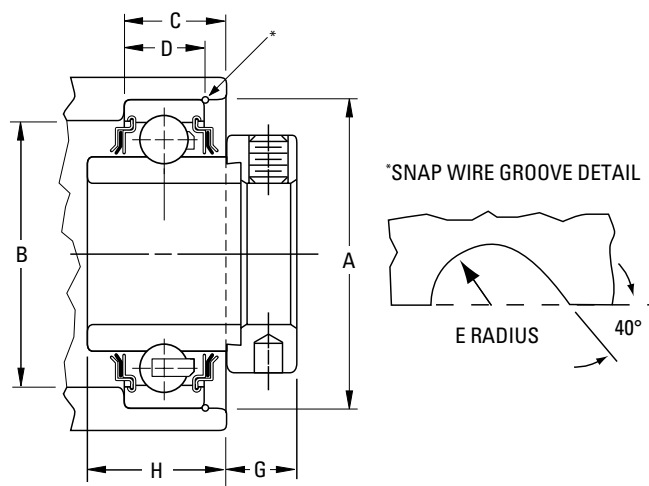
**TABLE A-11. R-SEAL STANDARD KR, KRR SERIES**

Bearing No.	Shaft Dia.	Basic Outer-Ring Size	Housing Bore		Shoulder Dia.		C	D	Radius		
			Stationary Housing A <sup>(1)</sup>		B				E	G	H
			Max.	Min.	Max.	Min.					
	in. mm		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
1008KRR	1/2	203	40.015 1.5754	40.000 1.5748	36.6 1.44	35.8 1.41	17.5 11/16	9.1 23/64	1.2 3/64	11.9 15/32	25.4 1
—	9/16										
1010KRR(KR)	5/8										
1011KRR	11/16										
E17KRR	17	204	47.015 1.8510	47.000 1.8504	43.7 1.72	41.1 1.62	19.0 3/4	15.1 19/32	1.2 3/64	14.7 37/64	29.0 1 9/64
1012KRR(KR)	3/4										
E20KRR	20										
1013KRR(KR)	13/16										
1014KRR	7/8	205	52.017 2.0479	51.999 2.0472	48.5 1.91	46.7 1.84	20.6 13/16	15.9 5/8	1.2 3/64	13.9 35/64	30.6 1 13/64
1015KRR(KR)	15/16										
1100KRR(KR)	1										
E25KR	25										
—	1 1/16	206	62.017 2.4416	61.999 2.4409	57.9 2.28	56.4 2.22	21.4 27/32	17.1 43/64	1.2 3/64	16.7 21/32	31.8 1 1/4
1102KRR(KR)	1 1/8										
1103KRR(KR)	1 3/16										
1103KRR3	1 1/4										
E30KRR	30	207	72.017 2.8353	71.999 2.8346	67.6 2.66	64.3 2.53	23.0 29/32	18.3 23/32	1.6 1/16	17.9 45/64	33.3 1 15/16
1104KRR(KR)	1 1/4										
1105KRR	1 5/16										
1106KRR	1 3/8										
1107KRR(KR)	1 7/16										
E35KRR	35										

<sup>(1)</sup>When the housing revolves in relation to the shaft, the housing bore dimensions shown on page 131 of the Timken Engineering Manual (order no. 10424) should be used. Outer ring tolerances and housing fillet radii correspond to equivalent 200-series single-row radial bearings.

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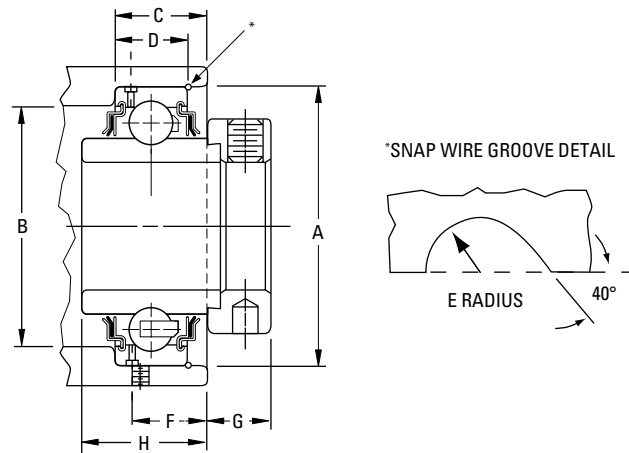
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Bearing No.	Shaft Dia.	Basic Outer-Ring Size	Housing Bore		Shoulder Dia.		C	D	Radius	G	H
			Stationary Housing A <sup>(1)</sup>		Max.	Min.			E		
			Max.	Min.							
	in. mm		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
1108KRR(KR)	1 1/2	208	<b>80.078</b>	<b>80.000</b>	<b>75.4</b>	<b>71.4</b>	<b>24.6</b>	<b>19.4</b>	<b>1.6</b>	<b>19.4</b>	<b>36.9</b>
1109KRR	1 9/16		3.1503	3.1496	2.97	2.81	31/32	49/64	1/16	49/64	1 29/64
E40KRR	<b>40</b>										
1110KRR	1 5/8	209	<b>85.024</b>	<b>85.001</b>	<b>80.3</b>	<b>77.0</b>	<b>25.4</b>	<b>20.2</b>	<b>1.6</b>	<b>19.0</b>	<b>37.3</b>
1111KRR(KR)	1 11/16		3.3474	3.3465	3.16	3.03	1	51/64	1/16	3/4	1 15/32
1112KRR(KR)	1 3/4										
E45KRR	<b>45</b>										
1114KRR	1 7/8	210	<b>90.023</b>	<b>90.000</b>	<b>83.1</b>	<b>82.3</b>	<b>26.2</b>	<b>21.4</b>	<b>1.6</b>	<b>21.8</b>	<b>40.9</b>
1115KRR(KR)	1 15/16		3.5442	3.5433	3.27	3.24	1 1/32	37/32	1/6	55/64	1 39/64
E50KRR	<b>50</b>										
1200KRR(KR)	2	211	<b>100.023</b>	<b>100.000</b>	<b>93.7</b>	<b>90.4</b>	<b>26.2</b>	<b>22.2</b>	<b>1.6</b>	<b>26.2</b>	<b>45.2</b>
1202KRR	2 1/8		3.9379	3.9370	3.69	3.56	1 1/32	7/8	1/16	1 1/32	1 25/32
1203KRR(KR)	2 3/16										
E55KRR	<b>55</b>										
1204KRR	2 1/4	212	<b>110.023</b>	<b>110.000</b>	<b>101.1</b>	<b>99.6</b>	<b>28.6</b>	<b>23.0</b>	<b>1.6</b>	<b>29.4</b>	<b>48.4</b>
1207KRR(KR)	2 7/16		4.3316	4.3307	3.98	3.92	1 1/8	29/32	1/16	1 5/32	1 29/32
E60KRR	<b>60</b>										

<sup>(1)</sup>When the housing revolves in relation to the shaft, the housing bore dimensions shown on page 131 of the Timken Engineering Manual (order no. 10424) should be used. Outer ring tolerances and housing fillet radii correspond to equivalent 200-series single-row radial bearings.

### G-KRR SERIES

When shafts are selected for use with wide-inner-ring ball bearings, a minimum slip fit is desirable for the most satisfactory mounting. Special shaft limits are required in certain cases and a variety of standard fits can be used, including a press fit. The recommended values are in table A-12. For special requirements, contact your Timken engineer.



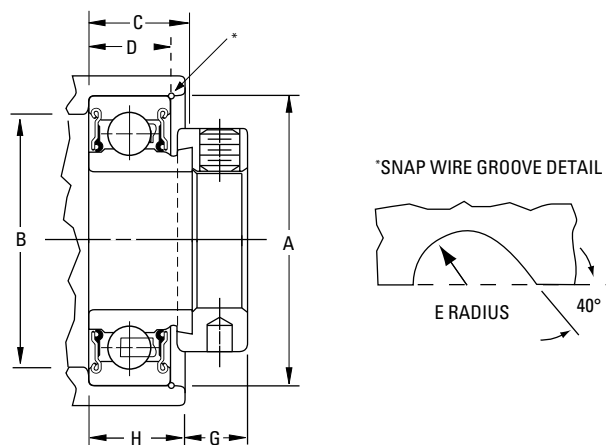
**TABLE A-12. R-SEAL STANDARD G-KRR SERIES**

Bearing No.	Shaft Dia.	Basic Outer-Ring Size	Housing Bore		Shoulder Dia.		C	D	Radius E	F	G	H										
			Stationary Housing A <sup>(1)</sup>		B																	
			Max.	Min.	Max.	Min.																
	<b>in.</b> <b>mm</b>		<b>mm</b> <b>in.</b>	<b>mm</b> <b>in.</b>	<b>mm</b> <b>in.</b>	<b>mm</b> <b>in.</b>	<b>mm</b> <b>in.</b>	<b>mm</b> <b>in.</b>	<b>mm</b> <b>in.</b>	<b>mm</b> <b>in.</b>	<b>mm</b> <b>in.</b>	<b>mm</b> <b>in.</b>										
G1010KRR	9/8	203	<b>40.015</b>	<b>40.000</b>	<b>36.6</b>	<b>35.8</b>	<b>17.5</b>	<b>13.1</b>	<b>1.2</b>	<b>14.7</b>	<b>11.9</b>	<b>25.4</b>										
G1011KRR	11/16		1.5754	1.5748	1.44	1.41	11/16	33/64	3/64	37/64	15/32	1										
GE17KRR	<b>17</b>																					
G1012KRR	3/4	204	<b>47.015</b>	<b>47.000</b>	<b>43.7</b>	<b>41.1</b>	<b>19.0</b>	<b>15.1</b>	<b>1.2</b>	<b>15.9</b>	<b>14.7</b>	<b>29.0</b>										
GE20KRR	<b>20</b>		1.8510	1.8504	1.72	1.62	3/4	19/32	3/64	5/8	37/64	1 9/64										
G1014KRR	7/8	205	<b>52.017</b>	<b>51.999</b>	<b>48.5</b>	<b>46.7</b>	<b>20.6</b>	<b>15.9</b>	<b>1.2</b>	<b>16.7</b>	<b>13.9</b>	<b>30.6</b>										
G1015KRR	15/16												2.0479	2.0472	1.91	1.84	13/16	5/8	3/64	21/32	35/64	1 13/64
G1100KRR	<b>1</b>																					
GE25KRR	<b>25</b>																					
G1101KRR	1 1/16	206	<b>62.017</b>	<b>61.999</b>	<b>57.9</b>	<b>56.4</b>	<b>23.8</b>	<b>19.0</b>	<b>1.2</b>	<b>19.8</b>	<b>15.5</b>	<b>32.9</b>										
G1102KRR	1 1/8												2.4416	2.4409	2.28	2.22	15/16	3/4	3/64	25/32	39/64	1 19/64
G1103KRR	1 3/16																					
GE30KRR	<b>30</b>																					
G1104KRR	1 1/4	207	<b>72.017</b>	<b>71.999</b>	<b>67.6</b>	<b>64.3</b>	<b>25.4</b>	<b>20.2</b>	<b>1.6</b>	<b>21.4</b>	<b>16.7</b>	<b>34.5</b>										
G1106KRR	1 3/8												2.8353	2.8346	2.66	2.53	1	51/64	1/16	27/32	21/32	1 23/64
G1107KRR	1 7/16																					
GE35KRR	<b>35</b>																					
G1108KRR	1 1/2	208	<b>80.018</b>	<b>80.000</b>	<b>75.4</b>	<b>71.4</b>	<b>27.8</b>	<b>22.2</b>	<b>1.6</b>	<b>23.8</b>	<b>17.5</b>	<b>38.9</b>										
G1109KRR	1 9/16												3.1503	3.1496	2.97	2.81	1 3/32	7/8	1/16	15/16	11/16	1 17/32
GE40KRR	<b>40</b>																					
G1110KRR	1 5/8																					
G1111KRR	1 11/16	209	<b>85.024</b>	<b>85.001</b>	<b>80.3</b>	<b>77.0</b>	<b>28.6</b>	<b>23.4</b>	<b>1.6</b>	<b>24.2</b>	<b>17.5</b>	<b>38.9</b>										
G1112KRR	1 3/4												3.3474	3.3465	3.16	3.03	1 1/8	59/64	1/16	31/32	11/16	1 17/32
GE45KRR	<b>45</b>																					
G1115KRR	1 15/16	210	<b>90.023</b>	<b>90.000</b>	<b>83.1</b>	<b>82.3</b>	<b>29.4</b>	<b>24.2</b>	<b>1.6</b>	<b>24.6</b>	<b>20.2</b>	<b>42.5</b>										
GE50KRR	<b>50</b>												3.5442	3.5433	3.27	3.24	1 5/32	61/64	1/16	31/32	51/64	1 43/64
G1200KRR	<b>2</b>	211	<b>100.023</b>	<b>100.000</b>	<b>93.7</b>	<b>90.4</b>	<b>31.8</b>	<b>26.2</b>	<b>1.6</b>	<b>26.6</b>	<b>24.2</b>	<b>47.2</b>										
G1203KRR	2 3/16												3.9379	3.9370	3.69	3.56	1 1/4	1 1/32	1/16	1 3/64	61/64	1 55/64
GE55KRR	<b>55</b>																					

<sup>(1)</sup>When the housing revolves in relation to the shaft, the housing bore dimensions shown on page 131 of the Timken Engineering Manual (order no. 10424) should be used. Outer ring tolerances and housing fillet radii correspond to equivalent 200-series single-row radial bearings.

**RA-RR SERIES**

When shafts are selected for use with wide-inner-ring ball bearings, a minimum slip fit is desirable for the most satisfactory mounting. Special shaft limits are required in certain cases and a variety of standard fits can be used, including even a press fit. The recommended values are in table A-13. For special requirements, contact your Timken engineer.



**TABLE A-13. RA-RR SERIES, NON-RELUBRICATABLE**

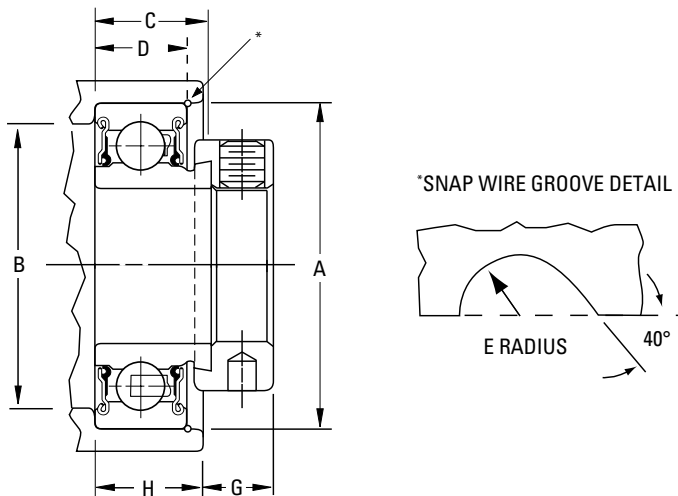
Bearing No.	Shaft Dia.	Basic Outer-Ring Size	Housing Bore		Mean Fit Loose	Shoulder Dia.		C	D	H	Radius	
			Stationary Housing A <sup>(1)</sup>			B	Min.				E	G
			Max.	Min.								
	in. mm		mm in.	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
RA008RR	1/2	203	40.015 1.5754	40.000 1.5748	0.013 0.0005	1.34 35.1	1.31 34.3	19.0 3/4	14.3 9/16	16.67 21/32	1.2 3/64	9.5 3/8
RA009RR	9/16											
RA010RR	5/8											
RAE17RR	17	204	47.015 1.8510	47.000 1.8504	0.013 0.0005	1.61 40.9	1.58 40.6	20.6 13/16	15.9 5/8	17.07 43/64	1.2 3/64	10.3 13/32
RA012RR	3/4											
RAE20RR	20											
RA013RR	13/16	205	52.017 2.0479	51.999 2.0472	0.015 0.0006	1.81 46.0	1.78 45.7	20.6 13/16	15.9 5/8	17.07 43/64	1.2 3/64	10.3 13/32
RA014RR	7/8											
RA015RR	15/16											
RA100RR	1	206	62.017 2.4416	61.999 2.4409	0.015 0.0006	2.21 56.1	2.16 54.9	23.8 15/16	19.0 3/4	20.24 51/64	1.2 3/64	11.9 15/32
RAE25RR	25											
RA101RR	1 1/16											
RA102RR	1 1/8	207	72.017 2.8353	71.999 2.8346	0.015 0.0006	2.56 65.0	2.47 62.7	25.4 1	20.6 13/16	22.22 7/8	1.6 1/16	13.5 17/32
RA103RR	1 3/16											
RA103RR2	1 1/4											
RAE30RR	30	208	80.018 3.1503	80.000 3.1496	0.015 0.0006	2.87 72.9	2.78 70.6	28.6 1 1/8	23.0 29/32	26.19 1 1/32	1.6 1/16	15.1 19/32
RA104RR	1 1/4											
RA105RR	1 5/16											
RA106RR	1 3/8	209	85.024 3.3474	85.001 3.3465	0.020 0.0008	3.07 78.0	2.97 75.4	28.6 1 1/8	23.0 29/32	26.19 1 1/32	1.6 1/16	15.1 19/32
RA107RR	1 7/16											
RAE35RR	35											
RA108RR	1 1/2	209	85.024 3.3474	85.001 3.3465	0.020 0.0008	3.07 78.0	2.97 75.4	28.6 1 1/8	23.0 29/32	26.19 1 1/32	1.6 1/16	15.1 19/32
RA109RR	1 9/16											
RAE40RR	40											
RA110RR	1 5/8	209	85.024 3.3474	85.001 3.3465	0.020 0.0008	3.07 78.0	2.97 75.4	28.6 1 1/8	23.0 29/32	26.19 1 1/32	1.6 1/16	15.1 19/32
RA111RR	1 11/16											
RA112RR	1 3/4											
RAE45RR	45											

<sup>(1)</sup>When the housing revolves in relation to the shaft, the housing bore dimensions shown on page 131 of the Timken Engineering Manual (order no. 10424) should be used. Outer ring tolerances and housing fillet radii correspond to equivalent 200-series single-row radial bearings.

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# BALL BEARING HOUSED UNITS

## ENGINEERING • MOUNTING



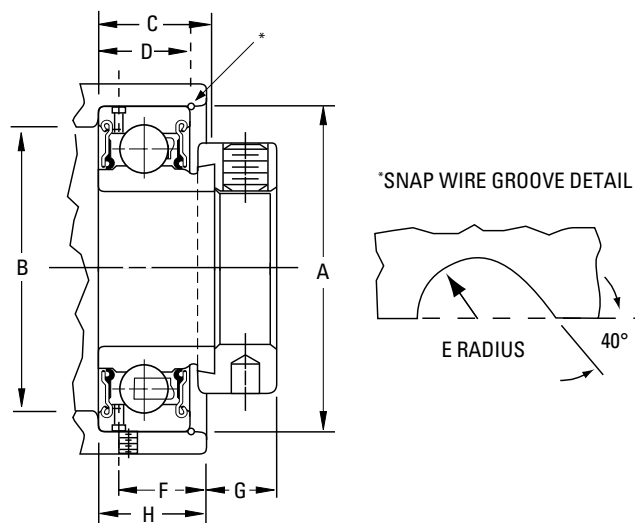
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Bearing No.	Shaft Dia. in. mm	Basic Outer-Ring Size	Housing Bore		Mean Fit Loose	Shoulder Dia.		C	D	H	Radius	
			Stationary Housing A <sup>(1)</sup>			B	Min.				E	G
			Max.	Min.								
RA113RR	1 13/16	210	90.023	90.000	0.020	3.27	3.17	28.6	23.0	26.19	1.6	15.1
RA114RR	1 7/8		3.5442	3.5433	0.0008	83.1	80.5	1 1/8	29/32	1 1/32	1/16	19/32
RA115RR	1 15/16											
RAE50RR	50											
RA200RR	2	211	100.023	100.000	0.020	3.68	3.56	31.0	25.4	28.18	1.6	17.5
RA201RR	2 1/16		3.9379	3.9370	0.0008	93.5	90.4	1 7/32	1	1 7/64	1/16	11/16
RA202RR	2 1/8											
RA203RR	2 3/16											
RAE55RR	55											

<sup>(1)</sup>When the housing revolves in relation to the shaft, the housing bore dimensions shown on page 131 of the Timken Engineering Manual (order no. 10424) should be used. Outer ring tolerances and housing fillet radii correspond to equivalent 200-series single-row radial bearings.

**GRA-RR SERIES**

When shafts are selected for use with wide-inner-ring ball bearings, a minimum slip fit is desirable for the most satisfactory mounting. Special shaft limits are required in certain cases and a variety of standard fits can be used, including even a press fit. The recommended values are in table A-14. For special requirements, contact your Timken engineer.



**TABLE A-14. GRA-RR SERIES, RELUBRICATABLE**

Bearing No.	Shaft Dia.	Basic Outer-Ring Size	Housing Bore		Shoulder Dia.		C	D	H	Radius		
			Stationary Housing		B					E	F	G
			A <sup>(1)</sup>		Max.	Min.						
Max.	Min.	Max.	Min.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		
GRA008RR	1/2	203	<b>40.015</b>	<b>40.000</b>	<b>35.1</b>	<b>34.3</b>	<b>19.0</b>	<b>14.3</b>	<b>16.67</b>	<b>1.2</b>	<b>22.32</b>	<b>9.5</b>
GRAE17RR	<b>17</b>		1.5754	1.5748	1.38	1.35	3/4	9/16	21/32	3/64	0.879	3/8
GRA012RR	3/4	204	<b>47.015</b>	<b>47.000</b>	<b>40.9</b>	<b>40.6</b>	<b>20.6</b>	<b>15.9</b>	<b>17.07</b>	<b>1.2</b>	<b>25.6</b>	<b>10.3</b>
GRAE20RR	<b>20</b>		1.8510	1.8504	1.61	1.60	13/16	5/8	43/64	3/64	1.008	13/32
GRA014RR	7/8	205	<b>52.017</b>	<b>51.999</b>	<b>46.0</b>	<b>45.7</b>	<b>20.6</b>	<b>15.9</b>	<b>17.07</b>	<b>1.2</b>	<b>30.61</b>	<b>10.3</b>
GRAE25RR	<b>25</b>		2.0479	2.0472	1.81	1.80	13/16	5/8	43/64	3/64	1.205	13/32
GRA101RR	1 1/16	206	<b>62.017</b>	<b>61.999</b>	<b>56.1</b>	<b>54.9</b>	<b>23.8</b>	<b>19.0</b>	<b>20.24</b>	<b>1.2</b>	<b>37.29</b>	<b>11.9</b>
GRAE30RR	<b>30</b>		2.4416	2.4409	2.21	2.16	15/16	3/4	51/64	3/64	1.468	15/32
GRA104RR	1 1/4	207	<b>72.017</b>	<b>71.999</b>	<b>65.0</b>	<b>62.7</b>	<b>25.4</b>	<b>20.6</b>	<b>22.22</b>	<b>1.6</b>	<b>43.08</b>	<b>13.5</b>
GRAE35RR	<b>35</b>		2.8353	2.8346	2.56	2.47	1	13/16	7/8	1/16	1.696	17/32

<sup>(1)</sup>When the housing revolves in relation to the shaft, the housing bore dimensions shown on page 131 of the Timken Engineering Manual (order no. 10424) should be used. Outer ring tolerances and housing fillet radii correspond to equivalent 200-series single-row radial bearings.

### INSTALLATION

Ball bearing housed units are available in a wide variety of types and sizes to accommodate a complete range of operating conditions.

These units generally have cast-iron housings and are designed for mounting on straight shafts with a slip fit. The self-locking collar and the set screw inner bearing design provides ease in mounting.

1. Ensure that the shaft is clean, free from burrs, straight and of proper diameter. The bearing should not be mounted on a worn section of the shaft. Using shafts with hardness greater than HRC 45 will reduce effectiveness of locking devices. See table A-15 on page A-23 for recommended shaft tolerances.
2. Align the bearing in its housing and slide the unit into position on the shaft.
3. Bolt housing tightly to its mounting supports using an appropriately sized fastener (table A-17 on page A-23). Flat washers should be used when installing any kind of housed unit. Washers should be properly sized to bolt diameter and should not be an SAE grade, which is smaller.

### BALL HOUSED UNITS MAY BE LOCKED INTO POSITION ON SHAFTS USING EITHER OF THE FOLLOWING METHODS

4. **Eccentric locking-collar bearings:** Slide collar over cammed end of inner ring. Rotate collar to engage cams and lock by lightly tapping with drift pin in the direction of shaft rotation. Tighten set screw to recommended torque levels as shown in table A-16 on page A-23.

In cases where the units are mounted vertically or where they are to assume considerable thrust loading, the unit should be placed so that the collar is forced against the inner ring by the thrust rather than away from it. In these cases, it may be advisable to spot the shaft under the set screw.

To disassemble, loosen set screw and lightly tap collar in direction opposite shaft rotation.

5. **Set screw locking bearings:** Lock bearing to the shaft by tightening each inner ring set screw incrementally to recommended torque levels as shown in table A-16 on page A-23. For concentric collar units, tighten each collar set screw to recommended torque levels in tables. To disassemble, loosen set screw.

### INSTALLATION PROCEDURE FOR HIGH-SPEED OR HIGH-TEMPERATURE SAL/SAOL BEARINGS

- 6a. Remove housing cover gasket, bearing, spacer ring, endplates and packings. Use care when handling gasket and packings. Slide housing and one endplate along shaft. Ensure that the overflow cup, located at the base of the pillow block, is placed on the downward side of shaft rotation. Slide bearing onto shaft and into housing, with cam side outward (facing open end of housing).

**Fixed mounting:** Position bearing against housing shoulder and place spacer ring between bearing aligning ring face and housing cover shoulder face.

**Float mounting:** Position bearing in center of its floating space between housing and housing cover shoulder faces. Do not use spacer ring.

In general, it is preferable for the fixed bearing to be closest to the drive position.

- b. Follow step 4 or 5 on this page to secure bearing to shaft.
- c. Replace gasket and housing cover.
- d. Install packings and endplates. Tighten screws holding endplates to force packings into contact with shaft. This creates an effective seal.
- e. To disassemble, reverse the above operations to remove bearing from the shaft.

#### NOTE

*Do not overtighten packings. If considerable heat develops during operation, loosen packings by loosening the screws holding endplate.*



#### WARNING

***Failure to observe the following warnings could create a risk of death or serious injury.***

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

## TECHNICAL DATA

This section provides useful installation details related to shaft tolerance and torque for set screws and bolts.

**TABLE A-15. SUGGESTED SHAFT TOLERANCE<sup>(1)</sup>**

Shaft Size		Tolerance
in.	mm	
1/2 - 1 15/16	<b>12.7 - 49.2</b>	nominal to -0.0005 in., -0.013 mm
2 - 3 15/16	<b>50.8 - 100.0</b>	nominal to -0.0010 in., -0.025 mm
above 4	<b>101.6</b>	nominal to -0.0015 in., -0.038 mm

<sup>(1)</sup>These are for normal service; for heavy loads, high speeds or vertical shaft applications, reduce the suggested shaft tolerance by half.

**TABLE A-16. SUGGESTED SET SCREW TIGHTENING TORQUE**

Set Screw Size	Standard Steel	Stainless Steel (TDCF inserts)
in.	in. - lbs.	in. - lbs.
#10	35	23
1/4	80	60
5/16	155	122
3/8	275	213
7/16	425	340
mm	Nm	Nm
<b>M5</b>	<b>4.0</b>	<b>3.1</b>
<b>M6</b>	<b>6.6</b>	<b>4.9</b>
<b>M8</b>	<b>15.3</b>	<b>11.5</b>
<b>M10</b>	<b>30.0</b>	<b>22</b>
<b>M12</b>	<b>49.0</b>	<b>37</b>

**TABLE A-17. SUGGESTED BOLT MOUNTING TORQUE**

Bolt Size	Torque
in.	ft. - lbs.
3/8	27
1/2	65
5/8	130
3/4	230
7/8	573
1	858
1 1/8	1059
mm	Nm
<b>M10</b>	<b>44</b>
<b>M12</b>	<b>77</b>
<b>M16</b>	<b>192</b>
<b>M20</b>	<b>372</b>

# SELECTION GUIDE FOR APPLICATIONS

## BALL-BEARING HOUSED UNITS

This is a general guide. For operating conditions outside the ranges identified in table A-18, consult your Timken engineer.

**TABLE A-18. APPLICATION FACTOR**

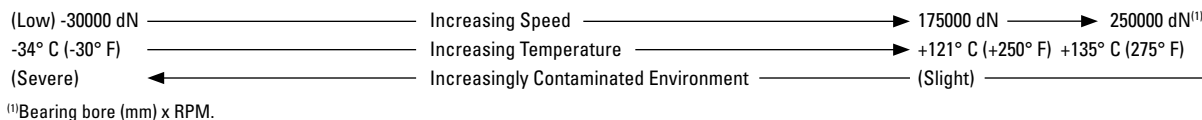


Table A-19 is an application selection guide for ball-bearing housed units.

**TABLE A-19. BALL-BEARING HOUSED-UNIT SELECTION GUIDE FOR APPLICATIONS**

Load	Bearing Types																		
	Wide Inner Ring Ball Bearing with Tri-ply Seals Self-Locking Collar		Wide-Inner-Ring Ball Bearing With Contact Seals Self-Locking Collar				Extended Inner Ring Bearing with Contact Seals Self-Locking Collar				Wide-Inner-Ring Ball Bearing with Contact Seals Set Screw Lock			Narrow Width Bearing with Contact Seals Set Screw Lock			Wide-Inner-Ring Ball Bearing with Labyrinth or Special Seals Self-Locking Collar		
	Housing Type		Housing Type				Housing Type				Housing Type			Housing Type			Housing Type		
	Pillow Block	Flange Unit	Pillow Block	Flange Unit	Take-Up Unit	Cartridge	Pillow Block	Flange Unit	Take-Up Unit	Cartridge	Pillow Block	Flange Unit	Take-Up Unit	Pillow Block	Flange Unit	Take-Up Unit	Pillow Block	Flange Unit	Take-Up Unit
Light Duty							PB <sup>(1)</sup>	LFST <sup>(1)</sup>	MSTU <sup>(1)</sup>	RCSM <sup>(1)</sup>									
							PBS <sup>(1)</sup>	VFMST <sup>(1)</sup>		RCR <sup>(1)</sup>									
							RBG(U)	RBGF		LCR <sup>(1)</sup>									
							RPB <sup>(1)</sup>	RA, RAT <sup>(1)</sup>		RABR <sup>(1)</sup>									
			RR, RRT <sup>(1)</sup>					RATR <sup>(1)</sup>											
			GRR					GRA											
Normal Duty	TAK	TCJ	RAK	RCJ		RC	VAK	VCJ	VTU		YAS	YCJ	YTU	SAS	SCJ	STU	LAK	LCJ	LTU
	TAS	TCJT	RAS	RCJT			VAS	VCJT	VNTU		YAK	YCJT		SAK	SCJT		LAS	LCJT	
			RAKH			RTU	VTB				RASC	RCJC		STB			LSA		
			RAKHL <sup>(2)</sup>	GFRTD(R)		TU		FLCT <sup>(1)</sup>				RCJTC					SAL <sup>(3)</sup>		
			DRNR	RFTD(R) <sup>(1)</sup>				GVFTD(R)				RFC					LAKHL		
				GRFD(R)				VFTD(R) <sup>(1)</sup>											
				RFD(R) <sup>(1)</sup>				GVFD(R)				YCJTM							
								VFD(R) <sup>(1)</sup>			YASM	YCJM							
Heavy Duty			RAO	RCJO													LAO	LCJO	
			RSAO														LSAO		
																	SAOL <sup>(3)</sup>		

<sup>(1)</sup>Non-relubricatable.

<sup>(2)</sup>Float unit, grease lubrication.

<sup>(3)</sup>Fixed and floating. Oil lubrication, SAL and SAOL units, with adjustable seal packages also can be considered for adverse environments.

NOTE: All bearings or units are double sealed and prelubricated with grease except where noted.



**WIDE-INNER-RING BALL BEARINGS**

Wide-inner-ring ball bearings consist of a single-row ball bearing and an extended inner ring. They carry radial, axial and combination loads. The extended inner ring slips onto the shaft and secures with a locking mechanism.

- **Sizes:** Standard series: 15 mm – 75 mm shaft (1/2 – 2 15/16 in.). Medium and heavy-duty series are available in larger sizes.
- **Industries and applications:** Agriculture, food processing, fans, blowers, and conveyors.
- **Features:** Available with a variety of shaft locking systems: eccentric locking collars, set screws and concentric locking collars.
- **Benefits:** Designed for ease of mounting and maximum shaft support.

Nomenclature.....A-26  
 Introduction.....A-27

**INDUSTRIAL SERIES**

KR, KRR, KRRB Non-Relubricatable Types .....A-32  
 G-KRR, G-KRRB Relubricatable Types .....A-34  
 KL, KLB, KLL, KLLB Special Series,  
 Non-Relubricatable Types .....A-36  
 G-KLL, G-KLLB Special Series, Relubricatable Types .....A-37  
 KLLG Special Series with Wireloc® .....A-38  
 Tri-Ply Industrial Series,  
 Non-Relubricatable and Relubricatable Types.....A-39  
 GC-KRRB Industrial-Series Concentric Collar,  
 Relubricatable Type.....A-40  
 SM Industrial Series A and B Types/MUA-B Inserts.....A-41  
 SM-S Industrial Series .....A-43  
 GY-KRRB Set Screw Industrial Series .....A-44  
 ER Industrial Series, Relubricatable Types .....A-46

**STANDARD SERIES**

RA-RR, RA-RRB Non-Relubricatable Types.....A-48  
 GRA-RR, GRA-RRB Relubricatable Types .....A-50  
 RA-DD, Non-Relubricatable Types .....A-52  
 YA-RR, YA-RRB Non-Relubricatable Types .....A-53  
 GYA-RR, GYA-RRB Relubricatable Types .....A-54

**LIGHT SERIES**

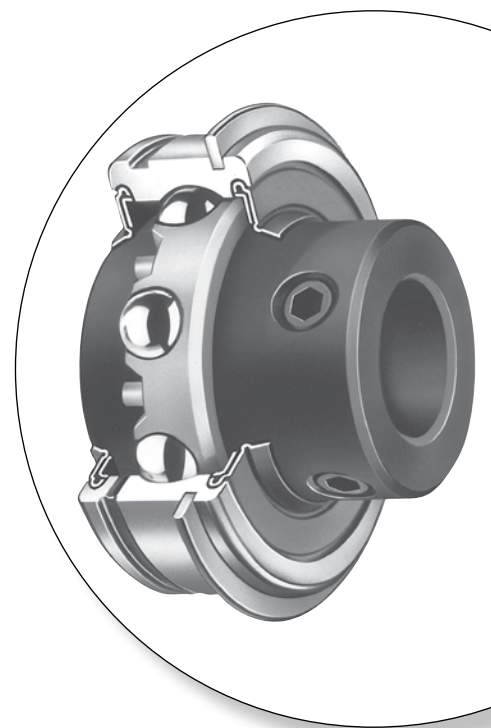
RAL-NPPB Non-Relubricatable Types.....A-55

**MEDIUM SERIES**

GYM-KRRB Inserts Set Screw Lock.....A-56

**HEAVY SERIES**

GN-KRRB Relubricatable Types .....A-57  
 GN-KLLB Special Duty .....A-59  
 SMN A and B Types/MUOA-B Inserts .....A-60  
 SMN-S Series.....A-62



### NOMENCLATURE

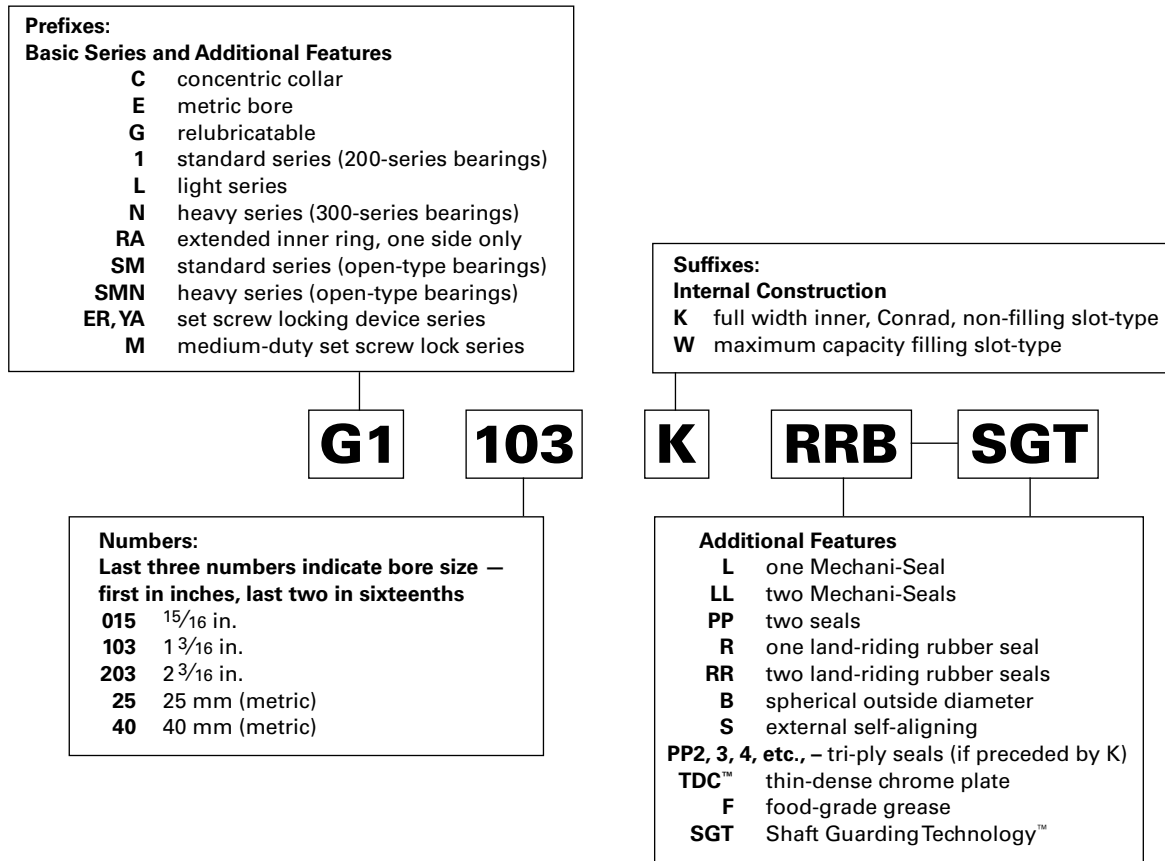


Fig. A-8. Wide-inner-ring ball bearing nomenclature.



#### WARNING

**Failure to observe the following warnings could create a risk of death or serious injury.**

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Tensile stresses can be very high in tightly fitted bearing components. Attempting to remove such components by cutting the cone (inner race) may result in a sudden shattering of the component causing fragments of metal to be forcefully expelled. Always use properly guarded presses or bearing pullers to remove bearings from shafts, and always use suitable personal protective equipment, including safety glasses.



#### CAUTION

**Failure to follow this caution could create a risk of injury.**

**SHAFT GUARDING TECHNOLOGY™**  
 Do not remove band from bore groove. Removal may cause it to release suddenly.

#### NOTE

*The products catalogued are application specific. Any use in applications other than those intended could lead to equipment failure or to reduced equipment life.*

*Use of improper bearing fits may cause damage to equipment. Do not use damaged bearings. The use of a damaged bearing can result in equipment damage.*

## INTRODUCTION

### WIDE-INNER-RING BALL BEARING DESIGN FOR BALL BEARINGS THAT ARE EASILY MOUNTED ON STRAIGHT SHAFTS AND POSITIONED WITHOUT SHOULDERS, LOCKNUTS OR ADAPTERS

The internal bearing construction is basically the same as the deep race, single-row radial type with the ability to carry radial, thrust and combined loads, while providing low-friction qualities. The inner ring is generally extended on both sides of the race to provide additional shaft support, and is locked to the shaft by specially designed set screws, an eccentric self-locking collar or a concentric collar. The wide-inner-ring ball bearings also are available with cylindrical or spherical outside diameters (O.D.). The cylindrical or straight O.D. type is used for mounting in straight-bored housings. The spherical O.D. type must be mounted in a corresponding spherical seat and is used to compensate for shaft or housing misalignments.

### WIDE-INNER-RING BALL BEARINGS WITH ECCENTRIC LOCKING COLLARS

The following series are available with the eccentric cam (self-locking) collar. See installation instructions in table A-20 on page A-29.

#### RR SERIES

These bearings feature the flareout, contact-type R-seal which encloses a synthetic rubber-impregnated washer between two metal caps (fig. A-9). Most sizes incorporate the shroud-seal design. R-seal wide-inner-ring ball bearings are available in the following non-relubricatable variations: KR (one seal, cylindrical O.D.), KRR (two seals, cylindrical O.D.) and KRRB (two seals, spherical O.D.). Relubricatable versions are: G-KRR, G-KRRB and GN-KRRB (heavy-duty).



Fig. A-9. RR series.

#### RA-RR SERIES

The RA-RR series features an extended inner ring and self-locking collar for simple and effective shaft retention in a standard-series bearing (fig. A-10). The positive contact, land-riding R-seal provides improved protection against the heavy contamination encountered in many applications. All sizes have a heat-stabilized, moisture-conditioned 6/6 nylon retainer, which has proven effective under conditions of misalignment. RA-RR extended inner-ring bearings are available as RA-RR (two-seals, straight O.D.) and RA-RRB (two seals, spherical O.D.). Relubricatable versions are GRA-RR and GRA-RRB.



Fig. A-10. RA-RR series.

#### LL SERIES

These bearings are dimensionally interchangeable with the RR series, but have non-contact labyrinth seals and steel cages for low torque, high speed and higher temperature service (up to 177° C [350° F]).

### TRI-PLY SEAL SERIES

Tri-ply seal bearings are designed for environments where severe conditions and moisture are present (fig. A-11). The one-piece tri-ply seals incorporate a highly effective seal design molded to an exterior shroud cap. The shroud cap protects the seal lips from fiber wrap and abrasion while enhancing the overall sealing effectiveness of the unit. All units incorporate the self-locking collar and have a nylon retainer. Tri-ply seal bearings are available in both a non-relubricatable (KPPB) and relubricatable version (G-KPPB).



**Fig. A-11. Tri-ply seal series.**

### EXTERNAL SELF-ALIGNING SERIES

The construction of this series permits the inner assembly, which contains an open-type ball bearing with spherical O.D. to align in the seat of the mating outer ring (fig. A-12). The seat of this outer ring is matched with the spherical O.D. of the ball bearing outer ring providing unrestricted self-alignment and allowing the inner assembly to become square and true with the shaft. Self-aligning units are available in both standard SM-S or heavy SMN-S series.



**Fig. A-12. External self-aligning series.**

### RA-DD-SERIES BEARINGS

The RA-DD-series bearings are extended inner-ring types with cam locking collars (fig. A-13). They incorporate two close-fitting, non-contact grease shields to effectively retain lubricant and provide protection against harmful contaminants. The non-contact metallic shields provide improved high-speed and low-torque performance required for high-speed applications such as printing presses and tissue manufacturing.

The 6/6 molded nylon retainer has proven effective under conditions of misalignment. These bearings are dimensionally interchangeable and have the same load capacities as the RA-RR series. Available in 15.88 mm – 38.10 mm (5/8 in. – 1 1/2 in.) shaft sizes.



**Fig. A-13. RA-DD series.**

## WIDE-INNER-RING BALL BEARINGS WITH CONCENTRIC COLLARS

### GC SERIES

The GC series wide-inner-ring ball bearings are relubricatable with spherical outside diameters, nylon retainers and shroud seals (fig. A-14). The metal shroud maintains tight seal contact against the inner ring and shields the rubber seals from damage due to dirt or fiber wrap. The concentric collar is locked to the shaft by two set screws, located 120 degrees apart, mated with threaded holes in the collar and drilled holes in the bearing inner ring.



**Fig. A-14. GC series.**

### YM MEDIUM-DUTY SERIES

The Timken medium-duty series offers reliable performance and extended life for applications that carry heavier loads (fig. A-15). This series has been designed with a combination of premium features – superfinished raceways and a nylon-patch set screw locking device, designed for demanding conditions. These bearing inserts will operate with reduced levels of noise, vibration and friction and are the choice antifriction component for saw and paper mill applications, fan and blower assemblies, food and grain handling, and conveyor systems.



**Fig. A-15. YM series.**

## **CAM (SELF-LOCKING) COLLAR INSTALLATION INSTRUCTIONS**

The self-locking collar eliminates the need for locknuts, washers, shoulders, sleeves and adapters. With various seal and inner width variations for many agricultural and industrial applications, self-locking collars are the easiest housed units to install.

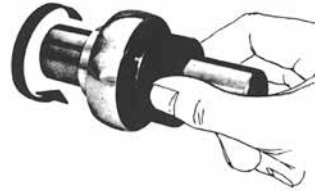
The locking collar has a counterbored recess made purposely eccentric to the collar bore. When assembled on the shaft, this eccentric recess engages or mates with an eccentric cam end of a bearing's inner ring. The collar is engaged on the inner cam of the bearing.

This assembly grips the shaft tightly with a positive binding action that increases with use. No adjustments of any kind are necessary. The collar set screw provides supplementary locking.

**TABLE A-20. CAM COLLAR INSTALLATION**



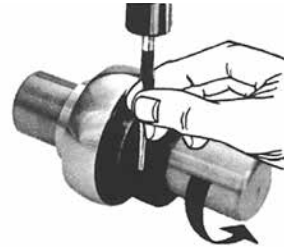
1. Observe cam design of the wide inner ring and self-locking collar.



2. Mate the cam of the collar with the cam of the wide inner ring.

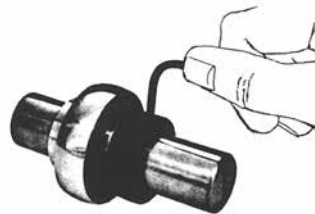


3. Press the locking collar against the wide inner ring and turn in the direction of shaft rotation until tightly engaged.



4. With drift pin in collar hole, tap lightly in direction of shaft rotation to lock.

For stationary shafts and outer ring rotation, turn the collar in opposite direction of rotation.



5. Tighten set screw in collar.

### WIDE-INNER-RING BALL BEARINGS WITH SET SCREW LOCKING DEVICE

The following series are available with the set screw locking device with special set screws that are resistant to loosening during operation.

#### Y SERIES

Full-width, inner-ring Y-series bearings increase shaft support in heating, ventilation and air conditioning (HVAC) systems, conveyors and other industrial applications (fig. A-16). They feature superfinished raceways, grade-10 balls and anti-backout nylon-patch set screws. Flexible 6/6 nylon retainers and land-riding shroud seals ensure excellent performance. They are factory-prelubricated. Relubricatable set screw mounting feature is ideal for reversing applications. To protect the shaft with Shaft Guarding Technology™ (page A-31), add suffix SGT to the part number when ordering.



Fig. A-16. Y series.

#### YA SERIES

The YA-series relubricatable and non-relubricatable bearings are an extended inner-ring type with specially designed set screws (fig. A-17). Positive-contact, land-riding R-seals provide protection against harmful contaminants and retain lubricant.

Set screw series bearings are available in both non-relubricatable version YA and relubricatable version GYA-RRB. Both types have nylon retainers.



Fig. A-17. YA series.

#### ER SERIES

This series offers industry-standard mounting dimensions and standard nomenclature for a large variety of sizes of relubricatable, extended inner-ring bearings for through-bored housings (fig. A-18). All bearings in this series have nylon retainers and are equipped with snap rings, eliminating the need for machining housing shoulders. ER bearings are designed with a unique set screw locking device that locks the bearing to the shaft and is resistant to loosening during operation. Positive-contact, land-riding R-seals provide protection against harmful contaminants and retain lubricant. All ER bearings are black-oxide-coated for corrosion resistance. Ideal for low-starting and running-torque applications. To protect the shaft with Shaft Guarding Technology (page A-31), add suffix SGT to the part number when ordering.



Fig. A-18. ER series.

## SHAFT GUARDING TECHNOLOGY™ FOR SET SCREW LOCKING DEVICES

Housed units with Timken Shaft Guarding Technology use a stainless-steel, hardened band to transfer gripping pressure on the shaft. Unlike traditional set screws, which can dig into the shaft, there are no nicks, raised metal or permanent shaft damage when using Shaft Guarding Technology. The stainless band won't corrode on the shaft.

Timken Shaft Guarding Technology is designed to exceed gripping application requirements, maintain dimensional integrity and reduce fretting corrosion. This is a preferred solution when shaft replacement is costly.

### Housed units with Shaft Guarding Technology™:

- Are faster and easier to install and remove.
- Reduce the number of shaft replacements.
- Decrease overall system costs.

### Tight grip offers protection.

- Two set screws and a nylon patch at a 90-degree separation provide strong holding capability with minimal distortion.
- Groove running beneath the set screws in the inner ring bore keeps the band in place.
- Hardened stainless-steel band helps protect the shaft from damage.
- Longer inner ring along the shaft (ABMA compliant) improves shaft support and reduces bearing misalignment.
- Timken thin-dense chrome (TDC™) optional.
- Seal options include three-piece R-seal for normal-to-high contamination environments and L-seal for higher speeds and temperatures.
- Choice of housing configurations.

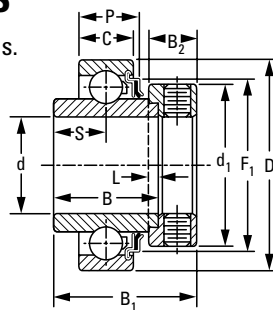
### Industries and applications:

- Rubber and plastic.
- Agriculture (combines and implements).
- Forest products (paper, tissue, newsprint, fine paper).
- Industrial machinery.
  - Fans and blowers.
  - Canning and bottling.
  - Conveyors.
  - Food processing.
  - Printing presses.
  - Packaging.
  - Textiles.

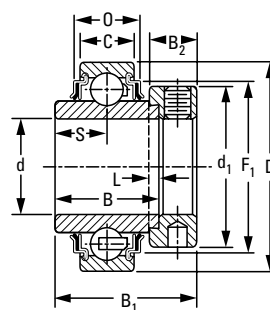
### INDUSTRIAL SERIES

#### KR, KRR, KRRB NON-RELUBRICATABLE TYPES

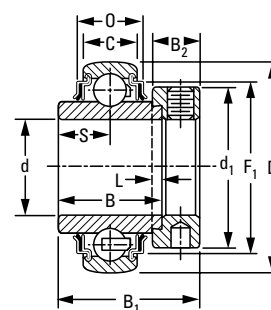
- Designed for extremely dirty or wet conditions.
- Feature R-seals with flared lips that firmly contact the ground O.D. of the inner ring.
- R-seals provide a positive seal against dirt and other contaminants, while effectively retaining the lubricant.
- Equipped with shroud-seals, providing extra effectiveness and protection.
- Extra-wide design provides additional shaft support and extra-large grease capacity.



**KR One Seal  
Cylindrical O.D.**



**KRR Two Seals  
Cylindrical O.D.**



**KRRB Two Seals  
Spherical O.D.**

#### Suggested shaft tolerances:

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify bearing number followed by "+ COL".

Example: 1103KRRB + COL.

Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths										Brg. and Collar Wt.	Static Load Rating	Extended Dynamic Load Rating	
Cylindrical O.D.	Spherical O.D.					Inner	Outer	S	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	F <sub>1</sub>	O	P				C <sub>0</sub>
				d	D	B	C	S	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	F <sub>1</sub>	O	P	kg	lbs.	N	N
				in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			lbs.	lbs.
-	1008KRR (KRRB)	S1008K		1/2												0.154	0.34		
1010KR	1010KRR (KRRB)	S1010K	203	5/8	40	27.78	12	13.90	4.0	28.6	13.5	37.3	34.01	16.56	14.27	0.145	0.32	4700	10700
-	1011KRR (KRRB)	S1011K		11/16	1.5748	1 3/32	0.472	35/64	5/32	11/8	17/32	1 15/32	1.339	0.652	0.562	0.122	0.27	1060	2400
-	E17KRR (KRRB)	SE17K		17												0.122	0.27		
1012KR	1012KRR (KRRB)	S1012K	204	3/4	47	34.13	14	17.10	4.0	33.3	13.5	43.7	38.91	16.56	15.29	0.204	0.45	6200	14300
-	E20KRR (KRRB)	SE20K		20	1.8504	1 11/32	0.551	43/64	5/32	1 5/16	17/32	1 23/32	1.532	0.652	0.602	0.204	0.45	1400	3200
-	1013KRR (KRRB)	S1013K		13/16												0.286	0.63		
-	1014KRR (KRRB)	S1014K		7/8												0.272	0.60		
1015KR	1015KRR (KRRB)	S1015K	205	15/16	52	34.92	15	17.50	4.0	38.1	13.5	44.1	45.19	16.66	15.82	0.254	0.56	7700	15800
1100KR	1100KRR (KRRB)	S1100K		1	2.0472	1 3/8	0.591	11/16	5/32	1 1/2	17/32	1 47/64	1.779	0.656	0.623	0.231	0.51	1730	3550
-	E25KRR (KRRB)	SE25K		25												0.231	0.51		
-	1101 (KRRB)	S1101K		1 1/16												0.413	0.91		
1102KR	1102KRR (KRRB)	S1102K		1 1/8												0.404	0.89		
1103KR	1103KRR (KRRB)	S1103K	206	1 3/16	62	36.51	16	18.30	4.0	44.4	15.9	48.4	52.53	19.56	17.78	0.376	0.83	11100	21200
-	1103KRR3 (KRRB3)	S1103K3		1 1/4	2.4409	1 7/16	0.630 <sup>(1)</sup>	23/32	5/32	1 3/4	5/8	1 29/32	2.068	0.770	0.700	0.349	0.77	2500	4900
-	E30KRR (KRRB)	SE30K		30												0.376	0.83		
1104KR	1104KRR (KRRB)	S1104K		1 1/4												0.653	1.44		
-	1105KRR (KRRB)	S1105K		1 5/16												0.603	1.33		
-	1106KRR (KRRB)	S1106K	207	1 3/8	72	37.70	17	18.85	4.0	54.0	17.1	51.2	60.55	19.69	18.34	0.572	1.26	15100	28500
1107KR	1107KRR (KRRB)	S1107K		1 7/16	2.8346	1 31/64	0.669 <sup>(2)</sup>	0.742	5/32	2 1/8	43/64	2 1/64	2.384	0.775	0.722	0.544	1.20	3400	6400
-	E35KRR (KRRB)	SE35K		35												0.572	1.26		

<sup>(1)</sup>Spherical O.D. outer-ring width is 18 mm (0.709 in.).

<sup>(2)</sup>Spherical O.D. outer-ring width is 19 mm (0.748 in.).

<sup>(3)</sup>Spherical O.D. outer-ring width is 21 mm (0.827 in.).

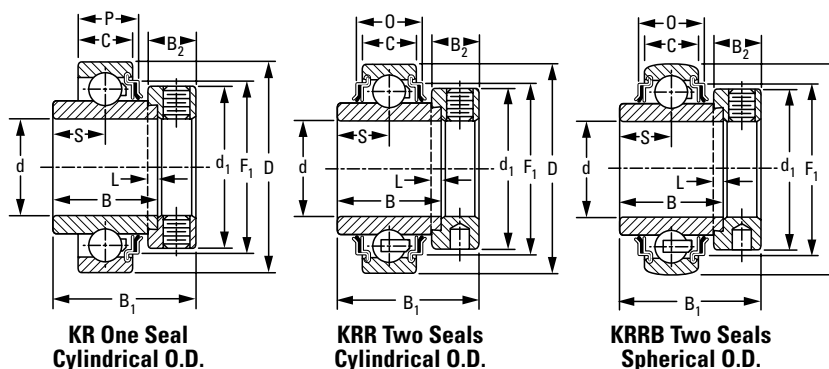
<sup>(4)</sup>Available with spherical O.D. To order, add suffix B. Example 1115KRRB.

<sup>(5)</sup>Spherical O.D. outer-ring width is 22 mm (0.866 in.).

NOTE: Bore tolerances: 1/2 in. – 2 3/16 in. nominal to +0.013 mm, +0.0005;  
2 1/4 in. – 2 15/16 in. nominal to +0.015 mm, +0.0006 in.

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Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths		S	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	F <sub>1</sub>	O	P	Brg. and Collar Wt.	Static Load Rating	Extended Dynamic Load Rating	
Cylindrical O.D.	Spherical O.D.					Inner	Outer												C <sub>0</sub>
				d	D	B	C	mm	mm	mm	mm	mm	mm	mm	mm	kg	N	N	
				in.	mm	mm	mm	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.	lbs.	
1108KR	1108KRR (KRRB)	S1108KT		1 1/2	80	42.86	18	21.40	4.8	60.3	18.3	56.4	67.79	20.45	19.28	0.789	1.74	19600	36000
-	1109KRR (KRRB)	S1109KT	208	1 9/16	3.1496	1 11/16	0.709 <sup>(2)</sup>	27/32	3/16	2 3/8	23/32	2 7/32	2.669	0.805	0.757	0.739	1.63	4400	8150
-	E40KRR (KRRB)	SE40K		40												0.739	1.63		
-	1110KRR (KRRB)	S1110K		1 5/8												0.898	1.98		
1111KR	1111KRR (KRRB)	S1111K	209	1 11/16	85	42.86	19	21.40	4.8	63.5	18.3	56.4	73.86	24.18	21.59	0.848	1.87	20000	36000
1112KR	1112KRR (KRRB)	S1112K		1 3/4	3.3465	1 11/16	0.748	27/32	3/16	2 1/2	23/32	2 7/32	2.908	0.952	0.850	0.825	1.82	4500	8150
-	E45KRR (KRRB)	SE45K		45												0.825	1.82		
-	1114KRR (KRRB)	S1114K		1 7/8												1.057	2.33		
1115KR <sup>(4)</sup>	1115KRR (KRRB)	S1115K	210	1 15/16	90	49.21	20	24.60	4.8	69.9	18.3	62.7	77.7	24.51	22.25	1.000	2.18	22709	39000
-	E50KRR (KRRB)	SE50K		50	3.5433	1 15/16	0.787 <sup>(5)</sup>	31/32	3/16	2 3/4	23/32	2 15/32	3.059	0.965	0.876	1.000	2.18	5100	8800
1200KR	1200KRR (KRRB)	S1200K		2												1.520	3.35		
-	1202KRR (KRRB)	S1202K	211	2 1/8	100	55.56	21	27.80	4.8	76.2	20.6	71.4	87.17	27.41	24.21	1.356	2.99	28500	48000
1203KR	1203KRR (KRRB)	S1203K		2 3/16	3.9370	2 3/16	0.827	1 3/32	3/16	3	13/16	2 13/16	3.432	1.079	0.953	1.306	2.88	6400	10800
-	E55KRR (KRRB)	SE55K		55												1.306	2.88		
-	1204KRR (KRRB)	S1204K		2 1/4												1.715	3.78		
1207KR	1207KRR (KRRB)	S1207K	212	2 7/16	110	61.91	22	31.00	6.4	84.1	22.2	77.8	94.89	30.02	26.01	1.565	3.45	35600	58500
-	E60KRR (KRRB)	SE60K		60	4.3307	2 7/16	0.866	1 7/32	1/4	3 5/16	7/8	3 1/16	3.736	1.182	1.024	1.615	3.56	8000	13200
-	1215KRR (KRRB)	S1215K	215	2 15/16	130	74.61	25	37.30	6.4	101.6	23.8	91.2	113.13	34.03	-	2.640	5.82	43600	69500
-	E75KRR (KRRB)	SE75K		75	5.1181	2 15/16	0.984	1 15/32	1/4	4	15/16	3 5/8	4.454	1.340	-	2.640	5.82	9800	15600

<sup>(1)</sup>Spherical O.D. outer-ring width is 18 mm (0.709 in.).

<sup>(2)</sup>Spherical O.D. outer-ring width is 19 mm (0.748 in.).

<sup>(3)</sup>Spherical O.D. outer-ring width is 21 mm (0.827 in.).

<sup>(4)</sup>Available with spherical O.D. To order, add suffix B. Example 1115KRRB.

<sup>(5)</sup>Spherical O.D. outer-ring width is 22 mm (0.866 in.).

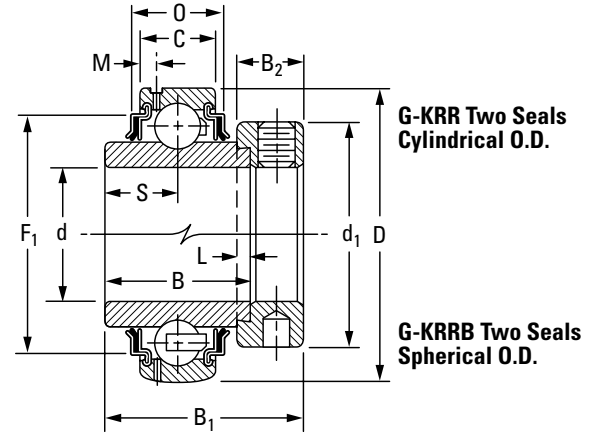
NOTE: Bore tolerances: 1/2 in. - 2 3/16 in. nominal to +0.013 mm, +0.0005;  
2 1/4 in. - 2 15/16 in. nominal to +0.015 mm, +0.0006 in.

# BALL BEARING HOUSED UNITS

WIDE-INNER-RING BALL BEARINGS • INDUSTRIAL SERIES • G-KRR, G-KRRB

## G-KRR, G-KRRB RELUBRICATABLE TYPES

- The G-KRR-series wide-inner-ring ball bearings are the same as the RR series and have a provision for relubrication.
- These bearings are designed for extremely dirty or wet conditions.
- The bearing includes R-seals with flared lips that firmly contact the ground O.D. of the inner ring. The inner ring provides a positive seal against dust, dirt and other contaminants, and effectively retains the lubricant.
- G-KRR-series bearings are equipped with shroud-seals, providing extra effectiveness and protection.
- The extra-wide design provides additional shaft support and extra-large grease capacity.



### Suggested shaft tolerances:

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify bearing number followed by "+ COL".

Example: G1010KRRB + COL.

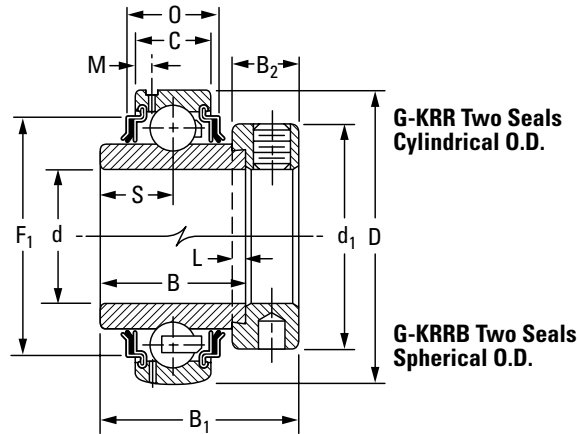
Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths										Brg. and Collar Wt.	Static Load Rating	Extended Dynamic Load Rating	
Cylindrical O.D.	Spherical O.D.					Inner	Outer	S	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	F <sub>1</sub>	O				C <sub>0</sub>
				d	D	B	C	S	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	F <sub>1</sub>	O	kg	lbs.	N	N
				in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			lbs.	lbs.
-	G1008KRRB	S1008K		1/2												0.154	0.34		
-	G1009KRRB	S1009K		9/16												0.141	0.31		
G1010KRR	G1010KRRB	S1010K	203	5/8	40	27.78	12	13.90	4.0	28.6	13.5	2.72	37.3	34.01	16.56	0.141	0.31	4700	10700
G1011KRR	G1011KRRB	S1011K		11/16	1.5748	1 3/32	0.472	35/64	5/32	1 1/8	17/32	0.107	1 15/32	1.339	0.652	0.118	0.26	1060	2400
GE17KRR	GE17KRRB	SE17K		17												0.118	0.26		
G1012KRR	G1012KRRB	S1012K		3/4	47	34.13	14	17.10	4.0	33.3	13.5	3.43	43.7	38.91	17.30	0.204	0.45	6200	14300
GE20KRR	GE20KRRB	SE20K	204	20	1.8504	1 11/32	0.551	43/64	5/32	1 5/16	17/32	0.135	1 23/32	1.532	0.681	0.204	0.45	1400	3200
-	G1013KRRB	S1013K		13/16												0.286	0.63		
G1014KRR	G1014KRRB	S1014K		7/8	52	34.92	15	17.50	4.0	38.1	13.5	3.86	44.4	45.19	16.66	0.263	0.58	7700	15800
G1015KRR	G1015KRRB	S1015K	205	15/16	2.0472	1 3/8	0.591	11/16	5/32	1 1/2	17/32	0.152	1 3/4	1.779	0.656	0.240	0.53	1730	3550
G1100KRR	G1100KRRB	S1100K		1												0.227	0.50		
GE25KRR	GE25KRRB	SE25K		25												0.227	0.50		
G1101KRR	G1101KRRB	S1101K		1 1/16												0.417	0.92		
G1102KRR	G1102KRRB	S1102K		1 1/8	62	36.51	18	18.30	4.0	44.1	15.9	3.96	48.4	52.53	21.56	0.404	0.89	11100	21800
G1103KRR	G1103KRRB	S1103K	206	1 3/16	2.4409	1 7/16	0.709	23/32	5/32	1 47/64	5/8	0.156	1 29/32	2.068	0.849	0.376	0.83	2500	4900
-	G1103KRRB3	S1103K3		1 1/4												0.349	0.77		
GE30KRR	GE30KRRB	SE30K		30												0.376	0.83		
G1104KRR	G1104KRRB	S1104K		1 1/4												0.653	1.44		
-	G1105KRRB	S1105K		1 5/16	72	37.70	19	18.85	4.0	54.0	17.1	3.68	51.2	60.55	21.74	0.617	1.36	15100	28500
G1106KRR	G1106KRRB	S1106K	207	1 3/8	2.8346	1 31/64	0.748	0.742	5/32	2 1/8	43/64	0.145	2 1/64	2.384	0.856	0.585	1.29	3400	6400
G1107KRR	G1107KRRB	S1107K		1 7/16												0.562	1.24		
GE35KRR	GE35KRRB	SE35K		35												0.585	1.29		
G1108KRR	G1108KRRB	S1108KT		1 1/2	80	42.86	21	21.40	4.8	60.3	18.3	4.06	56.4	67.79	23.44	0.812	1.79	19600	36000
-	G1109KRRB	S1109KT	208	1 9/16	3.1496	1 11/16	0.827	27/32	3/16	2 3/8	23/32	0.160	2 7/32	2.669	0.923	0.771	1.70	4400	8150
GE40KRR	GE40KRRB	SE40K		40												0.771	1.70		

<sup>(1)</sup>Spherical O.D. outer-ring width is 22 mm, 0.866 in. 2 1/4 in. – 2 15/16 in., nominal to 0.015 mm, +0.0006 in.

<sup>(2)</sup>Spherical O.D. outer-ring width is 24 mm (0.945 in.).

NOTE: Bore tolerances: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.

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Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths										Brg. and Collar Wt.	Static Load Rating	Extended Dynamic Load Rating																	
Cylindrical O.D.	Spherical O.D.					Inner	Outer	S	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	F <sub>1</sub>	O				C <sub>0</sub>	C <sub>E</sub>															
				d	D	B	C	S	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	F <sub>1</sub>	O	kg	lbs.	N	N																
				in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			lbs.	lbs.																
G1110KRR	G1110KRRB	S1110K	209	1 5/8	85	42.86	22	21.40	4.8	63.5	18.3	4.55	56.4	73.86	27.18	0.925	2.04	20000	36000																
G1111KRR	G1111KRRB	S1111K		1 11/16																3.3465	1 11/16	0.866	27/32	3/16	2 1/2	23/32	0.179	2 7/32	2.908	1.07	0.880	1.94	4500	8150	
G1112KRR	G1112KRRB	S1112K		1 3/4																												0.835	1.84		
GE45KRR	GE45KRRB	SE45K		45																												0.835	1.84		
-	G1113KRR	S1113K	210	1 13/16	90	49.21	23	24.60	4.8	69.9	18.3	4.70	62.7	77.70	27.51	1.116	2.46	22700	39200																
-	G1114KRRB	S1114K		1 7/8																3.5433	1 15/16	0.903 <sup>(1)</sup>	31/32	3/16	2 3/4	23/32	0.185	2 15/32	3.059	1.083	1.034	2.28	5100	8800	
G1115KRR	G1115KRRB	S1115K		1 15/16																												1.016	2.24		
GE50KRR	GE50KRRB	SE50K		50																												1.016	2.24		
G1200KRR	G1200KRRB	S1200K	211	2	100	55.56	25	27.80	4.8	76.2	20.6	5.00	71.4	87.17	29.01	1.583	3.49	28500	48000																
-	G1201KRRB	S1201K		2 1/16																3.9370	2 3/16	0.983 <sup>(2)</sup>	1 3/32	3/16	3	13/16	0.197	2 13/16	3.432	1.142	1.470	3.24	6400	10800	
-	G1202KRRB	S1202K		2 1/8																												1.406	3.10		
G1203KRR	G1203KRRB	S1203K		2 3/16																												1.365	3.01		
GE55KRR	GE55KRRB	SE55K	55													1.365	3.01																		
-	G1204KRRB	S1204K	212	2 1/4	110	61.91	27	31.00	6.4	84.1	22.2	5.13	77.8	94.89	35.03	2.041	4.50	35600	58800																
-	G1205KRRB	S1205K		2 5/16																4.3307	2 7/16	1.063	1 7/32	1/4	3 5/16	7/8	0.202	3 1/16	3.736	1.379	1.923	4.24	8000	13200	
-	G1206KRRB	S1206K		2 3/8																												1.846	4.07		
G1207KRR	G1207KRRB	S1207K		2 7/16																												1.778	3.92		
GE60KRR	GE60KRRB	SE60K	60													1.846	4.07																		
-	G1210KRRB	S1210K	214	2 5/8	125	68.26	28	34.10	6.4	96.8	23.8	5.08	79.4	109.17	35.94	2.681	5.91	43000	69500																
-	G1211KRRB	S1211K		2 11/16																4.9213	2 11/16	1.102	1 11/32	1/4	3 13/16	15/16	0.200	3 1/8	4.298	1.415	2.585	5.70	9650	15600	
-	GE70KRRB	SE70K		70																												2.585	5.70		
-	G1212KRRB	S1212K		2 3/4																												3.084	6.80		
-	G1213KRRB	S1213K	215	2 13/16	130	74.61	29	37.30	6.4	101.6	23.8	5.56	92.1	113.13	38.03	2.976	6.56	43600	69500																
-	G1214KRRB	S1214K		2 7/8																5.1181	2 15/16	1.142	1 15/32	1/4	4	15/16	0.219	3 5/8	4.454	1.497	2.867	6.32	9800	15600	
-	G1215KRRB	S1215K		2 15/16																												2.753	6.07		
-	GE75KRRB	SE75K		75																												2.753	6.07		

<sup>(1)</sup>Spherical O.D. outer-ring width is 22 mm, 0.866 in. 2 1/4 in. - 2 15/16 in., nominal to 0.015 mm, +0.0006 in.

<sup>(2)</sup>Spherical O.D. outer-ring width is 24 mm (0.945 in.).

NOTE: Bore tolerances: 1/2 in. - 2 3/16 in., nominal to +0.013 mm, +0.0005 in.

### KL, KLB, KLL, KLLB SPECIAL SERIES, NON-RELUBRICATABLE TYPES

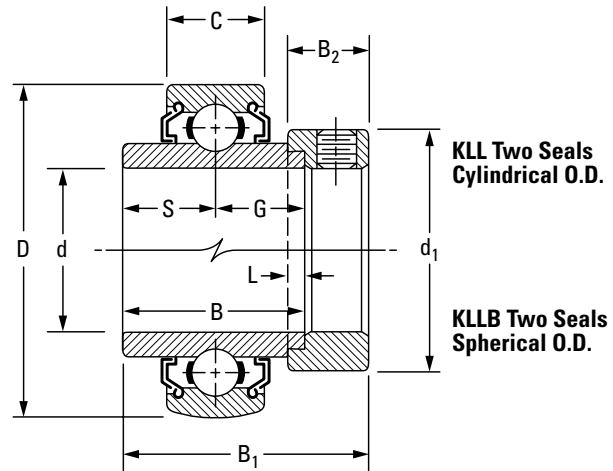
- These wide-inner-ring ball bearings have either one or two Mechani-Seals.
- Types KLB and KLLB have spherical outside diameters permitting self-alignment when mounted in a housing with a corresponding spherical seat.
- All four types are prelubricated at the factory and require no further lubrication.
- These bearings are suitable for higher-speed and/or higher-temperature applications.
- Because they incorporate non-contact seals, these bearings have very low rotational torque.

#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify bearing number followed by "+ COL".

Example: 1100KLL + COL.



Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths		S(G)	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	Brg. and Collar Wt.		Static Load Rating	Extended Dynamic Load Rating
Cylindrical O.D.	Spherical O.D.					Inner	Outer						kg	lbs.		
				d	D	B	C	mm	mm	mm	mm	mm			N	N
				in.	mm	mm	mm	in.	in.	in.	in.	in.			lbs.	lbs.
1008KL	1008KLL (KLLB)	S1008K		1/2									0.168	0.37		
-	1009KLL	S1009K	203	9/16	40	27.78	12	13.89	3.97	28.58	13.49	37.31	0.163	0.36	4700	10700
1010KL	1010KLL (KLLB)	S1010K		5/8	1.5748	1 3/32	0.4724	39/64	5/32	1 1/8	17/32	1 15/32	0.141	0.31	1060	2400
1011KL	1011KLL (KLLB)	S1011K		11/16									0.122	0.27		
1012KL	1012KLL (KLLB)	S1012K	204	3/4	47	34.13	14	17.06	3.97	33.34	13.50	43.70	0.209	0.46	6200	14300
-	-	S1013K		13/16	1.8504	1 11/32	0.5512	43/64	5/32	1 5/16	17/32	1 23/32	0.286	0.63	1400	3200
1014KL	1014KLL (KLLB)	S1014K	205	7/8	52	34.92	15	17.46	3.97	38.10	13.49	44.45	0.277	0.61	7700	15800
1015KL	1015KLL (KLLB)	S1015K		15/16	2.0472	1 3/8	0.5906	11/16	5/32	1 1/2	17/32	1 47/64	0.254	0.56	1730	3550
1100KL (KLB)	1100KLL (KLLB)	S1100K		1									0.250	0.55		
1101KL	-	S1101K		1 1/16									0.417	0.92		
1102KL	1102KLL (KLLB)	S1102K	206	1 1/8	62	36.51	16	18.26	3.97	44.10	15.88	48.42	0.413	0.91	11100	21800
1103KL (KLB)	1103KLL (KLLB)	S1103K		1 3/16	2.4409	1 7/16	0.6299 <sup>(1)</sup>	23/32	5/32	1 3/4	5/8	1 29/32	0.372	0.82	2500	4900
1103KL3	1103KLL3 (KLLB3)	S1103K3		1 1/4									0.358	0.79		
1104KL	1104KLL (KLLB)	S1104K		1 1/4									0.649	1.43		
-	1105KLL (KLLB)	S1105K	207	1 5/16	72	37.70	17	18.85	3.97	54.00	17.46	51.20	0.617	1.36	15100	28500
1106KL	1106KLL (KLLB)	S1106K		1 3/8	2.8346	1 31/64	0.6693 <sup>(2)</sup>	0.742	5/32	2 1/8	43/64	2 1/64	0.581	1.28	3400	6400
1107KL (KLB)	1107KLL (KLLB)	S1107K		1 7/16									0.544	1.20		
1108KL (KLB)	1108KLL (KLLB)	S1108K	208	1 1/2	80	42.86	18	21.43	4.76	60.32	18.26	56.36	0.821	1.81	17600	36200
-	1109KLL (KLLB)	S1109K		1 9/16	3.1496	1 11/16	0.7087 <sup>(3)</sup>	27/32	3/16	2 3/8	23/32	2 7/32	0.767	1.69	4000	8130
1110KL	1110KLL (KLLB)	S1110K		1 5/8									0.934	2.06		
1111KL	1111KLL (KLLB)	S1111K	209	1 11/16	85	42.86	19	21.43	4.76	60.35	18.26	56.36	0.890	1.96	20000	36300
1112KL (KLB)	1112KLL (KLLB)	S1112K		1 3/4	3.3465	1 11/16	0.7480	27/32	3/16	2 1/2	23/32	2 7/32	0.844	1.86	4500	8160
1114KL	1114KLL (KLLB)	S1114K	210	1 7/8	90	49.21	20	24.61	4.76	69.90	18.26	62.71	1.075	2.37	22700	39000
1115KL (KLB)	1115KLL (KLLB)	S1115K		1 15/16	3.5433	1 15/16	0.7874	31/32	3/16	2 3/4	23/32	2 15/32	1.021	2.25	5100	8800
1200KL (KLB)	1200KLL (KLLB)	S1200K		2									1.540	3.40		
-	1202KLL (KLLB)	S1202K	211	2 1/8	100	55.56	21	27.98	4.76	76.20	20.64	71.44	1.406	3.10	28500	48000
1203KL	1203KLL (KLLB)	S1203K		2 3/16	3.9370	2 3/16	0.8268	1 3/32	3/16	3	13/16	2 13/16	1.347	2.97	6400	10800
1207KL	-	S1207K	212	2 7/16	110	61.91	22	30.96	6.35	84.14	22.22	77.79	1.660	3.66	35600	58500
-	1215KLL (KLLB)	S1215K	215	2 15/16	4.3307	2 7/16	0.8661	1 7/32	1/4	3 5/16	7/8	3 1/16	1.347	2.97	8000	13200
					130	74.61	25	37.31	6.35	101.6	23.81	91.08	2.268	5.00	43600	69500
					5.1181	2 15/16	0.9843	1 15/32	1/4	4	15/16	3 5/8			9800	15600

<sup>(1)</sup>Spherical O.D. outer-ring width is 18 mm (0.7087 in.).

<sup>(2)</sup>Spherical O.D. outer-ring width is 19 mm (0.7480 in.).

<sup>(3)</sup>Spherical O.D. outer-ring width is 21 mm (0.8268 in.).

NOTE: Bore tolerance: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
2 7/16 in. – 2 15/16 in., nominal to +0.015 mm, +0.0006 in.

### G-KLL, G-KLLB SPECIAL SERIES, RELUBRICATABLE TYPES

- These wide-inner-ring ball bearings have two Mechani-Seals and a provision for relubrication.
- Type G-KLL has a cylindrical outside diameter.
- Type G-KLLB has a spherical outside diameter.
- Both are generally suitable for higher-speed and/or higher-temperature applications.
- Because they incorporate non-contact seals, these bearings have very low rotational torque.
- Consult your Timken engineer for suggestions.

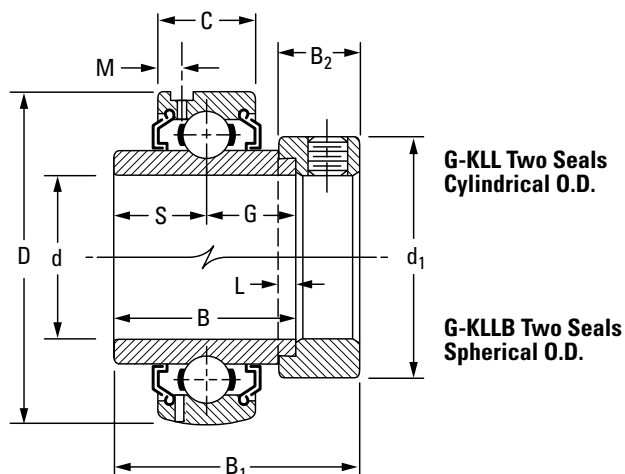
**Suggested shaft tolerances:**

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify bearing number followed by "+ COL".**

Example: G1015KLL + COL.



Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths		S(G)	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	Brg. and Collar Wt.	Static Load Rating	Extended Dynamic Load Rating	
Cylindrical O.D.	Spherical O.D.					Inner	Outer										C <sub>0</sub>
				d	D	B	C										
				in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	N lbs.	N lbs.	
-	G1008KLLB	S1008K	203	1/2	40 1.5748	27.78 1 3/32	12 0.4724	13.90 35/64	4.0 5/32	28.6 1 1/8	13.50 17/32	2.720 0.107	37.30 1 15/32	0.150	0.33	4700 1060	10700 2400
-	G1009KLLB	S1009K		9/16										0.136	0.30		
G1010KLL	G1010KLLB	S1010K		5/8										0.141	0.31		
G1011KLL	G1011KLLB	S1011K		11/16										0.118	0.26		
G1012KLL	G1012KLLB	S1012K	204	3/4	47 1.8504	34.13 1 11/32	14 0.5512	17.10 43/64	4.0 5/32	33.3 1 5/16	13.50 17/32	3.430 0.135	43.70 1 23/32	0.200	0.44	6200 1400	14300 3200
-	G1013KLLB	S1013K	205	13/16	52 2.0472	34.92 1 3/8	15 0.5906	17.50 11/16	4.0 5/32	38.1 1 1/2	13.50 17/32	3.860 0.152	44.45 1 3/4	0.286	0.63	7700 1730	15800 3550
G1014KLL	G1014KLLB	S1014K		7/8										0.263	0.58		
G1015KLL	G1015KLLB	S1015K		15/16										0.245	0.54		
G1100KLL	G1100KLLB	S1100K		1										0.222	0.49		
G1101KLL	-	S1101K	206	1 1/16	62 2.4409	36.51 1 7/16	18 0.7087	18.30 23/32	4.0 5/32	44.4 1 3/4	15.90 5/8	3.960 0.156	48.40 1 29/32	0.422	0.93	11100 2500	21800 4900
G1102KLL	G1102KLLB	S1102K		1 1/8										0.413	0.91		
G1103KLL	G1103KLLB	S1103K		1 3/16										0.395	0.87		
-	G1103KLLB3	S1103K3		1 1/4										0.340	0.75		
G1104KLL	G1104KLLB	S1104K	207	1 1/4	72 2.8346	37.70 1 31/64	19 0.7480	18.85 0.742	4.0 5/32	54.0 2 1/8	17.46 11/16	3.430 0.135	51.20 2 1/64	0.649	1.43	15100 3400	28500 6400
-	G1105KLLB	S1105K		1 5/16										0.622	1.37		
G1106KLL	G1106KLLB	S1106K		1 3/8										0.590	1.30		
G1107KLL	G1107KLLB	S1107K		1 7/16										0.549	1.21		
G1108KLL	G1108KLLB	S1108KT	208	1 1/2	80 3.1496	42.86 1 11/16	21 0.8268	21.40 27/32	4.8 3/16	60.3 2 3/8	18.30 23/32	4.060 0.160	56.40 2 7/32	0.826	1.82	17600 4000	36200 8130
G1109KLL	G1109KLLB	S1109KT		1 9/16										0.785	1.73		
G1110KLL	G1110KLLB	S1110K	209	1 5/8	85 3.3465	42.86 1 11/16	22 0.8661	21.40 27/32	4.8 3/16	63.5 2 1/2	18.30 23/32	4.550 0.179	56.40 2 7/32	0.949	2.09	20000 4500	36300 8160
G1111KLL	G1111KLLB	S1111K		1 11/16										0.899	1.98		
G1112KLL	G1112KLLB	S1112K		1 3/4										0.853	1.88		
-	G1113KLLB	S1113K		1 13/16													
G1114KLL	G1114KLLB	S1114K	210	1 7/8	90 3.5433	49.21 1 15/16	23 0.9055	24.60 31/32	4.8 3/16	69.9 2 3/4	18.30 23/32	4.700 0.185	62.70 2 15/32	1.148	2.53	22700 5100	39000 8800
G1115KLL	G1115KLLB	S1115K		1 15/16										1.090	2.40		
G1200KLL	G1200KLLB	S1200K		2										1.031	2.27		
-	G1201KLLB	S1201K	211	2 1/16	100 3.9370	55.56 2 3/16	24 0.9450	27.80 1 3/32	4.8 3/16	76.2 3	20.60 13/16	5.000 0.197	71.40 2 13/16	1.593	3.51	28500 6400	48000 10800
-	G1202KLLB	S1202K		2 1/8										1.512	3.33		
G1203KLL	G1203KLLB	S1203K		2 3/16										1.416	3.12		
G1204KLL	G1204KLLB	S1204K		2 1/4										1.285	2.83		
-	G1205KLLB	S1205K	212	2 5/16	110 4.3307	61.91 2 7/16	27 1.0630	31.00 1 7/32	6.4 1/4	84.1 3 5/16	22.20 7/8	5.130 0.202	77.80 3 1/16	2.030	4.47	35600 8000	58500 13200
-	G1206KLLB	S1206K		2 3/8										1.938	4.27		
G1207KLL	G1207KLLB	S1207K		2 7/16										1.852	4.08		
-	G1215KLLB	S1215K		2 15/16										1.789	3.94		
-	G1215KLLB	S1215K	215	2 15/16	130 5.1181	74.61 2 15/16	25 0.9843	37.30 1 15/32	6.4 1/4	101.6 4	23.80 15/16	5.560 0.219	91.20 3 5/8	2.837	6.25	43600 9800	69500 15600

NOTE: Bore tolerance: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
2 1/4 in. – 2 15/16 in., nominal to +0.015 mm, +0.0006 in.

### KLLG SPECIAL SERIES WITH WIRELOC®

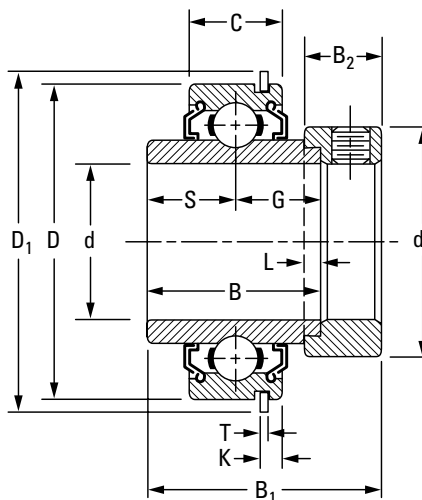
- KLLG wide-inner-ring ball bearings are the same as the KLL type, except for a snap ring, or Wireloc®, in the outer ring.
- The Wireloc mounting provides a convenient method of positively locating a bearing axially.

#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 7/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify bearing number followed by "+ COL".

Example: 1008KLLG + COL.



Bearing No.	Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S(G)	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	Snap Ring Dimensions			Brg. and Collar Wt.		Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>			
					Inner B	Outer C						D <sub>1</sub>	T	K	kg	lbs.			N	N	
				in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg	lbs.	N	N			
1008KLLG	S1008K	203	1/2	40	27.78	12	13.90	4.0	28.6	13.5	37.3	44.45	1.07	3.05	0.173	0.38	4700	10700			
1009KLLG	S1009K		9/16	1.5748	1 3/32	0.4724	35/64	5/32	1 1/8	17/32	115/32	1 3/4	0.042	0.120	0.154	0.34			1060	2400	
1010KLLG	S1010K		5/8													0.141			0.31		
1011KLLG	S1011K		11/16													0.132			0.29		
1012KLLG	S1012K	204	3/4	47	34.13	14	17.10	4.0	33.3	13.5	43.7	52.39	1.07	3.45	0.204	0.45	6200	14300			
1013KLLG	S1013K		13/16	1.8504	1 11/32	0.5512	43/64	5/32	1 5/16	17/32	1 23/32	2 1/16	0.042	0.136	0.272	0.60			1400	3200	
1014KLLG	S1014K		7/8													0.263			0.58		
1015KLLG	S1015K		15/16													0.245			0.54		
1100KLLG	S1100K		1												0.227	0.50					
1101KLLG	S1101K	206	1 1/16	62	36.51	16	18.30	4.0	44.4	15.9	48.4	67.47	1.65	4.83	0.427	0.94	11100	21800			
1102KLLG	S1102K		1 1/8	2.4409	1 7/16	0.6299	23/32	5/32	1 3/4	5/8	1 29/32	2 21/32	0.065	0.190	0.386	0.85			2500	4900	
1103KLLG	S1103K		1 3/16													0.386			0.85		
1104KLLG	S1104K		1 1/4													0.645			1.42		
1105KLLG	S1105K	207	1 5/16	72	37.70	17	18.85	4.0	54.0	17.1	51.2	78.18	1.65	4.83	0.604	1.33	15100	28500			
1106KLLG	S1106K		1 3/8	2.8346	1 31/64	0.6693	0.742	5/32	2 1/8	43/64	2 1/64	3 5/64	0.065	0.190	0.577	1.27			3400	6400	
1107KLLG	S1107K		1 7/16													0.540			1.19		
1108KLLG	S1108KT		1 1/2													0.826			1.82		
1109KLLG	S1109KT	1 9/16		80	42.86	18	21.40	4.8	60.3	18.3	56.4	86.52	1.65	4.83	0.826	1.73	17600	36200			
1110KLLG	S1110K	209	1 5/8	85	42.86	19	21.40	4.8	63.5	18.3	56.4	91.28	1.65	4.83	0.922	2.03	20000	36300			
1111KLLG	S1111K		1 11/16	3.3465	1 11/16	0.7480	27/32	3/16	2 1/2	23/32	2 7/32	3 19/32	0.065	0.190	0.881	1.94			4500	8160	
1112KLLG	S1112K		1 3/4													0.844			1.86		
1113KLLG	S1113K		1 13/16													1.035			2.28		
1114KLLG	S1114K	210	1 7/8	90	49.21	20	24.60	4.8	69.9	18.3	62.7	96.44	2.41	5.59	1.003	2.21	22700	39000			
1115KLLG	S1115K		1 15/16	3.5433	1 15/16	0.7874	31/32	3/16	2 3/4	23/32	2 15/32	3 51/64	0.095	0.220	0.971	2.14			5100	8800	
1200KLLG	S1200K		2													1.475			3.25		
1201KLLG	S1201K		2 1/16		100	55.56	21	27.80	4.8	76.2	20.6	71.4	106.36	2.41	5.59	1.444			3.18	28500	48000
1202KLLG	S1202K	211	2 1/8	3.9370	2 3/16	0.8268	1 3/32	3/16	3	13/16	2 13/16	4 3/16	0.095	0.220	1.380	3.08	6400	10800			
1203KLLG	S1203K		2 3/16													1.353	2.98				
1204KLLG	S1204K		2 1/4													1.793	3.95				
1205KLLG	S1205K		2 5/16		110	61.91	22	30.96	6.4	84.1	22.2	77.8	116.28	2.41	5.59	1.743	3.84	35600	58500		
1206KLLG	S1206K	212	2 3/8	4.3307	2 7/16	0.8661	1 7/32	1/4	3 5/16	7/8	3 1/16	4 37/64	0.095	0.220	1.711	3.77	8000	13200			
1207KLLG	S1207K		2 7/16													1.684	3.71				

NOTE: Bore tolerance: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
2 1/4 in. – 2 7/16 in., nominal to +0.015 mm, +0.0006 in.



### GC-KRRB INDUSTRIAL-SERIES CONCENTRIC COLLAR, RELUBRICATABLE TYPES

- These bearing are relubricatable with spherical outside diameters and shroud seals.
- The metal shroud maintains tight seal contact against the inner ring and shields the rubber seals from damage because of dirt or fiber wrap.
- The concentric collar is locked to the shaft by two set screws located 120 degrees apart, mated with threaded holes in the collar and drilled holes in the bearing inner ring.
- The extra-wide design provides additional shaft support and extra-large grease capacity.

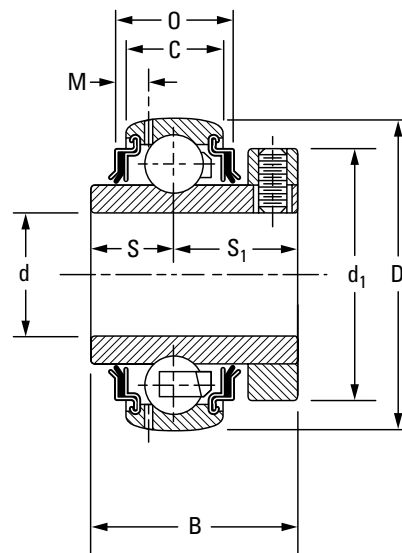
#### Suggested shaft tolerances:

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify bearing number.

Example: GC1103KRRB + COL.



Bearing No.	Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths		S	S <sub>1</sub>	d <sub>1</sub>	M	O	Set Screw Size	Brg. and Collar Wt.	Static Load Rating	Extended Dynamic Load Rating									
					Inner	Outer																		
Spherical O.D.			d	D	B	C								C <sub>0</sub>	C <sub>E</sub>									
			in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	N	N									
			mm	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.	lbs.									
GC1008KRRB	C203	203	1/2	40	26.59	12	11.1	15.5	34.1	2.72	14.71	M5x0.8	0.154	4700	10600									
GC1010KRRB			5/8										1.5748			1 3/64	0.4720	7/16	39/64	1 1/32	0.107	0.579	0.145	0.32
GC1011KRRB			1 1/16																				0.122	0.27
GCE17KRRB			17																				0.122	0.27
GC1012KRRB	C204	204	3/4	47	30.96	14	12.3	18.7	38.1	3.43	20.68	M5x0.8	0.204	6200	14300									
GCE20KRRB			20										1.8504			1 7/32	0.5510	3 1/64	47/64	1 1/2	0.135	0.814	0.204	0.45
GC1014KRRB	C205	205	7/8	52	34.13	15	13.9	20.2	44.4	3.61	19.74	M6x1	0.272	7700	15800									
GC1015KRRB			15/16										2.0472			1 11/32	0.5905	35/64	51/64	1 3/4	0.142	0.777	0.254	0.56
GC1100KRRB			1																				0.231	0.51
GCE25KRRB			25																				0.231	0.51
GC1102KRRB	C206	206	1 1/8	62	37.31	18	14.7	22.6	52.4	4.19	24.51	M6x1	0.404	11100	21800									
GC1103KRRB			1 3/16										2.4409			1 15/32	0.7090	37/64	57/64	2 1/16	0.156	0.965	0.376	0.83
GC1103KRRB3			1 1/4																				0.349	0.77
GCE30KRRB			30																				0.376	0.83
GC1104KRRB	C207	207	1 1/4	72	41.28	19	15.9	25.4	59.5	3.68	25.86	M6x1	0.653	15100	28500									
GC1106KRRB			1 3/8										2.8346			1 5/8	0.7481	5/8	1	2 11/32	0.145	1.018	0.572	1.26
GC1107KRRB			1 7/16																				0.544	1.20
GCE35KRRB			35																				0.572	1.26
GC1108KRRB	C208	208	1 1/2	80	44.05	21	16.7	27.4	68.3	5.66	28.42	M8x1.25	0.789	19800	20500									
GCE40KRRB			40										3.1496			1 47/64	0.8270	2 1/32	1 5/64	2 11/16	0.223	1.119	0.739	1.63
GC1110KRRB	C209-2	209	1 5/8	85	46.83	22	17.5	29.4	73.0	4.55	32.21	M8x1.25	0.898	36200	36300									
GC1111KRRB			1 11/16										3.3465			1 27/32	0.8660	1 11/16	1 5/32	2 7/8	0.179	1.268	0.848	1.87
GC1112KRRB	C209	209	1 3/4										0.826	8130	8160									
GCE45KRRB			45									0.826	1.82											
GC1115KRRB	C210	210	1 15/16	90	48.42	23	18.3	30.2	79.4	4.70	32.23	M8x1.25	0.990	22700	39200									
GCE50KRRB			50										3.5433			1 29/32	0.9060	23/32	1 3/16	3 1/8	0.185	1.269	0.990	2.18
GC1200KRRB	C211	211	2	100	53.97	24	20.6	33.3	88.9	5.41	33.73	M10x1.5	1.520	28500	48000									
GC1203KRRB			2 3/16										3.9370			2 1/8	0.9450	13/16	1 5/16	3 1/2	0.213	1.328	1.306	2.88
GCE55KRRB			55																				1.306	2.88
GC1207KRRB			2 7/16																					
GCE60KRRB	C212	212	60	4.3307	2 3/8	1.0630	29/32	1 15/32	3 3/4	0.202	1.379	3/8-24	1.565	3.45	35600	58800								
GC1215KRRB			2 15/16												8000	13200								
GCE75KRRB	C215	215	75	5.1181	2 25/32	1.1420	1 1/16	1 23/32	4 1/2	0.219	1.506	3/8-20	2.640	5.82	43600	69500								
															9800	15600								

NOTE: Bore tolerances: 1 3/16 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
2 1/4 in. – 3 3/16 in., nominal to +0.015 mm, +0.0006 in.



**SM INDUSTRIAL SERIES A AND B TYPES/MUA-B INSERTS<sup>(1)</sup>**

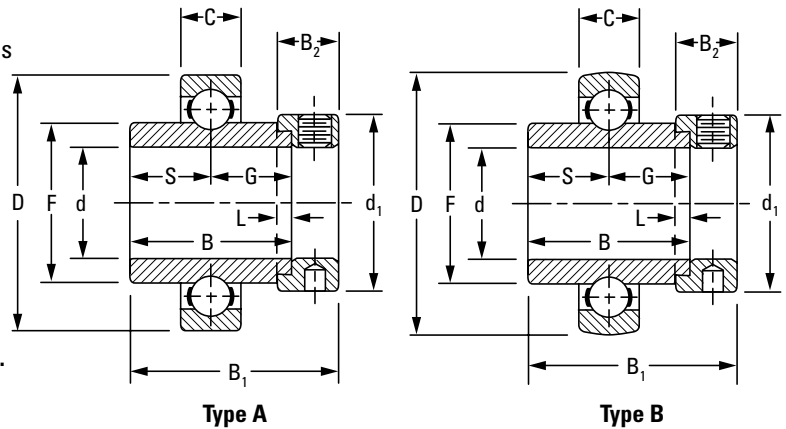
- Standard SM series A and B have the same ring tolerances and corner radii as equivalent 200-series single-row radial ball bearings.
- Type A has cylindrical outside diameters; type B has spherical outside diameters. The letter B appears on the outer ring only.
- The bearings are not prelubricated.

**Suggested shaft tolerances:**

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
 2 in. – 3 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify bearing number followed by "+ COL".**

Example: SM1207KB + COL.



Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S(G)	F	L	d <sub>1</sub>	B <sub>1</sub>	B <sub>2</sub>	Brg. and Collar Wt.	Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>														
A Type <sup>(2)</sup>	B Type					Inner B	Outer C																							
																kg	lbs.	N	N											
																in.	mm	in.	mm											
SM1008K	SM1008KB	S1008K	203	1/2	40	27.78	12	13.90	22.86	4.0	28.60	37.30	13.50	0.145	0.32	4700	10600													
SM1009K	SM1009KB	S1009K		9/16														1.5748	1 3/32	0.4724	35/64	0.900	5/32	1 1/8	1 15/32	17/32	0.131	0.29	1600	2360
SM1010K	SM1010KB	S1010K		5/8														47	34.13	14	17.10	27.56	4.0	33.30	48.66	13.50	0.195	0.43	6200	14300
SM1011K	SM1011KB	S1011K		11/16																										
SM1012K	SM1012KB	S1012K	204	3/4	52	34.93	15	17.50	33.83	4.0	38.10	44.45	13.50	0.276	0.61	6950	15600													
SM1013K	SM1013KB	S1013K	13/16	2.0472														1 3/8	0.5906	11/16	1.332	5/32	1 1/2	1 3/4	17/32	0.254	0.56	1730	3450	
SM1014K	SM1014KB	S1014K	7/8	62														36.51	16	18.30	40.31	4.0	44.40	48.40	15.90	0.399	0.88	11100	21600	
SM1015K	SM1015KB	S1015K	15/16																											2.4409
SM1100K	SM1100KB	S1100K	206	1	72	37.70	17	18.85	46.13	4.0	54.00	51.20	17.46	0.621	1.37	15100	28500													
SM1101K	SM1101KB	S1101K		1 1/16														80	42.86	18	21.40	52.27	4.8	60.30	56.40	18.30	0.761	1.68	19600	36000
SM1102K	SM1102KB	S1102K		1 1/8																										
SM1103K	SM1103KB	S1103K		1 3/16														85	42.86	19	21.40	57.92	4.8	63.50	56.40	18.30	0.875	1.93	20000	36000
SM1104K	SM1104KB	S1104K	1 1/4	208	S1108KT	S1109KT	27/32	2.058	3/16	2 3/8	27/32	23/32	0.716	1.58	4400	8150														
SM1105K	SM1105KB	S1105K	1 5/16														209													
SM1106K	SM1106KB	S1106K	1 3/8	80	42.86	18	21.40	52.27	4.8	60.30	56.40	18.30	0.761	1.68	19600	36000														
SM1107K	SM1107KB	S1107K	1 7/16															3.1496	1 11/16	0.7087 <sup>(5)</sup>	27/32	2.058	3/16	2 3/8	27/32	23/32	0.716	1.58	4400	8150
SM1108KT	SM1108KB	S1108KT	208	1 1/2	85	42.86	19	21.40	57.92	4.8	63.50	56.40	18.30	0.875	1.93	20000		36000												
SM1109KT	–	S1109KT	1 9/16	3.1496													1 11/16		0.7087 <sup>(5)</sup>	27/32	2.058	3/16	2 3/8	27/32	23/32	0.716	1.58	4400	8150	
SM1110K	SM1110KB	S1110K	209	1 5/8													85		42.86	19	21.40	57.92	4.8	63.50	56.40	18.30	0.875	1.93	20000	36000
SM1111K	SM1111KB	S1111K		1 11/16																										
SM1112K	SM1112KB	S1112K		1 3/4	3.3465	1 11/16	0.7480	27/32	2.280	3/16	2 1/2	27/32	23/32	0.803	1.77	4500		8150												

<sup>(1)</sup>See page A-159.

<sup>(2)</sup>Order as MUA assembly suggested.

<sup>(3)</sup>Spherical O.D. outer-ring width is 18 mm (0.7087 in.).

<sup>(4)</sup>Spherical O.D. outer-ring width is 19 mm (0.7480 in.).

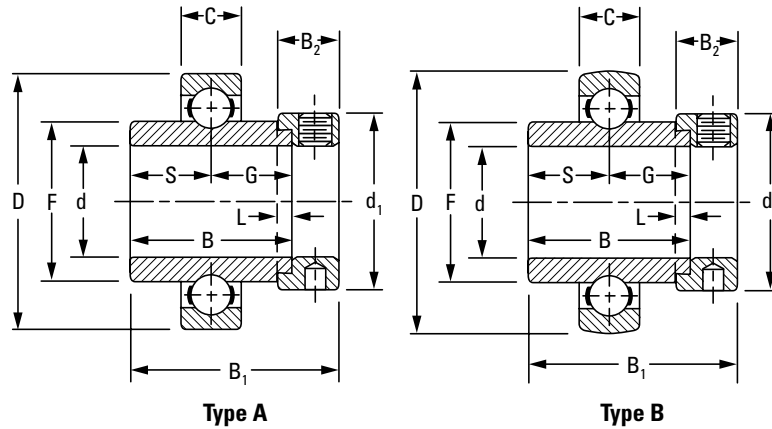
<sup>(5)</sup>Spherical O.D. outer-ring width is 21 mm (0.8268 in.).

<sup>(6)</sup>For applications where thrust load exceeds 60 percent of radial load, consult your Timken engineer.

NOTE: Bore tolerance: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
 2 1/4 in. – 3 3/16 in., nominal to +0.015 mm, +0.0006 in.  
 3 1/4 in. – 3 15/16 in., nominal to +0.018 mm, +0.0007 in.

Continued on next page.

**SM INDUSTRIAL SERIES A AND B TYPES/MUA-B INSERTS<sup>(1)</sup> – continued**



Continued from previous page.

Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S(G)	F	L	d <sub>1</sub>	B <sub>1</sub>	B <sub>2</sub>	Brg. and Collar Wt.	Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>	
A Type <sup>(2)</sup>	B Type					Inner B	Outer C										
				in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	N lbs.	N lbs.	
SM1113K	SM1113KB	S1113K	210	1 13/16	90 3.5433	49.21 1 15/16	20 0.7874	24.60 31/32	62.84 2.474	4.8 3/16	69.90 2 3/4	62.70 2 15/32	18.30 23/32	1.075	2.37	22700 5100	39000 8800
SM1114K	SM1114KB	S1114K		1 7/8													
SM1115K	SM1115KB	S1115K		1 15/16													
SM1200K	SM1200KB	S1200K	211	2	100 3.9370	55.56 2 9/16	21 0.8268	27.80 1 3/32	69.77 2.747	4.8 3/16	76.20 3	71.40 2 13/16	20.60 13/16	1.51	3.33	28500 6400	48000 10800
SM1201K	SM1201KB	S1201K		2 1/16													
SM1202K	SM1202KB	S1202K		2 1/8													
SM1203K	SM1203KB	S1203K	212	2 3/16	110 4.3307	61.91 2 7/16	22 0.8661	30.96 1 7/32	76.48 3.011	6.4 1/4	84.14 3 5/16	77.80 3 1/16	22.33 7/8	1.860	4.10	35600 8000	58500 13200
SM1204K	SM1204KB	S1204K		2 1/4													
SM1205K	SM1205KB	S1205K		2 5/16													
SM1206K	SM1206KB	S1206K	213	2 3/8	120 4.7244	68.26 2 11/16	23 0.9055	34.13 1 11/32	84.58 3.330	6.4 1/4	96.84 3 13/16	85.73 3 3/8	23.81 15/16	2.472	5.45	39200 8800	63000 14300
SM1207K	SM1207KB	S1207K		2 7/16													
SM1208K	SM1208KB	S1208K		2 1/2													
SM1211KT	SM1211KTB	S1211KT	214	2 11/16	125 4.9213	68.26 2 11/16	24 0.9449	34.13 1 11/32	86.92 3.422	6.4 1/4	96.84 3 13/16	85.73 3 3/8	23.81 15/16	2.418	5.33	43000 9650	69500 15600
SM1213K	SM1213KB	S1213K		2 13/16													
SM1215K	SM1215KB	S1215K		2 15/16													
SM1303K	SM1303KB	S1303K	215	3	140 5.5118	80.96 3 3/16	26 1.0236	40.48 1 19/32	98.40 3.874	6.4 1/4	111.13 4 3/8	100.01 3 15/16	25.40 1	3.452	7.61	53400 12000	80000 18000
SM1307K	SM1307KB	S1307K		3 3/16													
SM1311W-BR	SM1311WB-BR <sup>(6)</sup>	S1311K		3 11/16													
SM1307K	SM1307KB	S1307K	216	3 3/16	150 5.9055	87.31 3 7/16	28 1.1024	43.66 1 23/32	104.83 4.127	6.4 1/4	112.71 4 7/16	106.36 4 3/16	25.40 1	3.901	8.60	61000 13700	93000 20800
SM1311W-BR	SM1311WB-BR <sup>(6)</sup>	S1311K		3 11/16													
SM1315W-BR	SM1315WB-BR <sup>(6)</sup>	S1315		3 15/16													
SM1315W-BR	SM1315WB-BR <sup>(6)</sup>	S1315	217	3 7/16	170 6.6929	93.66 3 11/16	32 1.2598	46.83 1 27/32	118.34 4.659	6.4 1/4	127.00 5	114.30 4 1/2	26.99 1 1/16	6.078	13.40	113600 25500	150000 34000
SM1315W-BR	SM1315WB-BR <sup>(6)</sup>	S1315		3 15/16													
SM1315W-BR	SM1315WB-BR <sup>(6)</sup>	S1315		3 15/16													
SM1315W-BR	SM1315WB-BR <sup>(6)</sup>	S1315	220	3 15/16	180 7.0866	100.01 3 15/16	34 1.3386	50.00 1 31/32	123.85 4.876	6.4 1/4	139.70 5 1/2	125.41 4 15/16	31.75 1 1/4	7.335	16.17	126900 28500	170000 38000
SM1315W-BR	SM1315WB-BR <sup>(6)</sup>	S1315		3 15/16													
SM1315W-BR	SM1315WB-BR <sup>(6)</sup>	S1315		3 15/16													

<sup>(1)</sup> See page A-159.

<sup>(2)</sup> Order as MUA assembly suggested.

<sup>(3)</sup> Spherical O.D. outer-ring width is 18 mm (0.7087 in.).

<sup>(4)</sup> Spherical O.D. outer-ring width is 19 mm (0.7480 in.).

<sup>(5)</sup> Spherical O.D. outer-ring width is 21 mm (0.8268 in.).

<sup>(6)</sup> For applications where thrust load exceeds 60 percent of radial load, consult your Timken engineer.

NOTE: Bore tolerance: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.

2 1/4 in. – 3 3/16 in., nominal to +0.015 mm, +0.0006 in.

3 1/4 in. – 3 15/16 in., nominal to +0.018 mm, +0.0007 in.

## SM-S INDUSTRIAL SERIES

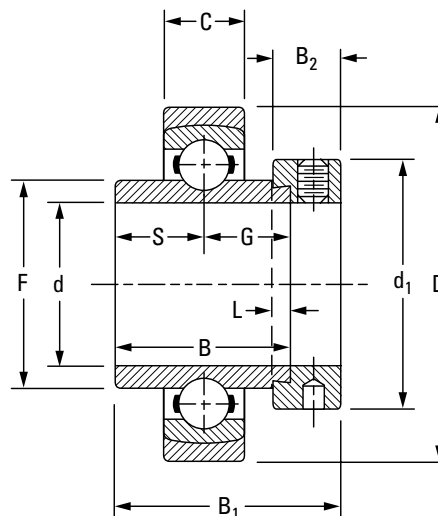
- Standard SM-S series permits the inner assembly to swivel in the outer aligning ring.
- The unrestricted self-alignment is achieved by allowing the inner ring to become square and true with the shaft and assembly.
- The external S-ring is uniquely ground and closely matched to its respective outer-bearing ring. The S-ring of one bearing will not fit the outer ring of another bearing.
- The bearings are not prelubricated.

### Suggested shaft tolerances:

- 1 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 3 15/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify bearing number followed by "+ COL".

Example: SM1100KS + COL.



Bearing No.	Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S(G)	F	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	Brg. and Collar Wt.		Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>
					Inner B	Outer C							kg	lbs.		
			in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg	lbs.	N lbs.	N lbs.
SM1100KS	S1100K	205	1	57 2.2441	34.93 1 3/8	15 0.5910	17.46 11/16	33.83 1.332	4.0 5/32	38.10 1 1/2	13.50 17/32	44.10 1 47/64	0.263 0.58	0.58	7700 1730	15600 3450
SM1103KS	S1103K	206	1 3/16	68 2.6772	36.51 1 7/16	16 0.6300	18.30 23/32	39.12 1.540	4.0 5/32	44.40 1 3/4	15.90 5/8	48.40 1 29/32	0.418 0.92	0.92	11100 2500	21600 4800
SM1104KS	S1104K	207	1 1/4	79	37.70	17	18.85	46.13	4.0	54.40	17.46	51.20	0.726	1.60	11500	28500
SM1107KS	S1107K		1 7/16	3.1102	1 31/64	0.6690	0.742	1.816	5/32	2 1/8	11/16	2 1/64	0.658	1.45	3400	6400
SM1108KS	S1108KT	208	1 1/2	88 3.4646	42.86 1 11/16	18 0.7090	21.40 27/32	52.27 2.058	4.8 3/16	60.30 2 3/8	18.30 23/32	56.40 27/32	0.903 1.99	1.99	19600 4400	36000 8150
SM1115KS	S1115K	210	1 15/16	100 3.9370	49.21 1 15/16	20 0.7874	24.60 31/32	62.84 2.474	4.8 3/16	69.90 2 3/4	18.30 23/32	62.70 2 15/32	1.185 2.61	2.61	22700 5100	39000 8800
SM1203KS	S1203K	211	2 3/16	110 4.3307	55.56 2 3/16	21 0.8268	27.80 1 3/32	69.77 2.747	4.8 3/16	76.20 3	20.60 13/16	71.40 2 13/16	1.748 3.85	3.85	28500 6400	48000 10800
SM1207KS	S1207K	212	2 7/16	120 4.7244	61.91 2 7/16	22 0.8661	30.96 1 7/32	76.48 3.011	6.4 1/4	84.14 3 5/16	22.20 7/8	77.80 3 1/16	1.907 4.20	4.20	35600 8000	58500 13200
SM1211KS	S1211KT	214	2 11/16	140 5.5118	68.26 2 11/16	24 0.9449	34.13 1 11/32	86.92 3.422	6.4 1/4	96.84 3 13/16	23.81 15/16	79.40 3 3/8	2.974 6.55	6.55	43000 9650	69500 15600
SM1215KS	S1215K	215	2 15/16	145 5.7087	74.61 2 15/16	25 0.9843	37.30 1 15/32	91.92 3.619	6.4 1/4	101.60 4	23.81 15/16	92.08 3 5/8	3.541 7.80	7.80	43600 9800	68000 15300
SM1303KS	S1303K	216	3 3/16	155 6.1024	80.96 3 3/16	26 1.0236	40.48 1 19/32	98.40 3.874	6.4 1/4	111.13 4 3/8	25.40 1	100.01 3 15/16	4.150 9.14	9.14	53400 12000	80000 18000
SM1307KS	S1307K	217	3 7/16	165 6.4961	87.31 3 7/16	28 1.1024	43.66 1 23/32	104.83 4.127	6.4 1/4	112.71 4 7/16	25.40 1	106.36 4 3/16	4.690 10.33	10.33	61000 13700	93000 20800
SM1315WS <sup>(1)</sup>	S1315K	220	3 15/16	200 7.8740	100.01 3 15/16	34 1.3386	50.00 1 31/32	123.85 4.876	6.4 1/4	139.70 5 1/2	31.75 1 1/4	125.41 4 15/16	8.939 19.69	19.69	126900 28500	170000 38000

<sup>(1)</sup>For applications where thrust load exceeds 60 percent of radial load, consult your Timken engineer.

NOTE: Bore tolerance: 1 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.

2 1/4 in. – 3 3/16 in., nominal to +0.015 mm, +0.0006 in.

3 1/4 in. – 3 15/16 in., nominal to +0.018 mm, +0.0007 in.

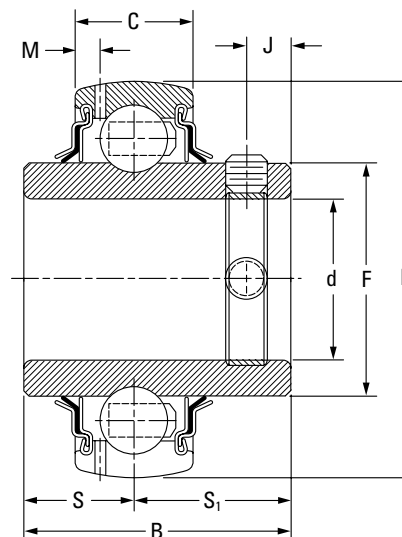
### GY-KRRB SET SCREW INDUSTRIAL SERIES

- Incorporates Shaft Guarding Technology, which reduces replacement time, provides shaft protection and prolongs the life of the shaft.
- The Y-series set screw bearing has increased shaft support for HVAC and other industrial applications.
- The Y series features superfinished raceways, grade-10 balls and anti-back-out nylon-patch set screws; they are factory-prelubricated and relubricatable.
- The set screw mounting feature is ideal for reversing load applications.

#### Suggested shaft tolerances:

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

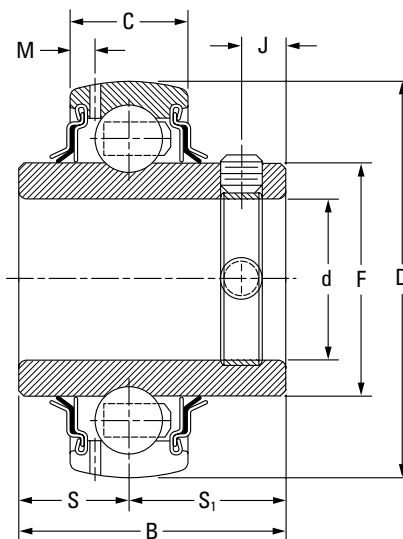
2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.



Bearing No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	S <sub>1</sub>	F	M	J	Set Screw Size	Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>
				Inner B	Outer C								
		in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.
GY1008KRRB	203	1/2	40	27.38	12	11.50	15.88	22.86	2.72	4.55	M5X.8	4400	10600
GY1009KRRB		9/16											
GY1010KRRB		5/8											
GY1011KRRB		11/16											
GYE15KRRB		15											
GYE17KRRB		17											
GY1012KRRB SGT	204	3/4	47	31.80	14	12.70	19.10	27.56	3.43	5.87	M5X.8	6200	14300
GYE20KRRB SGT		20											
GY1013KRRB	205	13/16	52	34.85	15	14.27	20.56	33.83	3.86	6.80	M6X1	7700	15800
GY1014KRRB SGT		7/8											
GY1015KRRB SGT		15/16											
GY1100KRRB SGT		1											
GYE25KRRB SGT		25											
GY1101KRRB		1 1/16											
GY1102KRRB SGT	1 1/8	62	39.10	18	15.88	23.24	40.31	3.96	8.63	M6X1	11000	21600	
GY1103KRRB SGT	1 3/16												
GY1103KRRB3	1 1/4												
GYE30KRRB SGT	30												
GY1104KRRB SGT	1 1/4												
GY1105KRRB	1 5/16												
GY1106KRRB SGT	1 3/8	72	45.41	19	17.48	27.94	46.18	3.68	10.36	M8X1.25	15100	28500	
GY1107KRRB SGT	1 7/16												
GYE35KRRB SGT	35												
GY1108KRRB SGT	1 1/2												
GY1109KRRB	1 9/16	80	49.22	21	19.05	30.17	52.27	4.06	8.00	M8X1.25	19600	36000	
GYE40KRRB SGT	40												
GYE40KRRB SGT	40												

NOTE: Bore tolerances: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
2 1/4 in. – 3 15/16 in., nominal to +0.015 mm, +0.0006 in.

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Bearing No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	S <sub>1</sub>	F	M	J	Set Screw Size	Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>
				Inner B	Outer C								
		in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.
GY1110KRRB SGT	209	1 5/8	85 3.3465	50.37 1.9830	22 0.8661	19.05 0.750	31.32 1.2330	57.92 2.280	4.55 0.179	9.14 0.360	M8X1.25 5/16 – 24	20000 4500	36000 8150
GY1111KRRB SGT													
GY1112KRRB SGT													
GYE45KRRB SGT													
GY1113KRRB	210	1 13/16	90 3.5433	51.59 2.0310	22 0.8661	19.05 0.750	32.54 1.2810	62.84 2.474	4.70 0.185	10.00 0.394	M10X1.5 3/8 – 24	22700 5100	39000 8800
GY1114KRRB													
GY1115KRRB SGT													
GY1115KRRB3													
GYE50KRRB SGT	211	2	100 3.9370	55.55 2.1870	24 0.9450	22.22 0.875	33.32 1.3120	69.77 2.747	5.00 0.197	10.00 0.394	M10X1.5 3/8 – 24	28500 6400	48000 10800
GY1200KRRB SGT													
GY1201KRRB													
GY1202KRRB													
GY1203KRRB SGT	212	2 3/16	110 4.3307	65.07 2.5620	27 1.0630	25.40 1.000	39.67 1.5620	76.48 3.011	5.13 0.202	10.00 0.394	M10X1.5 3/8 – 24	35600 8000	58500 13200
GYE55KRRB SGT													
GY1204KRRB SGT													
GY1205KRRB													
GY1206KRRB	214	2 5/16	125 4.9213	69.85 2.7500	28 1.1020	26.97 1.062	42.84 1.6870	86.92 3.422	5.08 0.200	12.00 0.472	M12X1.75 7/16 – 20	37500 8500	69500 15600
GY1207KRRB SGT													
GYE70KRRB													
GY1210KRRB													
GY1211KRRB	215	2 1/4	130 5.1181	77.80 3.0630	29 1.1420	33.32 1.312	44.45 1.7500	91.92 3.619	5.56 0.219	12 0.472	M12X1.75 7/16 – 20	43600 9800	69500 15600
GY1212KRRB													
GY1214KRRB													
GY1215KRRB													
GYE75KRRB		2 3/4											

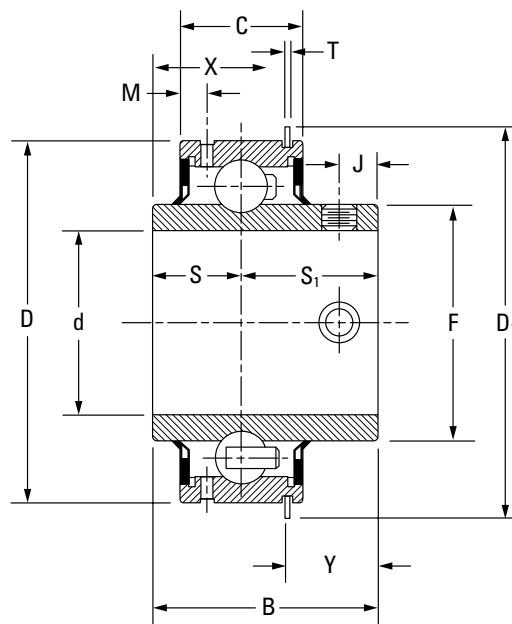
NOTE: Bore tolerances: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
2 1/4 in. – 3 15/16 in., nominal to +0.015 mm, +0.0006 in.

### ER INDUSTRIAL SERIES, RELUBRICATABLE TYPES

- Incorporates (optional) Shaft Guarding Technology, which reduces replacement time, provides shaft protection and prolongs shaft life.
- This bearing is designed for use in applications where low-starting torque and low-running torque are necessary.
- The ER-DD series is for applications where extremely low torque is required.
- Test results indicate an average of 95 percent reduction in start-up torque when using ER-DD instead of the standard ER bearing. Running torque is reduced up to 85–90 percent.

#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 3 7/16 in., nominal to -0.025 mm, -0.0010 in.



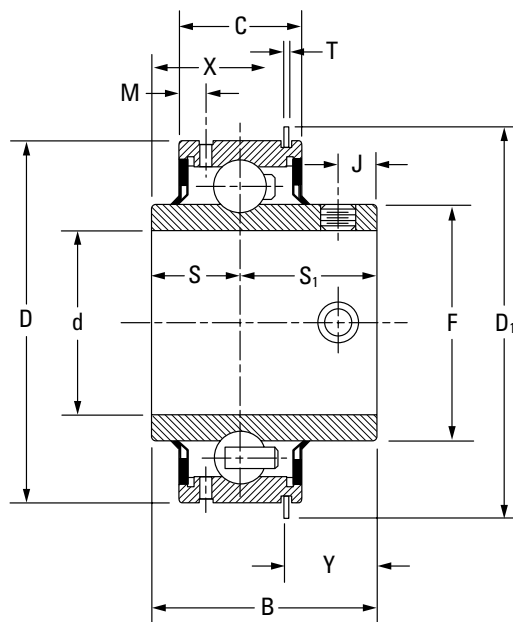
Bearing No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths										Set Screw Size	Brg. Wt.		Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>			
				Inner B	Outer C	S	S <sub>1</sub>	F	J	D <sub>1</sub>	Y	T	M		X	kg			lbs.		
		in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg	lbs.	N lbs.	N lbs.
ER08 <sup>(1)</sup>	204	1/2	47 1.850	30.963 1 7/32	15.817 5/8	12.700 1/2	18.263 64/89	27.546 1 5/64	5.131 13/64	52.400 2 6/95	16.612 1/16	1.067 3/64	3.861 5/32	14.351 9/16	M5X.8 10 - 32	0.190 0.167 0.141	0.42 0.37 0.31	6571.2 1480	14163.6 3190		
ER10 <sup>(1)</sup>		5/8																			
ER12 <sup>(1)(2)</sup>		3/4																			
ER14 <sup>(1)(2)</sup>	205	7/8	52 2.047	34.841 1 3/8	18.992 3/4	14.275 50/89	20.566 13/16	33.820 1 21/64	6.774 17/64	57.531 2 17/64	17.341 1/16	1.067 3/64	3.404 9/64	17.501 11/16	M6X1 1/4 - 28	0.218 0.195 0.181	0.480 0.43 0.40	7814.4 1760	15495.6 3490		
ER15 <sup>(2)</sup>		15/16																			
ER16 <sup>(1)(2)</sup>		1																			
ER18 <sup>(2)</sup>	206	1 1/8	62 2.441	39.116 1 35/64	22.167 7/8	15.875 5/8	23.241 59/64	40.297 1 37/64	8.636 11/32	67.285 2 41/64	18.948 3/4	1.651 1/16	5.563 7/32	20.168 51/64	M6X1 1/4 - 28	0.340 0.313	0.75 0.69	11233.2 2530	21534 4850		
ER19 <sup>(2)</sup>		1 3/16																			
ER20 <sup>(1)(2)</sup>	207	1 1/4	72 2.834	45.415 1 25/32	23.754 15/16	17.475 11/16	27.940 1 7/64	46.825 1 27/32	10.363 13/32	78.105 3 5/64	22.301 7/8	1.651 1/16	5.563 7/32	23.114 29/32	M8X1.25 5/16 - 24	0.567 0.499 0.476	1.25 1.10 1.05	15273.6 3440	28416 6400		
ER22 <sup>(1)(2)</sup>		1 3/8																			
ER23 <sup>(1)(2)</sup>		1 7/16																			
ER24 <sup>(1)(2)</sup>	208	1 1/2	80 3.149	49.225 1 15/16	27.722 1 3/32	19.050 3/4	30.175 1 3/16	52.261 2 3/64	8.001 5/16	86.106 3 25/64	21.158 53/64	1.651 1/16	6.350 1/4	28.067 1 7/64	M8X1.25 5/16 - 24	0.671	1.48	19802.4 4460	36097.2 8130		
ER27 <sup>(2)</sup>		1 11/16																			
ER28 <sup>(1)(2)</sup>	209	1 3/4	85 3.346	50.368 1 63/64	27.724 1 3/32	19.050 3/4	31.318 1 15/64	57.899 2 15/64	9.144 23/64	91.110 3 37/64	22.250 7/8	1.651 1/16	6.325 1/4	28.118 1 7/64	M8X1.25 5/16 - 24	0.735 0.690	1.62 1.52	20424 4600	36230.4 8160		
ER30		1 7/8																			
ER31 <sup>(2)</sup>	210	1 15/16	90 3.543	51.587 2 1/32	28.517 1 1/8	19.050 3/4	32.537 1 9/32	62.827 2 15/32	10.008 29/64	96.088 3 25/32	24.282 31/32	2.413 3/32	7.061 9/32	27.305 1 5/64	M10X1.5 3/8 - 24	0.853 0.834	1.88 1.84	23132.4 5210	38805.6 8740		
ER31 <sup>(2)</sup>		1 15/16																			

<sup>(1)</sup>DD low-drag/low-torque version is available.

<sup>(2)</sup>Available with Shaft Guarding Technology modification.

NOTE: Bore tolerances: 1.1874 in. – 2.1874 in. nominal to +0.013 mm, +0.0005 in.  
2.2500 in. – 3.1874 in. nominal to +0.015 mm, +0.0006 in.

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Bearing No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths										Set Screw Size	Brg. Wt.		Static Load Rating C <sub>o</sub>	Extended Dynamic Load Rating C <sub>E</sub>			
				Inner B	Outer C	S	S <sub>1</sub>	F	J	D <sub>1</sub>	Y	T	M		X	kg			lbs.	N	N
		in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg	lbs.	N	N
ER32 <sup>(1)(2)</sup>	211	2 3/16	100	55.56	30.16	22.22	33.34	69.85	9.92	106.4	24.28	2.4	7.14	31.27	M10X1.5	1.300	2.87	29170.8	47952		
ER35 <sup>(2)</sup>			3.9370	2 3/16	1 3/16	7/8	1 5/16	2 3/4	25/64	4 3/16	61/64	3/32	9/32	1 15/64	3/8 - 24	1.084	2.39	6570	10800		
ER39 <sup>(1)(2)</sup>	212	2 7/16	110	65.09	31.75	25.4	39.69	76.60	9.92	116.3	28.24	2.4	6.75	36.83	M10X1.5	1.450	3.20	35875.2	58164		
ER47			4.331	2 9/16	1 1/4	1	1 9/16	3 1/64	25/64	4 37/64	1.11	3/32	1 7/64	1 29/64	3/8 - 24	1.450	3.20	8080	13100		
ER47	215	2 15/16	130	77.79	38.1	33.33	44.45	91.68	11.91	139.7	33.02	2.8	6.35	44.78	M12X1.75	2.210	4.88	44844	68820		
ER51			5.1180	3 1/16	1 1/2	1 5/16	1 3/4	3 39/64	15/32	5 1/2	1.30	7/64	1/4	1 49/64	7/16 - 20	2.210	4.88	10100	15500		
ER51	216	3 3/16	140	77.79	42.86	28.58	49.21	98.43	13.49	149.6	35.32	2.8	11.11	42.47	M12X1.75	3.450	7.61	54168	79476		
ER55			5.5110	3 1/16	1 11/16	1 1/8	1 15/16	3 7/8	17/32	5 57/64	1.39	7/64	7/16	1 43/64	7/16 - 20	3.450	7.61	12200	17900		
ER55	217	3 7/16	150	85.72	49.21	34.16	51.57	104.84	11.91	159.5	34.53	2.8	11.02	51.21	M12X1.75	-	-	61716	92796		
			5.905	3 3/8	1 15/16	1 11/32	2 1/32	4 1/8	7/16	6 1/4	1.36	7/64	7/16	2 1/64	7/16 - 20	-	-	13900	20900		

<sup>(1)</sup>DD low-drag/low-torque version is available.

<sup>(2)</sup>Available with Shaft Guarding Technology modification.

NOTE: Bore tolerances: 1.1874 in. – 2.1874 in. nominal to +0.013 mm, +0.0005 in.  
2.2500 in. – 3.1874 in. nominal to +0.015 mm, +0.0006 in.

### STANDARD SERIES

#### RA-RR, RA-RRB NON-RELUBRICATABLE TYPES

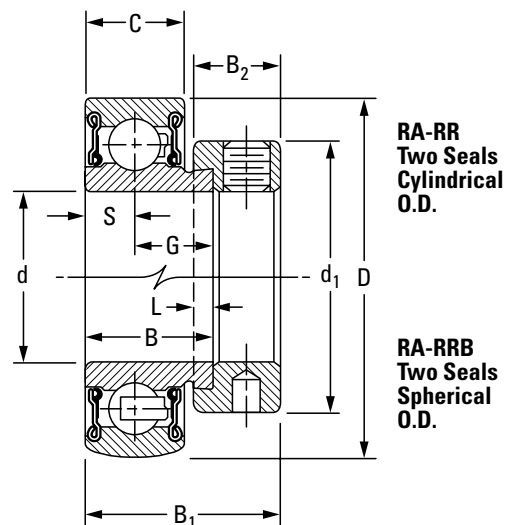
- These bearings are an extended inner-ring type with a self-locking collar.
- Due to the positive contact, the land-riding R-seal provides improved protection against harmful contaminants and retains lubricant under severe operating conditions.
- RA-RR series are factory-prelubricated and have cylindrical outside diameters.
- RA-RRB series have spherical outside diameters for use in housings with corresponding spherical inside surfaces to provide unrestricted initial alignment.

#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify bearing number followed by "+ COL".

Example: RA100RRB + COL.



Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	G	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	Brg. and Collar Wt.	Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>														
Cylindrical O.D.	Spherical O.D.					Inner	Outer																							
				in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	N	N														
				mm	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.	lbs.														
RA008RR	RA008RRB	S1008K	203	1/2	40	19.05	13	6.50	12.55	4.0	28.60	13.5	28.6	0.154	0.34	4700	10600													
RA009RR	RA009RRB	S1009K		9/16														1.5748	0.750	0.512 <sup>(1)</sup>	0.256	0.494	5/32	1 1/8	17/32	1 1/8	0.145	0.32	1060	2360
RA010RR	RA010RRB	S1010K		5/8														1.5748	0.750	0.512 <sup>(1)</sup>	0.256	0.494	5/32	1 1/8	17/32	1 1/8	0.127	0.28	1060	2360
RAE17RR	RAE17RRB	SE17K		17														1.5748	0.750	0.512 <sup>(1)</sup>	0.256	0.494	5/32	1 1/8	17/32	1 1/8	0.127	0.28	1060	2360
RA012RR	RA012RRB	S1012K	204	3/4	47	21.44	15	7.49	13.92	4.0	33.30	13.5	31.0	0.132	0.29	6200	14300													
RAE20RR	RAE20RRB	SE20K		20														1.8504	0.844	0.591 <sup>(2)</sup>	0.295	0.548	5/32	1 5/16	17/32	1 7/32	0.132	0.29	1400	3200
RA013RR	RA013RRB	S1013K	205	13/16	52	21.44	15	7.49	13.92	4.0	38.10	13.5	31.0	0.231	0.51	7700	15800													
RA014RR	RA014RRB	S1014K		7/8														2.0472	0.844	0.591	0.295	0.548	5/32	1 1/2	17/32	1 7/32	0.213	0.47	1730	3550
RA015RR	RA015RRB	S1015K		15/16														2.0472	0.844	0.591	0.295	0.548	5/32	1 1/2	17/32	1 7/32	0.200	0.44	1730	3550
RA100RR	RA100RRB	S1100K		1														2.0472	0.844	0.591	0.295	0.548	5/32	1 1/2	17/32	1 7/32	0.186	0.41	1730	3550
RAE25RR	RAE25RRB	SE25K	25	2.0472	0.844	0.591	0.295	0.548	5/32	1 1/2	17/32	1 7/32	0.186	0.41	1730	3550														
RA101RR	RA101RRB	S1101K	206	1 1/16	62	23.82	18	8.99	14.81	4.0	44.10	15.9	35.7	0.349	0.77	11100	21800													
RA102RR	RA102RRB	S1102K		1 1/8														2.4409	0.938	0.709	0.354	0.583	5/32	1 47/64	5/8	1 13/32	0.327	0.72	2500	4900
RA103RR	RA103RRB	S1103K		1 3/16														2.4409	0.938	0.709	0.354	0.583	5/32	1 47/64	5/8	1 13/32	0.318	0.70	2500	4900
RA103RR2	RA103RRB2	S1103K3		1 1/4														2.4409	0.938	0.709	0.354	0.583	5/32	1 47/64	5/8	1 13/32	0.295	0.65	2500	4900
RAE30RR	RAE30RRB	SE30K	30	2.4409	0.938	0.709	0.354	0.583	5/32	1 47/64	5/8	1 13/32	0.318	0.70	2500	4900														
RA104RR	RA104RRB	S1104K	207	1 1/4	72	25.40	19	9.50	15.90	4.0	54.40	17.1	38.9	0.562	1.24	15100	28500													
RA105RR	RA105RRB	S1105K		1 5/16														2.8346	1.000	0.748	0.374	0.626	5/32	2 1/8	43/64	1 17/32	0.540	1.19	3400	6400
RA106RR	RA106RRB	S1106K		1 3/8														2.8346	1.000	0.748	0.374	0.626	5/32	2 1/8	43/64	1 17/32	0.513	1.13	3400	6400
RA107RR	RA107RRB	S1107K		1 7/16														2.8346	1.000	0.748	0.374	0.626	5/32	2 1/8	43/64	1 17/32	0.476	1.05	3400	6400
RAE35RR	RAE35RRB	SE35K	35	2.8346	1.000	0.748	0.374	0.626	5/32	2 1/8	43/64	1 17/32	0.513	1.13	3400	6400														

<sup>(1)</sup>Spherical O.D. outer-ring width is 12 mm (0.472 in.).

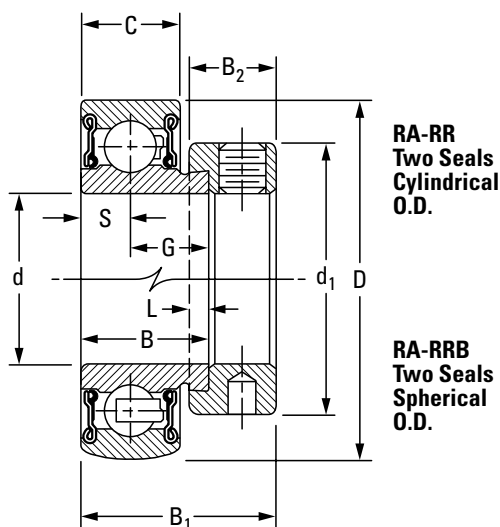
<sup>(2)</sup>Spherical O.D. outer-ring width is 14 mm (0.551 in.).

<sup>(3)</sup>Spherical O.D. outer-ring width is 21 mm (0.827 in.).

NOTE: Bore tolerance is nominal to +0.013 mm, +0.0005 in.

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Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths		S	G	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	Brg. and Collar Wt.	Static Load Rating	Extended Dynamic Load Rating	
Cylindrical O.D.	Spherical O.D.					Inner	Outer										C <sub>o</sub>
				d	D	B	C							kg	lbs.	N	N
				in.	mm	mm	mm	mm	mm	mm	mm	mm	mm			lbs.	lbs.
RA108RR	RA108RRB	S1108K	208	1 1/2	80 3.1496	30.18	22	11.00	19.18	4.8	60.30	18.3	43.7	0.694	1.53	19600	36000
RA109RR	RA109RRB	S1109K		1 9/16													
RAE40RR	RAE40RRB	SE40K		40													
RA110RR	RA110RRB	S1110K	209	1 5/8	85 3.3465	30.18	22	11.00	19.18	4.8	63.50	18.3	43.7	0.780	1.72	20000	36000
RA111RR	RA111RRB	S1111K		1 11/16													
RA112RR	RA112RRB	S1112K		1 3/4													
RAE45RR	RAE45RRB	SE45K		45													
RA113RR	RA113RRB	S1113K	210	1 13/16	90 3.5433	30.18	22	11.00	19.18	4.8	69.90	18.3	43.7	0.880	1.94	22700	39200
RA114RR	RA114RRB	S1114K		1 7/8													
RA115RR	RA115RRB	S1115K		1 15/16													
RA115RR2	RA115RRB2	S1115K2		2													
RAE50RR	RAE50RRB	SE50K		50													
RA200RR	RA200RRB	S1200K		2													
RA201RR	RA201RRB	S1201K	211	2 1/16	100 3.9370	32.54	24	11.99	20.55	4.8	76.20	20.6	48.4	0.962	2.12	28500	48000
RA202RR	RA202RRB	S1202K		2 1/8													
RA203RR	RA203RRB	S1203K		2 3/16													
RAE55RR	RAE55RRB	SE55K		55													
RAE55RR	RAE55RRB	SE55K		55													

<sup>(1)</sup>Spherical O.D. outer-ring width is 12 mm (0.472 in.).

<sup>(2)</sup>Spherical O.D. outer-ring width is 14 mm (0.551 in.).

<sup>(3)</sup>Spherical O.D. outer-ring width is 21 mm (0.827 in.).

NOTE: Bore tolerance is nominal to +0.013 mm, +0.0005 in.

# BALL BEARING HOUSED UNITS

WIDE-INNER-RING BALL BEARINGS • STANDARD SERIES • GRA-RR, GRA-RRB

## GRA-RR, GRA-RRB RELUBRICATABLE TYPES

- GRA-RR-series bearings are the same as the RA-RR series and have a provision for relubrication.
- GRA-RR series have cylindrical outside diameters.
- GRA-RRB have spherical outside diameters

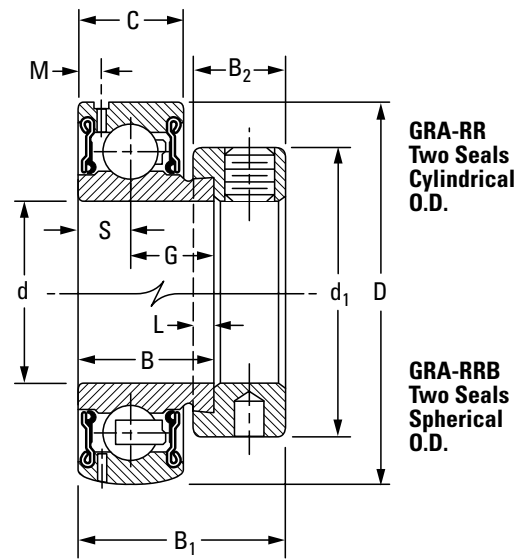
### Suggested shaft tolerances:

1/2 in. – 1 15/16 in., nominal to -0.13 mm, -0.0005 in.;

2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

To order, specify bearing number followed by "+ COL".

Example: GRA100RRB + COL.



Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	G	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	Brg. and Collar Wt. kg lbs.	Static Load Rating C <sub>0</sub> N lbs.	Extended Dynamic Load Rating C <sub>E</sub> N lbs.	
Cylindrical O.D.	Spherical O.D.					Inner B	Outer C											
GRA008RR	GRA008RRB	S1008K	203	1/2	40	19.05	13	6.50	12.55	4.0	28.6	13.5	2.72	28.6	0.154	0.34	4700	10600
—	GRA009RRB	S1009K		9/16														
GRA010RR	GRA010RRB	S1010K		5/8														
GRAE17RR	GRAE17RRB	SE17K		17														
GRA012RR	GRA012RRB	S1012K	204	3/4	47	21.44	15	7.49	13.92	4.0	33.3	13.5	3.05	31.0	0.132	0.29	6200	14300
GRAE20RR	GRAE20RRB	SE20K		20														
—	GRA013RRB	S1013K		13/16														
GRA014RR	GRA014RRB	S1014K		7/8														
—	GRA015RRB	S1015K	205	15/16	52	21.44	15	7.49	13.92	4.0	38.1	13.5	3.61	31.0	0.213	0.47	7700	15800
GRA100RR	GRA100RRB	S1100K		1														
GRAE25RR	GRAE25RRB	SE25K		25														
GRA015RR	GRA015RRB	S1015K		15/16														
GRA101RR	GRA101RRB	S1101K	206	1 1/16	62	23.83	18	8.99	14.81	4.0	44.1	15.9	4.17	35.7	0.349	0.77	11100	21800
GRA102RR	GRA102RRB	S1102K		1 1/8														
GRA103RR	GRA103RRB	S1103K		1 3/16														
GRA103RR2	GRA103RRB2	S1103K3		1 1/4														
GRAE30RR	GRAE30RRB	SE30K	207	30	72	25.40	19	9.50	15.90	4.0	54.0	17.1	3.68	38.9	0.562	1.24	15100	28500
GRA104RR	GRA104RRB	S1104K		1 1/4														
—	GRA105RRB	S1105K		1 5/16														
—	GRA106RRB	S1106K		1 3/8														
—	GRA107RRB	S1107K	207	1 7/16	72	25.40	19	9.50	15.90	4.0	54.0	17.1	3.68	38.9	0.562	1.24	15100	28500
GRAE35RR	GRAE35RRB	SE35K		35														

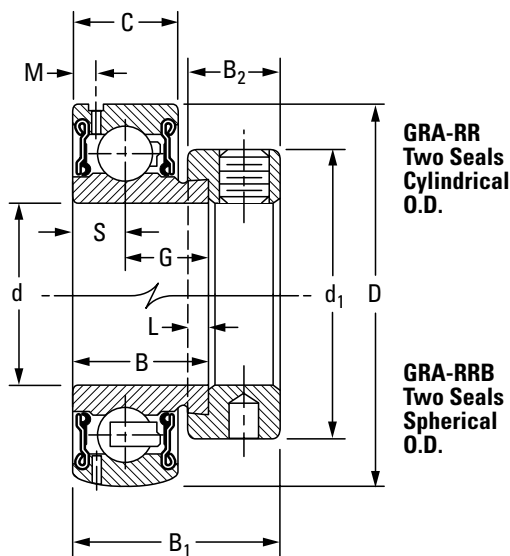
<sup>(1)</sup>Spherical O.D. outer-ring width is 12 mm (0.472 in.).

<sup>(2)</sup>Spherical O.D. outer-ring width is 14 mm (0.551 in.).

<sup>(3)</sup>Spherical O.D. outer-ring width is 21 mm (0.827 in.).

NOTE: Bore tolerance is nominal to +0.013 mm, +0.0005 in.

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Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	G	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	Brg. and Collar Wt.	Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>													
Cylindrical O.D.	Spherical O.D.					Inner B	Outer C																							
				in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	lbs.	N	N												
				mm	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.	lbs.	lbs.												
GRA108RR	GRA108RRB	S1108K	208	1 1/2	80	30.18	22	11.00	19.18	4.8	60.3	18.3	4.17	43.7	0.694	1.53	19600	36000												
—	GRA109RRB	S1109K		1 9/16											3.1496	1.188			0.866 <sup>(3)</sup>	0.433	0.755	3/16	2 3/8	23/32	0.164	1 23/32	0.649	1.43	4400	8150
GRAE40RR	GRAE40RRB	SE40K		40																							0.649	1.43		
—	GRA110RRB	S1110K	209	1 5/8	85	30.18	22	11.00	19.18	4.8	63.5	18.3	4.55	43.7	0.780	1.72	20500	36300												
—	GRA111RRB	S1111K		1 11/16											3.3465	1.188			0.866	0.433	0.755	3/16	2 1/2	23/32	0.179	1 23/32	0.735	1.62	4600	8160
—	GRA112RRB	S1112K		1 3/4																							0.680	1.50		
—	GRAE45RRB	SE45K		45																							0.680	1.50		
—	GRA113RRB	S1113K	210	1 13/16	90	30.18	22	11.00	19.18	4.8	69.9	18.3	4.44	43.7	0.880	1.94	22700	39200												
—	GRA114RRB	S1114K		1 7/8											3.5433	1.188			0.866	0.433	0.755	3/16	2 3/4	23/32	0.175	1 23/32	0.830	1.83	5100	8800
—	GRA115RRB	S1115K		1 15/16																							0.771	1.79		
—	GRA115RRB2	S1115K2		2																							0.717	1.58		
—	GRAE50RRB	SE50K		50																							0.771	1.79		
—	GRA200RRB	S1200K	211	2	100	32.54	24	11.99	20.55	4.8	76.2	20.6	4.90	48.4	0.962	2.12	28500	48000												
—	GRA201RRB	S1201K		2 1/16											3.9370	1.281			0.945	0.472	0.809	3/16	3	13/16	0.193	1 29/32	0.898	1.98	6400	10800
—	GRA202RRB	S1202K		2 1/8																							0.857	1.89		
—	GRA203RRB	S1203K		2 3/16																							0.807	1.78		
—	GRAE55RRB	SE55K		55																							0.807	1.78		

<sup>(1)</sup>Spherical O.D. outer-ring width is 12 mm (0.472 in.).

<sup>(2)</sup>Spherical O.D. outer-ring width is 14 mm (0.551 in.).

<sup>(3)</sup>Spherical O.D. outer-ring width is 21 mm (0.827 in.).

NOTE: Bore tolerance is nominal to +0.013 mm, +0.0005 in.

# BALL BEARING HOUSED UNITS

WIDE-INNER-RING BALL BEARINGS • STANDARD SERIES • RA-DD

## RA-DD NON-RELUBRICATABLE TYPES

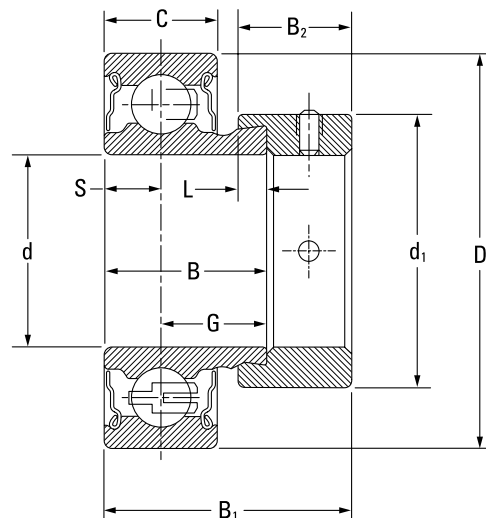
- These bearings are an extended inner-ring type with a self-locking collar.
- The two non-contact grease shields retain lubricant, provide protection against harmful contaminants and offer improved high-speed, low-torque performance.
- RA-DD series are factory-prelubricated and have cylindrical outside diameters.

### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify bearing number followed by "+ COL".

Example: RA100DD + COL.



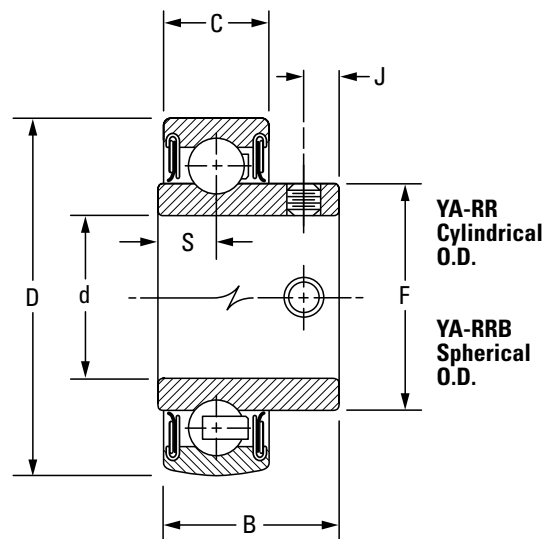
Bearing No.	Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	G	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>											
					Inner B	Outer C																			
			in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.											
RA008DD	S1008K	203	1/2	40.00	19.05	13.00	6.50	12.55	3.97	28.58	13.49	28.58	4400	10600											
RA009DD	S1009K		9/16												1.575	0.750	0.512	0.256	0.494	5/32	1 1/8	17/32	1 1/8	1000	2360
RA010DD <sup>(1)</sup>	S1010K		5/8												17										
RA012DD	S1012K	204	3/4	47.00	21.44	15.01	7.49	13.92	3.97	33.34	13.49	30.96	6200	14300											
RAE20DD	SE20K		20												1.850	0.844	0.591	0.295	0.548	5/32	1 5/16	17/32	1 7/32	1400	3200
RA013DD	S1013K	205	13/16	52.00	21.44	15.01	7.49	13.92	3.97	38.10	13.49	30.96	6950	15600											
RA014DD <sup>(1)</sup>	S1014K		7/8												2.047	0.844	0.591	0.295	0.548	5/32	1 1/2	17/32	1 7/32	1560	3450
RA015DD	S1015K		15/16												1										
RA100DD	S1100K		1												25										
RAE25DD	SE25K		25																						
RA101DD	S1101K	206	1 1/16	62.00	23.83	18.01	8.99	14.81	3.97	44.45	15.88	35.72	10000	21600											
RA102DD	S1102K		1 1/8												2.441	0.938	0.709	0.354	0.583	5/32	1 3/4	5/8	1 13/32	2280	4800
RA103DD <sup>(1)</sup>	S1103K		1 3/16																						
RA103DD2	S1103K3		1 1/4S												30										
RAE30DD	SE30K		30																						
RA104DD	S1104K	207	1 1/4	72.00	25.40	19.00	9.50	15.90	3.97	53.98	17.07	38.89	13700	28500											
RA105DD	S1105K		1 5/16												2.835	1.000	0.748	0.374	0.626	5/32	2 1/8	43/64	1 17/32	3050	6400
RA106DD	S1106K		1 3/8																						
RA107DD <sup>(1)</sup>	S1107K		1 7/16												35										
RAE35DD	SE35K		35																						
RA108DD <sup>(1)</sup>	S1108K	208	1 1/2	80.00	30.18	22.00	11.00	19.18	4.76	60.33	18.26	43.66	17600	36000											
RA109DD	S1109K		1 9/16												3.150	1.188	0.866	0.433	0.755	3/16	2 3/8	23/32	1 23/32	4000	8150
RAE40DD	SE40K		40																						

<sup>(1)</sup>Popular sizes.

NOTE: Bore tolerance is nominal to +0.013 mm, +0.0005 in.

## YA-RR, YA-RRB NON-RELUBRICATABLE TYPES

- These bearings are an extended inner-ring type and have specially designed set screws with unique thread form.
- The thread form in both series locks the bearing to the shaft so they are resistant to loosening during operation.
- A positive contact, land-riding R-seal provides improved protection against harmful contaminants in both series and retains lubricant under severe operating conditions.
- A 6/6 molded nylon retainer has proved effective under conditions of misalignment.
- YA-RR series has cylindrical outside diameters.
- YA-RRB series has spherical outside diameters for use in housings with corresponding spherical inside surfaces. This provides unrestricted initial self-alignment.



### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

Bearing No.		Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths		S	F	J	Set Screw Size	Brg. Wt.	Static Load Rating	Extended Dynamic Load Rating
Cylindrical O.D.	Spherical O.D.				Inner	Outer							
			d	D	B	C	mm in.	mm in.	mm in.	mm in.	kg lbs.	N lbs.	N lbs.
			in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	N lbs.	N lbs.
YA008RR	YA008RRB	203	1/2	40 1.5748	23.8 0.938	13 0.5120 <sup>(1)</sup>	7.95 0.313	24.6 31/32	4.75 0.187	M5X.8 10 – 32	0.09 0.19	4700 1060	10600 2360
YA010RR	YA010RRB		5/8										
YAE17RR	YAE17RRB		17										
YA012RR	YA012RRB	204	3/4	47 1.8504	27.0 1.063	15 0.5910 <sup>(2)</sup>	8.86 0.349	29.0 1 1/64	6.02 0.237	M6X1 1/4 – 28	0.14 0.30	6200 1400	14300 3200
YAE20RR	YAE20RRB		20										
YA014RR	YA014RRB	205	7/8	52 2.0472	28.2 1.109	15 0.5910	8.84 0.348	33.7 1 21/64	6.35 0.250	M6X1 1/4 – 28	0.17 0.38	7700 1730	15800 3550
YA015RR	YA015RRB		15/16										
YA100RR	YA100RRB		1										
YAE25RR	YAE25RRB		25										
YA102RR	YA102RRB	206	1 1/8	62 2.4409	32.5 1.281	18 0.7090	9.65 0.380	40.1 1 37/64	7.87 0.310	M8X1.25 5/16 – 24 <sup>(3)</sup>	0.26 0.58	11100 2500	21800 4900
YA103RR	YA103RRB		1 3/16										
YA103RR2	YA103RRB2		1 1/4										
YAE30RR	YAE30RRB		30										
YA104RR	YA104RRB	207	1 1/4	72 2.8346	36.5 1.444	19 0.7480	10.85 0.427	46.8 1 27/32	7.87 0.310	M8X1.25 5/16 – 24	0.42 0.93	15100 3400	28500 6400
YA106RR	YA106RRB		1 3/8										
YA107RR	YA107RRB		1 7/16										
YAE35RR	YAE35RRB		35										
YA108RR	YA108RRB	208	1 1/2	80 3.1496	39.3 1.538	22 0.8661 <sup>(4)</sup>	11.63 0.458	52.4 2 1/16	7.87 0.310	M8X1.25 5/16 – 24	0.56 1.24	17600 4000	36000 8150
YAE40RR	YAE40RRB		40										
YA110RR	YA110RRB	209	1 5/8	85 3.3465	42.0 1.655	22 0.8861	13.46 0.530	57.9 2 9/32	7.87 0.310	M8X1.25 5/16 – 24	0.54 1.18	20500 4500	36300 8160
YA111RR	YA111RRB		1 11/16										
YA112RR	YA112RRB		1 3/4										
YAE45RR	YAE45RRB		45										
YA115RR	YA115RRB	210	1 15/16	90 3.5433	44.3 1.746	22 0.8661	13.46 0.530	62.7 2 15/32	9.02 0.355	M10X1.5 3/8 – 24	0.57 1.25	22700 5100	39200 8800
YA115RR2	YA115RRB2		2										
YAE50RR	YAE50RRB		50										
YA200RR	YA200RRB	211	2	100 3.9370	46.6 1.833	24 0.9449	14.60 0.575	69.8 2 3/4	9.02 0.355	M10X1.5 3/8 – 24	0.58 1.27	28500 6400	48000 10800
YA203RR	YA203RRB		2 3/16										
YAE55RR	YAE55RRB		55										

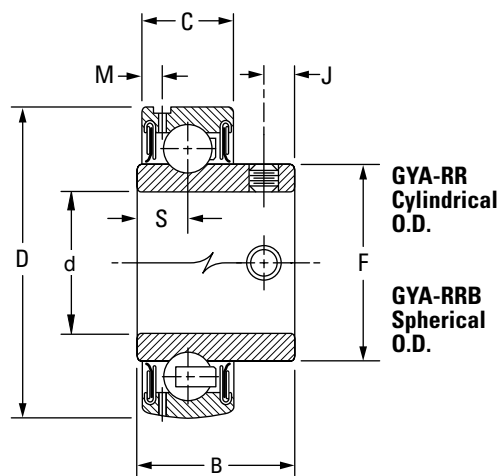
<sup>(1)</sup>Spherical O.D. outer-ring width is 12 mm (0.4724 in.).  
<sup>(2)</sup>Spherical O.D. outer-ring width is 14 mm (0.5512 in.).  
<sup>(3)</sup>YA103RR2 and YA103RRB2 use 1/4 – 28 in. set screw.  
<sup>(4)</sup>Spherical O.D. outer-ring width is 21 mm (0.8268 in.).  
 NOTE: Bore tolerance is nominal to +0.013 mm, +0.0005 in.

### GYA-RR, GYA-RRB RELUBRICATABLE TYPES

- GYA-RR-series bearings are dimensionally interchangeable with the YA-RR series.
- Both series have cylindrical outside diameters and can be used in standard cylindrical housings.
- GYA-RRB series have spherical outside diameters, providing unrestricted initial alignment. This series is used in housings with corresponding spherical inside surfaces.

#### Suggested shaft tolerances:

1/2 in. - 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
 2 in. - 2 3/16 in., nominal to -0.025 mm, -0.0010 in.



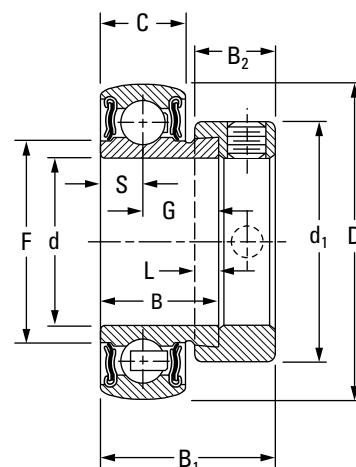
Bearing No.		Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	F	M	J	Set Screw Size	Brg. Wt.	Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>
Cylindrical O.D.	Spherical O.D.				Inner B	Outer C								
			in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	N lbs.	N lbs.	
GYA008RR	GYA008RRB	203	1/2	40 1.5748	23.8 0.938	12 0.4720	7.95 0.313	24.6 31/32	2.72 0.107	4.75 0.187	M5X.8 10 - 32	0.09 0.19	4700 1060	10600 2360
GYA010RR	GYA010RRB		5/8											
GYAE17RR	GYAE17RRB		17											
GYA012RR	GYA012RRB	204	3/4	47 1.8504	27.0 1.063	14 0.5510	8.86 0.349	29.0 1 9/64	3.05 0.120	6.02 0.237	M6X1 1/4 - 28	0.14 0.30	6200 1400	14300 3200
GYAE20RR	GYAE20RRB		20											
GYA014RR	GYA014RRB	205	7/8	52 2.0472	28.2 1.109	15 0.5910	8.84 0.348	33.7 1 21/64	3.61 0.142	6.35 0.250	M6X1 1/4 - 28	0.17 0.38	7700 1730	15800 3550
GYA015RR	GYA015RRB		15/16											
GYA100RR	GYA100RRB		1											
GYAE25RR	GYAE25RRB		25											
GYA102RR	GYA102RRB	206	1 1/8	62 2.4409	32.5 1.281	18 0.7090	9.65 0.380	40.1 1 37/64	4.17 0.164	7.87 0.310	M8X1.25 5/16 - 24 <sup>(1)</sup>	0.26 0.58	11100 2500	21800 4900
GYA103RR	GYA103RRB		1 3/16											
GYA103RR2	GYA103RRB2		1 1/4											
GYAE30RR	GYAE30RRB		30											
GYA104RR	GYA104RRB	207	1 1/4	72 2.8346	36.5 1.444	19 0.7480	10.85 0.427	46.8 1 27/32	3.68 0.145	7.87 0.310	M8X1.25 5/16 - 24	0.42 0.93	15100 3400	28500 6400
GYA106RR	GYA106RRB		1 3/8											
GYA107RR	GYA107RRB		1 7/16											
GYAE35RR	GYAE35RRB		35											
GYA108RR	GYA108RRB	208	1 1/2	80 3.1496	39.3 1.538	22 0.8661	11.63 0.458	52.4 2 1/16	4.17 0.164	7.87 0.310	M8X1.25 5/16 - 24	0.56 1.24	17600 4000	36000 8150
GYAE40RR	GYAE40RRB		40											
GYA110RR	GYA110RRB	209	1 5/8	85 3.3465	42 1.655	22 0.8661	13.46 0.530	57.9 2 9/32	4.54 0.179	7.87 0.310	M8X1.25 5/16 - 24	0.54 1.18	20000 4500	36000 8150
GYA111RR	GYA111RRB		1 11/16											
GYA112RR	GYA112RRB		1 3/4											
GYAE45RR	GYAE45RRB		45											
GYA115RR	GYA115RRB	210	1 15/16	90 3.5433	44.3 1.746	22 0.8661	13.46 0.530	62.7 2 19/32	4.44 0.175	9.02 0.355	M10X1.5 3/8 - 24	0.57 1.25	22700 5100	39200 8800
GYA115RR2	GYA115RRB2		2											
GYAE50RR	GYAE50RRB		50											
GYA200RR	GYA200RRB	211	2	100 3.9370	46.6 1.833	24 0.9449	14.60 0.575	69.8 2 3/4	4.90 0.193	9.02 0.355	M10X1.5 3/8 - 24	0.58 1.27	28500 6400	48000 10800
GYA203RR	GYA203RRB		2 3/16											
GYAE55RR	GYAE55RRB		55											

<sup>(1)</sup>GYA103RR2 and GYA103RRB2 use 1/4 - 28 in. set screw.  
 NOTE: Bore tolerance is nominal to +0.013 mm, +0.0005 in.

**LIGHT SERIES**

**RAL-NPPB NON-RELUBRICATABLE TYPES**

- RAL series are high-quality, compact, low-cost bearings and are intended for use in lightly loaded applications.
- RAL series are on extended inner-ring type with self-locking collars.
- Prelubricated RAL series incorporate the positive contact, land-riding R-seal. The seal has proved effective in the retention of lubricants and exclusion of foreign matter under extreme service conditions.
- RAL-NPPD-series bearings have spherical outside diameters providing unrestricted initial alignment.
- This bearing is used in housings with corresponding spherical inside surfaces.



**Suggested shaft tolerances:**

1/2 in. – 1 1/4 in., nominal to -0.013 mm, -0.0005 in.

**To order, specify bearing number followed by "+ COL".**

Example: RAL100NPPB + COL.

Bearing No.	Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	G	F	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	Brg. and Collar Wt.		Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>
					Inner B	Outer C								kg	lbs.		
RAL008NPPB <sup>(1)</sup>	LS008K	202	1/2	35	15.88	11	5.502	10.373	20.07	4.0	25.4	11.1	23.8	—	—	3000	7500
RAL009NPPB	LS009K		9/16	1.3780	5/8	0.433	0.2116	0.4084	0.790	5/32	1	7/16	15/16	0.06	0.13	680	1700
RAL010NPPB <sup>(1)</sup>	LS010K		5/8														
RAL012NPPB <sup>(1)</sup>	LS012K	9104	3/4	42	16.67	12	6.000	10.663	25.15	3.2	29.8	11.1	24.6	0.09	0.20	4400	10400
RAL013NPPB	LS013K	9105	13/16	47	17.46	12	6.000	11.476	29.67	4.0	36.1	11.9	25.4	0.11	0.24	4900	11000
RAL014NPPB	LS014K		7/8	1.8504	11/16	0.472	0.2362	0.4518	1.168	5/32	1 27/64	15/32	1	—	—	1120	2500
RAL015NPPB	LS015K		15/16											0.10	0.22		
RAL100NPPB <sup>(1)</sup>	LS100K		1														
RAL101NPPB	LS101K	9106	1 1/16	55	18.27	13	6.500	11.755	36.32	4.0	42.5	11.9	26.2	0.13	0.29	6950	14600
RAL102NPPB	LS102K		1 1/8	2.1654	23/32	0.512	0.2559	0.4628	1.430	5/32	1 43/64	15/32	1 1/32	0.13	0.29	1560	3350
RAL103NPPB	LS103K		1 3/16														
RAL103NPPB2 <sup>(1)</sup>	LS103K2		1 1/4														

<sup>(1)</sup>Also available with cylindrical O.D. Delete suffix B.  
NOTE: Bore tolerance is nominal to +0.013 mm, +0.0005 in.

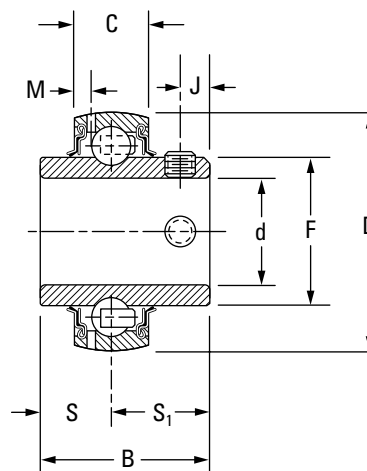
### MEDIUM SERIES

#### GYM-KRRB INSERTS SET SCREW LOCK

- This series is designed to offer extended bearing life despite demanding industrial environments.
- The insert features a full-width inner ring, providing extra support along the shaft.
- The extra support feature, coupled with a flexible nylon retainer, allows the inserts to operate for extended periods with undersized shafts or in misalignment conditions.
- The inserts are equipped with a three-piece seal, protecting against corrosion, contamination and fiber wrap.
- The inserts also include nylon-patch set screws, resisting set screw back-out and providing superior holding power in applications with severe vibration.

#### Suggested shaft tolerances:

- 1 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 3 in., nominal to -0.025 mm, -0.0010 in.



Bearing No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths		S	S <sub>1</sub>	F	M	J	Set Screw Size	Brg. Wt.	Static Load Rating	Extended Dynamic Load Rating
				Inner	Outer									
Spherical O.D.		d	D	B	C								C <sub>0</sub>	C <sub>E</sub>
		in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	N lbs.	N lbs.
GYM1100KRRB	206	1	62 2.4409	38.10 1.500	18 0.709	15.88 0.625	22.22 0.875	40.31 1.587	3.96 0.156	7.62 0.300	M6 x 1 1/4 – 28	0.427 0.94	11100 2500	21800 4900
GYM1103KRRB	207	1 3/16	72 2.8346	42.87 1.688	19 0.748	17.48 0.688	25.40 1.000	46.18 1.816	3.68 0.145	7.82 0.308	M8 x 1.25 5/16 – 24	0.704 1.55	15100 3400	28500 6400
GYM1107KRRB	208	1 7/16	80 3.1496	49.22 1.938	21 0.827	19.05 0.750	30.17 1.188	52.27 2.058	4.06 0.160	8.00 0.315	M8 x 1.25 5/16 – 24	0.817 1.80	19600 4400	36300 8150
GYM1108KRRB	209	1 1/2	85 3.3465	49.22 1.938	22 0.866	19.05 0.750	30.17 1.188	52.27 2.280	4.55 0.179	8.00 0.315	M8 x 1.25 5/16 – 24	0.885 1.95	20000 4500	36300 8150
GYM1111KRRB	210	1 11/16	90 3.5433	51.59 2.031	22 0.866	19.05 0.750	32.54 1.281	62.84 2.474	4.70 0.185	10.00 0.394	M10 x 1.5 3/8 – 24	1.271 2.80	22700 5100	39200 8800
GYM1112KRRB		1 3/4										1.203 2.65		
GYM1115KRRB	211	1 15/16	100 3.9370	55.55 2.187	24 0.945	22.22 0.875	33.32 1.312	69.77 2.747	5.00 0.197	10.00 0.394	M10 x 1.5 3/8 – 24	1.634 3.60	28500 6400	48100 10800
GY1200KRRB		2										1.498 3.30		
GYM1203KRRB	212	2 3/16	110 4.3307	65.07 2.562	27 1.063	25.40 1.000	39.67 1.562	76.48 3.011	5.13 0.202	10.00 0.394	M10 x 1.5 3/8 – 24	2.225 4.90	35600 8000	58800 13200
GY1204KRRB		2 1/4										1.952 4.30		
GYM1207KRRB	214	2 7/16	125 4.9213	69.85 2.750	28 1.102	26.97 1.062	42.84 1.687	76.48 3.422	5.08 0.200	12.00 0.472	M12 x 1.75 7/16 – 20	2.996 6.60	43000 9650	69500 15600
GYM1208KRRB		2 1/2										2.860 6.30		
GYM1211KRRB	215	2 11/16	130 5.1181	77.80 3.063	29 1.142	33.32 1.312	44.45 1.750	91.92 3.619	5.56 0.219	12.00 0.472	M12 x 1.75 7/16 – 20	3.042 6.70	43600 9800	69500 15600
GYM1215KRRB GYM1300KRRB	216	2 15/16 3	140 5.5118	77.80 3.063	29 1.142	33.32 1.312	44.45 1.750	91.92 3.619	5.56 0.219	12.00 0.472	M12 x 1.75 7/16 – 20	3.087 6.80	53400 12000	80200 18000

NOTE: Bore tolerance: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
2 1/4 in. – 3 in., nominal to +0.015 mm, +0.0006 in.



**HEAVY SERIES**

**GN-KRRB RELUBRICATABLE TYPES**

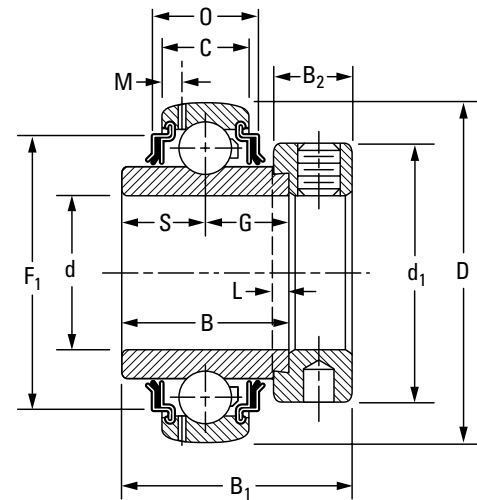
- The heavy series R-seal bearings are similar to the standard series and designed to withstand continuous, heavy or shock loads.
- This series has heavier-section 300-series bearings. They include a considerably thicker sealing member in the contact-type diaphragm seal.
- The design of the series ensures complete retention of the lubricant and positive exclusion of all contaminants.

**Suggested shaft tolerances:**

- 1 3/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 3 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify bearing number followed by "+ COL".**

Example: GN303KRRB + COL.

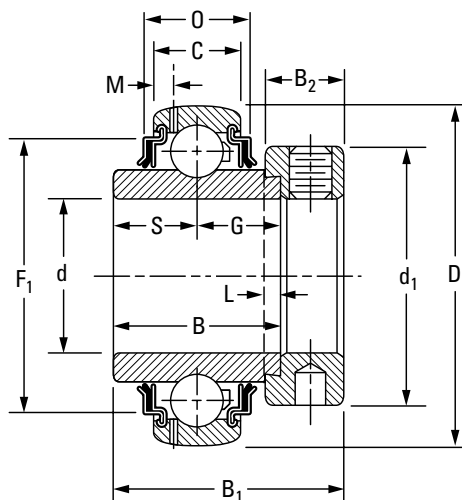


Bearing No.	Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	G	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	F <sub>1</sub>	O	Brg. and Collar Wt.		Static Load Rating C <sub>0</sub>	Extended Dynamic Load Rating C <sub>E</sub>
					Inner B	Outer C										kg	lbs.		
GN103KRRB	SN103K	306	1 3/16	72 2.8346	36.51 1 7/16	20 0.787	17.5 1 1/16	19.1 3/4	4.0 5/32	49.2 1 15/16	17.5 1 1/16	3.61 0.142	50.0 1 31/32	60.17 2.369	23.50 0.925	0.553	1.22	15600 3550	33500 7500
GN104KRRB	SN104K	307	1 1/4	80 3.1496	38.10 1 1/2	22 0.866	18.3 23/32	19.8 25/32	4.0 5/32	55.6 2 3/16	17.5 1 1/16	3.96 0.156	51.6 2 1/32	67.01 2.638	27.00 1.063	0.762	1.68	20000 4500	40500 9150
GN105KRRB	SN105K		1 5/16													0.744	1.64		
GN106KRRB	SN106K		1 3/8													0.726	1.60		
GN107KRRB	SN107K		1 7/16													0.708	1.56		
GN108KRRB <sup>(1)</sup>	SN108K	308	1 1/2	90 3.5433	41.28 1 5/8	25 0.984	19.8 25/32	21.4 27/32	4.8 3/16	63.5 2 1/2	20.6 13/16	4.62 0.182	57.2 2 1/4	75.06 2.955	26.67 1.05	1.152	2.54	24500 5500	49000 11000
GN110KRRB	SN110K	309	1 5/8	100 3.9370	42.86 1 11/16	27 1.063	19.8 25/32	23.0 29/32	4.8 3/16	69.9 2 3/4	20.6 13/16	5.00 0.197	58.7 2 5/16	82.58 3.251	28.52 1.123	1.656	3.65	30000 6700	58500 13200
GN111KRRB	SN111K		1 11/16													1.456	3.21		
GN112KRRB <sup>(1)</sup>	SN112K		1 3/4													1.388	2.95		
GN114KRRB	SN114K	310	1 7/8	110 4.3307	49.21 1 15/16	29 1.142	24.6 31/32	24.6 31/32	4.8 3/16	75.8 2 63/64	22.2 7/8	5.36 0.211	66.7 2 5/8	82.87 3.654	30.86 1.215	1.973	4.35	35500 8000	68000 15300
GN115KRRB <sup>(1)</sup>	SN115K		1 15/16													1.905	4.20		
GN200KRRB	SN200K	311	2	120 4.7244	55.56 2 3/16	31 1.220	27.8 1 3/32	27.8 1 3/32	4.8 3/16	82.6 3 1/4	22.2 7/8	5.49 0.216	73.0 2 7/8	101.78 4.007	37.47 1.475	2.132	4.70	41500 9300	80000 18000
GN203KRRB	SN203K		2 3/16													2.368	5.22		

<sup>(1)</sup>Also available with cylindrical O.D. Delete suffix B. Example: GN108KRR.  
 NOTE: Bore tolerances: 1 3/16 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.;

Continued on next page.

### GN-KRRB RELUBRICATABLE TYPES – continued



Continued from previous page.

Bearing No.	Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths		S	G	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	F <sub>1</sub>	O	Brg. and Collar Wt. kg lbs.	Static Load Rating C <sub>0</sub> N lbs.	Extended Dynamic Load Rating C <sub>E</sub> N lbs.
					Inner B	Outer C												
GN207KRRB	SN207K	312	2 7/16 in.	130 5.1181 mm in.	61.91 2 7/16 mm in.	33 1.299 mm in.	31.0 1 7/32 mm in.	31.0 1 7/32 mm in.	6.4 1/4 mm in.	88.9 3 1/2 mm in.	23.8 15/16 mm in.	5.84 0.230 mm in.	79.4 3 1/8 mm in.	108.52 4.312 mm in.	38.99 1.535 mm in.	2.839 6.26 kg lbs.	48000 10800 N lbs.	90000 20400 N lbs.
GN211KRRB	SO211K	314	2 11/16 in.	150 5.9055 mm in.	68.26 2 11/16 mm in.	37 1.457 mm in.	34.1 1 11/32 mm in.	34.1 1 11/32 mm in.	6.4 1/4 mm in.	101.6 4 mm in.	27.0 1 1/16 mm in.	6.73 0.265 mm in.	88.9 3 1/2 mm in.	126.31 4.973 mm in.	44.96 1.770 mm in.	4.509 9.94 kg lbs.	63000 14300 N lbs.	116000 26000 N lbs.
GN215KRRB	SN215K	315	2 15/16 in.	160 6.2992 mm in.	74.61 2 15/16 mm in.	39 1.535 mm in.	37.3 1 15/32 mm in.	37.3 1 15/32 mm in.	6.4 1/4 mm in.	112.7 4 7/16 mm in.	31.8 1 1/4 mm in.	6.48 0.255 mm in.	100.0 3 15/16 mm in.	133.02 5.273 mm in.	51.13 2.013 mm in.	5.634 12.42 kg lbs.	71000 16000 N lbs.	125000 28500 N lbs.
GN303KRRB	SN303K	316	3 3/16 in.	170 6.6929 mm in.	80.96 3 3/16 mm in.	41 1.614 mm in.	40.5 1 19/32 mm in.	40.5 1 19/32 mm in.	6.4 1/4 mm in.	119.1 4 11/16 mm in.	31.8 1 1/4 mm in.	7.26 0.286 mm in.	106.4 4 3/16 mm in.	142.82 5.623 mm in.	51.05 2.010 mm in.	7.126 15.71 kg lbs.	80000 18000 N lbs.	137000 30500 N lbs.
GN307KRRB	SN307K	318	3 7/16 in.	190 7.4803 mm in.	87.31 3 7/16 mm in.	45 1.772 mm in.	42.1 1 21/32 mm in.	42.1 1 21/32 mm in.	7.9 9/16 mm in.	133.4 5 1/4 mm in.	36.5 1 7/16 mm in.	8.18 0.322 mm in.	115.9 4 9/16 mm in.	161.37 6.353 mm in.	52.63 2.072 mm in.	9.190 20.26 kg lbs.	98000 22400 N lbs.	156000 33500 N lbs.
GN315KRRB	SN315K	320	3 15/16 in.	215 8.4646 mm in.	100.01 3 15/16 mm in.	49 1.929 mm in.	50.0 1 31/32 mm in.	50.0 1 31/32 mm in.	7.9 9/16 mm in.	146.1 5 3/4 mm in.	36.5 1 7/16 mm in.	7.82 0.308 mm in.	129.6 5 1/16 mm in.	182.85 7.199 mm in.	59.36 2.337 mm in.	12.233 26.97 kg lbs.	132000 22900 N lbs.	193000 43000 N lbs.

<sup>(1)</sup>Also available with cylindrical O.D. Delete suffix B. Example: GN108KRR.  
NOTE: Bore tolerances: 1 3/16 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.;  
2 1/4 in. – 3 3/16 in., nominal to +0.015 mm, +0.0006 in.

**GN-KLLB SPECIAL DUTY**

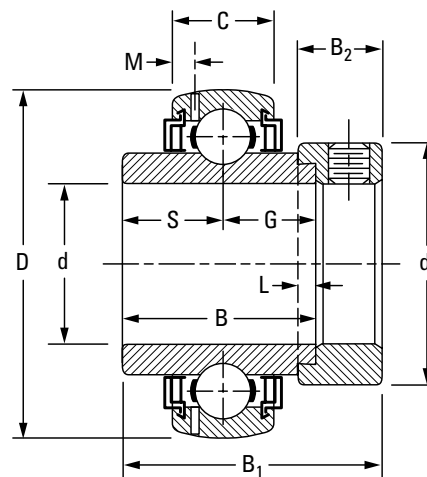
- The GN-KLLB-series ball bearings are heavy and are similar in design to the standard LL (Mechani-Seal) wide-inner-ring ball bearings.
- The GN-KLLB series have heavier-section 300-series bearings.
- Unlike standard series, the seal in this heavy series is a three-piece construction and includes two fixed inner members and an external rotation slinger.

**Suggested shaft tolerances:**

- 1/8 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify bearing number followed by "+ COL".**

Example: GN104KLLB + COL.



Bearing No.	Collar No.	Basic Outer-Ring Size	Shaft Dia. d	O.D. D	Ring Widths			S	G	L	d <sub>1</sub>	B <sub>2</sub>	M	B <sub>1</sub>	Brg. and Collar Wt. kg lbs.	Static Load Rating N lbs.	Extended Dynamic Load Rating N lbs.	
					Inner B	Outer C												
			in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				
GN102KLLB	SN102K	306	1 1/8	72	36.51	19	20	17.46	19.05	3.9	49.21	17.46	3.61	1.97	0.554	1.22	15800	33500
GN103KLLB	SN103K		1 3/16	2.8346	1 7/16	0.7480	0.7874	1 1/16	3/4	5/32	1 15/16	1 1/16	0.142	1 31/32	0.604	1.33	3550	7500
GN104KLLB	SN104K	307	1 1/4	80	38.10	21	22	18.30	19.84	3.9	55.60	17.46	3.96	51.59	0.649	1.43	21200	40500
GN106KLLB	SN106K		1 3/8	3.1496	1 1/2	0.8268	0.8661	23/32	25/32	5/32	2 3/16	1 1/16	0.156	2 1/32	0.699	1.54	4750	9150
GN107KLLB	SN107K		1 7/16												0.731	1.61		
GN108KLLB	SN108K	308	1 1/2	90	41.28	23	25	19.84	21.43	4.8	63.50	20.64	4.62	57.15	1.153	2.54	26100	49000
			3.5433	1 5/8	0.9055	0.9843	25/32	27/32	3/16	2 1/2	13/16	0.182	2 1/4			5850	11000	
GN111KLLB	SN111K	309	1 11/16	100	42.86	25	27	19.84	23.02	4.8	69.85	20.64	4.80	58.74	1.457	3.21	31600	58500
GN112KLLB	SN112K		1 3/4	3.9370	1 11/16	0.9843	1.0630	25/32	29/32	3/16	2 3/4	13/16	0.189	2 5/16	1.657	3.65	7100	13200
GN115KLLB	SN115K	310	1 15/16	110	50.00	27	29	24.60	24.60	4.8	76.20	22.23	5.16	66.68	1.907	4.20	37900	68000
			4.3307	1 31/32	1.0630	1.1417	31/32	31/32	3/16	3	7/8	0.203	2 5/8			8500	15300	
GN203KLLB	SN203K	311	2 3/16	120	55.56	29	31	27.80	29.37	4.8	82.55	22.23	5.49	73.02	2.370	5.22	43600	80000
			4.7244	2 3/16	1.1417	1.2205	1 3/32	1 5/32	3/16	3 1/4	7/8	0.216	2 7/8			9800	18000	
GN207KLLB	SN207K	312	2 7/16	130	61.91	31	33	30.96	30.96	6.4	88.90	23.80	5.84	79.38	2.841	6.26	51700	90000
			5.1181	2 7/16	1.2205	1.2992	1 7/32	1 7/32	1/4	3 1/2	15/16	0.230	3 1/8			11600	20400	
GN211KLLB	SN211K	314	2 11/16	150	68.26	35	37	34.13	34.13	6.4	101.60	26.99	6.73	88.90	4.512	9.94	66800	116000
			5.9055	2 11/16	1.3780	1.4567	1 11/32	1 11/32	1/4	4	1 1/16	0.265	3 1/2			15000	26000	
GN215KLLB	SN215K	315	2 15/16	160	74.61	39	39	37.30	37.30	6.4	112.71	31.75	6.48	100.01	5.638	12.42	75700	125000
			6.2992	2 15/16	1.5354	1 15/32	1 15/32	1/4	4 7/16	1 1/4	0.255	3 15/16				17000	28500	

NOTE: Bore tolerance: 1/2 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
 2 7/16 in. – 2 15/16 in., nominal to +0.015 mm, +0.0006 in.

# BALL BEARING HOUSED UNITS

WIDE-INNER-RING BALL BEARINGS • HEAVY SERIES • SMN A AND B TYPES/MUOA-B INSERTS

## SMN A AND B TYPES/MUOA-B INSERTS<sup>(1)</sup>

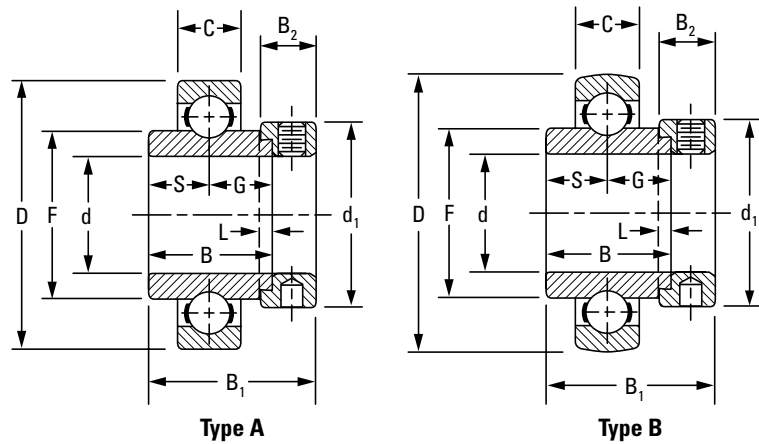
- SMN series types A and B have the same ring tolerances and corner radii as equivalent 300-series single-row radial ball bearings.
- Type A has cylindrical outside diameters; type B has spherical outside diameters. The letter B appears on the outer ring only.
- The bearings are not prelubricated.

### Suggested shaft tolerances:

5/8 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
 2 3/16 in. – 3 15/16 in., nominal to -0.025 mm, -0.0010 in.  
 For larger sizes, contact your Timken engineer.

### To order, specify bearing number followed by "+ COL".

Example: SMN102K + COL.



Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths									Brg. and Collar Wt.		Static Load Rating	Extended Dynamic Load Rating												
A Type <sup>(2)</sup>	B Type					Inner	Outer	S	G	F	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	kg	lbs.			C <sub>0</sub>	C <sub>E</sub>										
				d	D	B	C	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		N lbs.	N lbs.											
SMN010K	SMN010KB	SN010K	303	5/8	47	34.13	14	17.07	17.07	25.93	4.00	34.93	15.88	46.05	0.240	0.53	6550	15000												
SMN011K	SMN011KB	SN011K		11/16	1.8504	1 11/32	0.5512	43/64	43/64	1.021	5/32	1 3/8	5/8	1 13/16	0.218	0.48	1460	3350												
SMN012K	SMN012KB	SN012K	304	3/4	52	34.93	15	15.90	19.05	29.24	4.00	36.51	15.88	46.83	0.227	0.50	7800	17600												
				2.0472	1 3/8	0.5906	5/8	3/4	1.151	5/32	1 7/16	5/8	1 27/32			1760	4000													
SMN013K	SMN013KB	SN013K	305	13/16	62	34.93	17	16.67	18.26	36.50	4.00	42.86	15.88	46.83	0.445	0.98	12200	26000												
SMN014K	SMN014KB	SN014K		7/8											2.4409	1 3/8			0.6693	21/32	23/32	1.437	5/32	1 11/16	5/8	1 27/32	0.431	0.95	2750	5850
SMN015K	SMN015KB	SN015K		15/16																							0.413	0.91		
SMN100K	SMN100KB	SN100K		1																							0.404	0.86		
SMN101K	SMN101KB	SN101K	306	1 1/16	72	36.51	19	17.46	19.05	43.23	4.00	49.21	17.46	50.00	0.608	1.34	15600	33500												
SMN102K	SMN102KB	SN102K		1 1/8											2.8346	1 7/16			0.7480	11/16	3/4	1.702	5/32	1 15/16	1 1/16	1 31/32	0.585	1.29	3550	7500
SMN103K	SMN103KB	SN103K		1 3/16																							0.567	1.25		
SMN104K	SMN104KB	SN104K	307	1 1/4	80	38.10	21	18.26	19.84	48.95	4.00	55.60	17.46	51.59	0.803	1.77	21200	40500												
SMN105K	SMN105KB	SN105K		1 15/16											3.1496	1 1/2			0.8268	23/32	25/32	1.927	5/32	2 3/16	1 1/16	2 1/32	0.757	1.67	4750	9150
SMN106K	SMN106KB	SN106K		1 3/8																							0.726	1.60		
SMN107K	SMN107KB	SN107K		1 7/16																							0.721	1.56		
SMN108K	SMN108KB	SN108K	308	1 1/2	90	41.28	23	19.84	21.43	55.50	4.80	63.50	20.64	57.15	1.089	2.40	26100	49000												
SMN109K	SMN109KB	SN109K		1 9/16											3.5433	1 5/8			0.9055	25/32	27/32	2.185	3/16	2 1/2	13/16	2 1/4	1.025	2.26	5850	11000
SMN110K	SMN110KB	SN110K	309	1 5/8	100	42.86	25	19.84	23.02	62.05	4.80	69.90	20.64	58.74	1.433	3.16	31600	58500												
SMN111K	SMN111KB	SN111K		1 11/16											3.9370	1 11/16			0.9843	25/32	29/32	2.443	3/16	2 3/4	13/16	25/16	1.361	3.00	7100	13200
SMN112K	SMN112KB	SN112K		1 3/4																							1.361	3.00		
SMN113K	SMN113KB	SN113K		1 13/16																							1.896	4.18		
SMN114K	SMN114KB	SN114K	310	1 7/8	110	49.21	27	24.61	24.61	68.78	4.80	76.20	22.20	66.68	1.805	3.98	37900	68000												
SMN115K	SMN115KB	SN115K		1 15/16											4.3307	1 15/16			1.0630	31/32	31/32	2.708	3/16	3	7/8	2 5/8	1.737	3.83	8500	15300

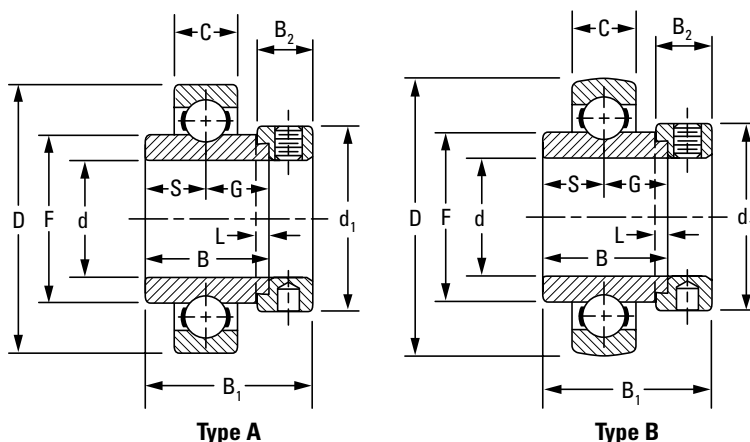
<sup>(1)</sup>See page A-159.

<sup>(2)</sup>Order as MUOA assembly suggested.

<sup>(3)</sup>For applications where thrust load exceeds 60 percent of radial load, consult your Timken engineer.

NOTE: Bore tolerance: 5/8 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
 3 1/4 in. – 4 3/16 in., nominal to +0.018 mm, +0.0007 in.  
 4 7/16 in. – 4 15/16 in., nominal to +0.020 mm, +0.0008 in.

Continued on next page.



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Bearing No.		Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths									Brg. and Collar Wt.		Static Load Rating	Extended Dynamic Load Rating
A Type <sup>(2)</sup>	B Type					Inner	Outer	S	G	F	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	kg	lbs.		
				d	D	B	C	S	G	F	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	kg	lbs.	N	N
				in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg	lbs.	N	N
SMN200K	SMN200KB	SN200K	311	2											2.413	5.32		
SMN201K	SMN201KB	SN201K		2 1/16	120	55.56	29	27.78	27.78	75.01	4.80	82.55	22.20	73.03	2.395	5.28	43600	80000
SMN202K	SMN202KB	SN202K		2 1/8	4.7244	2 3/16	1.1417	1 3/32	1 3/32	2.953	3/16	3 1/4	7/8	2 7/8	2.331	5.14	9800	18000
SMN203K	SMN203KB	SN203K		2 3/16											2.209	4.87		
SMN204K	SMN204KB	SN204K	312W	2 1/4											3.084	6.80		
SMN205K	SMN205KB	SN205K		2 5/16	130	61.91	31	31.00	31.00	81.53	6.40	88.90	23.81	79.38	3.012	6.64	51480	89800
SMN206K	SMN206KB	SN206K		2 3/8	5.1181	2 7/16	1.2205	1 7/32	1 7/32	3.210	1/4	3 1/2	1 5/16	3 1/8	2.908	6.41	11700	20400
SMN207K	SMN207KB	SN207K		2 7/16											2.812	6.20		
SMN211K	SMN211KB	SO211K		314	2 11/16	150	2.69	35	34.13	34.13	94.78	6.40	101.60	26.99	92.08	4.205	9.27	66800
				5.9055	2 11/16	1.3780	1 11/32	1 11/32	3.731	1/4	4	1 1/16	3 5/8			15000	26000	
SMN215K	SMN215KB	SN215K	315	2 15/16	160	74.61	37	37.31	37.31	100.38	6.40	112.71	31.75	100.01	5.856	12.91	75700	125000
				6.2992	2 15/16	1.4567	1 15/32	1 15/32	3.952	1/4	4 7/16	1 1/4	3 15/16			17000	28500	
SMN303K	SMN303KB	SN303K	316	3 3/16	170	80.96	39	40.48	40.48	106.91	6.40	119.06	31.75	106.36	6.704	14.78	86000	137000
				6.6929	3 3/16	1.5354	1 19/32	1 19/32	4.209	1/4	4 11/16	1 1/4	4 3/16			19300	30500	
SMN307K	SMN307KB	SN307K	318	3 7/16	190	87.31	43	43.66	43.66	120.12	7.94	133.35	36.51	115.89	9.984	22.01	106900	156000
				7.4803	3 7/16	1.6929	1 23/32	1 23/32	4.729	5/16	5 1/4	1 7/16	4 9/16			24000	35500	
SM0311W-BR <sup>(3)</sup>	SM0311WB-BR <sup>(3)</sup>	SO311K	319	3 11/16	200	93.66	45	38.89	54.77	126.67	7.94	139.70	36.51	122.24	11.090	24.45	173700	224000
				7.8740	3 11/16	1.7717	1 17/32	2 5/32	4.987	5/16	5 1/2	1 7/16	4 13/16			39000	50000	
SMN315K	SMN315KB	SN315K	320	3 15/16	215	100.01	47	50.00	50.00	134.77	7.94	146.05	36.51	128.59	13.068	28.81	140300	193000
				8.4646	3 15/16	1.8504	1 31/32	1 31/32	5.306	5/16	5 3/4	1 7/16	5 1/16			31500	43000	
SMN403W-BR <sup>(3)</sup>	SMN403WB-BR	SN403K	321	4 3/16	225	104.78	49	48.42	56.36	141.22	7.94	157.16	42.86	139.70	15.508	34.19	202700	250000
				8.8583	4 3/16	1.9291	1 29/32	2 7/32	5.560	5/16	6 3/16	1 11/16	5 1/2			45500	56000	
SMN407W-BR <sup>(3)</sup>	SMN407WB-BR <sup>(3)</sup>	SN407K	322	4 7/16	240	106.36	50	49.21	57.15	142.75	7.94	165.10	42.86	141.29	19.051	42.00	245000	285100
				9.4488	4 7/16	1.9685	1 15/16	2 1/4	5.920	5/16	6 1/2	1 11/16	5 9/16			55000	64000	
SMN415W-BR <sup>(3)</sup>	SMN415WB-BR <sup>(3)</sup>	SN415K	326	4 15/16	280	106.36	59	53.98	61.91	176.56	7.94	206.38	42.86	150.81	29.660	65.39	327400	347400
				11.0236	4 3/16	2.3228	2 1/8	2 7/16	6.951	5/16	8 1/8	1 11/16	5 15/16			73500	78000	

<sup>(1)</sup>See page A-159.

<sup>(2)</sup>Order as MUOA assembly suggested.

<sup>(3)</sup>For applications where thrust load exceeds 60 percent of radial load, consult your Timken engineer.

NOTE: Bore tolerance: 5/8 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
 3 1/4 in. – 4 3/16 in., nominal to +0.018 mm, +0.0007 in.  
 4 7/16 in. – 4 15/16 in., nominal to +0.020 mm, +0.0008 in.

### SMN-S SERIES

- The SMN-S heavy-series construction permits its inner assembly to swivel in the outer aligning ring.
- Unrestricted self-alignment is achieved, allowing the inner ring to become square and true with the shaft and assembly.
- The external S-ring is uniquely ground and closely matched to its respective outer-bearing ring so that the S-ring of one bearing will not fit the outer ring of another bearing.
- This bearing has the basic 300-series load capacities.
- The bearings are not prelubricated.

#### Suggested shaft tolerances:

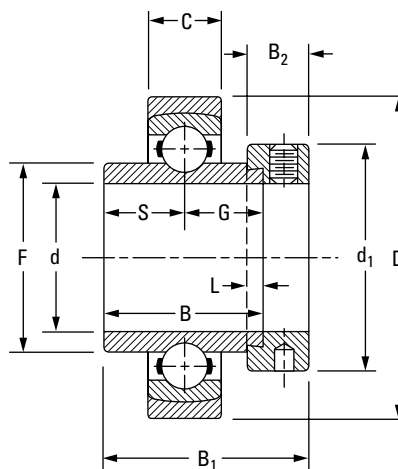
1 3/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

2 in. – 3 15/16 in., nominal to -0.025 mm, -0.0010 in.

Greater than 3 15/16 in., consult your Timken engineer.

#### To order, specify bearing number followed by "+ COL".

Example: SMN103KS + COL.



Bearing No.	Collar No.	Basic Outer-Ring Size	Shaft Dia.	O.D.	Ring Widths		S	G	F	L	d <sub>1</sub>	B <sub>2</sub>	B <sub>1</sub>	Brg. and Collar Wt.		Static Load Rating	Extended Dynamic Load Rating
					Inner	Outer								kg	lbs.		
			d	D	B	C	mm	mm	mm	mm	mm	mm	mm	kg	lbs.	N	N
			in.	mm in.	mm in.	mm in.	in.	in.	in.	in.	in.	in.	in.	kg	lbs.	N	N
SMN103KS	SN103K	306	1 3/16	80 3.1496	36.51 1 7/16	19 0.7480	17.50 11/16	19.10 3/4	43.23 1.702	4.0 5/32	49.20 1 15/16	17.50 1 1/16	50.00 1 31/32	0.654	1.44	15600 3550	33500 7550
SMN107KS	SN107K	307	1 7/16	88 3.4646	38.10 1 1/2	21 0.8268	18.30 23/32	19.80 25/32	48.95 1.927	4.0 5/32	55.60 2 3/16	17.50 1 1/16	51.60 2 1/32	0.849	1.87	21200 4750	40500 9150
SMN108KS	SN108KT	308	1 1/2	100 3.9370	41.28 1 5/8	23 0.9055	19.80 25/32	21.40 27/32	55.50 2.185	4.8 3/16	63.50 2 1/2	20.60 13/16	57.20 2 1/4	1.344	2.96	26100 5850	49000 11000
SMN111KS	SN111K	309	1 11/16	110 4.3307	42.86 1 11/16	25 0.9843	19.80 25/32	23.00 29/32	62.05 2.443	4.8 3/16	69.90 2 3/4	20.60 13/16	58.70 2 5/16	1.693	3.73	31600 7100	58500 13200
SMN115KS	SN115K	310	1 15/16	120 4.7244	49.21 1 15/16	27 1.0630	24.60 31/32	24.60 31/32	68.78 2.708	4.8 3/16	76.20 3	22.20 7/8	66.70 2 5/8	2.147	4.73	37900 8500	68000 15300
SMN203KS	SN203K	311	2 3/16	130 5.1181	55.56 2 3/16	29 1.1417	27.80 1 3/32	27.80 1 3/32	75.01 2.953	4.8 3/16	82.60 3 1/4	22.20 7/8	73.00 2 7/8	2.769	6.10	43600 9800	80000 18000
SMN207KS	SN207K	312	2 7/16	145 5.7087	61.91 2 7/16	31 1.2205	31.00 1 7/32	31.00 1 7/32	81.53 3.210	6.4 1/4	88.90 3 1/2	23.80 15/16	79.40 3 1/8	3.405	7.50	51700 11600	90000 20400
SMN211KS	SO211K	314	2 11/16	165 6.4961	68.26 2 11/16	35 1.3780	34.10 1 11/32	34.10 1 11/32	94.70 3.731	6.4 1/4	101.60 4	27.00 1 1/16	92.10 3 5/8	5.185	11.42	66800 15000	116000 26000
SMN215KS	SN215K	315	2 15/16	175 6.8898	74.61 2 15/16	37 1.4567	37.30 1 15/32	37.30 1 15/32	100.38 3.952	6.4 1/4	112.70 4 7/16	31.80 1 1/4	100.00 3 15/16	6.456	14.22	75700 17000	125000 28500
SMN303KS	SN303K	316	3 3/16	190 7.4803	80.96 3 3/16	39 1.5354	40.50 1 19/32	40.50 1 19/32	106.91 4.209	6.4 1/4	119.10 4 11/16	31.80 1 1/4	106.40 4 3/16	8.040	17.71	86000 19300	137000 30500
SMN307KS	SN307K	318	3 7/16	210 8.2677	87.31 3 7/16	43 1.6929	43.70 1 23/32	43.70 1 23/32	120.12 4.729	7.9 5/16	133.40 5 1/4	36.50 1 7/16	115.90 4 9/16	1.790	25.97	106900 24000	156000 35500
SMO311WS-BR	SO311K	319	3 11/16	220 8.6608	93.66 3 11/16	45 1.7680	38.89 1 17/32	54.77 2 5/32	126.53 4.982	7.9 5/16	139.70 5 1/2	36.51 1 7/16	122.24 4 13/16	16.300	33.00	166000 37500	224000 50000
SMN315KS	SN315K	320	3 15/16	235 9.2520	100.01 3 15/16	47 1.8504	50.00 1 31/32	50.00 1 31/32	134.77 5.306	7.9 5/16	146.00 5 3/4	36.50 1 7/16	128.60 5 1/16	15.822	34.85	140300 31500	193000 43000
SMN407WS-BR <sup>(1)</sup>	SN407K	322	4 7/16	265 10.4331	106.36 4 3/16	50 1.9685	49.20 1 15/16	57.20 2 1/4	150.37 5.920	7.9 5/16	168.30 6 1/2	42.90 1 11/16	141.30 5 9/16	21.465	47.28	245000 55000	280000 63000
SMN415WS-BR <sup>(1)</sup>	SN415K	326	4 15/16	300 11.8110	115.89 4 9/16	59 2.3228	54.00 2 1/8	61.90 2 7/16	176.56 6.951	7.9 5/16	206.40 8 1/8	42.90 1 11/16	150.80 5 15/16	33.773	74.39	327400 73500	345000 78000

<sup>(1)</sup>For applications where thrust load exceeds 60 percent of radial load, consult your Timken engineer.

NOTE: Bore tolerance: 1 5/16 in. – 2 3/16 in., nominal to +0.013 mm, +0.0005 in.  
 2 1/4 in. – 3 3/16 in., nominal to +0.015 mm, +0.0006 in.  
 3 1/4 in. – 4 3/16 in., nominal to +0.018 mm, +0.0007 in.  
 4 7/16 in. – 4 15/16 in., nominal to +0.020 mm, +0.0008 in.

## **BALL BEARING HOUSED UNITS**

Timken® housed units are available in a wide variety of types and sizes to accommodate a complete range of operating conditions.

- **Sizes:** 12.7 mm – 125.4 mm (1/2 in. – 4 15/16 in.). Size range is dependent upon duty series.
- **Industries and applications:** Agriculture, food processing, conveyors, fans and blowers.
- **Features:** Most popular design features cast-iron housing. Other material options include malleable iron, polymer, pressed-steel or rubber.
- **Benefits:** Combines bearing, housing, seal and locking system into one device for easy installation. Operates even when the shaft is not perfectly aligned with the mounting surface.

Nomenclature . . . . . A-65  
 Introduction . . . . . A-66

### **CAST-IRON HOUSED UNITS**

RAK, TAK, LAK Industrial Series . . . . . A-69  
 YAK Industrial-Series Set Screw Units . . . . . A-71  
 VAK Standard Series . . . . . A-72  
 SAK Standard Series . . . . . A-73  
 RAS, TAS, LAS Industrial Series . . . . . A-74  
 RASC Industrial-Series Concentric Collar . . . . . A-76  
 YAS Industrial-Series Set Screw Units . . . . . A-77  
 VAS Standard Series . . . . . A-78  
 SAS Standard Series . . . . . A-79  
 RAKH Industrial Series . . . . . A-80  
 RAKHL Expansion Series . . . . . A-81  
 YASM Medium-Duty Series Set Screw Lock . . . . . A-82  
 STB Series . . . . . A-83  
 VTB Series . . . . . A-84  
 RAO, LAO Heavy Series . . . . . A-85  
 RSA, LSA Industrial Series . . . . . A-86  
 RSAO, LSAO Heavy Series . . . . . A-88  
 SAL Industrial Series, Fixed and Floating Types . . . . . A-89  
 SAOL Heavy Series, Fixed and Floating Types . . . . . A-90  
 DRNR Industrial Series . . . . . A-92

### **CAST-IRON FLANGED UNITS**

RCJ, TCJ, LCJ Industrial Series . . . . . A-93  
 RCJC Industrial-Series Concentric Collar . . . . . A-95

YCJ Industrial Set Screw Series . . . . . A-96  
 VCJ Standard Series . . . . . A-98  
 SCJ Standard Series . . . . . A-99  
 RCJO, LCJO Heavy Series . . . . . A-100  
 YCJM Medium-Duty Series Set Screw Lock . . . . . A-101  
 YCJTM Medium-Duty Series Set Screw Lock . . . . . A-102  
 RCJT, TCJT, LCJT Industrial Series . . . . . A-103  
 RCJTC Industrial-Series Concentric Collar . . . . . A-104  
 VCJT Standard Series . . . . . A-105  
 YCJT Industrial Set Screw Series . . . . . A-106  
 SCJT Standard Series . . . . . A-107  
 FLCT Standard Series . . . . . A-108  
 RFC Industrial Piloted-Series Concentric Collar . . . . . A-109  
 RC Series . . . . . A-110

### **MALLEABLE-IRON FLANGED UNITS**

GVFD, GVFDR Relubricatable Series –  
 VFD, VFDR Non-Relubricatable Series . . . . . A-111  
 GRFD, GRFDR Relubricatable Series –  
 RFD, RFDR Non-Relubricatable Series . . . . . A-112



### MALLEABLE-IRON FLANGED UNITS – *continued*

GVFTD, GVFTDR Relubricatable Series –	
VFTD, VFTDR Non-Relubricatable Series	A-113
GRFTD, GRFTDR Relubricatable Series –	
RFTD, RFTDR Non-Relubricatable Series	A-114

### PRESSED-STEEL HOUSED UNITS

PBS Series	A-115
PB Series – RPB Series	A-116

### PRESSED-STEEL FLANGED UNITS

VFMST Series	A-118
LFST Series	A-119

### PRESSED-STEEL FLANGETTE UNITS

RR Flangette Unit	A-120
RA Flangette Unit	A-122
RAT, RRT Two-Bolt Flangette Units	A-124
RATR, RRTR Triangle Flangette Units	A-126
GRA, GRR Relubricatable Flangette Units	A-128

### RUBBER CARTRIDGES

RCSM, RCR, CR Series	A-130
RABR HVAC Special Series	A-131

### TAKE-UP UNITS

NLTU Series Side-Mounted, Pressed-Steel	A-132
TU Series Top-Mounted, Cast-Iron	A-133
RTU Industrial Series	A-134
YTU Industrial Series	A-135
VTU Standard Series	A-136
TTU Industrial Series	A-137

### TIMKEN® SURVIVOR® PS SERIES . . . . . A-138

KAK/S Series	A-139
KJC Series	A-140
KCJT and KTB Series	A-141

### TIMKEN® SURVIVOR® PT SERIES . . . . . A-142

YAK/S Series	A-143
YJC Series	A-144
YJCT Series	A-145
YTB and YFB Series	A-146
RAK/S Series	A-147
RCJ Series	A-148
RCJT and RTB Series	A-149

### TIMKEN® SURVIVOR® NT SERIES . . . . . A-150

YJC and YJCT Series	A-151
RAK/S Series	A-152
RCJ Series	A-153
RCJT Series	A-154
RTU Series	A-155

### MISCELLANEOUS HOUSED UNITS

Idler Pulley Units	A-156
Roller Chain Idler Sprockets	A-158

### REPLACEMENT BEARINGS

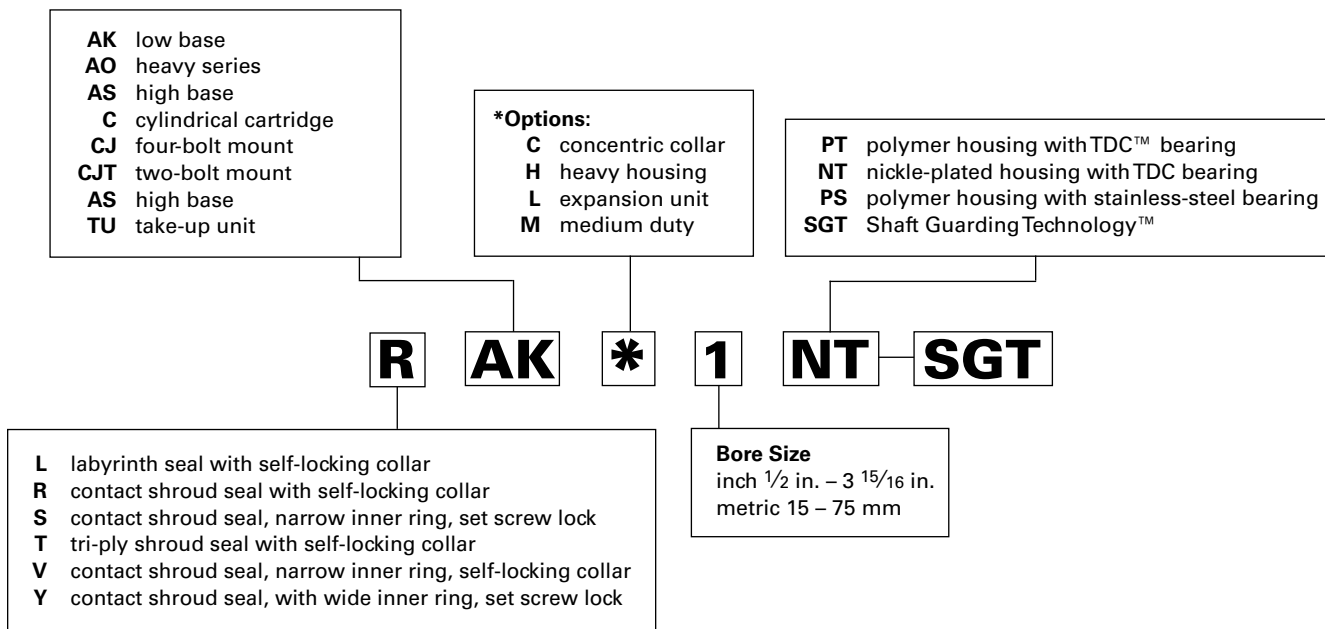
Housed Unit Replacement Chart	A-159
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### MACHINE UNITS . . . . . A-161

### TIMKEN® BALL BEARING HOUSED UNIT SAFETY END CAPS MAKE WORKPLACE PROTECTION A SNAP . . . . . A-162



**NOMENCLATURE**



**Fig. A-19. Wide-inner-ring ball bearing housed unit nomenclature.**

### INTRODUCTION

Ball bearing housed units are available in a wide variety of types and sizes to accommodate a complete range of operating conditions.

These units generally have cast-iron housings and mount on straight shafts with a slip fit. The self-locking collar and the set screw inner-bearing designs make mounting easier. Many of the set screw units include Shaft Guarding Technology™ (see page A-31). Bolt holes in housings take standard bolts to attach units to machinery frames. Several series are available with the concentric locking collar. Most units have a self-aligning feature.

Units incorporating prelubricated wide-inner-ring ball bearings may be furnished without grease fittings.

Several basic types of housed units are available:

- Pillow blocks also known as housed units.
- Flanged cartridges.
- Flangette units.
- Cylindrical cartridges.
- Take-up units.

The choice is determined by application and mounting requirements. Within the basic type selected, variations are available for specific load factors, shaft sizes, mounting surface dimensions, base-to-shaft centerline heights and lubrication requirements.

### PILLOW BLOCKS

Pillow blocks, the most commonly used type of mounted units, provide shaft support where the mounting surface is parallel to the shaft axis (fig. A-20). The bolt holes are usually slotted for easy adjustment during mounting.

Pillow blocks come in a variety of configurations.

- Narrow series (V and S) are lightweight, yet structurally designed to support bearing load.
- Premium width series (R and Y) are three times stronger for rougher environments. They're available in two styles that fit typical applications.
- Pressed steel and rubber pillow blocks are available for light-duty applications.



Fig. A-20. Pillow block.

### FLANGED CARTRIDGES

Flanged cartridges are used where a shaft passes through the machine frame at a right angle (fig. A-21). A four-bolt mounting is the most common; however, where the mounting area is restricted, three- and two-bolt versions are available. A piloted flanged cartridge provides additional mounting accuracy and support.



Fig. A-21. Flanged cartridge.

Flanged cartridges are supplied in both standard and heavy-duty series. Iron- and rubber-flanged cartridges also are available.

A complete line of flangette units or pressed-steel flanged cartridges provides an economical solution for light-duty applications. Two-, three- and four-bolt mountings are available along with a relubricatable version.

### CYLINDRICAL CARTRIDGES

Cylindrical cartridges, like flanged cartridges, provide shaft support where the shaft axis is perpendicular to and passing through a machined housing that is generally very thick (fig. A-22). The outside diameter of the cylindrical cartridges permits mounting with a press fit into a straight, through-bored housing.

Cylindrical cartridges have a machined spherical bearing seat to provide initial shaft alignment in standard-duty applications. Synthetic, conductive rubber cylindrical cartridges are available for applications where low-cost, light-duty, low-noise operation is essential.



Fig. A-22. Cylindrical cartridge.



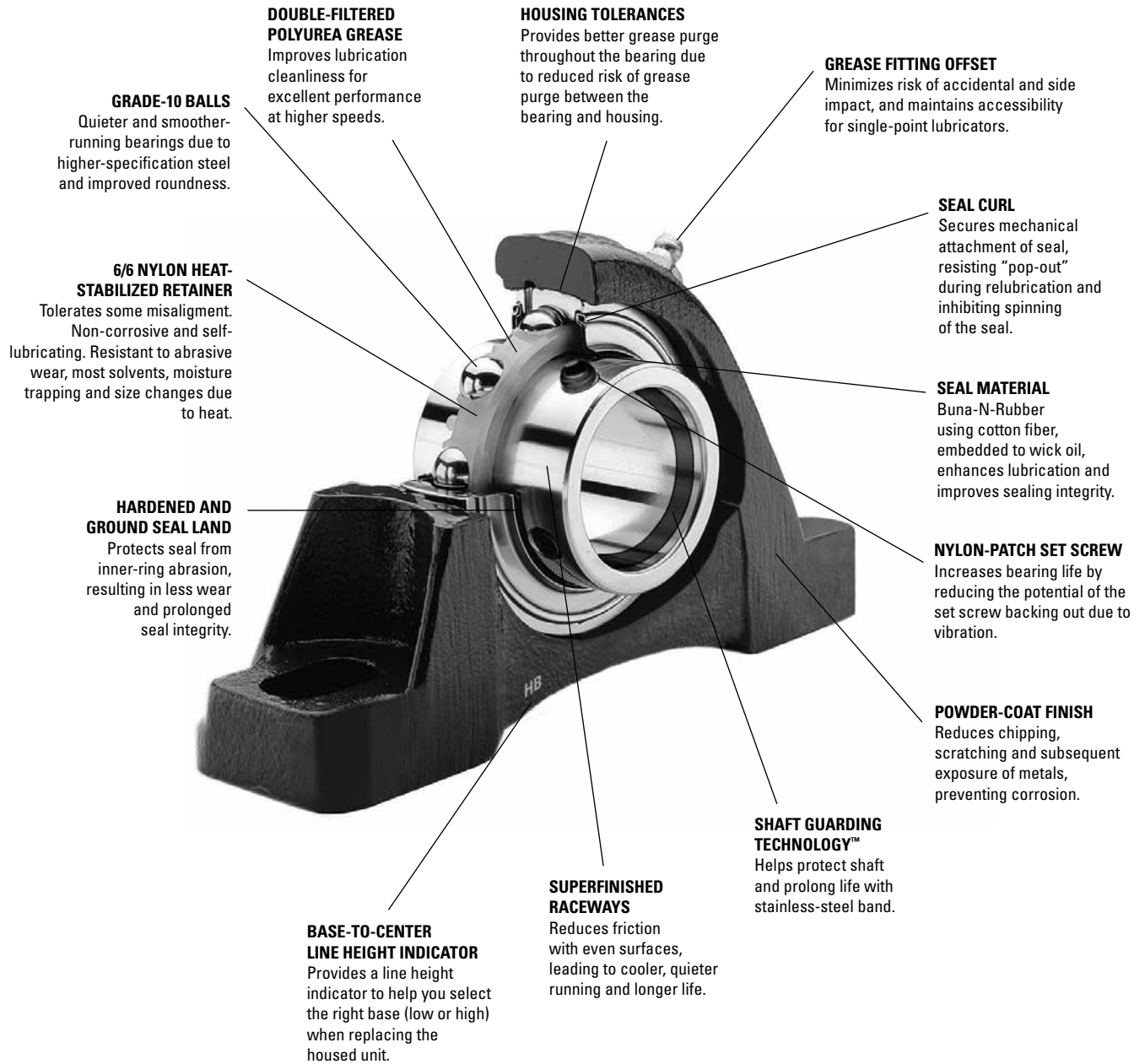
Fig. 23. Take-up unit.

### TAKE-UP UNITS

Take-up units are used where shaft adjustment and belt-tightening devices are required, such as conveyor applications (fig. A-23). Frames for take-up units provide for either side or top mounting.

Take-up units are available in cast-iron for standard-duty applications and pressed steel for economical, light-duty applications.

**FEATURES AND BENEFITS OF TIMKEN® BALL BEARING HOUSED UNITS**



**GRADE-10 BALLS**  
Quieter and smoother-running bearings due to higher-specification steel and improved roundness.

**6/6 NYLON HEAT-STABILIZED RETAINER**  
Tolerates some misalignment. Non-corrosive and self-lubricating. Resistant to abrasive wear, most solvents, moisture trapping and size changes due to heat.

**HARDENED AND GROUND SEAL LAND**  
Protects seal from inner-ring abrasion, resulting in less wear and prolonged seal integrity.

**DOUBLE-FILTERED POLYUREA GREASE**  
Improves lubrication cleanliness for excellent performance at higher speeds.

**HOUSING TOLERANCES**  
Provides better grease purge throughout the bearing due to reduced risk of grease purge between the bearing and housing.

**GREASE FITTING OFFSET**  
Minimizes risk of accidental and side impact, and maintains accessibility for single-point lubricators.

**SEAL CURL**  
Secures mechanical attachment of seal, resisting "pop-out" during relubrication and inhibiting spinning of the seal.

**SEAL MATERIAL**  
Buna-N-Rubber using cotton fiber, embedded to wick oil, enhances lubrication and improves sealing integrity.

**NYLON-PATCH SET SCREW**  
Increases bearing life by reducing the potential of the set screw backing out due to vibration.

**POWDER-COAT FINISH**  
Reduces chipping, scratching and subsequent exposure of metals, preventing corrosion.

**SHAFT GUARDING TECHNOLOGY™**  
Helps protect shaft and prolong life with stainless-steel band.

**SUPERFINISHED RACEWAYS**  
Reduces friction with even surfaces, leading to cooler, quieter running and longer life.

**BASE-TO-CENTER LINE HEIGHT INDICATOR**  
Provides a line height indicator to help you select the right base (low or high) when replacing the housed unit.

**NOTE**

*Failure to follow the mounting/dismounting instructions of your equipment supplier can cause damage to the shaft, leading to premature failure of the equipment.*

[www.timken.com/warning/WIR](http://www.timken.com/warning/WIR)

### TIMKEN SELF-LOCKING COLLAR INSTALLATION

Most Timken housed units come equipped with the self-locking collar to facilitate the mounting of wide-inner-ring ball bearings. This self-locking collar eliminates the need for locknuts, washers, shoulders, sleeves and adapters.

The locking collar has a counterbored recess made purposely eccentric to the bore. The collar recess and the end of the bearing inner ring with which it engages are both machined so that they act as mating cams when on the shaft.

When the collar is engaged to the inner ring, it grips the shaft tightly with a positive binding action that increases with use. No adjustments of any kind are necessary.

### CONCENTRIC COLLAR

For simplified installation of Timken housed units equipped with concentric-collar bearings, the collar is normally assembled to the wide inner ring for shipment. Slip the complete unit on the shaft following steps 1 and 2 (table A-22) described for the self-locking collar procedure, and tighten both set screws.

### TIMKEN SET SCREW LOCKING BEARING

Steps 1 and 2 (table A-22) can be repeated from the self-locking collar installation above. To lock the set screw bearing, simply tighten each inner ring set screw to the suggested torque listed by shaft size. See table A-21.

**TABLE A-21. SET SCREW LOCKING GUIDE.**

Shaft Size		SUGGESTED
in.	mm	Torque in. - lbs.
1/2 – 11/16	17	35
3/4 – 1	20 – 25	80
1 1/16 – 1 3/4	30 – 45	155
1 13/16 – 2 3/16	50 – 55	275

It may be necessary to rotate the shaft to provide an easy access of the set screw wrench to the set screws. To disassemble, loosen the set screws.

**TABLE A-22. SELF-LOCKING COLLAR INSTALLATION**



1. Slip the shaft through the pillow block or other Timken® housed unit incorporating the wide-inner-ring ball bearing. Be certain the bearing is aligned in position along the shaft to eliminate any possibility of cramping loads.



2. Fasten the unit securely to the base using the proper bolt size.



3. Place the self-locking collar on the shaft with its cam adjacent to the cam on the end of the bearing's inner ring. The eccentric recessed cam will slide over and engage the corresponding cam on the bearing inner ring. Turn the collar in the direction of shaft rotation.



4. Using a lightweight hammer and a drift pin inserted in the drift-pin hole, tap lightly in the direction of shaft rotation to positively engage the collar. The wide inner ring is now locked to the shaft.

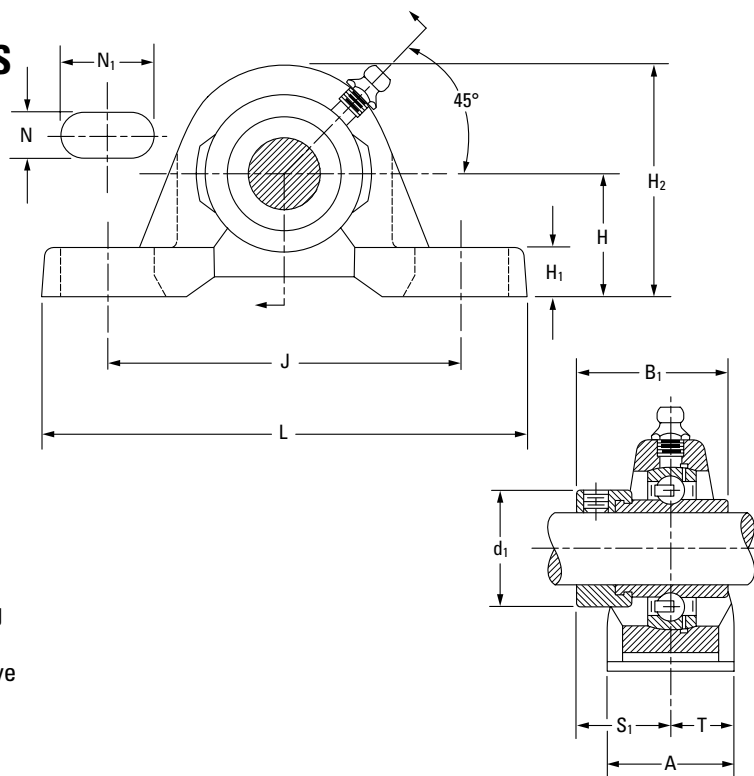


5. As a final step, fully tighten the set screw. It exerts a wedging action to hold the collar always in the engaged position, even under shock load. This design will operate effectively after the cams are tightly locked and in most cases, with no set screws at all.

**CAST-IRON HOUSED UNITS**  
**RAK, TAK, LAK INDUSTRIAL SERIES**

RAK, TAK and LAK pillow blocks are suggested for industrial applications where normal loads are encountered.

- Heavier than our standard block with solid, flat feet for increased strength.
- Compact, one-piece housing can be mounted in any position.
- Pillow blocks self-align at mounting with the spherical outside diameter of the bearing fitting into the corresponding spherical housing seat.
- Pre-lubricated and ready for immediate installation.
- Grease fitting for relubrication.
- Self-locking collars supplied with all units.
- RAK pillow block is equipped with G-KRRB (R-seal) wide-inner-ring ball bearings, the TAK with G-KPPB (tri-ply seal) wide-inner-ring ball bearings and the LAK with the G-KLLB (Mechani-seal) wide-inner-ring ball bearings.
- Contact a Timken engineer to discuss highly corrosive applications (food processing, chemical exposure) where Timken thin-dense chrome-coated bearings can be utilized.



**Suggested shaft tolerances:**

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: RAK 1 7/16 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
RAK	G-KRRB	Page A-34
TAK	G-KPPB	Page A-39
LAK	G-KLLB	Page A-37

Unit	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	T	Bolt Size	Bearing No. <sup>(1)</sup>	Collar No.	Housing No.	Unit Wt.	
	in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	RAK	(TAK/LAK)		New (Old)	kg lbs.
RAK, LAK	1/2														G1008KRRB	(KLLB)	S1008K		
RAK, LAK	5/8	<b>26.99</b>	<b>53.20</b>	<b>37.3</b>	<b>92.1</b>	<b>123.8</b>	<b>30.2</b>	<b>8.7</b>	<b>11.1</b>	<b>22.2</b>	<b>28.6</b>	<b>23.4</b>	<b>15.1</b>	<b>10</b>	G1010KRRB	(KLLB)	S1010K	T-40238	<b>0.454</b>
RAK	11/16	1 1/16	2 3/32	1 15/32	3 5/8	4 7/8	1 3/16	1 1/32	7/16	7/8	1 1/8	59/64	19/32	3/8	G1011KRRB		S1011K	(T-30595)	1.00
RAK	<b>17</b>														GE17KRRB		SE17K		
RAK, LAK	3/4	<b>31.75</b>	<b>64.30</b>	<b>43.7</b>	<b>96.0</b>	<b>127.0</b>	<b>33.3</b>	<b>13.5</b>	<b>11.1</b>	<b>20.2</b>	<b>33.3</b>	<b>26.6</b>	<b>16.7</b>	<b>10</b>	G1012KRRB	(KLLB)	S1012K		
RAK	<b>20</b>	1 1/4	2 17/32	1 23/32	3 25/32	5	1 5/16	17/32	7/16	51/64	1 5/16	1 3/64	21/32	3/8	GE20KRRB		SE20K	M96830	<b>0.730</b> 1.61
RAK, TAK	7/8														G1014KRRB	(KPPB3)	S1014K		
RAK, TAK, LAK	15/16	<b>33.34</b>	<b>69.80</b>	<b>44.4</b>	<b>104.8</b>	<b>139.7</b>	<b>37.3</b>	<b>11.9</b>	<b>11.1</b>	<b>20.6</b>	<b>38.1</b>	<b>27.0</b>	<b>18.7</b>	<b>10</b>	G1015KRRB	(KPPB3/KLLB)	S1015K	M96833	<b>0.950</b>
RAK, TAK, LAK	1	1 5/16	2 3/4	1 3/4	4 1/8	5 1/2	1 15/32	15/32	7/16	13/16	1 1/2	1 1/16	47/64	3/8	G1100KRRB	(KPPB3/KLLB)	S1100K		2.10
RAK, TAK	<b>25</b>														GE25KRRB	(KPPB3)	SE25K		
RAK, TAK	1 1/16														G1101KRRB	(KPPB3)	S1101K		
RAK, TAK, LAK	1 1/8	<b>36.69</b>	<b>81.70</b>	<b>48.4</b>	<b>117.5</b>	<b>157.2</b>	<b>42.9</b>	<b>13.5</b>	<b>14.3</b>	<b>23.8</b>	<b>44.1</b>	<b>30.1</b>	<b>21.4</b>	<b>12</b>	G1102KRRB	(KPPB3/KLLB)	S1102K	M96836	<b>1.420</b>
RAK, TAK, LAK	1 3/16	1 1/16	3 7/32	1 29/32	4 5/8	6 3/16	1 11/16	17/32	9/16	15/16	1 47/64	1 3/16	27/32	1/2	G1103KRRB	(KPPB3/KLLB)	S1103K		3.14
RAK, TAK	<b>30</b>														GE30KRRB	(KPPB3)	SE30K		
RAK, TAK, LAK	1 1/4														G1104KRRB	(KPPB2/KLLB)	S1104K		
RAK, TAK	1 5/16	<b>46.04</b>	<b>93.70</b>	<b>51.2</b>	<b>130.2</b>	<b>166.7</b>	<b>46.8</b>	<b>16.7</b>	<b>14.3</b>	<b>24.6</b>	<b>53.4</b>	<b>32.5</b>	<b>23.4</b>	<b>12</b>	G1105KRRB	(KPPB2)	S1105K	M96839	<b>1.890</b>
RAK, TAK	1 3/8	1 13/16	3 11/16	2 1/64	5 1/8	6 9/16	1 27/32	21/32	9/16	31/32	2 1/8	1 9/32	59/64	1/2	G1106KRRB	(KPPB2)	S1106K		4.18
RAK, TAK, LAK	1 7/16														G1107KRRB	(KPPB2/KLLB)	S1107K		
RAK, TAK	<b>35</b>														GE35KRRB	(KPPB2)	SE35K		

<sup>(1)</sup>Bearing number for RAK is G-KRRB. TAK uses G-KPPB. LAK uses G-KLLB.

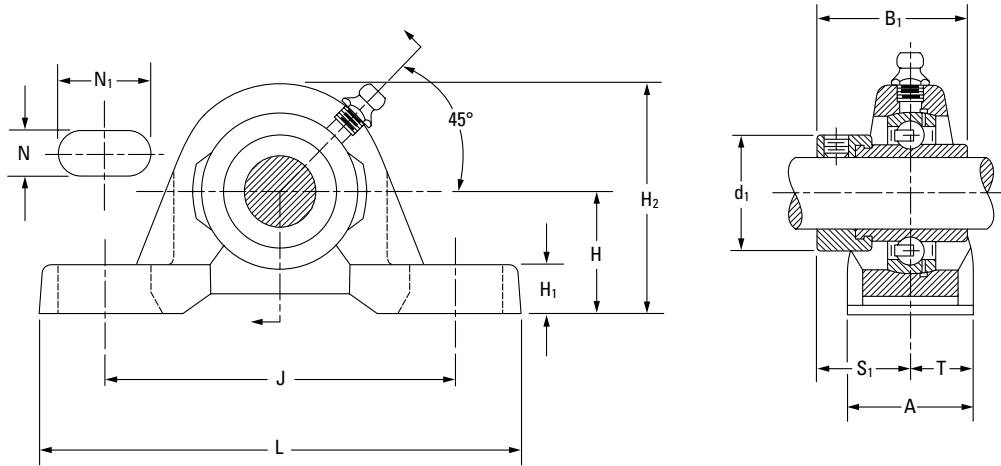
NOTE: All units have 1/8 pipe-thread grease fitting except 1/2 – 1 1/16 and 3/4 units, which have 1/4-28 fitting.

Continued on next page.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • CAST-IRON HOUSED UNITS • RAK, TAK, LAK

## RAK, TAK, LAK INDUSTRIAL SERIES – continued



Continued from previous page.

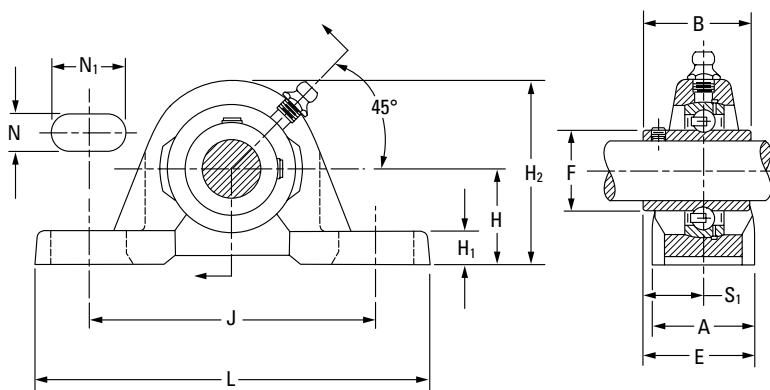
Unit	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	T	Bolt Size	Bearing No. <sup>(1)</sup>	Collar No.	Housing No.	Unit Wt.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	RAK (TAK/LAK)		New (Old)	kg lbs.
RAK, TAK, LAK	1 1/2	49.21	101.60	56.4	136.5	179.4	51.6	19.1	14.3	26.2	60.3	34.9	25.8	12	G1108KRRB (KPPB3/KLLB)	S1108KT		2.490
RAK, TAK	1 9/16	1 15/16	4	2 7/32	5 3/8	7 1/16	2 1/32	3/4	9/16	11 1/32	2 3/8	1 3/8	1 1/64	1/2	G1109KRRB (KPPB3)	S1109KT	M96842	5.50
RAK, TAK	40														GE40KRRB (KPPB3)	SE40K		
RAK, TAK	1 5/8														G1110KRRB (KPPB4)	S1110K		
RAK, TAK, LAK	1 11/16	52.39	104.80	56.4	98.4	191.3	52.4	17.5	14.3	28.6	63.5	34.9	26.2	12	G1111KRRB (KPPB4/KLLB)	S1111K	M96844	3.200
RAK, TAK, LAK	1 3/4	2 1/16	4 1/8	2 7/32	5 7/8	7 17/32	2 1/16	1 1/16	9/16	1 1/8	2 1/2	1 3/8	1 1/32	1/2	G1112KRRB (KPPB4/KLLB)	S1112K		7.06
RAK, TAK	45														GE45KRRB (KPPB4)	SE45K		
RAK, TAK	1 7/8														G1114KRRB (KPPB3)	S1114K		
RAK, TAK, LAK	1 15/16	55.56	112.70	62.7	158.0	200.0	57.9	17.7	18.3	25.4	69.9	38.1	29.0	16	G1115KRRB (KPPB3/KLLB)	S1115K	M96847	4.010
RAK, TAK	50	2 3/16	4 7/16	1 5/32	6 7/32	7 7/8	2 9/32	1 1/16	2 3/32	1	2 3/4	1 1/2	1 9/64	5/8	GE50KRRB (KPPB3)	SE50K		8.86
RAK, TAK	2														G1200KRRB (KPPB4)	S1200K		
RAK, TAK	2 1/8	61.91	126.20	71.4	176.2	222.3	60.3	19.0	18.3	29.4	76.2	43.7	30.2	16	G1202KRRB (KPPB4)	S1202K	T-40246	3.901
RAK, TAK, LAK	2 3/16	2 7/16	4 31/32	2 13/16	6 15/16	8 3/4	2 3/8	3/4	2 3/32	1 5/32	3	1 23/32	1 3/16	5/8	G1203KRRB (KPPB4/KLLB)	S1203K	(M96850)	8.60
RAK, TAK	55														GE55KRRB (KPPB4)	SE55K		
RAK	2 1/4														G1204KRRB	S1204K		
RAK	2 3/8	68.26	137.30	77.8	188.1	239.7	60.3	22.2	18.3	29.4	84.1	46.8	30.2	16	G1206KRRB	S1206K	T-40247	5.511
RAK, LAK	2 7/16	2 11/16	5 13/32	3 1/16	7 13/32	9 7/16	2 3/8	7/8	2 3/32	1 5/32	3 5/16	1 27/32	1 3/16	5/8	G1207KRRB (KLLB)	S1207K	(M99647)	12.15
RAK	60														GE60KRRB	SE60K		
RAK	2 11/16	76.20	154.00	85.7	203.2	266.7	73.0	33.3	20.6	34.9	96.8	45.2	36.5	20	G1211KRRB	S1211KT		7.920
RAK	70	3	6 1/8	3 3/8	8	10 1/2	2 7/8	1 5/16	1 3/16	1 3/8	3 13/16	1 25/32	1 7/16	3/4	GE70KRRB	SE70K	T-22503	17.46
RAK	2 15/16	84.14	163.50	92.1	241.3	304.8	82.6	38.1	22.2	31.8	101.6	54.8	41.3	20	G1215KRRB	S1215K		9.026
RAK	75	3 5/16	6 7/16	3 5/8	9 1/2	12	3 1/4	1 1/2	7/8	1 1/4	4	2 5/32	1 5/8	3/4	GE75KRRB	SE75K	T-20134	19.90

<sup>(1)</sup>Bearing number for RAK is G-KRRB. TAK uses G-KPPB. LAK uses G-KLLB.

NOTE: All units have 1/8 pipe-thread grease fitting except 1/2 – 1 1/16 and 3/4 units, which have 1/4-28 fitting.

**YAK INDUSTRIAL-SERIES SET SCREW UNITS**

- Incorporates Shaft Guarding Technology, which reduces replacement time, provides shaft protection and prolongs the life of the shaft.
- Heavier than our standard block with solid, flat feet for increased strength.
- Timken series low-base set screw pillow blocks feature the GY-KRRB bearing.
- Well-suited for industrial applications with normal loads due to its full-width inner-ring set screw.
- Contact a Timken engineer to discuss highly corrosive applications (food processing, chemical exposure) where Timken thin-dense chrome-coated bearings can be utilized.



**Suggested shaft tolerances:**

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: YAK 1 7/16 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
YAK	GY-KRRB	Page A-44

Unit	Shaft Dia.	H	H <sub>2</sub>	B	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	F	S <sub>1</sub>	E	Bolt Size	Bearing No.	Housing No.	Unit Wt.
		in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
YAK	1/2	26.99	53.2	27.4	92.1	123.8	30.2	8.7	11.1	22.2	22.9	15.9	31.0	10	GY1008KRRB		0.4536
YAK	5/8	1 1/16	2 3/32	1 5/64	3 5/8	4 7/8	1 3/16	1 1/32	7/16	7/8	0.900	5/8	1 7/32	3/8	GY1010KRRB GYE17KRRB	T40238	1.0000
YAK	17																
YAK	3/4 SGT	31.75	64.3	31.8	96.4	127.0	33.3	13.5	11.1	20.2	27.6	19.1	35.7	10	GY1012KRRB SGT		0.6775
YAK	20 SGT	1 1/4	2 17/32	1 1/4	3 51/64	5	1 5/16	1 7/32	7/16	51/64	1.085	3/4	1 13/32	3/8	GYE20KRRB SGT	M96830	1.4937
YAK	7/8 SGT																
YAK	15/16 SGT	33.34	70.0	34.9	104.8	139.7	37.3	11.9	11.1	20.6	33.8	20.6	39.3	10	GY1014KRRB SGT		0.8924
YAK	1 SGT	1 5/16	2 3/4	1 3/8	4 1/8	5 1/2	1 19/32	1 5/32	7/16	1 3/16	1.332	1 3/16	1 35/64	3/8	GY1015KRRB SGT	M96833	1.9673
YAK	25 SGT														GY1100KRRB SGT		
YAK	1 1/8 SGT														GYE25KRRB SGT		
YAK	1 3/16 SGT	39.69	81.8	39.3	117.5	157.2	42.9	13.5	14.3	23.8	40.3	23.4	44.8	12	GY1102KRRB SGT		1.3541
YAK	1 1/4 S	1 9/16	3 7/32	1 35/64	4 5/8	6 3/16	1 11/16	1 7/32	9/16	1 5/16	1.587	5 9/64	1 4 9/64	1/2	GY1103KRRB SGT	M96836	2.9853
YAK	30 SGT														GY1103KRRB3 SGT		
YAK	1 1/4 SGT														GYE30KRRB SGT		
YAK	1 3/8 SGT	46.04	93.7	45.2	130.2	166.7	46.8	16.7	14.3	24.6	46.8	28.2	51.6	12	GY1104KRRB SGT		1.8434
YAK	1 7/16 SGT	1 13/16	3 11/16	1 25/32	5 1/8	6 9/16	1 27/32	2 1/32	9/16	3 1/32	1.844	1 7/64	2 1/32	1/2	GY1106KRRB SGT	M96839	4.0639
YAK	35 SGT														GY1107KRRB SGT		
YAK	1 1/2 SGT														GYE35KRRB SGT		
YAK	40 SGT	49.21	101.6	49.2	136.5	179.4	51.6	19.1	14.3	26.2	52.3	30.2	56.0	12	GY1108KRRB SGT		2.4763
YAK	1 5/8 SGT	1 15/16	4	1 15/16	5 3/8	7 1/16	2 1/32	3/4	9/16	1 1/32	2.058	1 3/16	2 13/34	1/2	GYE40KRRB SGT	M96842	5.4592
YAK	1 5/8 SGT														GY1110KRRB SGT		
YAK	1 11/16 SGT	52.39	104.8	50.4	149.2	191.3	52.4	17.5	14.3	28.6	57.9	31.4	57.5	12	GY1111KRRB SGT		2.6311
YAK	1 3/4 SGT	2 1/16	4 1/8	1 63/64	5 7/8	7 17/32	2 1/16	1 1/16	9/16	1 1/8	2.280	1 15/64	2 17/64	1/2	GY1112KRRB SGT	M96844	5.8005
YAK	45 SGT														GYE45KRRB SGT		
YAK	1 15/16 SGT														GY1115KRRB SGT		
YAK	2 S	55.56	112.7	51.6	158.0	200.2	57.9	17.5	18.3	25.4	62.8	32.5	61.5	16	GY1115KRRB2 SGT	M96847	3.2579
YAK	50 SGT	2 3/16	4 7/16	2 1/32	6 7/32	7 7/8	2 9/32	1 1/16	23/32	1	2.474	1 9/32	2 27/64	5/8	GYE50KRRB SGT		7.1824
YAK	2 SGT														GY1200KRRB SGT		
YAK	2 3/16 SGT	61.91	126.2	55.6	176.2	222.3	60.3	19.1	18.3	29.4	69.8	33.3	61.9	16	GY1203KRRB SGT	M96850	3.9009
YAK	55 SGT	2 7/16	4 31/32	2 3/16	6 15/16	8 3/4	2 3/8	3/4	23/32	1 5/32	2.747	1 5/16	2 7/16	5/8	GYE55KRRB SGT		8.6000
YAK	2 1/4 SGT														GY1204KRRB SGT		
YAK	2 7/16 SGT	68.26	137.3	65.1	188.1	239.7	60.3	22.2	18.3	29.4	76.5	39.7	69.9	16	GY1207KRRB SGT	M99647	4.7718
YAK	60 SGT	2 11/16	5 13/32	2 9/16	7 13/32	9 7/16	2 3/8	7/8	23/32	1 5/32	3.011	1 9/16	2 3/4	5/8	GYE60KRRB SGT		10.5200
YAK	2 11/16	76.20	154.0	69.9	203.2	266.7	73.0	33.3	20.6	34.9	86.9	42.9	79.4	20	GY1211KRRB		7.1259
YAK	70	3	6 1/16	2 3/4	8	10 1/2	2 7/8	1 5/16	13/16	1 3/8	3.422	1 11/16	3 1/8	3/4	GYE70KRRB	T22503	15.7100
YAK	2 15/16	84.14	163.5	77.8	241.3	304.8	82.6	38.1	22.2	31.8	91.9	44.5	85.7	20	GY1215KRRB		8.5185
YAK	75	3 5/16	6 7/16	1 1/16	9 1/2	12	3 1/4	1 1/2	7/8	1 1/4	3.619	1 3/4	3 3/8	3/4	GY75KRRB	T20134	18.7800

NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • CAST-IRON HOUSED UNITS • VAK

## VAK STANDARD SERIES

- The streamlined and rugged VAK pillow block unit combines an engineered housing and an RA-RR extended inner ring bearing.
- RA-RR bearing employs a positive-contact, land-riding seal and a Timken self-locking collar. Collar ensures positive shaft retention.
- The pillow block can be mounted to operate in any position.
- Bearing housed units are factory-prelubricated, but a grease fitting is provided to allow for relubrication if required.

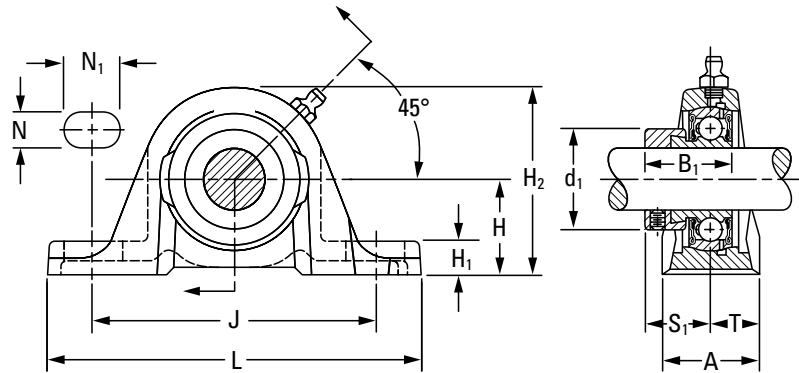
### Suggested shaft tolerances:

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify UNIT and SHAFT DIAMETER.

Example: VAK 1 7/16 in.



### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
VAK	GRA-RRB	Page A-50

Unit	Shaft Dia.	H		B <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	T	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm					
VAK	1/2	26.99	53.2	28.6	92.1	123.8	30.2	8.7	11.1	22.2	28.6	22.2	15.1	10	GRA008RRB	S1008K	T-40238	0.454
VAK	5/8	1 1/16	2 3/32	1 1/8	3 5/8	4 7/8	1 3/16	1 1/32	7/16	7/8	1 1/8	7/8	1 9/32	3/8	GRA010RRB GRAE17RRB	S1010K SE17K	(T-30595)	1.00
VAK	3/4	31.75	62.7	31.0	96.0	127.0	31.8	11.9	11.1	19.8	33.3	23.4	15.9	10	GRA012RRB	S1012K	T-40239	0.563
VAK	20	1 1/4	2 15/32	1 7/32	3 25/32	5	1 1/4	1 5/32	7/16	2 5/32	1 5/16	5 9/64	5/8	3/8	GRAE20RRB	SE20K	(T-30555)	1.24
VAK	7/8	33.34	68.3	31.0	104.8	139.7	35.7	11.9	11.1	20.6	38.1	23.4	17.9	10	GRA014RRB	S1014K	T-30365	0.758
VAK	1 5/16	1 5/16	2 11/16	1 7/32	4 1/8	5 1/2	1 13/32	1 5/32	7/16	1 3/16	1 1/2	5 9/64	4 5/64	3/8	GRA015RRB GRA100RRB GRAE25RRB	S1015K S1100K SE25K		1.67
VAK	1 1/8	39.69	80.2	35.7	117.5	157.2	39.7	13.5	14.3	23.8	44.1	27.0	19.9	12	GRA102RRB	S1102K	T-40241	1.235
VAK	1 3/16	1 9/16	3 3/32	1 13/32	4 5/8	6 3/16	1 9/16	1 7/32	9/16	1 5/16	1 47/64	1 1/16	2 5/32	1/2	GRA103RRB GRA103RRB2 GRAE30RRB	S1103K S1103K3 SE30K	(T-30300)	2.72
VAK	1 1/4	46.04	92.1	38.9	130.2	166.7	45.2	16.7	14.3	24.6	54.0	29.4	22.7	12	GRA104RRB	S1104K	T-40242	1.594
VAK	1 3/8	1 13/16	3 3/8	1 17/32	5 1/8	6 9/16	1 25/32	2 1/32	9/16	3 1/32	2 1/8	1 5/32	5 7/64	1/2	GRA106RRB GRA107RRB GRAE35RRB	S1106K S1107K SE35K	(T-30410)	3.51
VAK	1 1/2	49.21	100.0	43.7	136.5	179.4	47.6	19.0	14.3	26.2	60.3	32.5	23.8	12	GRA108RRB	S1108KT	T-40243	2.034
VAK	1 9/16	1 15/16	3 15/16	1 23/32	5 3/8	7 1/16	1 7/8	3/4	9/16	1 1/32	2 3/8	1 9/32	1 5/16	1/2	GRA109RRB GRAE40RRB	S1109KT SE40K	(T-30484)	4.48
VAK	1 5/8	52.39	104.8	43.7	149.2	191.3	50.8	17.5	14.3	28.6	63.5	32.5	25.4	12	GRA110RRB	S1110K	T-40244	2.261
VAK	1 11/16	2 1/16	4 1/8	1 23/32	5 7/8	7 17/32	2	1 1/16	9/16	1 1/8	2 1/2	1 9/32	1	1/2	GRA111RRB GRA112RRB GRAE45RRB	S1111K S1112K SE45K	(T-30682)	4.98
VAK	1 3/4	55.56	112.7	43.7	158.0	200.0	55.6	17.5	17.5	23.8	69.8	32.5	27.8	16	GRA114RRB	S1114K	T-40245	2.774
VAK	1 7/8	2 3/16	4 7/16	1 23/32	6 1/32	7 7/8	2 3/16	1 1/16	1 1/16	1 5/16	2 3/4	1 9/32	1 3/32	5/8	GRA115RRB GRA115RRB2 GRAE50RRB	S1115K S1115K2 SE50K	(T-30706)	6.11
VAK	2	61.91	124.6	48.4	176.2	222.3	58.7	19.0	18.3	29.4	76.2	36.5	29.4	16	GRA200RRB	S1200K	T-40246	3.328
VAK	2 3/16	2 7/16	4 29/32	1 29/32	6 15/16	8 3/4	2 5/16	3/4	2 3/32	1 5/32	3	1 7/16	1 5/32	5/8	GRA203RRB GRAE55RRB	S1203K SE55K	(T-30738)	7.33

NOTE: All units have 1/8 pipe-thread grease fitting except 1/2 – 1 1/16 and 3/4 units, which have 1/4-28 fitting.

NOTE: Shaft diameter with an S = smaller housing.



**SAK STANDARD SERIES**

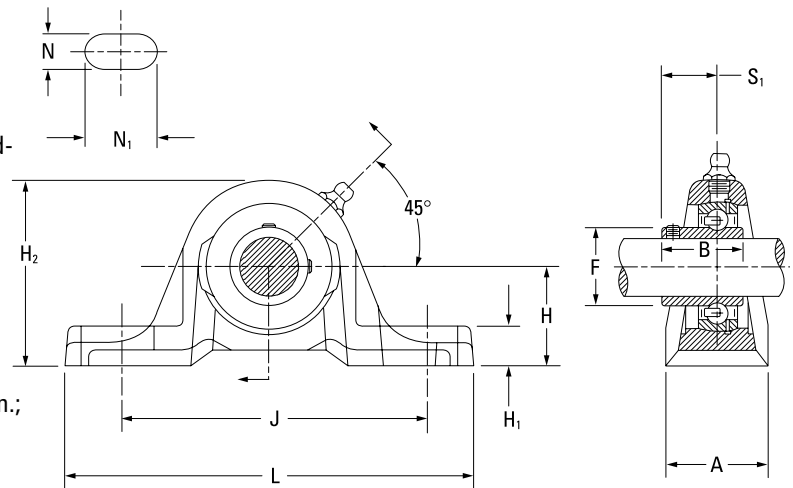
- The streamlined, rugged, one-piece pillow block combines an RAK housing and GYA-RRB set screw bearing.
- GYA-RRB bearing employs a positive-contact, land-riding seal and specially designed set screws.
- This pillow block can be mounted to operate in any position.
- Bearing housed units are factory-prelubricated, but a grease fitting is provided to allow for relubrication if required.

**Suggested shaft tolerances:**

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
 2 in. – 2 3/16 in., nominal -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: SAK 1 in.



**BEARING DATA**

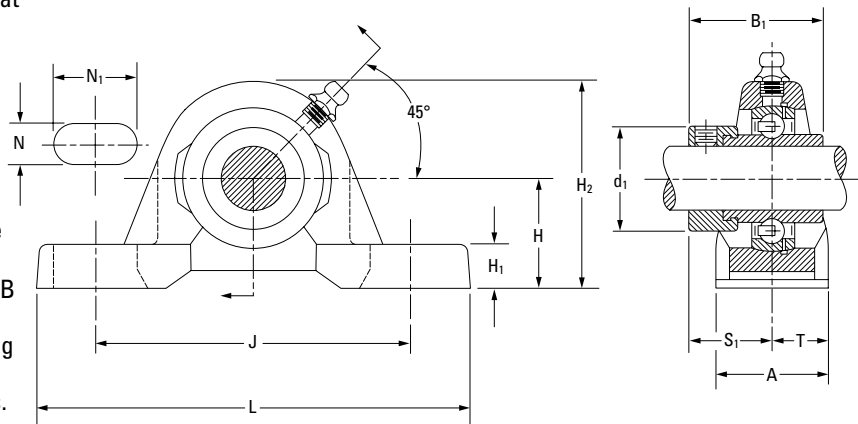
Unit	Bearing No.	Dimensions and Load Ratings
SAK	GYA-RRB	Page A-54

Unit	Shaft Dia.	Basic Bearing No.	H	H <sub>2</sub>	S <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	F	B	Bolt Size	Bearing No.	Housing No.	Unit Wt.
	in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			New (Old)	kg lbs.
	mm	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.				
SAK 1/2	1/2	203	26.99	53.2	15.9	92.1	123.8	30.2	8.7	11.1	22.2	24.6	23.8	10 3/8	GYA008RRB	T40238	0.42
SAK 5/8	5/8	203	1 1/16	2 3/32	5/8	3 5/8	4 7/8	1 3/16	11/32	7/16	7/8	31/32	15/16		GYA010RRB	(T30595)	0.92
SAK 17	17														GYAE17RRB		
SAK 3/4	3/4	204	31.75	62.7	18.3	96.0	127	31.8	11.9	11.1	19.8	29.0	31.8	10 3/8	GYA012RRB	T40239	0.57
SAK 20	20		1 1/4	2 15/32	23/32	3 25/32	5	1 1/4	15/32	7/16	25/32	1 9/64	1 1/16		GYAE20RRB	(T30555)	1.25
SAK 7/8	7/8	205	33.34	68	19.4	104.8	139.7	35.7	11.9	11.1	20.6	33.7	34.9	10 3/8	GYA014RRB	T30365	0.76
SAK 15/16	15/16	205	1 5/16	2 11/16	49/64	4 1/8	5 1/2	1 13/32	15/32	7/16	13/16	1 21/64	1 7/64		GYA015RRB		1.67
SAK 1	1														GYA100RRB		
SAK 25	25														GYAE25RRB		
SAK 1 1/8	1 1/8	206	39.69	80.2	23.0	117.5	157.2	39.7	13.5	14.3	23.8	40.1	32.5	12 1/2	GYA102RRB	T40241	1.14
SAK 1 3/16	1 3/16	206	1 9/16	3 9/32	29/32	4 5/8	6 3/16	1 9/16	17/32	9/16	15/16	1 37/64	1 9/32		GYA103RRB	(T30300)	2.52
SAK 1 1/4 S	1 1/4 S														GYA103RRB2		
SAK 30	30														GYAE30RRB		
SAK 1 1/4	1 1/4	207	46.04	92.1	25.8	130.2	166.7	45.2	16.7	14.3	24.6	46.8	36.5	12 1/2	GYA104RRB	T40242	1.52
SAK 1 3/8	1 3/8	207	1 13/16	3 5/8	1 1/64	5 1/8	6 9/16	1 25/32	21/32	9/16	31/32	1 70/63	1 7/16		GYA106RRB	(T30410)	3.35
SAK 1 7/16	1 7/16														GYA107RRB		
SAK 35	35														GYAE35RRB		
SAK 1 1/2	1 1/2	208	49.21	100.0	27.8	136.5	179.4	47.6	19.1	14.3	26.2	52.4	39.3	12 1/2	GYA108RRB	T40243	1.85
SAK 40	40		1 15/16	3 15/16	1 3/32	5 3/8	7 1/16	1 7/8	3/4	9/16	1 1/32	2 1/16	1 35/64		GYAE40RRB	(T30484)	4.08
SAK 1 5/8	1 5/8	209	52.39	104.8	28.6	149.2	191.3	50.8	17.5	14.3	28.6	57.9	42.1	12 1/2	GYA110RRB	T40244	2.06
SAK 1 11/16	1 11/16	209	2 1/16	4 1/8	1 1/8	5 7/8	7 17/32	2	11/16	9/16	1 1/8	2 9/32	1 21/32		GYA111RRB	(T30682)	4.55
SAK 1 3/4	1 3/4														GYA112RRB		
SAK 45	45														GYAE45RRB		
SAK 1 15/16	1 15/16	210	55.56	112.7	31.0	158.0	200.2	55.6	17.5	17.5	23.8	62.7	44.5	16 5/8	GYA115RRB	T40245	2.54
SAK 2S	2S	210	2 3/16	4 7/16	1 7/32	6 7/32	7 7/8	2 3/16	11/16	11/16	15/16	2 15/32	1 3/4		GYA115RRB2	(T30706)	5.60
SAK 50	50														GYAE50RRB		
SAK 2	2	211	61.91	124.6	31.8	176.2	222.3	58.7	19.1	18.3	29.4	69.9	46.4	16 5/8	GYA200RRB	T40246	3.02
SAK 2 3/16	2 3/16	211	2 7/16	4 29/32	1 1/4	6 15/16	8 3/4	2 9/16	3/4	23/32	1 9/32	2 3/4	1 53/64		GYA203RRB	(T30738)	6.66
SAK 55	55														GYAE55RRB		

NOTE: All units have a 1/8 pipe-thread grease fitting except 1/2 – 1 1/16 and 3/4 units which have 1/4-28 fitting.

### RAS, TAS, LAS INDUSTRIAL SERIES

- Heavier than our standard block with solid, flat feet for increased strength.
- Timken RAS, TAS and LAS pillow blocks are similar in design and equal in load-carrying capacity to the RAK, TAK and LAK types.
- RAS, TAS and LAS types have a slightly higher base-to-center height dimension than the RAK, TAK and LAK types, making them interchangeable with other competitive designs.
- The RAS pillow block is equipped with G-KRRB (R-seal) wide-inner-ring ball bearings, the TAS with G-KPPB (tri-ply seal) wide-inner-ring ball bearings, and the LAS with the G-KLLB (Mechani-seal) wide-inner-ring ball bearings.
- Contact your Timken engineer to discuss highly corrosive applications (food processing, chemical exposure) where Timken thin-dense chrome-coated bearings can be utilized.



#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify UNIT and SHAFT DIAMETER.

Example: RAS 1 3/16 in.

#### BEARING DATA

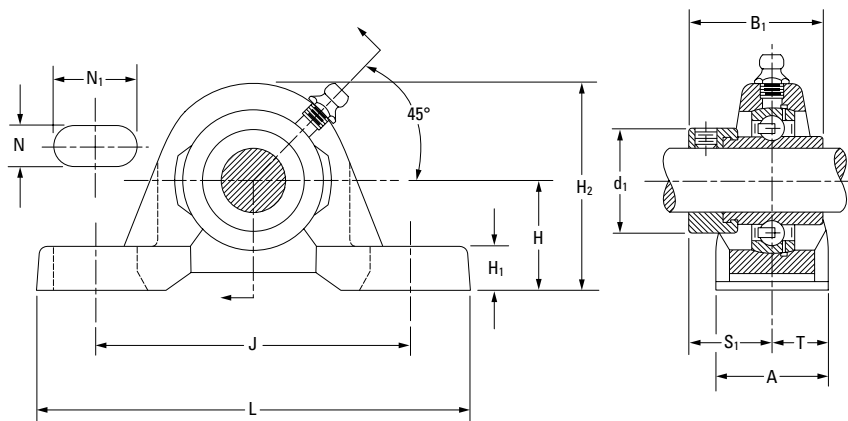
Unit	Bearing No.	Dimensions and Load Ratings
RAS	G-KRRB	Page A-34
TAS	G-KPPB	Page A-39
LAS	G-KLLB	Page A-37

Unit	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	T	Bolt Size	Bearing No. <sup>(1)</sup>	Collar No.	Housing No.	Unit Wt.	
	in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	RAS	(TAS)	New (Old)	kg lbs.	
RAS	1/2													10	G1008KRRB	S1008K			
RAS	5/8	30.16	56.4	37.3	92.1	123.8	30.2	11.9	11.1	22.2	28.6	23.4	15.1	3/8	G1010KRRB	S1010K	T-40238	0.454	
RAS	11/16	1 3/16	2 7/32	1 15/32	3 5/8	4 7/8	1 3/16	1 5/32	7/16	7/8	1 1/8	5 9/64	1 9/32	10	G1011KRRB	S1011K	(T-30595)	1.00	
RAS	17														GE17KRRB	SE17K			
RAS	3/4	33.34	65.9	43.7	96.4	127.0	33.3	15.1	11.1	20.2	33.3	26.6	16.7	10	G1012KRRB	S1012K			
RAS	20	1 5/16	2 19/32	1 23/32	3 5 1/4	5	1 5/16	1 9/32	7/16	5 1/64	1 5/16	1 3/64	2 1/32	3/8	GE20KRRB	SE20K	M96830	0.730	
RAS,TAS	7/8														G1014KRRB	(KPPB3)	S1014K		
RAS,TAS	1 5/16	36.51	73.0	44.4	104.8	139.7	37.3	15.1	11.1	20.6	38.1	27.0	18.7	10	G1015KRRB	(KPPB3)	S1015K	1.610	
RAS,TAS,LAS	1	1 7/16	2 7/8	1 3/4	4 1/8	5 1/2	1 15/32	1 9/32	7/16	1 3/16	1 1/2	1 1/16	4 7/64	3/8	G1100KRRB	(KPPB3)	S1100K	M96833	0.95
RAS,TAS	25														GE25KRRB	(KPPB3)	SE25K	2.10	
RAS,TAS	1 1/16														G1101KRRB	(KPPB3)	S1101K		
RAS,TAS	1 1/8	42.86	84.9	48.4	117.5	157.2	42.9	16.7	14.3	23.8	44.1	30.1	21.4	12	G1102KRRB	(KPPB3)	S1102K	1.420	
RAS,TAS,LAS	1 3/16	1 11/16	3 11/32	1 29/32	4 5/8	6 3/16	1 11/16	2 1/32	9/16	1 5/16	1 47/64	1 3/16	2 7/32	1/2	G1103KRRB	(KPPB3)	S1103K	M96836	3.14
RAS,TAS	30														GE30KRRB	(KPPB3)	SE30K		
RAS,TAS	1 1/4														G1104KRRB	(KPPB2)	S1104K		
RAS,TAS	1 5/16														G1105KRRB	(KPPB2)	S1105K		
RAS,TAS	1 3/8	47.63	95.3	51.2	130.2	166.7	46.8	18.3	14.3	24.6	54.0	32.5	23.4	12	G1106KRRB	(KPPB2)	S1106K	M96839	1.890
RAS,TAS,LAS	1 7/16	1 7/8	3 3/4	2 1/64	5 1/8	6 9/16	1 27/32	2 3/32	9/16	3 1/32	2 1/8	1 9/32	5 9/64	1/2	G1107KRRB	(KPPB2)	S1107K		
RAS,TAS	35														GE35KRRB	(KPPB2)	SE35K		
RAS,TAS	1 1/2														G1108KRRB	(KPPB3)	S1108KT		
RAS,TAS	1 9/16	49.21	101.6	56.4	136.5	179.4	51.6	19.1	14.3	26.2	60.3	34.9	25.8	12	G1109KRRB	(KPPB3)	S1109KT	M96842	2.490
RAS,TAS	40	1 15/16	4	2 7/32	5 3/8	7 1/16	2 1/32	3/4	9/16	1 1/32	3/8	1 3/8	1 1/64	1/2	GE40KRRB	(KPPB3)	SE40K	5.50	

<sup>(1)</sup>Bearing number for RAS is G-KRRB. TAS uses G-KPPB. LAS uses G-KLLB.

NOTE: All units have 1/8 pipe-thread grease fitting except 1/2 – 1 1/8 and 3/4 units, which have 1/4-28 fitting.

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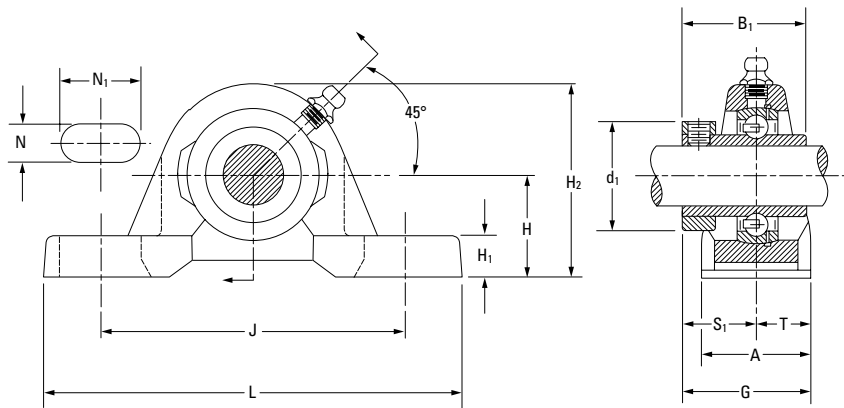
Unit	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	T	Bolt Size	Bearing No. <sup>(1)</sup>		Collar No.	Housing No.	Unit Wt.
															RAS	(TAS)			
RAS,TAS	1 5/8														G1110KRRB	(KPPB4)	S1110K		
RAS,TAS	1 11/16	<b>53.98</b>	<b>106.4</b>	<b>56.4</b>	<b>149.2</b>	<b>191.3</b>	<b>52.4</b>	<b>19.1</b>	<b>14.3</b>	<b>28.6</b>	<b>63.5</b>	<b>34.9</b>	<b>26.2</b>	<b>12</b>	G1111KRRB	(KPPB4)	S1111K	M96844	<b>3.200</b>
RAS,TAS	1 3/4	2 1/8	4 3/16	2 7/32	5 7/8	7 17/32	2 1/16	3/4	9/16	1 1/8	2 1/2	1 3/8	1 1/32	1/2	G1112KRRB	(KPPB4)	S1112K		
RAS,TAS	<b>45</b>														GE45KRRB	(KPPB4)	SE45K		
RAS,TAS	1 7/8														G1114KRRB	(KPPB3)	S1114K	M96847	<b>4.010</b>
RAS,TAS,LAS	1 15/16	<b>57.15</b>	<b>114.3</b>	<b>62.7</b>	<b>158.0</b>	<b>200.0</b>	<b>57.9</b>	<b>19.1</b>	<b>18.3</b>	<b>25.4</b>	<b>69.9</b>	<b>38.1</b>	<b>29.0</b>	<b>16</b>	G1115KRRB	(KPPB3)	S1115K		
RAS,TAS	<b>50</b>	2 1/4	4 1/2	2 15/32	6 7/32	7 7/8	2 9/32	3/4	23/32	1	2 3/4	1 1/2	1 9/64	5/8	GE50KRRB	(KPPB3)	SE50K		
RAS,TAS	2														G1200KRRB	(KPPB4)	S1200K	M96850	<b>3.901</b>
RAS,TAS	2 1/8	<b>63.50</b>	<b>127.8</b>	<b>71.4</b>	<b>176.2</b>	<b>222.3</b>	<b>60.3</b>	<b>20.6</b>	<b>18.3</b>	<b>29.4</b>	<b>76.2</b>	<b>43.7</b>	<b>30.2</b>	<b>16</b>	G1202KRRB	(KPPB4)	S1202K		
RAS,TAS	2 3/16	2 1/2	5 1/32	2 13/16	6 15/16	8 3/4	2 3/8	13/16	23/32	1 5/32	3	1 23/32	1 3/16	5/8	G1203KRRB	(KPPB4)	S1203K		
RAS,TAS	<b>55</b>														GE55KRRB	(KPPB4)	SE55K		
RAS	2 1/4														G1204KRRB		S1204K	M99647	<b>5.511</b>
RAS	2 3/8	<b>69.85</b>	<b>138.9</b>	<b>77.8</b>	<b>188.1</b>	<b>239.7</b>	<b>60.3</b>	<b>23.8</b>	<b>18.3</b>	<b>29.4</b>	<b>84.1</b>	<b>46.8</b>	<b>30.2</b>	<b>16</b>	G1206KRRB		S1206K		
RAS,LAS	2 7/16	2 3/4	5 15/32	3 1/16	7 13/32	9 7/16	2 3/8	15/16	23/32	1 5/32	3 5/16	1 27/32	1 3/16	5/8	G1207KRRB		S1207K		
RAS	<b>60</b>														GE60KRRB		SE60K		
RAS	2 15/16	<b>82.55</b>	<b>164.3</b>	<b>92.1</b>	<b>215.9</b>	<b>269.9</b>	<b>69.9</b>	<b>25.4</b>	<b>22.2</b>	<b>31.8</b>	<b>101.6</b>	<b>54.8</b>	<b>34.9</b>	<b>20</b>	G1215KRRB		S1215K	T-23423	<b>9.026</b>
RAS	<b>75</b>	3 1/4	6 15/32	3 5/8	8 1/2	10 5/8	2 3/4	1	7/8	1 1/4	4	2 5/32	1 3/8	3/4	GE75KRRB		SE75K		

<sup>(1)</sup>Bearing number for RAS is G-KRRB. TAS uses G-KPPB. LAS uses G-KLLB.

NOTE: All units have 1/8 pipe-thread grease fitting except 1/2 - 1 1/16 and 3/4 units, which have 1/4-28 fitting.

### RASC INDUSTRIAL-SERIES CONCENTRIC COLLAR

- Heavier than our standard block with solid, flat feet for increased strength.
- All RASC pillow blocks are equipped with GC-KRRB (R-seal) wide-inner-ring ball bearings with concentric collars.
- Pillow blocks self-align at mounting with the spherical outside diameter of the bearing fitting into a corresponding spherical housing seat.
- Units are prelubricated and ready for immediate installation.
- Grease fitting provides for relubrication if required.
- Concentric collars are supplied with all units.



#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify UNIT and SHAFT DIAMETER.

Example: RASC 1 in.

#### BEARING DATA

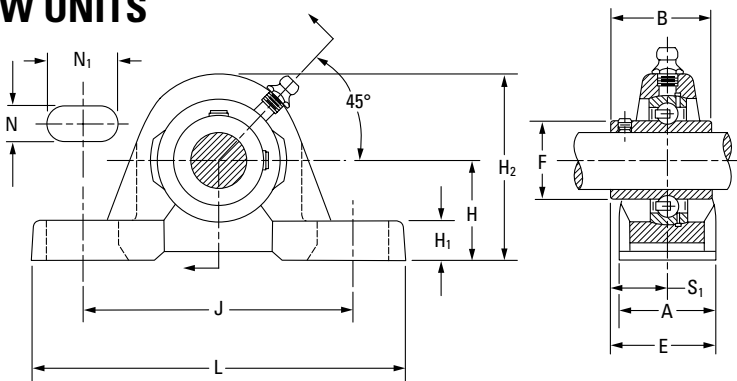
Unit	Bearing No.	Dimensions and Load Ratings
RASC	GC-KRRB	Page A-40

Unit	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	T	G	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			New (Old)	kg lbs.
RASC	5/8	30.16 1 3/16	56.4 2 1/32	26.6 1 3/64	92.1 3 5/8	123.8 4 7/8	30.2 1 3/16	11.9 15/32	11.1 7/16	22.2 7/8	34.1 1 11/32	15.5 39/64	15.08 19/32	30.53 1 19/64	10 3/8	GC1010KRRB	C203	T-40238 (T-30595)	0.454 1.00
RASC	3/4	33.34 1 5/16	65.9 2 19/32	31.0 7/32	96.0 25/32	127.0 5	33.3 5/16	15.1 19/32	11.1 7/16	19.8 25/32	38.1 1/2	18.7 47/64	16.70 21/32	35.32 1 25/64	10 3/8	GC1012KRRB	C204	M96830	0.635 1.40
RASC	1	36.51 1 7/16	73.0 2 7/8	34.1 1 11/32	104.8 4 1/8	139.7 5 1/2	37.3 1 15/32	15.1 19/32	11.1 7/16	20.2 13/16	44.4 1 3/4	20.2 51/64	18.70 47/64	38.89 1 17/32	10 3/8	GC1100KRRB	C205	M96833	0.803 1.77
RASC	1 1/8	42.86 1 11/16	84.9 3 11/32	37.3 1 15/32	117.5 4 5/8	157.2 6 3/16	42.9 1 11/16	16.7 21/32	14.3 9/16	23.8 15/16	52.4 2 1/16	22.6 57/64	21.40 27/32	44.05 1 47/64	12 1/2	GC1102KRRB GC1103KRRB GC1103KRRB3	C206	M96836	1.297 2.86
RASC	1 1/4	47.62 1 7/8	95.3 3 3/4	41.3 1 5/8	130.2 5 1/8	166.7 6 9/16	46.8 1 27/32	18.3 23/32	14.3 9/16	24.6 31/32	59.5 2 11/32	25.4 1	23.40 59/64	48.81 1 59/64	12 1/2	GC1104KRRB GC1106KRRB GC1107KRRB	C207	M96839	1.674 3.69
RASC	1 1/2	49.21 1 15/16	101.6 4	44.1 1 47/64	136.5 5 3/8	179.4 7 1/16	51.6 2 1/32	19.1 3/4	14.3 9/16	26.2 1 1/32	68.3 2 11/16	27.4 1 5/64	25.80 1 1/64	53.16 2 15/16	12 1/2	GC1108KRRB	C208	M96842	2.150 4.74
RASC	1 11/16	53.98 2 1/8	106.4 4 3/16	46.8 1 27/32	149.2 5 7/8	191.3 7 17/32	52.4 2 1/16	19.1 3/4	14.3 9/16	23.0 29/32	73.0 2 7/8	29.4 1 5/32	26.20 1 1/32	55.55 2 3/16	12 1/2	GC1111KRRB GC1112KRRB	C209	M96844	2.409 5.31
RASC	1 15/16	57.15 2 1/4	114.3 4 1/2	48.4 1 29/32	158.0 6 7/32	200.0 7 7/8	57.9 2 9/32	19.1 3/4	17.5 1 1/16	23.8 15/16	79.4 3 1/8	30.2 1 3/16	29.00 1 9/64	59.13 2 21/64	16 5/8	GC1115KRRB	C210	M96847	3.003 6.62
RASC	2	63.50 2 1/2	127.8 5 1/32	54.0 2 1/8	176.2 6 15/16	222.3 8 3/4	60.3 2 3/8	20.6 13/16	18.3 23/32	29.4 1 5/32	88.9 3 1/2	33.3 1 5/16	30.20 1 3/16	62.70 2 15/32	16 5/8	GC1200KRRB GC1203KRRG	C211	M96850	3.901 8.60
RASC	2 7/16	69.85 2 3/4	138.9 5 15/32	60.3 2 3/8	188.1 7 13/32	239.7 9 7/16	60.3 2 3/8	23.8 15/16	18.3 23/32	29.4 1 5/32	95.2 3 3/4	37.3 1 15/32	30.20 1 3/16	67.46 2 21/32	16 5/8	GC1207KRRB	C212	M99647	5.511 12.15
RASC	2 15/16	82.55 3 1/4	164.3 6 15/32	70.6 2 25/32	215.9 8 1/2	269.9 10 5/8	69.9 2 3/4	25.4 1	22.2 7/8	31.8 1 1/4	114.3 4 1/2	43.7 1 23/32	34.90 1 3/8	78.60 3 3/32	20 3/4	GC1215KRRB	C215	T 23423	9.060 19.91

NOTE: All units have 1/8 pipe-thread grease fitting except RASC 1/2 – 1 11/16 and 3/4 units, which have 1/4-28 fitting.

**YAS INDUSTRIAL-SERIES SET SCREW UNITS**

- Incorporates Shaft Guarding Technology, which reduces replacement time, provides shaft protection and prolongs the life of the shaft.
- Heavier than our standard block with solid, flat feet for increased strength.
- Timken YAS-series high-base, set screw pillow blocks feature the GY-KRRB bearing.
- This full-width inner ring set screw is well-suited for industrial applications involving wet or dirty environments.
- Housing is designed for two-bolt mounting in any position.
- Contact your Timken engineer to discuss highly corrosive applications (food processing, chemical exposure) where Timken thin-dense chrome-coated bearings can be utilized.



**Suggested shaft tolerances:**

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: YAS 1 7/16 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
YAS	GY-KRRB	Page A-44

Unit	Shaft Dia.	Dimensions and Load Ratings													Bolt Size	Bearing No.	Housing No.	Unit Wt.					
		H	H <sub>2</sub>	B	L	J	A	H <sub>1</sub>	N	N <sub>1</sub>	F	S <sub>1</sub>	E	mm in.					mm in.	mm in.	mm in.	mm in.	mm in.
YAS	1/2	30.16	56.4	27.4	123.8	92.1	30.2	11.9	11.1	22.2	22.9	15.9	31.0	10	GY1008KRRB	T40238	0.4536						
YAS	5/8	1 3/16	2 1/32	1 5/64	4 7/8	3 5/8	1 3/16	1 5/32	7/16	7/8	0.900	5/8	1 7/32	3/8	GY1010KRRB			1.0000					
YAS	17														GYE17KRRB								
YAS	3/4 SGT	33.34	65.9	31.8	127.0	96.4	33.3	15.1	11.1	20.2	27.6	19.1	35.7	10	GY1012KRRB SGT	M96830	0.7027						
YAS	20 SGT	1 5/16	2 19/32	1 1/4	5	3 51/64	1 5/16	1 9/32	7/16	51/64	1.085	3/4	1 13/32	3/8	GYE20KRRB SGT			1.5491					
YAS	7/8 SGT														GY1014KRRB SGT								
YAS	1 5/16 SGT	36.51	73.0	34.9	139.7	104.8	37.3	15.1	11.1	20.6	33.8	20.6	39.3	10	GY1015KRRB SGT	M96833	0.9535						
YAS	1 SGT	1 7/16	2 7/8	1 3/8	5 1/2	4 1/8	1 15/32	1 9/32	7/16	13/16	1.332	1 9/16	1 35/64	3/8	GY1100KRRB SGT			2.1022					
YAS	25 SGT														GYE25KRRB SGT								
YAS	1 1/8 SGT	42.86	84.9	39.3	157.2	117.5	42.9	16.7	14.3	23.8	40.3	23.4	44.8	12	GY1102KRRB SGT	M96836	1.4275						
YAS	1 3/16 SGT	1 11/16	3 11/32	1 35/64	6 3/16	4 5/8	1 11/16	2 1/32	9/16	15/16	1.587	59/64	1 49/64	1/2	GY1103KRRB SGT			3.1472					
YAS	1 1/4 S														GY1103KRRB3 SGT								
YAS	30 SGT														GYE30KRRB SGT								
YAS	1 1/4 SGT	47.63	95.3	45.2	166.7	130.2	46.8	18.3	14.3	24.6	46.8	28.2	51.6	12	GY1104KRRB SGT	M96839	1.8981						
YAS	1 3/8 SGT	1 7/8	3 3/4	1 25/32	6 9/16	5 1/8	1 27/32	23/32	9/16	31/32	1.844	1 7/64	2 1/32	1/2	GY1106KRRB SGT			4.1847					
YAS	1 7/16 SGT														GY1107KRRB SGT								
YAS	35 SGT														GYE35KRRB SGT								
YAS	1 1/2 SGT	49.21	101.6	49.2	179.4	136.5	51.6	19.1	14.3	26.2	52.3	30.2	56.0	12	GY1108KRRB SGT	M96842	2.4763						
YAS	40 SGT	1 15/16	4	1 15/16	7 1/16	5 3/8	2 1/32	3/4	9/16	1 1/32	2.058	1 3/16	2 13/34	1/2	GYE40KRRB SGT			5.4592					
YAS	1 5/8 SGT														GY1110KRRB SGT								
YAS	1 11/16 SGT	53.98	106.4	50.4	191.3	149.2	52.4	19.1	14.3	28.6	57.9	31.4	57.5	12	GY1111KRRB SGT	M96844	2.681						
YAS	1 3/4 SGT	2 1/8	4 3/16	1 63/64	7 17/32	5 7/8	2 1/16	3/4	9/16	1 1/8	2.280	1 15/64	2 17/64	1/2	GY1112KRRB SGT			5.9107					
YAS	45 SGT														GYE45KRRB SGT								
YAS	1 15/16 SGT	57.15	114.3	51.6	200.2	158.0	57.9	19.1	18.3	25.4	62.8	32.5	61.5	16	GY1115KRRB SGT	M96847	3.3136						
YAS	2S	2 1/4	4 1/2	2 1/32	7 7/8	6 7/32	2 9/32	3/4	23/32	1	2.474	1 9/32	2 27/64	5/8	GY1115KRRB2			7.3053					
YAS	50 SGT														GYE50KRRB SGT								
YAS	2 SGT	63.50	127.8	55.6	222.3	176.2	60.3	20.6	18.3	29.4	69.8	33.3	61.9	16	GY1200KRRB SGT	M96850	3.9009						
YAS	2 3/16 SGT	2 1/2	5 1/32	2 3/16	8 3/4	6 15/16	2 3/8	1 13/16	23/32	1 5/32	2.747	1 5/16	2 7/16	5/8	GY1203KRRB SGT			8.6000					
YAS	55 SGT														GYE55KRRB SGT								
YAS	2 1/4 SGT	69.85	138.9	65.1	239.7	188.1	60.3	23.8	18.3	29.4	76.5	39.7	69.9	16	GY1204KRRB SGT	M99647	4.7718						
YAS	2 7/16 SGT	2 3/4	5 15/32	2 9/16	9 7/16	7 13/32	2 3/8	1 5/16	23/32	1 5/32	3.011	1 9/16	2 3/4	5/8	GY1207KRRB SGT			10.5200					
YAS	60 SGT														GYE60KRRB SGT								
YAS	2 15/16	82.55	164.3	69.9	269.9	215.9	69.4	25.4	14.3	34.9	91.9	30.2	79.4	20	GY1215KRRB	T23423	7.9197						
YAS	75	3 1/4	6 15/32	2 3/4	10 5/8	8 1/2	2 3/4	1	7/8	1 3/8	3.618	1 3/4	3 1/8	3/4	GYE75KRRB			17.4600					
YAS	2 15/16 H	88.40	177.8	77.8	330.2	241.3	88.9	31.8	23.8	31.8	91.9	30.2	88.9	20	GY1215KRRB	T22305	8.4187						
		3 1/2	7	3 1/16	13	9 1/2	3 1/2	1 1/4	1 5/16	1 1/4	3.619	1 3/4	3 1/2	3/4			18.5600						

NOTE: Shaft diameter with an S = Smaller housing; Shaft diameter with an H = heavier housing.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • CAST-IRON HOUSED UNITS • VAS

## VAS STANDARD SERIES

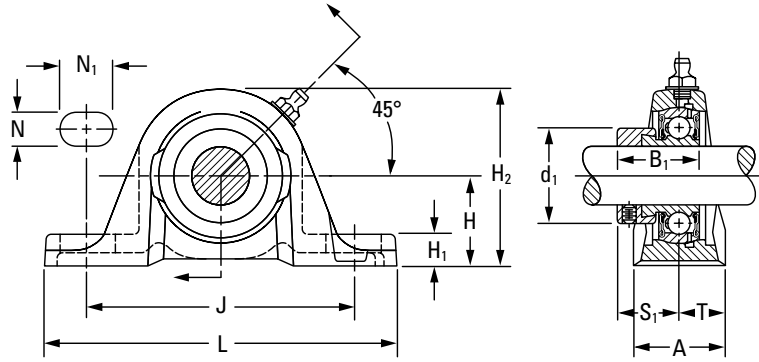
- Timken VAS pillow blocks are similar in design and features, and equal in load-carrying capacity, to the VAK series.
- The slightly different base-to-center height dimension makes them interchangeable with certain other competitive designs.
- The units are prelubricated and ready for immediate installation.
- A grease fitting is provided for relubrication if required.

### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify UNIT and SHAFT DIAMETER.

Example: VAS 1 3/16 in.



### BEARING DATA

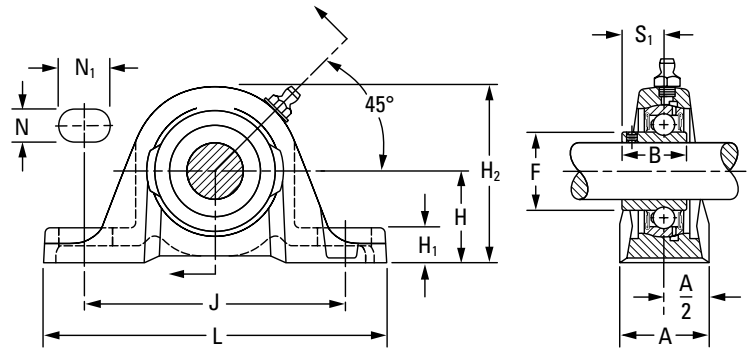
Unit	Bearing No.	Dimensions and Load Ratings
VAS	GRA-RRB	Page A-50

Unit	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	T	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm						in.
VAS	1/2														GRA008RRB	S1008K			
VAS	5/8	30.16	56.4	28.6	92.1	123.8	30.2	11.9	11.1	22.2	28.6	22.2	15.1	10	GRA010RRB	S1010K	T-40238 (T-30595)	0.454	
VAS	17	1 3/16	2 7/32	1 1/8	3 9/8	4 7/8	1 3/16	1 5/32	7/16	7/8	1 1/8	7/8	1 9/32	3/8	GRAE17RRB	SE17K		1.00	
VAS	3/4	33.34	64.3	31.0	96.0	127.0	31.8	13.5	11.1	19.8	33.3	23.4	15.9	10	GRA012RRB	S1012K	T-40239 (T-30555)	0.563	
VAS	20	1 5/16	2 17/32	1 7/32	3 25/32	5	1 1/4	1 7/32	7/16	25/32	1 5/16	59/64	5/8	3/8	GRAE20RRB	SE20K		1.24	
VAS	7/8														GRA014RRB	S1014K			
VAS	1 5/16	36.51	71.4	31.0	104.8	139.7	35.7	15.1	11.1	20.6	38.1	23.4	17.9	10	GRA015RRB	S1015K	T-30365	0.758	
VAS	1	1 7/16	2 13/16	1 7/32	4 1/8	5 1/2	1 13/32	1 9/32	7/16	13/16	1 1/2	59/64	45/64	3/8	GRA100RRB	S1100K		1.67	
VAS	25														GRAE25RRB	SE25K			
VAS	1 1/8														GRA102RRB	S1102K			
VAS	1 3/16	42.86	83.3	35.7	117.5	157.2	39.7	16.7	14.3	23.8	44.1	27.0	19.9	12	GRA103RRB	S1103K	T-40241	1.235	
VAS	1 1/4 S	1 11/16	3 3/32	1 13/32	4 5/8	6 3/16	1 9/16	2 1/32	9/16	15/16	1 47/64	1 1/16	25/32	1/2	GRA103RRB2	S1103K3	T-30300	2.72	
VAS	30														GRAE30RRB	SE30K			
VAS	1 1/4														GRA104RRB	S1104K			
VAS	1 3/8	47.62	93.7	38.9	130.2	166.7	45.2	18.3	14.3	24.6	54.0	29.4	22.7	12	GRA106RRB	S1106K	T-40242	1.594	
VAS	1 7/16	1 7/8	3 11/16	1 17/32	5 1/8	6 9/16	1 25/32	2 3/32	9/16	3 1/32	2 1/8	1 5/32	57/64	1/2	GRA107RRB	S1107K	T-30410	3.51	
VAS	35														GRAE35RRB	SE35K			
VAS	1 1/2	49.21	100.0	43.7	136.5	179.4	47.6	19.0	14.3	26.2	60.3	32.5	23.8	12	GRA108RRB	S1108KT	T-40243	2.034	
VAS	40	1 15/16	3 15/16	1 23/32	5 3/8	7 1/16	1 7/8	3/4	9/16	1 1/32	2 3/8	1 9/32	15/16	1/2	GRAE40RRB	SE40K	T-30484	4.48	
VAS	1 5/8														GRA110RRB	S1110K			
VAS	1 11/16	53.98	106.4	43.7	149.2	191.3	50.8	19.0	14.3	28.6	63.5	32.5	25.4	12	GRA111RRB	S1111K	T-40244	2.261	
VAS	1 3/4	2 1/8	4 3/16	1 23/32	5 7/8	7 17/32	2	3/4	9/16	1 1/8	1/2	1 9/32	1	1/2	GRA112RRB	S1112K	T-30682	4.98	
VAS	45														GRAE45RRB	SE45K			
VAS	1 7/8														GRA114RRB	S1114K			
VAS	1 15/16	57.15	114.3	43.7	158.0	200.0	55.6	19.0	18.3	29.4	69.8	32.5	27.8	16	GRA115RRB	S1115K	T-40245	2.774	
VAS	2 S	2 1/4	4 1/2	1 23/32	6 7/32	7 7/8	2 3/16	3/4	23/32	1 5/32	2 3/4	1 9/32	1 3/32	5/8	GRA115RRB2	S1115K2	T-30706	6.11	
VAS	50														GRAE50RRB	SE50K			
VAS	2	63.50	126.2	48.4	176.2	222.3	58.7	20.6	18.3	29.4	76.2	36.5	29.4	16	GRA200RRB	S1200K			
VAS	2 3/16	2 1/2	4 31/32	1 29/32	6 15/16	8 3/4	2 5/16	13/16	23/32	1 5/32	3	1 7/16	1 5/32	5/8	GRA203RRB	S1203K	T-40246 (T-30738)	3.328	
VAS	55														GRAE55RRB	SE55K		7.33	

NOTE: All units have 1/8 pipe-thread grease fitting except 1/2 – 1 1/16 and 3/4 units, which have 1/4-28 fitting.

**SAS STANDARD SERIES**

- The SAS is a streamlined and rugged one-piece pillow block unit that combines the Timken engineered housing and a GYA-RRB set screw bearing.
- GYA-RRB bearing employs a positive-contact, land-riding seal and specially designed set screws.
- SAS pillow block can be mounted in any position.
- Bearing housed units are factory-prelubricated, but a grease fitting is provided to allow for relubrication if required.



**Suggested shaft tolerances:**

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: SAS 1 in.

**BEARING DATA**

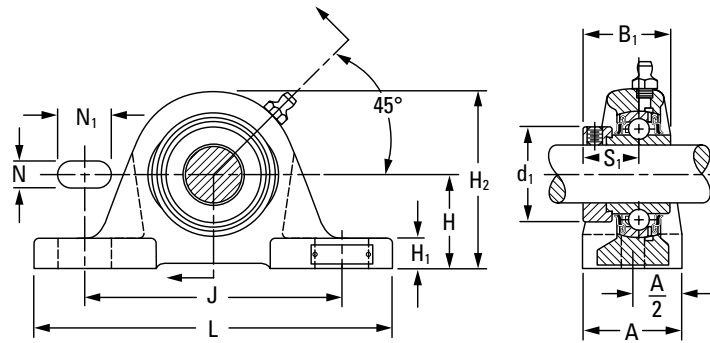
Unit	Bearing No.	Dimensions and Load Ratings
SAS	GYA-RRB	Page A-54

Unit	Shaft Dia.	H	H <sub>2</sub>	S <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	F	B	Bolt Size	Bearing No.	Housing No.	Unit Wt.									
		in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm					mm	mm	in.	in.	in.	in.	in.	in.	in.
SAS	1/2	30.16	56.4	15.9	92.1	123.8	30.2	11.9	11.1	22.2	24.6	23.8	10	GYA008RRB	T-40238	0.42									
SAS	5/8	33.34	64.3	18.3	96.0	127.0	31.8	13.5	11.1	19.8	29.0	27.0	10	GYA010RRB	T-40239	0.57									
SAS	17	33.34	64.3	18.3	96.0	127.0	31.8	13.5	11.1	19.8	29.0	27.0	10	GYAE17RRB	(T-30555)	1.25									
SAS	3/4	36.51	71.4	19.4	104.8	139.7	35.7	15.1	11.1	20.6	33.7	28.2	10	GYA012RRB	T-30365	0.75									
SAS	20	36.51	71.4	19.4	104.8	139.7	35.7	15.1	11.1	20.6	33.7	28.2	10	GYAE20RRB	(T-30555)	1.25									
SAS	7/8	42.86	83.3	23.0	117.5	157.2	39.7	16.7	14.3	23.8	40.1	32.5	12	GYA014RRB	T-40241	1.14									
SAS	15/16	42.86	83.3	23.0	117.5	157.2	39.7	16.7	14.3	23.8	40.1	32.5	12	GYA015RRB	(T-30300)	2.52									
SAS	1	47.62	93.6	25.8	130.2	166.7	45.2	18.3	14.3	24.6	46.8	36.5	12	GYA100RRB	T-40242	1.52									
SAS	1	47.62	93.6	25.8	130.2	166.7	45.2	18.3	14.3	24.6	46.8	36.5	12	GYA102RRB	(T-30410)	3.35									
SAS	1 1/8	47.62	93.6	25.8	130.2	166.7	45.2	18.3	14.3	24.6	46.8	36.5	12	GYA103RRB	T-40243	1.85									
SAS	1 3/16	47.62	93.6	25.8	130.2	166.7	45.2	18.3	14.3	24.6	46.8	36.5	12	GYA103RRB2	(T-30484)	4.08									
SAS	1 1/4 S	47.62	93.6	25.8	130.2	166.7	45.2	18.3	14.3	24.6	46.8	36.5	12	GYAE30RRB	T-39528	1.85									
SAS	1 1/4	49.21	100.0	27.8	136.5	179.4	47.6	19.0	14.3	26.2	52.4	39.3	12	GYA104RRB	T-40243	1.85									
SAS	1 3/8	49.21	100.0	27.8	136.5	179.4	47.6	19.0	14.3	26.2	52.4	39.3	12	GYA106RRB	(T-30484)	4.08									
SAS	1 7/16	53.90	100.0	27.8	136.5	179.4	47.6	19.0	14.3	26.2	52.4	39.3	12	GYA107RRB	T-39528	1.85									
SAS	1 1/2	53.90	100.0	27.8	136.5	179.4	47.6	19.0	14.3	26.2	52.4	39.3	12	GYAE35RRB	T-40243	1.85									
SAS	1 1/2 H	53.90	100.0	27.8	136.5	179.4	47.6	19.0	14.3	26.2	52.4	39.3	12	GYA108RRB	(T-30484)	4.08									
SAS	1 5/8	53.90	106.3	28.6	149.2	191.3	51.0	19.0	14.3	28.6	57.9	42.1	12	GYA108RRB	T-39528	1.85									
SAS	1 11/16	53.90	106.3	28.6	149.2	191.3	51.0	19.0	14.3	28.6	57.9	42.1	12	GYA110RRB	T-40244	2.06									
SAS	1 3/4	57.20	114.3	30.9	158.0	200.0	55.6	19.0	17.5	23.8	62.7	44.4	16	GYA111RRB	(T-30682)	4.55									
SAS	1 3/4	57.20	114.3	30.9	158.0	200.0	55.6	19.0	17.5	23.8	62.7	44.4	16	GYA112RRB	T-40245	2.54									
SAS	45	57.20	114.3	30.9	158.0	200.0	55.6	19.0	17.5	23.8	62.7	44.4	16	GYA115RRB	(T-30706)	5.60									
SAS	1 15/16	57.20	114.3	30.9	158.0	200.0	55.6	19.0	17.5	23.8	62.7	44.4	16	GYA115RRB2	T-40245	2.54									
SAS	2 S	63.50	126.2	31.7	176.2	222.3	58.7	20.6	18.3	29.4	69.8	46.4	16	GYAE50RRB	(T-30706)	5.60									
SAS	2	63.50	126.2	31.7	176.2	222.3	58.7	20.6	18.3	29.4	69.8	46.4	16	GYA200RRB	T-40246	3.02									
SAS	2 3/16	63.50	126.2	31.7	176.2	222.3	58.7	20.6	18.3	29.4	69.8	46.4	16	GYA203RRB	(T-30738)	6.66									
SAS	55	63.50	126.2	31.7	176.2	222.3	58.7	20.6	18.3	29.4	69.8	46.4	16	GYAE55RRB	(T-30738)	6.66									

NOTE: All units have 1/8 pipe-thread grease fitting except 1/2–1 11/16 and 3/4 units, which have 1/4-28 fitting.  
NOTE: Shaft diameter with an S = smaller housing; Shaft diameter with an H = heavier housing.

### RAKH INDUSTRIAL SERIES

- Timken pillow blocks are similar in design to other standard series, but have slightly different dimensions to allow interchangeability with competitive designs.
- These pillow blocks may be used independently or in connection with the RAKHL expansion unit shown at right. Used in this capacity, the RAKH pillow blocks provide fixed shaft location while the RAKHL expansion units allow for axial movement. Maximum operating temperature for the RAKH units is 121° C (250° F).
- The units are supplied with self-locking collars.
- Contact your Timken engineer to discuss highly corrosive applications (food processing, chemical exposure) where Timken thin-dense chrome-coated bearings can be utilized.



#### Suggested shaft tolerances:

1 3/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify UNIT and SHAFT DIAMETER.

Example: RAKH 1 7/16 in.

#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RAKH	G-KRRB	Page A-34

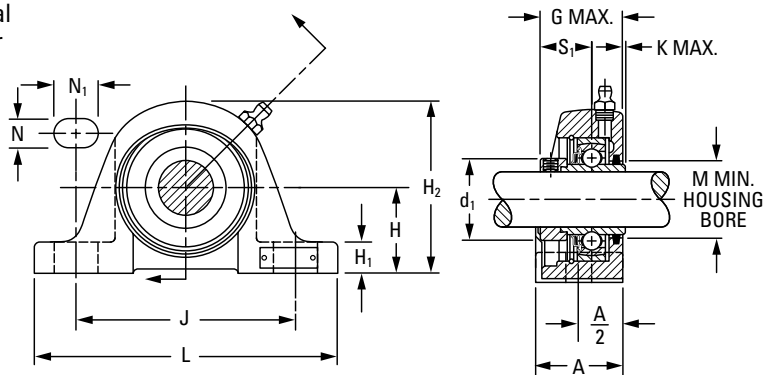
Unit <sup>(1)</sup>	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			New	kg lbs.
RAKH	1	44.45 1 3/4	82.6 3 1/4	44.4 1 3/4	119.1 4 11/16	158.8 6 1/4	50.8 2	15.9 5/8	14.3 9/16	25.4 1	38.1 1 1/2	27.0 1 1/16	12 1/2	G1100KRRB	S1100K	T-22295	1.689 3.720
RAKH	1 3/16	47.63 1 7/8	90.5 3 9/16	48.4 1 29/32	127.0 5	174.6 6 7/8	57.2 2 1/4	17.5 11/16	14.3 9/16	25.4 1	44.1 1 47/64	30.2 1 3/16	12 1/2	G1103KRRB	S1103K	T-22216	2.184 4.810
RAKH	1 1/4	53.98	101.6	51.2	144.5	203.2	57.2	19.0	14.3	30.2	54.0	32.5	12	G1104KRRB	S1104K	T-22212	2.915
RAKH	1 7/16	2 1/8	4	2 1/64	5 11/16	8	2 1/4	3/4	9/16	1 3/16	2 1/8	9/32	1/2	G1107KRRB	S1107K	T-22212	6.420
RAKH	1 1/2	58.74 2 5/16	111.1 4 3/8	56.4 2 7/32	155.6 6 1/8	222.2 8 3/4	66.7 2 5/8	20.6 13/16	17.5 1 1/16	31.8 1 1/4	60.3 2 3/8	34.9 1 3/8	16 5/8	G1108KRRB	S1108KT	T-22291	4.004 8.820
RAKH	1 11/16	58.74	114.3	56.4	155.6	222.2	66.7	20.6	17.5	33.3	63.5	34.9	16	G1111KRRB	S1111K	T-22293	4.032
RAKH	1 3/4	2 5/16	4 1/2	2 7/32	6 1/8	8 3/4	2 5/8	13/16	1 1/16	1 5/16	2 1/2	1 3/8	5/8	G1112KRRB	S1112K	T-22293	8.880
RAKH	1 15/16	63.50 2 1/2	122.2 4 13/16	62.7 2 15/32	171.4 6 3/4	241.3 9 1/2	73.0 2 7/8	22.2 7/8	17.5 1 1/16	36.5 1 7/16	69.8 2 3/4	38.1 1 1/2	16 5/8	G1115KRRB	S1115K	T-22214	5.098 11.230
RAKH	2 3/16	69.85	136.5	71.4	184.2	260.4	79.4	27.0	20.6	36.5	76.2	43.7	16	G1203KRRB	S1203K	T-22297	6.728
RAKH	55	2 3/4	5 3/8	2 13/16	7 1/4	10 1/4	3 1/8	1 1/16	13/16	1 7/16	3	1 23/32	5/8	GE55KRRB	SE55K	T-22297	14.820
RAKH	2 7/16	76.20 3	150.8 5 15/16	77.8 3 1/16	203.2 8	285.8 11 1/4	82.6 3 1/4	27.0 1 1/16	20.6 13/16	41.3 1 5/8	84.1 3 5/16	46.8 1 27/32	16 5/8	G1207KRRB	S1207K	T-22299	8.2170 18.115
RAKH	2 11/16	88.90 3 1/2	171.4 6 3/4	85.7 3 3/8	228.6 9	330.2 13	88.9 3 1/2	28.6 1 1/8	23.8 1 5/16	50.8 2	96.8 3 13/16	45.2 1 25/32	20 3/4	G1211KRRB	S1211K	T-22303	11.495 25.320
RAKH	2 15/16	88.90 3 1/2	177.8 7	92.1 3 5/8	228.6 9	330.2 13	88.9 3 1/2	31.8 1 1/4	23.8 1 5/16	50.8 2	101.6 4	54.8 2 5/32	20 3/4	G1215KRRB	S1215K	T-22305	11.795 25.980

<sup>(1)</sup>When used with the expansion unit, specify both units, shaft diameter and suffix.



**RAKHL EXPANSION SERIES**

- The RAKH expansion series is designed to allow axial shaft expansion caused by elevated temperatures or other conditions that lead to shaft movement.
- The RAKH expansion-series bearings are designed for use with the RAKH pillow blocks.
- RAKH units provide axial shaft location and the RAKHL allows shaft floatation.
- Due to limitations of the lubricant and seal material, the maximum operating temperature for the RAKHL units is 121° C (250° F).
- Units are supplied with self-locking collars.
- Steel S-ring ensures axial expansion.



**Suggested shaft tolerances:**

13/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: RAKHL 2 7/16 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
RAKHL	KRS	Page A-43

Unit	Shaft Dia.	Total Float	H	H <sub>2</sub>	G	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	K	d <sub>1</sub>	S <sub>1</sub>	M	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.	
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				New	kg lbs.
RAKHL	1 3/16	3.2 1/8	47.63 1 7/8	96.8 3 13/16	49.2 1 15/16	127.0 5	174.6 6 7/8	50.8 2	17.5 11/16	14.3 9/16	25.4 1	2.4 3/32	44.5 1 3/4	30.2 1 3/16	41.70 1 41/64	12 1/2	1103KRS	S1103K	A11414	2.182 4.81	
RAKHL	1 3/8	4.8 3/16	53.98 2 1/8	106.4 4 3/16	55.2 2 11/64	144.5 5 11/16	201.6 7 15/16	51.6 2 1/32	19.0 3/4	14.3 9/16	30.2 1 3/16	3.2 1/8	54.0 2 1/8	32.5 1 9/32	48.02 1 57/64	12 1/2	1106KRS 1107KRS	S1106K S1107K	A11199	2.912 6.42	
RAKHL	1 15/16	6.4 1/4	63.50 2 1/2	129.4 5 3/32	65.1 2 9/16	171.4 6 3/4	241.3 9 1/2	63.5 2 1/2	22.2 7/8	17.5 11/16	36.5 1 7/16	4.0 5/32	69.8 2 3/4	38.1 1 1/2	63.90 2 33/64	16 5/8	1115KRS	S1115K	A11357	5.094 11.23	
RAKHL	2 3/16	6.4 1/4	69.85 2 3/4	142.9 5 5/8	73.4 2 57/64	184.2 7 1/4	260.4 10 1/4	76.2 3	27.0 1 1/16	20.6 1 3/16	36.5 1 7/16	4.4 11/64	76.2 3	43.7 1 23/32	71.00 2 51/64	16 5/8	1203KRS	S1203K	A11358	6.722 14.82	
RAKHL <sup>(1)</sup>	2 7/16	6.4 1/4	76.20 3	158.8 6 1/4	78.6 3 3/32	203.2 8	285.8 11 1/4	82.6 3 1/4	27.0 1 1/16	20.6 1 3/16	41.3 1 5/8	4.8 3/16	84.1 3 5/16	46.8 1 27/32	78.20 3 5/64	16 5/8	1207KRS	S1207K	-	8.210 18.10	
RAKHL	2 15/16	6.4 1/4	88.90 3 1/2	181.0 7 1/4	113.5 3 15/32	228.6 9	330.2 13	88.9 3 1/2	31.8 1 1/4	23.8 1 5/16	50.8 2	8.7 1 1/32	101.6 4	54.8 2 5/32	118.70 3 43/64	20 3/4	1215KRS	S1215K	T-28261	11.785 25.98	

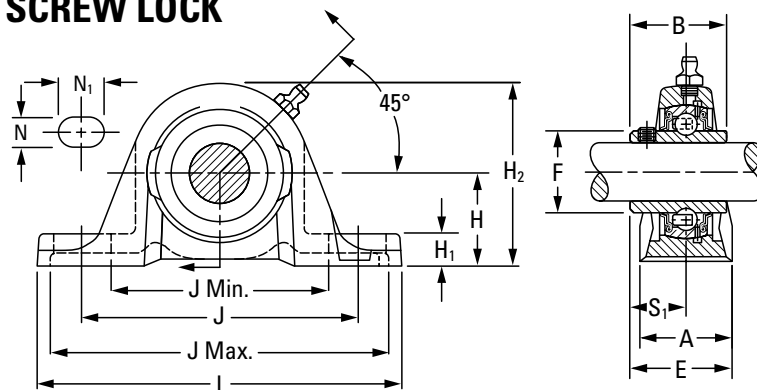
<sup>(1)</sup>Special order.

## YASM MEDIUM-DUTY SERIES SET SCREW LOCK

- Timken YASM medium-duty pillow blocks feature the GYM-KRRB bearing inserts.
- Timken YASM medium-duty pillow blocks are ideal for conveyor, fan and blower, sawmill, and feed and grain handling applications.
- The cast-iron housings are durable, powder-coated and maintain an excellent finish, while resisting corrosion, chemicals and weather exposure.
- These pillow blocks incorporate premium features designed to extend bearing life.

### Suggested shaft tolerances:

- 1 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 3 in., nominal to -0.025 mm, -0.0010 in.



### To order, specify UNIT and SHAFT DIAMETER.

Example: YASM 1 7/16 in.

### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
YASM	GYM-KRRB	Page A-56

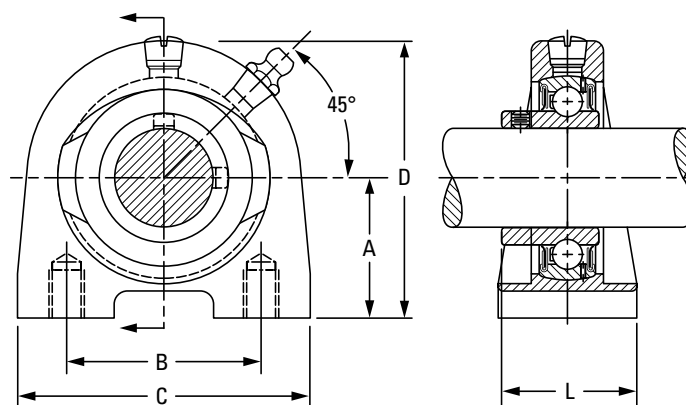
Unit	Shaft Dia.	H	H <sub>2</sub>	B	L	J	J min.	J max.	A	H <sub>1</sub>	F	N	N <sub>1</sub>	S <sub>1</sub>	E	Bolt Size	Bearing No.
		in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		
YASM	1	42.86 1 11/16	83.30 3 9/32	38.10 1 1/2	157.2 6 3/16	117.5 4 5/8	93.70 3 11/16	141.30 5 9/16	39.70 1 9/16	16.70 21/32	40.31 1.587	14.22 9/16	23.88 1 5/16	22.20 7/8	42.070 1 21/32	12 1/2	GYM1100KRRB
YASM	1 3/16	47.62 1 7/8	93.60 3 11/16	42.90 1 11/16	166.7 6 9/16	130.2 5 1/8	105.60 4 5/32	154.80 6 3/32	45.20 1 25/32	18.30 2 3/32	48.84 1.844	14.22 9/16	24.64 31/32	25.40 1	48.020 1 57/64	12 1/2	GYM1103KRRB
YASM	1 7/16	53.98 2 1/8	104.80 4 1/8	49.20 1 15/16	179.4 7 1/16	136.5 5 3/8	110.30 4 11/32	162.70 6 13/16	47.60 1 7/8	23.00 2 9/32	52.27 2.058	14.22 9/16	26.16 1 1/32	30.20 1 3/16	53.980 2 1/8	12 1/2	GYM1107KRRB
YASM	1 1/2	53.98 2 1/8	106.30 4 3/16	49.20 1 15/16	191.3 7 11/32	149.2 5 7/8	120.70 4 3/4	177.80 7	50.80 2	19.10 3/4	57.92 2.280	14.22 9/16	28.45 1 1/8	30.20 1 3/16	55.560 2 3/16	12 1/2	GYM1108KRRB
YASM	1 11/16	57.15 2 1/4	114.30 4 1/2	51.60 2 1/32	200.0 7 7/8	157.9 6 7/32	134.10 5 9/32	183.40 7 5/32	55.60 2 3/16	19.10 3/4	62.84 2.474	17.53 11/16	23.88 1 5/16	32.50 1 9/32	60.330 2 3/8	16 5/8	GYM1111KRRB GYM1112KRRB
YASM	1 15/16	63.50 2 1/2	126.20 4 31/32	55.60 2 3/16	222.3 8 3/4	176.2 6 15/16	146.90 5 25/32	205.60 8 3/32	54.80 2 5/32	20.60 1 3/16	69.77 2.747	18.26 2 3/32	29.46 1 5/32	33.30 1 5/16	61.910 2 7/16	16 5/8	GYM1115KRRB GYM1200KRRB
YASM	2 3/16	69.85 2 3/4	138.90 5 15/32	65.10 2 9/16	239.7 9 7/16	188.1 7 13/32	158.80 6 1/4	217.50 8 9/16	60.30 2 3/8	23.80 1 5/16	76.48 3.011	18.26 2 3/32	29.46 1 5/32	39.10 1 9/16	69.850 2 3/4	16 5/8	GYM1203KRRB GYM1204KRRB
YASM	2 7/16	76.20 3	153.99 6 1/16	77.78 3 1/16	266.7 10 1/2	203.2 8	168.28 6 5/8	238.13 9 3/8	73.02 2 7/8	33.34 1 5/16	86.92 3.422	20.57 1 3/16	35.05 1 3/8	42.86 1 11/16	79.375 3 1/8	20 3/4	GYM1207KRRB GYM1208KRRB
YASM	2 11/16	88.90 3 1/2	177.80 7	93.66 3 11/16	330.2 13	228.6 9	177.80 7	279.40 11	88.90 3 1/2	31.75 1 1/4	91.90 3.618	23.88 1 5/16	50.08 2	44.45 1 3/4	93.660 3 11/16	20 3/4	GYM1211KRRB
YASM	2 15/16	88.90 3 1/2	177.80 7	93.66 3 11/16	330.2 13	228.6 9	177.80 7	279.40 11	88.90 3 1/2	31.75 1 1/4	91.90 3.618	23.88 1 5/16	50.08 2	44.45 1 3/4	93.660 3 11/16	20 3/4	GYM1215KRRB GYM1300KRRB

### STB SERIES

- STB two-bolt housed units come assembled and ready for mounting.
- These housed units are ideal for applications where space is limited, bolt screws are accessed from the bottom of the unit, loads are not severe and reversing moments do not occur.
- The units are assembled with GYA-RRB bearings with positive-contact, land-riding seals and set screw locking.
- The units are factory-prelubricated, but a grease fitting is provided for relubrication if required.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: STB 1 in.



### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
STB	GYA-RRB	Page A-54

Unit	Shaft Dia.	A		B		C		D		F		H		N		L		Bearing No.	Housing No.
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.			
STB	3/4	32.3	50.80	73.03	71.12	18.30	36.50	3/8-16	36.50	GYA012RRB	T-90001								
STB	20	1 5/16	2	2 7/8	2 13/32	23/32	1 7/16		1 7/16	GYAE20RRB									
STB	7/8	36.5	50.80	76.20	71.44	18.30	36.50	3/8-16	37.70	GYA014RRB	T-39343								
STB	15/16	1 7/16	2	3	2 13/16	23/32	1 7/16		1 31/64	GYA015RRB									
STB	1	1 7/16	2	3	2 13/16	23/32	1 7/16		1 31/64	GYA100RRB									
STB	25	1 7/16	2	3	2 13/16	23/32	1 7/16		1 31/64	GYAE25RRB									
STB	1 1/8	42.9	76.20	101.60	82.60	19.05	38.10	7/16-14	42.07	GYA102RRB	T-90003								
STB	1 3/16	1 11/16	3	4	3 1/4	3/4	1 1/2		1 21/32	GYA103RRB									
STB	1 1/4 S	1 11/16	3	4	3 1/4	3/4	1 1/2		1 21/32	GYA103RRB2									
STB	30	1 11/16	3	4	3 1/4	3/4	1 1/2		1 21/32	GYAE30RRB									
STB	1 1/4	47.6	82.60	107.95	93.66	22.23	44.45	1/2-13	48.02	GYA104RRB	T-40256								
STB	1 3/8	1 7/8	3 1/4	4 1/4	3 11/16	7/8	1 3/4		1 57/64	GYA106RRB									
STB	1 7/16	1 7/8	3 1/4	4 1/4	3 11/16	7/8	1 3/4		1 57/64	GYA107RRB3									
STB	35	1 7/8	3 1/4	4 1/4	3 11/16	7/8	1 3/4		1 57/64	GYAE35RRB									
STB	1 1/2	49.2	88.90	117.48	100.01	23.81	47.63	1/2-13	51.20	GYA108RRB	T-90005								
STB	40	1 15/16	3 1/2	4 5/8	3 15/16	15/16	1 7/8		2 1/64	GYAE40RRB									
STB	1 5/8	54.0	95.25	127.00	107.95	25.40	50.80	1/2-13	53.98	GYA110RRB	T-90008								
STB	1 11/16	2 1/8	3 3/4	5	4 1/4	1	2		2 1/8	GYA111RRB									
STB	1 3/4	2 1/8	3 3/4	5	4 1/4	1	2		2 1/8	GYA112RRB									
STB	45	2 1/8	3 3/4	5	4 1/4	1	2		2 1/8	GYAE45RRB									
STB	1 15/16	57.2	101.60	139.70	114.30	25.40	50.80	5/8-11	56.36	GYA115RRB	T-90010								
STB	2	2 1/4	4	5 1/2	4 1/2	1	2		2 7/32	GYA200RRB									
STB	50	2 1/4	4	5 1/2	4 1/2	1	2		2 7/32	GYAE50RRB									

NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

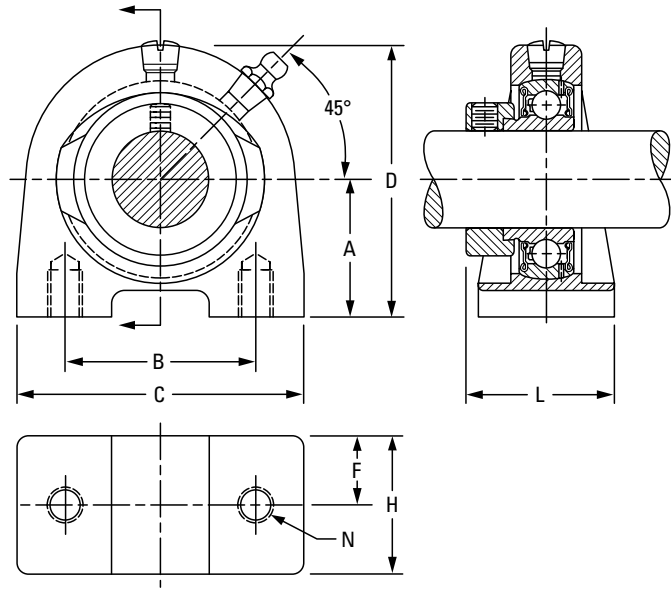
BALL BEARING HOUSED UNITS • CAST-IRON HOUSED UNITS • VTB

## VTB SERIES

- VTB two-bolt housed units are nearly identical to the STB unit, except they are assembled with the GRA-RRB bearings and positive-contact R-seals and locking collar.

To order, specify **UNIT** and **SHAFT DIAMETER**.

Example: VTB 1 in.



### BEARING DATA

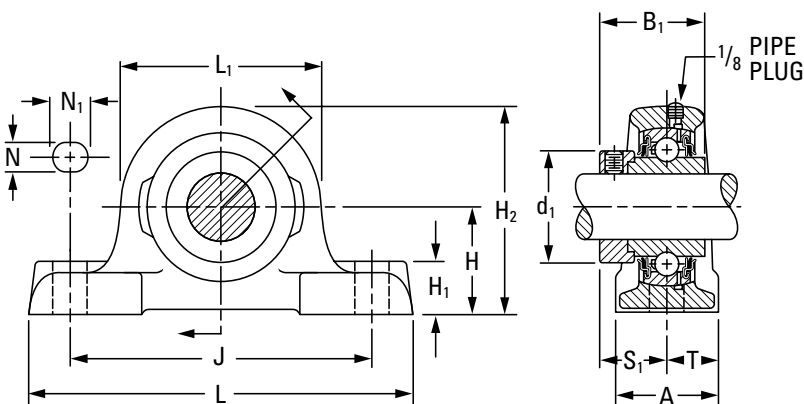
Unit	Bearing No.	Dimensions and Load Ratings
VTB	GRA-RRB	Page A-50

Unit	Shaft Dia.	A	B	C	D	F	H	N	L	Bearing No.	Collar No.	Housing No.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			
VTB	3/4	32.3	50.80	73.03	71.12	18.30	36.50	3/8-16	41.67	GRA012RRB	S1012K	T-90001
VTB	20	1 5/16	2	2 7/8	2 13/32	23/32	1 7/16		1 41/64	GRAE20RRB	SE20K	
VTB	7/8	36.5	50.80	76.20	71.44	18.30	36.50	3/8-16	41.67	GRA014RRB	S1014K	T-39343
VTB	15/16	1 7/16	2	3	2 13/16	23/32	1 7/16		1 41/64	GRA015RRB	S1015K	
VTB	1	1 7/16	2	3	2 13/16	23/32	1 7/16		1 41/64	GRA100RRB	S1100K C2	
VTB	25	1 7/16	2	3	2 13/16	23/32	1 7/16		1 41/64	GRAE25RRB	SE25K	
VTB	1 1/8	42.9	76.20	101.60	82.60	19.05	38.10	7/16-14	45.64	GRA102RRB	S1102K	T-90003
VTB	1 3/16	1 11/16	3	4	3 1/4	3/4	1 1/2		1 51/64	GRA103RRB	S1103K	
VTB	1 1/4 S	1 11/16	3	4	3 1/4	3/4	1 1/2	7/16-14	1 51/64	GRA103RRB2	S1103K3	
VTB	30	1 11/16	3	4	3 1/4	3/4	1 1/2		1 51/64	GRAE30RRB	SE30K	
VTB	1 1/4	47.6	82.60	107.95	93.66	22.23	44.45	1/2-13	51.60	GRA104RRB	S1104K C1	T-40256
VTB	13/8	1 7/8	3 1/4	4 1/4	3 11/16	7/8	1 3/4		2 1/32	GRA106RRB	S1106K C1	
VTB	1 7/16	1 7/8	3 1/4	4 1/4	3 11/16	7/8	1 3/4	1/2-13	2 1/32	GRA107RRB3	S1107K C1	
VTB	35	1 7/8	3 1/4	4 1/4	3 11/16	7/8	1 3/4		2 1/32	GRAE35RRB	SE35K	
VTB	1 1/2	49.2	88.90	117.48	100.01	23.81	47.63	1/2-13	56.36	GRA108RRB	S1108KT	T-90005
VTB	40	1 15/16	3 1/2	4 5/8	3 15/16	15/16	1 7/8		2 7/32	GRAE40RRB	SE40K	
VTB	1 5/8	54.0	95.25	127.00	107.95	25.40	50.80	1/2-13	57.94	GRA110RRB	S1110K	T-90008
VTB	1 11/16	2 1/8	3 3/4	5	4 1/4	1	2		2 9/32	GRA111RRB	S1111K	
VTB	1 3/4	2 1/8	3 3/4	5	4 1/4	1	2	1/2-13	2 9/32	GRA112RRB	S1112K	
VTB	45	2 1/8	3 3/4	5	4 1/4	1	2		2 9/32	GRAE45RRB	SE45K	
VTB	1 15/16	57.2	101.60	139.70	114.30	25.40	50.80	5/8-11	57.94	GRA115RRB	S1115K	T-90010
VTB	2 S	2 1/4	4	5 1/2	4 1/2	1	2		2 9/32	GRA115RRB2	S1115K2	
VTB	50	2 1/4	4	5 1/2	4 1/2	1	2		2 9/32	GRAE50RRB	SE50K	

NOTE: Shaft diameter with an S = smaller housing.

### RAO, LAO HEAVY SERIES

- This is a compact, economic, heavy-duty ball bearing housed unit.
- This series incorporates the tested and proven features of the Timken standard RAK-series pillow block.
- RAO-series bearings are equipped to handle heavy capacity.
- LAO-series bearings are equipped with heavy-series GN-KLLB wide-inner-ring ball bearings.
- The units are supplied with a self-locking collar that eliminates shaft shoulders, machining adapters and sleeves, and locknuts that provide easy mounting.



**Suggested shaft tolerances:**

1 3/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: RAO 1 7/16 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
RAO	GN-KRRB	Page A-57
LAO	GN-KLLB	Page A-59

Unit <sup>(1)</sup>	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	L <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	T	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in.	mm in	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			New	kg lbs.
RAO	1 3/16	47.63 1 7/8	93.7 3 11/16	50.0 1 31/32	90.5 3 9/16	136.5 5 3/8	173.0 6 13/16	49.2 1 15/16	22.2 7/8	15.9 5/8	19.0 3/4	49.2 1 15/16	32.5 1 9/32	24.6 31/32	12 1/2	GN103KRRB	SN103K	T-18798	1.898 4.18
RAO	1 7/16	53.98 2 1/8	104.0 4 3/32	51.6 2 1/32	101.6 4	152.4 6	192.1 7 9/16	54.0 2 1/8	23.8 15/16	15.9 5/8	19.0 3/4	55.6 2 3/16	33.3 1 5/16	27.0 1 1/16	12 1/2	GN107KRRB	SN107K	T-18626	2.406 5.30
RAO	1 1/2	60.33 2 3/8	117.5 4 5/8	57.2 2 1/4	114.3 4 1/2	171.4 6 3/4	215.9 8 1/2	60.3 2 3/8	27.0 1 1/16	19.0 3/4	25.4 1	63.5 2 1/2	37.3 1 15/32	30.2 1 3/16	16 5/8	GN108KRRB	SN108K	T-18800	3.755 8.27
RAO	1 11/16	66.68 2 5/8	130.2 5 1/8	58.7 2 9/16	127.0 5	190.5 7 1/2	239.7 9 7/16	66.7 2 9/8	30.2 1 3/16	19.0 3/4	25.4 1	69.8 2 3/4	38.9 1 17/32	33.3 1 5/16	16 5/8	GN111KRRB	SN111K	T-18802	5.030 11.08
RAO	1 15/16	71.44 2 13/16	141.3 5 9/16	66.7 2 5/8	138.1 5 7/16	209.6 8 1/4	265.1 10 7/16	73.0 2 7/8	33.3 1 5/16	19.0 3/4	25.4 1	76.2 3	42.1 1 21/32	36.5 1 7/16	16 5/8	GN115KRRB	SN115K	T-18804	6.265 13.80
RAO	2 3/16	77.79 3 1/16	153.2 6 1/32	73.0 2 7/8	150.8 5 15/16	228.6 9	287.3 11 5/16	79.4 3 1/8	36.5 1 7/16	22.2 7/8	28.6 1 1/8	82.6 3 1/4	45.2 1 25/32	39.7 1 9/16	20 3/4	GN203KRRB	SN203K	T-18806	7.940 17.49
RAO	2 7/16	84.14 3 5/16	165.9 6 17/32	79.4 3 1/8	163.5 6 7/16	247.6 9 3/4	312.7 12 5/16	84.1 3 9/16	38.1 1 1/2	22.2 7/8	28.6 1 1/8	88.9 3 1/2	48.4 1 29/32	42.1 1 21/32	20 3/4	GN207KRRB	SN207K	T-18808	9.761 21.50
RAO	2 11/16	96.84 3 13/16	192.1 7 9/16	88.9 3 1/2	188.9 7 7/16	285.8 11 1/4	360.4 14 3/16	96.0 3 13/16	44.4 1 3/4	25.4 1	33.3 1 5/16	101.6 4	54.8 2 5/32	48.4 1 29/32	22 7/8	GN211KRRB	SO211K	T-18810	15.322 33.75
RAO	2 15/16	104.78 4 1/8	204.8 8 1/16	100.0 3 15/16	201.6 7 15/16	304.8 12	384.2 15 1/8	103.2 4 1/16	47.6 1 7/8	25.4 1	33.3 1 5/16	112.7 4 7/16	62.7 2 15/32	51.6 2 1/32	22 7/8	GN215KRRB	SN215K	T-18601	18.205 40.10

<sup>(1)</sup>LAO assembled with GN-KLLB bearing.

# BALL BEARING HOUSED UNITS

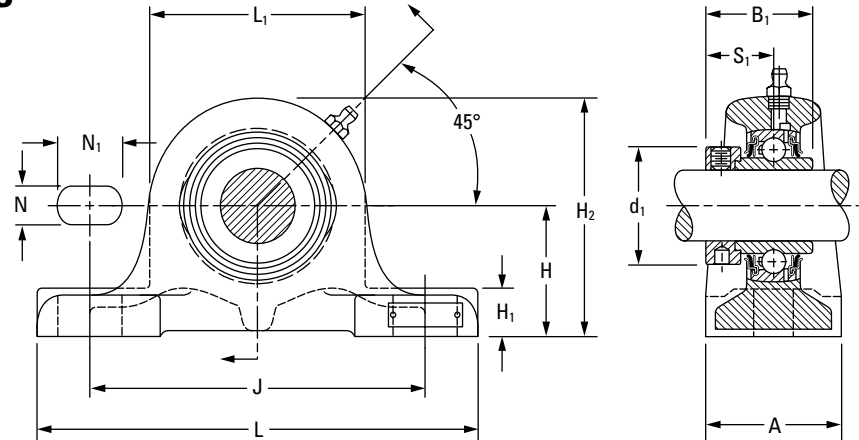
BALL BEARING HOUSED UNITS • CAST-IRON HOUSED UNITS • RSA, LSA

## RSA, LSA INDUSTRIAL SERIES

- RSA series is equipped with G-KRRB wide inner ring ball bearings.
- LSA series is equipped with G-KLLB wide inner ring bearings.
- Pillow blocks are prelubricated and ready for immediate use.
- A grease fitting is provided for relubrication if required.
- All units are supplied with a self-locking collar.

### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in.,  
nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 3 15/16 in.,  
nominal to -0.025 mm, -0.0010 in.



### BEARING DATA

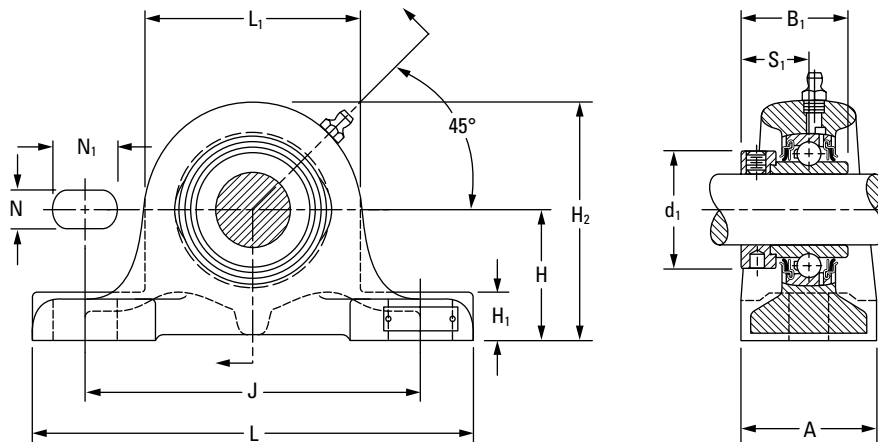
Unit	Bearing No.	Dimensions and Load Ratings
RSA	G-KRRB	Page A-34
LSA	G-KLLB	Page A-37

### To order, specify UNIT and SHAFT DIAMETER.

Example: RSA 1 7/16 in.

Unit	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	L <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			New	kg lbs.
RSA	1/2														G1008KRRB	S1008K		
RSA	5/8	31.75	58.7	37.3	54.0	96.8	122.2	31.8	12.7	11.1	14.3	30.2	23.4	10	G1010KRRB	S1010K	T-22784	0.681
RSA	11/16	1 1/4	2 5/16	1 15/32	2 1/8	3 13/16	4 13/16	1 1/4	1/2	7/16	9/16	1 3/16	59/64	3/8	G1011KRRB	S1011K		1.50
RSA	17														GE17KRRB	SE17K		
RSA	3/4	44.45	76.2	43.7	63.5	127.0	165.1	50.8	14.3	14.3	19.0	33.3	26.6	12	G1012KRRB	S1012K	T-22741	1.226
RSA	20	1 3/4	3	1 23/32	2 1/2	5	6 1/2	2	9/16	9/16	3/4	1 5/16	1 3/64	1/2	GE20KRRB	SE20K		2.70
RSA	7/8														G1014KRRB	S1014K		
RSA	15/16	50.80	85.7	44.4	69.8	139.7	177.8	54.0	15.9	14.3	19.0	38.1	27.0	12	G1015KRRB	S1015K	T-22716	1.521
RSA	1	2	3 3/8	1 3/4	2 3/4	5 1/2	7	2 1/8	5/8	9/16	3/4	1 1/2	1 1/16	1/2	G1100KRRB	S1100K		3.35
RSA	25														GE25KRRB	SE25K		
RSA	1 1/16														G1101KRRB	S1101K		
RSA	1 1/8	50.80	91.3	48.4	81.0	139.7	177.8	54.0	17.5	15.9	20.6	44.1	30.2	12	G1102KRRB	S1102K	T-22725	1.789
RSA, LSA	1 3/16	2	3 13/32	1 29/32	3 3/16	5 1/2	7	2 1/8	1 1/16	5/8	13/16	1 47/64	1 3/16	1/2	G1103KRRB	S1103K		3.94
RSA	30														GE30KRRB	SE30K		
RSA, LSA	1 1/4														G1104KRRB	S1104K		
RSA	1 5/16	60.33	111.1	51.2	101.6	158.8	209.6	66.7	22.2	19.0	31.8	54.0	32.5	16	G1105KRRB	S1105K	T-22382	3.260
RSA	1 3/8	2 3/8	4 3/8	2 1/64	4	6 1/4	8 1/4	2 5/8	7/8	3/4	1 1/4	2 1/8	1 9/32	5/8	G1106KRRB	S1106K		7.18
RSA, LSA	1 7/16														G1107KRRB	S1107K		
RSA	35														GE35KRRB	SE35K		
RSA	1 1/2	60.33	111.1	56.4	101.6	168.3	209.6	60.3	19.0	19.0	22.2	60.3	34.9	16	G1108KRRB	S1108KT		2.928
RSA	1 9/16	2 3/8	4 3/8	2 7/32	4	6 5/8	8 1/4	2 3/8	3/4	3/4	7/8	2 3/8	1 3/8	5/8	G1109KRRB	S1109KT	T-22752	6.45
RSA	40														GE40KRRB	SE40K		

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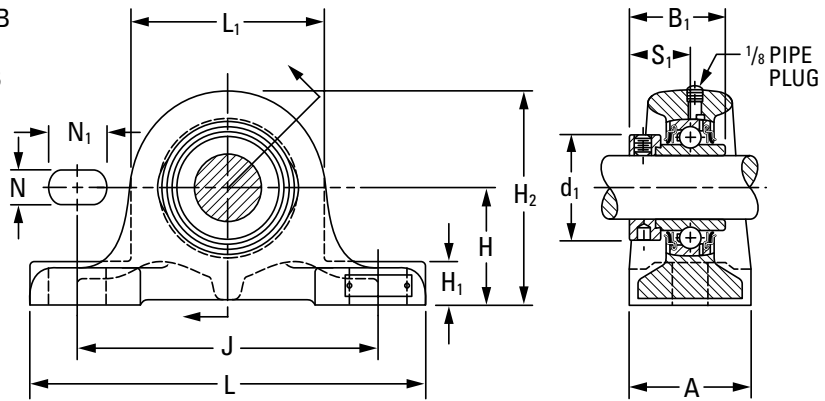
Unit	Shaft Dia.	H	H <sub>2</sub>	B <sub>1</sub>	L <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			New	kg lbs.
RSA	1 5/8														G1110KRRB	S1110K		
RSA, LSA	1 11/16	60.33	114.3	56.4	108.0	168.3	209.6	60.3	20.6	19.0	23.8	63.5	34.9	16	G1111KRRB	S1111K	T-22701	3.064
RSA	1 3/4	2 3/8	4 1/2	2 7/32	4 1/4	6 5/8	8 1/4	2 3/8	1 3/16	3/4	1 5/16	2 1/2	1 3/8	5/8	G1112KRRB	S1112K		6.75
RSA	45														GE45KRRB	SE45K		
RSA	1 7/8														G1114KRRB	S1114K		
RSA, LSA	1 15/16	69.85	130.2	62.7	120.6	209.6	269.9	69.8	26.2	19.0	34.9	69.8	38.1	16	G1115KRRB	S1115K	T-22384	4.885
RSA	50	2 3/4	5 1/8	2 15/32	4 3/4	8 1/4	10 5/8	2 3/4	1 1/32	3/4	1 3/8	2 3/4	1 1/2	5/8	GE50KRRB	SE50K		10.76
RSA	2														G1200KRRB	S1200K		
RSA	2 1/8	79.38	142.1	71.4	125.4	228.6	288.9	79.4	25.4	19.0	33.3	76.2	43.7	16	G1202KRRB	S1202K	T-22696	6.022
RSA, LSA	2 3/16	3 1/8	5 19/32	2 13/16	4 15/16	9	11 3/8	3 1/8	1	3/4	1 5/16	3	1 23/32	5/8	G1203KRRB	S1203K		13.22
RSA	55														GE55KRRB	SE55K		
RSA	2 1/4														G1204KRRB	S1204K		
RSA	2 3/8	79.38	149.2	77.8	139.7	228.6	288.9	79.4	28.6	22.2	28.6	84.1	46.8	20	G1206KRRB	S1206K	T-22743	6.901
RSA, LSA	2 7/16	3 1/8	5 7/8	3 1/16	5 1/2	9	11 3/8	3 1/8	1 1/8	7/8	1 1/8	3 5/16	1 27/32	3/4	G1207KRRB	S1207K		15.20
RSA	60														GE60KRRB	SE60K		
RSA	2 11/16														G1211KRRB	S1211KT		
RSA	70	95.25	173.0	82.6	155.6	260.4	320.7	88.9	33.3	22.2	34.9	96.8	45.2	20	GE70KRRB	SE70K	T-22748	9.997
		3 3/4	6 13/16	3 1/4	6 1/8	10 1/4	12 5/8	3 1/2	1 5/16	7/8	1 3/8	3 13/16	1 25/32	3/4				22.02
RSA	2 15/16														G1215KRRB	S1215K		
RSA	75	95.25	177.8	92.1	196.1	206.4	320.7	88.9	38.1	22.2	31.8	101.6	54.8	20	GE75KRRB	SE75K	T-22386	10.683
		3 3/4	7	3 5/8	7 23/32	10 1/4	12 5/8	3 1/2	1 1/2	7/8	1 1/4	4	2 5/32	3/4				23.53

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • CAST-IRON HOUSED UNITS • RSAO, LSAO

## RSAO, LSAO HEAVY SERIES

- RSAO pillow blocks are equipped with GN-KRRB wide-inner-ring ball bearings.
- LSAO pillow blocks are equipped with GN-KLLB wide-inner-ring ball bearings.
- All units are suited for installations where the load is heavy in proportion to the shaft diameter or where considerable shock loads exist.
- All units are for use in wet or extremely dirty conditions.
- These units are prelubricated and ready for immediate use. A grease fitting is also provided for relubrication if required.
- All units are supplied with a self-locking collar.



### Suggested shaft tolerances:

- 1 1/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 3 15/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify UNIT and SHAFT DIAMETER.

Example: RSAO 1 7/16 in.

### BEARING DATA

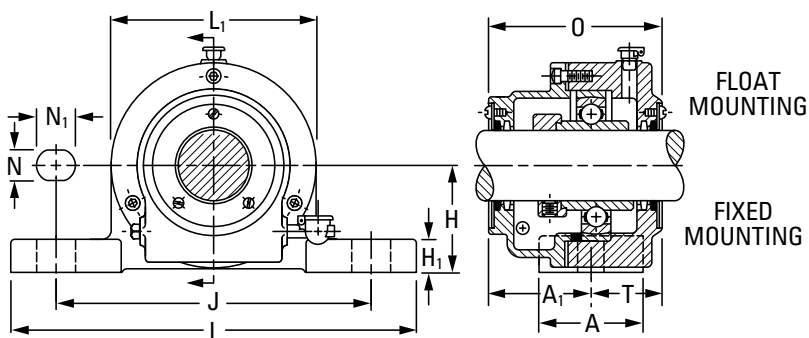
Unit	Bearing No.	Dimensions and Load Ratings
RSAO	GN-KRRB	Page A-57
LSAO	GN-KLLB	Page A-59

Unit	Shaft Dia.	H		H <sub>2</sub>		B <sub>1</sub>		L <sub>1</sub>		J		L		A		H <sub>1</sub>		N		N <sub>1</sub>		d <sub>1</sub>		S <sub>1</sub>		Bolt Size	Bearing No.		Collar No.	Housing No.	Unit Wt.
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		in.	in.			
RSAO, LSAO	1 3/16	60.33	108.0	50.0	95.2	168.3	209.6	60.3	22.2	15.9	25.4	48.7	32.5	12	GN103KRRB (KLLB)	SN103K	T-22678	2.937	6.47												
RSAO, LSAO	1 7/16	69.85	122.2	51.6	104.8	209.6	269.9	69.8	23.8	19.0	28.6	55.1	33.3	16	GN107KRRB (KLLB)	SN107K	T-22496	4.154	9.15												
RSAO, LSAO	1 1/2	79.38	136.6	57.2	114.3	228.6	288.9	79.4	27.0	19.0	28.6	63.0	37.3	16	GN108KRRB (KLLB)	SN108K	T-22672	5.857	12.90												
RSAO, LSAO	1 11/16	79.38	142.9	58.7	127.0	228.6	288.9	79.4	30.2	19.0	28.6	69.3	38.9	16	GN111KRRB (KLLB)	SN111K	T-22498	6.560	14.45												
RSAO	1 3/4	79.38	148.4	66.7	138.1	228.6	288.9	79.4	33.3	19.0	28.6	75.7	42.1	16	GN112KRRB	–	SN112K	–	14.45												
RSAO, LSAO	1 15/16	79.38	148.4	66.7	138.1	228.6	288.9	79.4	33.3	19.0	28.6	75.7	42.1	16	GN115KRRB (KLLB)	SN115K	T-22502	7.246	15.96												
RSAO	2	95.25	170.7	73.0	150.8	260.4	320.7	88.9	36.5	22.2	34.9	82.0	45.2	20	GN200KRRB	–	SN200K	T-22500	10.192												
RSAO, LSAO	2 3/16	95.25	170.7	73.0	150.8	260.4	320.7	88.9	36.5	22.2	34.9	82.0	45.2	20	GN203KRRB (KLLB)	SN203K	–	22.45													
RSAO, LSAO	2 7/16	104.78	186.5	79.4	163.5	285.8	349.2	101.6	38.1	22.2	34.9	88.4	48.4	20	GN207KRRB (KLLB)	SN207K	T-22494	16.144	35.56												
RSAO, LSAO	2 11/16	115.89	210.3	88.9	188.9	304.8	390.5	111.1	44.4	25.4	34.9	101.1	54.8	22	GN211KRRB (KLLB)	SO211K	T-22492	19.295	42.50												
RSAO, LSAO	2 15/16	115.89	217.5	100.0	203.2	314.3	390.5	111.1	47.6	25.4	34.9	112.2	62.7	22	GN215KRRB (KLLB)	SN215K	T-22490	20.090	44.25												
RSAO	3 3/16	115.89	223.0	106.4	214.3	314.3	390.5	111.1	49.2	25.4	44.4	119.1	65.9	22	GN303KRRB	–	SN303K	T-22444	22.814	50.25											
RSAO	3 7/16	130.18	250.8	115.9	241.3	339.7	409.6	120.6	57.2	28.6	54.0	133.4	73.8	24	GN307KRRB	–	SN307K	T-22446	30.986	68.25											
RSAO	3 15/16	144.46	281.0	128.6	273.0	374.6	439.7	130.2	65.1	28.6	44.4	146.0	78.6	24	GN315KRRB	–	SN315K	T-22448	40.633	89.50											



## SAL INDUSTRIAL SERIES, FIXED AND FLOATING TYPES

- These types are designed for applications where normal to high temperatures are encountered and applications where one or more floating bearing units are required.
- The floating unit allows the bearing to move axially as the shaft expands from rising temperatures. The fixed unit maintains shaft location.
- The bearings have a loose internal fit.
- The SAL unit is equipped with a self-aligning SM wide-inner-ring bearing and a self-locking collar.
- The external aligning ring is fitted to the spherical surface of the outer ring.
- These types are equipped with oil-tight seals. They're normally fitted for oil lubrication, but they can be equipped for grease lubrication when specified.
- Before installation, lubricate with high-grade automotive oil, turbine oil or ball-bearing grease.
- The units are assembled with a spacer ring (fixed type). By removing the spacer ring, the assembly becomes a floating unit.



### Suggested shaft tolerances:

- 1 3/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 3 7/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER and whether fixed or floating.**

Example: SAL 1 7/16 in. (one fixed, one floating).

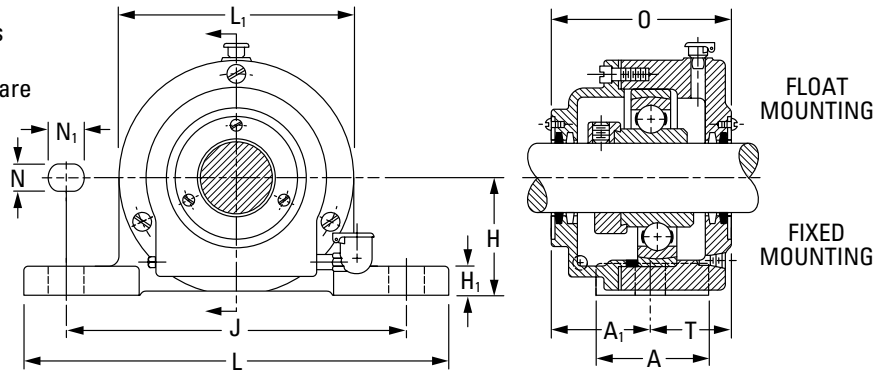
### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
SAL	SM-KS	Page A-43

Unit	Shaft Dia.	Total Float	H	O	L <sub>1</sub>	A	J	L	N	N <sub>1</sub>	H <sub>1</sub>	A <sub>1</sub>	T	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm			New	kg
		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.				lbs.
SAL	1 3/16	6.4 1/4	50.80 2	97.6 3 27/32	96.8 3 13/16	54.0 2 1/8	139.7 5 1/2	177.8 7	15.9 5/8	19.0 3/4	17.5 11/16	56.4 2 7/32	41.3 1 5/8	12 1/2	SM1103KS	S1103K	T-12127	3.768 8.30
SAL	1 1/4	6.4 1/4	60.33 2 3/8	104.8 4 1/8	108.0 4 1/4	60.3 2 3/8	158.8 6 1/4	210.0 8 1/4	19.0 3/4	25.4 1	19.0 3/4	62.7 2 15/32	42.1 1 21/32	16 5/8	SM1104KS	S1104K	T-13108	5.239 11.54
SAL	1 7/16	6.4 1/4	60.33 2 3/8	104.8 4 1/8	108.0 4 1/4	60.3 2 3/8	158.8 6 1/4	210.0 8 1/4	19.0 3/4	25.4 1	19.0 3/4	62.7 2 15/32	42.1 1 21/32	16 5/8	SM1107KS	S1107K	T-13108	5.239 11.54
SAL	1 1/2	7.9 5/16	60.33 2 3/8	108.0 4 1/4	120.6 4 3/4	60.3 2 3/8	168.3 6 5/8	210.0 8 1/4	19.0 3/4	25.4 1	19.0 3/4	63.5 2 1/2	44.4 1 3/4	16 5/8	SM1108KTS	S1108KT	T-12121	6.143 13.53
SAL	1 11/16	7.9 5/16	60.33 2 3/8	110.3 4 11/32	120.6 4 3/4	60.3 2 3/8	168.3 6 5/8	210.0 8 1/4	19.0 3/4	25.4 1	19.0 3/4	65.9 2 19/32	44.4 1 3/4	16 5/8	SM1111KS	S1111K	T-12121	5.866 12.92
SAL	1 15/16	7.9 5/16	69.85 2 3/4	116.7 4 19/32	133.4 5 1/4	69.8 2 3/4	210.0 8 1/4	269.9 10 5/8	19.0 3/4	25.4 1	22.2 7/8	69.1 2 23/32	47.6 1 7/8	16 5/8	SM1115KS	S1115K	T-12313	8.113 17.87
SAL	2 3/16	7.9 5/16	79.38 3 1/8	137.3 5 13/32	146.0 5 3/4	79.4 3 1/8	228.6 9	288.9 11 3/8	19.0 3/4	25.4 1	22.2 7/8	79.4 3	57.9 2 9/32	16 5/8	SM1203KS	S1203K	A-5845	10.978 24.18
SAL	2 7/16	9.5 3/8	79.38 3 1/8	150.0 5 29/32	158.8 6 1/4	79.4 3 1/8	228.6 9	288.9 11 3/8	19.0 3/4	25.4 1	22.2 7/8	88.9 3 1/2	61.1 2 13/32	16 5/8	SM1207KS	S1207K	A-5083	12.894 28.40
SAL	2 11/16	7.1 9/32	95.25 3 3/4	156.4 6 5/32	171.4 6 3/4	88.9 3 1/2	259.7 10 1/4	320.7 12 5/8	22.2 7/8	28.6 1 1/8	27.0 1 1/16	92.1 3 5/8	64.3 2 17/32	20 3/4	SM1211KTS	S1211K	T-18940	15.889 35.02
SAL	2 15/16	9.9 25/64	95.25 3 3/4	173.8 6 27/32	190.5 7 1/2	88.9 3 1/2	259.7 10 1/4	320.7 12 5/8	22.2 7/8	28.6 1 1/8	27.0 1 1/16	100.8 3 31/32	73.0 2 7/8	20 3/4	SM1215KS	S1215K	A-5088	20.203 44.50
SAL	3 7/16	9.5 3/8	115.89 4 9/16	186.5 7 11/32	212.7 8 3/8	111.1 4 3/8	314.3 12 3/8	390.6 15 3/8	25.4 1	31.8 1 1/4	31.8 1 1/4	107.2 4 7/32	79.4 3 1/8	22 7/8	SM1307KS	S1307K	A-5206	33.482 73.75

### SAOL HEAVY SERIES, FIXED AND FLOATING TYPES

- These types are designed for applications with higher- than-usual temperatures or where one or more floating bearing units are required.
- The floating unit allows the bearing to move axially as the shaft expands from rising temperatures. The fixed unit maintains shaft location.
- The bearings have a loose internal fit.
- The SAOL unit is equipped with a self-aligning SMN wide-inner-ring ball bearing and a self-locking collar.
- The external aligning ring is fitted to the spherical surface of the outer ring.
- These types are equipped with oil-type seals. They're normally fitted for oil lubrication, but they can be equipped for grease lubrication when specified.
- Before installation, lubricate with high-grade automotive oil, turbine oil or ball-bearing grease.
- The units are assembled with a spacer ring (fixed type). By removing the spacer ring, the assembly becomes a floating unit.



#### Suggested shaft tolerances:

- 1 3/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
  - 2 in. – 3 15/16 in., nominal to -0.025 mm, -0.0010 in.
- Larger sizes, consult your Timken engineer.

To order, specify **UNIT** and **SHAFT DIAMETER** and whether **fixed or floating**.

Example: SAOL 1 7/16 in. (one fixed, one floating).

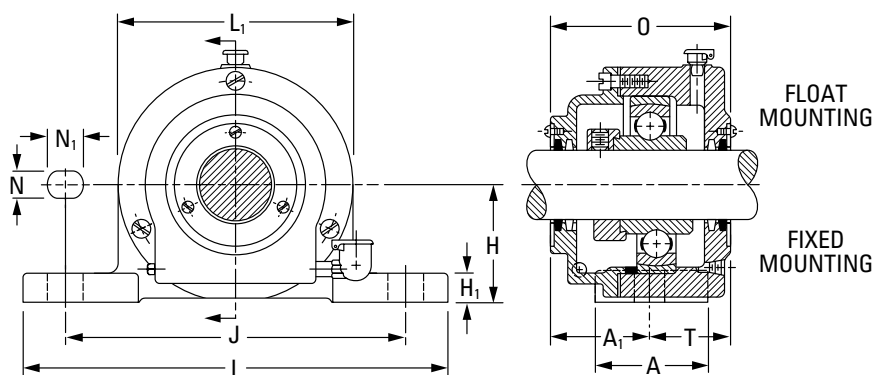
#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
SAOL	SMN-KS	Page A-62

Unit	Shaft Dia.	Total Float	H	O	L <sub>1</sub>	A	J	L	N	N <sub>1</sub>	H <sub>1</sub>	A <sub>1</sub>	T	J <sub>1</sub> <sup>(1)</sup>	Bolt		Bearing No.	Collar No.	Housing No.	Unit Wt.
															No.	Size				
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		mm in.			New	kg lbs.
SAOL	1 3/16	7.9 5/16	60.33 2 3/8	103.2 4 1/16	111.1 4 3/8	60.3 2 3/8	168.3 6 5/8	210.0 8 1/4	15.9 5/8	22.2 7/8	17.5 11/16	60.3 2 3/8	42.9 1 11/16	-	2	12 1/2	SMN103KS	SN103K	T-12389	5.521 12.16
SAOL	1 7/16	9.1 23/64	69.80 2 3/4	111.1 4 3/8	120.6 4 3/4	69.8 2 3/4	209.6 8 1/4	269.9 10 5/8	19.0 3/4	25.4 1	20.6 13/16	69.1 2 29/32	42.1 1 21/32	-	2	16 5/8	SMN107KS	SN107K	A-4779	7.037 15.50
SAOL	1 1/2	9.5 3/8	79.40 3 1/8	123.8 4 7/8	146.0 5 3/4	79.4 3 1/8	228.6 9	288.9 11 3/8	19.0 3/4	25.4 1	20.6 13/16	74.6 2 15/16	49.2 1 15/16	-	2	16 5/8	SMN108KS	SN108K	A-4778A	11.350 25.00
SAOL	1 11/16	9.5 3/8	79.40 3 1/8	123.8 4 7/8	146.0 5 3/4	79.4 3 1/8	228.6 9	288.9 11 3/8	19.0 3/4	25.4 1	20.6 13/16	74.6 2 15/16	49.2 1 15/16	-	2	16 5/8	SMN111KS	SN111K	A-4778	11.150 24.56
SAOL	1 15/16	9.5 3/8	79.40 3 1/8	122.2 4 13/16	158.8 6 1/4	79.4 3 1/8	228.6 9	288.9 11 3/8	19.0 3/4	25.4 1	20.6 13/16	73.8 2 29/32	48.4 1 29/32	-	2	16 5/8	SMN115KS	SN115K	A-3818	12.462 27.45
SAOL	2 3/16	9.1 23/64	95.25 3 3/4	139.7 5 1/2	171.4 6 3/4	88.9 3 1/2	259.7 10 1/4	320.7 12 5/8	22.2 7/8	31.8 1 1/4	27.0 1 1/16	82.6 3 1/4	57.2 2 1/4	-	2	20 3/4	SMN203KS	SN203K	A-4755	15.409 33.94
SAOL	2 7/16	8.7 11/32	104.80 4 1/8	150.0 5 29/32	190.5 7 1/2	101.6 4	285.8 11 1/4	349.2 13 3/4	22.2 7/8	31.8 1 1/4	27.0 1 1/16	91.3 3 19/32	58.7 2 5/16	-	2	20 3/4	SMN207KS	SN207K	A-3819	18.841 41.50
SAOL	2 11/16	9.5 3/8	115.89 4 9/16	174.6 6 7/8	215.9 8 1/2	111.1 4 3/8	304.8 12	390.6 15 3/8	25.4 1	31.8 1 1/4	31.8 1 1/4	109.5 4 5/16	65.1 2 9/16	-	2	22 7/8	SMN211KS	SO211K	A-4709	26.332 58.00
SAOL	2 15/16	12.7 1/2	115.89 4 9/16	177.8 7	225.4 8 7/8	111.1 4 3/8	314.3 12 3/8	390.6 15 3/8	25.4 1	31.8 1 1/4	31.8 1 1/4	104.8 4 1/8	73.0 2 7/8	-	2	22 7/8	SMN215KS	SN215K	A-4798	33.823 74.50

<sup>(1)</sup>When four bolts are used, dimension J<sub>1</sub> is the distance between centers, and A<sub>1</sub> and T are measured from the center of the base.

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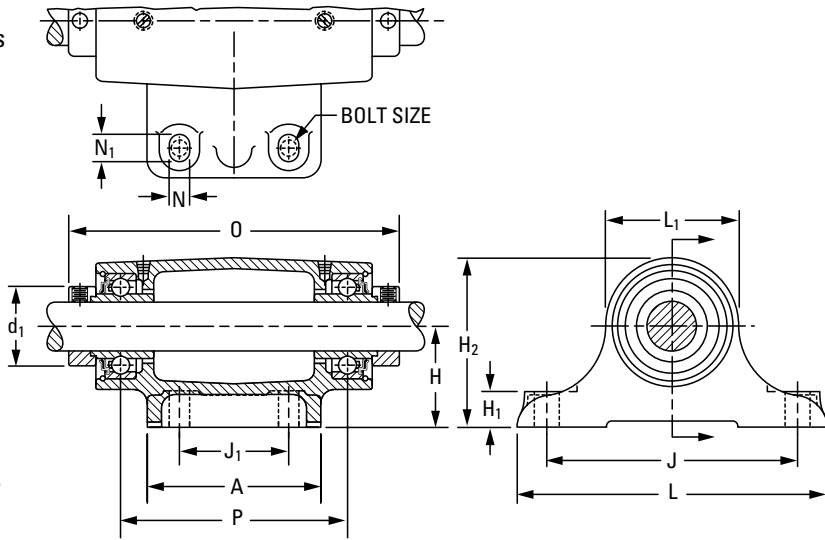
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Unit	Shaft Dia.	Total Float	H	O	L <sub>1</sub>	A	J	L	N	N <sub>1</sub>	H <sub>1</sub>	A <sub>1</sub>	T	J <sub>1</sub> <sup>(1)</sup>	Bolt		Bearing No.	Collar No.	Housing No.	Unit Wt.
															No.	Size				
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			New	kg lbs.
SAOL	3 <sup>3</sup> / <sub>16</sub>	13.1 33/64	115.89 4 <sup>9</sup> / <sub>16</sub>	184.2 7 <sup>1</sup> / <sub>4</sub>	241.3 9 <sup>1</sup> / <sub>2</sub>	111.1 4 <sup>3</sup> / <sub>8</sub>	314.3 12 <sup>3</sup> / <sub>8</sub>	390.6 15 <sup>3</sup> / <sub>8</sub>	25.4 1	31.8 1 <sup>1</sup> / <sub>4</sub>	31.8 1 <sup>1</sup> / <sub>4</sub>	108.0 4 <sup>1</sup> / <sub>4</sub>	76.2 3	57.2 2 <sup>1</sup> / <sub>4</sub>	4	22 7/8	SMN303KS	SN303K	A-4780	35.298 77.75
SAOL	3 <sup>7</sup> / <sub>16</sub>	13.5 17/32	130.2 5 <sup>1</sup> / <sub>8</sub>	190.5 7 <sup>1</sup> / <sub>2</sub>	260.4 10 <sup>1</sup> / <sub>4</sub>	120.6 4 <sup>3</sup> / <sub>4</sub>	339.7 13 <sup>3</sup> / <sub>8</sub>	409.6 16 <sup>1</sup> / <sub>8</sub>	25.4 1	31.8 1 <sup>1</sup> / <sub>4</sub>	31.8 1 <sup>1</sup> / <sub>4</sub>	111.1 4 <sup>3</sup> / <sub>8</sub>	79.4 3 <sup>1</sup> / <sub>8</sub>	76.2 3	4	22 7/8	SMN307KS	SN307K	A-4155	48.805 107.5
SAOL	3 <sup>11</sup> / <sub>16</sub>	12.7 1/2	144.5 5 <sup>11</sup> / <sub>16</sub>	213.5 8 <sup>13</sup> / <sub>32</sub>	279.4 11	125.4 4 <sup>15</sup> / <sub>16</sub>	374.6 14 <sup>3</sup> / <sub>4</sub>	439.7 17 <sup>5</sup> / <sub>16</sub>	28.6 1 <sup>1</sup> / <sub>8</sub>	38.1 1 <sup>1</sup> / <sub>2</sub>	31.8 1 <sup>1</sup> / <sub>4</sub>	133.4 5 <sup>1</sup> / <sub>4</sub>	80.2 3 <sup>5</sup> / <sub>32</sub>	-	2	24 1	SMD311WS	SO311K	A-4156	54.48 120.0
SAOL	3 <sup>15</sup> / <sub>16</sub>	17.5 11/16	152.4 6	219.9 8 <sup>21</sup> / <sub>32</sub>	298.4 11 <sup>3</sup> / <sub>4</sub>	133.4 5 <sup>1</sup> / <sub>4</sub>	393.1 15 <sup>1</sup> / <sub>2</sub>	469.9 18 <sup>1</sup> / <sub>2</sub>	28.6 1 <sup>1</sup> / <sub>8</sub>	38.1 1 <sup>1</sup> / <sub>2</sub>	34.9 1 <sup>3</sup> / <sub>8</sub>	127.0 5	92.9 3 <sup>21</sup> / <sub>32</sub>	82.6 3 <sup>1</sup> / <sub>4</sub>	4	24 1	SMN315KS	SN315K	A-4795	70.824 156.0
SAOL	4 <sup>3</sup> / <sub>16</sub>	15.9 5/8	165.1 6 <sup>1</sup> / <sub>2</sub>	225.4 8 <sup>7</sup> / <sub>8</sub>	317.5 12 <sup>1</sup> / <sub>2</sub>	158.8 6 <sup>1</sup> / <sub>4</sub>	449.3 17 <sup>11</sup> / <sub>16</sub>	539.8 21 <sup>1</sup> / <sub>4</sub>	28.6 1 <sup>1</sup> / <sub>8</sub>	38.1 1 <sup>1</sup> / <sub>2</sub>	38.1 1 <sup>1</sup> / <sub>2</sub>	134.1 5 <sup>9</sup> / <sub>32</sub>	91.3 3 <sup>19</sup> / <sub>32</sub>	101.6 4	4	24 1	SMN403WS	SN403K	T-14342	88.076 194.0
SAOL	4 <sup>7</sup> / <sub>16</sub>	14.3 9/16	177.8 7	228.6 9	327.0 12 <sup>7</sup> / <sub>8</sub>	171.4 6 <sup>3</sup> / <sub>4</sub>	449.3 17 <sup>11</sup> / <sub>16</sub>	539.8 21 <sup>1</sup> / <sub>4</sub>	31.8 1 <sup>1</sup> / <sub>4</sub>	44.4 1 <sup>3</sup> / <sub>4</sub>	44.4 1 <sup>3</sup> / <sub>4</sub>	134.9 5 <sup>5</sup> / <sub>16</sub>	93.6 3 <sup>11</sup> / <sub>16</sub>	108.0 4 <sup>1</sup> / <sub>4</sub>	4	27 1 <sup>1</sup> / <sub>8</sub>	SMN407WS	SN407K	T-11469	95.34 210.0
SAOL	4 <sup>15</sup> / <sub>16</sub>	31.4 1 <sup>5</sup> / <sub>64</sub>	209.6 8 <sup>1</sup> / <sub>4</sub>	261.9 10 <sup>5</sup> / <sub>16</sub>	381.0 15	184.2 7 <sup>1</sup> / <sub>4</sub>	514.4 20 <sup>1</sup> / <sub>4</sub>	630.2 24 <sup>13</sup> / <sub>16</sub>	31.8 1 <sup>1</sup> / <sub>4</sub>	44.4 1 <sup>3</sup> / <sub>4</sub>	50.8 2	152.4 6	109.5 4 <sup>5</sup> / <sub>16</sub>	120.6 4 <sup>3</sup> / <sub>4</sub>	4	27 1 <sup>1</sup> / <sub>8</sub>	SMN415WS	SN415K	T-11783	160.262 353.0

<sup>(1)</sup>When four bolts are used, dimension J<sub>1</sub> is the distance between centers, and A<sub>1</sub> and T are measured from the center of the base.

## DRNR INDUSTRIAL SERIES

- This rigid double pillow block is designed to provide a sturdy two-bearing mounting for fans and blowers, bench grinders, buffers, vertical shafts and similar heavy-duty applications.
- The compact, one-piece housing is equipped with two wide-inner-ring ball bearings with integral R-seals and a self-locking collar.
- Individual grease chambers are provided for both bearings.
- The close clearance baffles allow excess grease to work into the center chamber of the housing.
- The grease fittings that take the place of standard pipe plugs provide the means of relubrication.
- This pillow block can be mounted in any position, with ample radial and thrust capacity.



### Suggested shaft tolerances:

- 1 5/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify UNIT and SHAFT DIAMETER.

Example: DRNR 1 7/16 in.

### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
DRNR	KR	Page A-32

Unit	Shaft Dia.	H	H <sub>2</sub>	O	L <sub>1</sub>	J	L	A	H <sub>1</sub>	N	N <sub>1</sub>	J <sub>1</sub>	d <sub>1</sub>	P	Bolt (4 req'd)	Bearing No. (2 req'd)	Collar No.	Housing No.	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			New	kg lbs.
DRNR	1 5/16	63.5 2 1/2	99.2 3 29/32	200.0 7 7/8	71.4 2 13/16	158.8 6 1/4	196.8 7 3/4	108.0 4 1/4	19.0 3/4	12.7 1/2	15.9 5/8	69.8 2 3/4	38.1 1 1/2	146.0 5 3/4	10 3/8	1015KR	S1015K	T-19189	4.812 10.60
DRNR	1 3/16	63.5 2 1/2	105.6 4 5/32	203.2 8	84.1 3 5/16	158.8 6 1/4	196.8 7 3/4	108.0 4 1/4	22.2 7/8	12.7 1/2	15.9 5/8	69.8 2 3/4	44.1 1 47/64	142.9 5 5/8	10 3/8	1103KR	S1103K	T-19191	5.167 11.38
DRNR	1 7/16	76.2 3	123.8 4 7/8	276.2 10 7/8	95.2 3 3/4	203.2 8	254.0 10	139.7 5 1/2	25.4 1	15.9 5/8	22.2 7/8	88.9 3 1/2	54.0 2 1/8	211.5 8 21/64	12 1/2	1107KR	S1107K	T-19193	9.625 21.20
DRNR	1 11/16	76.2 3	133.4 5 1/4	279.4 11	114.3 4 1/2	203.2 8	254.0 10	139.7 5 1/2	25.4 1	15.9 5/8	22.2 7/8	88.9 3 1/2	63.5 2 1/2	209.6 8 1/4	12 1/2	1111KR	S1111K	T-19197	11.690 25.75
DRNR	1 15/16	88.9 3 1/2	150.8 5 5/16	352.4 13 3/8	123.8 4 7/8	241.3 9 1/2	304.8 12	177.8 7	28.5 1 1/8	17.5 11/16	28.5 1 1/8	114.3 4 1/2	69.8 2 3/4	276.2 10 7/8	16 5/8	1115KR	S1115K	T-19195	18.841 41.50
DRNR	2 3/16	88.9 3 1/2	158.8 6 1/4	355.6 14	133.4 5 1/4	241.3 9 1/2	304.8 12	177.8 7	31.8 1 1/4	17.5 11/16	28.5 1 1/8	114.3 4 1/2	76.2 3	268.3 10 9/16	16 5/8	1203KR	S1203K	A-9598	23.608 52.00

**CAST-IRON FLANGED UNITS**  
**RCJ, TCJ, LCJ INDUSTRIAL SERIES**

- Timken cartridges are used in applications where a minimum amount of machining is to be done.
- Each unit comes assembled and ready for mounting, with bolts through the flange.
- These are wide-inner-ring ball bearings, self-aligning B-types, which compensate for shaft misalignment.
- The RCJ flange cartridge is equipped with G-KRRB (R-seal) wide-inner-ring ball bearings. The TCJ is equipped with G-KPPB (tri-ply seal) wide-inner-ring ball bearings. The LCJ is equipped with the G-KLLB (Mechani-seal) wide-inner-ring ball bearings.
- The TCJ flange cartridges are identical to RCJ units, except they use the tri-ply seal bearing. Tri-ply units offer the best protection in dirty environments.
- The units are factory-prelubricated, but a grease fitting is provided for relubrication if required. The units are supplied with self-locking collars.

- Contact a Timken engineer to discuss highly corrosive applications (food processing, chemical exposure) where Timken thin-dense chrome-coated bearings can be used.
- Safety end caps are available for selected sizes.

**Suggested shaft tolerances:**

1 13/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

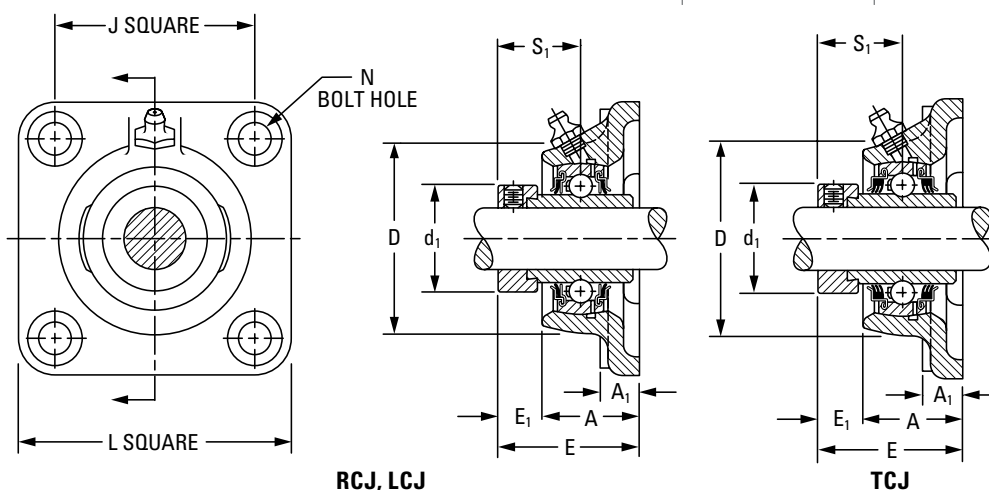
For larger sizes, consult your Timken engineer.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: RCJ 1 3/16 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
RCJ	G-KRRB	Page A-34
TCJ	G-KPPB	Page A-39
LCJ	G-KLLB	Page A-37



Unit <sup>(1)</sup>	Shaft Dia. in. mm	L mm in.	J mm in.	A <sub>1</sub> mm in.	A mm in.	E mm in.	N mm in.	E <sub>1</sub> mm in.	S <sub>1</sub> mm in.	D mm in.	d <sub>1</sub> mm in.	Bolt Size mm in.	Bearing No. <sup>(2)</sup>		Collar No.	Housing No.	Unit Wt. New (Old) kg (lbs.)
													RCJ	(TCJ)			
RCJ	1/2												G1008KRRB		S1008K		
RCJ	5/8	76.2	54.0	9.5	23.6	40.6	10.7	13.9	23.4	52.4	28.1	10	G1010KRRB		S1010K	T-40278	0.526
RCJ	1 1/16	3	2 1/8	13/32	0.929	1.599	27/64	35/64	59/64	2 1/16	1.105	3/8	G1011KRRB	-	S1011K	(T-16659)	1.16
RCJ	17												GE17KRRB		SE17K		
RCJ	3/4	85.7	63.5	11.1	27.8	46.4	10.7	16.3	26.6	60.3	32.8	10	G1012KRRB		S1012K	T-40267	0.726
RCJ	20	3 3/8	2 1/2	7/16	1.094	1.828	27/64	41/64	1 3/4	2 3/8	1.292	3/8	GE20KRRB	-	SE20K	(T-16661)	1.60
RCJ, TCJ	7/8												G1014KRRB	(KPPB3)	S1014K		
RCJ, TCJ	1 5/16	95.2	69.8	12.7	27.9	46.6	11.5	15.9	27.0	65.1	37.6	10	G1015KRRB	(KPPB3)	S1015K	T-40262	0.939
RCJ, TCJ	1	3 3/4	2 3/4	1/2	1.100	1.834	29/64	5/8	1 1/16	2 9/16	1.480	3/8	G1100KRRB	(KPPB3)	S1100K	(T-16663)	2.07
RCJ, TCJ	25												GE25KRRB	(KPPB3)	SE25K		
RCJ, TCJ	1 1/16												G1101KRRB	(KPPB3)	S1101K		
RCJ, TCJ	1 1/8	107.9	82.6	13.5	29.9	50.5	11.5	17.5	30.2	76.2	43.9	10	G1102KRRB	(KPPB3)	S1102K	T-40266	1.302
RCJ, TCJ	1 3/16	4 1/4	3 1/4	17/32	1.178	1.990	29/64	1 1/16	1 3/16	3	1.730	3/8	G1103KRRB	(KPPB3)	S1103K	(T-16664)	2.87
RCJ, TCJ	30												GE30KRRB	(KPPB3)	SE30K		

<sup>(1)</sup>Type LCJ uses G-KLLB.

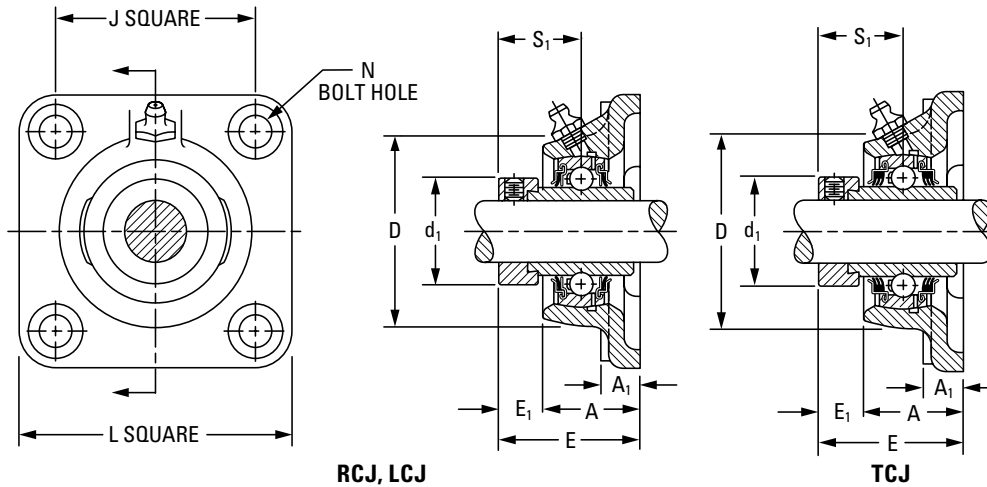
<sup>(2)</sup>Bearing number for RCJ is G-KRRB. TCJ uses G-KPPB.

Continued on next page.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • CAST-IRON FLANGED UNITS • RCJ, TCJ, LCJ

## RCJ, TCJ, LCJ INDUSTRIAL SERIES – continued



Continued from previous page.

Unit <sup>(1)</sup>	Shaft Dia.	L	J	A <sub>1</sub>	A	E	N	E <sub>1</sub>	S <sub>1</sub>	D	d <sub>1</sub>	Bolt Size	Bearing No. <sup>(2)</sup>		Collar No.	Housing No.	Unit Wt.
													RCJ	(TCJ)			
RCJ, TCJ	1 1/4												G1104KRRB	(KPPB2)	S1104K		
RCJ, TCJ	1 5/16												G1105KRRB	(KPPB2)	S1105K		
RCJ, TCJ	1 3/8	117.5	92.1	13.5	31.8	53.5	13.1	19.0	32.5	88.9	53.6	12	G1106KRRB	(KPPB2)	S1106K	T-40253	1.787
RCJ, TCJ	1 7/16	4 5/8	3 5/8	17/32	1.254	2.106	33/64	3/4	1 9/32	3 1/2	2.112	1/2	G1107KRRB	(KPPB2)	S1107K	(T-16617)	3.94
RCJ, TCJ	35												GE35KRRB	(KPPB2)	SE35K		
RCJ, TCJ	1 1/2	130.2	101.6	14.3	38.1	59.3	13.1	20.6	34.9	98.4	58.2	12	G1108KRRB	(KPPB3)	S1108KT		
RCJ, TCJ	1 9/16	5 1/8	4	9/16	1.500	2.334	33/64	13/16	1 3/8	3 7/8	2.292	1/2	G1109KRRB	(KPPB3)	S1109KT	T-40263	2.291
RCJ, TCJ	40												GE40KRRB	(KPPB3)	SE40K	(T-16666)	5.05
RCJ, TCJ	1 5/8												G1110KRRB	(KPPB4)	S1110K		
RCJ, TCJ	1 11/16	136.5	104.8	14.3	38.9	59.3	13.1	19.8	34.9	104.8	63.0	12	G1111KRRB	(KPPB4)	S1111K	T-40264	2.585
RCJ, TCJ	1 3/4	5 3/8	4 1/8	9/16	1.531	2.334	33/64	25/32	1 3/8	4 1/8	2.480	1/2	G1112KRRB	(KPPB4)	S1112K	(T-16667)	5.70
RCJ, TCJ	45												GE45KRRB	(KPPB4)	SE45K		
RCJ, TCJ	1 7/8	142.9	111.1	14.3	42.9	66.4	17.1	23.0	38.1	112.7	69.3	16	G1114KRRB	(KPPB3)	S1114K		
RCJ, TCJ	1 15/16	5 5/8	4 3/8	9/16	1.688	2.615	43/64	29/32	1 1/2	4 7/16	2.730	5/8	G1115KRRB	(KPPB3)	S1115K	T-40265	3.016
RCJ, TCJ	50												GE50KRRB	(KPPB3)	SE50K	(T-16668)	6.65
RCJ, TCJ	2												G1200KRRB	(KPPB4)	S1200K		
RCJ, TCJ	2 1/8	161.9	130.2	16.7	46.8	75.1	17.1	27.8	43.7	120.6	75.7	16	G1202KRRB	(KPPB4)	S1202K	T-40268	3.842
RCJ, TCJ	2 3/16	6 3/8	5 1/8	21/32	1.844	2.958	43/64	1 3/32	1 23/32	4 3/4	2.980	5/8	G1203KRRB	(KPPB4)	S1203K	(T-16683)	8.47
RCJ, TCJ	55												GE55KRRB	(KPPB4)	SE55K		
RCJ	2 1/4												G1204KRRB		S1204K		
RCJ	2 3/8	174.6	142.9	17.5	49.2	81.6	17.1	31.8	46.8	136.5	83.6	16	G1206KRRB		S1206K	T-40269	5.048
RCJ	2 7/16	6 7/8	5 5/8	11/16	1.937	3.214	43/64	1 1/4	1 27/32	5 3/8	3.292	5/8	G1207KRRB		S1207K	(T-17648)	11.13
RCJ	60												GE60KRRB		SE60K		
RCJ	2 11/16	187.3	149.2	19.1	63.5	90.3	16.3	25.4	45.2	152.4	96.3	16	G1211KRRB		S1211K	T-22530	6.885
RCJ	70	7 3/8	5 7/8	3/4	2.500	3.557	41/64	1	1 25/32	6	3.792	5/8	GE70KRRB		SE70K	(T-22270)	15.18
RCJ	2 15/16	196.8	152.4	22.2	66.7	96.7	19.8	26.2	54.8	161.9	101.1	16	G1215KRRB		S1215K	T-21620	8.210
RCJ	75	7 3/4	6	7/8	2.625	3.807	25/32	1 1/32	2 3/32	6 3/8	3.980	5/8	GE75KRRB		SE75K	(T-21620)	18.100

<sup>(1)</sup>Type LCJ uses G-KLLB.

<sup>(2)</sup>Bearing number for RCJ is G-KRRB. TCJ uses G-KPPB.

## RCJC INDUSTRIAL-SERIES CONCENTRIC COLLAR

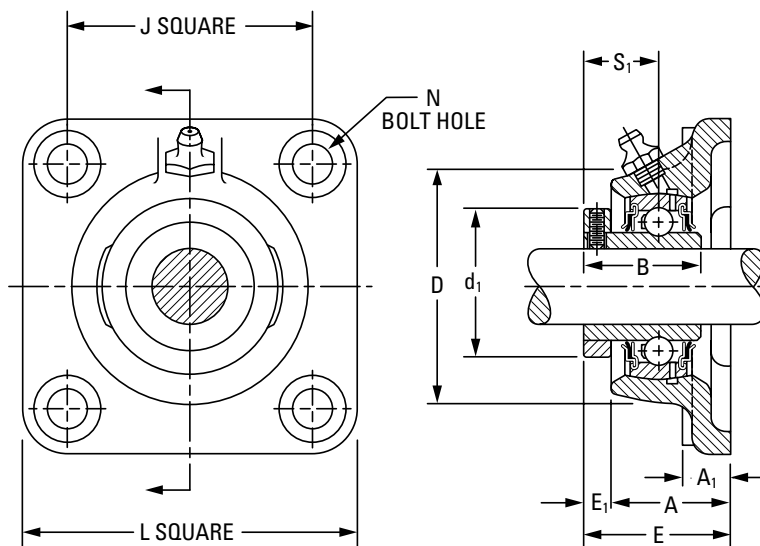
- These units have the same basic design as the RCJ series, except a concentric collar is used as the shaft-locking device instead of a self-locking cam collar.
- All RCJC units are equipped with GC-KRRB wide inner ring, concentric-collar bearings.
- The spherical outside diameter of the bearings is mounted in corresponding machined housing seats to provide the initial self-alignment.
- The bolt-hole spacing dimensions are interchangeable with the RCJ series and most competitive units.
- The units are factory-prelubricated, but a grease fitting is provided for relubrication if required.
- Concentric collars are supplied with all units.
- Safety end caps are available for selected sizes.

### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify UNIT and SHAFT DIAMETER.

Example: RCJC 1 3/16 in.



### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RCJC	GC-KRRB	Page A-40

Unit	Shaft Dia.	L	J	A <sub>1</sub>	A	E	N	E <sub>1</sub>	B	D	d <sub>1</sub>	S <sub>1</sub>	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.					kg lbs.
RCJC	5/8	76.2 3	53.98 2 1/8	11.1 7/16	22.2 7/8	30.2 1 3/16	9.9 25/64	7.9 5/16	26.6 1 3/64	52.4 2 1/16	34.1 1 11/32	15.5 39/64	10 3/8	GC1010KRRB	C203	T-27113	0.486 1.07
RCJC	3/4	85.7 3 3/8	63.5 2 1/2	11.1 7/16	25.8 1 1/64	32.5 1 9/32	9.9 25/64	6.7 17/64	31.0 1 7/32	60.3 2 3/8	38.1 1 1/2	18.7 47/64	10 3/8	GC1012KRRB	C204	T-26605	0.645 1.42
RCJC	1	95.2 3 3/4	69.85 2 3/4	11.1 7/16	28.6 1 1/8	36.1 1 27/64	11.5 29/64	7.5 19/64	34.1 1 11/32	65.1 2 9/16	44.4 1 3/4	20.2 51/64	10 3/8	GC1100KRRB	C205	T-26614	0.781 1.72
RCJC	1 1/8	107.9 4 1/4	82.55 3 1/4	12.7 1/2	30.2 1 3/16	39.3 1 39/64	11.5 29/64	9.1 23/64	37.3 1 5/32	76.2 3	52.4 2 1/16	22.6 57/64	10 3/8	GC1102KRRB	C206	T-26630	1.135 2.50
RCJC	1 3/16													GC1103KRRB			
RCJC	1 1/4 S													GC1103KRRB3			
RCJC	1 1/4	117.5 4 5/8	92.08 3 5/8	14.3 9/16	34.1 1 11/32	44.4 1 3/4	13.1 33/64	10.3 13/32	41.3 1 5/8	88.9 3 1/2	59.5 2 11/32	25.4 1	12 1/2	GC1104KRRB	C207	T-26665	1.707 3.76
RCJC	1 3/8													GC1106KRRB			
RCJC	1 7/16													GC1107KRRB			
RCJC	1 1/2	130.2 5 1/8	101.60 4	17.5 1 1/16	40.5 1 19/32	51.2 2 1/64	13.1 33/64	10.7 27/64	44.1 1 47/64	98.4 3 7/8	68.3 2 11/16	27.4 1 5/64	12 1/2	GC1108KRRB	C208	T-16666A	2.238 4.93
RCJC	1 11/16	136.5 5 3/8	104.78 4 1/8	17.5 1 1/16	41.3 1 5/8	53.2 2 3/32	13.1 33/64	11.9 15/32	46.8 1 27/32	104.8 4 1/8	73.0 2 7/8	29.4 1 5/32	12 1/2	GC1111KRRB	C209	T-16667A	2.538 5.59
RCJC	1 3/4													GC1112KRRB			
RCJC	1 15/16	142.9 5 5/8	111.12 4 3/8	15.9 5/8	42.1 1 21/32	54.8 2 5/32	17.1 43/64	12.7 1/2	48.4 1 29/32	112.7 4 7/16	79.4 3 1/8	30.2 1 3/16	16 5/8	GC1115KRRB	C210	T-26700	2.797 6.16
RCJC	2	161.9 6 3/8	130.18 5 1/8	19.0 3/4	44.4 1 3/4	58.7 2 5/16	17.1 43/64	14.3 9/16	54.0 2 1/8	120.6 4 3/4	88.9 3 1/2	33.33 1 5/16	16 5/8	GC1200KRRB	C211	T-26712	4.036 8.89
RCJC	2 3/16													GC1203KRRB			
RCJC	2 7/16	174.6 6 7/8	142.88 5 5/8	19.0 3/4	47.6 1 7/8	65.9 2 19/32	16.3 41/64	18.3 23/32	60.3 2 3/8	136.5 5 3/8	95.2 3 3/4	37.3 1 15/32	16 5/8	GC1207KRRB	C212	T-26726	4.926 10.85
RCJC	2 15/16	196.8 7 3/4	152.40 6	22.2 7/8	54.0 2 1/8	75.4 2 31/32	19.8 29/32	21.4 27/32	70.6 2 25/32	161.9 6 3/8	114.3 4 1/2	43.7 1 23/32	16 5/8	GC1215KRRB	C215	T-27128	7.473 16.46

NOTE: Shaft diameter with an S = smaller housing.

### YCJ INDUSTRIAL SET SCREW SERIES

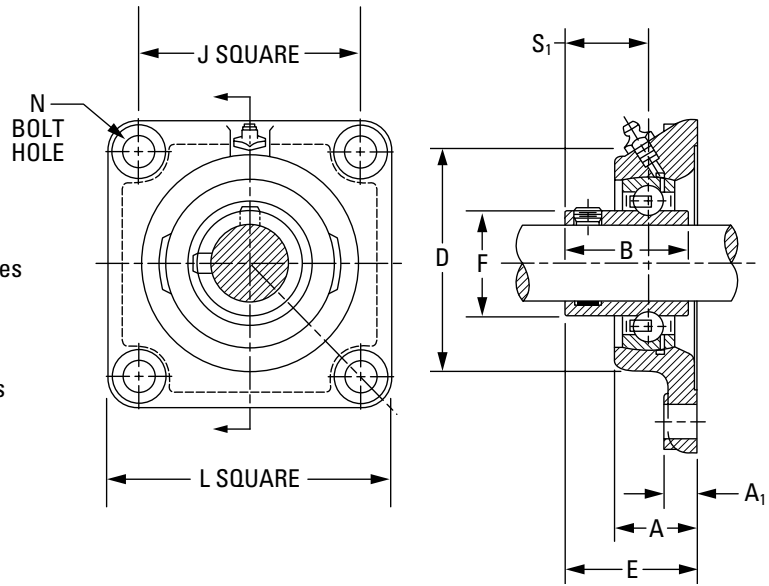
- Incorporates Shaft Guarding Technology, which reduces replacement time, provides shaft protection and prolongs the life of the shaft.
- The same basic design as the RCJ series, except specially designed set screws are used as the locking device instead of an eccentric collar.
- All units are equipped with GY-KRRB wide-inner-ring set screw bearings.
- Spherical outside diameter of the bearings mounted in the corresponding machined housing seats provides the initial self-alignment.
- Bolt-hole spacing dimensions are interchangeable with the RCJ series and most competitive units.
- Units are factory-prelubricated, but a grease fitting is provided for relubrication if required.
- Safety end caps are available for selected sizes.

#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify UNIT and SHAFT DIAMETER.

Example: YCJ 1 7/16 in.



#### BEARING DATA

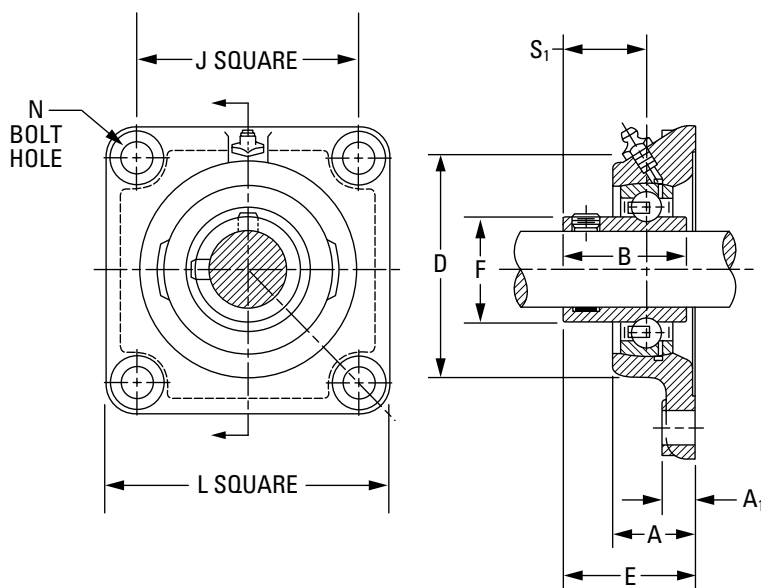
Unit	Bearing No.	Dimensions and Load Ratings
YCJ	GY-KRRB	Page A-44

Unit	Shaft Dia.	L	J	A <sub>1</sub>	A	E	N	B	D	F	S <sub>1</sub>	Bolt Size	Bearing No.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
YCJ	1/2	76.2	54.0	10.3	23.6	32.50	10.72	27.40	52.4	23.90	15.9	10	GY1008KRRB
YCJ	5/8	3	2 1/8	13/32	0.929	1.296	27/64	1 5/64	2 1/16	0.941	5/8	10	GY1010KRRB
YCJ	17												GYE17KRRB
YCJ SGT	3/4	85.7	63.5	11.1	27.8	38.40	10.72	31.80	60.3	27.56	19.1	10	GY1012KRRB SGT
YCJ SGT	20	3 3/8	2 1/2	7/16	1.094	1.513	27/64	1 1/4	2 3/8	1.085	3/4	10	GYE20KRRB SGT
YCJ SGT	7/8												GY1014KRRB SGT
YCJ SGT	15/16	95.2	69.8	12.7	27.9	40.00	11.51	34.90	65.1	33.88	20.6	10	GY1015KRRB SGT
YCJ SGT	1	3 3/4	2 49/64	1/2	1.100	1.575	29/64	1 3/8	2 9/16	1.331	13/16	10	GY1100KRRB SGT
YCJ SGT	25												GYE25KRRB SGT
YCJ SGT	1 1/8												GY1102KRRB SGT
YCJ SGT	1 3/16	107.9	82.6	13.5	29.9	43.46	11.51	39.29	76.2	40.31	23.4	10	GY1103KRRB SGT
YCJ	1 1/4 S	4 1/4	3 1/4	17/32	1.178	1.711	29/64	1 35/64	3	1.587	59/64	10	GY1103KRRB3
YCJ SGT	30												GYE30KRRB SGT
YCJ SGT	1 1/4												GY1104KRRB SGT
YCJ SGT	1 3/8	117.5	92.1	13.5	31.8	48.95	13.10	45.20	88.9	46.81	28.2	12	GY1106KRRB SGT
YCJ SGT	1 7/16	4 5/8	3 5/8	17/32	1.254	1.927	33/64	1 25/32	3 1/2	1.843	1 7/16	12	GY1107KRRB SGT
YCJ SGT	35												GYE35KRRB SGT
YCJ SGT	1 1/2	130.2	101.6	14.3	38.1	54.40	13.10	49.20	98.4	52.27	30.2	12	GY1108KRRB SGT
YCJ SGT	40	5 1/8	4	9/16	1.500	2.141	33/64	1 15/16	3 7/8	2.057	1 3/16	12	GYE40KRRB SGT

NOTE: Shaft diameter with an S = smaller housing.

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Unit	Shaft Dia.	L	J	A <sub>1</sub>	A	E	N	B	D	F	S <sub>1</sub>	Bolt Size	Bearing No.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
YCJ SGT	1 5/8												
YCJ SGT	1 11/16	<b>136.5</b>	<b>104.8</b>	<b>14.3</b>	<b>38.9</b>	<b>55.52</b>	<b>13.10</b>	<b>50.40</b>	<b>104.8</b>	<b>57.92</b>	<b>31.4</b>	<b>12</b>	GY1110KRRB SGT GY1111KRRB SGT
YCJ SGT	1 3/4	5 3/8	4 1/8	9/16	1.531	2.186	33/64	1 63/64	4 1/8	2.279	1 15/16	1/2	GY1112KRRB SGT
YCJ SGT	<b>45</b>												GYE45KRRB SGT
YCJ SGT	1 15/16	<b>142.9</b>	<b>111.1</b>	<b>14.3</b>	<b>42.9</b>	<b>60.70</b>	<b>17.07</b>	<b>51.60</b>	<b>112.7</b>	<b>62.84</b>	<b>32.5</b>	<b>16</b>	GY1115KRRB SGT GY1115KRRB3
YCJ	2 S	5 5/8	4 3/8	9/16	1.688	2.390	43/64	2 1/32	4 7/16	2.473	1 9/32	5/8	GYE50KRRB SGT
YCJ SGT	<b>50</b>												
YCJ SGT	2	<b>161.9</b>	<b>130.2</b>	<b>16.7</b>	<b>46.8</b>	<b>64.70</b>	<b>17.07</b>	<b>55.60</b>	<b>120.7</b>	<b>69.77</b>	<b>33.3</b>	<b>16</b>	GY1200KRRB SGT GY1203KRRB SGT
YCJ SGT	2 3/16	6 3/8	5 1/8	21/32	1.844	2.546	43/64	2 3/16	4 3/4	2.747	1 5/16	5/8	GYE55KRRB SGT
YCJ SGT	<b>55</b>												
YCJ SGT	2 7/16	<b>174.6</b>	<b>142.9</b>	<b>17.5</b>	<b>49.2</b>	<b>74.20</b>	<b>17.07</b>	<b>65.10</b>	<b>136.5</b>	<b>76.48</b>	<b>39.1</b>	<b>16</b>	GY1207KRRB SGT GYE60KRRB SGT
YCJ SGT	<b>60</b>	6 7/8	5 5/8	1 1/16	1.937	2.921	43/64	2 9/16	5 3/8	3.011	1 9/16	5/8	
YCJ	2 11/16	<b>187.3</b>	<b>149.2</b>	<b>19.0</b>	<b>63.5</b>	<b>81.40</b>	<b>16.27</b>	<b>69.90</b>	<b>152.4</b>	<b>86.92</b>	<b>42.9</b>	<b>16</b>	GY1211KRRB GYE70KRRB
YCJ	<b>70</b>	7 3/8	5 7/8	3/4	2.500	3.204	41/64	2 3/4	6	3.422	1 11/16	5/8	
YCJ	2 15/16	<b>196.8</b>	<b>152.4</b>	<b>23.8</b>	<b>66.7</b>	<b>86.20</b>	<b>19.84</b>	<b>77.80</b>	<b>161.9</b>	<b>91.92</b>	<b>44.4</b>	<b>20</b>	GY1215KRRB GYE75KRRB
YCJ	<b>75</b>	7 3/4	6	15/16	2.625	3.392	25/32	3 1/16	6 3/8	3.619	1 3/4	3/4	

NOTE: Shaft diameter with an S = smaller housing.



**SCJ STANDARD SERIES**

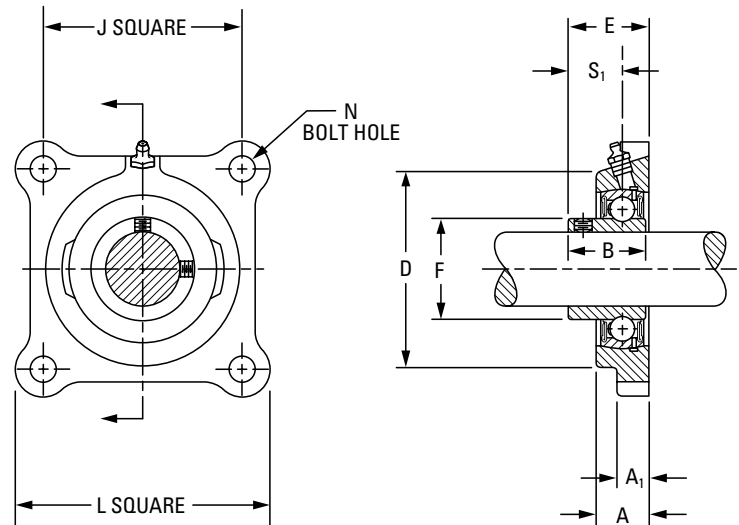
- The flange cartridges come assembled and ready for mounting by using four bolts through the flange.
- The units are ideal for applications where minimum shaft length is required.
- The units are assembled with GYA-RRB bearings with positive-contact, land-riding seals and set screw locking.
- The units are factory-prelubricated, but a grease fitting is provided for relubrication if required.
- Safety end caps are available for selected sizes.

**Suggested shaft tolerances:**

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: SCJ 1 in.



**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
SCJ	GYA-RRB	Page A-54

Unit	Shaft Dia.	L	J	A <sub>1</sub>	A	E	N	B	D	F	S <sub>1</sub>	Bolt Size	Bearing No.	Housing No.	Unit Wt.	
															kg	lbs.
SCJ	1/2	76.2	53.98	11.1	17.9	25.4	10.7	23.8	52.4	24.6	15.9	10	GYA008RRB	T-40124	0.47	1.03
SCJ	5/8	3	2 1/8	7/16	45/64	1	27/64	15/16	2 1/16	31/32	5/8	10	GYA010RRB	T-40124	0.47	1.03
SCJ	17												GYAE17RRB			
SCJ	3/4	85.7	63.50	11.1	19.0	28.6	10.7	27.0	60.3	29.0	18.3	10	GYA012RRB	T-40126	0.52	1.14
SCJ	20	3 3/8	2 1/2	7/16	3/4	1 1/8	27/64	1 1/16	2 3/8	1 9/64	2 3/32	10	GYAE20RRB	T-40126	0.52	1.14
SCJ	7/8	95.2	69.85	13.5	19.8	29.8	11.5	28.2	65.1	33.7	19.4	10	GYA014RRB	T-40128	0.68	1.50
SCJ	15/16	3 3/4	2 3/4	17/32	25/32	1 11/64	29/64	1 7/64	2 9/16	1 21/64	49/64	10	GYA015RRB	T-40128	0.68	1.50
SCJ	1												GYA100RRB			
SCJ	25												GYAE25RRB			
SCJ	1 1/8	107.9	82.55	14.3	21.4	34.1	11.5	32.5	76.2	40.1	23.0	10	GYA102RRB	T-40130	1.19	2.62
SCJ	1 3/16	4 1/4	3 1/4	9/16	27/32	1 11/32	29/64	1 9/32	3	1 37/64	29/32	10	GYA103RRB	T-40130	1.19	2.62
SCJ	1 1/4 S												GYA103RRB2			
SCJ	30												GYAE30RRB			
SCJ	1 1/4	117.5	92.08	15.1	24.6	38.1	13.1	36.5	88.9	46.8	25.8	12	GYA104RRB	T-40132	1.35	2.98
SCJ	1 3/8	4 5/8	3 5/8	19/32	31/32	1 1/2	33/64	1 7/16	3 1/2	1 27/32	1 1/64	12	GYA106RRB	T-40132	1.35	2.98
SCJ	1 7/16												GYA107RRB			
SCJ	35												GYAE35RRB			
SCJ	1 1/2	130.2	101.60	15.9	26.2	40.9	13.1	39.3	98.4	52.4	27.8	12	GYA108RRB	T-40134	2.10	4.63
SCJ	40	5 1/8	4	5/8	1 1/32	1 39/64	33/64	1 35/64	3 7/8	2 1/16	1 3/32	12	GYAE40RRB	T-40134	2.10	4.63
SCJ	1 5/8	136.5	104.78	15.9	28.6	43.6	13.1	42.1	104.8	57.9	28.6	12	GYA110RRB	T-40164	2.24	4.94
SCJ	1 11/16	5 3/8	4 1/8	5/8	1 1/8	1 23/32	33/64	1 21/32	4 1/8	2 9/32	1 1/8	12	GYA111RRB	T-40164	2.24	4.94
SCJ	1 3/4												GYA112RRB			
SCJ	45												GYAE45RRB			
SCJ	1 15/16	142.9	111.12	16.7	28.6	46.0	17.1	44.4	112.7	62.6	30.9	16	GYA115RRB	T-40166	2.55	5.63
SCJ	2 S	5 5/8	4 3/8	21/32	1 1/8	1 13/16	43/64	1 3/4	4 7/16	2 15/32	1 7/32	16	GYA115RRB2	T-40166	2.55	5.63
SCJ	50												GYAE50RRB			
SCJ	2	161.9	130.18	18.2	30.9	48.0	17.1	46.4	120.6	69.8	31.7	16	GYA200RRB	T-40168	2.96	6.53
SCJ	2 3/16	6 3/8	5 1/8	23/32	1 7/32	1 57/64	43/64	1 53/64	4 3/4	2 3/4	1 1/4	16	GYA203RRB	T-40168	2.96	6.53
SCJ	55												GYAE55RRB			

NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • CAST-IRON FLANGED UNITS • RCJO, LCJO

## RCJO, LCJO HEAVY SERIES

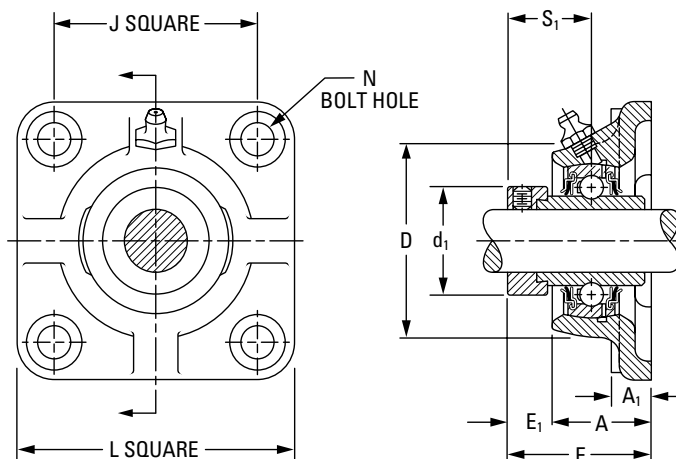
- The flange cartridges are similar in design to the standard series.
- The units are ideal for applications where minimum machining is to be done.
- The units come assembled and ready for mounting by using four bolts through the flange.
- The RCJO units are assembled with GN-KRRB (R-seal) wide-inner-ring bearings. LCJO units are equipped with GN-KLLB (L-seal) wide-inner-ring ball bearings.
- The units are factory-prelubricated, but a grease fitting is provided for relubrication if required.
- The units are supplied with self-locking collars and are dimensionally interchangeable.

### Suggested shaft tolerances:

1 3/16 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
2 in. – 3 15/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify UNIT and SHAFT DIAMETER.

Example: RCJO 1 7/16 in., LCJO 1 11/16 in.



### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RCJO	GN-KRRB	Page A-57
LCJO	GN-KLLB	Page A-59

Unit	Shaft Dia. in.	L	J	A <sub>1</sub>	A	E	N	E <sub>1</sub>	S <sub>1</sub>	D	d <sub>1</sub>	Bolt Size mm in.	Bearing No.		Collar No.	Housing No.	Unit Wt. kg lbs.
		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		RCJO	LCJO			
RCJO, LCJO	1 3/16	120.6 4 3/4	92.1 3 5/8	14.3 9/16	38.1 1.500	53.7 2.115	14.3 9/16	15.1 19/32	32.5 1 9/32	96.8 3 13/16	48.7 1.918	12 1/2	GN103KRRB (KLLB)	SN103K	T-19165	1.816 4.00	
RCJO, LCJO	1 7/16	130.2 5 1/8	101.6 4	15.9 5/8	40.5 1.594	55.3 2.177	14.3 9/16	14.3 9/16	33.3 1 5/16	104.8 4 1/8	55.1 2.168	12 1/2	GN107KRRB (KLLB)	SN107	T-19167	2.497 5.50	
RCJO, LCJO	1 1/2	136.5 5 3/8	104.8 4 1/8	15.9 5/8	44.4 1.750	60.8 2.396	15.9 5/8	15.9 5/8	37.3 1 15/32	114.3 4 1/2	63.0 2.480	14 9/16	GN108KRRB (KLLB)	SN108K	T-19169	3.133 6.90	
RCJO, LCJO	1 11/16	142.9 5 5/8	111.1 4 3/8	17.5 11/16	46.8 1.844	62.4 2.458	15.9 5/8	15.1 19/32	38.9 1 17/32	123.8 4 7/8	69.3 2.730	14 9/16	GN111KRRB (KLLB)	SN111K	T-19171	3.573 7.87	
RCJO	1 15/16	165.1 6 1/2	130.2 5 1/8	17.5 11/16	53.2 2.094	70.4 2.771	17.5 11/16	16.7 21/32	42.1 1 21/32	141.3 5 9/16	75.7 2.980	16 5/8	GN115KRRB	SN115K	T-19173	5.185 11.42	
RCJO	2 3/16	177.8 7	142.9 5 5/8	17.5 11/16	58.7 2.312	76.7 3.021	17.5 11/16	17.5 11/16	45.2 1 25/32	154.0 6 1/16	82.0 3.230	16 5/8	GN203KRRB	SN203K	T-19175	6.424 14.15	
RCJO	2 7/16	190.5 7 1/2	149.2 5 7/8	19.0 3/4	65.1 2.562	84.7 3.333	20.6 13/16	19.0 3/4	48.4 1 29/32	160.3 6 5/16	88.4 3.480	20 3/4	GN207KRRB	SN207K	T-19177	7.409 16.32	
RCJO	2 11/16	225.4 8 7/8	177.8 7	22.2 7/8	72.2 2.844	89.4 3.521	23.8 15/16	21.4 27/32	54.8 2 5/32	185.7 7 5/16	101.1 3.980	22 7/8	GN211KRRB	SO211K	T-19179	9.534 21.00	
RCJO	2 15/16	231.8 9 1/8	184.2 7 1/4	22.2 7/8	77.8 3.062	105.3 4.146	23.8 15/16	27.0 1 1/16	62.7 2 15/32	198.4 7 13/16	112.2 4.418	22 7/8	GN215KRRB	SN215K	T-19181	14.128 31.12	
RCJO	3 7/16	279.4 11	215.9 8 1/2	28.6 1 1/8	84.1 3.312	121.2 4.770	27.0 1 1/16	36.5 1 7/16	73.8 2 29/32	228.6 9	132.3 5.210	24 1	GN307KRRB	SN307K	T-24475	21.474 47.30	
RCJO	3 15/16	317.5 12 1/2	241.3 9 1/2	31.8 1 1/4	96.8 3.812	133.6 5.260	30.2 1 3/16	36.5 1 7/16	78.6 3 3/32	266.7 10 1/2	145.5 5.730	27 1 1/8	GN315KRRB	SN315K	T-24477	30.645 67.50	

**YCJM MEDIUM-DUTY SERIES  
SET SCREW LOCK**

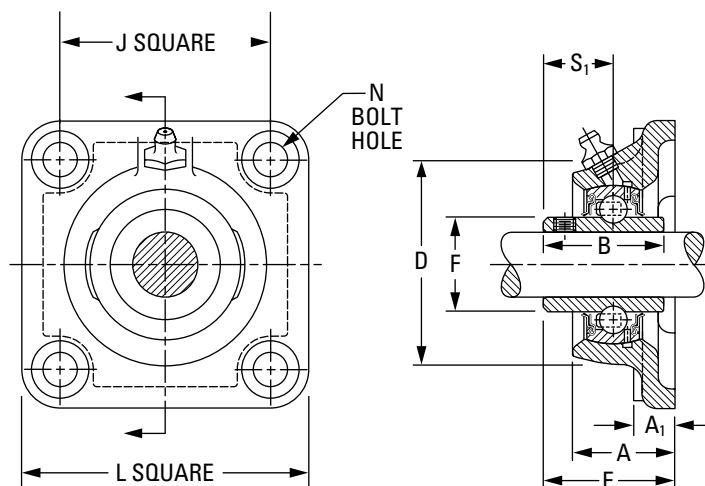
- This series includes four-bolt flanged cartridges featuring GYM-KRRB bearing inserts.
- This series is ideal for conveyor, fan and blower, sawmill, and feed and grain-handling applications.
- The durable cast-iron housings are powder-coated and maintain an excellent finish while resisting corrosion, chemicals and weather exposure.
- The industrial-duty flanged cartridges incorporate premium features designed to extend bearing life.

**Suggested shaft tolerances:**

- 1 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 3 15/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: YCJM 1 7/16 in.



**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
YCJM	GYM-KRRB	Page A-56

Unit	Shaft Dia.	L	J	A <sub>1</sub>	A	E	N	B	D	F	S <sub>1</sub>	Bolt Size	Bearing No.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
YCJM	1	107.9 4 1/4	82.6 3 1/4	13.5 17/32	29.9 1.178	42.4 1.671	11.51 29/64	38.10 1 1/2	76.2 3	40.31 1.587	22.2 7/8	10 3/8	GYM1100KRRB
YCJM	1 3/16	117.5 4 5/8	92.1 3 5/8	13.5 17/32	31.8 1.254	46.4 1.827	13.10 33/64	42.90 1 11/16	88.9 3 1/2	46.81 1.843	25.4 1	12 1/2	GYM1103KRRB
YCJM	1 7/16	130.2 5 1/8	101.6 4	14.8 9/16	38.1 1.500	54.4 2.141	13.10 33/64	49.20 1 15/16	98.4 3 7/8	52.27 2.058	30.2 1 3/16	12 1/2	GYM1107KRRB
YCJM	1 1/2	136.5 5 3/8	104.8 4 1/8	14.3 9/16	38.9 1.531	54.4 2.141	13.10 33/64	49.20 1 15/16	104.8 4 1/8	57.92 2.280	30.2 1 3/16	12 1/2	GYM1108KRRB
YCJM	1 11/16	142.9 5 5/8	111.1 4 3/8	14.3 9/16	42.9 1.688	60.7 2.390	17.07 43/64	51.60 2 1/32	112.7 4 7/16	62.84 2.474	32.5 1 9/32	16 5/8	GYM1111KRRB GYM1112KRRB
YCJM	1 15/16	161.9 6 3/8	130.2 5 1/8	16.7 2 1/32	46.8 1.844	64.7 2.546	17.07 43/64	55.60 2 3/16	120.7 4 3/4	69.77 2.747	33.3 1 15/16	16 5/8	GYM1115KRRB GY1200KRRB
YCJM	2 3/16	174.6 6 7/8	142.9 5 5/8	17.5 1 1/16	49.2 1.937	74.3 2.926	17.07 43/64	65.10 2 9/16	136.5 5 3/8	76.48 3.011	39.1 1 9/16	16 5/8	GYM1203KRRB GY1204KRRB
YCJM	2 7/16	187.3 7 3/8	149.2 5 7/8	19.0 3/4	63.5 2.500	81.5 3.208	17.07 43/64	69.90 2 3/4	152.4 6	86.92 3.422	42.9 1 11/16	16 5/8	GYM1207KRRB GYM1208KRRB
YCJM	2 11/16	196.8 7 3/4	152.4 6	22.2 7/8	66.7 2.625	86.2 3.396	19.84 25/32	77.80 3 1/16	161.9 6 3/8	91.92 3.619	44.4 1 3/4	20 3/4	GYM1211KRRB
YCJM	2 15/16	196.8 7 3/4	152.4 6	22.2 7/8	66.7 2.625	90.8 3.576	19.84 25/32	77.80 3 1/16	179.4 7 1/16	98.37 3.873	44.4 1 15/16	20 3/4	GYM1215KRRB GYM1300KRRB
YCJM	3	214.3 8 7/16	171.4 6 3/4	25.4 1	70.5 2.776	101.1 3.981	19.84 25/32	95.94 3 25/32	196.8 7 3/4	111.68 4.397	56.4 2 7/32	20 3/4	GYM1307KRRB
YCJM	3 15/16	268.3 10 9/16	211.1 8 5/16	31.8 1 1/4	95.4 3.755	127.3 5.014	26.19 1 1/32	117.35 4 5/8	235.0 9 1/4	131.30 5.171	68.3 2 11/16	24 1	GYM1315KRRB

### YCJTM MEDIUM-DUTY SERIES SET SCREW LOCK

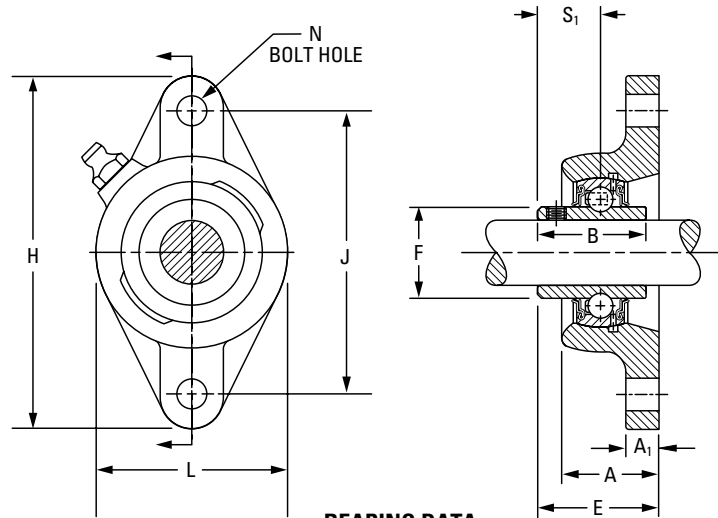
- The medium-duty, two-bolt flanged cartridges feature GYM-KRRB bearing inserts.
- This series is ideal for conveyor, fan and blower, sawmill, and feed and grain-handling applications.
- The durable cast-iron housings are powder-coated and maintain an excellent finish while resisting corrosion, chemicals and weather exposure.
- The industrial-duty flanged cartridge units incorporate premium features designed to extend bearing life. They can replace competitive designs.

#### Suggested shaft tolerances:

- 1 – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify UNIT and SHAFT DIAMETER.

Example: YCJTM 1 7/16 in.



**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
YCJTM	GYM-KRRB	Page A-56

Unit	Shaft Dia.	H	J	L	A	E	N	B	A <sub>1</sub>	F	S <sub>1</sub>	Bolt Size	Bearing No.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
YCJTM	1	141.3 5 9/16	116.7 4 19/32	79.5 3 1/8	29.9 1.178	42.4 1.671	11.51 29/64	38.1 1 1/2	13.5 17/32	40.31 1.587	22.2 7/8	10 3/8	GYM1100KRRB
YCJTM	1 3/16	155.6 6 1/8	130.2 5 1/8	92.1 3 5/8	31.8 1.254	46.4 1.827	13.10 33/64	42.9 1 11/16	11.9 15/32	46.79 1.843	25.4 1	12 1/2	GYM1103KRRB
YCJTM	1 7/16	171.5 6 3/4	143.7 5 21/32	104.8 4 1/8	38.1 1.500	54.4 2.141	13.10 33/64	49.2 1 15/16	12.7 1/2	52.27 2.058	30.2 1 3/16	12 1/2	GYM1107KRRB
YCJTM	1 1/2	179.4 7 1/16	148.4 5 27/32	111.1 4 3/8	38.9 1.531	54.4 2.141	13.10 33/64	49.2 1 15/16	12.7 1/2	57.92 2.280	30.2 1 3/16	12 1/2	GYM1108KRRB
YCJTM	1 11/16	188.9	157.2	115.9	42.9	60.7	17.07	51.6	12.7	62.81	32.5	16	GYM1111KRRB
YCJTM	1 3/4	188.9	157.2	115.9	42.9	60.7	17.07	51.6	12.7	62.81	32.5	16	GYM1112KRRB
YCJTM	1 15/16	215.9	184.2	127.0	46.8	64.7	17.07	55.6	16.7	69.77	33.3	16	GYM1115KRRB
YCJTM	2	215.9	184.2	127.0	46.8	64.7	17.07	55.6	16.7	69.77	33.3	16	GY1200KRRB

**RCJT, TCJT, LCJT INDUSTRIAL SERIES**

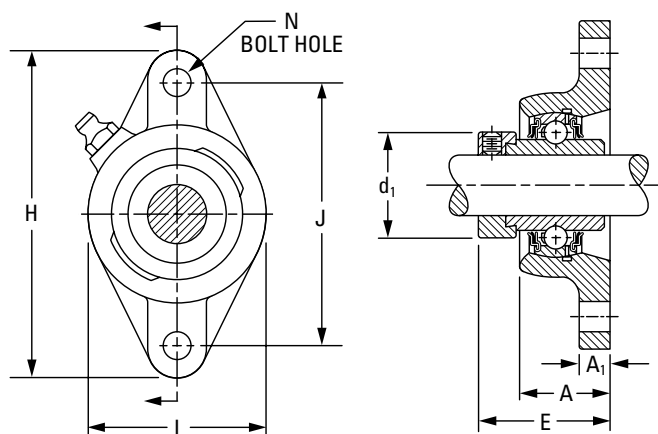
- The cartridges are the same basic design as RCJ, TCJ, and LCJ types, except they have two bolt holes instead of four.
- This series is primarily designed for applications where the mounting area is restricted.
- The RCJT cartridge is equipped with G-KRRB (R-seal) wide-inner-ring ball bearings. The TCJT is equipped with G-KPPB (tri-ply seal) wide-inner-ring ball bearings. The LCJT is equipped with the G-KLLB (Mechani-seal) wide-inner-ring ball bearings.
- The units are factory-prelubricated, but a grease fitting is provided for relubrication.
- Safety end caps are available for selected sizes.

**Suggested shaft tolerances:**

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: RCJT 1 3/16 in., TCJT 1 3/16 in.



**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
RCJT	G-KRRB	Page A-34
TCJT	G-KPPB	Page A-39
LCJT	G-KLLB	Page A-37

Unit	Shaft Dia.	H	J	L	A	N	E	A <sub>1</sub>	d <sub>1</sub>	Bolt Size	Bearing No.			Collar No.	Housing No.	Unit Wt.
											RCJT	TCJT	LCJT			
RCJT	1/2										G1008KRRB			S1008K		
RCJT	5/8	<b>98.4</b>	<b>76.2</b>	<b>54.0</b>	<b>23.6</b>	<b>10.7</b>	<b>40.6</b>	<b>10.3</b>	<b>28.1</b>	<b>10</b>	G1010KRRB			S1010K	T-40219	<b>0.590</b>
RCJT	1 1/16	3 7/8	3	2 1/8	0.929	27/64	1.599	13/32	1.105	3/8	G1011KRRB			S1011K		1.30
RCJT	<b>17</b>										GE17KRRB			SE17K		
RCJT	3/4	<b>111.9</b>	<b>89.7</b>	<b>60.5</b>	<b>27.8</b>	<b>10.7</b>	<b>46.4</b>	<b>11.1</b>	<b>32.8</b>	<b>10</b>	G1012KRRB			S1012K	T-40220	<b>0.590</b>
RCJT	<b>20</b>	4 13/32	3 17/32	2 3/8	1.094	27/64	1.828	7/16	1.292	3/8	GE20KRRB			SE20K		1.30
RCJT, TCJT, LCJT	1 3/16										G1013KRRB	G1013KPPB3	G1013KLLB	S1013K		
RCJT, TCJT, LCJT	7/8	<b>123.8</b>	<b>99.2</b>	<b>69.8</b>	<b>27.9</b>	<b>11.5</b>	<b>46.7</b>	<b>11.1</b>	<b>23.9</b>	<b>10</b>	G1014KRRB	G1014KPPB3	G1014KLLB	S1014K	T-40221	<b>0.785</b>
RCJT, TCJT, LCJT	1 1/16	4 7/8	3 29/32	2 3/4	1.100	29/64	1.839	7/16	1.480	3/8	G1015KRRB	G1015KPPB3	G1015KLLB	S1015K	(T-21412P)	1.73
RCJT, TCJT, LCJT	<b>1</b>										G1100KRRB	G1100KPPB3	G1100KLLB	S1100K		
RCJT, TCJT, LCJT	<b>25</b>										GE25KRRB	GE25KPPB3	GE25KLLB	SE25K		
RCJT, TCJT, LCJT	1 1/16										G1101KRRB	G1101KPPB3	G1101KLLB	S1101K		
RCJT, TCJT, LCJT	1 1/8	<b>141.3</b>	<b>116.7</b>	<b>79.4</b>	<b>29.9</b>	<b>11.5</b>	<b>50.5</b>	<b>11.9</b>	<b>43.7</b>	<b>10</b>	G1102KRRB	G1102KPPB3	G1102KLLB	S1102K	T-40222	<b>1.090</b>
RCJT, TCJT, LCJT	1 3/16	5 9/16	4 19/32	3 1/8	1.178	29/64	1.990	15/32	1.730	3/8	G1103KRRB	G1103KPPB3	G1103KLLB	S1103K	(T-21548P)	2.40
RCJT, TCJT, LCJT	1 1/4 S										G1103KRRB3	G1103KPPB4	G1103KLLB3	S1103K3		
RCJT, TCJT, LCJT	<b>30</b>										GE30KRRB	GE30KPPB3	GE30KLLB	SE30K		
RCJT, TCJT, LCJT	1 1/4										G1104KRRB	G1104KPPB2	G1104KLLB	S1104K <sup>(1)</sup>		
RCJT, TCJT, LCJT	1 3/16	<b>155.6</b>	<b>130.2</b>	<b>92.1</b>	<b>31.8</b>	<b>13.1</b>	<b>53.5</b>	<b>11.9</b>	<b>53.6</b>	<b>12</b>	G1105KRRB	G1105KPPB2	G1105KLLB	S1105K <sup>(1)</sup>	T-40223	<b>1.444</b>
RCJT, TCJT, LCJT	1 3/8	6 1/8	5 1/8	3 3/8	1.254	33/64	2.106	15/32	2.112	1/2	G1106KRRB	G1106KPPB2	G1106KLLB	S1106K <sup>(1)</sup>	(T-21414)	3.18
RCJT, TCJT, LCJT	1 7/16										G1107KRRB	G1107KPPB2	G1107KLLB	S1107K <sup>(1)</sup>		
RCJT, TCJT, LCJT	<b>35</b>										GE35KRRB	GE35KPPB2	GE35KLLB	SE35K		
RCJT, TCJT, LCJT	1 1/2	<b>171.4</b>	<b>143.6</b>	<b>104.7</b>	<b>38.1</b>	<b>13.1</b>	<b>59.3</b>	<b>12.7</b>	<b>58.2</b>	<b>12</b>	G1108KRRB	G1108KPPB3	G1108KLLB	S1108KT	T-40224	<b>2.193</b>
RCJT, TCJT, LCJT	1 9/16	6 3/4	5 21/32	4 1/8	1.500	33/64	2.334	1/2	2.292	1/2	G1109KRRB	G1109KPPB3	G1109KLLB	S1109KT	(T-22529)	4.83
RCJT, TCJT, LCJT	<b>40</b>										GE40KRRB	GE40KPPB3	GE40KLLB	SE40K		
RCJT, TCJT, LCJT	1 5/8										G1110KRRB	G1110KPPB4	G1110KLLB	S1110K		
RCJT, TCJT, LCJT	1 11/16	<b>179.4</b>	<b>148.0</b>	<b>111.1</b>	<b>38.9</b>	<b>13.1</b>	<b>59.3</b>	<b>12.7</b>	<b>63.0</b>	<b>12</b>	G1111KRRB	G1111KPPB4	G1111KLLB	S1111K	T-40225	<b>2.379</b>
RCJT, TCJT, LCJT	1 3/4	7 1/16	5 27/32	4 3/8	1.531	33/64	2.334	1/2	2.480	1/2	G1112KRRB	G1112KPPB4	G1112KLLB	S1112K	(T-21416)	5.24
RCJT, TCJT, LCJT	<b>45</b>										GE45KRRB	GE45KPPB4	GE45KLLB	SE45K		
RCJT, TCJT, LCJT	1 7/8										G1114KRRB	G1114KPPB3	G1114KLLB	S1114K		
RCJT, TCJT, LCJT	1 15/16	<b>188.9</b>	<b>157.2</b>	<b>115.9</b>	<b>42.9</b>	<b>17.1</b>	<b>66.4</b>	<b>12.7</b>	<b>69.3</b>	<b>16</b>	G1115KRRB	G1115KPPB3	G1115KLLB	S1115K	T-40226	<b>2.724</b>
RCJT, TCJT, LCJT	2	7 7/16	6 3/16	4 9/16	1.688	43/64	2.615	1/2	2.730	5/8	GE50KRRB	GE50KPPB3	GE50KLLB	SE50K	(T-21418)	6.00
RCJT, TCJT, LCJT	2										G1200KRRB	G1200KPPB4	G1200KLLB	S1200K		
RCJT, TCJT, LCJT	2 1/8	<b>215.9</b>	<b>184.1</b>	<b>127.0</b>	<b>46.8</b>	<b>17.1</b>	<b>75.1</b>	<b>16.7</b>	<b>75.7</b>	<b>16</b>	G1202KRRB	G1202KPPB4	G1202KLLB	S1202K	T-40227	<b>3.668</b>
RCJT, TCJT, LCJT	2 3/16	8 1/2	7 1/4	5	1.844	43/64	2.958	21/32	2.980	5/8	G1203KRRB	G1203KPPB4	G1203KLLB	S1203K	(T-23788)	8.08
RCJT, TCJT, LCJT	<b>55</b>										GE55KRRB	GE55KPPB4	GE55KLLB	SE55K		

<sup>(1)</sup>Add C1 suffix to collar numbers for G-KPPB2 bearings (TCJT).  
 NOTE: Shaft diameter with an S = smaller housing.

### RCJTC INDUSTRIAL-SERIES CONCENTRIC COLLAR

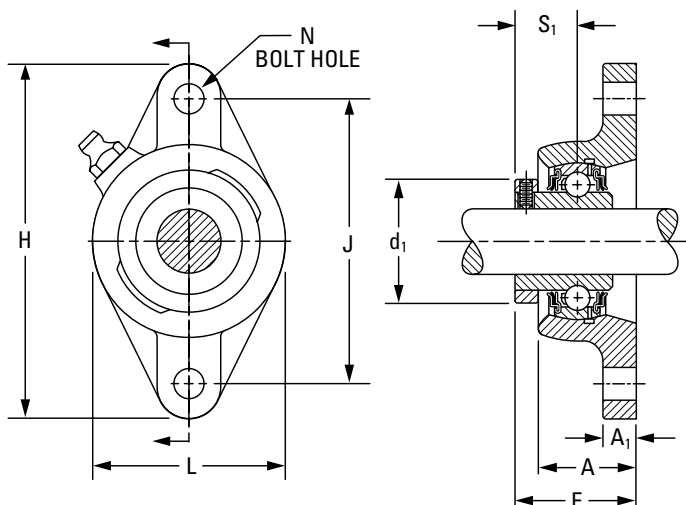
- This series has the same basic design as RCJT, except it uses the concentric collar rather than the self-locking eccentric collar as the shaft-locking device.
- All units are equipped with GC-KRRB wide inner ring concentric collars.
- The spherical outside diameter mounted in the corresponding machined housing seats provides the initial self-alignment.
- The bolt-hole spacing dimensions are interchangeable with the RCJT series and most competitive units.
- The units are factory-prelubricated. A grease fitting is provided for relubrication.
- Safety end caps are available for selected sizes.

#### Suggested shaft tolerances:

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

#### To order, specify UNIT and SHAFT DIAMETER.

Example: RCJTC 1 3/16 in.



#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RCJTC	GC-KRRB	Page A-40

Unit	Shaft Dia.	H	J	L	A	E	N	A <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.					
RCJTC	5/8	98.4 3 7/8	76.20 3	60.3 2 3/8	23.6 0.929	32.7 1.287	9.9 25/64	8.3 21/64	33.8 1.329	15.5 39/64	10 3/8	GC1010KRRB	C203	T-40270 (T-27181)	0.368 0.81
RCJTC	3/4	111.9 4 13/32	89.70 3 17/32	60.3 2 3/8	27.8 1.094	38.2 1.502	9.9 25/64	11.1 7/16	37.7 1.485	18.7 47/64	10 3/8	GC1012KRRB	C204	T-40271 (T-27183)	0.545 1.20
RCJTC	1	123.8 4 7/8	98.81 3 57/64	69.8 2 3/4	27.9 1.100	39.8 1.569	11.9 15/32	13.5 17/32	44.1 1.735	20.2 51/64	10 3/8	GC1100KRRB	C205	T-40272 (T-27200)	0.717 1.58
RCJTC	1 1/8	141.3 5 9/16	116.70 4 19/32	81.0 3 3/16	29.9 1.178	43.0 1.693	11.5 29/64	13.5 17/32	52.3 2.058	22.6 57/64	10 3/8	GC1102KRRB	C206	T-401273 (T-27197)	1.035 2.28
RCJTC	1 3/16											GC1103KRRB			
RCJTC	1 1/4 S											GC1103KRRB3			
RCJTC	1 1/4	155.6 6 1/8	130.20 5 1/8	92.1 3 5/8	31.8 1.254	46.6 1.834	13.1 33/64	14.3 9/16	58.2 2.292	25.4 1	12 1/2	GC1104KRRB GC1106KRRB GC1107KRRB	C207	T-40252	1.498 3.30
RCJTC	1 11/16	179.4 7 1/16	148.40 5 27/32	111.1 4 3/8	38.9 1.531	53.7 2.116	13.1 33/64	14.3 9/16	72.9 2.871	29.4 1 9/32	12 1/2	GC1111KRRB	C209	T-40275	2.097 4.62
RCJTC	1 15/16	188.9 7 7/16	157.20 6 3/16	115.9 4 9/16	42.9 1.688	58.5 2.303	17.1 43/64	14.3 9/16	79.3 3.121	30.2 1 3/16	16 5/8	GC1115KRRB	C210	T-40276	2.497 5.50

NOTE: Shaft diameter with an S = smaller housing.



**VCJT STANDARD SERIES**

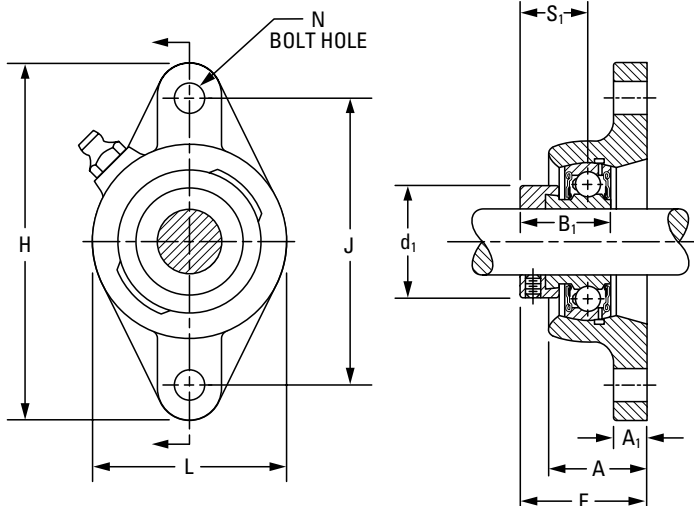
- This series has the same design and features as the VCJ type, but has two bolt holes instead of four. This allows mounting in restricted areas.
- This series is assembled with GRA-RRB bearings with positive-contact, land-riding seals and self-locking collars.
- The units are factory-prelubricated. A grease fitting is provided for relubrication.
- Safety end caps are available for selected sizes.

**Suggested shaft tolerances:**

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: VCJT 1 in.



**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
VCJT	GRA-RRB	Page A-50

Unit	Shaft Dia.	H	J	L	A	E	N	B <sub>1</sub>	A <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm					
VCJT	1/2												GRA008RRB	S1008K		
VCJT	5/8	98.4	76.2	53.9	23.6	39.3	10.7	28.6	10.3	28.1	22.2	10	GRA010RRB	S1010K	T-40219	0.590
VCJT	17	3 7/8	3	2 1/8	0.929	1.548	27/64	1 1/8	13/32	1.105	7/8	3/8	GRAE17RRB	SE17K	(T-22244P)	1.30
VCJT	3/4	111.9	89.7	60.3	27.8	43.3	9.9	31.0	11.1	32.8	23.4	10	GRA012RRB	S1012K	T-40220	0.518
VCJT	20	4 13/32	3 17/32	2 3/8	1.094	1.706	25/64	1 7/32	7/16	1.292	59/64	3/8	GRAE20RRB	SE20K	(T-21409P)	1.44
VCJT	7/8												GRA014RRB	S1014K		
VCJT	15/16	123.8	99.2	69.8	27.9	43.2	11.5	31.0	11.1	23.9	23.4	10	GRA015RRB	S1015K	T-40221	0.740
VCJT	1	4 7/8	3 29/32	2 3/4	1.100	1.701	29/64	1 7/32	7/16	1.480	59/64	3/8	GRA100RRB	S1100K	(T-21412P)	1.63
VCJT	25												GRAE25RRB	SE25K		
VCJT	1 1/8												GRA102RRB	S1102K		
VCJT	1 3/16	141.3	116.7	79.4	29.9	47.1	11.5	35.7	11.9	43.7	27.0	10	GRA103RRB	S1103K	T-40222	1.026
VCJT	1 1/4 S	5 9/16	4 19/32	3 1/8	1.178	1.856	29/64	1 13/32	15/32	1.730	1 1/16	3/8	GRA103RRB2	S1103K3	(T-21548P)	2.26
VCJT	30												GRAE30RRB	SE30K		
VCJT	1 1/4												GRA104RRB	S1104K		
VCJT	1 3/8	155.6	130.2	92.1	31.8	50.5	13.1	38.9	11.9	53.6	29.4	12	GRA106RRB	S1106K	T-40223	1.362
VCJT	1 7/16	6 1/8	5 1/8	3 5/8	1.254	1.989	33/64	1 17/32	15/32	2.112	1 5/32	1/2	GRA107RRB	S1107K	(T-21414)	3.00
VCJT	35												GRAE35RRB	SE35K		
VCJT	1 1/2	171.4	143.6	104.7	38.1	56.9	13.1	43.7	12.7	58.2	32.5	12	GRA108RRB	S1108KT	T-40224	2.075
VCJT	40	6 3/4	5 21/32	4 1/8	1.500	2.243	33/64	1 23/32	1/2	2.292	1 9/32	1/2	GRAE40RRB	SE40K	(T-22529)	4.57
VCJT	1 5/8												GRA110RRB	S1110K		
VCJT	1 11/16	179.4	148.0	111.1	38.9	57.0	13.1	43.7	12.7	63.0	32.5	12	GRA111RRB	S1111K	T-40225	2.229
VCJT	1 3/4	7 1/16	5 27/32	4 3/8	1.531	2.244	33/64	1 23/32	1/2	2.480	1 9/32	1/2	GRA112RRB	S1112K	(T-21416)	4.91
VCJT	45												GRAE45RRB	SE45K		
VCJT	1 7/8												GRA114RRB	S1114K		
VCJT	1 15/16	188.9	157.2	115.8	42.9	61.0	17.1	43.7	12.7	69.3	32.5	16	GRA115RRB	S1115K	T-40226	2.492
VCJT	2 S	7 7/16	6 3/16	4 9/16	1.688	2.400	43/64	1 23/32	1/2	2.730	1 9/32	5/8	GRA115RRB2	S1115K2	(T-21418)	5.49
VCJT	50												GRAE50RRB	SE50K		
VCJT	2	215.9	184.1	127.0	46.8	67.9	17.1	48.4	16.7	75.7	36.5	16	GRA200RRB	S1200K		
VCJT	2 3/16	8 1/2	7 1/4	5	1.844	2.672	43/64	1 29/32	21/32	2.980	27/16	5/8	GRA203RRB	S1203K	T-40227	3.092
VCJT	55												GRAE55RRB	SE55K	(T-23788)	6.81

NOTE: Shaft diameter with an S = smaller housing.

### YCJT INDUSTRIAL SET SCREW SERIES

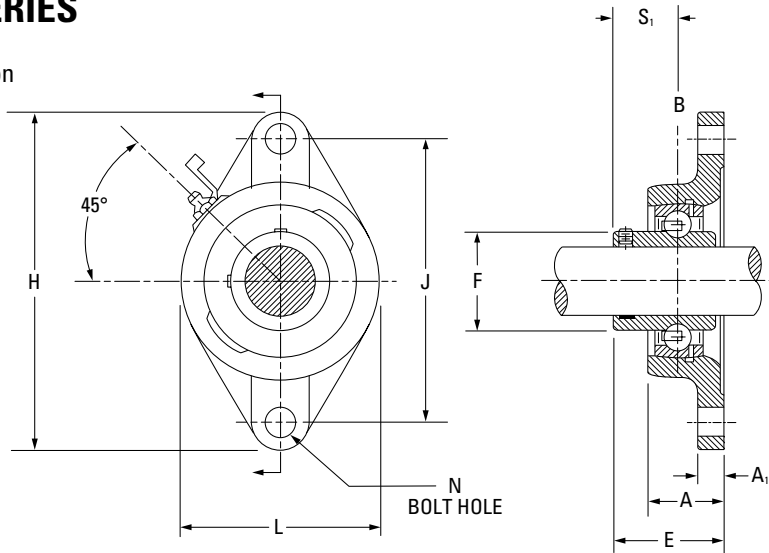
- Incorporates Shaft Guarding Technology, which reduces replacement time, provides shaft protection and prolongs the life of the shaft.
- This series has the same design as the YCJ series, but is mounted with two bolts instead of four.
- All units are equipped with GY-KRRB wide inner ring, set screw bearings.
- The spherical outside diameter mounted in the corresponding machined housings seats provides the initial self-alignment.
- The units are factory-prelubricated. A grease fitting is provided for relubrication.
- Safety end caps are available for selected sizes.

#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify UNIT and SHAFT DIAMETER.

Example: YCJT 1 7/16 in.



#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
YCJT	GY-KRRB	Page A-44

Unit	Shaft Dia.	H	J	L	A	E	B	A <sub>1</sub>	F	N	S <sub>1</sub>	Bolt Size	Bearing No.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	
YCJT	1/2	98.4	76.2	54.00	23.6	32.90	27.40	11.1	23.9	10.0	15.9	10	GY1008KRRB
YCJT	5/8	3 7/8	3	2 1/8	0.929	1.296	1 5/64	7/16	0.941	27/64	5/8	3/8	GY1010KRRB
YCJT	17												GYE17KRRB
YCJT SGT	3/4	111.9	89.7	60.30	27.8	38.40	31.80	11.1	27.6	10.0	19.1	10	GY1012KRRB SGT
YCJT SGT	20	4 13/32	3 17/32	2 3/8	1.094	1.513	1 1/4	7/16	1.085	27/64	3/4	3/8	GYE20KRRB SGT
YCJT SGT	7/8												GY1014KRRB SGT
YCJT SGT	15/16	123.8	99.2	69.90	27.9	40.00	34.90	12.7	33.8	11.5	20.6	12	GY1015KRRB SGT
YCJT SGT	1	4 7/8	3 29/32	2 3/4	1.100	1.575	1 3/8	1/2	1.331	29/64	13/16	1/2	GY1100KRRB SGT
YCJT SGT	25												GYE25KRRB SGT
YCJT SGT	1 1/8												GY1102KRRB SGT
YCJT SGT	1 3/16	141.3	116.7	79.45	29.9	43.46	39.29	13.5	40.3	11.5	23.4	12	GY1103KRRB SGT
YCJT	1 1/4 S	5 9/16	4 19/32	3 1/8	1.178	1.711	1 35/64	17/32	1.587	29/64	59/64	1/2	GY1103KRRB3
YCJT SGT	30												GYE30KRRB SGT
YCJT SGT	1 1/4												GY1104KRRB SGT
YCJT SGT	1 3/8	155.6	130.2	92.10	31.8	48.95	45.20	13.5	46.8	13.0	27.9	12	GY1106KRRB SGT
YCJT SGT	17/16	6 1/8	5 1/8	3 5/8	1.254	1.927	1 25/32	17/32	1.843	33/64	1 1/10	1/2	GY1107KRRB SGT
YCJT SGT	35												GYE35KRRB SGT
YCJT SGT	1 1/2	171.5	143.7	104.80	38.1	54.40	49.20	14.3	52.2	13.0	30.2	12	GY1108KRRB SGT
YCJT SGT	40	6 3/4	5 21/32	4 1/8	1.500	2.141	1 15/16	9/16	2.057	33/64	1 3/16	1/2	GYE40KRRB SGT
YCJT SGT	1 5/8												GY1110KRRB SGT
YCJT SGT	1 11/16	179.4	148.4	111.10	38.9	55.52	50.40	14.3	57.9	13.0	31.4	12	GY1111KRRB SGT
YCJT SGT	1 3/4	7 1/16	5 27/32	4 3/8	1.531	2.186	1 63/64	9/16	2.279	33/64	1 15/64	1/2	GY1112KRRB SGT
YCJT SGT	45												GYE45KRRB SGT
YCJT SGT	1 15/16												GY1115KRRB SGT
YCJT	2 S	188.9	157.2	115.90	42.9	60.70	51.60	14.3	62.8	17.0	32.5	12	GY1115KRRB3
YCJT SGT	50	7 7/16	6 3/16	4 9/16	1.688	2.390	2 1/32	9/16	2.473	43/64	1 9/32	1/2	GYE50KRRB SGT
YCJT SGT	2												GY1200KRRB SGT
YCJT SGT	2 3/16	215.9	184.2	127.00	46.8	64.70	55.60	16.7	69.7	17.0	33.3	16	GY1203KRRB SGT
YCJT SGT	55	8 1/2	7 1/4	5	1.844	2.547	2 3/16	21/32	2.745	43/64	1 9/16	5/8	GYE55KRRB SGT

NOTE: Shaft diameter with an S = smaller housing.

### SCJT STANDARD SERIES

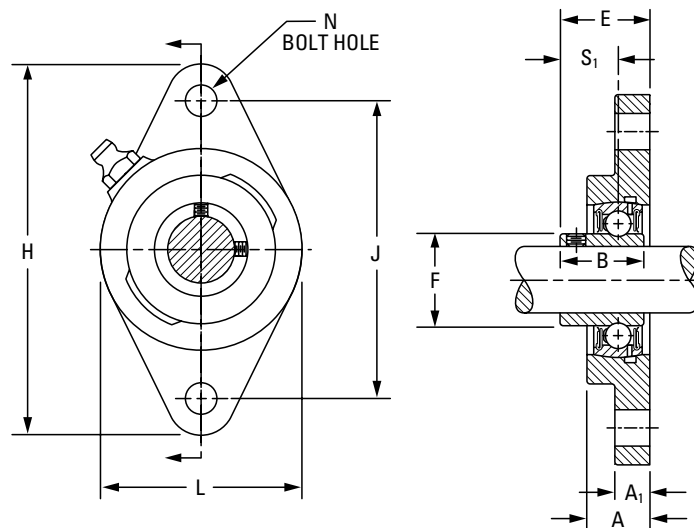
- This series has the same construction and design as SCJ type, but is mounted with two bolts instead of four.
- This series is assembled with GYA-RRB bearings with positive-contact, land-riding seals and set screw locking.
- The units are factory-prelubricated. A grease fitting is provided for relubrication.

**Suggested shaft tolerances:**

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: SCJT 1 in.



**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
SCJT	GYA-RRB	Page A-54

Unit	Shaft Dia.	H	J	L	A	E	N	B	A <sub>1</sub>	F	S <sub>1</sub>	Bolt Size	Bearing No.	Housing No.	Unit Wt.	
		in.	mm	mm	mm	mm	mm	mm	mm	mm	mm					mm
SCJT	1/2	98.4	76.20	60.3	17.9	25.4	9.9	23.8	11.1	24.6	15.9	10	GYA008RRB	T-40136	0.34	
SCJT	5/8	3 7/8	3	2 3/8	45/64	1	25/64	15/16	7/16	31/32	5/8	3/8	GYA010RRB			0.75
SCJT	17												GYAE17RRB			
SCJT	3/4	111.9	89.69	65.1	19.0	28.6	9.9	27.0	11.1	29.0	18.3	10	GYA012RRB	T-40138	0.43	
SCJT	20	4 13/32	3 17/32	2 9/16	3/4	1 1/8	25/64	1 1/16	7/16	1 9/64	23/32	3/8	GYAE20RRB			0.94
SCJT	7/8	123.8	98.82	69.9	19.8	29.8	11.9	28.2	11.1	33.7	19.4	10	GYA014RRB	T-40140	0.48	
SCJT	15/16	4 7/8	3 57/64	2 3/4	25/32	1 11/64	15/32	1 7/64	7/16	1 21/64	49/64	3/8	GYA015RRB			1.07
SCJT	1												GYA100RRB			
SCJT	25												GYAE25RRB			
SCJT	1 1/8	141.3	116.68	79.4	21.4	34.1	11.5	32.5	13.5	40.1	23.0	10	GYA102RRB	T-40142	0.72	
SCJT	1 3/16	5 9/16	4 19/32	3 1/8	27/32	1 11/32	29/64	1 9/32	17/32	1 37/64	29/32	3/8	GYA103RRB			1.58
SCJT	1 1/4 S												GYA103RRB3			
SCJT	30												GYAE30RRB			
SCJT	1 1/4	155.6	130.18	92.1	24.6	38.1	13.1	36.5	14.3	46.8	25.8	12	GYA104RRB	T-40144	1.08	
SCJT	1 3/8	6 1/8	5 1/8	3 5/8	31/32	1 1/2	33/64	1 7/16	9/16	1 27/32	1 1/64	1/2	GYA106RRB			2.37
SCJT	1 7/16												GYA107RRB			
SCJT	35												GYAE35RRB			
SCJT	1 1/2	171.5	143.67	104.8	26.2	40.9	13.1	39.3	14.3	52.4	27.8	12	GYA108RRB	T-40146	1.97	
SCJT	40	6 3/4	5 21/32	4 1/8	1 1/32	1 39/64	33/64	1 35/64	9/16	2 1/16	1 3/32	1/2	GYAE40RRB			4.34
SCJT	1 5/8	179.4	148.00	111.1	28.6	43.6	13.1	42.1	15.8	57.9	28.6	12	GYA110RRB	T-40170	2.03	
SCJT	1 11/16	7 1/16	5 27/32	4 3/8	1 1/8	1 23/32	33/64	1 21/32	5/8	2 5/32	1 7/8	1/2	GYA111RRB			4.48
SCJT	1 3/4												GYA112RRB			
SCJT	45												GYAE45RRB			
SCJT	1 15/16	189.9	157.16	115.8	28.6	46.0	17.1	44.4	16.6	62.7	30.9	16	GYA115RRB	T-40172	2.26	
SCJT	2 S	7 7/16	6 3/16	4 9/16	1 1/8	1 13/16	43/64	1 3/4	21/32	2 15/32	1 7/32	5/8	GYA115RRB2			4.98
SCJT	50												GYAE50RRB			
SCJT	2	215.9	184.15	127.0	30.9	48.0	17.1	46.4	18.2	69.8	31.7	16	GYA200RRB	T-40174	2.79	
SCJT	2 3/16	8 1/2	7 1/4	5	1 7/32	1 57/64	43/64	1 53/64	23/32	2 3/4	1 1/4	5/8	GYA203RRB			6.14
SCJT	55												GYAE55RRB			

NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • CAST-IRON FLANGED UNITS • FLCT

## FLCT STANDARD SERIES

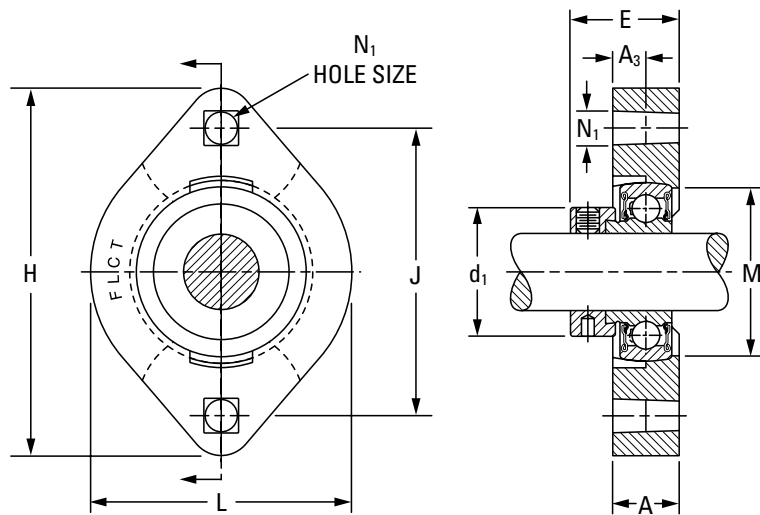
- These versatile power-transmission units are designed to provide sturdy shaft support in minimum space at minimum cost.
- The space-saving, two-bolt unit mounts flush against the frame.
- The bolt-hole spacing and size is the same as the pressed-steel flangette unit.
- The series is equipped with RA-RRB extended inner ring ball bearings with positive-contact, land-riding seals.
- The series is permanently prelubricated.

### Suggested shaft tolerances:

1/2 in. – 1 7/16 in., nominal to -0.013 mm, -0.0005 in.;

### To order, specify UNIT and SHAFT DIAMETER.

Example: FLCT 1 3/16 in.



### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
FLCT	RA-RRB	Page A-48

Unit	Shaft Dia.	H	J	L	E	A	A <sub>3</sub>	N <sub>1</sub> Sq.	d <sub>1</sub>	M	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				kg lbs.
FLCT	1/2	81.0	63.5	58.7	30.2	14.7	7.1	7.1	28.6	38.1	6	RA008RRB	S1008K		0.322
FLCT	5/8	3 3/16	2 1/2	2 5/16	1 3/16	37/64	9/32	9/32	1 1/8	1 1/2	1/4	RA010RRB	S1010K	T-34124	0.71
FLCT	17											RAE17RRB	SE17K		
FLCT	3/4	90.5	71.4	66.7	32.9	17.1	8.7	8.7	33.3	45.2	8	RA012RRB	S1012K		0.445
FLCT	20	3 9/16	2 13/16	2 5/8	1 19/64	43/64	11/32	11/32	1 5/16	1 25/32	5/16	RAE20RRB	SE20K	T-34122	0.98
FLCT	7/8											RA014RRB	S1014K		
FLCT	15/16	95.2	76.2	71.0	34.5	17.5	8.7	8.7	38.1	50.4	8	RA015RRB	S1015K		0.499
FLCT	1	3 3/4	3	2 51/64	1 23/64	11/16	11/32	11/32	1 1/2	1 63/64	5/16	RA100RRB	S1100K	T-33753	1.10
FLCT	25											RAE25RRB	SE25K		
FLCT	1 1/8											RA102RRB	S1102K		
FLCT	1 3/16	112.7	90.5	84.1	38.5	20.6	10.3	10.3	44.4	59.5	10	RA103RRB	S1103K		0.835
FLCT	1 1/4 S	4 7/16	3 9/16	3 5/16	1 33/64	13/16	13/32	13/32	1 3/4	2 11/32	3/8	RA103RRB2	S1103K3	T-34120	1.84
FLCT	30											RAE30RRB	SE30K		
FLCT	1 1/4											RA104RRB	S1104K		
FLCT	1 3/8	125.4	100.0	93.7	41.1	22.2	11.1	10.3	54.0	69.5	10	RA106RRB	S1106K		1.075
FLCT	1 7/16	4 15/16	3 15/16	3 11/16	1 21/32	7/8	7/16	13/32	2 1/8	2 47/64	3/8	RA107RRB	S1107K	T-34118	2.37
FLCT	35											RAE35RRB	SE35K		

NOTE: Shaft diameter with an S = smaller housing.

**RFC INDUSTRIAL PILOTED-SERIES  
CONCENTRIC COLLAR**

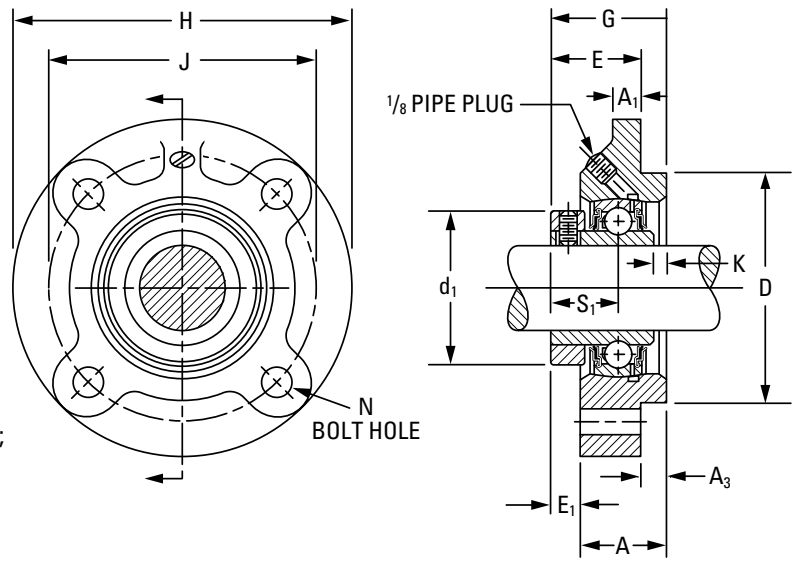
- The piloted flange cartridges ensure accurate mounting fits and provide better support for heavy loads.
- The cast-iron units are suited for applications such as material handling, industrial conveyor equipment, and farm and construction equipment.
- This series is assembled with R-seal (GC-KRRB) bearings with a concentric-locking collar.
- The units are factory-prelubricated. A grease fitting is provided for relubrication if required.

**Suggested shaft tolerances:**

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;  
2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: RFC 1 7/16 in.



**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
RFC	GC-KRRB	Page A-40

Unit	Shaft Dia.	D	J	H	S <sub>1</sub>	K	N	G	A	E <sub>1</sub>	A <sub>3</sub>	E	A <sub>1</sub>	d <sub>1</sub>	Bolt Size	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				kg lbs.
RFC	1	76.20 3.000	92.1 3 5/8	111.1 4 3/8	20.2 51/64	3.6 9/64	10.3 13/32	37.7 1 31/64	28.2 1 7/64	9.5 3/8	6.4 1/4	31.4 1 15/64	9.5 3/8	44.4 1 3/4	10 3/8	GC1100KRRB	C205	T-27031	1.152 2.54
RFC	1 1/8	85.72	104.8	127.0	22.6	3.6	11.9	40.9	30.6	10.3	10.7	30.2	9.5	52.4	10	GC1102KRRB	C206	T-27021	1.742 3.84
RFC	1 3/16	3.375	4 1/8	5	57/64	9/64	15/32	1 39/64	1 13/64	13/32	27/64	1 3/16	3/8	2 1/16	3/8	GC1103KRRB			
RFC	1 1/4 S															GC1103KRRB3			
RFC	1 1/4	92.08	111.1	133.4	25.4	3.2	11.9	44.4	34.1	10.3	11.9	32.5	12.7	59.5	10	GC1104KRRB	C207	T-26730	1.864 4.11
RFC	1 3/8	3.625	4 3/8	5 1/4	1	1/8	15/32	1 3/4	1 11/32	13/32	15/32	1 9/32	1/2	2 11/32	3/8	GC1106KRRB			
RFC	1 7/16															GC1107KRRB			
RFC	1 1/2	92.08	111.1	133.4	27.4	4.8	11.9	48.8	38.1	10.7	11.9	36.9	12.7	68.3	10	GC1108KRRB	C208	T-26587	2.141 4.72
RFC	1 11/16	107.95	130.2	155.6	29.4	-	13.5	46.8	34.1	12.7	11.9	34.9	11.5	73.0	12	GC1111KRRB	C209	T-27276	2.817 6.21
RFC	1 3/4	4.250	5 1/8	6 1/8	1 5/32		17/32	1 27/32	1 11/32	1/2	15/32	1 3/8	29/64	2 7/8	1/2	GC1112KRRB			
RFC	1 15/16	114.30	136.5	161.9	30.2	6.4	13.5	54.8	42.9	11.9	15.9	38.9	12.7	79.4	12	GC1115KRRB	C210	T-26743	3.211 7.08
RFC	2	127.00	152.4	181.0	33.3	7.1	15.1	61.1	44.4	16.7	22.2	38.9	12.7	88.9	12	GC1200KRRB	C211	T-28287	4.082 9.00
RFC	2 3/16	5.000	6	7 1/8	1 5/16	9/32	19/32	2 13/32	1 3/4	2 1/32	7/8	1 17/32	1/2	3 1/2	1/2	GC1203KRRB			

NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • CAST-IRON FLANGED UNITS • RC

## RC SERIES

- The RC series is convenient for mounting in straight-bore housings.
- The bearing features a self-locking collar and spherical outside diameter fitted to a corresponding spherical seat in the cartridge that provides self-alignment.
- The unit is equipped with a G-KRRB (R-seal) bearing.

### Suggested housing bore:

Shaft Rotating: nominal +.025 mm to +.076 mm, +.001 in. to +.003 in.

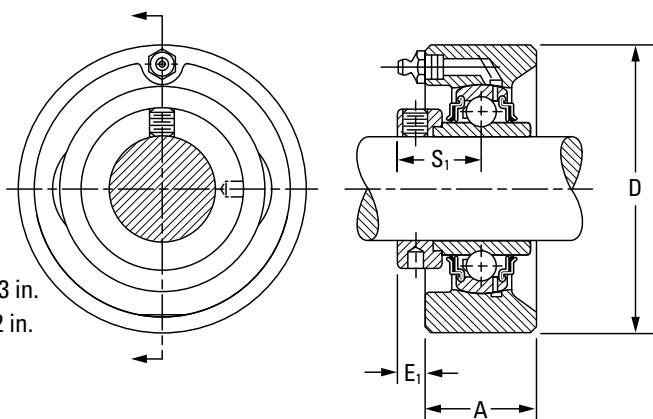
Shaft Stationary: nominal +.00 mm to -.050 mm, +.000 in. to -.002 in.

Avoid excessive tightening of anchor bolts.

### Suggested shaft tolerances:

1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

2 in. – 2 7/16 in., nominal to -0.025 mm, -0.0010 in.



### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RC	G-KRRB	Page A-34

### To order, specify UNIT and SHAFT DIAMETER.

Example: RC 1 3/16 in.

Unit <sup>(1)</sup>	Shaft Dia.	D	A	E <sub>1</sub>	S <sub>1</sub>	Bearing No.	Collar No.	Housing No.	Unit Wt.
	in. mm	mm in.	mm in.	mm in.	mm in.				kg lbs.
RC	1/2					G1008KRRB	S1008K		
RC	5/8	<b>68.27</b>	<b>30.2</b>	<b>8.3</b>	<b>23.4</b>	G1010KRRB	S1010K	T-16793	<b>0.549</b>
RC	1 1/16	2 11/16	1 3/16	2 1/64	59/64	G1011KRRB	S1011K		1.21
RC	<b>17</b>					GE17KRRB	SE17K		
RC	3/4	<b>74.61</b>	<b>36.5</b>	<b>8.3</b>	<b>26.6</b>	G1012KRRB	S1012K	T-16795	<b>0.804</b>
RC	<b>20</b>	2 15/16	1 7/16	2 1/64	1 3/64	GE20KRRB	SE20K		1.77
RC	7/8					G1014KRRB	S1014K		
RC	15/16	<b>79.38</b>	<b>38.1</b>	<b>7.9</b>	<b>27.0</b>	G1015KRRB	S1015K	T-16797	<b>0.876</b>
RC	<b>1</b>	3 1/8	1 1/2	5/16	1 1/16	G1100KRRB	S1100K		1.93
RC	<b>25</b>					GE25KRRB	SE25K		
RC	1 1/16					G1101KRRB	S1101K		
RC	1 1/8	<b>88.90</b>	<b>38.1</b>	<b>11.1</b>	<b>30.2</b>	G1102KRRB	S1102K	T-16798	<b>1.171</b>
RC	1 3/16	3 1/2	1 1/2	7/16	1 3/16	G1103KRRB	S1103K		2.58
RC	<b>30</b>					GE30KRRB	SE30K		
RC	1 1/4					G1104KRRB	S1104K		
RC	1 5/16	<b>98.43</b>	<b>39.7</b>	<b>12.7</b>	<b>32.5</b>	G1105KRRB	S1105K	T-16686	<b>1.448</b>
RC	1 3/8	3 7/8	1 9/16	1/2	1 9/32	G1106KRRB	S1106K		3.19
RC	1 7/16					G1107KRRB	S1107K		
RC	<b>35</b>					GE35KRRB	SE35K		
RC	1 1/2	<b>106.36</b>	<b>44.4</b>	<b>12.7</b>	<b>34.9</b>	G1108KRRB	S1108KT	T-16800	<b>1.870</b>
RC	1 9/16	4 3/16	1 3/4	1/2	1 3/8	G1109KRRB	S1109KT		4.12
RC	<b>40</b>					GE40KRRB	SE40K		
RC	1 5/8					G1110KRRB	S1110K		
RC	1 11/16	<b>111.13</b>	<b>44.4</b>	<b>12.7</b>	<b>34.9</b>	G1111KRRB	S1111K	T-16687	<b>1.970</b>
RC	1 3/4	4 3/8	1 3/4	1/2	1 3/8	G1112KRRB	S1112K		4.34
RC	<b>45</b>					GE45KRRB	SE45K		
RC	1 7/8					G1114KRRB	S1114K		
RC	1 15/16	<b>115.89</b>	<b>52.4</b>	<b>11.9</b>	<b>38.1</b>	G1115KRRB	S1115K	T-16802	<b>2.452</b>
RC	<b>50</b>	4 9/16	2 1/16	15/32	1 1/2	GE50KRRB	SE50K		5.40
RC	2					G1200KRRB	S1200K		
RC	2 1/8	<b>125.41</b>	<b>58.7</b>	<b>14.3</b>	<b>43.7</b>	G1202KRRB	S1202K	T-16804	<b>3.164</b>
RC	2 3/16	4 15/16	2 5/16	9/16	1 23/32	G1203KRRB	S1203K		6.97
RC	<b>55</b>					GE55KRRB	SE55K		
RC	2 7/16	<b>149.23</b>	<b>65.1</b>	<b>14.3</b>	<b>46.8</b>	G1207KRRB	S1207K	T-17927	<b>5.130</b>
RC	<b>60</b>	5 7/8	2 9/16	9/16	1 27/32	GE60KRRB	SE60K		11.30

<sup>(1)</sup>All units have 1/4-28 grease fittings.

## MALLEABLE-IRON FLANGED UNITS

### GVFD, GVFDR RELUBRICATABLE SERIES – VFD, VFDR NON-RELUBRICATABLE SERIES

- The malleable-iron flange cartridges provide self-alignment and rigid support for medium-duty applications.
- The mounting bolt holes are interchangeable with pressed-steel flangette units of corresponding size.

**Suggested shaft tolerances:** nominal to -0.013 mm, -0.0005 in.

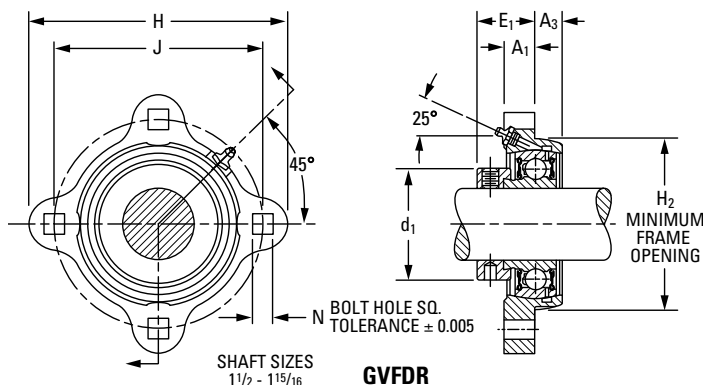
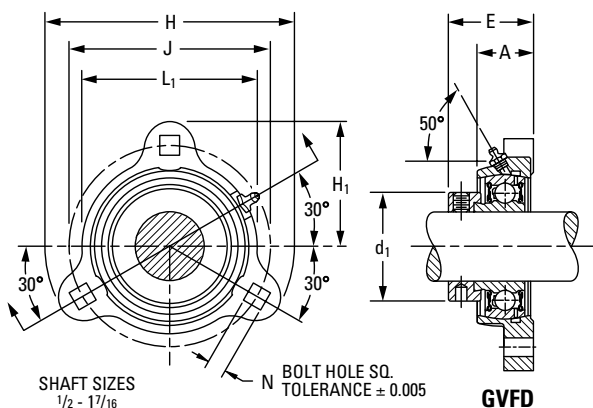
**To order, specify UNIT and SHAFT DIAMETER.**

**For the non-relubricatable series, omit the G prefix on the unit and bearing number.**

Example: VFD 1 3/16 in. or VFDR 1 3/16 in.; GVFD 1 3/16 in. or GVFDR 1 3/16 in.

#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
VFD, VFDR	RA-RRB	Page A-48
GVFD, GVFDR	GRA-RRB	Page A-50



Unit		Shaft Dia.	H <sub>1</sub>	L <sub>1</sub>	H	J	N	H <sub>2</sub>	E	A	E <sub>1</sub>	A <sub>3</sub>	A <sub>1</sub>	d <sub>1</sub>	Bearing No.	Collar No.	Unit Wt.
Face Mounted	Reverse Mounted	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			kg lbs.	
RELUBRICATABLE SERIES <sup>(1)</sup>																	
GVFD <sup>(2)</sup>	GVFDR <sup>(2)</sup>	1/2	40.5	53.2	81.0	63.5	7.1	47.6	31.8	17.5	22.2	7.9	9.5	28.6	GRA008RRB	S1008K	2.63
GVFD <sup>(2)</sup>	GVFDR <sup>(2)</sup>	5/8	1 19/32	2 3/32	3 3/16	2 1/2	9/32	1 7/8	1 1/4	1 1/16	7/8	5/16	3/8	1 1/8	GRA010RRB	S1010K	0.58
GVFD <sup>(2)</sup>	GVFDR <sup>(2)</sup>	17													GRAE17RRB	SE17K	
GVFD <sup>(2)</sup>	GVFDR	3/4	45.2	60.3	90.5	71.4	8.7	54.8	34.1	19.8	23.4	9.1	10.7	33.3	GRA012RRB	S1012K	0.336
GVFD <sup>(2)</sup>	GVFDR	20	1 25/32	2 3/8	3 9/16	2 13/16	1 1/32	2 5/32	1 11/32	2 5/32	5 9/64	2 3/64	2 7/64	1 5/16	GRAE20RRB	SE20K	0.74
GVFD	GVFDR	7/8													GRA014RRB	S1014K	
GVFD	GVFDR	1 5/16	47.6	66.7	95.2	76.2	8.7	60.3	34.1	19.8	23.4	9.1	10.7	38.1	GRA015RRB	S1015K	0.386
GVFD	GVFDR	1	1 7/8	2 5/8	3 3/4	3	1 1/32	2 3/8	1 11/32	2 5/32	5 9/64	2 3/64	2 7/64	1 1/2	GRA100RRB	S1100K	0.85
GVFD	GVFDR	25													GRAE25RRB	SE25K	
GVFD	GVFDR	1 1/8													GRA102RRB	S1102K	
GVFD	GVFDR	1 3/16	56.4	78.6	112.7	90.5	10.3	71.4	38.9	22.2	26.6	10.7	11.9	44.5	GRA103RRB	S1103K	0.608
GVFD	GVFDR	1 1/4 S	2 7/32	3 3/32	4 7/16	3 9/16	1 3/32	2 13/16	1 17/32	7/8	1 3/64	2 7/64	1 5/32	1 3/4	GRA103RRB2	S1103K3	1.34
GVFD	GVFDR	30													GRAE30RRB	SE30K	
GVFD	GVFDR	1 1/4													GRA104RRB	S1104K	
GVFD	GVFDR	1 3/8	61.1	88.9	122.2	100.0	10.3	81.8	42.1	23.8	29.4	11.1	12.7	54.0	GRA106RRB	S1106K	0.821
GVFD	GVFDR	1 7/16	2 13/32	3 1/2	4 13/16	3 15/16	1 3/32	3 7/32	1 21/32	1 5/16	1 5/32	7/16	1/2	2 1/8	GRA107RRB	S1107	1.81
GVFD	GVFDR	35													GRAE35RRB	SE35K	
GVFD	GVFDR	1 1/2	73.8	98.4	147.6	119.1	13.5	89.7	48.4	28.6	32.5	12.7	15.9	60.3	GRA108RRB	S1108KT	1.334
GVFD	GVFDR	40	2 29/32	3 3/8	5 13/16	4 11/16	1 7/32	3 17/32	1 29/32	1 1/8	1 9/32	1/2	5/8	2 3/8	GRAE40RRB	SE40K	2.94
GVFD	GVFDR	1 5/8													GRA110RRB	S1110K	
GVFD	GVFDR	1 11/16	74.6	107.2	149.2	120.6	13.5	96.0	48.4	28.6	32.5	12.7	15.9	63.5	GRA111RRB	S1111K	1.361
GVFD	GVFDR	1 3/4	2 15/16	4 7/32	5 7/8	4 3/4	1 7/32	3 25/32	1 29/32	1 1/8	1 9/32	1/2	5/8	2 1/2	GRA112RRB	S1112K	3.00
GVFD	GVFDR	45													GRAE45RRB	SE45K	
GVFD	GVFDR	1 7/8													GRA114RRB	S1114K	
GVFD	GVFDR	1 15/16	77.8	113.5	155.6	127.0	13.5	100.8	48.4	28.6	32.5	12.7	15.9	69.8	GRA115RRB	S1115K	1.451
GVFD	GVFDR	50	3 1/16	4 15/32	6 1/8	5	1 7/32	3 31/32	1 29/32	1 1/8	1 9/32	1/2	5/8	2 3/4	GRAE50RRB	SE50K	3.20

<sup>(1)</sup>All units have a 1/4-28 grease fitting, except as noted.

<sup>(2)</sup>10-32 grease fitting.

NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • MALLEABLE-IRON FLANGED UNITS • GRFD, GRFDR, RFD, RFDR

## GRFD, GRFDR RELUBRICATABLE SERIES – RFD, RFDR NON-RELUBRICATABLE SERIES

- The malleable-iron flange cartridges provide self-alignment and rigid support for medium-duty applications.

**Suggested shaft tolerances:** nominal to -0.013 mm, -0.0005 in.

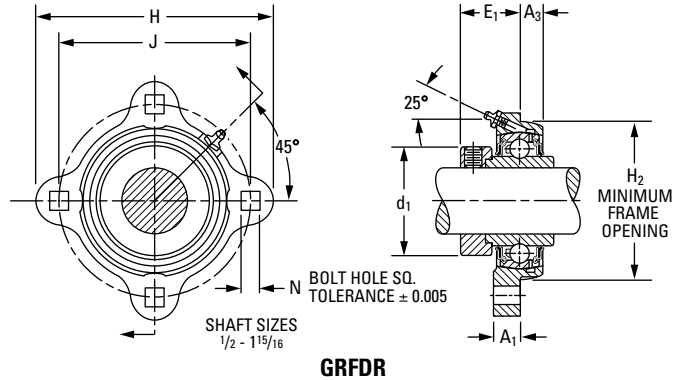
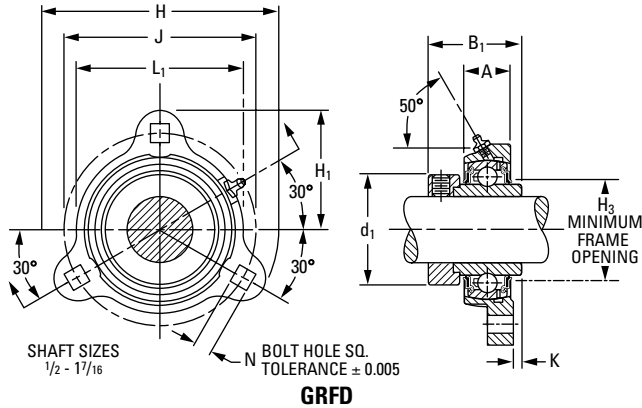
**To order, specify UNIT and SHAFT DIAMETER.**

**For the non-relubricatable series, omit G prefix on unit and bearing number.**

Example: GRFD 1 3/16 in. or GRFDR 1 3/16 in.; RFD 1 3/16 in. or RFDR 1 3/16 in.

### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RFD, RFDR	-KRRB	Page A-32
GRFD, GRFDR	G-KRRB	Page A-34



Unit		Shaft Dia.	H <sub>1</sub>	L <sub>1</sub>	H	J	N	H <sub>2</sub>	B <sub>1</sub>	A	E <sub>1</sub>	A <sub>3</sub>	A <sub>1</sub>	d <sub>1</sub>	H <sub>3</sub>	K	Bearing No.	Collar No.	Unit Wt.	
Face Mounted	Reverse Mounted	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				kg lbs.	
RELUBRICATABLE SERIES <sup>(1)</sup>																				
GRFD <sup>(2)</sup>	GRFDR <sup>(2)</sup>	1/2															G1008KRRB	S1008K		
GRFD <sup>(2)</sup>	GRFDR <sup>(2)</sup>	5/8	40.5	53.2	81.0	63.5	7.1	47.6	37.3	17.5	23.4	7.9	9.5	28.6	29.4	4.4	G1010KRRB	S1010K	0.259	
GRFD <sup>(2)</sup>	GRFDR <sup>(2)</sup>	11/16	1 19/32	2 3/32	3 3/16	2 1/2	9/32	1 7/8	1 15/32	1 1/16	59/64	5/16	3/8	1 1/8	1 1/32	1 1/64	G1011KRRB	S1011K	0.57	
GRFD <sup>(2)</sup>	GRFDR <sup>(2)</sup>	17															GE17KRRB	SE17K		
GRFD <sup>(2)</sup>	GRFDR <sup>(2)</sup>	3/4	45.2	60.3	90.5	71.4	8.7	54.8	43.7	19.8	26.6	9.1	10.7	33.3	34.1	6.4	G1012KRRB	S1012K	0.395	
GRFD <sup>(2)</sup>	GRFDR <sup>(2)</sup>	20	1 25/32	2 3/8	3 9/16	2 13/16	11/32	2 5/32	1 23/32	25/32	1 3/64	23/64	27/64	1 5/16	1 11/32	1/4	GE20KRRB	SE20K	0.87	
GRFD	GRFDR	7/8															G1014KRRB	S1014K		
GRFD	GRFDR	15/16	47.6	66.7	95.2	76.2	8.7	60.3	44.4	19.8	27.0	9.1	10.7	38.1	38.9	6.7	G1015KRRB	S1015K	0.463	
GRFD	GRFDR	1	1 7/8	2 5/8	3 3/4	3	11/32	2 3/8	1 3/4	25/32	1 1/16	23/64	27/64	1 1/2	1 11/32	17/64	G1100KRRB	S1100K	1.02	
GRFD	GRFDR	25															GE25KRRB	SE25K		
GRFD	GRFDR	1 1/16															G1101KRRB	S1101K		
GRFD	GRFDR	1 1/8	56.4	78.6	112.7	90.5	10.3	71.4	48.4	22.2	30.2	10.7	11.9	44.5	46.0	6.4	G1102KRRB	S1102K	6.260	
GRFD	GRFDR	1 3/16	2 1/32	3 3/32	4 7/16	3 9/16	13/32	2 13/16	1 29/32	7/8	1 3/16	27/64	15/32	1 3/4	1 13/16	1/4	G1103KRRB	S1103K	1.38	
GRFD	GRFDR	1 1/4 S															G1103KRRB3	S1103K3		
GRFD	GRFDR	30															GE30KRRB	SE30K		
GRFD	GRFDR	1 1/4															G1104KRRB	S1104K		
GRFD	GRFDR	1 5/16															G1105KRRB	S1105K		
GRFD	GRFDR	1 3/8	61.1	88.9	122.2	100.0	10.3	81.8	51.2	23.8	32.5	11.1	12.7	54.0	2	53.2	6.4	G1106KRRB	S1106K	0.857
GRFD	GRFDR	1 7/16	2 13/32	3 1/2	4 13/16	3 15/16	13/32	3 7/32	2 1/64	15/16	19/32	7/16	1/2	1 1/8	2 3/32	1/4	G1107KRRB	S1107K	1.89	
GRFD	GRFDR	35															GE35KRRB	SE35K		
GRFD	GRFDR	1 1/2															G1108KRRB	S1108KT		
GRFD	GRFDR	19/16	73.8	98.4	147.6	119.1	13.5	89.7	56.4	28.6	34.9	12.7	15.9	60.3	59.5	5.6	G1109KRRB	S1109KT	1.138	
GRFD	GRFDR	40	2 29/32	3 7/8	5 13/16	4 11/16	17/32	3 17/32	2 7/32	1 1/8	1 3/8	1/2	5/8	2 3/8	2 11/32	7/32	GE40KRRB	SE40K	2.50	
GRFD	GRFDR	1 5/8															G1110KRRB	S1110K		
GRFD	GRFDR	1 11/16	74.6	107.2	149.2	120.6	13.5	96.0	56.4	28.6	34.9	12.7	15.9	63.5	65.1	5.6	G1111KRRB	S1111K	1.488	
GRFD	GRFDR	1 3/4	2 15/16	4 7/32	5 7/8	4 3/4	17/32	3 25/32	2 7/32	1 1/8	1 3/8	1/2	5/8	2 1/2	2 9/16	7/32	G1112KRRB	S1112K	3.28	
GRFD	GRFDR	45															GE45KRRB	SE45K		
GRFD	GRFDR	1 7/8															G1114KRRB	S1114K		
GRFD	GRFDR	1 15/16	77.8	113.5	155.6	127.0	13.5	100.8	62.7	28.6	38.1	12.7	15.9	69.8	2	69.8	8.7	G1115KRRB	S1115K	1.692
GRFD	GRFDR	50	3 1/16	4 15/32	6 1/8	5	17/32	3 31/32	2 15/32	1 1/8	1 1/2	1/2	5/8	3/4	2 3/4	11/32	GE50KRRB	SE50K	3.73	

<sup>(1)</sup>All units have a 1/4-28 grease fitting, except as noted.

<sup>(2)</sup>10-32 grease fitting.

NOTE: Shaft diameter with an S = smaller housing.



**GVFTD, GVFTDR RELUBRICATABLE SERIES –  
VFTD, VFTDR NON-RELUBRICATABLE SERIES**

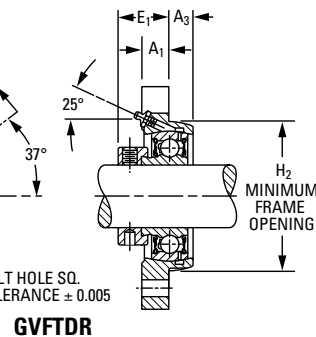
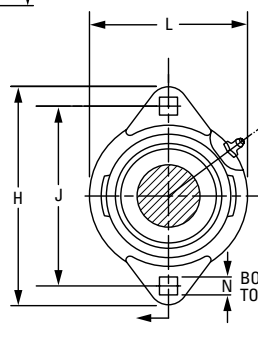
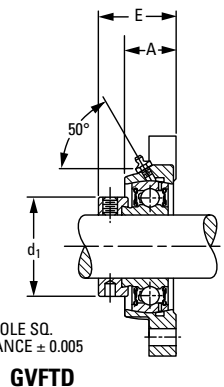
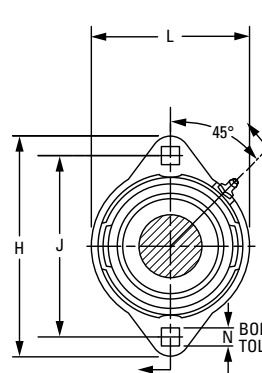
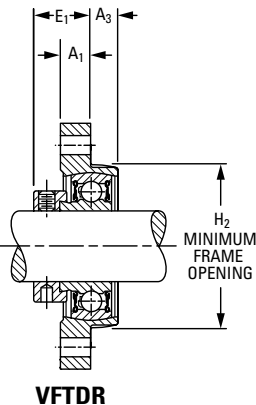
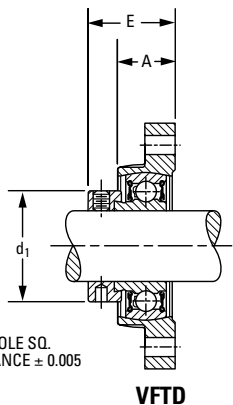
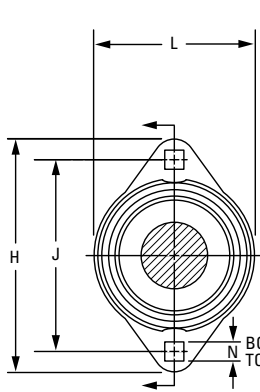
- The malleable-iron flange cartridges provide self-alignment and rigid support for medium-duty applications.

**Suggested shaft tolerances:** nominal to -0.013 mm, -0.0005 in.

**To order, specify UNIT and SHAFT DIAMETER.**

**For the non-relubricatable series, omit G prefix on unit and bearing number.**

Example: VFTD 1 3/16 in. or VFTDR 1 3/16 in.; GVFTD 1 3/16 in. or GVFTDR 1 3/16 in.



**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
VFTD, VFTDR	RA-RRB	Page A-48
GVFTD, GVFTDR	GRA-RRB	Page A-50

Unit		Shaft Dia.	H	J	L	N	H <sub>2</sub>	E	A	E <sub>1</sub>	A <sub>3</sub>	A <sub>1</sub>	d <sub>1</sub>	Bearing No.	Collar No.	Unit Wt.
Face Mounted	Reverse Mounted	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			kg lbs.
<b>RELUBRICATABLE SERIES<sup>(1)</sup></b>																
GVFTD	GVFTDR	1/2	81.0	63.5	53.2	7.1	47.6	31.8	17.5	22.2	7.9	9.5	28.6	GRA008RRB	S1008K	0.245
GVFTD	GVFTDR	5/8	3 3/16	2 1/2	2 3/32	9/32	1 7/8	1 1/4	1 1/16	7/8	5/16	3/8	1 1/8	GRA010RRB	S1010K	0.54
GVFTD	GVFTDR	<b>17</b>												GRAE17RRB	SE17K	
GVFTD	GVFTDR	3/4	90.5	71.4	60.3	8.7	54.8	34.1	19.8	23.4	9.1	10.7	33.3	GRA012RRB	S1012K	0.331
GVFTD	GVFTDR	<b>20</b>	3 9/16	2 13/16	2 3/8	1 1/32	2 5/32	1 11/32	2 5/32	5 9/64	2 3/64	2 7/64	1 5/16	GRAE20RRB	SE20K	0.73
GVFTD	GVFTDR	7/8												GRA014RRB	S1014K	
GVFTD	GVFTDR	15/16	95.2	76.2	66.7	8.7	60.3	34.1	19.8	23.4	9.1	10.7	38.1	GRA015RRB	S1015K	0.363
GVFTD	GVFTDR	1	3 3/4	3	2 5/8	1 1/32	2 3/8	1 11/32	2 5/32	5 9/64	2 3/64	2 7/64	1 1/2	GRA100RRB	S1100K	0.80
GVFTD	GVFTDR	<b>25</b>												GRAE25RRB	SE25K	
GVFTD	GVFTDR	1 1/8												GRA102RRB	S1102K	
GVFTD	GVFTDR	1 3/16	112.7	90.5	78.6	10.3	71.4	38.9	22.2	26.6	10.7	11.9	44.5	GRA103RRB	S1103K	0.608
GVFTD	GVFTDR	1 1/4 S	4 7/16	3 9/16	3 3/32	1 3/32	2 13/16	1 17/32	7/8	1 3/64	2 7/64	1 5/32	1 3/4	GRA103RRB2	S1103K3	1.34
GVFTD	GVFTDR	<b>30</b>												GRAE30RRB	SE30K	
GVFTD	GVFTDR	1 1/4												GRA104RRB	S1104K	
GVFTD	GVFTDR	1 3/8	122.2	100.0	88.9	10.3	81.8	42.1	23.8	29.4	11.1	12.7	54.0	GRA106RRB	S1106K	0.862
GVFTD	GVFTDR	1 7/16	4 13/16	3 15/16	3 1/2	1 3/32	3 7/32	1 21/32	1 5/16	1 5/32	7/16	1/2	2 1/8	GRA107RRB	S1107K	1.90
GVFTD	GVFTDR	<b>35</b>												GRAE35RRB	SE35K	

<sup>(1)</sup>All units have a 1/4-28 grease fitting.  
NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • MALLEABLE-IRON FLANGED UNITS • GRFTD, GRFTDR, RFTD, RFTDR

## GRFTD, GRFTDR RELUBRICATABLE SERIES – RFTD, RFTDR NON-RELUBRICATABLE SERIES

- The malleable-iron flange cartridges provide self-alignment and rigid support for medium-duty applications.

**Suggested shaft tolerances:** nominal to -0.013 mm, -0.0005 in.

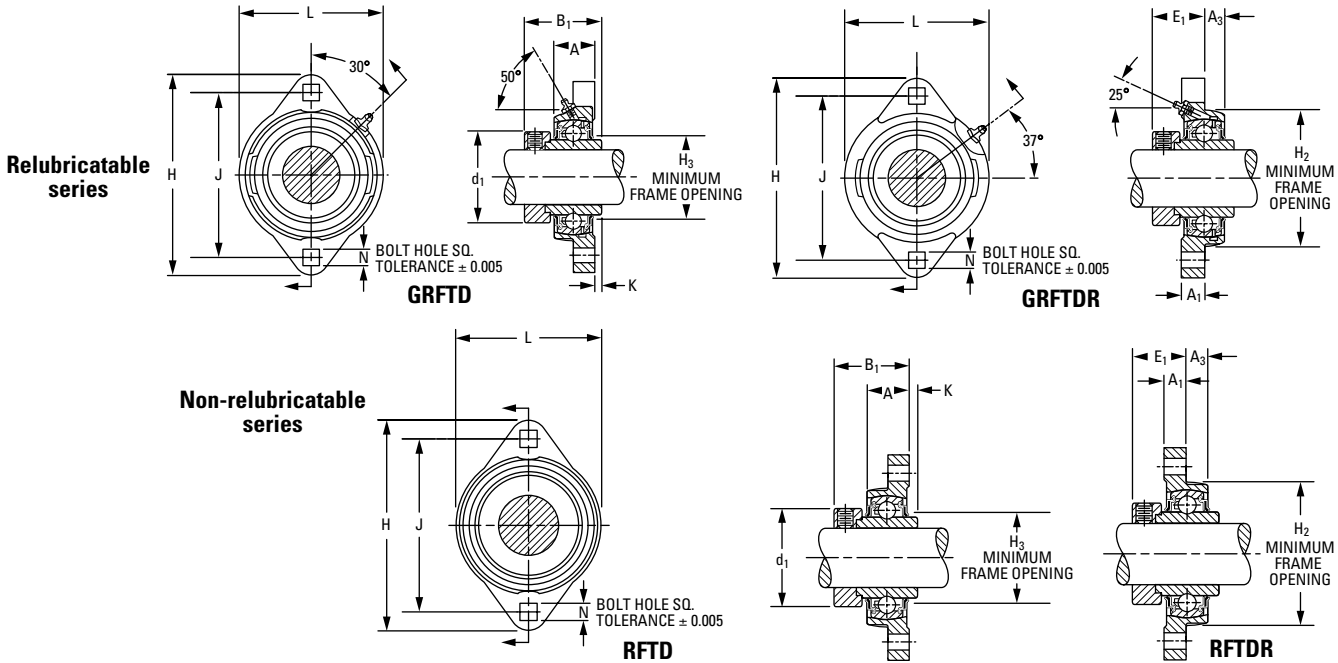
**To order, specify UNIT and SHAFT DIAMETER.**

**For the non-relubricatable series, omit G prefix on unit and bearing number.**

Example: RFTD 1 3/16 in. or RFTDR 1 3/16 in.; GRFTD 1 3/16 in. or GRFTDR 1 3/16 in.

### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RFTD, RFTDR	-KRRB	Page A-32
GRFTD, GRFTDR	G-KRRB	Page A-34



Unit		Shaft Dia.	H	J	L	N	H <sub>2</sub>	B <sub>1</sub>	A	E <sub>1</sub>	A <sub>3</sub>	A <sub>1</sub>	d <sub>1</sub>	H <sub>3</sub>	K	Bearing No.	Collar No.	Unit Wt.
Face Mounted	Reverse Mounted	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			kg lbs.
RELUBRICATABLE SERIES <sup>(1)</sup>																		
GRFTD	GRFTDR	1/2														G1008KRRB	S1008K	
GRFTD	GRFTDR	5/8	81.0	63.5	53.2	7.1	47.6	37.3	15.9	23.4	7.9	9.5	28.6	29.4	4.4	G1010KRRB	S1010K	0.254
GRFTD	GRFTDR	1 1/16	3 3/16	2 1/2	2 3/32	9/32	1 7/8	1 15/32	5/8	59/64	5/16	3/8	1 1/8	1 1/32	1 1/64	G1011KRRB	S1011K	0.56
GRFTD	GRFTDR	17														GE17KRRB	SE17K	
GRFTD	GRFTDR	3/4	90.5	71.4	60.3	8.7	54.8	43.7	19.8	26.6	9.1	10.7	33.3	34.1	6.4	G1012KRRB	S1012K	0.386
GRFTD	GRFTDR	20	3 9/16	2 13/16	2 3/8	1 1/32	2 5/32	1 23/32	25/32	1 3/64	23/64	27/64	1 5/16	1 11/32	1/4	GE20KRRB	SE20K	0.85
GRFTD	GRFTDR	7/8														G1014KRRB	S1014K	
GRFTD	GRFTDR	1 5/16	95.2	76.2	66.7	8.7	60.3	44.4	19.8	27.0	9.1	10.7	38.1	38.9	6.7	G1015KRRB	S1015K	0.386
GRFTD	GRFTDR	1	3 3/4	3	2 5/8	1 1/32	2 3/8	1 3/4	25/32	1 1/16	23/64	27/64	1 1/2	1 17/32	17/64	G1100KRRB	S1100K	0.85
GRFTD	GRFTDR	25														GE25KRRB	SE25K	
GRFTD	GRFTDR	1 1/16														G1101KRRB	S1101K	
GRFTD	GRFTDR	1 1/8	112.7	90.5	78.6	10.3	71.4	48.4	22.2	30.2	10.7	11.9	44.5	46.0	6.4	G1102KRRB	S1102K	0.712
GRFTD	GRFTDR	1 3/16	4 7/16	3 9/16	3 3/32	13/32	2 13/16	1 29/32	7/8	1 3/16	27/64	15/32	1 3/4	1 13/16	1/4	G1103KRRB	S1103K	1.57
GRFTD	GRFTDR	1 1/4 S														G1103KRRB3	S1103K3	
GRFTD	GRFTDR	30														GE30KRRB	SE30K	
GRFTD	GRFTDR	1 1/4														G1104KRRB	S1104K	
GRFTD	GRFTDR	1 5/16	122.2	100.0	88.9	10.3	81.8	51.2	23.8	32.5	11.1	12.7	54.0	53.2	6.4	G1105KRRB	S1105K	0.962
GRFTD	GRFTDR	1 3/8	4 13/16	3 15/16	3 1/2	13/32	3 7/32	2 1/64	15/16	1 9/32	7/16	1/2	2 1/8	2 3/32	1/4	G1106KRRB	S1106K	2.12
GRFTD	GRFTDR	1 7/16														G1107KRRB	S1107K	
GRFTD	GRFTDR	35														GE35KRRB	SE35K	

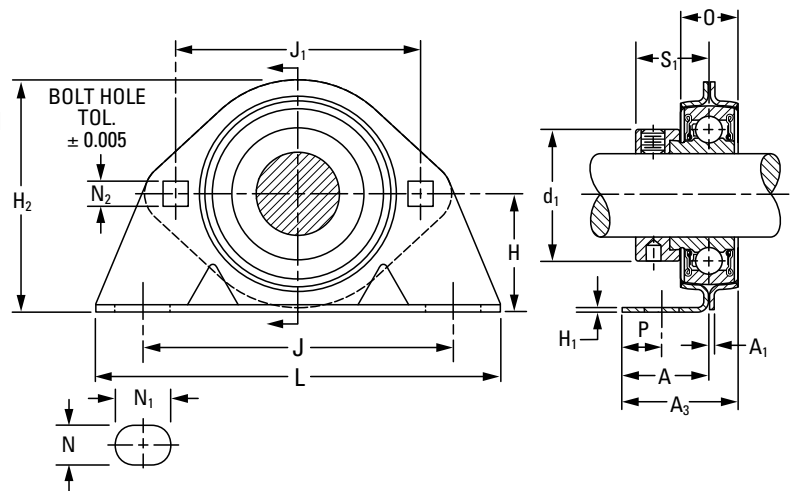
<sup>(1)</sup>All units have a 1/4-28 grease fitting.

NOTE: Shaft diameter with an S = smaller housing.

**PRESSED-STEEL HOUSED UNITS**

**PBS SERIES**

- The PBS series has an economical transmission unit for light-duty, moderate-speed requirements.
- The housing includes two heavy-gage, zinc-plated steel stampings. One is a standard stamping used in the MST two-bolt flangette unit.
- The RA-RRB (extended inner-ring) bearings are regularly furnished with this bearing. RR wide inner rings also can be used.
- The Timken self-locking collar completes the assembly.
- This series is made with a precision bearing seat and dimensions are held to close tolerances. This provides an accurate bearing-to-housing fit and ensures proper alignment of parts.
- The RA-RRB bearing used in the PBS pillow block has positive-contact land-riding seals. It includes a shroud cap design and is permanently prelubricated.
- The base-to-center height and bolt spacing are interchangeable with many other pillow blocks on the market.



**Suggested shaft tolerances:** nominal to -0.013 mm, -0.0005 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: PBS 1 7/16 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
PBS	RA-RRB	Page A-48

Unit	Shaft Dia.	Dimensions																Bearing No.	Flangette No.	Stamping Radial Load Rating <sup>(1)</sup>	Unit Wt.
		H	J	N <sub>1</sub>	L	H <sub>2</sub>	J <sub>1</sub>	d <sub>1</sub>	S <sub>1</sub>	O	A	H <sub>1</sub>	A <sub>1</sub>	A <sub>3</sub>	N <sub>2</sub>	P	N				
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.
PBS	1/2	30.2	92.1	15.9	123.8	59.5	63.5	28.6	22.2	14.3	25.4	2.64	1.90	32.5	7.1	10.3	10.3	RA008RRB	40 MST-(ZP)	2650 600	0.340 0.75
PBS	5/8	1 3/16	3 5/8	5/8	4 7/8	2 11/32	2 1/2	1 1/8	7/8	9/16	1	0.104	0.075	1 1/2	1 1/2	1 3/32	1 3/32	RA010RRB			
PBS	17																	RAE17RRB			
PBS	3/4	33.3	96.8	15.9	127.0	68.3	71.4	33.3	23.4	15.9	25.4	3.02	2.11	33.3	8.7	10.3	10.3	RA012RRB	47 MST-(ZP)	3100 700	0.440 0.97
PBS	20	1 5/16	3 13/16	5/8	5	2 11/16	2 13/16	1 5/16	59/64	5/8	1	0.119	0.083	1 5/16	1 1/2	1 3/32	1 3/32	RAE20RRB			
PBS	7/8	36.5	95.2	20.6	133.4	72.2	76.2	38.1	23.4	17.5	25.4	3.40	2.11	34.1	8.7	11.1	11.1	RA014RRB	52 MST-(ZP)	3550 800	0.544 1.20
PBS	15/16	1 1/16	3 3/4	13/16	5 1/4	2 27/32	3	1 1/2	59/64	1 1/16	1	0.134	0.083	1 11/32	1 1/2	7/16	7/16	RA015RRB			
PBS	1																	RA100RRB			
PBS	25																	RAE25RRB			
PBS	1 1/8	42.9	119.1	22.2	158.8	84.9	90.5	44.4	26.6	17.5	30.2	3.40	2.64	37.3	10.3	14.3	14.3	RA102RRB	62 MST-(ZP)	3550 800	0.744 1.64
PBS	1 3/16	1 11/16	4 11/16	7/8	6 1/4	3 11/32	3 9/16	1 3/4	1 3/64	1 1/16	1 3/16	0.134	0.104	1 15/32	1 3/32	9/16	9/16	RA103RRB			
PBS	1 1/4 S																	RA103RRB2			
PBS	30																	RAE30RRB			
PBS	1 1/4	47.6	127.0	22.2	165.1	94.5	100.0	54.0	29.4	22.2	34.9	3.78	2.64	46.0	10.3	14.3	14.3	RA104RRB	72 MST-(ZP)	4000 900	1.089 2.40
PBS	1 3/8	1 7/8	5	7/8	6 1/2	3 23/32	3 15/16	2 1/8	1 5/32	7/8	1 3/8	0.149	0.104	1 13/16	1 3/32	9/16	9/16	RA106RRB			
PBS	1 7/16																	RA107RRB			
PBS	35																	RAE35RRB			

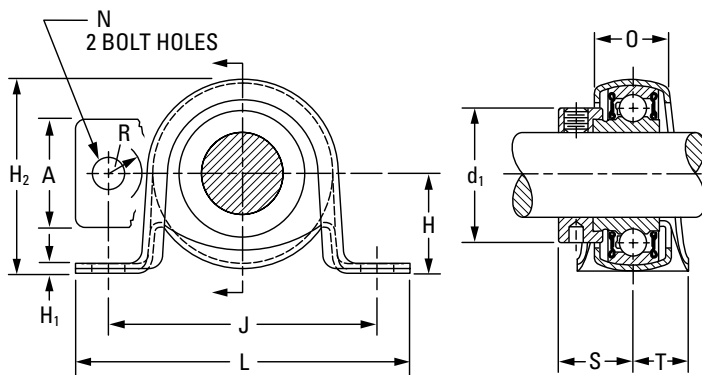
<sup>(1)</sup>Stamping thrust rating is 1/5 of stamping radial load rating.  
NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • PRESSED-STEEL HOUSED UNITS • PB, RPB

## PB SERIES – RPB SERIES

- The PB series provides the advantages of ball bearings at an economical price.
- They are used for light-duty applications.
- The PB series consists of a two-piece separable zinc-plated steel housing with a spherical bearing seat. This allows the spherically ground bearing to have initial self-alignment in all directions.
- The ball bearing is an RA-RRB extended inner-ring-type with positive-contact, land-riding seals and a self-locking collar.
- The series incorporates an improved shroud-cap design and comes permanently prelubricated.
- RPB has the same construction as the PB-type, but with a thick, electrically conductive rubber inner liner.
- The bearings in the RPB unit are designated as RA-RRB FS450 and have a special ball and race finish for quiet operation.
- The RABR unit consists of the bearing with the rubber interliner.



PB Series

### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
PB	RA-RRB	Page A-48
RPB	RA-RRB	Page A-48

**Suggested shaft tolerances:** nominal to -0.013 mm, -0.0005 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: PB 1 3/16 in. or RPB 1 3/16 in.

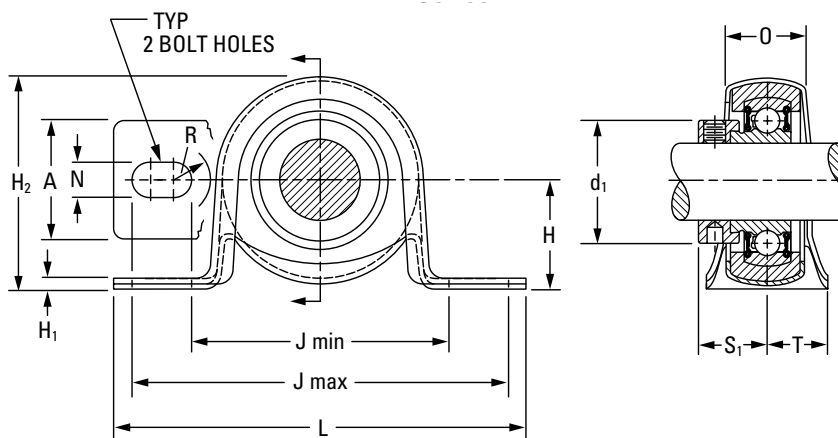
Unit	Shaft Dia.	H	H <sub>2</sub>	J	J	L	A	H <sub>1</sub>	N	R	d <sub>1</sub>	O	S <sub>1</sub>	T	Bearing No.	Collar No.	Stamping Radial Load Rating <sup>(1)</sup>	Unit Wt.
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				
PB	1/2	22.2	44.4	81.0	55.6	92.1	25.4	2.54	8.7	8.7	28.6	18.24	22.07	12.7	RA008RRB	S1008K		
PB	5/8	7/8	1 3/4	3 3/16	2 3/16	3 5/8	1	0.100	1 1/32	1 1/32	1 1/8	0.718	0.869	1/2	RA010RRB	S1010K	1340	0.200
PB	17														RAE17RRB	SE17K	300	0.44
PB	3/4	25.4	52.4	88.9	63.5	104.8	25.4	2.54	10.3	10.3	33.3	21.82	23.44	15.9	RA012RRB	S1012K	1560	0.259
PB	20	1	2 1/16	3 1/2	2 1/2	4 1/8	1	0.100	1 3/32	1 3/32	1 5/16	0.859	0.923	5/8	RAE20RRB	SE20K	350	0.57
PB	7/8														RA014RRB	S1014K		
PB	15/16	28.6	56.4	100.0	71.4	114.0	28.6	5.28	10.3	10.3	38.1	25.40	23.44	14.3	RA015RRB	S1015K	1760	0.295
PB	1	1 1/8	2 7/32	3 15/16	2 13/16	4 1/2	1 1/8	0.208	1 3/32	1 3/32	1 1/2	1.000	0.923	9/16	RA100RRB	S1100K	400	0.65
PB	25														RAE25RRB	SE25K		
PB	1 1/8														RA102RRB	S1102K		
PB	1 3/16	33.3	66.7	104.8	76.2	123.8	31.8	3.68	10.3	10.3	44.5	25.40	26.72	19.0	RA103RRB	S1103K	2650	0.476
PB	1 1/4 S	1 5/16	2 5/8	4 1/8	3	4 7/8	1 1/4	0.145	1 3/32	1 3/32	1 3/4	1.000	1.052	3/4	RA103RRB2	S1103K3	600	1.05
PB	30														RAE30RRB	SE30K		

<sup>(1)</sup>Housing thrust rating is 1/3 of housing radial load rating. Maximum suggested speed is 2400 RPM.

NOTE: Shaft diameter with an S = smaller housing.

NOTE: Load ratings are upright mounted capacities with load direction toward base.

NOTE: These units should not be mounted vertically or upside down.



**RPB Series**

Unit	Shaft Dia.														Bearing No. <sup>(1)</sup>	Collar No.	Stamping Radial Load Rating <sup>(2)</sup>	Unit Wt.
		H	H <sub>2</sub>	J max.	J min.	L	A	H <sub>1</sub>	N	R	d <sub>1</sub>	O	S <sub>1</sub>	T				
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.
RPB	1/2																	
RPB	5/8	25.40	52.4	88.9	63.5	104.8	25.4	2.54	10.3	10.3	28.6	21.59	22.07	15.9	RA008RRB	S1008K	880	0.200
RPB	17	1	2 1/16	3 1/2	2 1/2	4 1/8	1	0.100	13/32	13/32	1 1/8	0.85	0.869	5/8	RA010RRB	S1010K	200	0.44
RPB															RAE17RRB	SE17K		
RPB	3/4	28.58	56.4	100.0	71.4	114.0	28.6	5.28	10.3	10.3	33.3	25.40	23.44	14.3	RA012RRB	S1012K	1120	0.259
RPB	20	1 1/8	2 7/32	3 5/16	2 13/16	4 1/2	1 1/8	0.208	13/32	13/32	1 5/16	1.00	0.923	9/16	RAE20RRB	SE20K	250	0.57
RPB	7/8														RA014RRB	S1014K		
RPB	15/16	33.34	66.7	104.8	76.2	123.8	31.8	3.68	10.3	10.3	38.1	25.40	23.44	19.0	RA015RRB	S1015K	1340	0.295
RPB	1	1 5/16	2 5/8	4 1/8	3	4 7/8	1 1/4	0.145	13/32	13/32	1 1/2	1.00	0.923	3/4	RA100RRB	S1100K	300	0.65
RPB	25														RAE25RRB	SE25K		
LRPB	1 3/16	33.34	66.7	104.8	76.2	123.8	31.8	3.68	10.3	10.3	44.4	25.40	28.30	19.0	RAL103NPPB	LS103K	1340	0.476
		1 5/16	2 5/8	4 1/8	3	4 7/8	1 1/4	0.145	13/32	13/32	1 3/4	1.00	1.114	3/4			300	1.05

<sup>(1)</sup>Bearing suffix number FS450.

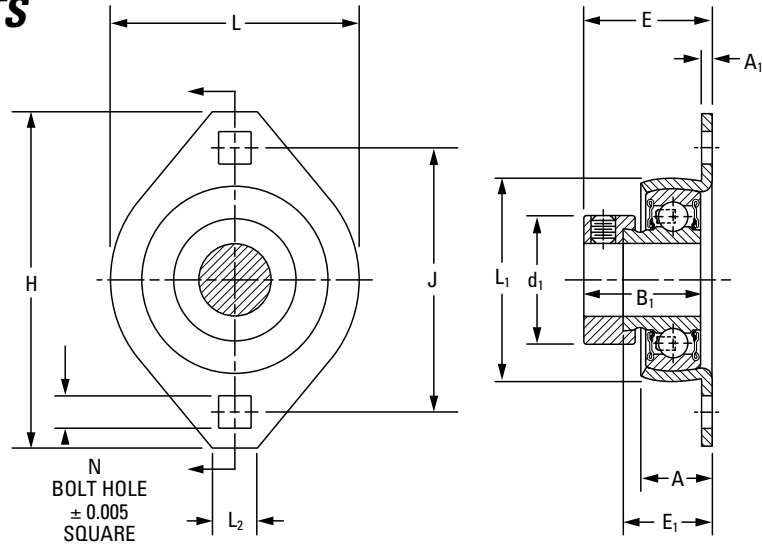
<sup>(2)</sup>Housing thrust rating is 1/3 of housing radial load rating. Maximum suggested speed is 2400 RPM.

### PRESSED-STEEL FLANGED UNITS VFMST SERIES

- The zinc-plated, pressed-metal flange unit is assembled with an RA-RR prelubricated extended inner-ring-type bearing.
- The unit is ideal for light-duty applications.
- The unit features flush-mounting.
- The unit has additional contamination protection.
- The VFMST series is self-aligning.

#### Suggested shaft tolerances:

nominal to -0.013 mm, -0.0005 in.



#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
VFMST	RA-RRB	Page A-48

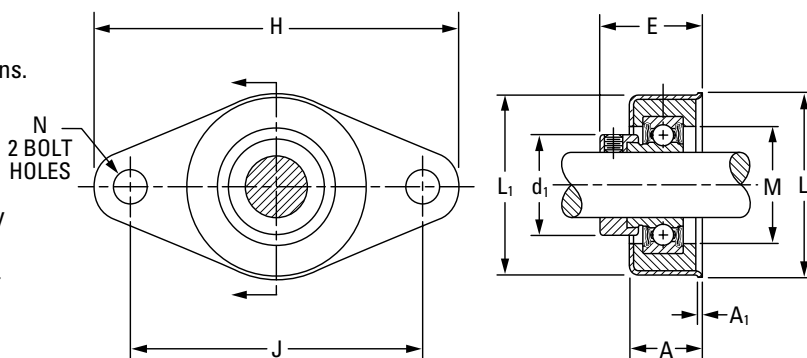
Unit	Shaft Dia.												Bearing No.	Collar No.	Stamping		
		H	J	L	E	A	N	L <sub>1</sub>	E <sub>1</sub>	L <sub>2</sub>	B <sub>1</sub>	d <sub>1</sub>			A <sub>1</sub>	Size	Radial Load Rating <sup>(1)</sup>
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	
VFMST	3/4	90.5	71.4	66.7	33.3	16.7	8.7	50.8	23.0	12.7	31.0	33.3	2.64	RA012RRB	S1012K	47FMST	2240 500
VFMST	20	3 9/16	2 13/16	2 5/8	1 5/16	2 1/32	1 1/32	2	29/32	1/2	1 7/32	1 5/16	0.104	RAE20RRB	SE20K		
VFMST	7/8	95.2	76.2	71.0	33.3	18.3	8.7	55.6	23.8	12.7	31.0	38.1	2.64	RA014RRB	S1014K	52FMST	2650 600
VFMST	15/16													RA015RRB	S1015K		
VFMST	1													RA100RRB	S1100K		
VFMST	25													RAE25RRB	SE25K		
VFMST	1 1/8	112.7	90.5	84.1	38.9	23.0	10.3	66.7	27.8	15.9	35.7	44.4	3.40	RA102RRB	S1102K	62FMST	3550 800
VFMST	1 3/16													RA103RRB	S1103K		
VFMST	1 1/4 S													RA103RRB2	S1103K3		
VFMST	30													RAE30RRB	SE30K		

<sup>(1)</sup>Housing thrust rating is 1/3 of housing radial load rating.

NOTE: Shaft diameter with an S = smaller housing.

**LFST SERIES**

- This unit is zinc-plated, pressed-steel and flush-mounted.
- This unit simplifies bearing flange-unit installations.
- The conductive rubber interliner reduces noise and vibration. This allows for alignment while the pressed-steel flange assures rigid bearing support.
- The bolt-hole spacing permits interchangeability with competitive mountings.
- The unit offers compact, economical, corrosion-resistant housing and balanced design.
- The unit features Timken RAL light-series ball bearings. The RAL provides precision in an extended inner-ring bearing with superior shroud seal protection and self-locking collar.
- The bearings are prelubricated.



**Suggested shaft tolerances:**

nominal to -0.013 mm, -0.0005 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: LFST 1 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
LFST	RAL-NPP	Page A-55

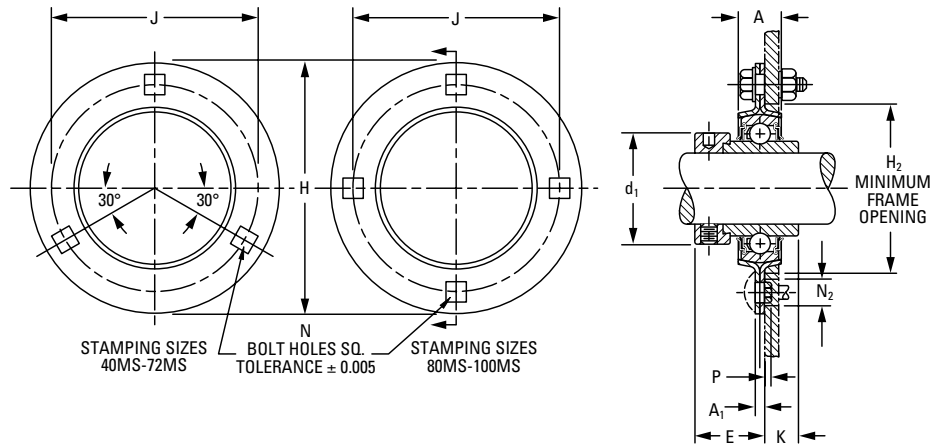
Unit	Shaft Dia. in.	H	J	L	L <sub>1</sub>	E	N	A	A <sub>1</sub>	d <sub>1</sub>	M	Bearing No.	Collar No.	Housing Radial Load Rating <sup>(1)</sup> N lbs.
		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			
LFST	1/2	114.3 4 1/2	92.1 3 5/8	57.2 2 1/4	55.6 2 3/16	31 1 7/32	9.5 3/8	23 29/32	1.52 0.06	25.4 1	29.4 1 5/32	RAL008NPP	LS008K	880 200
LFST	5/8											RAL010NPP	LS010K	
LFST	3/4	114.3 4 1/2	92.1 3 5/8	57.2 2 1/4	55.6 2 3/16	31 1 7/32	9.5 3/8	23 29/32	1.52 0.06	29.8 1 11/64	34.9 1 3/8	RAL012NPP	LS012K	1120 250
LFST	15/16	114.3 4 1/2	92.1 3 5/8	57.2 2 1/4	55.6 2 3/16	31 1 7/32	9.5 3/8	23 29/32	1.52 0.06	36.1 1 27/64	39.7 1 9/16	RAL015NPP	LS015K	1340 300
LFST	1											RAL100NPP	LS100K	

<sup>(1)</sup>Housing thrust rating is 1/3 of housing radial load rating. Maximum suggested speed is 2400 RPM.

### PRESSED-STEEL FLANGETTE UNITS

#### RR FLANGETTE UNIT

- The unit consists of two interchangeable, pressed-steel, zinc-plated flanges housing a standard bearing with a self-locking collar.
- The spherical inside surfaces of each pair of flanges mate with the spherical outside surface of the bearing's outer ring. This provides initial self-alignment.
- The flangette is equipped with the KRRB (R-seal) wide-inner-ring ball bearing.
- All units are non-relubricatable.



#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 15/16 in., nominal to -0.025 mm, -0.0010 in.

#### BEARING DATA

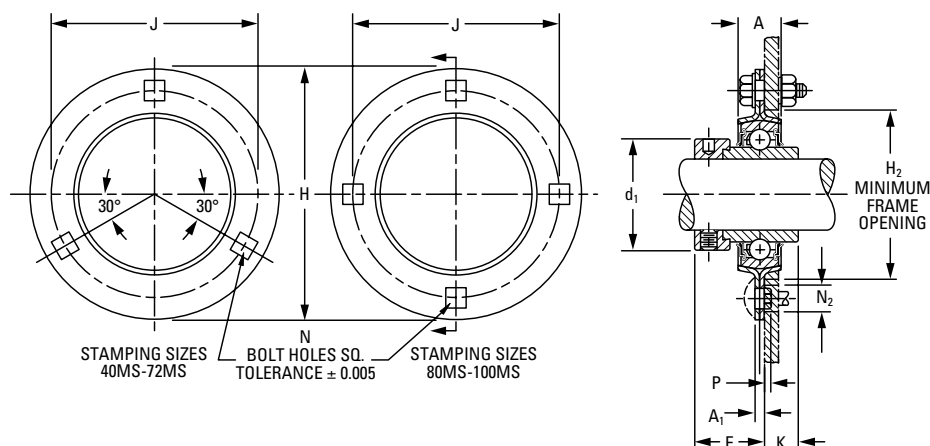
Unit	Bearing No.	Dimensions and Load Ratings
RR	KRRB	Page A-32

Unit	Shaft Dia.	Dimensions										Bolt Size	Short Shank		Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.	Collar No.	Stamping <sup>(1)</sup>		Unit Wt.
		H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	K	d <sub>1</sub>	P		N <sub>2</sub>	Size					Radial Load Rating <sup>(2)</sup>		
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.	
RR	1/2																				
RR	5/8	81.0	14.2	63.5	7.1	49.2	3.80	25.4	11.9	28.6	6.4	0.15	2.54	10.3	1008KRRB	S1008K	40MS	2650 600	0.295 0.65		
RR	17	3 3/16	9/16	2 1/2	9/32	1 15/16	0.150	1	15/32	1 1/8	1/4	0.006	0.100	13/32	1010KRRB	S1010K					
RR															E17KRRB	SE17K					
RR	3/4	90.5	15.8	71.4	8.7	55.6	4.22	28.6	15.1	33.3	7.9	0.53	2.92	12.7	1012KRRB	S1012K	47MS	3100 700	0.404 0.89		
RR	20	3 9/16	5/8	2 13/16	11/32	2 3/16	0.166	1 1/8	19/32	1 5/16	5/16	0.021	0.115	1/2	E20KRRB	SE20K					
RR	7/8														1014KRRB	S1014K	52MS	3550 800	0.490 1.08		
RR	15/16	95.2	17.4	76.2	8.7	60.3	4.22	28.6	15.1	38.1	7.9	0.53	2.92	12.7	1015KRRB	S1015K					
RR	1	3 3/4	11/16	3	11/32	2 3/8	0.166	1 1/8	19/32	1 1/2	5/16	0.021	0.115	1/2	1100KRRB	S1100K					
RR	25														E25KRRB	SE25K					
RR	1 1/8														1102KRRB	S1102K	62MS	4900 1100	0.753 1.66		
RR	1 3/16	112.7	17.4	90.5	10.3	71.4	5.28	32.5	15.9	44.5	9.5	0.28	2.64	15.1	1103KRRB	S1103K					
RR	1 1/4 S	4 7/16	11/16	3 9/16	13/32	2 13/16	0.208	1 9/32	5/8	1 3/4	3/8	0.011	0.104	19/32	1103KRRB3	S1103K3					
RR	30														E30KRRB	SE30K					
RR	1 1/4														1104KRRB	S1104K	72MS	6220 1400	0.962 2.12		
RR	1 5/16	122.2	19.0	100.0	10.3	81.0	5.28	34.9	15.9	54.0	9.5	0.28	2.64	15.1	1105KRRB	S1105K					
RR	1 3/8	4 13/16	3/4	3 15/16	13/32	3 3/16	0.208	1 3/8	5/8	2 1/8	3/8	0.011	0.104	19/32	1106KRRB	S1106K					
RR	1 7/16														1107KRRB	S1107K					
RR	35														E35KRRB	SE35K					

<sup>(1)</sup>Stampings must be ordered in pairs to assemble bearing.  
<sup>(2)</sup>Thrust ratings for stamping are 50 percent of radial ratings.  
 NOTE: Shaft diameter with an S = smaller housing.

Continued on next page.





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Unit	Shaft Dia.										Bolt Size	Short Shank	Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.	Collar No.	Stamping <sup>(1)</sup>		Unit Wt.		
		H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	K	d <sub>1</sub>		P					N <sub>2</sub>	Size		Radial Load Rating <sup>(2)</sup>	
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.			
RR	1 1/2																				
RR	1 9/16	147.6	20.6	119.1	13.5	90.5	6.80	38.1	18.3	60.3	12.7	0.33	2.72	19.4	1108KRRB	S1108KT	80MS	7500 1700	1.143 2.52		
RR	40	5 13/16	13/16	4 11/16	17/32	3 9/16	0.268	1 1/2	23/32	2 3/8	1/2	0.013	0.107	49/64	E40KRRB	SE40K					
RR	1 5/8																				
RR	1 11/16	149.2	22.2	120.6	13.5	96.8	6.80	38.1	18.3	63.5	12.7	0.33	2.72	19.4	1110KRRB	S1110K	85MS	7500 1700	1.651 3.64		
RR	45	5 7/8	7/8	4 3/4	17/32	13/16	0.268	1 1/2	23/32	2 1/2	1/2	0.013	0.107	49/64	E45KRRB	SE45K					
RR	1 7/8																				
RR	1 15/16	155.6	22.2	127.0	13.5	101.6	7.56	42.1	20.6	69.8	12.7	0	1.96	19.4	1114KRRB	S1114K	90MS	8500 1900	1.878 4.14		
RR	50	6 1/8	7/8	5	17/32	4	0.298	1 21/32	13/16	2 3/4	1/2	0	0.077	49/64	E50KRRB	SE50K					
RR	2																				
RR	2 1/8	166.7	23.8	138.1	13.5	112.7	7.56	47.6	23.8	76.2	12.7	0	1.96	19.4	1200KRRB	S1200K	100MS	10200 2300	2.268 5.00		
RR	2 3/16	6 9/16	15/16	5 7/16	17/32	4 7/16	0.298	1 7/8	15/16	3	1/2	0	0.077	49/64	E55KRRB	SE55K					
RR	2 1/2																				
RR	55																				

<sup>(1)</sup>Thrust ratings for stamping are 50 percent of radial ratings.

<sup>(2)</sup>Stampings must be ordered in pairs to assemble bearing.

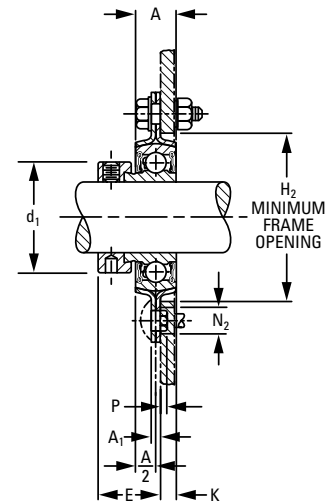
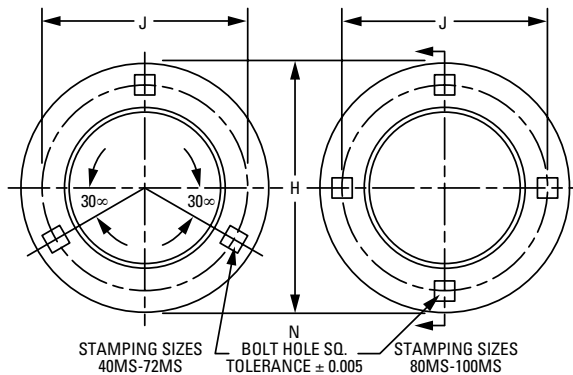
NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

## BALL BEARING HOUSED UNITS • PRESSED-STEEL FLANGETTE UNITS • RA

### RA FLANGETTE UNIT

- The RA flangette unit is similar to Timken RR flangette unit.
- The unit consists of two interchangeable, pressed-steel, zinc-plated flanges that house a standard ball bearing.
- The unit incorporates an extended inner-ring bearing with a self-locking collar and spherical seat in the cartridge, providing initial self-alignment.
- The unit is equipped with an RA-RRB extended inner ring ball bearing.
- The units are non-relubricatable.



#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify UNIT and SHAFT DIAMETER.

Example: RA 1 in. flangette.

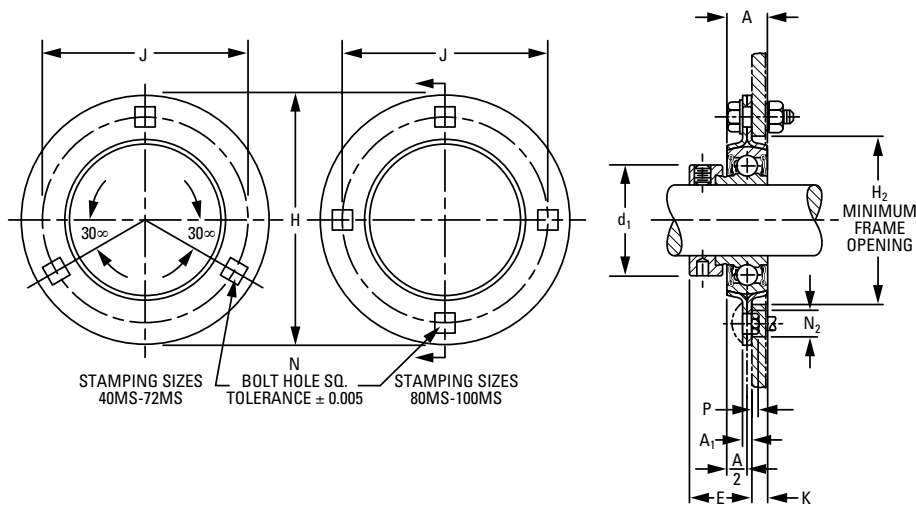
#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RA	RA-RRB	Page A-48

Unit	Shaft Dia.										Bolt Size	Short Shank	Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.	Collar No.	Stamping <sup>(1)</sup>		Unit Wt.
		H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	K	d <sub>1</sub>							P	N <sub>2</sub>	
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				N lbs.	kg lbs.	
RA	1/2														RA008RRB	S1008K			
RA	9/16	81.0	14.2	63.5	7.1	49.2	3.81	23.8	5.6	28.6	6.4	0.15	2.54	10.3	RA009RRB	S1009K	40MS	2650	0.277
	5/8	3 3/16	9/16	2 1/2	9/32	1 15/16	0.150	1 5/16	7/32	1 1/8	1/4	0.006	0.100	13/32	RA010RRB	S1010K		600	0.61
RA	17														RAE17RRB	SE17K			
RA	3/4	90.5	15.8	71.4	8.7	55.6	4.22	25.0	6.4	33.3	7.9	0.53	2.92	12.7	RA012RRB	S1012K	47MS	3100	0.363
RA	20	3 9/16	5/8	2 13/16	1 1/32	2 3/16	0.166	6 3/4	1/4	1 5/16	5/16	0.021	0.115	1/2	RAE20RRB	SE20K		700	0.80
RA	13/16														RA013RRB	S1013K			
RA	7/8	95.2	17.4	76.2	8.7	60.3	4.22	25.0	7.1	38.1	7.9	0.53	2.92	12.7	RA014RRB	S1014K	52MS	3550	0.408
RA	15/16	3 3/4	1 1/16	3	1 1/32	2 3/8	0.166	6 3/4	9/32	1 1/2	5/16	0.021	0.115	1/2	RA015RRB	S1015K		800	0.90
RA	1														RA100RRB	S1100K			
RA	25														RAE25RRB	SE25K			
RA	1 1/16														RA101RRB	S11013K			
RA	1 1/8	112.7	17.4	90.5	10.3	71.4	5.28	29.0	6.7	44.5	9.5	0.28	2.64	15.1	RA102RRB	S1102K	62MS	4900	0.667
RA	1 3/16	4 7/16	1 1/16	3 9/16	1 3/32	2 13/16	0.208	1 9/64	1 7/64	1 3/4	3/8	0.011	0.104	1 9/32	RA103RRB	S1103K		1100	1.47
RA	1 1/4 S														RA103RRB3	S1103K3			
RA	30														RAE30RRB	SE30K			
RA	1 1/4														RA104RRB	S1104K			
RA	1 5/16	122.2	19.0	100.0	10.3	81.0	5.28	31.8	7.5	54	9.5	0.28	2.64	15.1	RA105RRB	S1105K	72MS	6220	0.889
RA	1 3/8	4 13/16	3/4	3 15/16	1 3/32	3 3/16	0.208	1 1/4	1 9/64	2 1/8	3/8	0.011	0.104	1 9/32	RA106RRB	S1106K		1400	1.96
RA	1 7/16														RA107RRB	S1107K			
RA	35														RAE35RRB	SE35K			

<sup>(1)</sup>Stampings must be ordered in pairs to assemble bearing.  
<sup>(2)</sup>Thrust ratings for stamping are 50 percent of radial ratings.  
 NOTE: Shaft diameter with an S = smaller housing.

Continued on next page.



Continued from previous page.

Unit	Shaft Dia.										Bolt Size	Short Shank	Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.	Collar No.	Stamping <sup>(1)</sup>		Unit Wt.
		H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	K	d <sub>1</sub>							P	N <sub>2</sub>	
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.	
RA	1 1/2	147.6	20.6	119.1	13.5	90.5	6.80	36.1	7.5	60.3	12.7	0.33	2.72	19.4	RA108RRB	S1108KT	80MS	7500 1700	1.447 3.19
RA	1 9/16	5 13/16	13/16	4 11/16	17/32	3 9/16	0.268	1 27/64	19/64	2 3/8	1/2	0.013	0.107	49/64	RA109RRB	S1109KT			
RA	40														RAE40RRB	SE40K			
RA	1 5/8	149.2	22.2	120.6	13.5	96.8	6.80	36.1	7.5	63.5	12.7	0.33	2.72	19.4	RA110RRB	S1110K	85MS	7500 1700	1.479 3.26
RA	1 11/16	5 7/8	7/8	4 3/4	17/32	3 13/16	0.268	1 27/64	19/64	2 1/2	1/2	0.013	0.107	49/64	RA111RRB	S1111K			
RA	1 3/4														RA112RRB	S1112K			
RA	45														RAE45RRB	SE45K			
RA	1 13/16	155.6	22.2	127.0	13.5	101.6	7.56	36.5	7.1	69.8	12.7	0	1.96	19.4	RA113RRB	S1113K	90MS	8500 1900	1.669 3.68
RA	1 7/8	6 1/8	7/8	5	17/32	4	0.300	1 7/16	9/32	2 3/4	1/2	0	0.077	49/64	RA114RRB	S1114K			
RA	1 15/16														RA115RRB	S1115K			
RA	50														RAE50RRB	SE50K			
RA	2	166.7	23.8	138.1	13.5	112.7	7.56	40.5	8.3	76.2	12.7	0	1.96	19.4	RA200RRB	S1200K	100MS	10200 2300	2.000 4.41
RA	2 1/16	6 9/16	15/16	5 7/16	17/32	4 7/16	0.300	1 19/32	29/64	3	1/2	0	0.077	49/64	RA201RRB	S1201K			
RA	2 1/8														RA202RRB	S1202K			
RA	2 3/16														RA203RRB	S1203K			
RA	55														RAE55RRB	SE55K			

<sup>(1)</sup>Stampings must be ordered in pairs to assemble bearing.

<sup>(2)</sup>Thrust ratings for stamping are 50 percent of radial ratings.

NOTE: Shaft diameter with an S = smaller housing.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • PRESSED-STEEL FLANGETTE UNITS • RAT, RRT

## RAT, RRT TWO-BOLT FLANGETTE UNITS

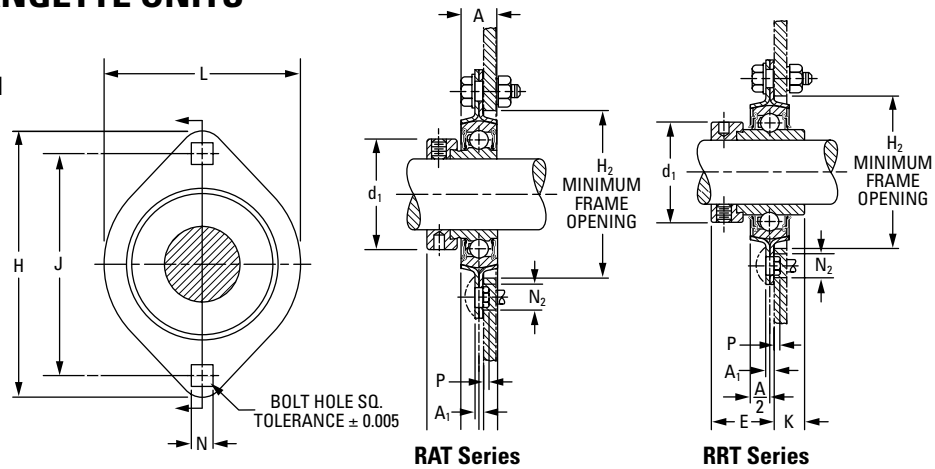
- These units are designed for installations where the standard three-bolt flangettes cannot be used due to space limitations.
- Like standard three-bolt flangettes, they are available with RA-RRB extended inner ring ball bearings and the KRRB wide-inner-ring ball bearings (RRT) with self-locking collars.
- All units are non-relubricatable.

### Suggested shaft tolerances:

1/2 in. – 1 7/16 in.,  
nominal to -0.013 mm, -0.0005 in.;

### To order, specify UNIT and SHAFT DIAMETER.

Example: RAT 1 in. flangette or RRT 1 in. flangette.



### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RAT	RA-RRB	Page A-48
RRT	-KRRB	Page A-32

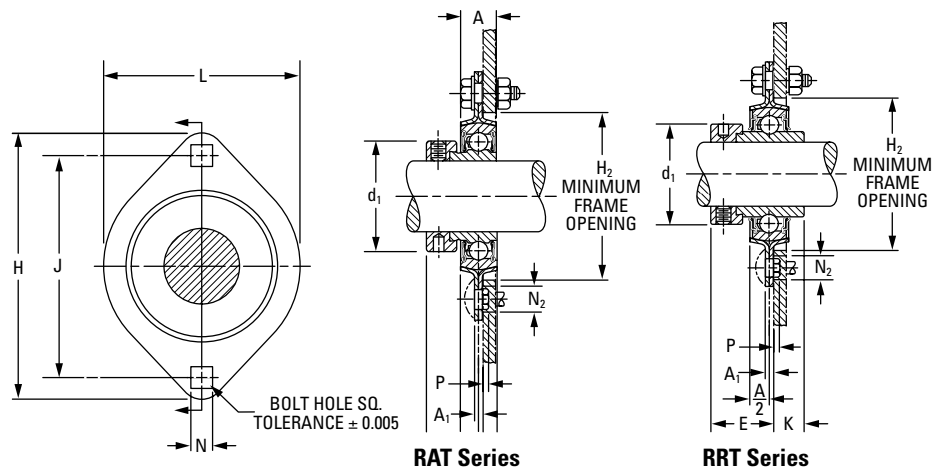
Unit	Shaft Dia.	L	H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	K	d <sub>1</sub>	Bolt Size	Short Shank	Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.	Collar No.	Stamping <sup>(1)</sup>		Unit Wt.
													P					N <sub>2</sub>	Size	
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				N lbs.	kg lbs.
RAT	1/2	58.7	81.0	14.2	63.5	7.1	49.2	3.81	23.8	5.6	28.6	6.4	0.15	2.54	10.3	RA008RRB	S1008K	40MST	2650 600	0.213 0.47
RAT	5/8	2 5/16	3 3/16	9/16	2 1/2	9/32	1 15/16	0.150	15/16	7/32	1 1/8	1/4	0.006	0.100	13/32	RA010RRB	S1010K			
RAT	17															RAE17RRB	SE17K			
RAT	3/4	66.7	90.5	15.8	71.4	8.7	55.6	4.22	25.0	6.4	33.3	7.9	0.53	2.92	12.7	RA012RRB	S1012K	47MST	3100 700	0.299 0.66
RAT	20	2 5/8	3 9/16	5/8	2 13/16	11/32	2 3/16	0.166	63/64	1/4	1 5/16	5/16	0.021	0.115	1/2	RAE20RRB	SE20K			
RAT	7/8															RA014RRB	S1014K			
RAT	15/16	71.0	95.2	17.4	76.2	8.7	60.3	4.22	25.0	7.1	38.1	7.9	0.53	2.92	12.7	RA015RRB	S1015K	52MST	3550 800	0.331 0.73
RAT	1	2 51/64	3 3/4	1 1/16	3	11/32	2 3/8	0.166	63/64	9/32	1 1/2	5/16	0.021	0.115	1/2	RA100RRB	S1100K			
RAT	25															RAE25RRB	SE25K			
RAT	1 1/16															RA101RRB	S1103K			
RAT	1 1/8															RA102RRB	S1102K			
RAT	1 3/16	84.1	112.7	17.4	90.5	10.3	71.4	5.28	29.0	6.7	44.5	9.5	0.28	2.64	15.1	RA103RRB	S1103K	62MST	4900 1100	0.531 1.17
RAT	1 3/16	3 5/16	4 7/16	1 1/16	3 9/16	13/32	2 13/16	0.208	1 9/64	1 7/64	1 3/4	3/8	0.011	0.104	19/32	RA103RRB2	S1103K3			
RAT	1 1/4 S															RAE30RRB	SE30K			
RAT	30																			
RAT	1 1/4															RA104RRB	S1104K			
RAT	1 5/16															RA105RRB	S1105K			
RAT	1 3/8	93.7	125.4	22.2	100.0	10.3	81.0	5.28	32.1	6.7	54.0	9.5	0.28	2.64	15.1	RA106RRB	S1106K	72MST	6220 1400	0.476 1.05
RAT	1 7/16	3 11/16	4 15/16	7/8	3 15/16	13/32	3 3/16	0.208	1 17/64	1 7/64	2 1/8	3/8	0.011	0.104	19/32	RA107RRB	S1107K			
RAT	35															RAE35RRB	SE35K			

<sup>(1)</sup>Stampings must be ordered in pairs to assemble bearing.

<sup>(2)</sup>Thrust ratings for stamping are 50 percent of radial ratings.

NOTE: Shaft diameter with an S = smaller housing.

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Unit	Shaft Dia.											Bolt Size	Short Shank	Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.	Collar No.	Stamping <sup>(1)</sup>		Unit Wt.
		L	H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	K	d <sub>1</sub>							P	N <sub>2</sub>	
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.
RRT	1/2	58.7	81.0	14.2	63.5	7.1	49.2	3.81	23.8	5.6	28.6	6.4	0.15	2.54	10.3	1008KRBB	S1008K	40MST	2650 600	0.213 0.47
RRT	5/8	2 5/16	3 3/16	9/16	2 1/2	9/32	1 15/16	0.150	15/16	7/32	1 1/8	1/4	0.006	0.100	13/32	1010KRBB	S1010K			
RRT	17															E17KRBB	SE17K			
RRT	3/4	66.7	90.5	15.8	71.4	8.7	55.6	4.22	25.0	6.4	33.3	7.9	0.53	2.92	12.7	1012KRBB	S1012K	47MST	3100 700	0.299 0.66
RRT	20	2 5/8	3 9/16	5/8	2 13/16	11/32	2 3/16	0.166	63/64	1/4	1 5/16	5/16	0.021	0.115	1/2	E20KRBB	SE20K			
RRT	7/8	71.0	95.2	17.4	76.2	8.7	60.3	4.22	25.0	7.1	38.1	7.9	0.53	2.92	12.7	1014KRBB	S1014K	52MST	3550 800	0.331 0.73
RRT	15/16	2 51/64	3 3/4	1 1/16	3	11/32	2 3/8	0.166	63/64	9/32	1 1/2	5/16	0.021	0.115	1/2	1015KRBB	S1015K			
RRT	1															1100KRBB	S1100K			
RRT	25															E25KRBB	SE25K			
RRT	1 1/16	84.1	112.7	17.4	90.5	10.3	71.4	5.28	29.0	6.7	44.5	9.5	0.28	2.64	15.1	1101KRBB	S1103K	62MST	4900 1100	0.531 1.17
RRT	1 1/8															1102KRBB	S1102K			
RRT	1 3/16	3 5/16	4 7/16	1 1/16	3 9/16	13/32	2 13/16	0.208	1 9/64	17/64	1 3/4	3/8	0.011	0.104	19/32	1103KRBB	S1103K			
RRT	1 1/4 S															1103KRBB3	S1103K3			
RRT	30															E30KRBB	SE30K			
RRT	1 1/4	93.7	125.4	22.2	100.0	10.3	81.0	5.28	32.1	6.7	54.0	9.5	0.28	2.64	15.1	1104KRBB	S1104K	72MST	6220 1400	0.476 1.05
RRT	1 5/16	3	4 15/16	7/8	3 15/16	13/32	3 3/16	0.208	1 17/64	17/64	2 1/8	3/8	0.011	0.104	19/32	1105KRBB	S1105K			
RRT	1 3/8															1106KRBB	S1106K			
RRT	1 7/16															1107KRBB	S1107K			
RRT	35															E35KRBB	SE35K			

<sup>(1)</sup>Stampings must be ordered in pairs to assemble bearing.

<sup>(2)</sup>Thrust ratings for stamping are 50 percent of radial ratings.

NOTE: Shaft diameter with an S = smaller housing.

### RATR, RRTR TRIANGLE FLANGETTE UNITS

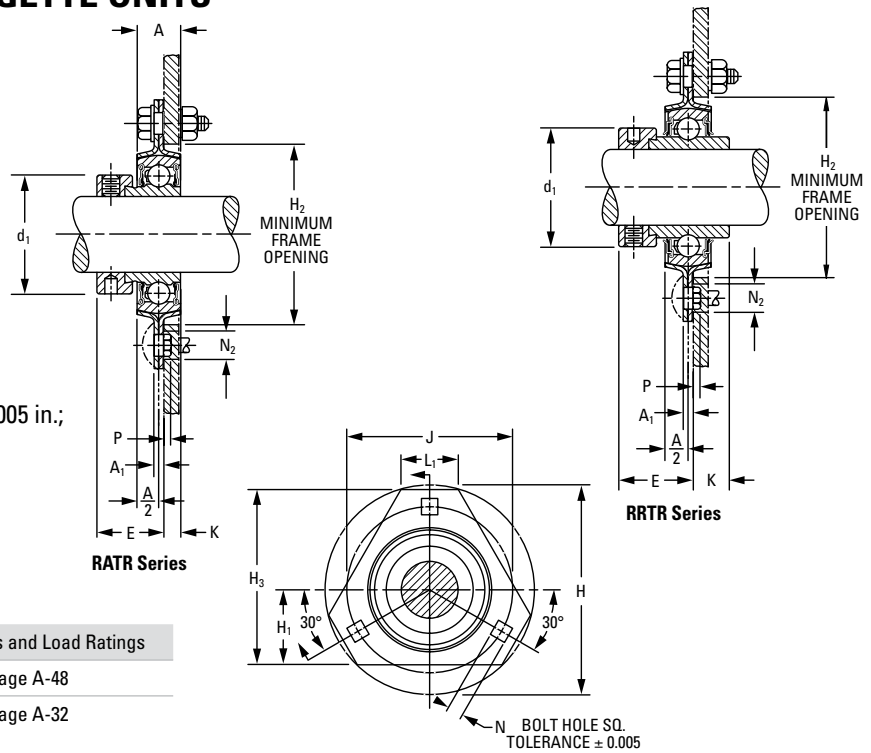
- These units are similar to standard 47MS, 52MS, 62MS and 72MS, except the stamping is triangular instead of round.
- These units are used where space is limited or where it is necessary to cut off one or more sides of the standard flangette stamping.
- The RA-RRB and KRRB may be used with this stamping, as with other types of flangettes.
- All units are non-relubricatable.

#### Suggested shaft tolerances:

1/2 in. – 1 7/16 in., nominal to -0.013 mm, -0.0005 in.;

#### To order, specify UNIT and SHAFT DIAMETER.

Example: RATR 1 in. flangette or RRTR 1 in. flangette.



#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RATR	RA-RRB	Page A-48
RRTR	-KRRB	Page A-32

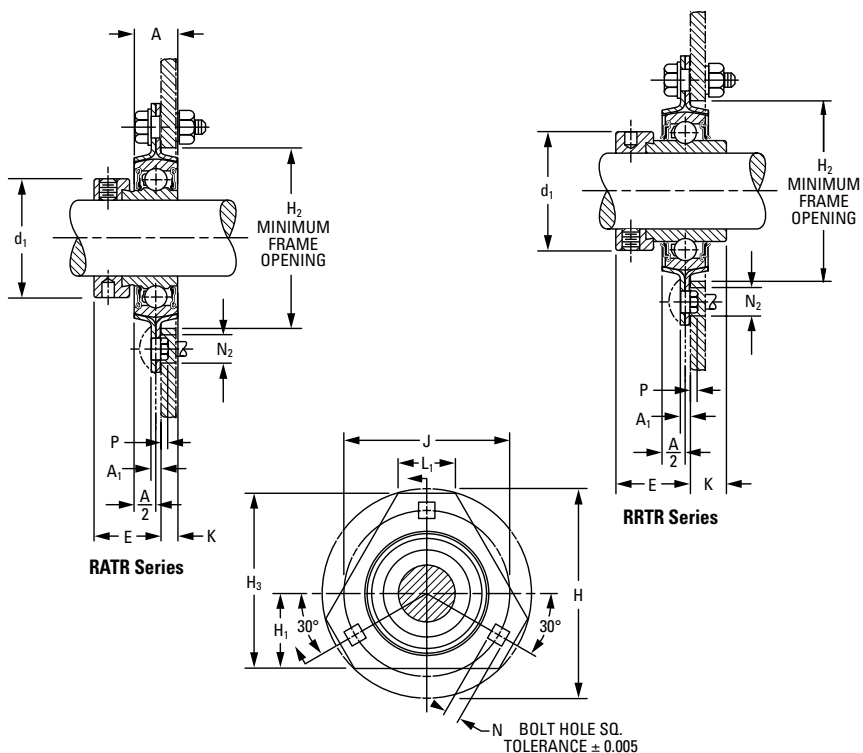
Unit	Shaft Dia.	Dimensions and Load Ratings													Bolt Size	Short Shank	Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.	Collar No.	Stamping <sup>(1)</sup>		Unit Wt.														
		H <sub>3</sub>	H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	K	d <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>	P							N <sub>2</sub>	Size		Radial Load Rating <sup>(2)</sup>													
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				N lbs.	kg lbs.															
RATR	3/4	76.2	90.5	15.8	71.4	8.7	55.6	4.22	25.0	6.4	33.3	33.3	27.0	7.9	0.15	2.54	12.7	RA012RRB	S1012K	47MSTR	3100	0.313															
RATR	20	3	3 9/16	5/8	2 13/16	1 1/32	2 3/16	0.166	63/64	1/4	1 5/16	1 5/16	1 1/16	5/16	0.006	0.100	1/2	RAE20RRB	SE20K				700	0.69													
RATR	7/8	79.4	95.2	17.4	76.2	8.7	60.3	4.22	25.0	7.1	38.1	34.9	27.8	7.9	0.53	2.92	12.7	RA014RRB	S1014K	52MSTR	3550	0.354															
RATR	15/16																	RA015RRB	S1015K				800	0.78													
RATR	1																	3 1/8	3 3/4				1 1/16	3	1 1/32	2 3/8	0.166	63/64	9/32	1 1/2	1 3/8	1 3/32	5/16	0.021	0.115	RA100RRB	S1100K
RATR	25																	RAE25RRB	SE25K																		
RATR	1 1/16	93.7	112.7	17.4	90.5	10.3	71.4	5.28	29.0	6.7	44.5	38.1	25.4	9.5	0.28	2.64	15.1	RA101RRB	S1103K	62MSTR	4900	0.526															
RATR	1 1/8																	RA102RRB	S1102K				1100	1.16													
RATR	1 3/16																	3 11/16	4 7/16				1 1/16	3 9/16	1 3/32	2 13/16	0.208	1 9/64	1 7/64	1 3/4	1 1/2	1	3/8	0.011	0.104	RA103RRB	S1103K
RATR	1 1/4 S																	RA103RRB2	S1103K3																		
RATR	30																	RAE30RRB	SE30K																		
RATR	1 1/4	105.6	127.0	19.0	100.0	10.3	81.0	5.28	32.1	6.7	54.0	44.4	32.1	9.5	0.028	2.64	15.1	RA104RRB	S1104K	72MSTR	6300	0.703															
RATR	1 1/8																	RA105RRB	S1105K				1400	1.55													
RATR	1 3/8																	4 5/32	5				3/4	3 15/16	1 3/32	3 3/16	0.208	1 17/64	1 7/64	2 1/8	1 3/4	1 17/64	3/8	0.011	0.104	RA106RRB	S1106K
RATR	1 7/16																	RA107RRB	S1107K																		
RATR	35																	RAE35RRB	SE35K																		

<sup>(1)</sup>Stampings must be ordered in pairs to assemble bearing.  
<sup>(2)</sup>Thrust ratings for stamping are 50 percent of radial ratings.  
 NOTE: Shaft diameter with an S = smaller housing.

Continued on next page.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • PRESSED-STEEL FLANGETTE UNITS • RATR, RRTR



Continued from previous page.

Unit	Shaft Dia.												Bolt Size	Short Shank	Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.	Collar No.	Stamping <sup>(1)</sup>		Unit Wt.	
		H <sub>3</sub>	H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	K	d <sub>1</sub>	H <sub>1</sub>							L <sub>1</sub>	P		N <sub>2</sub>
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.	
RRTR	3/4	76.2	90.5	15.8	71.4	8.7	55.6	4.22	28.6	15.1	33.3	33.3	2.07	7.9	0.15	2.54	12.7	1012KRRB	S1012K	47MSTR	3100 700	0.313 0.69
RRTR	20	3	3 9/16	5/8	2 13/16	11/32	2 3/16	0.166	1 1/8	1 9/32	1 5/16	1 5/16	1 1/16	5/16	0.006	0.100	1/2	E20KRRB	SE20K			
RRTR	7/8	79.4	95.2	17.4	76.2	8.7	60.3	4.22	28.6	15.1	38.1	34.9	27.8	7.9	0.53	2.92	12.7	1014KRRB	S1014K	52MSTR	3550 800	0.354 0.78
RRTR	15/16																	1015KRRB	S1015K			
RRTR	1																	1100KRRB	S1100K			
RRTR	25																	E25KRRB	SE25K			
RRTR	1 1/16	93.7	112.7	17.4	90.5	10.3	71.4	5.28	32.5	15.9	44.5	38.1	25.4	9.5	0.28	2.64	15.1	1101KRRB	S1103K	62MSTR	4900 1100	0.526 1.16
RRTR	1 1/8																	1102KRRB	S1102K			
RRTR	1 3/16																	1103KRRB	S1103K			
RRTR	1 1/4 S																	1103KRRB3	S1103K3			
RRTR	30																	E30KRRB	SE30K			
RRTR	1 1/4	105.6	127.0	19.0	100.0	10.3	81.0	5.28	34.9	16.3	54.0	44.4	32.1	9.5	.028	2.64	15.1	1104KRRB	S1104K	72MSTR	6300 1400	0.703 1.55
RRTR	1 5/16																	1105KRRB	S1105K			
RRTR	1 3/8																	1106KRRB	S1106K			
RRTR	1 7/16																	1107KRRB	S1107K			
RRTR	35																	E35KRRB	SE35K			

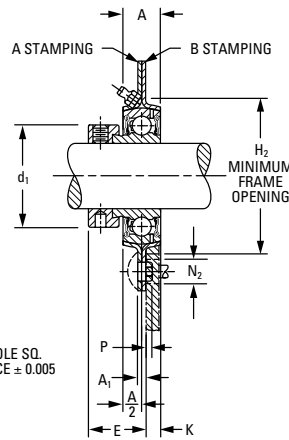
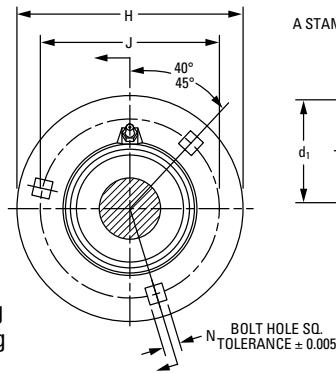
<sup>(1)</sup>Stampings must be ordered in pairs to assemble bearing.

<sup>(2)</sup>Thrust ratings for stamping are 50 percent of radial ratings.

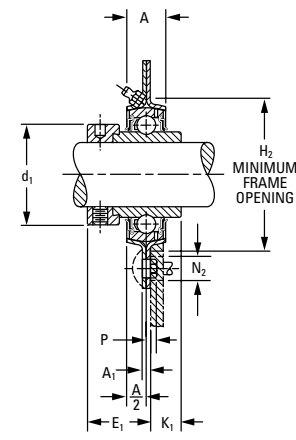
NOTE: Shaft diameter with an S = smaller housing.

### GRA, GRR RELUBRICATABLE FLANGETTE UNITS

- These units are supplements to the standard non-relubricatable type.
- These units are zinc-plated and designed for relubrication in applications where excessive moisture and severe contamination are present.
- The relubricatable flangettes are dimensionally interchangeable with the non-relubricated types. Load ratings also are the same.
- The relubricatable units incorporate G-KRRB bearings and GRA-RRB inner-ring bearings with positive-contact, land-riding seals and self-locking collars.
- The two stampings are needed to make a complete relubricatable flangette. Stamping A contains the boss for the grease fitting and a grease groove to allow grease to enter holes in the outer ring of the bearing. Stamping B contains a similar groove for the same purpose. With the grease groove in both stampings, the bearing can be reversed in the housing and still be relubricated.



GRA Series



GRR Series

#### Suggested shaft tolerances:

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify UNIT and SHAFT DIAMETER.

Example: GRA 1 in. flangette.

#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
GRA	GRA-RRB	Page A-50
GRR	G-KRRB	Page A-34

Unit	Shaft Dia.	Dimensions											Short Shank	Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.		Collar No.	Stamping Radial Load Rating <sup>(1)</sup>	
		H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	E <sub>1</sub>	K	K <sub>1</sub>	d <sub>1</sub>				P	N <sub>2</sub>			(GRA)
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				N lbs.
G52MSA & G52MSB	13/16																			
	7/8																			
	15/16	95.2	17.40	76.2	8.7	60.3	4.22	25.4	29.0	6.7	13.5	38.1	0.53	2.92	12.7					
	1	3 3/4	1 1/16	3	1 1/32	2 3/8	0.166	1	1 9/64	1 7/64	1 7/32	1 1/2	0.021	0.115	1/2					
	25																			
G62MSA & G62MSB	1 1/16																			
	1 1/8																			
	1 3/16	112.7	19.05	90.5	10.3	71.4	5.28	29.4	32.9	6.7	15.5	44.1	0.28	2.64	15.1					
	1 1/4 S	4 7/16	3/4	3 9/16	1 3/32	2 13/16	0.208	1 5/32	1 19/64	1 7/64	3 9/64	1 47/64	0.011	0.104	1 9/32					
	30																			
G72MSA & G72MSB	1 1/4																			
	1 5/16																			
	1 3/8	122.2	22.20	100.0	10.3	81.0	6.80	32.9	35.7	7.9	15.5	54.0	0.28	2.64	15.1					
	1 7/16	4 13/16	7/8	3 15/16	1 3/32	3 3/16	0.268	1 19/64	1 13/32	5/16	3 9/64	2 1/8	0.011	0.104	1 9/32					
	35																			

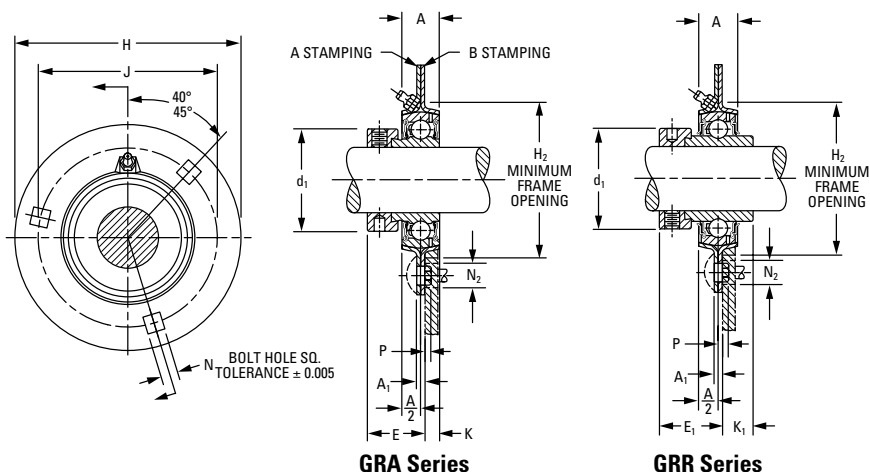
<sup>(1)</sup>Thrust ratings for stampings are 50 percent of radial ratings.

<sup>(2)</sup>Four bolt holes.

NOTE: Shaft diameter with an S = smaller housing.

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Unit	Shaft Dia.												Short Shank	Long Shank	Flange Hole Diam. to Clear Sq. Shank	Bearing No.		Collar No.	Stamping Radial Load Rating <sup>(1)</sup>	
		H	A	J	N	H <sub>2</sub>	A <sub>1</sub>	E	E <sub>1</sub>	K	K <sub>1</sub>	d <sub>1</sub>				P	N <sub>2</sub>			(GRA)
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				N lbs.
G80MSA <sup>(2)</sup> & G80MSB <sup>(2)</sup>	1 1/2	<b>147.6</b>	<b>31.80</b>	<b>119.1</b>	<b>13.5</b>	<b>90.4</b>	<b>7.56</b>	<b>36.5</b>	<b>38.9</b>	<b>12.3</b>	<b>17.9</b>	<b>60.3</b>	<b>0.33</b>	<b>2.72</b>	<b>19.4</b>	GRA108RRB	G1108KRRB	S1108KT	<b>19600</b> 4400	
	1 9/16															GRA109RRB	G1109KRRB	S1109KT		
	<b>40</b>															GRAE40RRB	GE40KRRB	SE40K		
G85MSA <sup>(2)</sup> & G85MSB <sup>(2)</sup>	1 5/8	<b>149.2</b>	<b>31.8</b>	<b>120.6</b>	<b>13.5</b>	<b>96.8</b>	<b>7.56</b>	<b>36.5</b>	<b>38.9</b>	<b>11.9</b>	<b>17.9</b>	<b>63.5</b>	<b>0.33</b>	<b>2.72</b>	<b>19.4</b>	GRA110RRB	G1110KRRB	S1110K	<b>20500</b> 4600	
	1 11/16															GRA111RRB	G1111KRRB	S1111K		
	1 3/4															GRA112RRB	G1112KRRB	S1112K		
	<b>45</b>															GRAE45RRB	GE45KRRB	SE45K		
G90MSA <sup>(2)</sup> & G90MSB <sup>(2)</sup>	1 13/16	<b>155.6</b>	<b>25.4</b>	<b>127.0</b>	<b>13.5</b>	<b>101.6</b>	<b>8.34</b>	<b>36.9</b>	<b>42.5</b>	<b>8.3</b>	<b>20.6</b>	<b>69.8</b>	-	<b>1.96</b>	<b>19.4</b>	GRA113RRB	G1113KRRB	S1113K	<b>22700</b> 5100	
	1 7/8															GRA114RRB	G1114KRRB	S1114K		
	1 15/16															GRA115RRB	G1115KRRB	S1115K		
	<b>50</b>															GRAE50RRB	GE50KRRB	SE50K		
G100MSA & G100MSB	2	<b>166.7</b>	<b>31.8</b>	<b>138.1</b>	<b>13.5</b>	<b>112.7</b>	<b>8.34</b>	<b>40.5</b>	<b>47.6</b>	<b>11.9</b>	<b>23.8</b>	<b>76.2</b>	-	<b>1.96</b>	<b>19.4</b>	GRA200RRB	G1200KRRB	S1200K	<b>28500</b> 6400	
	2 1/16															GRA201RRB	G1201KRRB	S1201K		
	2 1/8															GRA202RRB	G1202KRRB	S1202K		
	2 3/16															GRA203RRB	G1203KRRB	S1203K		
	<b>55</b>															GRAE55RRB	GE55KRRB	SE55K		

<sup>(1)</sup>Thrust ratings for stampings are 50 percent of radial ratings.

<sup>(2)</sup>Four bolt holes.

NOTE: Shaft diameter with an S = smaller housing.

### RUBBER CARTRIDGES

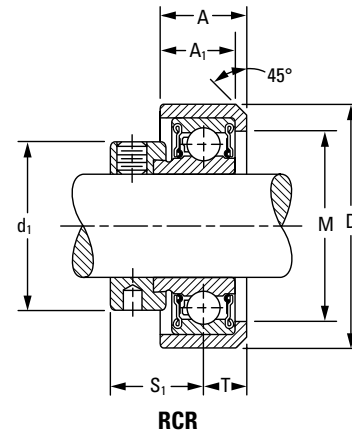
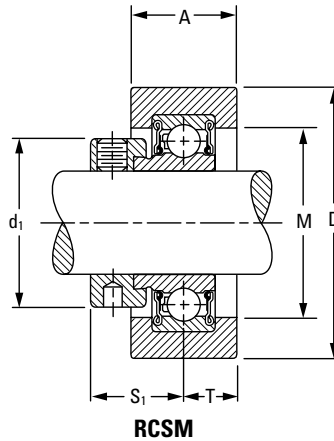
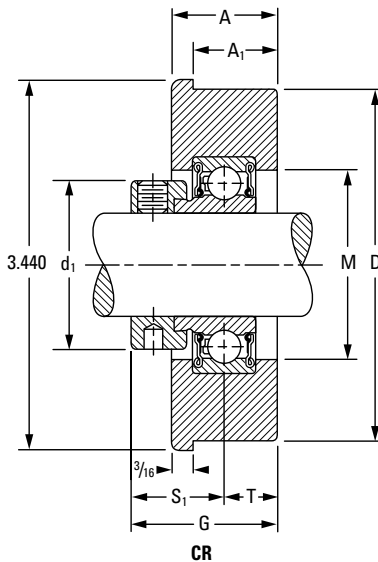
#### RCSM, RCR, CR SERIES

- RCSM and RCR are quiet, synthetic, conductive-rubber cylindrical cartridges designed for domestic heating, air-conditioning, ventilating equipment and other applications that require noise-free operation.
- All units are available with the RA-RRB extended inner-ring bearings with positive-contact, land-riding seals and a self-locking collar.

- An initial supply of grease is provided in the one-piece, non-relubricatable cartridges.
- The Timken-patented CR unit was designed to accommodate the wide tolerances of hot or cold rolled #10-gage (0.134 in.), 3 1/2 in. O.D., electric-resistance welded mechanical tubing, similar to what is found in post office conveyor systems.

To order, specify **UNIT** and **SHAFT DIAMETER**.

Example: RCSM 3/4 in. or RCR 3/4 in. or CR 3/4 in.



#### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RCSM, RCR, CR	RA-RR	Page A-48

Unit	Shaft Dia.	D	A	A <sub>1</sub>	G	M	d <sub>1</sub>	S <sub>1</sub>	T	Bearing No. <sup>(1)</sup>	Collar No.	Housing Radial Load Rating <sup>(2)</sup>	Unit Wt.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.	kg lbs.
RCSM SERIES – Suggested Housing Diameter = Nominal D ± 0.013 mm ± 0.005 in.													
RCSM	1/2	64.30	25.4	–	–	34.9	28.6	22.2	12.7	RA008RR	S1008K	880	0.395
RCSM	5/8	2 17/32	1	–	–	1 3/8	1 1/8	7/8	1/2	RA010RR	S1010K	200	0.87
RCSM	17									RAE17RR	SE17K		
RCSM	3/4	64.30	25.4	–	–	39.7	33.3	23.4	12.7	RA012RR	S1012K	1120	0.472
RCSM	20	2 17/32	1	–	–	1 9/16	1 9/16	59/64	1/2	–	SE20K	250	1.04
RCSM	15/16	64.30	25.4	–	–	45.2	38.1	23.4	12.7	RA015RR	S1015K	1340	0.527
RCSM	1	2 17/32	1	–	–	1 25/32	1 1/2	59/64	1/2	RA100RR	S1100K	300	1.16
RCSM	25									RAE25RR	SE25K		
LRCSM	1 3/16	64.30	25.4	–	–	47.6	42.1	19.8	12.7	RAL103NPP	LS103K	1340	0.627
		2 17/32	1			1 7/8	1 21/32	25/32	1/2			300	1.38
RCSM SERIES – Suggested Housing Diameter = Nominal D -0.13 mm to -0.038 mm, -0.005 in. to -0.0015 in.													
LRCR	3/4	46.00	18.3	15.9	–	34.9	30.2	18.7	9.9	RAL012NPP	LS012K	880	0.272
		1 13/16	23/32	5/8		1 3/8	1 3/16	47/64	25/64			200	0.60
RCR	1	57.20	19.8	17.5	–	44.4	38.1	23.4	9.9	RA100RR	S1100K	1340	0.409
RCR	25	2 1/4	25/32	11/16		1 3/4	1 1/2	59/64	25/64	RAE25RR	SE25K	300	0.90
RCSM SERIES – Suggested Housing Diameter 82.73 mm to 81.76 mm, 3.257 in. to 3.219 in.													
CR	3/4	83.57	25.4	22.2	36.1	39.7	33.3	23.4	12.7	RA012RR	S1012K	670	0.318
CR	20	3.29	1	7/8	1 27/64	1 9/16	1 9/16	59/64	1/2	RAE20RR	SE20K	150	0.70
CR	1	83.57	25.4	22.2	36.1	45.2	38.1	23.4	12.7	RA100RR	S1100K	880	0.340
CR	25	3.29	1	7/8	1 27/64	1 25/32	1 1/2	59/64	1/2	RAE25RR	SE25K	200	0.75
LCR	1	83.57	25.4	20.6	33.3	39.7	36.1	19.8	14.3	RAL100NPP	S1100K	880	0.309
LCR	25	3.29	1	13/16	1 9/16	1 9/16	1 27/64	25/32	9/16	RALE25NPP	SE25K	200	0.68

<sup>(1)</sup>Suffix for RA bearing is FS450 (RCSM and RCR series).

<sup>(2)</sup>Steady loads only. Thrust load is 1/3 radial load rating. Maximum suggested speed is 2400 RPM.

**RABR HVAC SPECIAL SERIES**

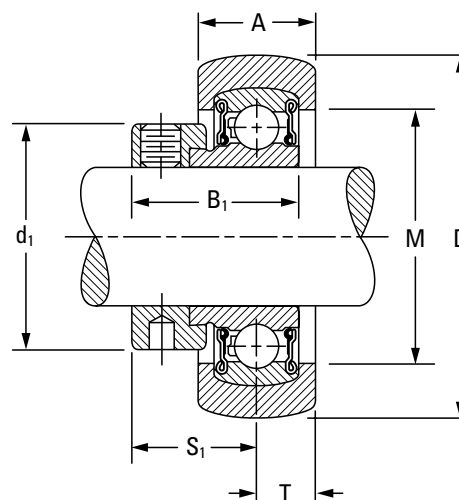
- This unit features a conductive rubber interliner to dissipate static charges.
- The quiet RA-RRB extended inner-ring bearings are prelubricated and have positive-contact, land-riding seals with self-locking collars.
- RABR units can be mounted in tri-arm brackets or pressed-steel stampings.
- Maximum suggested speed is 2400 RPM.

**Suggested housing diameter =**

Nominal (D) -0.130 mm – 0.380 mm; -0.005 in. – 0.015 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: RABR 1 in.



**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
RABR	RA-RRB	Page A-48

Unit	Shaft Dia.	Dimensions							Bearing No. <sup>(1)</sup>	Collar No.	Housing Radial Load Rating <sup>(2)</sup>
		D	B <sub>1</sub>	A	M	d <sub>1</sub>	S <sub>1</sub>	T			
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.			N lbs.
RABR	1/2								RA008RRB	S1008K	
RABR	5/8	47.37 1.865	28.6 1 1/8	17.5 11/16	34.9 1 3/8	28.6 1 1/8	22.2 7/8	8.7 11/32	RA010RRB RAE17RRB	S1010K SE17K	880 200
RABR	17										
RABR	3/4	52.37 2.062	31.0 1 7/32	17.5 11/16	41.3 1 5/8	33.3 1 5/16	23.4 59/64	8.7 11/32	RA012RRB RAE20RRB	S1012K SE20K	1120 250
RABR	20										
RABR	15/16								RA015RRB	S1015K	
RABR	1	62.38 2.456	31.0 1 7/32	20.6 13/16	46.8 1 27/32	38.1 1 1/2	23.4 59/64	10.3 13/32	RA100RRB RAE25RRB	S1100K SE25K	1340 300
RABR	25										
RABR	1 3/16	62.38 2.456	35.7 1 13/32	20.6 13/16	46.8 1 27/32	44.4 1 3/4	28.6 1 1/8	10.3 13/32	RAL103PP RAE30PP3	LS103K SE30K	1340 300
RABR	30										

<sup>(1)</sup>For replacement of bearings, specify suffix FS450.

<sup>(2)</sup>Thrust load is 1/3 radial load rating.

NOTE: Maximum suggested speed is 2400 RPM.

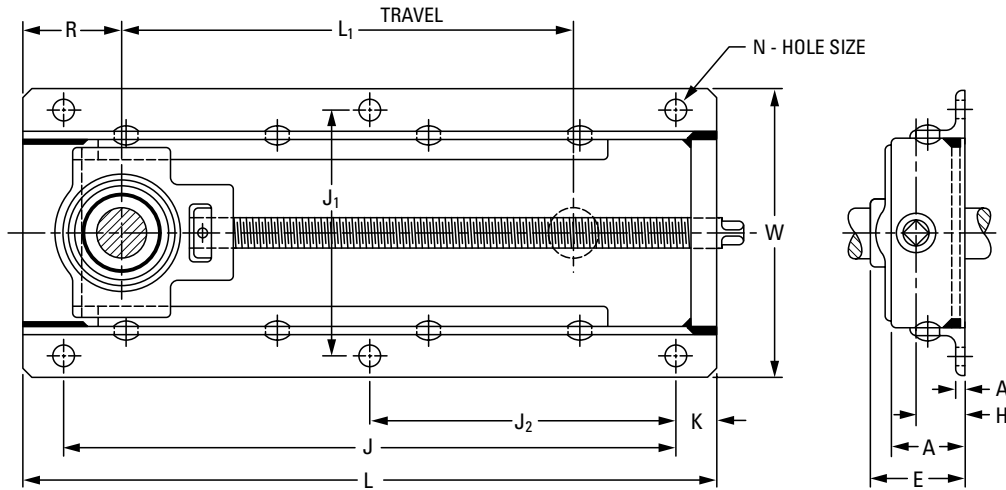
### TAKE-UP UNITS

### NLTU SERIES SIDE-MOUNTED, PRESSED-STEEL

- The take-up frame incorporates RTU take-up units as shown on the following pages.
- The frame is designed for side mounting and made of welded steel.

To order a complete assembly, specify **NLTU FRAME** and **RTU TAKE-UP UNIT**.

Example: NLTU5 frame and RTU 1 11/16 in. If frame only is required, order by frame number. Example: NLTU3.



NLTU Frame No.	Shaft Dia.	L <sub>1</sub>	R	J	L	A <sub>1</sub>	H <sub>1</sub>	E	J <sub>1</sub>	W	A	J <sub>2</sub>	K	N	Bolts 6 req'd.	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	in.	kg lbs.
1	5/16, 3/4, 13/16, 7/8, 15/16, 1	231.8	62.70	327.0	377.8	4.8	27.0	54.0	141.3	166.7	44.4	163.5	25.4	12.7	7/16	3.691
		9 1/8	2 15/32	12 7/8	14 7/8	3/16	1 1/16	2 1/8	5 9/16	6 9/16	1 3/4	6 7/16	1	1/2		8.13
3	1 1/16, 1 1/8, 1 3/16, 1 1/4, 1 5/16, 1 3/8, 1 7/16	290.5	64.23	392.1	432.2	4.8	31.8	61.9	154.0	179.4	50.8	196.1	25.4	12.7	7/16	5.003
		11 7/16	2 17/32	15 7/16	17 7/16	3/16	1 1/4	2 7/16	6 1/16	7 1/16	2	7 23/32	1	1/2		11.02
		290.5	61.90	392.1	432.2	4.8	31.8	64.3	154	179.4	50.8	196.1	25.4	12.7	7/16	
		11 7/16	2 7/16	15 7/16	17 7/16	3/16	1 1/4	2 17/32	6 1/16	7 1/16	2	7 23/32	1	1/2		
5	1 1/2, 1 9/16, 1 5/8, 1 11/16, 1 3/4, 1 13/16, 1 7/8, 1 15/16	298.4	92.90	444.5	501.6	4.8	36.5	71.4	185.7	223.8	57.2	222.5	28.6	14.3	1/2	8.217
		11 3/4	3 21/32	17 1/2	19 3/4	3/16	1 7/16	2 13/16	7 5/16	8 13/16	2 1/4	8 3/4	1 1/8	9/16		18.10
7	2, 2 1/16, 2 1/8, 2 3/16, 2 1/4, 2 5/16, 2 3/8, 2 7/16	362.0	92.90	546.1	603.2	4.8	38.1	81.8	219.1	265.1	63.5	273.0	28.6	15.9	9/16	12.312
		14 1/4	3 21/32	21 1/2	23 3/4	3/16	1 1/2	3 7/32	8 5/8	10 7/16	2 1/2	10 3/4	1 1/8	5/8		27.12
		362.0	92.90	546.1	603.2	4.8	38.1	84.9	219.1	265.1	63.5	273.0	28.6	15.9	9/16	
		14 1/4	3 21/32	21 1/2	23 3/4	3/16	1 1/2	3 11/32	8 5/8	10 7/16	2 1/2	10 3/4	1 1/8	5/8		

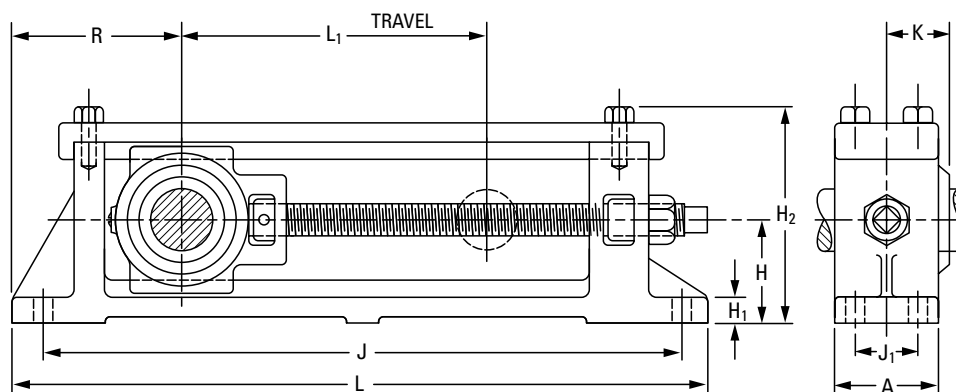
**TU SERIES**

**TOP-MOUNTED, CAST-IRON**

- The take-up frame incorporates RTU take-up units as shown on the following pages.
- The frame is designed for top mounting and is made of cast-iron.

**To order a complete assembly, specify TU FRAME and RTU or TU TAKE-UP UNIT.**

Example: TU5 frame and RTU 1 11/16 in.



TU Frame No.	Shaft Dia.	L <sub>1</sub>	R	J	L	H <sub>1</sub>	H	H <sub>2</sub>	J <sub>1</sub>	A	K	Bolts 4 req'd.	Unit Wt.
	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	in.	kg lbs.
1	3/4, 13/16, 7/8, 15/16, 1	203.2 8	114.3 4 1/2	419.2 16 1/2	469.9 18 1/2	14.3 9/16	63.5 2 1/2	131.0 5 5/32	34.9 1 3/8	54.0 2 1/8	—	3/8	7.491 16.50
3	1 1/16, 1 1/8, 1 3/16, 1 1/4, 1 5/16, 1 3/8, 1 7/16	254.0 10	127.0 5	492.1 19 3/8	542.9 21 3/8	15.9 5/8	71.4 2 13/16	149.2 5 7/8	38.1 1 1/2	65.1 2 9/16	—	7/16	11.464 25.25
5	1 1/2, 1 9/16, 1 5/8, 1 11/16, 1 3/4, 1 13/16, 1 7/8, 1 15/16	254.0 10	139.7 5 1/2	530.2 20 7/8	581.0 22 7/8	19.0 3/4	82.6 3 1/4	171.4 6 3/4	50.8 2	88.9 3 1/2	—	1/2	20.203 44.50
7	2, 2 1/16, 2 1/8, 2 3/16, 2 1/4, 2 5/16, 2 3/8, 2 7/16	304.8 12	168.3 6 5/8	644.5 25 3/8	708.0 27 7/8	22.2 7/8	101.6 4	211.9 8 11/32	63.5 2 1/2	101.6 4	—	5/8	36.320 80.00
9	2 11/16, 2 15/16 <sup>(1)</sup>	304.8 12	193.7 7 5/8	695.3 27 3/8	771.5 30 3/8	25.4 1	117.5 4 5/8	243.7 9 19/32	82.6 3 1/4	120.6 4 3/4	65.1 2 9/16	5/8	52.778 116.25

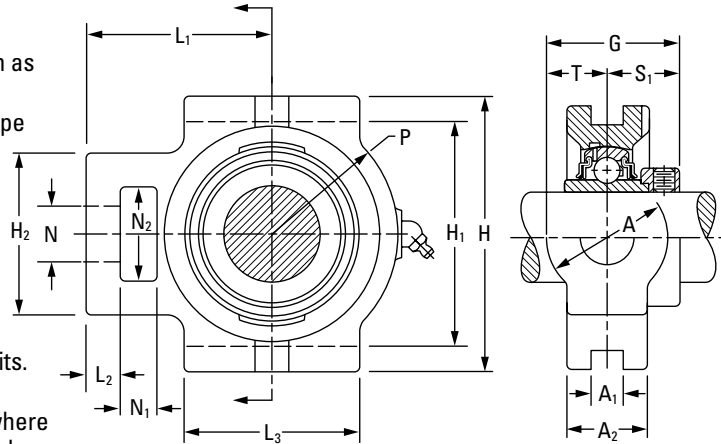
<sup>(1)</sup>Dimension K is 69.1 mm (2 23/32 in.) for 2 15/16 in. shaft diameters.

# BALL BEARING HOUSED UNITS

BALL BEARING HOUSED UNITS • TAKE-UP UNITS • RTU

## RTU INDUSTRIAL SERIES

- These ball bearing take-up units are used where shaft adjustment and belt-tightening devices are required, such as in conveyor applications.
- Both types of take-up units incorporate self-aligning, B-type wide-inner-ring ball bearings with self-locking collars.
- These units use a G-KRRB, R-seal type wide inner ring ball bearing.
- These units provide compact, efficient supports for adjustable shafts and conveyor take-up pulleys.
- The units are factory-prelubricated. A grease fitting is provided for relubrication if required.
- See the preceding page for take-up frames to fit these units.
- Contact your Timken engineer to discuss highly corrosive applications (e.g., food processing, chemical exposure) where Timken thin-dense chrome-coated bearings can be utilized.



### Suggested shaft tolerances:

3/4 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;

2 in. – 2 7/16 in., nominal to -0.025 mm, -0.0010 in.

### To order, specify UNIT and SHAFT DIAMETER.

Example: RTU 3/4 in. or RTU 2 11/16 in.

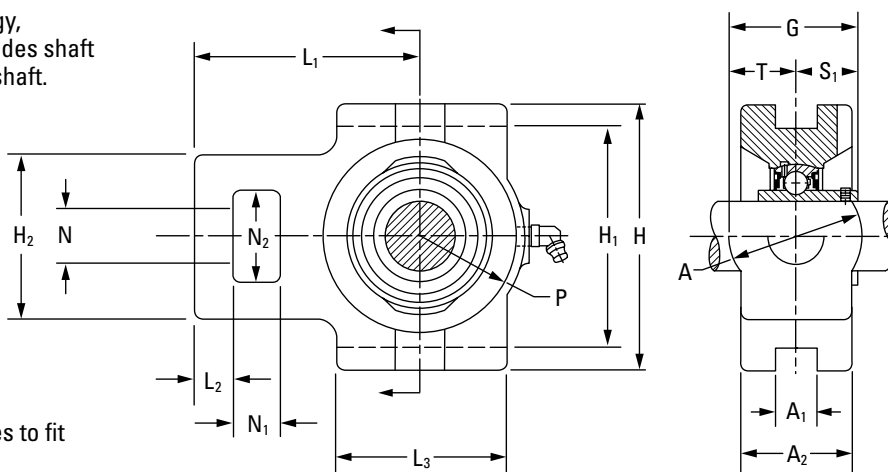
### BEARING DATA

Unit	Bearing No.	Dimensions and Load Ratings
RTU	G-KRRB	Page A-34

Unit	Shaft Dia.	Dimensions																Bearing No.	Collar No.	Housing No.	Unit Wt.																	
		G	T	S <sub>1</sub>	A <sub>2</sub>	A <sub>1</sub>	A	L <sub>1</sub>	H <sub>2</sub>	N	N <sub>2</sub>	L <sub>2</sub>	N <sub>1</sub>	P	L <sub>3</sub>	H <sub>1</sub>	H																					
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.				kg lbs.																	
RTU	3/4	47.6	20.6	27.0	34.1	13.5	41.3	67.5	57.2	19.0	31.8	12.7	15.9	49.2	57.2	76.2	92.1	G1012KRRB	S1012K	T-18832	1.444																	
RTU	20	1 7/8	13/16	1 1/16	1 11/32	17/32	1 5/8	2 21/32	2 1/4	3/4	1 1/4	1/2	5/8	1 15/16	2 1/4	3	3 5/8	GE20KRRB	SE20K		3.18																	
RTU	7/8	42.9	22.2	27.0	37.3	13.5	44.4	67.5	57.2	19.0	31.8	12.7	15.9	34.9	57.2	76.2	92.1	G1014KRRB	S1014K	T-18696	1.498																	
RTU	1 5/16																	1 15/16	7/8			1 1/16	1 15/32	17/32	1 3/4	2 21/32	2 1/4	3/4	1 1/4	1/2	5/8	1 3/8	2 1/4	3	3 5/8	G1015KRRB	S1015K	3.30
RTU	1																	G1100KRRB	S1100K																			
RTU	25																	GE25KRRB	SE25K																			
RTU	1 1/16	55.6	25.4	30.2	38.1	13.5	50.8	72.2	61.9	22.2	36.5	12.7	15.9	41.3	63.5	88.9	104.8	G1101KRRB	S1101K	T-18694	1.920																	
RTU	1 1/8																	2 3/16	1			1 3/16	1 1/2	17/32	2	2 27/32	2 1/16	7/8	1 7/16	1/2	5/8	1 5/8	2 1/2	3 1/2	4 1/8	G1102KRRB	S1102K	4.23
RTU	1 3/16																	G1103KRRB	S1103K																			
RTU	30																	GE30KRRB	SE30K																			
RTU	1 1/4	54.8	22.2	32.5	36.5	13.5	44.5	74.6	63.5	22.2	36.5	12.7	15.9	49.2	69.8	88.9	104.8	G1104KRRB	S1104K	T-18692	2.025																	
RTU	1 5/16																	2 5/32	7/8			1 9/32	1 7/16	17/32	1 3/4	2 15/16	2 1/2	7/8	1 7/16	1/2	5/8	1 15/16	2 3/4	3 1/2	4 1/8	G1105KRRB	S1105K	4.46
RTU	1 3/8																	G1106KRRB	S1106K																			
RTU	1 7/16																	G1107KRRB	S1107K																			
RTU	35	GE35KRRB	SE35K																																			
RTU	1 1/2	67.5	32.5	34.9	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19.0	53.3	82.6	100.8	120.6	G1108KRRB	S1108KT	T-18834	3.314																	
RTU	1 9/16																	2 21/32	1 9/32			1 3/8	1 1/4	1 1/16	2 9/16	3 15/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 3/32	3 1/4	3 31/32	4 3/4	G1109KRRB	S1109K	7.30
RTU	40																	GE40KRRB	SE40K																			
RTU	1 5/8																	G1110KRRB	S1110K																			
RTU	1 11/16	67.5	32.5	34.9	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19.0	53.3	82.6	100.8	120.6	G1111KRRB	S1111K	T-18762	3.164																	
RTU	1 3/4																	2 21/32	1 9/32			1 3/8	1 3/4	1 1/16	2 9/16	3 15/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 3/32	3 1/4	3 31/32	4 3/4	G1112KRRB	S1112K	6.97
RTU	45																	GE45KRRB	SE45K																			
RTU	1 7/8																	G1114KRRB	S1114K																			
RTU	1 15/16	70.6	32.5	38.1	49.2	17.5	65.1	91.3	82.6	28.6	49.2	15.9	19.0	59.5	85.7	100.8	120.6	G1115KRRB	S1115K	T-18690	3.587																	
RTU	2 25/32																	1 9/32	1 1/2			1 15/16	1 1/16	2 9/16	3 19/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 11/32	3 3/8	3 31/32	4 3/4	G1115KRRB	S1115K	7.90	
RTU	50																	GE50KRRB	SE50K																			
RTU	2																	G1200KRRB	S1201K																			
RTU	2 1/8	77.0	34.9	43.7	55.6	27.0	69.8	119.9	101.6	34.9	63.5	19.0	31.8	69.1	101.6	129.4	149.2	G1202KRRB	S1202K	T-18828	6.333																	
RTU	2 3/16																	3 1/32	1 3/8			1 23/32	2 3/16	1 1/16	2 3/4	4 23/32	4	1 3/8	2 1/2	3/4	1 1/4	2 23/32	4	5 3/32	5 7/8	G1203KRRB	S1203K	13.95
RTU	55																	GE55KRRB	SE55K																			
RTU	2 1/4																	G1204KRRB	S1204K																			
RTU	2 3/8	81.8	34.9	46.8	52.4	27.0	69.8	119.9	101.6	34.9	63.5	19.0	31.8	69.1	101.6	129.4	149.2	G1206KRRB	S1206K	T-18830	5.993																	
RTU	2 7/16																	3 7/32	1 3/8			1 27/32	2 1/16	1 1/16	2 3/4	4 23/32	4	1 3/8	2 1/2	3/4	1 1/4	2 23/32	4	5 3/32	5 7/8	G1207KRRB	S1207K	13.20
RTU	60																	GE60KRRB	SE60K																			

**YTU INDUSTRIAL SERIES**

- Incorporates Shaft Guarding Technology, which reduces replacement time, provides shaft protection and prolongs the life of the shaft.
- Used where shaft adjustment and belt-tightening devices are required, such as conveyer applications.
- Incorporates self-aligning, B-type extra wide-inner-ring ball bearings with set screw lock.
- Provides compact, efficient supports for adjustable shafts and conveyor take-up pulleys.
- Factory-prelubricated. A grease fitting is provided for relubrication if required.
- See preceding pages for take-up frames to fit these units.
- Safety end caps are available for selected sizes.
- Contact your Timken engineer to discuss highly corrosive applications (e.g., food processing, chemical exposure) where Timken thin-dense chrome-coated bearings can be utilized.



**Suggested shaft tolerances:**

- 1/2 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 7/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: YTU 3/4 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
YTU	GY-KRRB	Page A-44

Unit	Shaft Dia.	Dimensions and Load Ratings																Bearing No.	Housing No.
		G	T	S <sub>1</sub>	A <sub>2</sub>	A <sub>1</sub>	A	L <sub>1</sub>	H <sub>2</sub>	N	N <sub>2</sub>	L <sub>2</sub>	N <sub>1</sub>	P	L <sub>3</sub>	H <sub>1</sub>	H		
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		
YTU SGT	3/4	39.7	20.6	19.00	34.1	13.5	41.3	67.5	57.2	19.0	31.8	12.7	15.9	33.3	57.2	76.2	92.1	GY1012KRRB SGT	T-18832
YTU SGT	20	1 9/16	19/16	0.748	1 11/32	17/32	1 5/8	2 21/32	2 1/4	3/4	1 1/4	1/2	5/8	1 9/16	2 1/4	3	3 3/8	GYE20KRRB SGT	
YTU SGT	7/8	42.9	22.2	20.60	37.3	13.5	44.4	67.5	57.2	19.0	31.8	12.7	15.9	34.9	57.2	76.2	92.1	GY1014KRRB SGT	T-18696
YTU SGT	15/16	1 11/16	7/8	0.81	1 15/32	17/32	1 3/4	2 21/32	2 1/4	3/4	1 1/4	1/2	5/8	1 3/8	2 1/4	3	3 3/8	GY1015KRRB SGT	
YTU SGT	1	1 11/16	7/8	0.81	1 15/32	17/32	1 3/4	2 21/32	2 1/4	3/4	1 1/4	1/2	5/8	1 3/8	2 1/4	3	3 3/8	GY1100KRRB SGT	
YTU SGT	25	1 11/16	7/8	0.81	1 15/32	17/32	1 3/4	2 21/32	2 1/4	3/4	1 1/4	1/2	5/8	1 3/8	2 1/4	3	3 3/8	GYE25KRRB SGT	
YTU SGT	1 1/8	48.8	25.4	23.24	38.1	13.5	50.8	72.2	61.9	22.2	36.5	12.7	15.9	41.3	63.5	88.9	104.8	GY1102KRRB SGT	T-18694
YTU SGT	1 3/16	1 59/64	1	0.915	1 1/2	17/32	2	2 27/32	2 7/16	7/8	1 7/16	1/2	5/8	1 5/8	2 1/2	3 1/2	4 1/8	GY1103KRRB SGT	
YTU SGT	30	1 59/64	1	0.915	1 1/2	17/32	2	2 27/32	2 7/16	7/8	1 7/16	1/2	5/8	1 5/8	2 1/2	3 1/2	4 1/8	GYE30KRRB SGT	
YTU SGT	1 1/4	50.4	22.2	27.90	36.5	13.5	44.5	74.6	63.5	22.2	36.5	12.7	15.9	49.2	69.8	88.9	104.8	GY1104KRRB SGT	T-18692
YTU SGT	1 3/8	1 63/64	7/8	1.1	1 7/16	17/32	1 3/4	2 15/16	2 1/2	7/8	1 7/16	1/2	5/8	1 15/16	2 3/4	3 1/2	4 1/8	GY1106KRRB SGT	
YTU SGT	1 7/16	1 63/64	7/8	1.1	1 7/16	17/32	1 3/4	2 15/16	2 1/2	7/8	1 7/16	1/2	5/8	1 15/16	2 3/4	3 1/2	4 1/8	GY1107KRRB SGT	
YTU SGT	35	1 63/64	7/8	1.1	1 7/16	17/32	1 3/4	2 15/16	2 1/2	7/8	1 7/16	1/2	5/8	1 15/16	2 3/4	3 1/2	4 1/8	GYE35KRRB SGT	
YTU SGT	1 1/2	62.7	32.5	30.20	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19.0	53.3	82.6	100.8	120.6	GY1108KRRB SGT	T-18834
YTU SGT	40	2 15/32	1 9/32	1.188	1 3/4	1 1/16	2 9/16	3 19/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 3/32	3 1/4	3 31/32	4 3/4	GYE40KRRB SGT	
YTU SGT	1 5/8	64.0	32.5	31.30	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19.0	53.3	82.6	100.8	120.6	GY1110KRRB SGT	T-18762
YTU SGT	1 11/16	2 33/64	1 9/32	1.233	1 3/4	1 1/16	2 9/16	3 19/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 3/32	3 1/4	3 31/32	4 3/4	GY1111KRRB SGT	
YTU SGT	1 3/4	2 33/64	1 9/32	1.233	1 3/4	1 1/16	2 9/16	3 19/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 3/32	3 1/4	3 31/32	4 3/4	GY1112KRRB SGT	
YTU SGT	45	2 33/64	1 9/32	1.233	1 3/4	1 1/16	2 9/16	3 19/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 3/32	3 1/4	3 31/32	4 3/4	GYE45KRRB SGT	
YTU SGT	1 15/16	65.0	32.5	32.50	49.2	17.5	65.1	91.3	82.6	28.6	49.2	15.9	19.0	59.5	85.7	100.8	120.6	GY1115KRRB SGT	T-18690
YTU SGT	50	2 9/16	1 9/32	1.281	1 15/16	1 1/16	2 9/16	3 19/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 11/32	3 3/8	3 31/32	4 3/4	GYE50KRRB SGT	
YTU SGT	2	68.3	34.9	33.30	55.6	27.0	69.8	119.9	101.6	34.9	63.5	19.0	31.8	69.1	101.6	129.4	149.2	GY1200KRRB SGT	T-18828
YTU SGT	2 3/16	2 11/16	1 3/8	1.312	2 3/16	1 1/16	2 3/4	4 23/32	4	1 3/8	2 1/2	3/4	1 1/4	2 23/32	4	5 3/32	5 7/8	GY1203KRRB SGT	
YTU SGT	55	2 11/16	1 3/8	1.312	2 3/16	1 1/16	2 3/4	4 23/32	4	1 3/8	2 1/2	3/4	1 1/4	2 23/32	4	5 3/32	5 7/8	GYE55KRRB SGT	
YTU SGT	2 1/4	74.6	34.9	39.70	52.4	27.0	69.8	119.9	101.6	34.9	63.5	19.0	31.8	69.1	101.6	129.4	149.2	GY1204KRRB SGT	T-18830
YTU SGT	2 7/16	2 15/16	1 3/8	1.562	2 1/16	1 1/16	2 3/4	4 23/32	4	1 3/8	2 1/2	3/4	1/4	2 23/32	4	5 3/32	5 7/8	GY1207KRRB SGT	
YTU SGT	60	2 15/16	1 3/8	1.562	2 1/16	1 1/16	2 3/4	4 23/32	4	1 3/8	2 1/2	3/4	1/4	2 23/32	4	5 3/32	5 7/8	GYE60KRRB SGT	

# BALL BEARING HOUSED UNITS

## BALL BEARING HOUSED UNITS • TAKE-UP UNITS • VTU

### VTU STANDARD SERIES

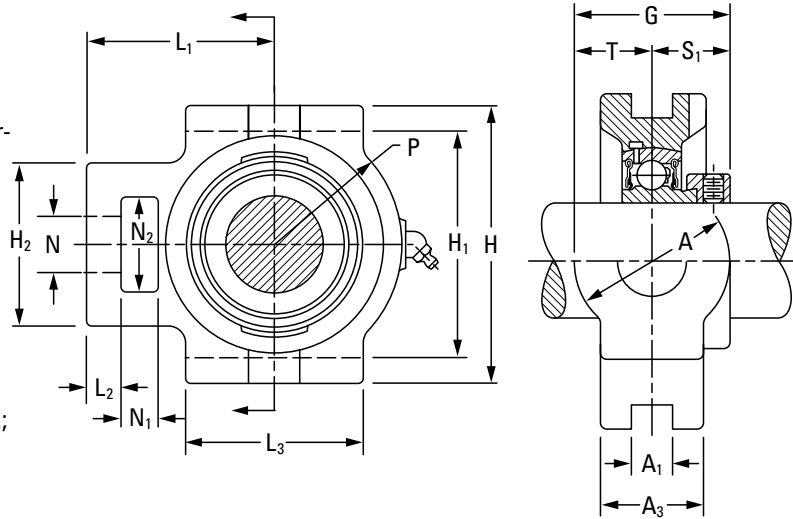
- These units are used where shaft adjustment and belt-tightening devices are required (e.g., conveyor belt applications).
- This unit provides self-aligning, B-type wide-inner-ring ball bearings with self-locking collars.
- Provides compact, efficient supports for adjustable shafts and conveyor take-up pulleys.
- The units are factory-prelubricated. A grease fitting is provided for relubrication if required.
- See the preceding pages for take-up frames to fit these units.

#### Suggested shaft tolerances:

- 3/4 in. – 1 15/16 in., nominal to -0.013 mm, -0.0005 in.;
- 2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

#### To order, specify UNIT and SHAFT DIAMETER.

Example: VTU 3/4 in. or VTU 2 11/16 in.



### BEARING DATA

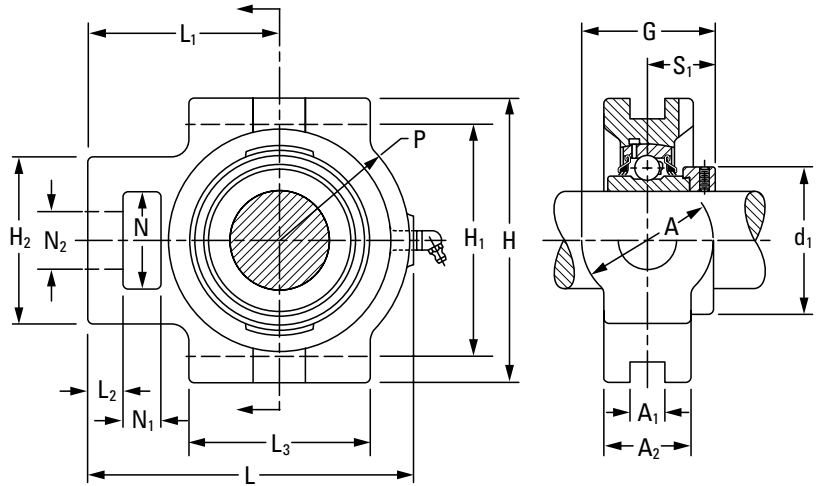
Unit	Bearing No.	Dimensions and Load Ratings
VTU	GRA-RRB	Page A-50

Unit	Shaft Dia.	G	T	S <sub>1</sub>	A <sub>3</sub>	A <sub>1</sub>	A	L <sub>1</sub>	H <sub>2</sub>	N	N <sub>2</sub>	L <sub>2</sub>	N <sub>1</sub>	P	L <sub>3</sub>	H <sub>1</sub>	H	Bearing No.	Collar No.	Housing No.	Unit Wt.	
	in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm				kg	
	mm	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.				lbs.	
VTU	3/4	44.1	20.6	23.4	34.1	13.5	41.3	67.5	57.2	19.0	31.8	12.7	15.9	33.3	57.2	2	76.2	92.1	GRA012RRB	S1012K	T-18832	1.372
VTU	20	147/64	13/16	59/64	111/32	17/32	15/8	221/32	2 1/4	3/4	1 1/4	1/2	5/8	1 5/16	1/4	3	3 5/8	GRAE20RRB	SE20K		3.02	
VTU	7/8	45.2	22.2	23.0	37.3	13.5	44.4	67.5	57.2	19.0	31.8	12.7	15.9	34.9	1	57.2	76.2	92.1	GRA014RRB	S1014K		
VTU	1 5/16	45.2	22.2	23.0	37.3	13.5	44.4	67.5	57.2	19.0	31.8	12.7	15.9	34.9	1	57.2	76.2	92.1	GRA015RRB	S1015K	T-18696	1.458
VTU	1	125/32	7/8	29/32	115/32	17/32	1 3/4	221/32	2 1/4	3/4	1 1/4	1/2	5/8	3/8	2 1/4	3	3 5/8		GRA100RRB	S1100K		3.21
VTU	25																		GRAE25RRB	SE25K		
VTU	1 1/8	52.0	25.4	27.0	38.1	13.5	50.8	72.2	61.9	22.2	36.5	12.7	15.9	41.3	63.5	88.9	104.8	GRA102RRB	S1102K			
VTU	1 3/16	52.0	25.4	27.0	38.1	13.5	50.8	72.2	61.9	22.2	36.5	12.7	15.9	41.3	63.5	88.9	104.8	GRA103RRB	S1103K3	T-18694	1.862	
VTU	30	21/16	1	1 1/16	1 1/2	17/32	2	227/32	2 1/16	7/8	1 7/16	1/2	5/8	1 5/8	2 1/2	3 1/2	4 1/8		GRAE30RRB	SE30K		4.10
VTU	1 1/4	51.6	22.2	29.4	36.5	13.5	44.5	74.6	63.5	22.2	36.5	12.7	15.9	49.2	69.8	2	88.9	104.8	GRA104RRB	S1104K		
VTU	1 3/8	51.6	22.2	29.4	36.5	13.5	44.5	74.6	63.5	22.2	36.5	12.7	15.9	49.2	69.8	2	88.9	104.8	GRA106RRB	S1106K	T-18692	1.953
VTU	1 7/16	2 1/32	7/8	1 5/32	1 7/16	17/32	1 3/4	2 15/16	2 1/2	7/8	1 7/16	1/2	5/8	1 15/16	3/4	3 1/2	4 1/8		GRA107RRB	S1107K		4.30
VTU	35																		GRAE35RRB	SE35K		
VTU	1 1/2	65.0	32.5	32.5	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19.0	53.3	82.6	100.8	120.6	GRA108RRB	S1108KT	T-18834	3.192	
VTU	40	2 9/16	1 9/32	1 9/32	1 3/4	1 1/16	2 9/16	3 15/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 3/32	3 1/4	3 31/32	4 3/4		GRAE40RRB	SE40K		7.03
VTU	1 5/8																		GRA110RRB	S1110K		
VTU	1 11/16	65.0	32.5	32.5	44.4	17.5	65.1	88.1	82.6	28.6	49.2	15.9	19.0	53.3	82.6	100.8	120.6	GRA111RRB	S1111K	T-18762	3.009	
VTU	1 3/4	2 9/16	1 9/32	1 9/32	1 3/4	1 1/16	2 9/16	3 15/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 3/32	3 1/4	3 31/32	4 3/4		GRA112RRB	S1112K		6.63
VTU	45																		GRAE45RRB	SE45K		
VTU	1 7/8	65.0	32.5	32.5	49.2	17.5	65.1	91.3	82.6	28.6	49.2	15.9	19.0	59.5	85.7	100.8	120.6	GRA114RRB	S1114K			
VTU	1 15/16	65.0	32.5	32.5	49.2	17.5	65.1	91.3	82.6	28.6	49.2	15.9	19.0	59.5	85.7	100.8	120.6	GRA115RRB	S1115K	T-18690	3.342	
VTU	50	2 9/16	1 9/32	1 9/32	1 15/16	1 1/16	2 9/16	3 19/32	3 1/4	1 1/8	1 15/16	5/8	3/4	2 11/32	3 3/8	3 31/32	4 3/4		GRAE50RRB	SE50K		7.36
VTU	2	71.4	34.9	36.5	55.6	27.0	69.8	119.9	101.6	34.9	63.5	2	19.0	31.8	69.1	101.6	129.4	149.2	GRA200RRB	S1200K		
VTU	2 3/16	71.4	34.9	36.5	55.6	27.0	69.8	119.9	101.6	34.9	63.5	2	19.0	31.8	69.1	101.6	129.4	149.2	GRA203RRB	S1203K	T-18828	5.784
VTU	55	2 13/16	1 3/8	1 7/16	2 3/16	1 1/16	2 3/4	4 23/32	4	1 3/8	1/2	3/4	1 1/4	2 23/32	4	5 3/32	5 7/8		GRAE55RRB	SE55K		12.73



**TTU INDUSTRIAL SERIES**

- These units are used where shaft adjustment and belt-tightening devices are required (e.g., in conveyor belt applications).
- The unit incorporates self-aligning, B-type, extra wide-inner-ring ball bearings with self-locking collars.
- The unit uses a G-KPPB (tri-ply) type wide inner ring ball bearing.
- The unit provides compact, efficient supports for adjustable shafts and conveyor take-up pulleys.
- The units are factory-prelubricated. A grease fitting is provided for relubrication if required.
- Contact your Timken engineer to discuss highly corrosive applications (e.g., food processing, chemical exposure) where Timken thin-dense chrome-coated bearings can be utilized.



**Suggested shaft tolerances:**

2 in. – 2 3/16 in., nominal to -0.025 mm, -0.0010 in.

**To order, specify UNIT and SHAFT DIAMETER.**

Example: TTU 3/4 in.

**BEARING DATA**

Unit	Bearing No.	Dimensions and Load Ratings
TTU	G-KPPB	Page A-39

Unit	Shaft Dia.	G	L	S <sub>1</sub>	d <sub>1</sub>	A <sub>2</sub>	A <sub>1</sub>	A	L <sub>1</sub>	H <sub>2</sub>	N	N <sub>2</sub>	L <sub>2</sub>	N <sub>1</sub>	P	L <sub>3</sub>	H <sub>1</sub>	H	Bearing No.	Housing No.
	in. mm	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		
TTU	1 1/4																		G1104KPPB2	T18692
	1 5/16	54.38	125.41	32.31	53.98	36.51	13.49	44.45	74.61	63.50	36.51	22.23	12.70	15.88	49.21	69.85	88.90	104.78	G1105KPPB2	
	1 3/8	2.141	4 15/16	1.272	2.125	1 7/16	1 7/32	1 3/4	2 15/16	2 1/2	1 7/16	0.875	1/2	5/8	1 15/16	2 3/4	3 1/2	4 1/8	G1106KPPB2	
	1 7/16																		G1107KPPB2	
TTU	1 15/16	70.64	152.80	38.07	69.34	49.21	17.46	65.09	91.28	82.55	49.21	28.58	15.88	19.05	59.53	85.73	100.81	120.65	G1115KPPB3	T18690
		2.781	6 1/64	1.499	2.73	1 15/16	1 1/16	2 9/16	3 19/32	3 1/4	1 15/16	1.125	5/8	3/4	2 11/32	3 3/8	3 31/32	4 3/4		
TTU	2																		G1200KPPB4	T-18828
	2 1/16	79	190.5	43.6	75.7	55.6	27	69.8	119.9	101.6	63.5	34.7	19	31.8	69.1	101.6	129.4	149.2	G1201KPPB4	
	2 1/8	3.109	7 1/2	1.716	2.980	2 3/16	1 1/16	2 3/4	4 23/32	4	2 1/2	1.365	3/4	1 1/4	2 23/32	4	5 3/32	5 7/8	G1202KPPB4	
	2 3/16																		G1203KPPB4	
	55																		GE55KPPB4	

### TIMKEN® SURVIVOR® PS SERIES

Timken® Survivor® PS series housed units have polymer housings and a 300-series stainless-steel insert to provide the highest possible corrosion resistance in the industry (fig. A-24). The engineered polymer housing unit is FDA/USDA compliant. It is specifically designed for light loads and low speeds with stainless-steel set screws.

The durable corrosion-proof polymer housing features stainless-steel crush bushings in mounting holes with stainless-steel grease fittings with a nylon cap (table A-23). It resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F) and brief exposure up to 160° C (320° F).

Additionally, the polymer strength exceeds the static capacity of the bearing, and the housing retains proper bearing fit and resists shock loads. The flush base has no voids where bacteria could collect. Optional end covers further protect the insert bearing from direct contact with wash-down solutions and cover rotating components.

Survivor PS series units are available as:

- High-base and low-base pillow blocks.
- Two-bolt and four-bolt flanged cartridges for popular shaft sizes.

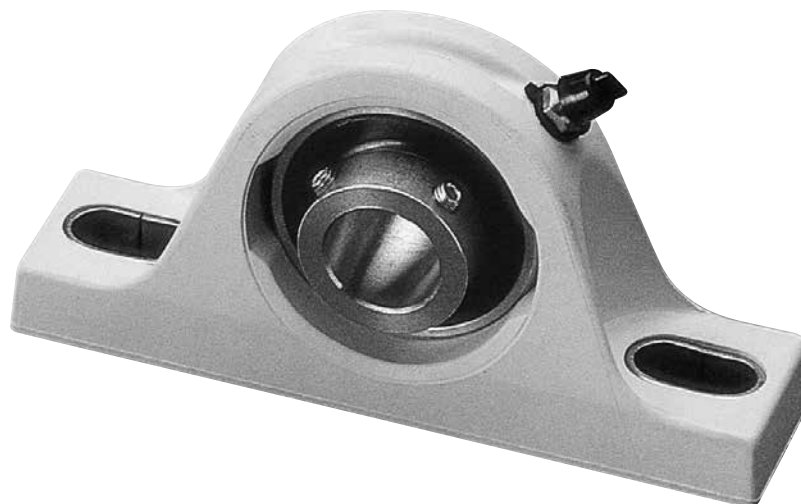


Fig. A-24. PS series.

TABLE A-23.

PS SERIES	
Component	Material
Balls	Stainless steel
Ball retainer	Nylon
Set screws	Stainless steel
Crush bushing	Stainless steel
Grease	FDA approved
<b>Housing</b>	<b>Polymer</b>
Grease fitting	Stainless steel
Grease-fitting cover	Nylon
<b>Rings</b>	<b>Stainless steel</b>
Seals	Synthetic rubber

### ORDERING INFORMATION

To order complete Survivor polymer assemblies, simply replace the (current cast-iron housed-unit designations) prefix with K and add the PS suffix.

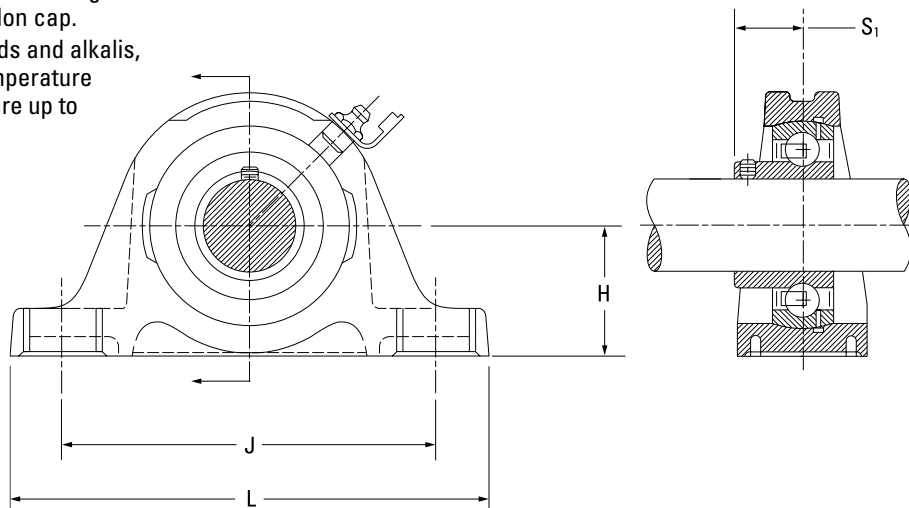
Example: **KCJT 1 PS** or **KAK 3/4 PS**

PS Survivor inserts can be ordered using the part numbers shown in the following tables.

Example: **KCJT1PS100RRB** or **KAK3/4PS012RRB**

**PS  
KAK/S SERIES**

- The 300-series stainless-steel insert provides the highest resistance to corrosion in the industry.
- This unit is used for the ready-to-eat portion of the process. Loads are lighter and corrosion protection is the primary concern.
- Specifically designed for light loads and low speeds, and has stainless-steel set screws.
- The durable, corrosion-proof polymer housing has stainless-steel crush bushings in the mounting holes and a stainless-steel grease fitting with nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F) and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.
- The optional end covers further protect insert bearing from direct contact with washdown solutions and cover rotating components.

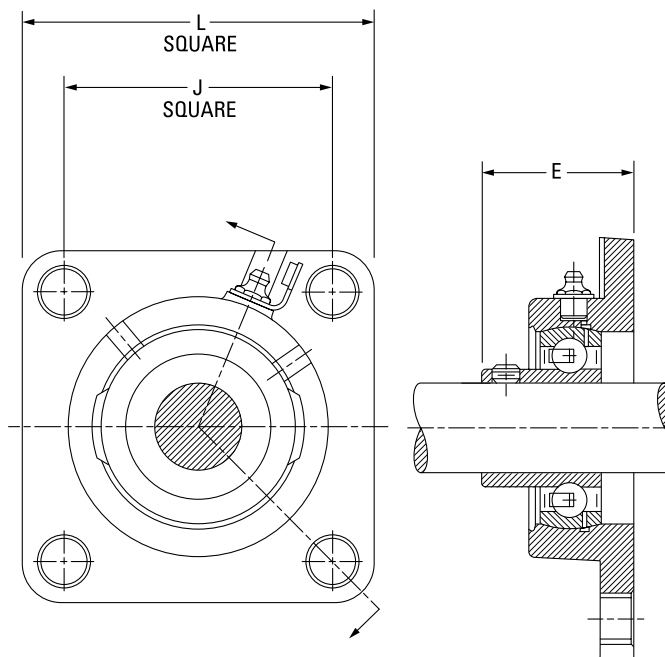


Unit <sup>(1)</sup>	Shaft Dia.	Type						Static Load Rating	Limiting Speed	Bearing No.
			KAK H	KAS H	J	L	S <sub>1</sub>			
	in. mm		mm in.	mm in.	mm in.	mm in.	mm in.	N lbs.	RPM	
KAK/S	3/4 20	PS	31.75 1 1/4	33.34 1 15/16	96.04 3 25/32	127.00 5	18.26 23/32	900 200	500	GKY012RRB GKYE20RRB
KAK/S	1 25	PS	33.34 1 9/16	36.51 1 7/16	104.78 4 1/8	139.70 5 1/2	20.64 13/16	1100 240	425	GKY100RRB GKYE25RRB
KAK/S	1 3/16 1 1/4 S 30	PS	39.69 1 9/16	42.86 1 11/16	117.48 4 5/8	157.16 6 3/16	22.23 7/8	1600 350	375	GKY103RRB GKY103RRB2 GKYE30RRB
KAK/S	1 1/4 1 7/16 35	PS	46.04 1 13/16	47.63 1 7/8	130.18 5 1/8	166.69 6 9/16	27.38 1 5/64	2100 475	300	GKY104RRB GKY107RRB GKYE35RRB

<sup>(1)</sup>Option of low-base KAK or high-base KAS.

### KCJ SERIES

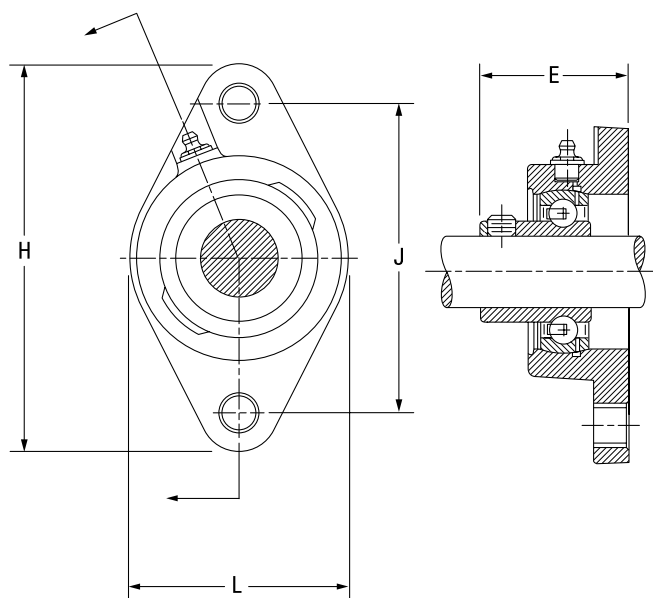
- The 300-series stainless-steel insert provides the highest resistance to corrosion in the industry.
- This unit is used for the ready-to-eat portion of the process. Loads are lighter and corrosion protection is the primary concern.
- Specifically designed for light loads and low speeds, and has stainless-steel set screws.
- The durable, corrosion-proof polymer housing has stainless-steel crush bushings in the mounting holes and a stainless-steel grease fitting with nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F) and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.
- The optional end covers further protect insert bearing from direct contact with washdown solutions and cover rotating components.



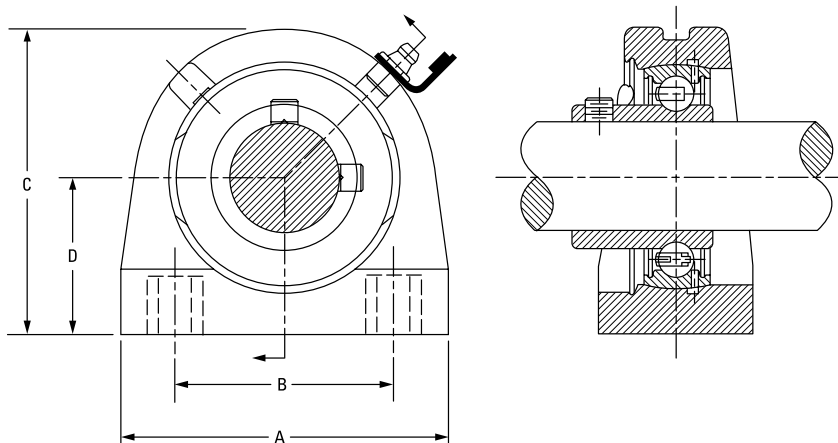
Unit	Shaft Dia.	Type	L		J		Static Load Rating	Limiting Speed	Bearing No.
			mm	in.	mm	in.			
KCJ	3/4	PS	<b>85.33</b>		<b>63.50</b>		<b>900</b>	500	GKY012RRB GKYE20RRB
	<b>20</b>			3 23/64		2 1/2			
KCJ	1	PS	<b>94.85</b>		<b>69.85</b>		<b>1100</b>	425	GKY100RRB GKYE25RRB
	<b>25</b>			3 47/64		2 3/4			
KCJ	1 3/16	PS	<b>107.95</b>		<b>82.55</b>		<b>1600</b>	375	GKY103RRB GKY103RRB2 GKYE30RRB
	1 1/4 S <b>30</b>			4 1/4		3 1/4			
KCJ	1 1/4	PS	<b>117.48</b>		<b>92.08</b>		<b>2100</b>	300	GKY104RRB GKY107RRB GKYE35RRB
	1 7/16 <b>35</b>			4 5/8		3 5/8			

**KCJT AND KTB SERIES**

- The 300-series stainless-steel insert provides the highest resistance to corrosion in the industry.
- This unit is used for the ready-to-eat portion of the process. Loads are lighter and corrosion protection is the primary concern.
- Specifically designed for light loads and low speeds, and has stainless-steel set screws.
- The durable, corrosion-proof polymer housing has stainless-steel crush bushings in the mounting holes and a stainless-steel grease fitting with nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F) and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.
- The optional end covers further protect insert bearing from direct contact with washdown solutions and cover rotating components.



Unit	Shaft Dia.	Type	H	J	L	E	Static Load Rating	Limiting Speed	Bearing No.
	in. mm		mm in.	mm in.	mm in.	mm in.	N lbs.	RPM	
KCJT	3/4 20	PS	111.92 4 13/32	89.69 3 17/32	60.33 2 3/8	37.31 1 15/32	900 200	500	GKY012RRB GKYE20RRB
KCJT	1 25	PS	124.22 4 57/64	98.82 3 57/64	65.48 2 37/64	39.69 1 9/16	1100 240	425	GKY100RRB GKYE25RRB
KCJT	1 3/16 1 1/4 S 30	PS	140.89 5 35/64	116.68 4 19/32	76.20 3	41.28 1 5/8	1600 350	375	GKY103RRB GKY103RRB2 GKYE30RRB
KCJT	1 1/4 1 7/16 35	PS	155.58 6 1/8	130.18 5 1/8	92.08 3 5/8	49.21 1 15/16	2100 475	300	GKY104RRB GKY107RRB GKYE35RRB



Unit	Shaft Dia.	Type	A	B	C	D	Static Load Rating	Limiting Speed	Bearing No.
	in. mm		mm in.	mm in.	mm in.	mm in.	N lbs.	RPM	
KTB	1	PS	76.20 3	50.80 2	71.44 2 13/16	36.51 1 7/16	1100 240	425	GKY100RRB

### TIMKEN® SURVIVOR® PT SERIES

Timken® Survivor® PT series housed units are designed to meet stringent food-handling requirements while standing up to highly corrosive environments (fig. A-25). All materials used in Survivor assemblies, including grease, are approved for USDA- and FDA-compliant industries (table A-24).

The Survivor series also provides extraordinary corrosion resistance for materials handling operations, dairy and refrigeration applications, as well as heating, ventilation and air conditioning (HVAC), chemical, maritime and other highly corrosive environments.

Patented Survivor PT polymer housed units withstand a wide range of chemicals. These units are dimensionally stable under load and able to operate in continuous temperatures up to 120° C (250° F) and brief exposures up to 177° C (350° F).

Our bearing inserts are coated in proprietary Timken thin-dense chrome that will not crack or peel. Inserts are available with a self-locking collar or a set screw locking device. Also available is Timken Shaft Guarding Technology (page A-31), which uses a stainless-steel, hardened band to transfer gripping pressure on the shaft. Unlike traditional set screws, which can dig into the shaft, there are no nicks, raised metal or permanent shaft damage.

The stainless band won't corrode on the shaft. Housed units with Shaft Guarding Technology also reduce change-out time.

Survivor PT series units are available as:

- High-base and low-base pillow blocks.
- Two-bolt and four-bolt flanged cartridges for popular shaft sizes of ½ in. through 2 15/16 in. (and selected metric diameters).
- Take-up unit in the Survivor PT series in limited shaft sizes (RTU-NT). The bearing inserts are available with self-locking collars.

Timken also produces a take-up unit in the Survivor NT series in limited shaft sizes (RTU-NT). The bearing inserts are available with self-locking collars.

Survivor PT assemblies are dimensionally interchangeable with the current line of Timken cast-iron housed units.

The polymer housing and TDC coating resist premature failure under corrosive conditions. These properties extend the life of the housed unit and bearing. Longer periods between replacements save costs and reduce downtime.



Fig. A-25. Popular styles.

TABLE A-24.

PT SERIES	
Component	Material
Balls	Stainless steel
Ball retainer	Nylon
Collar	Stainless steel
Crush bushing	Stainless steel
Grease	FDA approved
<b>Housing</b>	<b>Polymer</b>
Grease fitting	Stainless steel
Grease fitting cover	Nylon
<b>Rings</b>	<b>TDC plated</b>
Seals	Synthetic rubber
Seal caps	Stainless steel
Set screw	Stainless steel

### ORDERING INFORMATION

To order complete Survivor polymer assemblies, simply add the PT suffix to the current cast-iron housed-unit designations.

Example: YCJT 1 **PT** SGT or RAK ¾ **PT** SGT

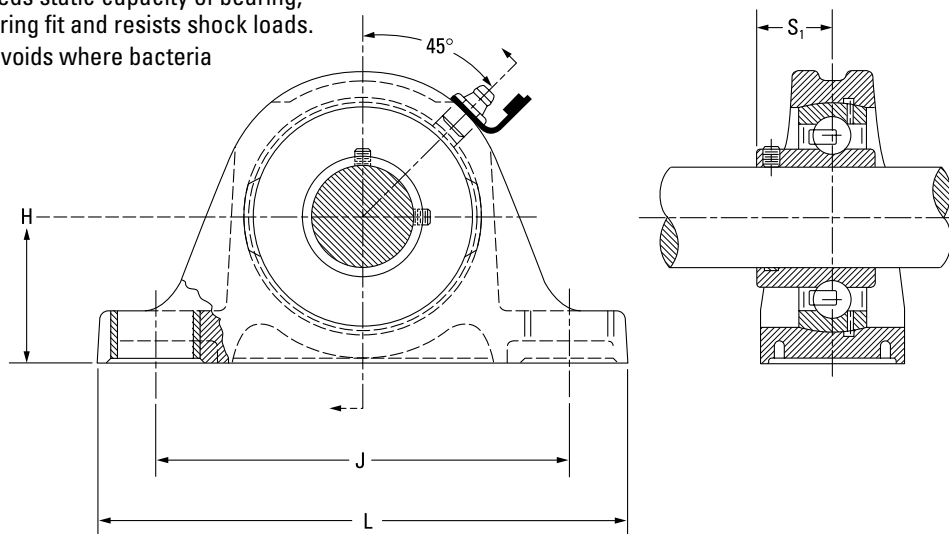
Survivor inserts can be ordered using Timken's standard part number for wide-inner-ring ball bearings with a TDCF suffix.

Example: GY1100KRRB **TDCF** SGT or G1100KRRB + COL **TDCF** SGT

**PT  
YAK/S SERIES**

- This unit is used for the main portion of the process where loads are lighter and corrosion protection is important.
- Durable corrosion-proof polymer housing with stainless-steel crush bushings in mounting holes and a stainless-steel grease fitting with a nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F), and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.

- Corrosion-resistant insert bearing with stainless-steel balls and a nylon retainer. The PT series also features industrial-duty contact seals with stainless-steel shroud caps.
- This unit has stainless-steel set screws with Shaft Guarding Technology.
- This unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.

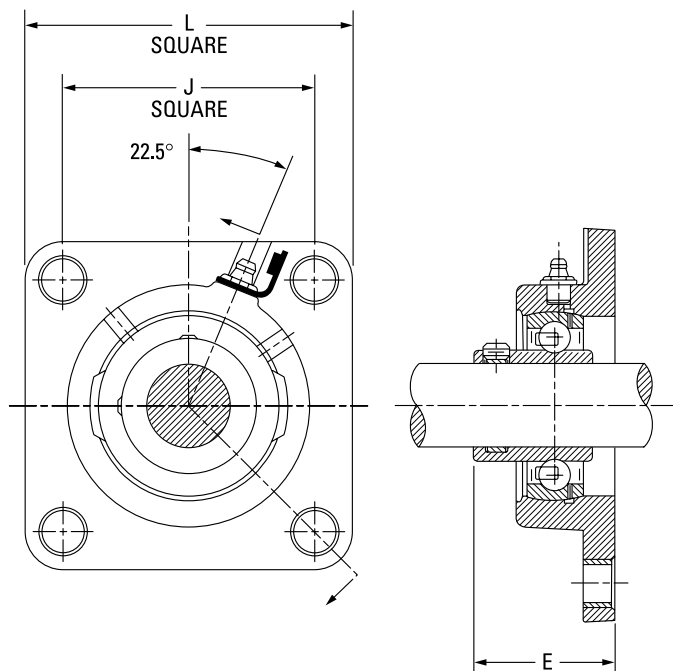


Unit <sup>(1)</sup>	Shaft Dia.	Type	Dimensions					Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	
			YAK H	YAS H	J	L	S <sub>1</sub>					
	in. mm		mm in.	mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM		
YAK/S	3/4	PT SGT	31.75	33.34	96.04	127.00	19.05	6500	14500	9200	GY1012KRRB	TDCF SGT
	20		1 1/4	1 5/16	3 25/32	5	3/4	1460	3250	8800	GYE20KRRB	TDCF SGT
YAK/S	1	PT SGT	33.34	36.51	104.78	139.70	20.64	7700	15800	6900	GY1100KRRB	TDCF SGT
	25		1 5/16	1 7/16	4 1/8	5 1/2	13/16	1730	3550	7000	GYE25KRRB	TDCF SGT
YAK/S	1 1/4	PT SGT	39.69	42.86	117.48	157.16	23.4	11100	21800	5500	GY1103KRRB3	TDCF
	30		1 9/16	1 11/16	4 5/8	6 3/16	59/64	2500	4900	5800	GYE30KRRB	TDCF SGT
YAK/S	1 3/8	PT SGT	46.04	47.63	130.18	166.69	28.18	15100	28500	5000	GY1106KRRB	TDCF SGT
	1 7/16		1 13/16	1 7/8	5 1/8	6 9/16	1 7/64	3400	6400	4800	GY1107KRRB	TDCF SGT
	35		1 13/16	1 7/8	5 1/8	6 9/16	1 7/64	3400	6400	5000	GYE35KRRB	TDCF SGT
YAK/S	1 1/2	PT SGT	49.21	49.21	136.53	179.39	30.16	19600	36300	4600	GY1108KRRB	TDCF SGT
	40		1 15/16	1 15/16	5 3/8	7 1/16	1 3/16	4400	8150	4400	GYE40KRRB	TDCF SGT

<sup>(1)</sup>Option of low-base RAK or high-base RAS.

### YCJ SERIES

- This unit is used for the main portion of the process where loads are lighter and corrosion protection is important.
- Durable corrosion-proof polymer housing with stainless-steel crush bushings in mounting holes and a stainless-steel grease fitting with a nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F), and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.
- Corrosion-resistant insert bearing with stainless-steel balls and a nylon retainer. The PT series also features industrial-duty contact seals with stainless-steel shroud caps.
- This unit has stainless-steel set screws with Shaft Guarding Technology.
- This unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.

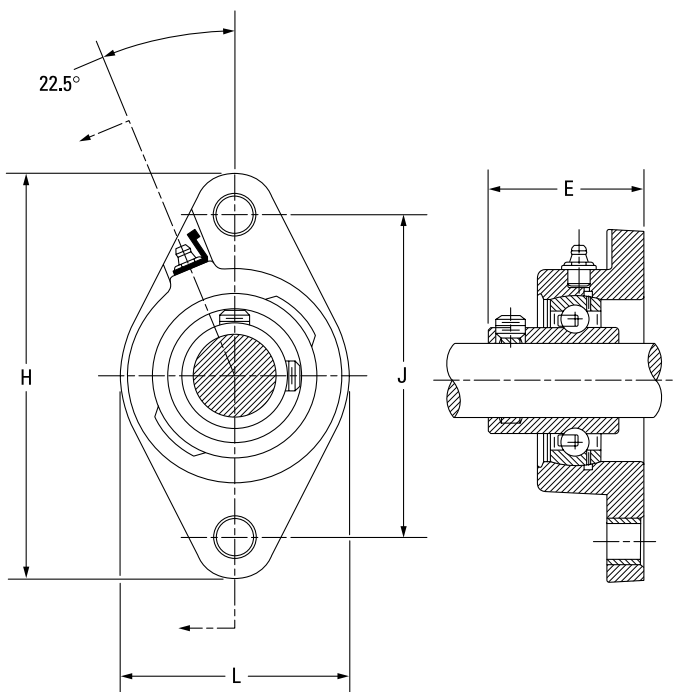


Unit	Shaft Dia.	Type	Dimensions			Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	
			L	J	E					
	in. mm		mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM		
YCJ	3/4 20	PT SGT	85.73	63.50	38.10	6500	14500	9200	GY1012KRRB	TDCF SGT
			3 3/8	2 1/2	1 1/2	1460	3250	8800	GYE20KRRB	TDCF SGT
YCJ	1 25	PT SGT	95.25	69.85	39.69	7700	15800	6900	GY1100KRRB	TDCF SGT
			3 3/4	2 49/64	1 9/16	1730	3550	7000	GYE25KRRB	TDCF SGT
YCJ	1 3/16 1 1/4S 30	PT SGT	107.95	82.55	42.07	11100	21800	5800	GY1103KRRB	TDCF SGT
		PT						5500	GY1103KRRB3	TDCF
		PT SGT						5800	GYE30KRRB	TDCF SGT
YCJ	1 1/4 1 3/8 1 7/16 35	PT SGT	117.48	92.08	48.42	15100	28500	5500	GY1104KRRB	TDCF SGT
								5000	GY1106KRRB	TDCF SGT
								4800	GY1107KRRB	TDCF SGT
								5000	GYE35KRRB	TDCF SGT
YCJ	1 1/2 40	PT SGT	130.18	101.60	53.98	19600	36300	4600	GY1108KRRB	TDCF SGT
								4400	GYE40KRRB	TDCF SGT



**YCJT SERIES**

- This unit is used for the main portion of the process where loads are lighter and corrosion protection is important.
- Durable corrosion-proof polymer housing with stainless-steel crush bushings in mounting holes and a stainless-steel grease fitting with a nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F), and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.
- Corrosion-resistant insert bearing with stainless-steel balls and a nylon retainer. The PT series also features industrial-duty contact seals with stainless-steel shroud caps.
- This unit has stainless-steel set screws with Shaft Guarding Technology.
- This unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.

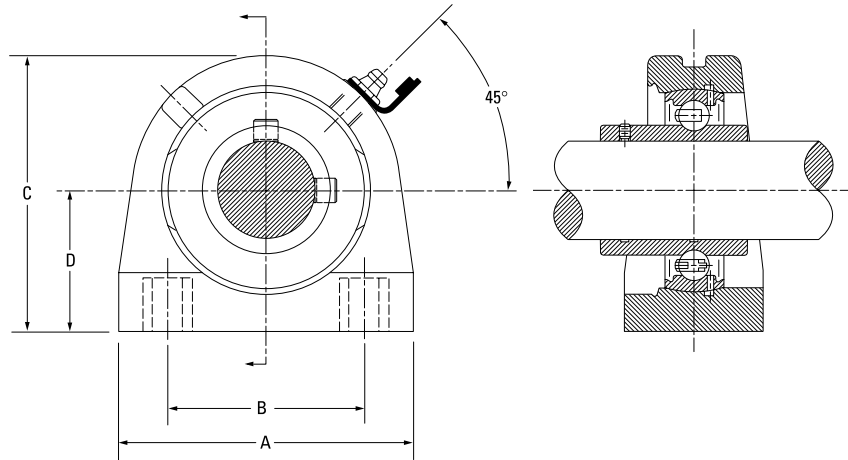


Unit	Shaft Dia.	Type	Dimensions				Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	
			H	J	L	E					
	in. mm		mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM		
YCJT	3/4 20	PT SGT	111.92	89.69	60.33	38.10	6500	14500	9200	GY1012KRRB	TDCF SGT
			4 13/32	3 17/32	2 3/8	1 1/2	1460	3250	8800	GYE20KRRB	TDCF SGT
YCJT	1 25	PT SGT	123.83	99.22	69.85	39.69	7700	15800	6900	GY1100KRRB	TDCF SGT
			4 7/8	3 29/32	2 3/4	1 9/16	1730	3550	7000	GYE25KRRB	TDCF SGT
YCJT	1 3/16 1 1/4S 30	PT SGT	141.29	116.68	79.38	42.07	11100	21800	5800	GY1103KRRB	TDCF SGT
		PT	5 9/16	4 19/32	3 1/8	1 21/32	2500	4900	5500	GY1103KRRB3	TDCF
		PT SGT							5800	GYE30KRRB	TDCF SGT
YCJT	1 1/4 1 3/8 1 7/16 35	PT SGT	155.58	130.18	92.08	48.42	15100	28500	5500	GY1104KRRB	TDCF SGT
			6 1/8	5 1/8	3 5/8	1 29/32	3400	6400	5000	GY1106KRRB	TDCF SGT
									4800	GY1107KRRB	TDCF SGT
									5000	GYE35KRRB	TDCF SGT
YCJT	1 1/2 40	PT SGT	171.45	143.67	104.78	53.98	19600	36300	4600	GY1108KRRB	TDCF SGT
			6 3/4	5 21/32	4 1/8	2 1/8	4400	8150	4400	GYE40KRRB	TDCF SGT

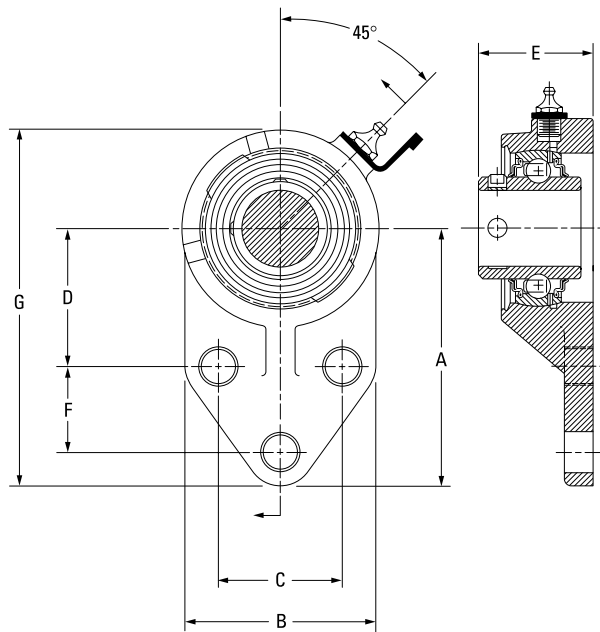
### YTB AND YFB SERIES

- This unit is used for the main portion of the process where loads are lighter and corrosion protection is important.
- Durable corrosion-proof polymer housing with stainless-steel crush bushings in mounting holes and a stainless-steel grease fitting with a nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F), and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.
- Corrosion-resistant insert bearing with stainless-steel balls and a nylon retainer. The PT series also features industrial-duty contact seals with stainless-steel shroud caps.

- This unit has stainless-steel set screws with Shaft Guarding Technology.
- This unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.



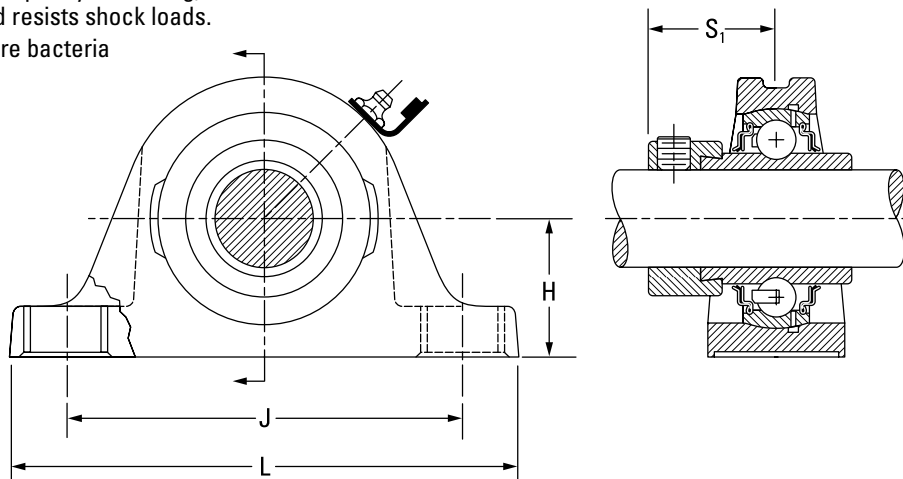
Unit	Shaft Dia.	Type	A	B	C	D	Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	
	in. mm		mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM		
YTB	1	PT SGT	76.20	50.80	71.44	36.51	7700	15800	6900	GY1100KRRB	TDCF SGT
	25		3	2	2 13/16	1 7/16	1730	3550	7000	GYE25KRRB	TDCF SGT



Unit	Shaft Dia.	Type	A	B	C	D	E	F	G	Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	
	in. mm		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM		
YFB	1	PT SGT	85.73	63.50	41.28	46.04	38.10	28.58	118.66	6900	15300	6900	GY1100KRRB	TDCF SGT
	25		3 3/8	2 1/2	1 5/8	1 13/16	1 1/2	1 1/8	4 43/64	1560	3450	7000	GYE25KRRB	TDCF SGT

**RAK/S SERIES**

- This unit is used for the main portion of the process where loads are lighter and corrosion protection is important.
- Durable corrosion-proof polymer housing with stainless-steel crush bushings in mounting holes and a stainless-steel grease fitting with a nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F), and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.
- Corrosion-resistant insert bearing with stainless-steel balls and a nylon retainer. The PT series also features industrial-duty contact seals with stainless-steel shroud caps.
- This unit has a stainless-steel lock collar.
- This unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.

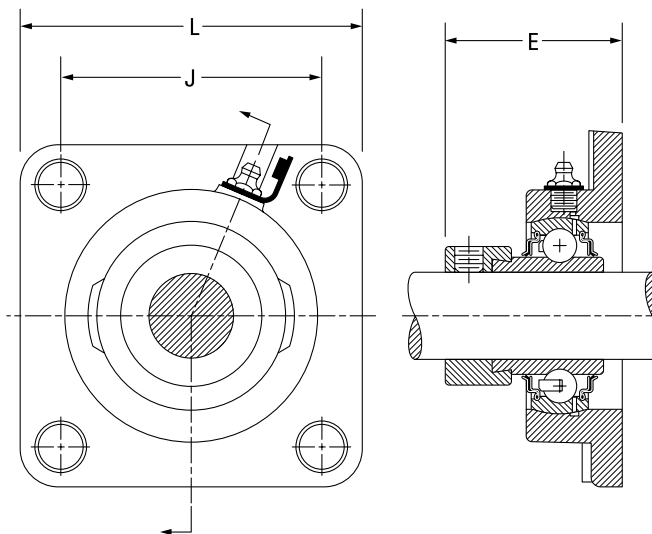


Unit <sup>(1)</sup>	Shaft Dia.	Type	Dimensions					Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.		Collar No.
			RAK H	RAS H	J	L	S <sub>1</sub>						
	in. mm		mm in.	mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM			
RAK/S	3/4	PT	31.75 1 1/4	33.34 1 5/16	96.04 3 25/32	127.00 5	26.59 1 3/64	6500 1460	14500 3250	9200	G1012KRRB	TDCF	S1012K SS
RAK/S	1 25	PT	33.34 1 5/16	36.51 1 7/16	104.78 4 1/8	139.70 5 1/2	26.99 1 1/16	7700 1730	15800 3550	6900 7000	G1100KRRB GE25KRRB	TDCF TDCF	S1100K SS SE25K SS
RAK/S	1 3/16 1 1/4 30	PT	39.69 1 9/16	42.86 1 11/16	117.48 4 5/8	157.16 6 3/16	30.16 1 3/16	11100 2500	21800 4900	5800 5500 5800	G1103KRRB G1103KRRB3 GE30KRRB	TDCF TDCF TDCF	S1103K SS S1103K3 SS SE30K SS
RAK/S	1 1/4 1 3/8 1 7/16	PT	46.04 1 13/16	47.63 1 7/8	130.18 5 1/8	166.69 6 9/16	32.54 1 9/32	15100 3400	28500 6400	5500 5000 4800	G1104KRRB G1106KRRB G1107KRRB	TDCF TDCF TDCF	S1104K SS S1106K SS S1107K SS
RAK/S	1 1/2 40	PT	49.21 1 15/16	49.21 1 15/16	136.53 5 3/8	179.39 7 1/16	34.93 1 3/8	19600 4400	36300 8150	4600 4400	G1108KRRB GE40KRRB	TDCF TDCF	S1108KT SS SE40K SS

<sup>(1)</sup>Option of low-base RAK or high-base RAS.

### RCJ SERIES

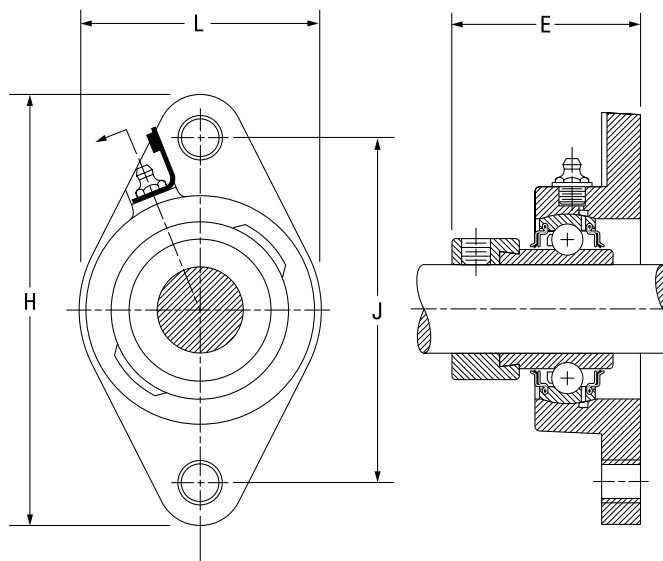
- This unit is used for the main portion of the process where loads are lighter and corrosion protection is important.
- Durable corrosion-proof polymer housing with stainless-steel crush bushings in mounting holes and a stainless-steel grease fitting with a nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F), and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.
- Corrosion-resistant insert bearing with stainless-steel balls and a nylon retainer. The PT series also features industrial-duty contact seals with stainless-steel shroud caps.
- This unit has a stainless-steel lock collar.
- This unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.



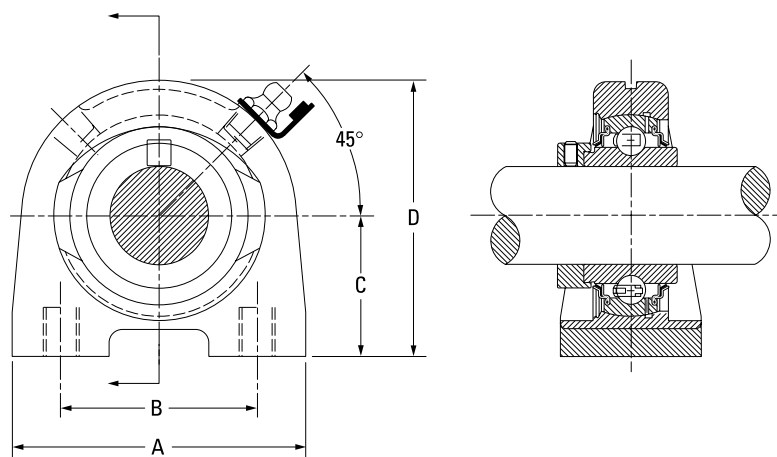
Unit	Shaft Dia.	Type	Dimensions			Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.		Collar No.
			L	J	E						
	in. mm		mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM			
RCJ	3/4	PT	85.73 3 3/8	63.50 2 1/2	43.26 1 45/64	6500 1460	14500 3250	9200	G1012KRRB	TDCF	S1012K SS
RCJ	1 25	PT	95.25 3 3/4	69.85 2 3/4	46.04 1 13/16	7700 1730	15800 3550	6900	G1100KRRB	TDCF	S1100K SS
								7000	GE25KRRB	TDCF	SE25K SS
RCJ	1 3/16 1 1/4S 30	PT	107.95 4 1/4	82.55 3 1/4	49.21 1 15/16	11100 2500	21800 4900	5800	G1103KRRB	TDCF	S1103K SS
								5500	G1103KRRB3	TDCF	S1103K3 SS
RCJ	1 1/4 1 3/8 1 7/16	PT	117.48 4 5/8	92.08 3 5/8	52.78 2 5/64	15100 3400	28500 6400	5500	G1104KRRB	TDCF	S1104K SS
								5000	G1106KRRB	TDCF	S1106K SS
								4800	G1107KRRB	TDCF	S1107K SS
RCJ	1 1/2 40	PT	130.18 5 1/8	101.60 4	58.74 2 5/16	19600 4400	36300 8150	4600	G1108KRRB	TDCF	S1108KT SS
								4400	GE40KRRB	TDCF	SE40K SS

**RCJT AND RTB SERIES**

- This unit is used for the main portion of the process where loads are lighter and corrosion protection is important.
- Durable corrosion-proof polymer housing with stainless steel crush bushings in mounting holes and a stainless-steel grease fitting with a nylon cap.
- Polymer resists a broad range of acids and alkalis, as well as steam and continuous temperature up to 121° C (250° F), and brief exposure up to 160° C (320° F).
- The polymer strength exceeds static capacity of bearing; housing retains proper bearing fit and resists shock loads.
- The flush base contains no voids where bacteria can collect.
- Corrosion-resistant insert bearing with stainless-steel balls and a nylon retainer. The PT series also features industrial-duty contact seals with stainless-steel shroud caps.
- This unit has a stainless-steel lock collar.
- This unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.



Unit	Shaft Dia.	Type	H	J	L	E	Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	Collar No.
	in. mm		mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM		
RCJT	3/4	PT	111.92 4 13/32	89.69 3 17/32	60.5 2 3/8	45.24 1 25/32	6500 1460	14500 3250	9200	G1012KRRB TDCF	S1012K SS
RCJT	1 25	PT	123.83 4 7/8	99.22 3 29/32	69.85 2 3/4	46.04 1 13/16	7700 1730	15800 3550	6900 7000	G1100KRRB TDCF GE25KRRB TDCF	S1100K SS SE25K SS
RCJT	1 3/16 1 1/4S 30	PT	141.29 5 9/16	116.68 4 19/32	79.38 3 1/8	49.21 1 15/16	11100 2500	21800 4900	5800 5500 5800	G1103KRRB TDCF G1103KRRB3 TDCF GE30KRRB TDCF	S1103K SS S1103K3 SS SE30K SS
RCJT	1 1/4 1 3/8 1 7/16	PT	155.58 6 1/8	130.18 5 1/8	92.08 3 5/8	52.78 2 5/64	15100 3400	28500 6400	5000 4800 5500	G1104KRRB TDCF G1106KRRB TDCF G1107KRRB TDCF	S1104K SS S1106K SS S1107K SS
RCJT	1 1/2 40	PT	171.45 6 3/4	143.67 5 21/32	104.78 4 1/8	58.74 2 5/16	19600 4400	36300 8150	4600 4400	G1108KRRB TDCF GE40KRRB TDCF	S1108KT SS SE40K SS



Unit	Shaft Dia.	Type	A	B	C	D	Static Load Rating	Dynamic Load Rating	Limiting Speed	Bearing No.	Collar No.
	in.		mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM		
RTB	1	PT	76.20 3	50.80 2	36.51 1 7/16	71.44 2 13/16	7700 1730	15300 3450	6900	G1100KRRB TDCF	S1100K SS

### TIMKEN® SURVIVOR® NT SERIES

Timken® Survivor® NT series housed units offer superior corrosion resistance and durability for food and beverage industries, materials-handling operations, dairy and refrigeration applications, as well as HVAC, chemical, maritime and other highly corrosive environments (fig. A-26). All materials used in the Survivor assemblies, including the grease, are approved for USDA- and FDA-compliant industries (table A-25). The solid base is designed so food particles easily wash out.

Bearing inserts are coated in proprietary Timken thin-dense chrome that will not crack or peel. Combined with stainless-steel locking collars, these offer superior corrosion protection. The robust block option features an electroless nickel-plated housing.

Survivor NT series units are available as:

- High-base and low-base pillow blocks.
- Two-bolt and four-bolt flanged cartridges for popular shaft sizes of ½ in. through 2 15/16 in. (and select metric diameters).

- Take-up unit in the Survivor NT series in limited shaft sizes (RTU-NT). The bearing inserts are available with self-locking collars.

The Survivor NT series is dimensionally interchangeable with the current line of Timken cast-iron housed units.

Our bearing inserts are coated in proprietary Timken thin-dense chrome that will not crack or peel. Inserts are available with a self-locking collar or a set screw locking device. Also available is Timken Shaft Guarding Technology (page A-31), which uses a stainless-steel hardened band to transfer gripping pressure on the shaft. Unlike traditional set screws, which can dig into the shaft, there are no nicks, raised metal or permanent shaft damage. The stainless band won't corrode on the shaft. Housed units with Shaft Guarding Technology also reduce change-out time.



Fig. A-26. Popular styles.

TABLE A-25.

NT SERIES	
Component	Material
Balls	Stainless steel
Ball retainer	Nylon
Collar	Stainless steel
Rings	TDC plated
Grease	FDA approved
<b>Housing finish</b>	<b>Nickel plating</b>
Grease fitting	Stainless steel
Grease-fitting cover	Nylon
Seals	Synthetic rubber
Seal caps	Stainless steel
Set screw <sup>(1)</sup>	Stainless steel

<sup>(1)</sup>Standard Survivor® NT units are only available in the R-series self-locking collar types. Set screw lock series (Y) units are available for minimum quantity orders.

### ORDERING INFORMATION

To order complete Survivor nickel-plated assemblies, simply add the NT suffix to the cast-iron housed-unit designations.

Example: RCJT 1 NT or RAK 3/4 NT

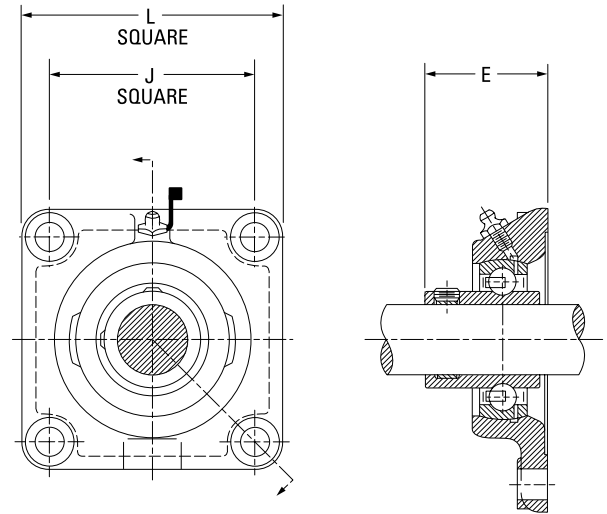
Survivor inserts can be ordered using Timken's standard part number for wide-inner-ring ball bearings with a TDCF suffix.

Example: G1100KRRB + COLTDCF

**NT**

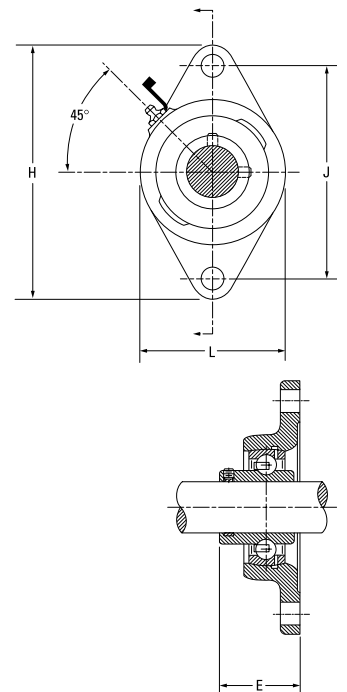
**YCJ AND YCJT SERIES**

- This unit has the largest variety of configurations and shaft sizes and is used for the heaviest loads at the beginning of processing.
- Corrosion-resistant housing that is electroless nickel-plated and has a stainless-steel grease fitting. The protective cap withstands corrosion and prevents contamination.
- The corrosion-resistant insert bearing has stainless-steel balls with a nylon retainer. It also has industrial-duty contact seals with stainless-steel shroud caps.
- This unit has stainless-steel set screws with Shaft Guarding Technology.
- The unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.



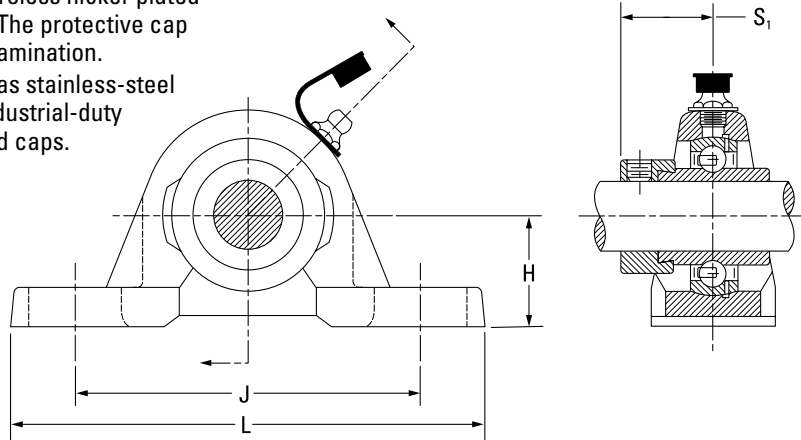
Unit	Shaft Dia.	Type	Dimensions			Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	
			L	J	E					
	in. mm		mm in.	mm in.	mm in.	mm in.	N lbs.	RPM		
YCJ	1 25	NT SGT	95.25	70.25	40.08	7700	15800	6900	GY1100KRRB	TDCF SGT
			3 3/4	2 49/64	1 37/64	1730	3550	7000	GYE25KRRB	TDCF SGT
YCJ	1 1/4S 30	NT SGT	107.95	82.55	42.46	11100	21800	5500	GY1103KRRB3	TDCF
			4 1/4	3 1/4	1 43/64	2500	4900	5800	GYE30KRRB	TDCF SGT
YCJ	1 1/4 1 3/8 1 7/16 35	NT SGT	117.48	92.08	49.21	15100	28500	5500	GY1104KRRB	TDCF SGT
								5000	GY1106KRRB	TDCF SGT
								4800	GY1107KRRB	TDCF SGT
								4800	GYE35KRRB	TDCF SGT
YCJ	1 15/16	NT SGT	142.88	111.13	60.72	22700	39100	3600	GY1115KRRB	TDCF SGT
			5 5/8	4 3/8	2 25/64	5100	8800			
YCJ	2	NT SGT	161.93	130.18	64.69	28500	48000	3400	GY1200KRRB	TDCF SGT
			6 3/8	5 1/8	2 35/64	6400	10800			
YCJ	2 7/16	NT SGT	174.63	142.88	74.22	35600	58700	2800	GY1207KRRB	TDCF SGT
			6 7/8	5 5/8	2 59/64	8000	13200			

Unit	Shaft Dia.	Type	Dimensions				Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	
			H	J	L	E					
	in. mm		mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM		
YCJT	3/4	NT SGT	111.92	89.69	60.33	38.50	6500	14500	9200	G1012KRRB	TDCF SGT
			4 13/32	3 17/32	2 3/8	1 39/64	1460	3250			
YCJT	1 25	NT SGT	123.83	99.22	69.85	40.08	7700	15800	6900	G1100KRRB	TDCF SGT
			4 7/8	3 29/32	2 3/4	1 37/64	1730	3550	7000	GE25KRRB	TDCF SGT
YCJT	1 3/16 1 1/4S 30	NT SGT	141.29	116.68	79.38	43.66	11100	21800	5800	G1103KRRB	TDCF SGT
			5 9/16	4 19/32	3 1/8	1 23/32	2500	4900	5500	G1103KRRB3	TDCF
									5800	GE30KRRB	TDCF SGT
YCJT	1 1/4 1 3/8 1 7/16 35	NT SGT	155.58	130.18	92.08	49.21	15100	28500	5500	G1104KRRB	TDCF SGT
									5000	G1106KRRB	TDCF SGT
									4800	G1107KRRB	TDCF SGT
									4800	GE35KRRB	TDCF SGT
YCJT	1 1/2 40	NT SGT	171.45	143.67	104.78	54.37	19600	36300	4600	G1108KRRB	TDCF SGT
			6 3/4	5 21/32	4 1/8	2 9/64	4400	8150	4400	GE40KRRB	TDCF SGT
YCJT	1 11/16 1 3/4	NT SGT	179.39	148.03	111.13	55.56	20000	36300	4100	G1111KRRB	TDCF SGT
			7 1/16	5 53/64	4 3/8	2 3/16	4500	8150	3900	G1112KRRB	TDCF SGT
YCJT	1 15/16	NT SGT	188.91	157.16	115.89	60.72	22700	39100	3600	G1115KRRB	TDCF SGT
			7 7/16	6 3/16	4 9/16	2 25/64	5100	8800			
YCJT	2 3/16	NT SGT	215.90	184.15	127.00	64.69	28500	48000	3100	G1203KRRB	TDCF SGT
			8 1/2	7 1/4	5	2 35/64	6400	10800			



### RAK/S SERIES

- This unit has the largest variety of configurations and shaft sizes and is used for the heaviest loads at the beginning of processing.
- Corrosion-resistant housing that is electroless nickel-plated and has a stainless-steel grease fitting. The protective cap withstands corrosion and prevents contamination.
- The corrosion-resistant insert bearing has stainless-steel balls with a nylon retainer. It also has industrial-duty contact seals with stainless-steel shroud caps.
- This unit has a stainless-steel lock collar.
- The unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.



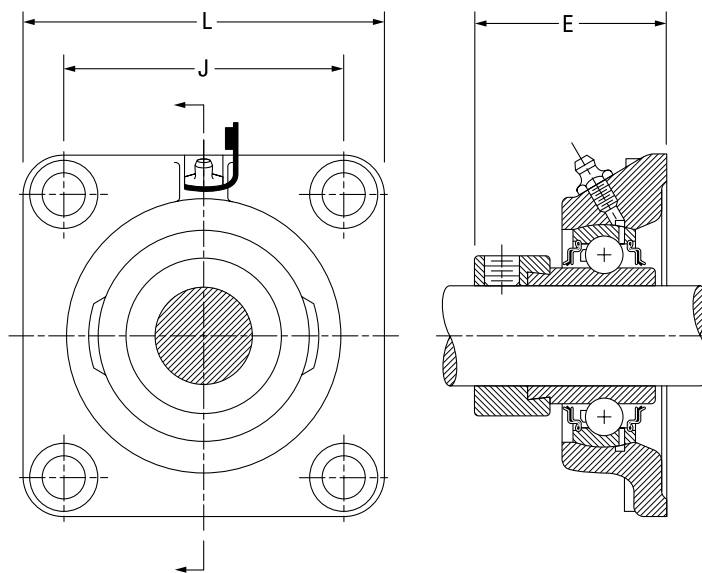
Unit <sup>(1)</sup>	Shaft Dia.	Type	Dimensions					Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	Collar No.	
			RAK H	RAS H	J	L	S <sub>1</sub>						
	in. mm		mm in.	mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM			
RAK/S	1/2 5/8	NT	<b>26.99</b>	<b>30.16</b>	<b>92.08</b>	<b>123.83</b>	<b>23.42</b>	<b>4700</b> 1060	<b>10700</b> 2400	13800 11000	G1008KRRB G1010KRRB	TDCF TDCF	S1008K SS S1010K SS
			1 1/8	1 3/16	3 5/8	4 7/8	59/64						
RAK/S	3/4	NT	<b>31.75</b> 1 1/4	<b>33.34</b> 1 5/16	<b>96.04</b> 3 25/32	<b>127.00</b> 5	<b>26.59</b> 1 3/64	<b>6500</b> 1460	<b>14500</b> 3250	9200	G1012KRRB	TDCF	S1012K SS
RAK/S	1 25	NT	<b>33.34</b>	<b>36.51</b>	<b>104.78</b>	<b>139.70</b>	<b>26.99</b>	<b>7700</b> 1730	<b>15800</b> 3550	6900 7000	G1100KRRB GE25KRRB	TDCF TDCF	S1100K SS SE25K SS
			1 5/16	1 7/16	4 1/8	5 1/2	1 1/6						
RAK/S	1 3/16 1 1/4 S 30	NT	<b>39.69</b>	<b>42.86</b>	<b>117.48</b>	<b>157.16</b>	<b>30.16</b>	<b>11100</b> 2500	<b>21800</b> 4900	5800	G1103KRRB	TDCF	S1103K SS
			1 9/16	1 11/16	4 5/8	6 3/16	1 3/16			5500	G1103KRRB3	TDCF	S1103K3 SS
			5800	GE30KRRB	TDCF	SE30K SS							
RAK/S	1 1/4 1 3/8 1 7/16	NT	<b>46.04</b>	<b>47.63</b>	<b>130.18</b>	<b>166.69</b>	<b>32.54</b>	<b>15100</b> 3400	<b>28500</b> 6400	5500	G1104KRRB	TDCF	S1104K SS
			1 13/16	1 7/8	5 1/8	6 9/16	1 9/32			5000	G1106KRRB	TDCF	S1106K SS
			4800	G1107KRRB	TDCF	S1107K SS							
RAK/S	1 1/2 40	NT	<b>49.21</b> 1 15/16	<b>49.21</b> 1 15/16	<b>136.53</b> 5 3/8	<b>179.39</b> 7 1/16	<b>34.93</b> 1 3/8	<b>19600</b> 4400	<b>36300</b> 8150	4600 4400	G1108KRRB GE40KRRB	TDCF TDCF	S1108KT SS SE40K SS
RAK/S	1 11/16 1 3/4	NT	<b>52.39</b> 2 1/16	<b>53.98</b> 2 1/8	<b>149.23</b> 5 7/8	<b>191.29</b> 7 17/32	<b>34.93</b> 1 3/8	<b>20000</b> 4500	<b>36300</b> 8150	4100 3900	G1111KRRB G1112KRRB	TDCF TDCF	S1111K SS S1112K SS
RAK/S	1 15/16	NT	<b>55.56</b> 2 3/16	<b>57.15</b> 2 1/4	<b>157.96</b> 6 7/32	<b>200.03</b> 7 7/8	<b>38.10</b> 1 1/2	<b>22700</b> 5100	<b>39100</b> 8800	3600	G1115KRRB	TDCF	S1115K SS
RAK/S	2 2 3/16	NT	<b>61.91</b>	<b>63.50</b>	<b>176.21</b>	<b>222.25</b>	<b>43.66</b>	<b>28500</b> 6400	<b>48000</b> 10800	3400 3100	G1200KRRB G1203KRRB	TDCF TDCF	S1200K SS S1203K SS
			2 7/16	2 1/2	6 15/16	8 3/4	1 23/32						
RAK/S	2 7/16	NT	<b>68.26</b> 2 11/16	<b>69.85</b> 2 3/4	<b>188.12</b> 7 13/32	<b>239.71</b> 9 1/16	<b>46.83</b> 1 27/32	<b>35600</b> 8000	<b>58700</b> 13200	2800	G1207KRRB	TDCF	S1207K SS
RAK/S	2 11/16	NT	<b>76.20</b> 3	—	<b>203.20</b> 8	<b>266.70</b> 10 1/2	<b>51.59</b> 2 1/32	<b>42900</b> 9650	<b>69400</b> 15600	2600	G1211KRRB	TDCF	S1211K SS
RAK/S	2 15/16	NT	<b>84.14</b> 3 5/16	<b>82.55</b> 3 1/4	<b>241.30</b> 9 1/2	<b>304.80</b> 12	<b>54.77</b> 2 5/32	<b>43600</b> 9800	<b>69400</b> 15600	2300	G1215KRRB	TDCF	S1215K SS

<sup>(1)</sup>Option of low-base RAK or high-base RAS.



**RCJ SERIES**

- This unit has the largest variety of configurations and shaft sizes and is used for the heaviest loads at the beginning of processing.
- Corrosion-resistant housing that is electroless nickel-plated and has a stainless-steel grease fitting. The protective cap withstands corrosion and prevents contamination.
- The corrosion-resistant insert bearing has stainless-steel balls with a nylon retainer. It also has industrial-duty contact seals with stainless-steel shroud caps.
- This unit has a stainless-steel lock collar.
- The unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.



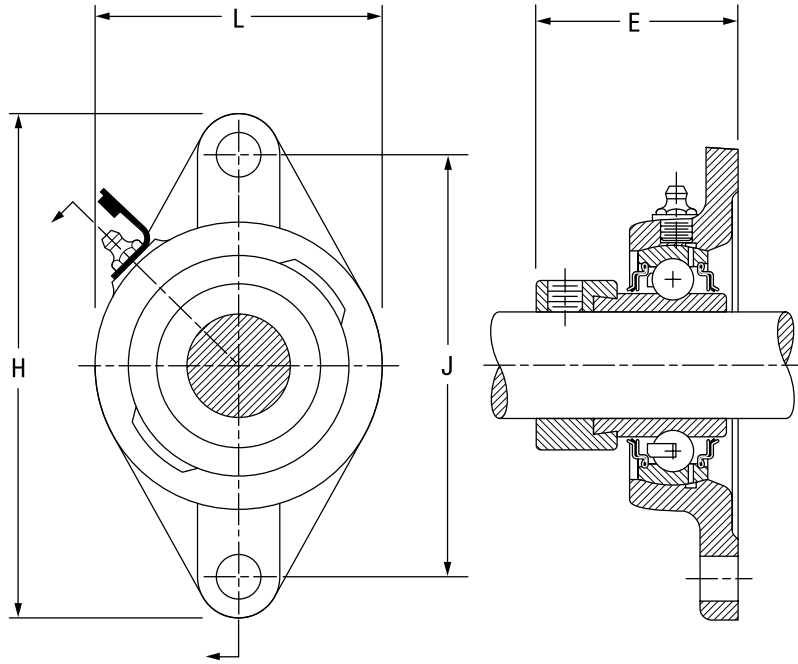
Unit	Shaft Dia.	Type	Dimensions			Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.		Collar No.
			L	J	E						
	in. mm		mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM			
RCJ	1/2 5/8	NT	<b>76.20</b>	<b>53.98</b>	<b>40.10</b>	<b>4700</b>	<b>10700</b>	13800	G1008KRRB	TDCF	S1008K SS
			3	2 1/8	1 19/32	1060	2400	11000	G1010KRRB	TDCF	S1010K SS
RCJ	3/4	NT	<b>85.73</b>	<b>63.50</b>	<b>46.43</b>	<b>6500</b>	<b>14500</b>	9200	G1012KRRB	TDCF	S1012K SS
			3 3/8	2 1/2	1 59/64	1460	3250				
RCJ	1 25	NT	<b>95.25</b>	<b>69.85</b>	<b>46.80</b>	<b>7700</b>	<b>15800</b>	6900	G1100KRRB	TDCF	S1100K SS
			3 3/4	2 3/4	1 27/32	1730	3550	7000	GE25KRRB	TDCF	SE25K SS
RCJ	1 3/16 1 1/4S 30	NT	<b>107.95</b>	<b>82.55</b>	<b>50.80</b>	<b>11100</b>	<b>21800</b>	5800	G1103KRRB	TDCF	S1103K SS
			4 1/4	3 1/4	2	2500	4900	5500	G1103KRRB3	TDCF	S1103K3 SS
								5800	GE30KRRB	TDCF	SE30K SS
RCJ	1 1/4 1 3/8 1 7/16	NT	<b>117.48</b>	<b>92.08</b>	<b>53.58</b>	<b>15100</b>	<b>28500</b>	5500	G1104KRRB	TDCF	S1104K SS
			4 5/8	3 5/8	2 7/64	3400	6400	5000	G1106KRRB	TDCF	S1106K SS
								4800	G1107KRRB	TDCF	S1107K SS
RCJ	1 1/2 40	NT	<b>130.18</b>	<b>101.60</b>	<b>59.13</b>	<b>19600</b>	<b>36300</b>	4600	G1108KRRB	TDCF	S1108KT SS
			5 1/8	4	2 21/64	4400	8150	4400	GE40KRRB	TDCF	SE40K SS
RCJ	1 11/16 1 3/4	NT	<b>136.53</b>	<b>104.78</b>	<b>59.13</b>	<b>20000</b>	<b>36300</b>	4100	G1111KRRB	TDCF	S1111K SS
			5 3/8	4 1/8	2 21/64	4500	8150	3900	G1112KRRB	TDCF	S1112K SS
RCJ	1 15/16	NT	<b>142.88</b>	<b>111.13</b>	<b>66.68</b>	<b>22700</b>	<b>39100</b>	3600	G1115KRRB	TDCF	S1115K SS
			5 5/8	4 3/8	2 5/8	5100	8800				
RCJ	2 2 3/16	NT	<b>161.93</b>	<b>130.18</b>	<b>75.41</b>	<b>28500</b>	<b>48000</b>	3400	G1200KRRB	TDCF	S1200K SS
			6 3/8	5 1/8	2 31/32	6400	10800	3100	G1203KRRB	TDCF	S1203K SS
RCJ	2 7/16	NT	<b>174.63</b>	<b>142.88</b>	<b>81.76</b>	<b>35600</b>	<b>58700</b>	2800	G1207KRRB	TDCF	S1207K SS
			6 7/8	5 5/8	3 7/32	8000	13200				
RCJ	2 11/16	NT	<b>187.33</b>	<b>149.23</b>	<b>90.49</b>	<b>42900</b>	<b>69400</b>	2600	G1211KRRB	TDCF	S1211K SS
			7 3/8	5 7/8	3 9/16	9650	15600				
RCJ	2 15/16	NT	<b>196.85</b>	<b>152.40</b>	<b>96.84</b>	<b>43600</b>	<b>69400</b>	2300	G1215KRRB	TDCF	S1215K SS
			7 3/4	6	3 13/16	9800	15600				

# BALL BEARING HOUSED UNITS

## BALL BEARING HOUSED UNITS • TIMKEN SURVIVOR NT SERIES • RCJT

### RCJT SERIES

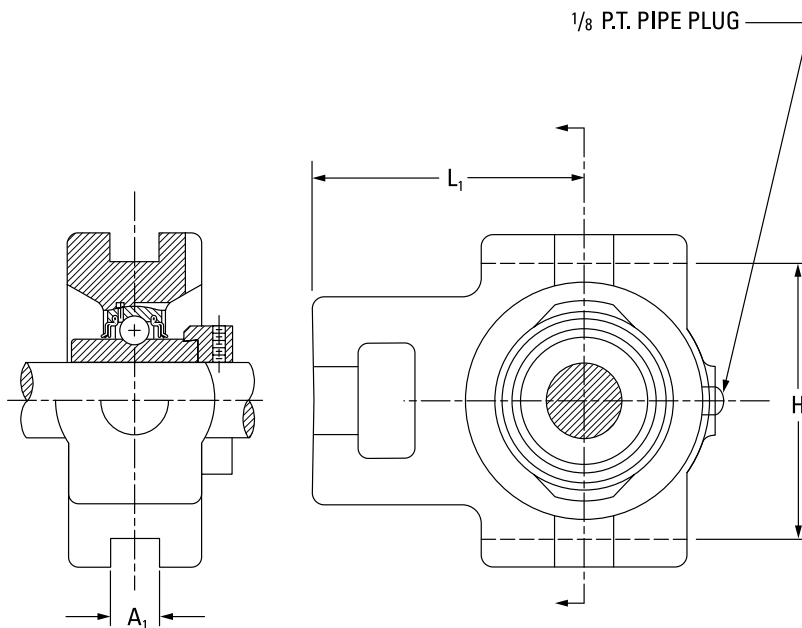
- This unit has the largest variety of configurations and shaft sizes and is used for the heaviest loads at the beginning of processing.
- Corrosion-resistant housing that is electroless nickel-plated and has a stainless-steel grease fitting. The protective cap withstands corrosion and prevents contamination.
- The corrosion-resistant insert bearing has stainless-steel balls with a nylon retainer. It also has industrial-duty contact seals with stainless-steel shroud caps.
- This unit has a stainless-steel lock collar.
- The unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.



Unit	Shaft Dia.	Type	Dimensions				Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.	Collar No.	
			H	J	L	E						
	in. mm		mm in.	mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM			
RCJT	1/2 5/8	NT	<b>98.43</b>	<b>76.20</b>	<b>54.0</b>	<b>40.61</b>	<b>4700</b>	<b>10700</b>	13800	G1008KRRB	TDCF	S1008K SS
			3 7/8	3	2 1/8	1 39/64	1060	2400	11000	G1010KRRB	TDCF	S1010K SS
RCJT	3/4	NT	<b>111.92</b>	<b>89.69</b>	<b>60.5</b>	<b>46.43</b>	<b>6500</b>	<b>14500</b>	9200	G1012KRRB	TDCF	S1012K SS
			4 13/32	3 17/32	2 3/8	1 53/64	1460	3250				
RCJT	1 25	NT	<b>123.83</b>	<b>99.22</b>	<b>69.85</b>	<b>46.83</b>	<b>7700</b>	<b>15800</b>	6900	G1100KRRB	TDCF	S1100K SS
			4 7/8	3 29/32	2 3/4	1 27/32	1730	3550	7000	GE25KRRB	TDCF	SE25K SS
RCJT	1 3/16 1 1/4S 30	NT	<b>141.29</b>	<b>116.68</b>	<b>79.38</b>	<b>50.80</b>	<b>11100</b>	<b>21800</b>	5800	G1103KRRB	TDCF	S1103K SS
			5 9/16	4 19/32	3 1/8	2	2500	4900	5500	G1103KRRB3	TDCF	S1103K3 SS
									5800	GE30KRRB	TDCF	SE30K SS
RCJT	1 1/4 1 3/8 1 7/16	NT	<b>155.58</b>	<b>130.18</b>	<b>92.08</b>	<b>53.58</b>	<b>15100</b>	<b>28500</b>	5500	G1104KRRB	TDCF	S1104K SS
			6 1/8	5 1/8	3 5/8	2 7/64	3400	6400	5000	G1106KRRB	TDCF	S1106K SS
									4800	G1107KRRB	TDCF	S1107K SS
RCJT	1 1/2 40	NT	<b>171.45</b>	<b>143.67</b>	<b>104.78</b>	<b>59.13</b>	<b>19600</b>	<b>36300</b>	4600	G1108KRRB	TDCF	S1108KT SS
			6 3/4	5 21/32	4 1/8	2 21/64	4400	8150	4400	GE40KRRB	TDCF	SE40K SS
RCJT	1 11/16 1 3/4	NT	<b>179.39</b>	<b>148.03</b>	<b>111.13</b>	<b>59.13</b>	<b>20000</b>	<b>36300</b>	4100	G1111KRRB	TDCF	S1111K SS
			7 1/16	5 27/32	4 3/8	2 21/64	4500	8150	3900	G1112KRRB	TDCF	S1112K SS
RCJT	1 15/16	NT	<b>188.91</b>	<b>157.16</b>	<b>115.89</b>	<b>66.68</b>	<b>22700</b>	<b>39100</b>	3600	G1115KRRB	TDCF	S1115K SS
			7 7/16	6 3/16	4 9/16	2 5/8	5100	8800				
RCJT	2 2 3/16	NT	<b>215.90</b>	<b>184.15</b>	<b>127.00</b>	<b>75.41</b>	<b>28500</b>	<b>48000</b>	3400	G1200KRRB	TDCF	S1200K SS
			8 1/2	7 1/4	5	2 31/32	6400	10800	3100	G1203KRRB	TDCF	S1203K SS

**RTU SERIES**

- This unit has the largest variety of configurations and shaft sizes and is used for the heaviest loads at the beginning of processing.
- Corrosion-resistant housing that is electroless nickel-plated and has a stainless-steel grease fitting. The protective cap withstands corrosion and prevents contamination.
- The corrosion-resistant insert bearing has stainless-steel balls with a nylon retainer. It also has industrial-duty contact seals with stainless-steel shroud caps.
- This unit has a stainless-steel lock collar.
- The unit is factory lubricated with FDA/USDA-approved grease (class H1 lubricant) for incidental food contact.



Unit	Shaft Dia.	Type				Static Load Rating	Dynamic Load Rating	Speed Rating	Bearing No.		Collar No.
			A <sub>1</sub>	H <sub>1</sub>	L <sub>1</sub>						
	in. mm		mm in.	mm in.	mm in.	N lbs.	N lbs.	RPM			
RTU	1	NT	<b>13.49</b>	<b>76.20</b>	<b>67.47</b>	<b>7700</b>	<b>15300</b>	6900	G1100KRRB	TDCF	S1100K SS
	25		<sup>17</sup> / <sub>32</sub>	3	2 <sup>21</sup> / <sub>32</sub>	1730	3450	7000	GE25KRRB	TDCF	SE25K SS
RTU	1 <sup>3</sup> / <sub>16</sub>	NT	<b>13.49</b>	<b>88.90</b>	<b>72.23</b>	<b>11100</b>	<b>21800</b>	5800	G1103KRRB	TDCF	S1103K SS
	30		<sup>17</sup> / <sub>32</sub>	3 1/2	2 <sup>27</sup> / <sub>32</sub>	2500	4900	5800	GE30KRRB	TDCF	SE30K SS
RTU	1 1/4	NT	<b>13.49</b>	<b>88.90</b>	<b>74.61</b>	<b>15100</b>	<b>28500</b>	5500	G1104KRRB	TDCF	S1104K SS
	1 <sup>7</sup> / <sub>16</sub>		<sup>17</sup> / <sub>32</sub>	3 1/2	2 <sup>15</sup> / <sub>16</sub>	3400	6400	4800	G1107KRRB	TDCF	S1107K SS
RTU	1 1/2	NT	<b>17.46</b>	<b>100.81</b>	<b>88.11</b>	<b>19600</b>	<b>36300</b>	4600	G1108KRRB	TDCF	S1108KT SS
	40		<sup>11</sup> / <sub>16</sub>	3 <sup>31</sup> / <sub>32</sub>	3 <sup>15</sup> / <sub>32</sub>	4400	8150	4400	GE40KRRB	TDCF	SE40K SS
RTU	1 <sup>11</sup> / <sub>16</sub>	NT	<b>17.46</b>	<b>100.81</b>	<b>88.11</b>	<b>20000</b>	<b>36300</b>	4100	G1111KRRB	TDCF	S1111K SS
	1 3/4		<sup>11</sup> / <sub>16</sub>	3 <sup>31</sup> / <sub>32</sub>	3 <sup>15</sup> / <sub>32</sub>	4500	8150	3900	G1112KRRB	TDCF	S1112K SS
RTU	1 <sup>15</sup> / <sub>16</sub>	NT	<b>17.46</b>	<b>100.81</b>	<b>91.28</b>	<b>22700</b>	<b>39100</b>	3600	G1115KRRB	TDCF	S1115K SS
RTU	2	NT	<b>26.99</b>	<b>129.38</b>	<b>119.86</b>	<b>28500</b>	<b>48000</b>	3400	G1200KRRB	TDCF	S1200K SS
	2 <sup>3</sup> / <sub>16</sub>		<sup>1</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>32</sub>	4 <sup>23</sup> / <sub>32</sub>	6400	10800	3100	G1203KRRB	TDCF	S1203K SS
RTU	2 <sup>7</sup> / <sub>16</sub>	NT	<b>26.99</b>	<b>129.38</b>	<b>119.86</b>	<b>35600</b>	<b>58700</b>	2800	G1207KRRB	TDCF	S1207K SS
			<sup>1</sup> / <sub>16</sub>	5 <sup>3</sup> / <sub>32</sub>	4 <sup>23</sup> / <sub>32</sub>	8000	13200				

### MISCELLANEOUS HOUSED UNITS IDLER PULLEY UNITS

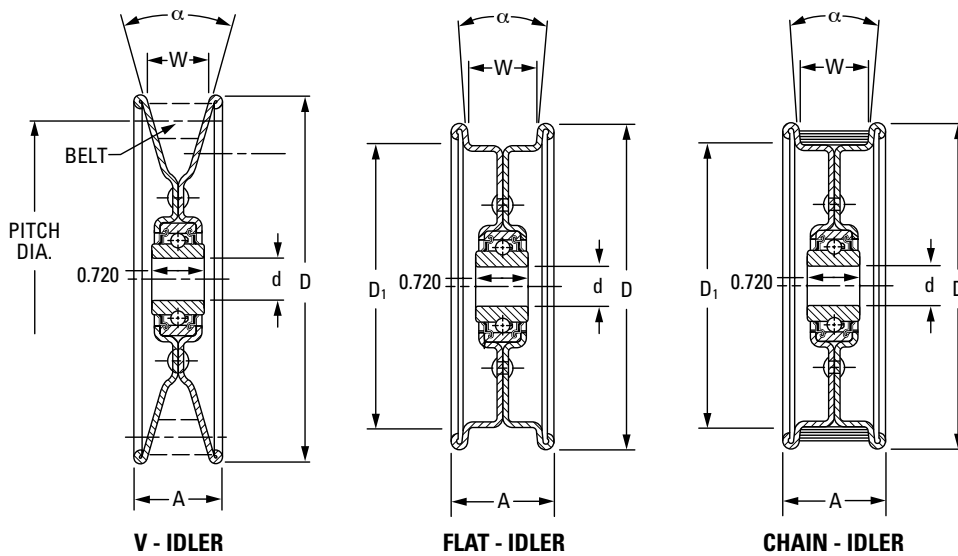
- A pressed-steel pulley and a Timken® precision ball bearing with rubber seals are combined to make a self-contained unit.
- Two pulley designs are available. One for V-belts and another for the backs of V-belts. Both are made for A, B, C and D section belts.
- A chain idler, identical in construction to the flat idler, is available, with the addition of an assembled rubber tire (part number A-10927). The rubber tire cushions the chain, preventing undue wear on the pulley surface or chain.
- Idler pulley units feature a Timken® single-row radial ball bearing with an inner ring extended on both sides. This

provides clearance for abutting parts and greater support on the shaft.

- Contact-type rubber seals help ensure positive retention for lubricant and full protection against dirt, dust and foreign matter.
- All units are non-relubricatable. Special features include smoothly rolled-over edges, eliminating belt chafing and scuffing. The weep holes on the rivet circle allow water drainage when the pulley is mounted in a horizontal position.

**To order, specify PULLEY NUMBER.**

Example: 008-10853 Idler Pulley.

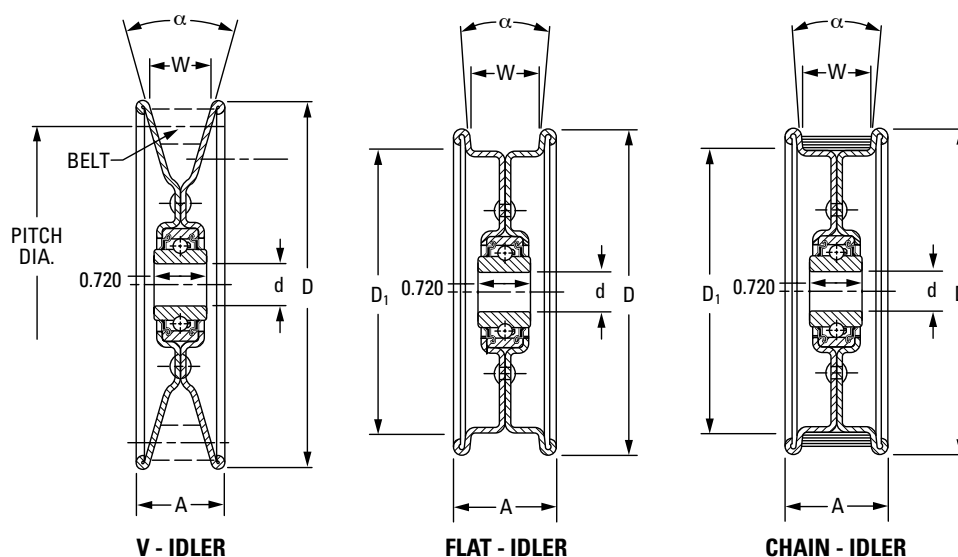


Pulley No.	α Included Angle Degrees	Bearing No.	Bore		D	A	D <sub>1</sub>	W		Wt.
			d	D				mm	in.	
			mm	in.	mm	in.	mm	in.	kg	lbs.
<b>V IDLERS</b>										
006-11520A <sup>(1)</sup>	32	WS3NPP3	10.010/9.780 0.3940/0.3850	76.2 3	19.0 ¾	—	12.45 0.049	—	0.145 0.32	
10874 <sup>(2)</sup>	34	203NPP	17.000/16.993 0.6693/0.6690	101.6 4	22.2 ⅞	—	12.70 0.500	—	0.417 0.92	
010-10874	34	203KRR2	16.130/16.260 0.6350/0.6400	101.6 4	22.2 7.8	—	12.70 0.500	—	0.435 0.96	
008-10482	32	203KRR5	13.080/12.950 0.5150/0.5100	128.6 5 1/16	31.8 1 ¼	—	22.15 0.872	—	0.572 1.26	
010-10482	32	203KRR2	16.130/16.260 0.6350/0.6400	128.6 5 1/16	31.8 1 ¼	—	22.15 0.872	—	0.558 1.23	
008-10853	32	203KRR5	13.080/12.950 0.5150/0.5100	185.7 7 5/16	31.8 1 ¼	—	22.15 0.872	—	1.134 2.50	
010-10853	32	203KRR2	16.13/16.260 0.6350/0.6400	185.7 7 5/16	31.8 1 ¼	—	22.15 0.872	—	1.120 2.47	

<sup>(1)</sup>Inner ring width 13.891 mm – 13.764 mm; (0.5469 in. – 0.5419 in.)

<sup>(2)</sup>12 mm (0.4724 in.) inner ring width 11.999 mm – 11.872 mm (0.4724 in. – 0.4674 in.).

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Pulley No.	$\alpha$ Included Angle Degrees	Bearing No.	Bore		A	D <sub>1</sub>	W	Wt.
			d	D				
			mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
<b>FLAT IDLERS</b>								
006-11581A <sup>(1)</sup>	10	WS3NPP3	<b>10.01/9.78</b> 0.394/0.385	<b>92.1</b> 3 <sup>5</sup> / <sub>8</sub>	<b>30.6</b> 1 <sup>7</sup> / <sub>32</sub>	<b>76.2</b> 3	<b>22.2</b> 7/8	<b>0.259</b> 0.57
008-10601	10	203KRR5	<b>13.08/12.95</b> 0.515/0.510	<b>117.5</b> 4 <sup>5</sup> / <sub>8</sub>	<b>36.5</b> 1 <sup>7</sup> / <sub>16</sub>	<b>101.6</b> 4	<b>25.4</b> 1	<b>0.503</b> 1.11
010-10601	10	203KRR2	<b>16.13/16.26</b> 0.635/0.640	<b>117.5</b> 4 <sup>5</sup> / <sub>8</sub>	<b>36.5</b> 1 <sup>7</sup> / <sub>16</sub>	<b>101.6</b> 4	<b>25.4</b> 1	<b>0.490</b> 1.08
<b>FLAT IDLERS</b>								
008-10483	10	203KRR5	<b>13.08/12.95</b> 0.515/0.510	<b>158.8</b> 6 <sup>1</sup> / <sub>4</sub>	<b>36.5</b> 1 <sup>7</sup> / <sub>16</sub>	<b>139.7</b> 5 <sup>1</sup> / <sub>2</sub>	<b>25.4</b> 1	<b>0.803</b> 1.77
010-10483	10	203KRR2	<b>16.13/16.26</b> 0.635/0.640	<b>158.8</b> 6 <sup>1</sup> / <sub>4</sub>	<b>36.5</b> 1 <sup>7</sup> / <sub>16</sub>	<b>139.7</b> 5 <sup>1</sup> / <sub>2</sub>	<b>25.4</b> 1	<b>0.789</b> 1.74
008-10650	50	203KRR5	<b>13.08/12.95</b> 0.515/0.510	<b>158.8</b> 6 <sup>1</sup> / <sub>4</sub>	<b>36.5</b> 1 <sup>7</sup> / <sub>16</sub>	<b>139.7</b> 5 <sup>1</sup> / <sub>2</sub>	<b>25.4</b> 1	<b>0.785</b> 1.73
010-10650	50	203KRR2	<b>16.13/16.26</b> 0.635/0.640	<b>158.8</b> 6 <sup>1</sup> / <sub>4</sub>	<b>41.3</b> 1 <sup>7</sup> / <sub>16</sub>	<b>139.7</b> 5 <sup>1</sup> / <sub>2</sub>	<b>25.4</b> 1	<b>0.771</b> 1.70
008-11515	10	203KRR5	<b>13.08/12.95</b> 0.515/0.510	<b>222.2</b> 8 <sup>3</sup> / <sub>4</sub>	<b>35.7</b> 1 <sup>13</sup> / <sub>32</sub>	<b>203.2</b> 8	<b>25.4</b> 1	<b>1.238</b> 2.73
010-11515	10	203KRR2	<b>16.13/16.26</b> 0.635/0.640	<b>222.2</b> 8 <sup>3</sup> / <sub>4</sub>	<b>35.7</b> 1 <sup>13</sup> / <sub>32</sub>	<b>203.2</b> 8	<b>25.4</b> 1	<b>1.225</b> 2.70
008-10731	10	203KRR5	<b>13.08/12.95</b> 0.515/0.510	<b>222.2</b> 8 <sup>3</sup> / <sub>4</sub>	<b>48.4</b> 1 <sup>29</sup> / <sub>32</sub>	<b>203.2</b> 8	<b>38.1</b> 1 <sup>1</sup> / <sub>2</sub>	<b>1.488</b> 3.38
010-10731	10	203KRR2	<b>16.13/16.26</b> 0.635/0.640	<b>222.2</b> 8 <sup>3</sup> / <sub>4</sub>	<b>48.4</b> 1 <sup>29</sup> / <sub>32</sub>	<b>203.2</b> 8	<b>38.1</b> 1 <sup>1</sup> / <sub>2</sub>	<b>1.474</b> 3.25
<b>CHAIN IDLERS</b>								
008-10927	10	203KRR5	<b>13.08/12.95</b> 0.515/0.510	<b>117.5</b> 4 <sup>5</sup> / <sub>8</sub>	<b>36.5</b> 1 <sup>7</sup> / <sub>16</sub>	<b>111.1</b> 4 <sup>3</sup> / <sub>8</sub>	<b>25.4</b> 1	<b>0.576</b> 1.27
010-10927	10	203KRR2	<b>16.13/16.26</b> 0.635/0.640	<b>117.5</b> 4 <sup>5</sup> / <sub>8</sub>	<b>36.5</b> 1 <sup>7</sup> / <sub>16</sub>	<b>111.1</b> 4 <sup>3</sup> / <sub>8</sub>	<b>25.4</b> 1	<b>0.562</b> 1.24

<sup>(1)</sup>Inner ring width 13.891 mm – 13.764 mm; (0.5469 in. – 0.5419 in.)

<sup>(2)</sup>12 mm (0.4724 in.) inner ring width 11.999 mm – 11.872 mm (0.4724 in. – 0.4674 in.)

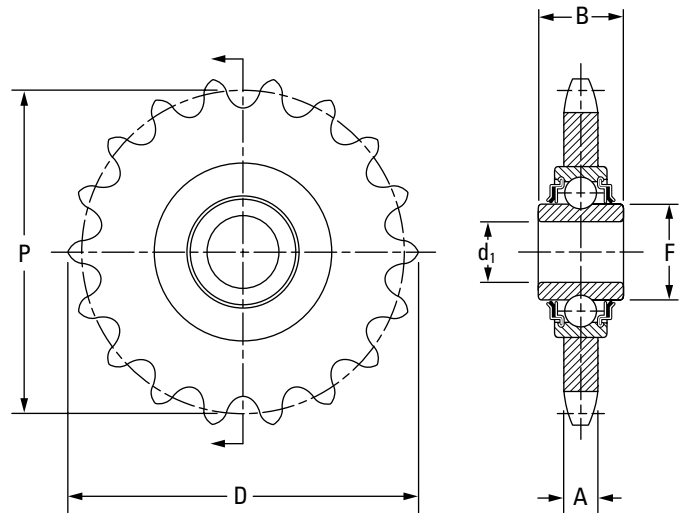
### ROLLER CHAIN IDLER SPROCKETS

- The sintered-steel sprockets are hardened and perform well at an economical cost.
- The roller chain idler sprocket replaces the hardened-plate steel sprockets on most applications.
- All units are non-relubricatable.

To order, specify **SPROCKET NUMBER**.

Example: 010-5017S Idler Sprocket.

Order all bearings with E8728 specification.



Sprocket No.	Bearing No.	Bore $d_1$	A.S.A. Chain No.	No. of Teeth	Pitch						Bearing Radial Load Rating @500 RPM	Wt.
						P	D	A	F	B		
		mm in.			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	N lbs.	kg lbs.
008-4018-S	203KRR5	13.08/12.95 0.5150/0.5000	40	18	12.7 1/2	73.13 2.879	79.88 3.145	7.21 0.284	24.43 0.962	18.29 0.72	3550 800	0.200 0.44
008-5017-S	203KRR5	13.08/12.95 0.5150/0.5000	50	17	15.9 5/8	86.36 3.400	94.72 3.729	8.71 0.343	24.43 0.962	18.29 0.72	3550 800	0.299 0.66
008-6015-S	203KRR5	13.08/12.95 0.5150/0.5000	60	15	19.0 3/4	91.62 3.607	101.32 3.989	11.66 0.459	24.43 0.962	18.29 0.72	3550 800	0.417 0.92
010-4018-S	203KRR2	16.26/16.13 0.6400/0.6350	40	18	12.7 1/2	73.13 2.879	79.88 3.145	7.21 0.284	24.43 0.962	18.29 0.72	3550 800	0.200 0.44
010-5017-S	203KRR2	16.26/16.13 0.6400/0.6350	50	17	15.9 5/8	86.36 3.400	94.72 3.729	8.71 0.343	24.43 0.962	18.29 0.72	3550 800	0.299 0.66
010-6015-S	203KRR2	16.26/16.13 0.6400/0.6350	60	15	19.0 3/4	91.62 3.607	101.32 3.989	11.66 0.459	24.43 0.962	18.29 0.72	3550 800	0.417 0.92
011H-5017-S	204KRR2	17.65/17.52 HEX 0.6950/0.6900	50	17	15.9 5/8	86.36 3.400	94.72 3.729	8.71 0.343	28.73 1.131	18.29 0.72	3550 800	0.299 0.66
011H-6015-S	204RR2	17.65/17.52 HEX 0.6950/0.6900	60	15	19.0 3/4	91.62 3.607	101.32 3.989	11.66 0.459	24.43 0.962	18.29 0.72	3550 800	0.417 0.92
012-8012-S	204RR6	19.18/19.05 0.7500/0.7505	80	12	25.4 1	98.15 3.864	110.41 4.347	14.60 0.575	26.62 1.048	15.49 0.61	4800 1080	0.676 1.49

# REPLACEMENT BEARINGS

**TABLE A-26. HOUSED UNIT REPLACEMENT BEARINGS**

Housed Units	Replacement Bearing Assembly	Features	Part No.
C	MUB replaced by 1000KRB & Col.	Standard series (SM) wide inner ring (B-type), collar, caps and wire	Example: 2 11/16 in. (uses MUB 2 11/16 in.)
DRNR	1000KR & Col. (Two)	Single R-seal (A-type), complete bearing number marked on seal	Example: DRNR 1 3/16 in. (uses two 1103KR & Col.)
FLCT	RA000RRB & Col.	Non-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
GRFD, GRFDR, GRFTD, GRFTDR	G1000KRRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: GRFD 1 3/16 in. (uses G1103KRRB & Col.)
GRKD, GRSD	G1000KRRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: GRKD 1 3/16 in. (uses G1103KRRB & Col.)
GVFD, GVFDR, GVFTD, GVFTDR	GRA000RRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
GVKD, GVSD	GRA000RRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
LAK, LAS	G1000KLLB & Col.	G-relubricatable; B-spherical outer ring; LL-double Mechani-seal	Complete bearing number marked on seal. Example: LAK 1 3/16 in. (uses G1103KLLB & Col.)
LAKHL	1000KLS & Col.	L-single Mechani-seal; S-external self-aligning	Complete bearing number marked on seal. Example: LAKHL 1 3/16 in. (uses 1103KLS & Col.)
LAO, LSAO	GN000KLLB & Col.	G-relubricatable; B-spherical outer ring; LL-double Mechani-seal	Complete bearing number marked on seal. Example: LAO 1 3/16 in. (uses GN103KLLB & Col.)
LCJ, LCJT	G1000KLLB & Col.	G-relubricatable; B-spherical outer ring; LL-double Mechani-seal	Complete bearing number marked on seal. Example: LCJ 1 3/16 in. (uses G1103KLLB & Col.)
LCJO	GN000KLLB	G-relubricatable; N-Heavy series; B-spherical outer ring; LL-double Mechani-seal	Complete bearing number marked on seal. Example: LCJO 1 3/16 in. (uses GN103KLLB & Col.)
PB, PBS, VKD, VSD	RA000RRB & Col.	Non-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
RA Flangette, RAT Flangette	RA000RRB & Col.	Non-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
RA Relubricatable Flangette	GRA000RRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	To order, specify bearings and markings. Example: 1-GRA103RRB & Col., 1-G62MSA marking, 1-G62MSB marking
RAK, RAS, RAKH, RSA	G1000KRRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RAK 1 3/16 in. (uses G1103KRRB & Col.)
RAKHL	1000KRS & Col	R-Single R-seal; S-external self-aligning	Complete bearing number marked on seal. Example: RAKHL 1 3/16 in. (uses 1103KRS & Col.)
RAKN, RASN	1000KRRB & Col.	Non-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RAKN 1 3/16 in. (uses 1103KRRB & Col.)
RAO, RSAO	GN000KRRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RSAO 3 3/16 in. (uses GN303KRRB & Col.)
RASC	GC1000KRRB & Col.	G-relubricatable; C-concentric collar; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RASC 1 3/16 in. (uses GC1103KRRB & Col.)
RCJ, RCJT, RC	G1000KRRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RCJ 1 3/16 in. (uses G1103KRRB & Col.)
RCJN, RR Flangette, RRT Flangette	1000KRRB & Col.	Non-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RCJN 1 3/16 in. (uses 1103KRRB & Col.)
RFC, RCJC, RCJTC	GC1000KRRB & Col.	G-relubricatable; C-concentric collar; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: 1 3/16 in. (uses GC1103KRRB & Col.)
RFD, RFDR, RFTD, RFTDR	1000KRRB & Col.	Non-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RFD: 1 3/16 in. (uses 1103KRRB & Col.)

*Continued on next page.*

# BALL BEARING HOUSED UNITS

## BALL BEARING HOUSED UNITS • REPLACEMENT BEARINGS

Continued from previous page.

Housed Units	Replacement Bearing Assembly	Features	Part No.
RKD, RSD	1000KRRB & Col.	Non-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RKD 1 3/16 in. (uses 1103KRRB & Col.)
RPB	RABR (shaft size)	Non-relubricatable; B-spherical outer ring; RR-double R-seal	RA000RRB FS-450 Bearing and Col. mounted in rubber interliner. Example: RPB 1 3/16 in. (uses an RABR 1 3/16 in.)
RR Relubricatable Flangette	G1000KRRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	To order, specify bearing and markings. Example: 1-G1100KRRB & Col., 1-G52MSA marking, 1-G52MSB marking
SA	MUB replaced by 1000KRB & Col.	Standard series (SM) wide-inner-ring ball bearing (B-type), collar, caps and wire	Example: SA 1 3/16 in. (uses MUB 1 3/16 in.)
SAD	MUBD replaced by 1000KRB & Col.	Standard series (SM) wide-inner-ring ball bearing (B-type), dust seal, collar, caps and wire	Example: SA 1 3/16 in. (uses MUB 1 3/16 in.)
SADD	MUBD replaced by N000KRB & Col.	Rear dust seal, otherwise same as SAD	
SAL	SM1000KS & Col.	S-external self-aligning ring	Example: SAL 1 3/16 in. (uses SM1103KS & Col.)
SAO	MUOB replaced by 100KRB & Col.	Heavy series (SMN) wide-inner-ring ball bearing (B-type), collar, caps and wire	Example: SAO 1 3/16 in. (uses MUOB 1 3/16 in.)
SAOD	MUOBD (shaft size)	Heavy series (SMN) wide-inner-ring ball bearing (B-type), dust seal, collar, caps and wire	Example: SAOD 1 3/16 in. (uses MUOBD 1 3/16 in.)
SAODD	MUOBD (shaft size)	Rear dust seal, otherwise same as SAOD	
SAOL	SMN000KS & Col.	S-external self-aligning ring heavy series	Example: SAOL 1 3/16 in. (uses SMN103KS & Col.)
SAS, SAK	GYA000RRB	G-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
SCJ, SCJT	GYA000RRB	G-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
TAK, TAS	G1000KPPB & Col.	G-relubricatable; B-spherical outer ring; PP-Double tri-ply seal	Complete bearing number marked on seal. Example: TAK 1 3/16 in. (uses G1103KPPB3 & Col.)
TCJ, TCJT	G1000KPPB & Col.	G-relubricatable; B-spherical outer ring; PP-Double tri-ply seal	Complete bearing number marked on seal. Example: TCJ 1 3/16 in. (uses G1103KPPB3 & Col.)
VAK, VAS	GRA000RRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
VCJ, VCJT	GRA000RRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
VFD, VFDR, VFTD, VFTDR	RA000RRB & Col.	Non-relubricatable; B-spherical outer ring; RR-double R-seal	Bearing identification marked on seal.
YAS, YAK, YASM, YCJ, YCJT, YTU	GY-KRRB	G-relubricatable; B-spherical outer ring; RR-double R-seal, Y-series wide inner ring	Bearing identification marked on seal.
<b>OTHER TYPES</b>			
LTU Take-Up	G1000KLLB & Col.	G-relubricatable; B-spherical outer ring; LL-double Mechani-seal	Complete bearing number marked on seal. Example: LTU 1 3/16 in. (uses G1103KLLB & Col.)
RHC, RHCM Hanger	GC1000KRRB & Col.	G-relubricatable; C-concentric collar; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RCH 1 1/2 in. (uses GC1108KRRB & Col.)
RTU Take-Up	G1000KRRB & Col.	G-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: RTU 1 3/16 in. (uses G1103KRRB & Col.)
STU Take-Up	GYA-RRB	G-relubricatable; B-spherical outer ring; RR-double R-seal	Complete bearing number marked on seal. Example: STU 1 3/16 in. (uses GYA103RRB)
TU Take-Up	MUB replaced by 1000KRB & Col.	Standard series (SM) wide-inner-ring ball bearing (B-type), collar, caps and wire	Example: TU 2 11/16 in. (uses MUB 2 11/16 & Col.)
YTU Take-Up	GY-KRRB	G-relubricatable; B-spherical outer ring; RR-double R-seal; Y-series wide inner ring with set screw lock	Complete bearing number marked on seal. Example: YTU 1 3/16 in. (uses GY1103KRRB)



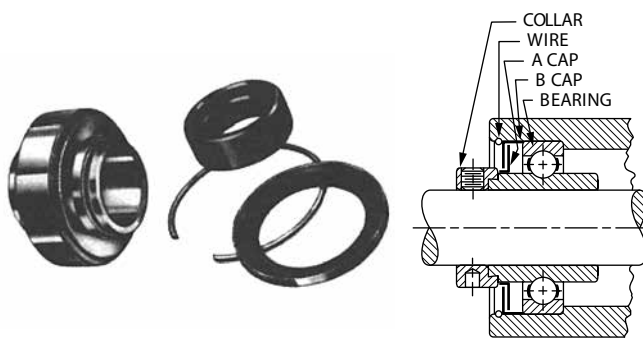
## **MACHINE UNITS**

A complete machine unit consists of either a standard (SM) or heavy (SMN) series wide-inner-ring ball bearing, an inner and outer sealing cap, a retaining wire and self-locking collar, or an integrally sealed bearing and collar. These units are available as bearing replacements for Timken power transmission units such as the SA, SAO, DSA and DSAO pillow blocks, and C and Co cylindrical cartridges or special housings.

These are available in two types, A and B, as described below.

### **A-TYPE**

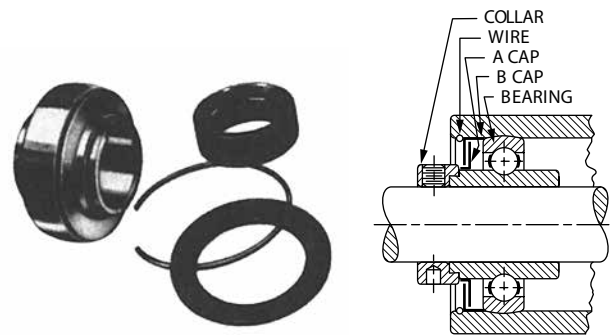
Fig. A-27 shows a machine unit with an A-type bearing carrying the designation MUA (standard series) and MUOA (heavy series). It consists of a wide inner ring, open type or one-piece R-seal bearing, collar, caps and wire. The "caps" are two steel members which comprise a non-integral frictionless labyrinth seal. The inner member is pressed on the inner ring and rotates with it. The outer member is pressed in the housing against the face of the outer ring and is held in place by the round retaining wire.



**Fig. A-27. MUA, MUOA.**

### **B-TYPE**

Fig. A-28 is the same as fig. A-27, except that the bearing is B-type and the seal on the collar side is either a labyrinth seal (as shown) or a one-piece R-seal. In the latter case no wire is supplied. The designation of the machine unit is MUB (standard series) or MUOB (heavy series). The B-type bearing is mounted in the spherical housing seat by means of two slots milled diametrically opposite each other in the housing. The bearing can be inserted at right angles and swiveled into position. No additional shoulders or snap rings are required to locate this type.



**Fig. A-28. MUB, MUOB.**

### TIMKEN® BALL BEARING HOUSED UNIT SAFETY END CAPS MAKE WORKPLACE PROTECTION A SNAP

Easy-to-install Timken® safety end caps protect exposed rotating shafts, reducing hazards around many types of equipment.

The Timken safety product line consists of a mounting ring and snap-on cover, both molded in durable, bright-yellow polymer. The end cap snaps into the adhesive-backed ring that adheres to the outboard face of most flanged bearing housings. The secure 360-degree fit makes for a rugged unit that also provides basic protection and washdown.

Factory retrofits are a snap with everything provided in a handy kit. The cost-effective end covers are simple-to-install on Timken and most other flanged units. Current sizes range from 20 mm to 50 mm (3/4 in. to 1 15/16 in.) shaft sizes for two or four-bolt flanged cast-iron, malleable iron and other selected housing styles and sizes.



Fig. A-29. Safety end caps protect against rotating stub shafts.

### KIT CONTENTS

Timken safety end caps come in a convenient kit that contains everything required for a safe and durable mounting:

- Polymer end cap.
- Adhesive-backed polymer mounting ring.
- Scuffing pad.
- Cleaning cloth.

### INSTALLATION

Steps in the simple mounting procedure include:

1. Use the scuffing pad on housing’s mating surface where the mounting ring will be placed.
2. Clean off the mounting area.
3. Attach the adhesive-backed mounting ring.
4. Hold the mounting ring in place with pressure for 60 seconds.
5. Allow the adhesive to set for a minimum of one hour.
6. Snap the end cap into place.

### ORDERING INFORMATION

TABLE A-27. ORDERING INFORMATION

Kit <sup>(1)</sup>	Shaft Sizes
204 ECY Kit	20 mm, 3/4
205 ECY Kit	25 mm, 7/8, 15/16, 1
206 ECY Kit	30 mm, 1 1/16, 1 1/8, 1 3/16, 1 1/4 S
207 ECY Kit	35 mm, 1 1/4, 1 5/16, 1 3/8, 1 7/16,
208 ECY Kit	40 mm, 1 1/2
209 ECY Kit	45 mm, 1 5/8, 1 11/16, 1 3/4
210 ECY Kit	50 mm, 1 15/16, 2 S

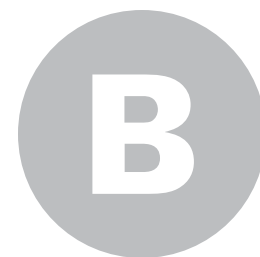
<sup>(1)</sup>Kits are designed to fit the following housed units –  
 Four-bolt: YCJ, RCJ, RCJC, TCJ, LCJ, SCJ, VCJ  
 Two-bolt: YCJT, RCJT, RCJTC, TCJT, LCJT, SCJT, VCJT

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**TAPERED ROLLER BEARING TYPE E HOUSED UNITS**

Timken® Type E housed units strengthen the performance of your equipment with industry-leading premium tapered roller bearings encased in protective blocks.

Compared to standard bearings, our premium bearings have a 113 percent increase in calculated life and 25 percent more calculated load capacity.

For tough industrial applications, Timken designed a durable housing built with corrosion-resistant electrocoating, locking collars and Timken-designed double-lip seals.

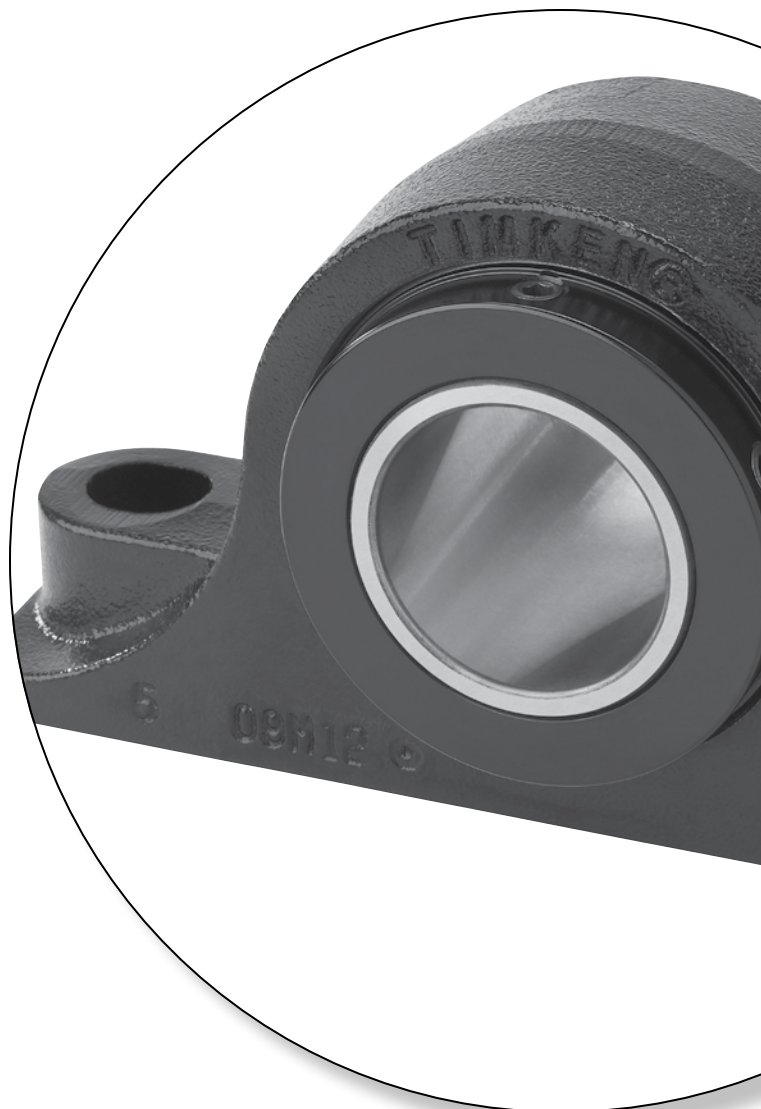
Our seal improves grease retention and our rotating collar acts as an initial flinger. Together, they significantly block contaminant ingress and improve your operations.

Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken® Housed Unit Catalog.

**TYPICAL INDUSTRIES AND APPLICATIONS**

Common uses include processing and material handling equipment found in many industries, including pulp and paper, power generation, mining, cement and aggregate. Type E housed units also are widely used in equipment used for air-handling, and water and waste-water treatment. Other common machine applications include mixers, washers, shredders, mills and oven/furnace roller beds.

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### INTRODUCTION

#### ENHANCED PERFORMANCE BEARINGS, LOWER COST OF OWNERSHIP

Timken Type E tapered roller bearings have a significantly higher load-carrying capability than industry-standard Type E housed units.

Our Type E bearings also experience lower internal contact stresses and frictional drag due to optimized bearing profiles and improved surface textures. This results in improved lubrication performance and up to three times greater misalignment capability than industry-standard tapered roller bearing designs.

Timken-designed double-lip seals help lower maintenance costs. The seals in our Type E housed units optimize lip contact to help improve grease retention and significantly reduce contaminant ingress.

#### SIZE RANGE AND CONFIGURATION



Timken Type E roller bearing housed units are available in a wide variety of sizes and configurations.

**TABLE B-1. SHAFT SIZES AND RANGES**

Housed Unit Configuration	Inches (in.)	Metric (mm)
Pillow Block: Two-Bolt Base	1 3/16 thru 3 1/2	35 thru 90
Pillow Block: Four-Bolt Base	2 1/4 thru 5	60 thru 125
Flange: Four-Bolt	1 3/16 thru 4 1/2	35 thru 115
Flange: Piloted	1 3/16 thru 5	35 thru 125
Take-Up: Wide Slot	1 3/8 thru 3	35 thru 75
Take-Up: Top Angle	1 3/4 thru 4	45 thru 100

#### European REACH Compliance

Timken lubricants, greases and similar products sold in stand-alone containers or delivery systems are subject to the European REACH (Registration, Evaluation, Authorization and Restriction of CHemicals) directive. For import into the European Union, Timken can sell and provide only those lubricants and greases that are registered with ECHA (European CHemical Agency). For further information, please contact your Timken engineer.

 <p><b>WARNING</b></p> <p><i>Failure to observe the following warnings could create a risk of death or serious injury.</i></p>
<p>Proper maintenance and handling practices are critical. Failure to follow selection recommendations and installation instructions and to maintain proper lubrication can result in equipment failure.</p> <p>Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.</p>
 <p><b>CAUTION</b></p> <p><i>Failure to follow these cautions could create a risk of injury.</i></p>
<p>Do not use damaged housed units. The use of a damaged housed unit can result in equipment damage and/or injury.</p>
<p><b>CAUTION</b></p> <p><i>Failure to follow these cautions may result in property damage.</i></p>
<p>If hammer and bar are used for installation or removal of a part, use a mild steel bar (e.g., 1010 or 1020 grade). Mild steel bars are less likely to cause release of high-speed fragments from the hammer, bar or the part being removed.</p>

Warnings for this product line are in this catalog and posted on [www.timken.com/en-us/products/warnings/Pages/TimkenHousedUnitWarnings.aspx](http://www.timken.com/en-us/products/warnings/Pages/TimkenHousedUnitWarnings.aspx).

**NOTE**

*Do not use excessive force when mounting or dismounting the unit.*

*Follow all tolerance, fit, and torque recommendations.*

*Always follow the Original Equipment Manufacturer's installation and maintenance guidelines.*

*Ensure proper alignment.*

*Never weld housed units.*

*Do not heat components with an open flame.*

*Do not operate at bearing temperatures above 121° C (250° F).*

**DISCLAIMER**

*This catalog is provided solely to give you analysis tools and data to assist you in your product selection. Product performance is affected by many factors beyond the control of Timken. Therefore, you must validate the suitability and feasibility of all product selections for your applications.*

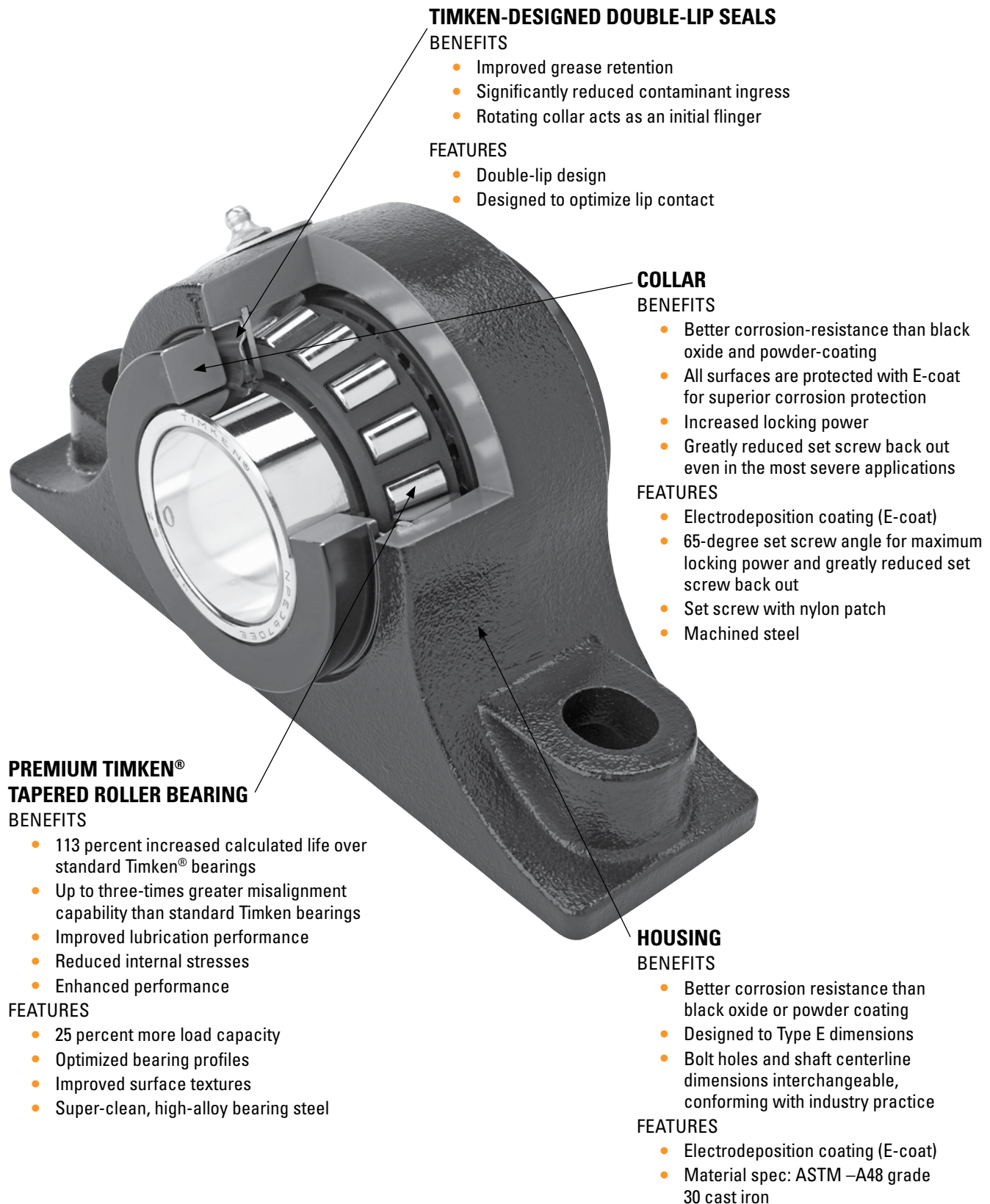
*Timken products are sold subject to Timken terms and conditions of sale, which include our limited warranty and remedy. You can find these at <http://www.timken.com/en-us/purchase/Pages/TermsandConditionsofSale.aspx>.*

*Please consult with your Timken engineer for more information and assistance.*

*Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.*

Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken® Housed Unit Catalog.

### BENEFITS AND FEATURES



#### TIMKEN-DESIGNED DOUBLE-LIP SEALS

##### BENEFITS

- Improved grease retention
- Significantly reduced contaminant ingress
- Rotating collar acts as an initial flinger

##### FEATURES

- Double-lip design
- Designed to optimize lip contact

#### COLLAR

##### BENEFITS

- Better corrosion-resistance than black oxide and powder-coating
- All surfaces are protected with E-coat for superior corrosion protection
- Increased locking power
- Greatly reduced set screw back out even in the most severe applications

##### FEATURES

- Electrodeposition coating (E-coat)
- 65-degree set screw angle for maximum locking power and greatly reduced set screw back out
- Set screw with nylon patch
- Machined steel

#### PREMIUM TIMKEN® TAPERED ROLLER BEARING

##### BENEFITS

- 113 percent increased calculated life over standard Timken® bearings
- Up to three-times greater misalignment capability than standard Timken bearings
- Improved lubrication performance
- Reduced internal stresses
- Enhanced performance

##### FEATURES

- 25 percent more load capacity
- Optimized bearing profiles
- Improved surface textures
- Super-clean, high-alloy bearing steel

#### HOUSING

##### BENEFITS

- Better corrosion resistance than black oxide or powder coating
- Designed to Type E dimensions
- Bolt holes and shaft centerline dimensions interchangeable, conforming with industry practice

##### FEATURES

- Electrodeposition coating (E-coat)
- Material spec: ASTM –A48 grade 30 cast iron



**ENGINEERING**

Tapered roller bearings can manage broad ranges of speed and many combinations of radial and thrust loads. Other important environmental conditions affect bearing operation, such as low and high temperature, dust and dirt, moisture and unusual mounting conditions.

This engineering section is not intended to be comprehensive, but does serve as a useful guide when selecting Type E housed units.

To view the complete engineering catalog, please visit [www.timken.com](http://www.timken.com). To order the catalog, please contact your Timken engineer and request a copy of the Timken Engineering Manual, order number 10424.

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## **BEARING SELECTION AND LIFE CALCULATIONS**

Many different performance criteria exist that dictate how a bearing should be selected. These criteria include bearing fatigue life, rotational precision, power requirements, temperature limits, speed capabilities, sound and more. The life can also be limited by other system components such as the shaft, shaft interface and the housing. This section deals primarily with bearing life as related to material associated fatigue.

### **BEARING LIFE**

Bearing life is defined here as the length of time, or number of revolutions, until a fatigue spall of 6 mm<sup>2</sup> (0.01 in.<sup>2</sup>) develops. Since metal fatigue is a statistical phenomenon, the life of an individual bearing is impossible to precisely predetermine. Bearings that may appear to be identical can exhibit considerable life scatter when tested under identical conditions. Thus, it is necessary to base life predictions on a statistical evaluation of a large number of bearings operating under similar conditions. The Weibull distribution function is commonly used to predict the life of a population of bearings at any given reliability level.

### **RATING LIFE**

Rating life, ( $L_{10}$ ), is the life that 90 percent of a group of apparently identical bearings will complete or exceed before a fatigue spall develops. The  $L_{10}$  life also is associated with 90 percent reliability for a single bearing under a certain load.

### **BEARING LIFE EQUATIONS**

The  $L_{10}$  life has been calculated as follows for bearings under radial or combined loading where the dynamic equivalent radial load, ( $P_r$ ), has been determined.

Tapered roller bearings often use a dynamic load rating ( $C_{90}$ ) based on 90 million cycles, yielding the equations as follows:

$$L_{10} = \left( \frac{C_{90}}{P_r} \right)^{10/3} (90 \times 10^6) \text{ revolutions}$$

or based on shaft speed, (RPM),

$$L_{10} = \left( \frac{C_{90}}{P_r} \right)^{10/3} \left( \frac{90 \times 10^6}{60n} \right) \text{ hours}$$

Timken has expanded standard life equations to include certain additional variables that can affect bearing performance. The approach that considers these factors in bearing analysis and selection has been termed Bearing Systems Analysis (BSA).

The Timken expanded bearing life equation for tapered roller bearings is:

$$L_{na} = a_1 a_2 a_{3d} a_{3k} a_{3l} a_{3m} a_{3p} \left( \frac{C_{90}}{P_r} \right)^{10/3} \left( \frac{90 \times 10^6}{60n} \right) \text{ hours}$$

Where,

- $a_1$  = Reliability life factor
- $a_2$  = Material life factor
- $a_{3d}$  = Debris life factor
- $a_{3k}$  = Load zone life factor
- $a_{3l}$  = Lubrication life factor
- $a_{3m}$  = Misalignment life factor
- $a_{3p}$  = Low-load life factor

More details on Life Adjustment Factors can be found in the Timken Engineering Manual (order no. 10424) available on [timken.com](http://timken.com) or by contacting a Timken engineer.

Other factors that can be taken into account within the simple bearing life equation are shock or vibration. These are known to occur in many industrial applications due to combined factors including imbalanced dynamic forces, abusive handling, equipment misuse or neglect. These are difficult to predict.

When these conditions are known or suspected to occur, we suggest that equipment designers use a multiplication factor of (1.5 x  $P_r$ ) to estimate effects on housed unit selection and system reliability. Performance testing or advanced analysis is strongly suggested to validate final product selection.

## TIMKEN® ROLLER HOUSED UNIT SELECTION

The double extended tapered roller bearings used in the Type E roller housed units are suited for carrying radial, thrust or a combination of both types of loading. This section will describe the bearing selection process using different methods based on selection criteria and application details.

### METHOD 1 – SELECTION TABLE (RADIAL LOADS ONLY)

Note: Based on reference conditions with adequate lubrication.

- Determine criteria for bearing selection:
  - $L_{10}$  life required.
  - Size of bearing based on shaft size (if known).
  - Loading conditions (radial) of the application.
  - Shaft speed measured by revolutions per minute (RPM).
- Use table B-3:
  - Find speed criteria on upper row.
  - Proceed in the column directly below that speed to the equivalent radial load ( $P_r$ ) that is equal to or greater than that required.
  - Follow that row to the left to determine what the minimum shaft size should be for the required  $L_{10}$  life (hours). Many values are listed to help in selecting the proper bearing.

### METHOD 2 – USING BEARING LIFE EQUATION TO SELECT BEARING FOR A DIFFERENT $L_{10}$ LIFE (RADIAL LOADS ONLY)

If a different life is required than what is found in table B-3, it can be calculated from the bearing life equation. Note that each value in the selection table was calculated using this equation. The equation can be rewritten based on the unknown value.

Take the bearing life equation shown previously:

$$L_{10} = \left( \frac{C_{90}}{P_r} \right)^{10/3} \left( \frac{90 \times 10^6}{60n} \right) \text{ hours}$$

Or rewritten as:

$$L_{10} = \left( \frac{C_{90}}{P_r} \right)^{10/3} \left( \frac{1500000}{n} \right) \text{ hours}$$

Solve for  $C_{90}$ :

$$C_{90} = \left( \frac{L_{10} \times n}{1500000} \right)^{0.3} \left( P_r \right)$$

After calculating the  $C_{90}$ , check table B-3 to determine the shaft size needed. (Note: Ensure that the application speed does not exceed the maximum RPM found on that same table). Check the radial load, as well, with regard to the maximum allowable slip-fit radial load ( $F_{r-max}$ , see table B-5). If this value is exceeded, then a tighter line-to-line or press fit is required.

### TIMKEN METHOD 3A – DETERMINE EQUIVALENT RADIAL LOADS AND USE BEARING LIFE EQUATION (FOR COMBINED RADIAL- AND THRUST-LOADED APPLICATIONS)

For combined radial- and thrust-loaded applications, it is necessary to calculate an equivalent dynamic radial bearing load, designated by  $P_r$ , before applying the  $L_{10}$  bearing life equation. The dynamic equivalent radial load is defined as a single radial load that, if applied to the bearing, will result in the same life as the combined loading under which the bearing operates.

Tapered roller bearings are ideally suited to carrying all types of loads – radial, thrust and any combination of both. Due to the tapered design of the bearing, a radial load will induce a thrust reaction that must be opposed by an equal or greater thrust load to keep the bearing cone and cup from separating.

The ratio of the radial to the thrust load and the bearing included cup angle determine the load zone in a given bearing and the number of rollers in contact in the load zone in the bearing. If all the rollers are in contact, the load zone is referred to as being 360 degrees. When only radial load is applied to a tapered roller bearing – for convenience it is assumed in using the traditional calculation method that half the rollers support the load – the load zone is 180 degrees.

For Type E roller housed units with no external thrust load ( $F_a = 0$ ), the dynamic equivalent radial load ( $P_r$ ) equals  $F_r$ . This  $P_r$  value can then be used in the bearing life equation shown on [page B-6](#).

For Type E units with thrust loading, table B-2 can be used. In this table, only bearing A has an applied thrust load. If bearing B has the applied thrust load, each A in the equations should be replaced by a B and vice versa.

The equations in the first row of table B-2 yield single-row equivalent radial loads ( $P_{rA}$  and  $P_{rB}$ ). To find the two-row (Type E housed unit) life, the following equations must be used to solve for  $L_{10}$  life of each bearing row, and then combined for the system unit life:

$$L_{10A} = \left( \frac{C_{90}}{1.74 \times P_{rA}} \right)^{10/3} \left( \frac{1500000}{n} \right) \text{ hours}$$

and,

$$L_{10B} = \left( \frac{C_{90}}{1.74 \times P_{rB}} \right)^{10/3} \left( \frac{1500000}{n} \right) \text{ hours}$$

then,

$$L_{10} = \left[ \left( \frac{1}{L_{10A}} \right)^{3/2} + \left( \frac{1}{L_{10B}} \right)^{3/2} \right]^{-2/3} \text{ hours}$$

In the second row of table B-2,  $P_{rB} = 0$ ; therefore,  $P_{rA} = P_r$  in the standard bearing life equation shown on page B-6.

### ISO METHOD 3B

The ISO Method uses the following equation to determine the equivalent dynamic radial load:

$$P_r = XF_r + YF_a$$

Where,

$P_r$  = Dynamic equivalent radial load

$F_r$  = Applied radial load

$F_a$  = Applied axial load

$X$  = Radial load factor

$Y$  = Axial load factor

The values for  $X$  and  $Y$  are found in table B-5. In order to find these values, the value of  $F_r/F_a$  must be compared to the  $e$  value. Determine if the value is greater than or less than the  $e$  and then use the corresponding  $X$  and  $Y$  values below that formula.

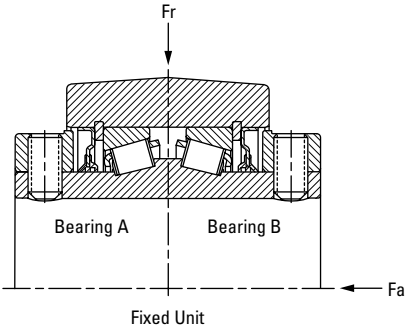
After the  $P_r$  value is calculated, then use the bearing life equation as shown on page B-6.

### ISO METHOD 4 – (THRUST ONLY APPLICATIONS)

Use the equation  $P_r = YF_a$ . Use  $Y$  from table B-5 (for  $F_a/F_r > e$ ). Then use this  $P_r$  value for the equivalent radial load in the bearing life equation. This value can also be used as the radial load in the load rating selection table B-3.

After selection has been made, verify that the application does not exceed the maximum allowable speed, allowable thrust loads and allowable housing loads. Heavy loads should be directed through the base of the units. See table B-4 for housing ratings for loads applied upward through the top of the housed unit perpendicular to the shaft axis. The housings need to be bolted down with adequate strength.

**TABLE B-2. DYNAMIC EQUIVALENT RADIAL LOAD CALCULATIONS**

Design	Thrust Condition	Dynamic Equivalent Radial Load
	$F_a \leq \frac{0.6 F_r}{K}$	$P_{rA} = 0.5 F_r + 0.83 K F_a$ $P_{rB} = 0.5 F_r - 0.83 K F_a$
	$F_a > \frac{0.6 F_r}{K}$	$P_{rA} = 0.4 F_r + K F_a$ $P_{rB} = 0$

### LOAD AND SPEED RATING TABLES

The table below shows the allowable equivalent radial load for a given shaft size, speed, and  $L_{10}$  life under normal operating conditions with adequate lubrication. Refer to the discussion on the previous pages of this catalog to determine the criteria for combinations not shown in this table or for combined load applications.

#### NOTE

The shaded area in this table indicates radial loads that exceed the maximum allowable slip-fit radial load ( $F_{r-max}$ ). Operation at these conditions may require line-to-line (g6 or h6) or light press fit (m6) on the shaft.

TABLE B-3. TYPE E TAPERED ROLLER BEARING LOAD RATING SELECTION TABLE

Shaft Dia.	Basic Dynamic Load Rating $C_{90}$	Max Speed Timken Double-Lip Seal RPM	Life $L_{10}$ hrs.	Equivalent Radial Loads Allowed, $P_r$ at Various Speeds, RPM																		
				50	100	150	250	500	750	1000	1200	1360	1530	1640	1750	2060	2420	2730	3050	3320	3820	4490
in. mm	lbs.	RPM	hrs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
1 3/16 1 1/4	3810	4490	10000	5297	4303	3810	3269	2655	2351	2157	2042	1966	1898	1859	1823	1736	1654	1596	1543	1505	1443	1374
			30000	3810	3095	2740	2351	1910	1691	1551	1468	1414	1365	1337	1311	1249	1190	1148	1110	1082	1038	988
			40000	3495	2839	2514	2157	1752	1551	1423	1347	1297	1252	1227	1203	1145	1091	1053	1018	993	952	907
			60000	3095	2514	2226	1910	1551	1373	1260	1193	1149	1109	1086	1065	1014	966	932	902	879	843	803
			100000	2655	2157	1910	1638	1331	1178	1081	1023	986	951	932	914	870	829	800	774	754	723	689
1 3/8 1 7/16 35 mm	6100	3820	10000	8481	6889	6100	5233	4251	3764	3453	3269	3148	3039	2976	2919	2780	2649	2555	2471	2409	2310	
			30000	6100	4955	4387	3764	3057	2707	2483	2351	2264	2186	2141	2099	1999	1905	1837	1777	1733	1661	
			40000	5596	4545	4024	3453	2804	2483	2278	2157	2077	2005	1964	1926	1834	1747	1685	1630	1589	1524	
			60000	4955	4024	3564	3057	2483	2199	2017	1910	1839	1775	1739	1705	1624	1547	1492	1444	1407	1349	
			100000	4251	3453	3057	2623	2130	1886	1730	1638	1578	1523	1492	1463	1393	1327	1280	1238	1207	1158	
1 1/2 1 5/8 1 11/16 40 mm	7860	3320	10000	10928	8877	7860	6743	5477	4850	4449	4212	4057	3916	3835	3761	3582	3413	3292	3184	3104		
			30000	7860	6384	5653	4850	3939	3488	3200	3029	2918	2816	2758	2705	2576	2455	2367	2290	2232		
			40000	7210	5856	5186	4449	3614	3200	2935	2779	2677	2584	2530	2482	2363	2252	2172	2101	2048		
			60000	6384	5186	4592	3939	3200	2833	2599	2461	2370	2288	2241	2197	2092	1994	1923	1860	1813		
			100000	5477	4449	3939	3380	2745	2431	2230	2111	2033	1963	1922	1885	1795	1710	1650	1596	1556		
1 3/4 1 7/8 1 15/16 2 45 mm 50 mm	10300	3050	10000	14321	11632	10300	8837	7178	6355	5830	5520	5316	5132	5026	4929	4694	4472	4313	4172			
			30000	10300	8366	7408	6355	5162	4571	4193	3970	3824	3691	3615	3545	3376	3217	3102	3001			
			40000	9448	7674	6795	5830	4735	4193	3846	3642	3507	3386	3316	3252	3097	2951	2846	2753			
			60000	8366	6795	6017	5162	4193	3713	3406	3225	3106	2998	2936	2879	2742	2613	2520	2437			
			100000	7178	5830	5162	4429	3597	3185	2922	2766	2664	2572	2519	2470	2352	2241	2162	2091			
2 3/16 55 mm	10900	2730	10000	15155	12310	10900	9351	7596	6726	6170	5841	5626	5431	5319	5216	4967	4733	4565				
			30000	10900	8854	7840	6726	5463	4837	4437	4201	4046	3906	3825	3752	3572	3404	3283				
			40000	9999	8121	7191	6170	5011	4437	4070	3854	3712	3583	3509	3441	3277	3122	3012				
			60000	8854	7191	6368	5463	4437	3929	3604	3412	3287	3172	3107	3047	2902	2765	2667				
			100000	7596	6170	5463	4687	3807	3371	3092	2928	2820	2722	2666	2614	2489	2372	2288				
2 1/4 2 7/16 2 1/2 60 mm 65 mm	11600	2420	10000	16129	13100	11600	9952	8083	7158	6566	6216	5987	5779	5660	5551	5286	5037					
			30000	11600	9422	8343	7158	5814	5148	4722	4471	4306	4157	4071	3992	3802	3622					
			40000	10641	8643	7653	6566	5333	4722	4332	4101	3950	3813	3734	3662	3487	3323					
			60000	9422	7653	6777	5814	4722	4181	3836	3631	3498	3376	3307	3243	3088	2942					
			100000	8083	6566	5814	4988	4051	3587	3291	3116	3001	2897	2837	2782	2649	2524					
2 11/16 2 3/4 2 15/16 3 70 75	12300	2060	10000	17102	13891	12300	10552	8571	7590	6962	6591	6348	6128	6002	5886	5605						
			30000	12300	9991	8846	7590	6165	5459	5007	4741	4566	4407	4317	4233	4031						
			40000	11283	9165	8115	6962	5655	5007	4593	4349	4188	4043	3960	3883	3698						
			60000	9991	8115	7186	6165	5007	4434	4067	3851	3709	3580	3506	3439	3274						
			100000	8571	6962	6165	5289	4296	3804	3489	3304	3182	3071	3008	2950	2809						
3 3/16 3 1/4 3 7/16 3 1/2 80 mm 85 mm 90 mm	19600	1640	10000	27252	22135	19600	16815	13658	12094	11094	10503	10116	9765	9564								
			30000	19600	15920	14097	12094	9823	8698	7979	7554	7276	7023	6879								
			40000	17979	14604	12931	11094	9011	7979	7319	6930	6674	6443	6310								
			60000	15920	12931	11450	9823	7979	7065	6481	6136	5910	5705	5587								
			100000	13658	11094	9823	8428	6845	6061	5560	5264	5070	4894	4793								

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**LOAD AND SPEED RATING TABLES** – continued

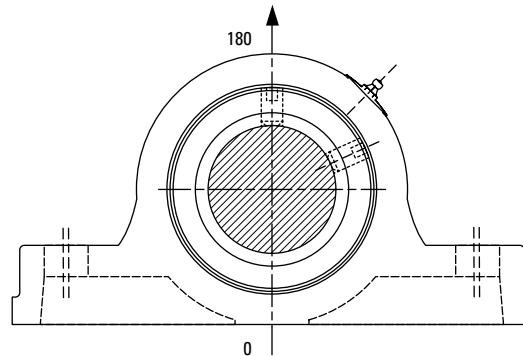
**TABLE B-3. TYPE E TAPERED ROLLER BEARING LOAD RATING SELECTION TABLE** – Continued from previous page.

Shaft Dia.	Basic Dynamic Load Rating C <sub>90</sub>	Max Speed Timken Double-Lip Seal RPM	Life L <sub>10</sub>	Equivalent Radial Loads Allowed, P, at Various Speeds, RPM																				
				50	100	150	250	500	750	1000	1200	1360	1530	1640	1750	2060	2420	2730	3050	3320	3820	4490		
in. mm	lbs.	RPM	hrs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.			
3 15/16 4 100 mm	26900	1530	10000	37401	30379	26900	23078	18745	16598	15226	14415	13884	13402											
			30000	26900	21850	19347	16598	13482	11938	10951	10368	9986	9639											
			40000	24676	20043	17747	15226	12367	10951	10045	9511	9160	8842											
			60000	21850	17747	15715	13482	10951	9697	8895	8421	8111	7829											
			100000	18745	15226	13482	11566	9395	8319	7631	7225	6959	6717											
4 7/16 4 1/2 110 mm 115 mm	33000	1360	10000	45883	37268	33000	28311	22996	20362	18678	17684	17033												
			30000	33000	26804	23734	20362	16539	14645	13434	12719	12250												
			40000	30271	24588	21772	18678	15172	13434	12323	11667	11237												
			60000	26804	21772	19278	16539	13434	11895	10912	10331	9950												
			100000	22996	18678	16539	14189	11525	10205	9361	8863	8536												
4 15/16 5 125 mm	45500	1200	10000	63263	51385	45500	39035	31706	28075	25754	24383													
			30000	45500	36957	32725	28075	22804	20192	18523	17537													
			40000	41738	33902	30019	25754	20918	18523	16991	16087													
			60000	36957	30019	26581	22804	18523	16401	15045	14244													
			100000	31706	25754	22804	19564	15891	14071	12907	12220													

**HOUSING RATINGS**

**TABLE B-4. HOUSING RATINGS – TYPE E PILLOW BLOCKS: TWO-BOLT BASE, FOUR-BOLT BASE**

Shaft Dia.	Maximum Housing Rating Gray Iron at 180°
in. mm	lbs.
1 3/16 thru 1 1/4	1600
1 3/8 thru 1 7/16 35	3150
1 1/2 thru 1 11/16 40	3000
1 3/4 thru 2 45 thru 50	5150
2 3/16 55	3500
2 1/4 thru 2 1/2 60 thru 65	6550
2 11/16 thru 3 70 thru 75	7000
3 3/16 thru 3 1/2 80 thru 90	15700
3 15/16 thru 4 100	16250
4 7/16 thru 4 1/2 110 thru 115	21000
4 15/16 thru 5 125	22860



1. These ratings have been calculated for initial bearing selection. These include a nominal safety factor for the standard Type E two- and four-bolt pillow blocks. The following conditions apply: standard cast-iron material, the force is applied perpendicular to the shaft axis, and the housing bolts are properly clamped.
2. These limits should not be applied to operating conditions that include impact (shock) loads or combined radial and thrust loads that are not directed into the pillow block base.
3. If heavy cap loads are expected, use the following modifications to mounting method or equipment design: Grade 8 base bolts and hardened washers; ensure that proper installation torque is achieved and is uniform.
4. If axial loads are expected, provide mechanical stops or shear bars with strength sufficient to support the load. Specification of the strength, material, method of fastening, and precision location are the responsibility of the machinery designer.

TABLE B-5. TAPERED ROLLER BEARING – RADIAL AND THRUST FACTORS; SPEED AND SLIP-FIT LOAD LIMITS

Shaft Dia.	$F_a / F_r \leq e$		$F_a / F_r > e$		K Factor	Dynamic Load Rating <sup>(1)</sup>	Static Load Rating	Maximum Permissible Thrust Load <sup>(2)</sup>	Max Speed <sup>(3)</sup>	Maximum Allowable Slip-Fit Radial Load <sup>(4)</sup>	
	e	X	Y	X							Y
in. mm						C <sub>90</sub> lbs.	C <sub>0</sub> lbs.	F <sub>a-max</sub> lbs.	RPM	F <sub>r-max</sub> lbs.	
1 3/16 1 1/4	0.49	0.87	1.77	0.70	2.14	1.23	3810	15760	2000	4490	3100
1 3/8 1 7/16 35 mm	0.46	0.87	1.89	0.70	2.28	1.31	6100	26000	2590	3820	5000
1 1/2 1 5/8 1 11/16 40 mm	0.44	0.87	1.96	0.70	2.37	1.36	7860	33000	2590	3320	6400
1 3/4 1 7/8 1 15/16 2 45 mm 50 mm	0.33	0.87	2.64	0.70	3.18	1.83	10300	43000	2590	3050	8400
2 3/16 55 mm	0.36	0.87	2.38	0.70	2.87	1.65	10900	48200	3454	2730	8900
2 1/4 2 7/16 2 1/2 60 mm 65 mm	0.4	0.87	2.17	0.70	2.63	1.51	11600	54000	3454	2420	9500
2 11/16 2 3/4 2 15/16 3 70 mm 75 mm	0.46	0.87	1.87	0.70	2.26	1.3	12300	61200	5181	2060	10000
3 3/16 3 1/4 3 7/16 3 1/2 80 mm 85 mm 90 mm	0.5	0.87	1.71	0.70	2.07	1.19	19600	108600	5181	1640	16000
3 15/16 4 100 mm	0.49	0.87	1.77	0.70	2.14	1.23	26900	154000	6908	1530	22000
4 7/16 4 1/2 110 mm	0.53	0.87	1.63	0.70	1.97	1.13	33000	188400	6908	1360	27000
4 15/16 5 125 mm	0.47	0.87	1.83	0.70	2.21	1.27	45500	266000	6908	1200	35000

<sup>(1)</sup>C<sub>90</sub> is the dynamic load rating based on a rated life of 90 million revolutions (3000 hrs. at 500 RPM).

<sup>(2)</sup>F<sub>a-max</sub> is based on the limits of the holding force of two properly tightened collars and set screws. When a single collar is installed, 50 percent of the values should be used.

<sup>(3)</sup>Double-lip seal.

<sup>(4)</sup>Operating at conditions where loads approach or exceed F<sub>r-max</sub> may require line-to-line (g6 or h6) or light press-fit (m6) on the shaft.

NOTE: The maximum permissible thrust load applies to conditions of slip-fit with set screw mounting or in applications where a large moment loading occurs. The values shown are valid only when two collars and set screws are used.

NOTE: When heavy thrust forces are applied, the friction between the pillow block and base may not be sufficient to prevent movement. Mechanical stops or shear bars with strength sufficient to support the load should be added. Never weld the pillow block or bearing to secure it to the shaft or base.

## INSTALLATION AND LUBRICATION

### INSTALLATION

**Proper installation of the housed unit is necessary.** This includes the use of shafts that are clean, free from nicks and burrs, straight and of proper diameter. Follow table B-6. The recommended shaft tolerances shown in table B-6 are for normal loaded applications. Refer to table B-5 to verify the maximum allowable slip-fit radial load ( $F_{r-max}$ ) and to determine if a tighter fit is required.

Do not mount the bearing on a worn section of the shaft. Use of shafts with hardness greater than HRC 45 will reduce the effectiveness of locking devices.

Also, it is necessary that the housed units and shafts are in alignment (fig. B-3). Verify that the mounting surfaces are in the same flat plane to help make sure good alignment is achieved. If shimming is required to minimize misalignment, use full shims across the entire housing base (fig. B-4). The bolts then need to be alternately torqued securely to their mounting supports.

Flat washers should be used when installing any kind of housed unit (fig. B-4). Washers should be properly sized to the bolt diameter. Typically, the diameters of SAE washers are too small to properly cover the bolt slots on the units. After the locking collars are lined up flush with the end of the cone (inner ring) face (fig. B-5), set screws then need to be properly tightened per table B-7. Set screws in multiple units should be aligned to each other (fig. B-6).

### LUBRICATION

To help maintain a rolling bearing's antifriction characteristics, lubrication is needed to:

- Minimize rolling resistance due to deformation of the rolling elements and raceway under load by separating the mating surfaces.
- Minimize sliding friction occurring between rolling elements, raceways and cage.
- Protect from corrosion and, with grease lubrication, from contaminant ingress.

Bearings have been factory prelubricated with Timken Premium All Purpose Industrial Grease, which is an NLGI No. 2 lithium-complex-based grease. This is suitable for normal operating conditions. Units should be relubricated with the Timken grease or one that is compatible and made for roller bearings.

**It is vital that the greases used are compatible. Please consult with a Timken engineer for the grease specifications if the use of a grease other than the Timken grease mentioned above is needed.**

Normal service is considered as operation in a clean, dry environment at temperatures between  $-34^{\circ}\text{C}$  to  $+82^{\circ}\text{C}$  ( $-30^{\circ}\text{F}$  and  $+180^{\circ}\text{F}$ ). If service is beyond normal conditions due to speed, temperature or exposure to moisture, dirt or corrosive chemicals, periodic relubrication may be advisable. For extreme conditions or conditions in which special chemicals are used, consult your Timken engineer.

After extended storage or periods when the unit is not in operation, fresh grease should be added.

For units operating in dirty or wet environments, the bearing should contain as much grease as possible, based on the shaft speed, to help protect against contamination. For slower applications, with shaft speeds typically less than 200 RPM, the unit should have additional grease added at start-up to fill the bearing.

Lubrication affects the bearing operating temperature as well. If the bearing does not have enough grease, this could lead to higher temperature operation due to inadequate lubrication film thickness. Excessive grease will lead to higher operating temperatures due to grease churning. This can cause bearing overheating. To avoid this, it may be necessary to remove some of the grease inside the unit. The grease fitting may be removed briefly in this circumstance to allow excess grease to purge. The grease fitting must be put back in place. It is best to observe the bearing and its temperature to adjust the lubrication as needed.

### RELUBRICATION CYCLE

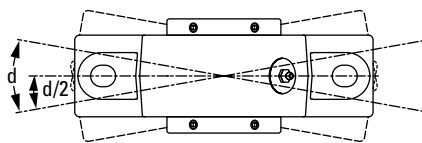
Adequate lubrication is an essential element affecting the bearing life. The two primary considerations that determine the relubrication cycle on any application are operating temperature and contamination. Every attempt should be made to maintain seals at peak efficiency.

The higher the temperature, the more rapidly the grease oxidizes. Grease life is reduced by approximately half for every  $10^{\circ}\text{C}$  ( $18^{\circ}\text{F}$ ) rise in temperature. The higher the operating temperature, the more often the grease must be replenished. Table B-8 can be used as a suggested initial point of reference. Relubrication frequency and quantity intervals are best developed through experience for each application based on types of service, which may differ from the suggestions in table B-8.

When the bearing is not in operation for an extended period of time, grease should be added to prevent corrosion.

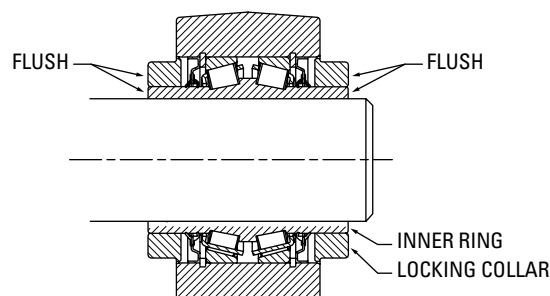
Table B-8 shows general lubrication suggested starting points only. Please read the entire installation instructions prior to using these tables. Applications should be regularly reviewed and lubrication amounts and intervals modified as needed to assure best results.





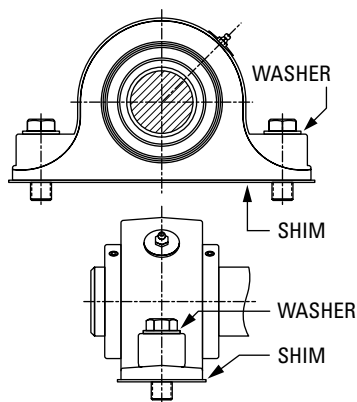
ALIGN HOUSING TO 1/2 TOTAL ANGULAR MOVEMENT.

**Fig. B-3.**



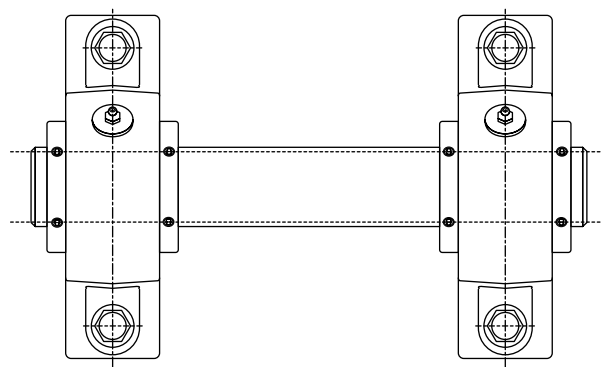
LINE UP COLLARS WITH INNER RING.

**Fig. B-5.**



USE WASHERS AND FULL SHIMS.

**Fig. B-4.**



LINE UP SET SCREWS IN MULTIPLE UNITS.

**Fig. B-6.**

**TABLE B-6. RECOMMENDED SHAFT TOLERANCE**

Shaft Dia.	Tolerance
in. mm	in. mm
Up thru 1 1/2 35 mm	+0.0000 to -0.0005 <b>+0.000 to -0.013</b>
1 5/8 thru 4 40 thru 100 mm	+0.0000 to -0.0010 <b>+0.000 to -0.025</b>
4 7/16 thru 5 110 thru 125 mm	+0.0000 to -0.0015 <b>+0.000 to -0.038</b>

NOTE: Refer to the Timken Engineering Manual (order no. 10424) for ISO g6, h6 or m6 shaft tolerance data.

**TABLE B-7. RECOMMENDED SET SCREW TIGHTENING TORQUE**

Shaft Dia.	Set Screw Size	Tightening Torque
in. mm	in.	in. - lbs.
1 3/16 thru 1 11/16 35 thru 40 mm	5/16-18	155
1 3/4 thru 2 1/2 45 thru 65 mm	3/8-16	275
2 11/16 thru 3 1/2 70 thru 90 mm	1/2-13	615
3 15/16 thru 5 100 thru 125 mm	5/8-11	1315



### WARNING

**Failure to observe the following warnings could create a risk of death or serious injury.**

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.

**TABLE B-8. SUGGESTED RELUBRICATION INTERVALS (BASED ON EIGHT HOURS/DAY OPERATION)**

Environment	Clean: Un-Exposed			Moderate: Exposed			Extreme: Harsh		
	Low	Med.	Hi	Low	Med.	Hi	Low	Med.	Hi
Application Speed <sup>(1)</sup>									
Greasing Interval	1 year	2 months	2 weeks	1 month	2 weeks	<sup>(2)</sup>	1 week	1 week	<sup>(2)</sup>

<sup>(1)</sup>Low < 25% max RPM; 25% < Med. < 75%; 75% < Hi – See table B-5.

<sup>(2)</sup>Use extra caution due to heat generation.

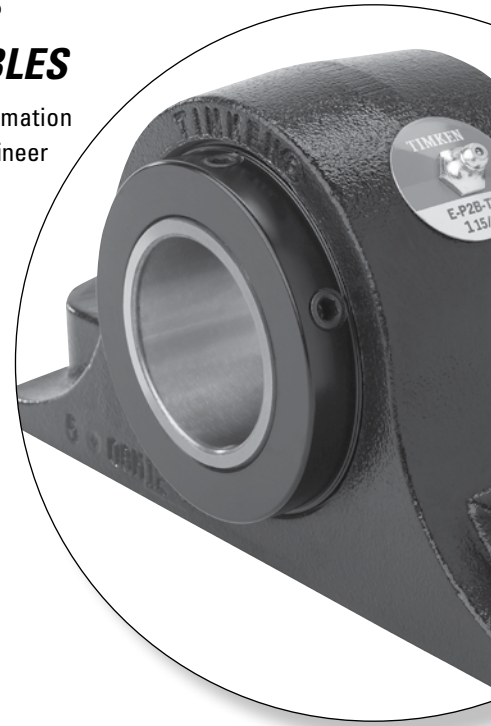
Relubrication frequency and quantity are best developed through experience. At all times, follow Original Equipment Manufacturer's maintenance instructions.



***TYPE E TAPERED ROLLER BEARING  
HOUSED UNIT PRODUCT DATA TABLES***

The following tables include product specification information for Timken® Type E housed units. Contact your Timken engineer for more information.

Pillow Block: Two-Bolt Base .....	B-17
Pillow Block: Four-Bolt Base .....	B-18
Flange: Four-Bolt .....	B-19
Flange: Piloted .....	B-20
Take-Up: Wide Slot .....	B-21
Take-Up: Top Angle .....	B-22



**NOMENCLATURE**

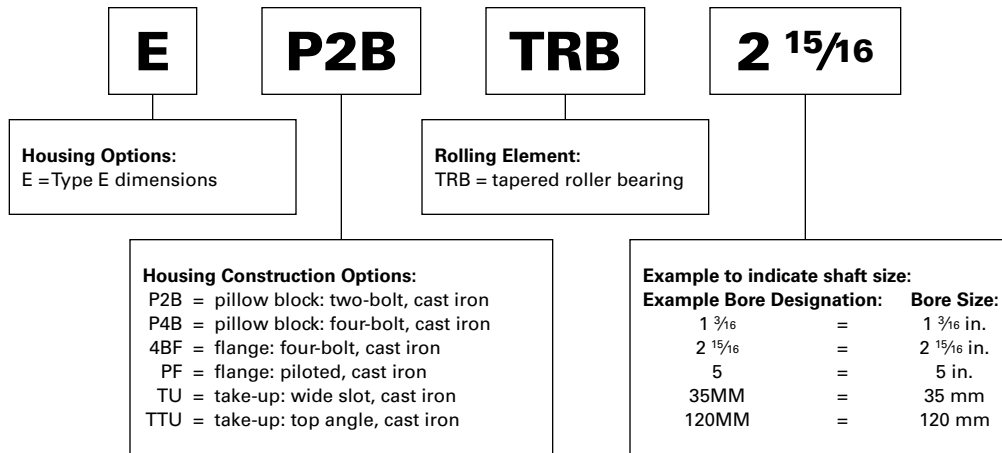


Fig. B-1. Type E nomenclature.

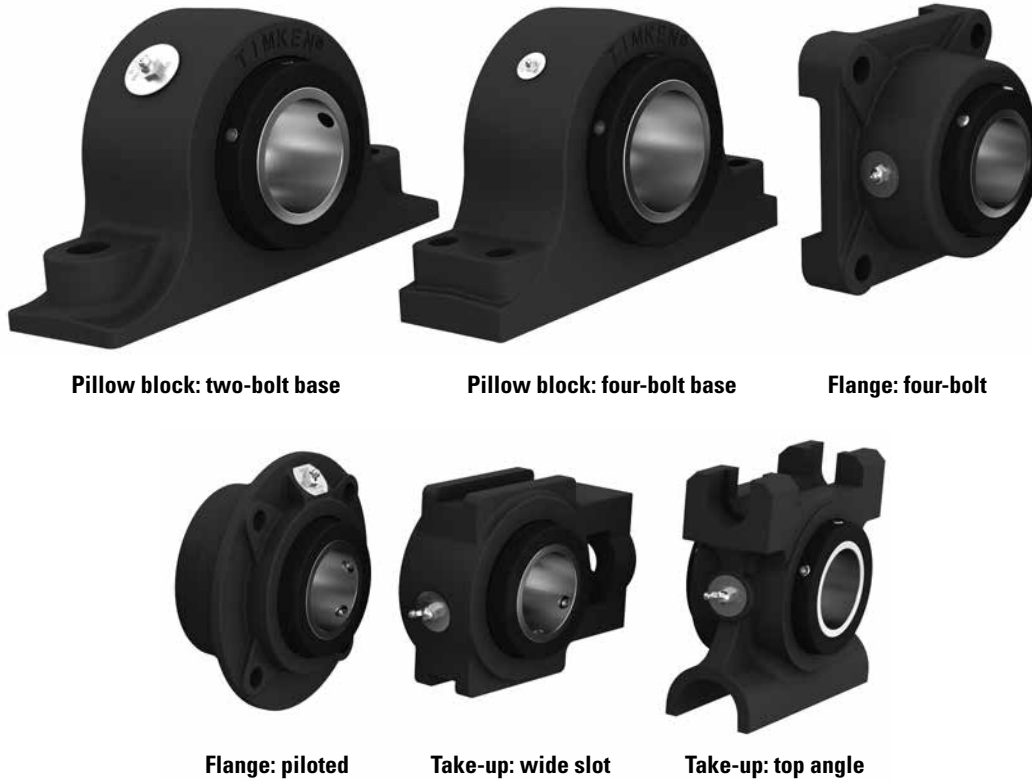
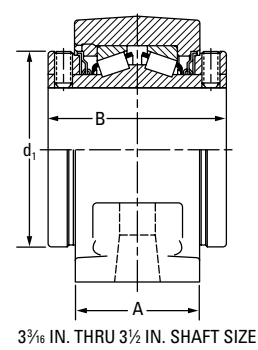
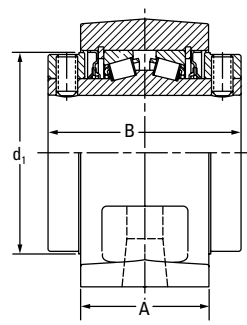
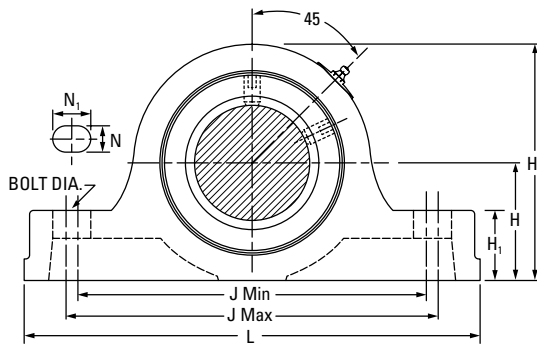


Fig. B-2. Type E housed unit types.

PILLOW BLOCK: TWO-BOLT BASE

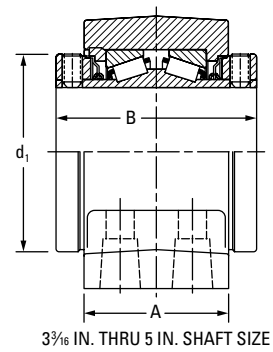
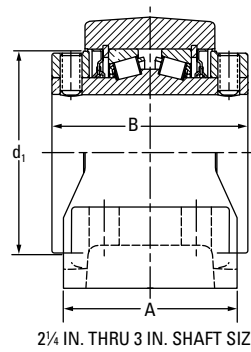
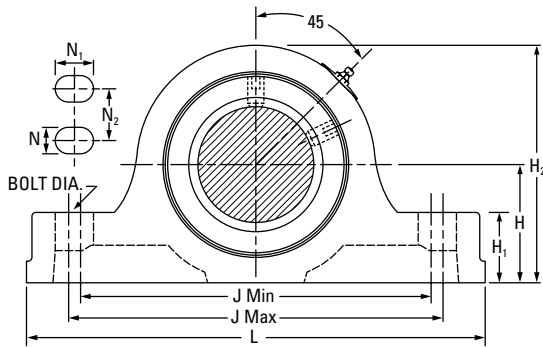


Shaft Dia.	Part No.	B	L	A	J		Bolt Dia.	N	N <sub>1</sub>	H <sub>1</sub>	H <sub>2</sub>	d <sub>1</sub>	H	Approx. Wt.
					Max.	Min.								
in. mm		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.
1 13/16	E-P2B-TRB-1 3/16	2 3/4	6	1 7/8	4 13/16	4 3/4	1/2	9/16	19/32	7/8	3	2 1/4	1 1/2	4
1 1/4	E-P2B-TRB-1 1/4													
1 3/8	E-P2B-TRB-1 3/8													
1 7/16	E-P2B-TRB-1 7/16	3	7 3/8	2 1/8	5 7/8	5 5/8	1/2	5/8	3/4	1 1/8	3 3/4	2 3/4	1 7/8	7
35 mm	E-P2B-TRB-35MM													
1 1/2	E-P2B-TRB-1 1/2	3 3/8	7 7/8	2 3/8	6 3/8	6 1/8	1/2	5/8	3/4	1 1/4	4 1/4	3 3/16	2 1/8	10
1 5/8	E-P2B-TRB-1 5/8													
1 11/16	E-P2B-TRB-1 11/16													
40 mm	E-P2B-TRB-40MM													
1 3/4	E-P2B-TRB-1 3/4													
1 7/8	E-P2B-TRB-1 7/8	3 1/2	8 7/8	2 1/2	7 1/8	6 7/8	5/8	3/4	7/8	1 15/16	4 1/2	3 7/16	2 1/4	12
1 15/16	E-P2B-TRB-1 15/16													
2	E-P2B-TRB-2													
45 mm	E-P2B-TRB-45MM													
50 mm	E-P2B-TRB-50MM													
2 3/16	E-P2B-TRB-2 3/16	3 3/4	9 5/8	2 5/8	7 7/8	7 5/8	5/8	3/4	7/8	1 1/2	5	3 3/4	2 1/2	15
55 mm	E-P2B-TRB-55MM													
2 1/4	E-P2B-TRB-2 1/4													
2 7/16	E-P2B-TRB-2 7/16													
2 1/2	E-P2B-TRB-2 1/2													
60 mm	E-P2B-TRB-60MM	4	10 1/2	2 7/8	8 5/8	8 3/8	5/8	3/4	7/8	1 5/8	5 23/32	4 1/16	2 3/4	23
65 mm	E-P2B-TRB-65MM													
2 11/16	E-P2B-TRB-2 11/16													
2 3/4	E-P2B-TRB-2 3/4													
66 mm	E-P2B-TRB-66MM													
2 11/16	E-P2B-TRB-2 11/16	4 1/2	12	3	9 11/16	9 5/16	3/4	27/32	1	1 7/8	6 1/4	4 23/32	3 1/8	28
2 3/4	E-P2B-TRB-2 3/4													
2 15/16	E-P2B-TRB-2 15/16													
3	E-P2B-TRB-3													
70 mm	E-P2B-TRB-70MM													
75 mm	E-P2B-TRB-75MM	5	14	3 1/2	11 13/16	10 13/16	7/8	1	1 13/16	2 1/4	7 1/2	5 17/32	3 3/4	48
3 3/16	E-P2B-TRB-3 3/16													
3 1/4	E-P2B-TRB-3 1/4													
3 7/16	E-P2B-TRB-3 7/16													
3 1/2	E-P2B-TRB-3 1/2													
80 mm	E-P2B-TRB-80MM													48
85 mm	E-P2B-TRB-85MM													47
90 mm	E-P2B-TRB-90MM													46

# TAPERED ROLLER BEARING TYPE E HOUSED UNITS

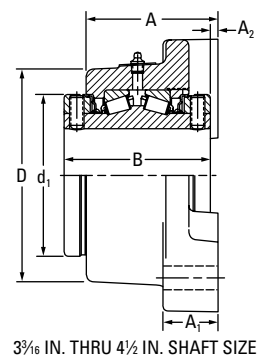
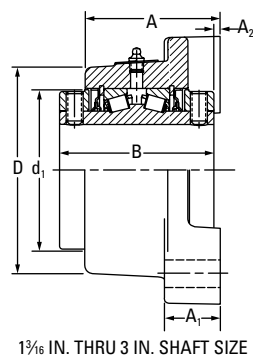
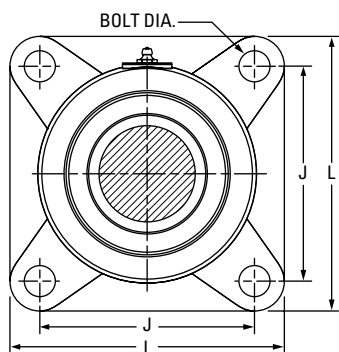
## PILLOW BLOCK: FOUR-BOLT BASE

### PILLOW BLOCK: FOUR-BOLT BASE



Shaft Dia. in. mm	Part No.	B in.	L in.	A in.	J		Bolt Dia. in.	N in.	N <sub>1</sub> in.	N <sub>2</sub> in.	H <sub>1</sub> in.	H <sub>2</sub> in.	d <sub>1</sub> in.	H in.	Approx. Wt. lbs.
					Max. in.	Min. in.									
2 1/4	E-P4B-TRB-2 1/4	4	10 1/2	3 1/2	8 11/16	8 5/16	5/8	11/16	7/8	1 7/8	1 5/8	5 23/32	4 1/16	2 3/4	22
2 7/16	E-P4B-TRB-2 7/16														22
2 1/2	E-P4B-TRB-2 1/2														21
60 mm	E-P4B-TRB-60MM														22
65 mm	E-P4B-TRB-65MM														21
2 11/16	E-P4B-TRB-2 11/16	4 1/2	12	4	9 13/16	9 3/16	5/8	11/16	1	2 1/8	1 7/8	6 1/4	4 23/32	3 1/8	30
2 3/4	E-P4B-TRB-2 3/4														29
2 15/16	E-P4B-TRB-2 15/16														28
3	E-P4B-TRB-3														28
70 mm	E-P4B-TRB-70MM														29
75 mm	E-P4B-TRB-75MM	28													
3 3/16	E-P4B-TRB-3 3/16	5	13 1/2	4 1/2	11 1/4	10 3/4	3/4	15/16	1 3/16	2 3/8	2 1/4	7 1/2	5 17/32	3 3/4	47
3 1/4	E-P4B-TRB-3 1/4														46
3 7/16	E-P4B-TRB-3 7/16														45
3 1/2	E-P4B-TRB-3 1/2														44
80 mm	E-P4B-TRB-80MM														47
85 mm	E-P4B-TRB-85MM	45													
90 mm	E-P4B-TRB-90MM	44													
3 15/16	E-P4B-TRB-3 15/16	6 1/4	15 1/4	4 1/2	12 3/4	12 1/4	3/4	7/8	1 1/8	2 1/4	2 7/16	8 1/2	6 1/16	4 1/4	72
4	E-P4B-TRB-4														71
100 mm	E-P4B-TRB-100MM														71
4 7/16	E-P4B-TRB-4 7/16														91
4 1/2	E-P4B-TRB-4 1/2														90
110 mm	E-P4B-TRB-110MM	92													
115 mm	E-P4B-TRB-115MM	89													
4 15/16	E-P4B-TRB-4 15/16	7 1/4	18 1/2	5 1/8	15 3/4	15 1/4	7/8	1	1 1/4	2 7/8	3	10 7/8	7 3/4	5 1/2	134
5	E-P4B-TRB-5														133
125 mm	E-P4B-TRB-125MM														134

FLANGE: FOUR-BOLT

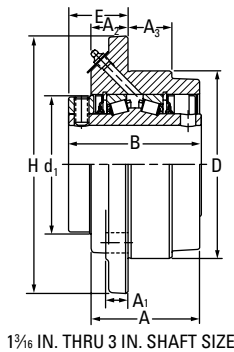
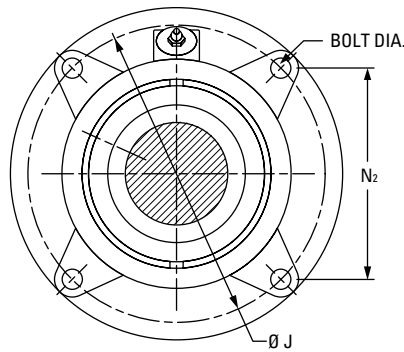


Shaft Dia.	Part No.	B	L	A	J	A <sub>2</sub>	Bolt Dia.	A <sub>1</sub>	D	d <sub>1</sub>	Approx. Wt.
in. mm		in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.
1 3/16	E-4BF-TRB-1 3/16	2 3/4	3 3/4	2 11/32	2 7/8	1/16	3/8	1	2 15/16	2 1/4	4
1 1/4	E-4BF-TRB-1 1/4										
1 3/8	E-4BF-TRB-1 3/8										
1 7/16	E-4BF-TRB-1 7/16	3	4 5/8	2 19/32	3 1/2	1/16	1/2	1 1/16	3 1/2	2 3/4	7
35 mm	E-4BF-TRB-35MM										
1 1/2	E-4BF-TRB-1 1/2										
1 5/8	E-4BF-TRB-1 5/8	3 3/8	5 3/8	2 31/32	4 1/8	1/8	1/2	1 3/16	4 3/16	3 3/16	11
1 11/16	E-4BF-TRB-1 11/16										
40 mm	E-4BF-TRB-40MM										
1 3/4	E-4BF-TRB-1 3/4	3 1/2	5 5/8	3 3/32	4 3/8	1/8	1/2	1 3/16	4 7/16	3 7/16	12
1 7/8	E-4BF-TRB-1 7/8										
1 15/16	E-4BF-TRB-1 15/16										
2	E-4BF-TRB-2	3 3/4	6 1/4	3 9/32	4 7/8	1/8	5/8	1 3/8	4 7/8	3 3/4	16
45 mm	E-4BF-TRB-45MM										
50 mm	E-4BF-TRB-50MM										
2 3/16	E-4BF-TRB-2 3/16	4	6 7/8	3 9/16	5 3/8	3/16	5/8	1 1/2	5 5/16	4 1/16	21
55 mm	E-4BF-TRB-55MM										
2 1/4	E-4BF-TRB-2 1/4										
2 7/16	E-4BF-TRB-2 7/16	4 1/2	7 3/4	3 15/16	6	3/16	3/4	1 5/8	6	4 23/32	21
2 1/2	E-4BF-TRB-2 1/2										
60 mm	E-4BF-TRB-60MM										
65 mm	E-4BF-TRB-65MM	5	9 1/4	4 1/2	7	1/4	3/4	1 7/8	7 1/4	5 17/32	21
2 11/16	E-4BF-TRB-2 11/16										
2 3/4	E-4BF-TRB-2 3/4										
2 15/16	E-4BF-TRB-2 15/16	5	9 1/4	4 1/2	7	1/4	3/4	1 7/8	7 1/4	5 17/32	29
3	E-4BF-TRB-3										
70 mm	E-4BF-TRB-70MM										
75 mm	E-4BF-TRB-75MM	6 1/4	10 1/4	5 5/8	7 3/4	1/4	7/8	2 1/8	8 1/4	6 1/16	28
3 3/16	E-4BF-TRB-3 3/16										
3 1/4	E-4BF-TRB-3 1/4										
3 7/16	E-4BF-TRB-3 7/16	6 3/4	10 7/8	5 15/16	8 3/4	3/8	7/8	2 7/16	8 3/4	6 47/64	29
3 1/2	E-4BF-TRB-3 1/2										
80 mm	E-4BF-TRB-80MM										
85 mm	E-4BF-TRB-85MM	6 3/4	10 7/8	5 15/16	8 3/4	3/8	7/8	2 7/16	8 3/4	6 47/64	52
90 mm	E-4BF-TRB-90MM										
3 15/16	E-4BF-TRB-3 15/16										
4	E-4BF-TRB-4	6 3/4	10 7/8	5 15/16	8 3/4	3/8	7/8	2 7/16	8 3/4	6 47/64	75
100 mm	E-4BF-TRB-100MM										
4 7/16	E-4BF-TRB-4 7/16										
4 1/2	E-4BF-TRB-4 1/2	6 3/4	10 7/8	5 15/16	8 3/4	3/8	7/8	2 7/16	8 3/4	6 47/64	76
110 mm	E-4BF-TRB-110MM										
115 mm	E-4BF-TRB-115MM										

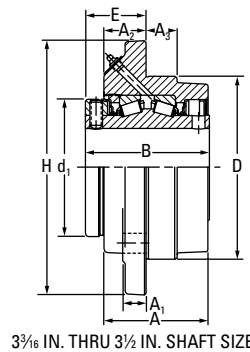
# TAPERED ROLLER BEARING TYPE E HOUSED UNITS

FLANGE: PILOTED

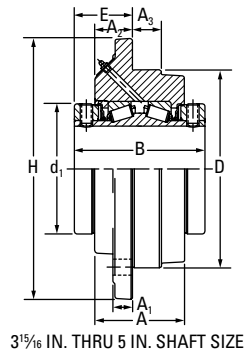
## FLANGE: PILOTED



1 3/16 IN. THRU 3 IN. SHAFT SIZE



3 3/16 IN. THRU 3 1/2 IN. SHAFT SIZE



3 15/16 IN. THRU 5 IN. SHAFT SIZE

Shaft Dia.	Part No.	B	H	A	N <sub>2</sub>	J	A <sub>3</sub>	Bolt Dia.	E	A <sub>1</sub>	D <sup>(1)</sup>	d <sub>1</sub>	A <sub>2</sub>	Approx. Wt.
in. mm		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.
1 3/16	E-PF-TRB-1 3/16	2 3/4	5	2 7/32	2.92	4 1/8	3/4	3/8	1 5/16	7/16	3 3/8	2 1/4	27/32	5
1 1/4	E-PF-TRB-1 1/4													
1 3/8	E-PF-TRB-1 3/8													
1 7/16	E-PF-TRB-1 7/16	3	5 1/4	2 15/32	3.09	4 3/8	7/8	3/8	1 1/2	1/2	3 5/8	2 3/4	1 1/32	6
35 mm	E-PF-TRB-35MM													
1 1/2	E-PF-TRB-1 1/2	3 3/8	6 1/8	2 25/32	3.62	5 1/8	1 1/16	7/16	1 9/16	1/2	4 1/4	3 3/16	1 1/32	9
1 5/8	E-PF-TRB-1 5/8													
1 11/16	E-PF-TRB-1 11/16													
40 mm	E-PF-TRB-40MM													
1 3/4	E-PF-TRB-1 3/4	3 1/2	6 3/8	2 29/32	3.80	5 3/8	1 3/16	7/16	1 9/16	9/16	4 1/2	3 7/16	1 1/32	10
1 7/8	E-PF-TRB-1 7/8													
1 15/16	E-PF-TRB-1 15/16													
2	E-PF-TRB-2													
45 mm	E-PF-TRB-45MM													
50 mm	E-PF-TRB-50MM	3 3/4	7 1/8	3 3/32	4.24	6	1 3/16	1/2	1 11/16	9/16	5	3 3/4	1 3/32	13
2 3/16	E-PF-TRB-2 3/16													
55 mm	E-PF-TRB-55MM													
2 1/4	E-PF-TRB-2 1/4	4	7 5/8	3 3/16	4.60	6 1/2	1 5/16	1/2	1 13/16	5/8	5 1/2	4 1/16	1 3/16	17
2 7/16	E-PF-TRB-2 7/16													
2 1/2	E-PF-TRB-2 1/2													
60 mm	E-PF-TRB-60MM													
65 mm	E-PF-TRB-65MM													
2 11/16	E-PF-TRB-2 11/16													
2 3/4	E-PF-TRB-2 3/4	4 1/2	8 3/4	3 11/16	5.30	7 1/2	1 1/2	5/8	2	3/4	6 3/8	4 23/32	1 1/4	25
2 15/16	E-PF-TRB-2 15/16													
3	E-PF-TRB-3													
70 mm	E-PF-TRB-70MM													
75 mm	E-PF-TRB-75MM	5	10 1/4	4 3/16	6.10	8 5/8	1 1/4	3/4	2 7/16	15/16	7 3/8	5 17/32	1 11/16	43
3 3/16	E-PF-TRB-3 3/16													
3 1/4	E-PF-TRB-3 1/4													
3 7/16	E-PF-TRB-3 7/16													
3 1/2	E-PF-TRB-3 1/2													
80 mm	E-PF-TRB-80MM	6 1/4	10 7/8	4 1/2	6.63	9 3/8	1 1/2	3/4	2 11/16	1	8 1/8	6 1/16	1 13/16	58
85 mm	E-PF-TRB-85MM													
90 mm	E-PF-TRB-90MM													
3 15/16	E-PF-TRB-3 15/16	6 3/4	13 1/2	4 5/8	5 7/8 <sup>(2)</sup>	11 3/4	1 1/2	3/4 <sup>(2)</sup>	3	1	10 1/4	6 47/64	1 15/16	92
4	E-PF-TRB-4													
100 mm	E-PF-TRB-100MM	7 1/4	14 3/4	5 1/16	6 3/8 <sup>(2)</sup>	12 3/4	1 3/4	7/8 <sup>(2)</sup>	2 31/32	1 1/4	11	7 3/4	1 7/8	125
4 7/16	E-PF-TRB-4 7/16													
4 1/2	E-PF-TRB-4 1/2													
110 mm	E-PF-TRB-110MM	7 1/4	14 3/4	5 1/16	6 3/8 <sup>(2)</sup>	12 3/4	1 3/4	7/8 <sup>(2)</sup>	2 31/32	1 1/4	11	7 3/4	1 7/8	124
115 mm	E-PF-TRB-115MM													
4 15/16	E-PF-TRB-4 15/16	7 1/4	14 3/4	5 1/16	6 3/8 <sup>(2)</sup>	12 3/4	1 3/4	7/8 <sup>(2)</sup>	2 31/32	1 1/4	11	7 3/4	1 7/8	125
5	E-PF-TRB-5													
125 mm	E-PF-TRB-125MM													126

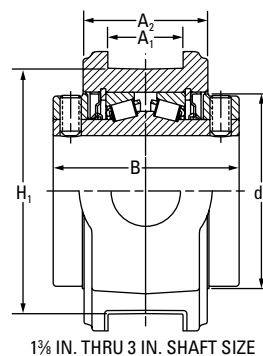
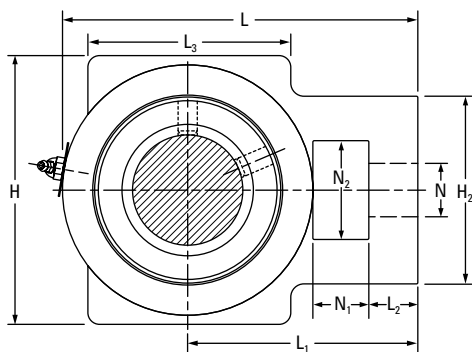
<sup>(1)</sup>+0.000 in./ 0.002 in.

<sup>(2)</sup>Six holes equally spaced (chordal spacing shown).

Note: 1 3/16 to 3 1/2 utilize one collar; 3 15/16 to 5 utilize two collars.



TAKE-UP: WIDE SLOT



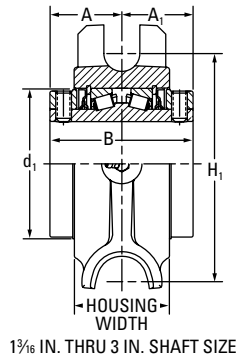
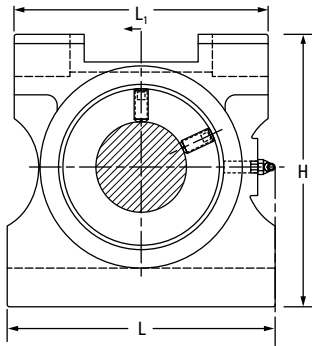
1 3/8 IN. THRU 3 IN. SHAFT SIZE

Shaft Dia.	Part No.	B	L	A <sub>1</sub>	L <sub>3</sub>	L <sub>1</sub>	N	L <sub>2</sub>	N <sub>1</sub>	H <sub>2</sub>	N <sub>2</sub>	d <sub>1</sub>	H <sub>1</sub>	H	A <sub>2</sub>	Approx. Wt.
in. mm		in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.
1 3/8	E-TU-TRB-1 3/8	3	5 3/32	17/32	2 3/4	3 7/32	7/8	11/16	5/8	2 7/16	1 7/16	2 3/4	3 1/2	4 1/8	2 1/16	7
1 7/16	E-TU-TRB-1 7/16															
35 mm	E-TU-TRB-35MM															
1 1/2	E-TU-TRB-1 1/2	3 3/8	6	11/16	3 1/4	3 13/16	1 1/8	15/16	3/4	3 5/16	1 15/16	3 3/16	4	4 3/4	2 5/16	12
1 5/8	E-TU-TRB-1 5/8															
1 11/16	E-TU-TRB-1 11/16															
40 mm	E-TU-TRB-40MM															
1 3/4	E-TU-TRB-1 3/4															
1 7/8	E-TU-TRB-1 7/8	3 1/2	6 5/16	11/16	3 3/4	3 5/16	1 1/8	15/16	3/4	3 5/16	1 15/16	3 7/16	4	4 3/4	2 7/16	11
1 15/16	E-TU-TRB-1 15/16															
2	E-TU-TRB-2															
45 mm	E-TU-TRB-45MM															
50 mm	E-TU-TRB-50MM															
2 3/16	E-TU-TRB-2 3/16	3 3/4	7 1/8	13/16	3 3/4	4 5/8	1 1/4	1	1 1/4	3 7/8	2 1/4	3 3/4	4 1/2	5 1/4	2 9/16	13
55 mm	E-TU-TRB-55MM															
2 1/4	E-TU-TRB-2 1/4															
2 7/16	E-TU-TRB-2 7/16															
2 1/2	E-TU-TRB-2 1/2															
60 mm	E-TU-TRB-60MM	4	7 13/16	1 1/16	4 1/2	5 1/16	1 3/8	1 1/16	1 1/4	4 5/16	2 1/2	4 1/16	5 1/8	6	2 3/4	21
65 mm	E-TU-TRB-65MM															
2 11/16	E-TU-TRB-2 11/16															
2 3/4	E-TU-TRB-2 3/4															
2 15/16	E-TU-TRB-2 15/16															
3	E-TU-TRB-3	4 1/2	9 3/16	1 13/16	4 3/4	5 7/8	1 11/16	1 1/8	1 1/2	4 15/16	2 3/4	4 23/32	5 15/16	6 3/4	3	20
70 mm	E-TU-TRB-70MM															
75 mm	E-TU-TRB-75MM															

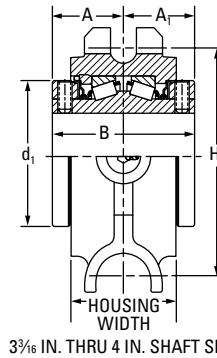
# TAPERED ROLLER BEARING TYPE E HOUSED UNITS

TAKE-UP: TOP ANGLE

## TAKE-UP: TOP ANGLE



1 3/16 IN. THRU 3 IN. SHAFT SIZE



3 3/16 IN. THRU 4 IN. SHAFT SIZE

Shaft Dia.	Part No.	B	H <sub>1</sub>	H	d <sub>1</sub>	A	A <sub>1</sub>	Housing Width	L	L <sub>1</sub>	Approx. Wt.
in. mm		in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.
1 3/4	E-TTU-TRB-1 3/4	3 1/2	5 3/16	6 3/8	3 7/16	1 3/4	1 3/4	2 9/16	6 1/2	6	14
1 7/8	E-TTU-TRB-1 7/8										
1 15/16	E-TTU-TRB-1 15/16										
2	E-TTU-TRB-2										
45 mm	E-TTU-TRB-45MM										
50 mm	E-TTU-TRB-50MM	3 3/4	5 13/16	6 7/8	3 3/4	1 7/8	1 7/8	2 9/16	6 3/4	7	17
2 3/16	E-TTU-TRB-2 3/16										
55 mm	E-TTU-TRB-55MM										
2 1/4	E-TTU-TRB-2 1/4										
2 7/16	E-TTU-TRB-2 7/16										
2 1/2	E-TTU-TRB-2 1/2	4	6 1/4	7 7/16	4 1/16	2	2	3	7 1/2	7	21
60 mm	E-TTU-TRB-60MM										
65 mm	E-TTU-TRB-65MM										
2 11/16	E-TTU-TRB-2 11/16										
2 3/4	E-TTU-TRB-2 3/4										
2 15/16	E-TTU-TRB-2 15/16	4 1/2	7 3/16	8 5/16	4 23/32	2 1/4	2 1/4	3	8 1/2	8	28
3	E-TTU-TRB-3										
70 mm	E-TTU-TRB-70MM										
75 mm	E-TTU-TRB-75MM										
3 3/16	E-TTU-TRB-3 3/16										
3 1/4	E-TTU-TRB-3 1/4	5	8 5/16	9 5/8	5 17/32	2 1/2	2 1/2	3 3/4	9 1/2	9	44
3 7/16	E-TTU-TRB-3 7/16										
3 1/2	E-TTU-TRB-3 1/2										
80 mm	E-TTU-TRB-80MM										
85 mm	E-TTU-TRB-85MM										
90 mm	E-TTU-TRB-90MM	6 1/4	9 1/16	11	6 1/16	3 1/8	3 1/8	4 3/4	11	10 1/2	70
3 15/16	E-TTU-TRB-3 15/16										
4	E-TTU-TRB-4										
100 mm	E-TTU-TRB-100MM										

# ***INDEX***

## **TAPERED ROLLER BEARING TYPE E HOUSED UNITS**

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**SPHERICAL ROLLER BEARING  
SOLID-BLOCK HOUSED UNITS**

Timken® spherical roller bearing solid-block housed units provide heavy-duty protection in harsh environments. Designed to handle high temperatures, high speeds, heavy loads, misalignment, and contaminated conditions, these solid-block housed units are rugged enough to help protect bearings working in tough conditions. With machined feet, tapped puller holes, black oxide inner rings and multiple shaft locking options, these cast-steel housed units are easy to install.

Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken® Housed Unit Catalog.

**TYPICAL INDUSTRIES AND APPLICATIONS**

Common industries include metal mills, aggregate and cement, mining, power generation, agriculture, pulp and paper, and sawmills and other forest industries. Applications include material conveying, commercial and industrial building equipment, sugar mill machinery, waste management and water treatment equipment, off-highway and construction vehicles, fans, blowers, cranes, lifts and hoists.

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 Spherical Roller Bearing Solid-Block Housed Unit  
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### INTRODUCTION

When your equipment faces harsh environments, you need roller bearing housed units that are rugged enough to withstand tough conditions and deliver exceptional performance.

You gain both with Timken spherical roller bearing solid-block housed units.

Designed specifically to perform under extreme conditions, Timken solid-block housed units are able to handle up to  $\pm 1.5$  degrees of misalignment and withstand the impact of falling debris. Made of cast-steel housings and Timken® double-row spherical roller bearings, their unique sealing design offers protection from contaminants.

Increased performance and durability helps decrease the overall cost of ownership.

### CUSTOMIZABLE DESIGN FEATURES TO FIT YOUR EQUIPMENT

With a full line of precision-made shaft-locking styles, seals and housings, it's easy to find the right housed unit to fit your application. Timken spherical roller bearing solid-block housed units interchange with a wide range of mounted roller bearings. Choose from many primary and secondary sealing mechanisms, and you decide how it's built without paying custom charges.

#### HOUSING STYLES

- Two-bolt pillow blocks.
- Four-bolt pillow blocks.
- Flange blocks.
- Piloted flanges.
- Cartridges.
- Take-up blocks.
- Cartridge units.

#### LOCKING STYLES

- Eccentric lock.
- Concentric lock (set screw) – single or double collar.
- Tapered adapter lock.
- V-Lock® double tapered lock – single or double nut.

DuPont™ is a trademark of E.I. du Pont de Nemours and Company.  
Teflon® is a registered trademark of E.I. du Pont de Nemours and Company.  
Dykor® is a registered trademark of Whitford Corporation.

#### SEALS

- Labyrinth seals – DuPont™ Teflon®:
  - High-speed applications.
  - Superior in dirty and wet conditions.
  - Able to operate at high temperatures.
  - Resistant to most chemicals.
  - Abrasion-resistant.
- Triple-lip seals – nitrile:
  - Self-purging.
  - Excellent in dirty and wet applications.
  - Chemical- and corrosion-resistant.
- Triple-lip seals – urethane:
  - All the benefits of nitrile, plus resistance to abrasion.

#### SECONDARY SEALS

- Closed-end covers.
- Open-end covers with:
  - Triple-lip seal.
  - DuPont Teflon.
  - V-ring seal.
- Piloted-flange cartridge backing plates with:
  - Triple-lip seal.
- Flange block backing plates with V-ring seal.

#### HOUSING COATINGS

- Powder coating – standard.
- Nickel plating – optional.
- Dykor® coating – optional.



Fig. C-1. Two-bolt pillow block.



Fig. C-2. Four-bolt pillow block.

## OUTLASTING THE COMPETITION

Timken solid-block housed units last a long time, yet you don't pay extra for reliability. Experience an increase in performance and durability and a decrease in your overall cost of ownership when you use a Timken solid-block housed unit.

## STANDS UP TO HARSH CONDITIONS

**Protects Bearing.** Harsh operating environments and lubrication issues often lead to housed unit bearing damage. Timken solid-block housed units multiply protection with primary and secondary seal options, as well as steel covers in sizes to fit these units. The space between the primary and secondary seals offers a fillable grease cavity for more protection.

**Handles Misalignment.** Without a properly aligned shaft, the life expectancy of most housed units decreases. However, Timken spherical roller bearing solid-block housed units run efficiently on misaligned shafts up to  $\pm 1.5$  degrees, thanks to their unique design and Timken spherical roller bearings.

## INDUSTRIES AND APPLICATIONS

- Metal mills.
- Aggregate and cement.
- Mining.
- Power generation.
- Sawmills and other forest process industries.
- Pulp and paper.
- Material conveying.
- Commercial and industrial building equipment.
- Sugar mills.
- Agriculture.
- Waste management and water treatment.
- Off-highway and construction vehicles.
- HVAC, fans and blowers.
- Cranes, lifts and hoists.

## DEPENDABLE SERVICE

Every Timken spherical roller bearing solid-block housed unit is backed by the service of our industry-leading experts who are ready to assist you with product design, application knowledge and field engineering support – anything you need to help improve uptime and maximize equipment performance.



Fig. C-3. Flange block.



Fig. C-4. Take-up block.



Fig. C-5. Piloted-flange cartridge.



Fig. C-6. Cartridge block.

### LOCKING STYLES

#### V-LOCK® (DOUBLE-TAPERED LOCK) U.S. PAT. NO. 7344313

The V-Lock locking mechanism is excellent in high-speed applications and designed to maximize shaft-holding power and minimize the time needed for installation and removal as compared to conventional locking mechanisms. With no need for feeler gages during installation, the V-Lock locking mechanism offers superior holding power and is designed to eliminate overtightening. Mechanical withdrawal is a feature of double-nut units.

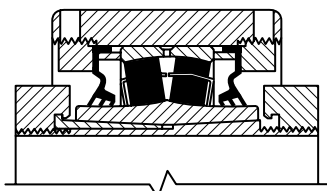


Fig. C-7. V-Lock®.

#### CONCENTRIC LOCK (SET SCREW) – CL SERIES

Two set screws positioned at 60 degrees provide aggressive holding power. When configured with a double-collared insert, the bearing provides double the holding power compared to our standard single-collared insert.

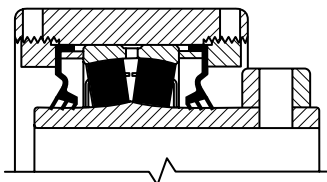


Fig. C-8. Single set screw lock.

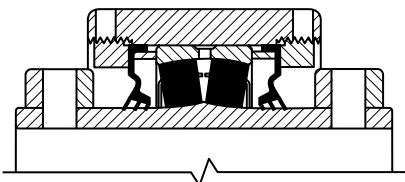


Fig. C-9. Double set screw lock.

#### ECCENTRIC LOCK – EC SERIES

A reduced eccentric offset results in more mechanical advantage. This series provides a secure lock that should not release from a properly prepared shaft even in reversing applications.

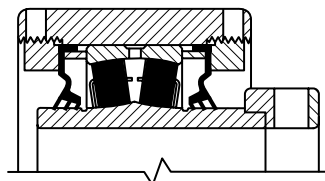


Fig. C-10. Eccentric lock.

#### TAPERED ADAPTER LOCK – TA/DV SERIES

Excellent in high-load applications, this design uses a longer 2300-series adapter for increased shaft contact. This design offers the best shaft concentricity and highest capacity all while having the ability to accommodate undersized shafting.

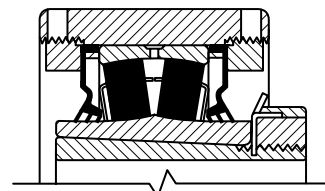


Fig. C-11. Tapered adapter lock.

### HOUSING COATINGS

#### POWDER COATING – STANDARD

All of our steel housings come powder-coated from the factory. Powder coating gives a hard finish that is tough and durable.

#### NICKEL PLATING – OPTIONAL

By nickel plating any of our housings, we are able to offer superior resistance to wear and corrosion.

#### DYKOR® COATING – OPTIONAL

Unaffected by most chemicals and solvents, Dykor coating is designed to last in harsh chemical environments while having extreme abrasion resistance.

Dykor® is a registered trademark of Whitford Corporation.



## SOLID-BLOCK HOUSED UNIT BENEFITS

Depending on how you configure your bearing for a specific application, there's a wide range of product benefits.

- Multiple available sizes accommodate shaft diameters from 35 mm to 180 mm (1 7/16 in. to 7 in.).
- Efficient built-to-order manufacturing. Quick delivery of customized configurations for specific applications.
- Quicker installation. Machined feet, tapped puller holes, black oxide inner rings and multiple shaft-locking choices make it simpler to install this heavy-duty unit.
- Improved performance in high-contaminant environments. Wide selection of primary and secondary seals, as well as auxiliary covers.
- Bidirectional shaft expansion. Double-nut housing feature allows expansion in both directions.
- Increased uptime. Robust steel housing, a wide variety of seal choices and a high-performance Timken spherical roller bearing result in increased unit uptime.
- Increased shaft holding power and reduced shaft damage. Eccentric lock series is designed to stay tight in reversing applications on precision-ground shafts.
- Fewer misalignment issues. Bearings accept up to ±1.5 degrees of misalignment.
- Protection against over-lubrication. Pressure relief valves come standard when unit is ordered with non-purgeable seals.
- Dimensionally interchanges with a wide range of other mounted roller bearing units.
- One-time shaft alignment on all housing unit styles. Machined feet ends allow for precise installation and blocking for faster future unit replacement.
- Easier removal with standard withdrawal holes on all piloted-flange units.
- Faster and easier changeover thanks to a comprehensive product offering that interchanges with virtually all solid-block roller bearing units.

### NOTE

*Do not use excessive force when mounting or dismounting the unit.*

*Follow all tolerance, fit and torque recommendations.*

*Always follow the Original Equipment Manufacturer's installation and maintenance guidelines.*

*Ensure proper alignment.*

*Never weld housed units.*

*Do not heat components with an open flame.*

*Do not operate at bearing temperatures above 121°C (250°F).*

Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken® Housed Unit Catalog.



### WARNING

**Failure to observe the following warnings could create a risk of death or serious injury.**

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such as from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.



### CAUTION

**Failure to follow these cautions could create a risk of injury.**

Do not use damaged housed units. The use of a damaged housed unit can result in equipment damage and/or injury.

### CAUTION

**Failure to follow these cautions may result in property damage.**

If hammer and bar are used for installation or removal of a part, use a mild steel bar (e.g., 1010 or 1020 grade). Mild steel bars are less likely to cause release of high-speed fragments from the hammer, bar or the part being removed.

Warnings for this product line are in this catalog and posted on [www.timken.com/en-us/products/warnings/Pages/TimkenHousedUnitWarnings.aspx](http://www.timken.com/en-us/products/warnings/Pages/TimkenHousedUnitWarnings.aspx).

### DISCLAIMER

*This catalog is provided solely to give you analysis tools and data to assist you in your product selection. Product performance is affected by many factors beyond the control of Timken. Therefore, you must validate the suitability and feasibility of all product selections for your applications.*

*Timken products are sold subject to Timken terms and conditions of sale, which include our limited warranty and remedy. You can find these at <http://www.timken.com/en-us/purchase/Pages/TermsandConditionsofSale.aspx>.*

*Please consult with your Timken engineer for more information and assistance.*

*Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.*

### SOLID-BLOCK HOUSED UNIT DESIGN

Flexibility through interchangeable components.

Double-row spherical roller bearing accepts misalignment.

Black oxide inner ring reduces shaft fretting corrosion.

Six primary seals in any combination:

- T seal standard labyrinth (DuPont™ Teflon®).
- M seal standard lip (nitrile rubber).
- N seal optional (DuPont™ Viton®).
- O seal optional (urethane).
- B seal optional (nitrile rubber).
- C seal optional (DuPont Viton).

Housing fit: J7, size-for-size to light interference.

Standard relief valve.

Optional bolt-on open and closed steel or urethane secondary seals.

Lubricated with premium industrial grease.

Five shaft-locking styles:

- Single screw set.
- Double screw set.
- Eccentric.
- Tapered adapter.
- V-Lock®.

Machined feet aid in rapid installation and alignment.

Easily converted to fixed or expansion in the field.

Housing can be supplied with powder (standard), nickel or Dykor® coatings.

Housing manufactured from 75000 psi tensile cast steel that retains the bearing-to-housing fit for those rough applications.

**Fig. C-12. High performance plus superior ruggedness.**

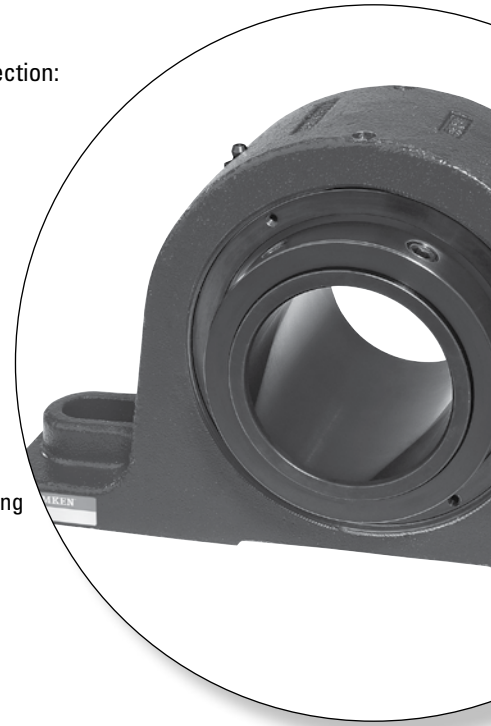
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 Teflon® is a registered trademark of E.I. du Pont de Nemours and Company.  
 Viton® is a registered trademark of E.I. du Pont de Nemours and Company.  
 Dykor® is a registered trademark of Whitford Corporation.

## ***ENGINEERING***

The following topics are covered within this engineering section:

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Seal Material Chemical Compatibility.....	C-28
Internal Radial Clearance.....	C-30
Shafting.....	C-32
Misalignment.....	C-33
Lubrication.....	C-33
Installation Guides.....	C-34

To view the complete engineering catalog, please visit [www.timken.com](http://www.timken.com). To order the catalog, please contact your Timken engineer and request a copy of the Timken Engineering Manual, order number 10424.



### BEARING LOAD

Solid-block housed unit bearings are excellent for many applications including those with:

- Heavy radial loads.
- Heavy combined radial and thrust loads.
- Shock loads.
- Harsh contamination conditions.
- Low to moderate speeds.
- The possibility of misalignment.

Bearing loads generally come from one of three sources that should all be evaluated and considered when selecting steel housed unit bearings for your application. Contact your Timken engineer for assistance in determining specific application loads and for bearing recommendations.

- Static loads – weights of various components supported by the bearings.
- Drive loads – belts, chains or gears that exert forces on the shaft.
- Imposed loads – forces generated by equipment operation.

Generally, bearing loads are described as being radial (load perpendicular to the axis of the shaft) or axial (load parallel to the axis of the shaft). Axial loads also are referred to as thrust loads. Spherical roller bearings, by design, are very capable of accepting heavy radial loads, even when combined with a thrust load. Timken® Type E housed units are recommended for use in applications when only thrust loads are present or when the thrust component of the load is larger than the radial component.

To determine the allowable radial load at various RPMs for bearings supporting only radial loads, simply use the charts on pages C-10 – C-23. For bearings supporting both radial and thrust loads, an equivalent radial load must first be calculated prior to using these tables (see DYNAMIC EQUIVALENT RADIAL LOAD on page C-9).

### BELT LOADS

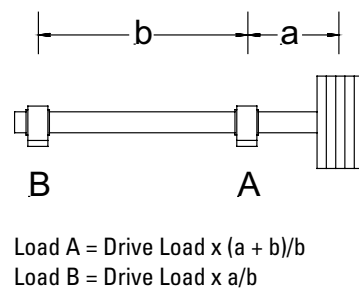
V-belt drives are common sources of drive loads. A good approximation of drive load may be calculated from the formula:

$$\text{Drive Load} = (\text{HP} \times 189000) / (\text{Pulley Diameter} \times \text{RPM})$$

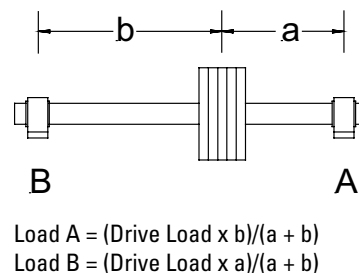
$$\text{Drive Load} = (\text{KW} \times 189000) / (\text{Pulley Diameter} \times \text{RPM})$$

### LOAD SHARING

In some cases, bearings may share the load unequally, depending on their position in relationship to the load. Use the appropriate formula below to determine the drive load on each bearing:



**Fig. C-13. Overhung load.**



**Fig. C-14. Load between bearings.**

## DYNAMIC EQUIVALENT RADIAL LOAD

Bearings that support a combination of radial load and thrust load take an unequal load on one of the rows of rollers. The following formulas and bearing geometry factors are used to convert the independent thrust and radial loads into a single equivalent radial load. The calculated dynamic equivalent radial load ( $P_r$ ) will have the same effect on bearing life ( $L_{10}$ ) as a radial load of the same magnitude.

$$P_r = F_r + (Y1 \times F_a) \text{ when } F_a/F_r \leq e$$

$$P_r = (0.67 \times F_r) + (Y2 \times F_a) \text{ when } F_a/F_r > e$$

where:

$P_r$  = Dynamic equivalent radial load  
 $F_r$  = Applied radial load (lbs., N)  
 $F_a$  = Applied thrust (axial) load (lbs., N)  
 Y1, Y2 and e are bearing geometry factors shown on pages C-10 and C-11.

## BEARING CALCULATED LIFE

Customers select the bearing life of the bearings in equipment they are building. In the absence of a customer bearing life target, the following may be considered as a guideline:

- If the customer's machinery operates eight hours a day, then use a bearing life target of 20000 to 30000 hours.
- If the customer's machinery operates 24 hours a day, then use a bearing life target of 40000 to 60000 hours.

In addition, a service factor may be used where application conditions are harsh. Extreme environmental conditions or heavy shock or vibration will require the adjustment of load ratings before referring to the  $L_{10}$  tables. Please contact your Timken engineer for additional information.

Standard spherical roller bearing life calculation:

$$\text{Bearing life} = L_{10} = (C/P_r)^{10/3} \times (16667/\text{RPM})$$

where:

C = Dynamic capacity (lbs., N)  
 $P_r$  = Radial load/dynamic equivalent radial load  
 RPM = Revolutions per minute

## DISCLAIMER

*This catalog is provided solely to give you analysis tools and data to assist you in your product selection. Product performance is affected by many factors beyond the control of timken. Therefore, the suitability and feasibility of all product selection must be validated by you.*

## TERMS AND CONDITIONS

*Timken products are sold subject to our terms and conditions of sale, which include its limited warranty and remedy, which terms may be found at <http://www.timken.com/en-us/purchase/pages/termsandconditionsofsale.aspx>.*

*Please consult with your Timken engineer for more information and assistance.*

## A NOTE ON MINIMUM LOADS

In order for a spherical roller bearing to perform as designed, some radial load should be present. This is particularly true if the bearing is running at high speed. Although it is rarely an issue, as the existing static loads (weights of the combined supported components) usually provide an adequate radial load, there are times when it may be necessary to use a shaft diameter larger than the actual loads require. In these instances, the load becomes a small percentage of the bearing's capacity. Radial loads less than 4 percent of C should be avoided.

**BEARING RADIAL AND THRUST FACTORS**

**TABLE C-1. V-LOCK® SERIES (TAPERED BORE, C3)**

Shaft Dia.	Bearing No.	Dynamic Capacity C	Static Capacity C <sub>0</sub>	Equivalent Radial Load Factors		
				e	Y1	Y2
mm in.		kN lbs.	kN lbs.			
<b>50</b> 1 15/16, 2	22211	<b>140</b> 31400	<b>142</b> 31900	0.23	2.95	4.40
<b>55</b> 2 3/16, 2 1/4	22212	<b>169</b> 38100	<b>174</b> 39000	0.24	2.84	4.23
<b>55</b> 2 3/16, 2 1/4	22213	<b>206</b> 46400	<b>216</b> 48600	0.24	2.79	4.15
<b>60, 65</b> 2 7/16, 2 1/2	22214	<b>213</b> 47800	<b>231</b> 52000	0.23	2.90	4.32
<b>60, 65</b> 2 7/16, 2 1/2	22215	<b>222</b> 49900	<b>240</b> 54100	0.22	3.14	4.67
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22216	<b>254</b> 57200	<b>278</b> 62500	0.22	3.14	4.67
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22217	<b>297</b> 66900	<b>320</b> 71900	0.22	3.07	4.57
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22219	<b>385</b> 86600	<b>441</b> 99000	0.23	2.88	4.29
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22220	<b>435</b> 97700	<b>502</b> 113000	0.24	2.85	4.24
<b>100</b> 3 11/16, 3 3/4, 3 15/16, 4	22222	<b>555</b> 125000	<b>653</b> 147000	0.25	2.73	4.06
<b>110</b> —	22224	<b>647</b> 145000	<b>772</b> 174000	0.25	2.70	4.02
<b>110, 115</b> 4 7/16, 4 1/2	22226	<b>757</b> 170000	<b>945</b> 212000	0.26	2.62	3.90
<b>125, 130</b> 4 15/16, 5	22228	<b>863</b> 194000	<b>1060</b> 237000	0.25	2.67	3.98

**TABLE C-2. CL SERIES (STRAIGHT BORE, C NORMAL)**

Shaft Dia.	Bearing No.	Dynamic Capacity C	Static Capacity C <sub>0</sub>	Equivalent Radial Load Factors		
				e	Y1	Y2
mm in.		kN lbs.	kN lbs.			
<b>35</b> 1 7/16, 1 1/2	22208	<b>104</b> 23400	<b>99.7</b> 22400	0.27	2.47	3.67
<b>40, 45</b> 1 11/16, 1 3/4	22209	<b>109</b> 24500	<b>108</b> 24200	0.26	2.64	3.93
<b>50</b> 1 15/16, 2	22210	<b>117</b> 26300	<b>118</b> 26600	0.24	2.84	4.23
<b>55</b> 2 3/16, 2 1/4	22211	<b>140</b> 31400	<b>142</b> 31900	0.23	2.95	4.40
<b>60, 65</b> 2 7/16, 2 1/2	22213	<b>206</b> 46400	<b>216</b> 48600	0.24	2.79	4.15
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22215	<b>222</b> 49900	<b>240</b> 54100	0.22	3.14	4.67
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22218	<b>355</b> 79700	<b>388</b> 87200	0.23	2.90	4.31
<b>100</b> 3 15/16, 4	22220	<b>435</b> 97700	<b>502</b> 113000	0.24	2.85	4.24
<b>110, 115</b> 4 7/16, 4 1/2	22222	<b>555</b> 125000	<b>653</b> 147000	0.25	2.73	4.06
<b>125, 130</b> 4 15/16, 5	22226	<b>757</b> 170000	<b>945</b> 212000	0.26	2.62	3.90

TABLE C-3. EC SERIES (STRAIGHT BORE, C NORMAL)

Shaft Dia.	Bearing No.	Dynamic Capacity C	Static Capacity C <sub>0</sub>	Equivalent Radial Load Factors		
				e	Y1	Y2
mm in.		kN lbs.	kN lbs.			
<b>35</b> 1 7/16, 1 1/2	22208	<b>104</b> 23400	<b>99.7</b> 22400	0.27	2.47	3.67
<b>40, 45</b> 1 11/16, 1 3/4	22209	<b>109</b> 24500	<b>108</b> 24200	0.26	2.64	3.93
<b>50</b> 1 15/16, 2	22210	<b>117</b> 26300	<b>118</b> 26600	0.24	2.84	4.23
<b>55</b> 2 3/16, 2 1/4	22211	<b>140</b> 31400	<b>142</b> 31900	0.23	2.95	4.40
<b>60, 65</b> 2 7/16, 2 1/2	22213	<b>206</b> 46400	<b>216</b> 48600	0.24	2.79	4.15
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22215	<b>220</b> 49900	<b>240</b> 54100	0.22	3.14	4.67
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22218	<b>355</b> 79700	<b>388</b> 87200	0.23	2.90	4.31
<b>100</b> 3 11/16, 3 3/4, 3 15/16, 4	22220	<b>435</b> 97700	<b>502</b> 113000	0.24	2.85	4.24
<b>110, 115</b> 4 7/16, 4 1/2	22222	<b>555</b> 125000	<b>653</b> 147000	0.25	2.73	4.06
<b>125, 130</b> 4 15/16, 5	22226	<b>757</b> 170000	<b>945</b> 212000	0.26	2.62	3.90
<b>140, 150</b> 5 7/16, 5 1/2, 5 15/16, 6	23230	<b>1270</b> 286000	<b>1660</b> 372000	0.32	2.08	3.10
<b>170, 180</b> 6 7/16, 6 1/2, 6 15/16, 7	23234	<b>1660</b> 373000	<b>2200</b> 494000	0.33	2.08	3.09

TABLE C-4. TA/DV SERIES (TAPERED BORE, C3)

Shaft Dia.	Bearing No.	Dynamic Capacity C	Static Capacity C <sub>0</sub>	Equivalent Radial Load Factors		
				e	Y1	Y2
mm in.		kN lbs.	kN lbs.			
<b>40</b> 1 7/16, 1 1/2	22209	<b>109</b> 24500	<b>108</b> 24200	0.26	2.64	3.93
<b>45</b> 1 11/16, 1 3/4	22210	<b>117</b> 26300	<b>118</b> 26600	0.24	2.84	4.23
<b>50</b> 1 15/16, 2	22211	<b>140</b> 31400	<b>142</b> 31900	0.23	2.95	4.40
<b>55</b> —	22212	<b>169</b> 38100	<b>174</b> 39000	0.24	2.84	4.23
<b>60</b> 2 3/16, 2 1/4	22213	<b>206</b> 46400	<b>216</b> 48600	0.24	2.79	4.15
<b>65</b> 2 7/16, 2 1/2	22215	<b>222</b> 49900	<b>240</b> 54100	0.22	3.14	4.67
<b>70</b> 2 11/16, 2 3/4	22216	<b>254</b> 57200	<b>278</b> 62500	0.22	3.14	4.67
<b>75</b> 2 15/16, 3	22217	<b>297</b> 66900	<b>320</b> 71900	0.22	3.07	4.57
<b>80</b> 3 3/16, 3 1/4	22218	<b>355</b> 79700	<b>388</b> 87200	0.23	2.90	4.31
<b>85</b> —	22219	<b>385</b> 86600	<b>441</b> 99000	0.23	2.88	4.29
<b>90</b> 3 7/16, 3 1/2	22220	<b>435</b> 97700	<b>502</b> 113000	0.24	2.85	4.24
<b>100</b> 3 15/16, 4	22222	<b>555</b> 125000	<b>653</b> 147000	0.25	2.73	4.06
<b>110</b> 4 3/16, 4 1/4	22224	<b>647</b> 145000	<b>772</b> 174000	0.25	2.70	4.02
<b>115</b> 4 7/16, 4 1/2	22226	<b>757</b> 170000	<b>945</b> 212000	0.26	2.62	3.90
<b>125</b> 4 15/16, 5	22228	<b>863</b> 194000	<b>1060</b> 237000	0.25	2.67	3.98

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

ENGINEERING • BEARING LOAD

## LOAD RATINGS

TABLE C-5. V-LOCK SERIES – ALLOWABLE RADIAL LOAD (kN/LBS.) AT VARIOUS RPM<sup>(1)</sup>

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>															
				RPM															
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000	3200	3500 <sup>(1)</sup>		
50 1 15/16, 2	22211	140 31400	10000	50.3 11319	40.9 9194	33.2 7468	25.2 5673	20.5 4608	19.4 4362	18.1 4080	17.2 3863	16.4 3688	15.8 3543	15.2 3420	14.7 3314	14.5 3250	14.1 3164		
			30000	36.2 8141	29.4 6612	23.9 5371	18.1 4080	14.7 3314	14.0 3138	13.1 2934	12.4 2778	11.8 2653	11.3 2549	10.9 2460	10.6 2383	10.4 2338	10.3 2276	10.1 2276	
			40000	33.2 7468	27.0 6066	21.9 4927	16.6 3743	13.5 3040	12.8 2878	12.0 2692	11.3 2549	10.8 2433	10.4 2338	10.0 2257	9.7 2186	9.5 2144	9.3 2088	9.2 2088	9.1 2088
			60000	29.4 6612	23.9 5371	19.4 4362	14.7 3314	12.0 2692	11.3 2549	10.6 2383	10.0 2257	9.6 2155	9.2 2070	8.9 1998	8.6 1936	8.4 1899	8.4 1899	8.2 1849	8.2 1849
			100000	25.2 5673	20.5 4608	16.6 3743	12.6 2843	10.3 2309	9.7 2186	9.1 2045	8.6 1936	8.2 1849	7.9 1776	7.6 1714	7.4 1661	7.4 1661	7.2 1629	7.2 1629	7.1 1586
				50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000	3200 <sup>(1)</sup>	3500 <sup>(1)</sup>		
55 2 3/16, 2 1/4	22212	169 38100	10000	61.1 13734	49.6 11155	40.3 9061	30.6 6883	24.9 5591	23.5 5293	22.0 4951	20.8 4687	19.9 4475	19.1 4300	18.5 4150	17.9 4021	17.5 3944	17.1 3839		
			30000	43.9 9878	35.7 8023	29.0 6517	22.0 4951	17.9 4021	16.9 3807	15.8 3561	15.0 3371	14.3 3219	13.8 3092	13.3 2985	12.9 2892	12.6 2837	12.3 2761	12.3 2761	
			40000	40.3 9061	32.7 7360	26.6 5978	20.2 4541	16.4 3689	15.5 3492	14.5 3266	13.8 3092	13.1 2953	12.6 2837	12.2 2738	11.8 2653	11.6 2602	11.6 2602	11.3 2533	11.3 2533
			60000	35.7 8023	29.0 6517	23.5 5293	17.9 4021	14.5 3266	13.8 3092	12.9 2892	12.2 2738	11.6 2614	11.2 2512	10.8 2425	10.4 2349	10.2 2304	10.2 2304	10.0 2243	10.0 2243
			100000	30.6 6883	24.9 5591	20.2 4541	15.3 3450	12.5 2802	11.8 2653	11.0 2481	10.4 2349	10.0 2243	9.6 2155	9.3 2080	9.0 2015	8.8 1977	8.8 1977	8.6 1924	8.6 1924
				50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000 <sup>(1)</sup>	3200 <sup>(1)</sup>	3500 <sup>(1)</sup>		
55 2 3/16, 2 1/4	22213	206 46400	10000	74.4 16726	60.4 13585	49.1 11035	37.3 8383	30.3 6809	28.7 6446	26.8 6029	25.4 5708	24.2 5450	23.3 5236	22.5 5054	21.8 4897	21.4 4803	20.8 4676		
			30000	53.5 12030	43.5 9771	35.3 7937	26.8 6029	21.8 4897	20.6 4636	19.3 4336	18.3 4105	17.4 3920	16.8 3766	16.2 3635	15.7 3522	15.4 3455	15.0 3363	15.0 3363	
			40000	49.1 11035	39.9 8963	32.4 7280	24.6 5531	20.0 4492	18.9 4253	17.7 3978	16.8 3766	16.0 3596	15.4 3455	14.8 3335	14.4 3231	14.1 3169	14.1 3169	13.7 3085	13.7 3085
			60000	43.5 9771	35.3 7937	28.7 6446	21.8 4897	17.7 3978	16.8 3766	15.7 3522	14.8 3335	14.2 3184	13.6 3059	13.1 2953	12.7 2861	12.5 2806	12.2 2732	12.2 2732	12.2 2732
			100000	37.3 8383	30.3 6809	24.6 5531	18.7 4201	15.2 3413	14.4 3231	13.4 3022	12.7 2861	12.2 2732	11.7 2624	11.3 2533	10.9 2454	10.7 2407	10.7 2407	10.4 2343	10.4 2343
				50	100	200	500	1000	1200	1500	1800	2100	2400	2700 <sup>(1)</sup>	3000 <sup>(1)</sup>	3200 <sup>(1)</sup>			
60, 65 2 7/16, 2 1/2	22214	213 47800	10000	76.6 17230	62.3 13995	50.6 11368	38.4 8636	31.2 7014	29.5 6641	27.6 6211	26.2 5880	25.0 5615	24.0 5394	23.2 5207	22.4 5045	22.0 4948			
			30000	55.1 12392	44.8 10066	36.4 8176	27.6 6211	22.4 5045	21.2 4776	19.9 4467	18.8 4229	18.0 4038	17.3 3880	16.7 3745	16.1 3628	15.8 3559	15.8 3559	15.8 3559	
			40000	50.6 11368	41.1 9234	33.4 7500	25.3 5697	20.6 4628	19.5 4381	18.2 4098	17.3 3880	16.5 3704	15.8 3559	15.3 3435	14.8 3328	14.5 3265	14.5 3265	14.5 3265	
			60000	44.8 10066	36.4 8176	29.5 6641	22.4 5045	18.2 4098	17.3 3880	16.1 3628	15.3 3435	14.6 3280	14.0 3151	13.5 3042	13.1 2947	12.9 2891	12.9 2891	12.9 2891	
			100000	38.4 8636	31.2 7014	25.3 5697	19.3 4328	15.6 3515	14.8 3328	13.8 3113	13.1 2947	12.5 2814	12.0 2703	11.6 2610	11.2 2528	11.0 2480	11.0 2480	11.0 2480	

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

Continued on next page.



# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

ENGINEERING • BEARING LOAD

Continued from *previous page*.

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>												
				RPM												
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800	2100	2400	2700 <sup>(1)</sup>	3000 <sup>(1)</sup>	3200 <sup>(1)</sup>
<b>60, 65</b> 2 7/16, 2 1/2	22215	<b>222</b> 49900	10000	<b>80.0</b> 17987	<b>65.0</b> 14610	<b>52.8</b> 11867	<b>40.1</b> 9015	<b>32.6</b> 7322	<b>30.8</b> 6933	<b>28.8</b> 6484	<b>27.3</b> 6139	<b>26.1</b> 5861	<b>25.0</b> 5631	<b>24.2</b> 5436	<b>23.4</b> 5266	<b>23.0</b> 5166
			30000	<b>57.5</b> 12937	<b>46.7</b> 10508	<b>38.0</b> 8535	<b>28.8</b> 6484	<b>23.4</b> 5266	<b>22.2</b> 4986	<b>20.7</b> 4663	<b>19.6</b> 4415	<b>18.8</b> 4216	<b>18.0</b> 4050	<b>17.4</b> 3909	<b>16.8</b> 3788	<b>16.5</b> 3715
			40000	<b>52.8</b> 11867	<b>42.9</b> 9639	<b>34.8</b> 7829	<b>26.5</b> 5948	<b>21.5</b> 4831	<b>20.3</b> 4574	<b>19.0</b> 4278	<b>18.0</b> 4050	<b>17.2</b> 3867	<b>16.5</b> 3715	<b>16.0</b> 3586	<b>15.5</b> 3475	<b>15.2</b> 3408
			60000	<b>46.7</b> 10508	<b>38.0</b> 8535	<b>30.8</b> 6933	<b>23.4</b> 5266	<b>19.0</b> 4278	<b>18.0</b> 4050	<b>16.8</b> 3788	<b>16.0</b> 3586	<b>15.2</b> 3424	<b>14.6</b> 3290	<b>14.1</b> 3175	<b>13.7</b> 3077	<b>13.4</b> 3018
			100000	<b>40.1</b> 9015	<b>32.6</b> 7322	<b>26.5</b> 5948	<b>20.1</b> 4518	<b>16.3</b> 3670	<b>15.5</b> 3475	<b>14.5</b> 3250	<b>13.7</b> 3077	<b>13.1</b> 2938	<b>12.6</b> 2822	<b>12.1</b> 2724	<b>11.7</b> 2639	<b>11.5</b> 2589
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22216	<b>254</b> 57200	10000	<b>91.7</b> 20619	<b>74.5</b> 16748	<b>60.5</b> 13603	<b>46.0</b> 10334	<b>37.3</b> 8394	<b>35.4</b> 7947	<b>33.1</b> 7432	<b>31.3</b> 7037	<b>29.9</b> 6719	<b>28.7</b> 6455	<b>27.7</b> 6231	<b>26.9</b> 6037	
			30000	<b>66.0</b> 14829	<b>53.6</b> 12045	<b>43.5</b> 9784	<b>33.1</b> 7432	<b>26.9</b> 6037	<b>25.4</b> 5716	<b>23.8</b> 5346	<b>22.5</b> 5061	<b>21.5</b> 4832	<b>20.7</b> 4643	<b>19.9</b> 4481	<b>19.3</b> 4342	
			40000	<b>60.5</b> 13603	<b>49.1</b> 11049	<b>39.9</b> 8975	<b>30.3</b> 6818	<b>24.6</b> 5538	<b>23.3</b> 5243	<b>21.8</b> 4904	<b>20.7</b> 4643	<b>19.7</b> 4433	<b>18.9</b> 4259	<b>18.3</b> 4111	<b>17.7</b> 3983	
			60000	<b>53.6</b> 12045	<b>43.5</b> 9784	<b>35.4</b> 7947	<b>26.9</b> 6037	<b>21.8</b> 4904	<b>20.7</b> 4643	<b>19.3</b> 4342	<b>18.3</b> 4111	<b>17.5</b> 3925	<b>16.8</b> 3771	<b>16.2</b> 3640	<b>15.7</b> 3527	
			100000	<b>46.0</b> 10334	<b>37.3</b> 8394	<b>30.3</b> 6818	<b>23.0</b> 5179	<b>18.7</b> 4207	<b>17.7</b> 3983	<b>16.6</b> 3725	<b>15.7</b> 3527	<b>15.0</b> 3367	<b>14.4</b> 3235	<b>13.9</b> 3123	<b>13.5</b> 3026	
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22217	<b>297</b> 66900	10000	<b>107.3</b> 24115	<b>87.1</b> 19588	<b>70.8</b> 15910	<b>53.8</b> 12086	<b>43.7</b> 9817	<b>41.3</b> 9295	<b>38.7</b> 8693	<b>36.6</b> 8230	<b>35.0</b> 7858	<b>33.6</b> 7550	<b>32.4</b> 7287		
			30000	<b>77.1</b> 17344	<b>62.7</b> 14088	<b>50.9</b> 11443	<b>38.7</b> 8693	<b>31.4</b> 7061	<b>29.7</b> 6685	<b>27.8</b> 6252	<b>26.3</b> 5919	<b>25.1</b> 5652	<b>24.2</b> 5430	<b>23.3</b> 5241		
			40000	<b>70.8</b> 15910	<b>57.5</b> 12923	<b>46.7</b> 10497	<b>35.5</b> 7974	<b>28.8</b> 6477	<b>27.3</b> 6132	<b>25.5</b> 5735	<b>24.2</b> 5430	<b>23.1</b> 5184	<b>22.2</b> 4981	<b>21.4</b> 4808		
			60000	<b>62.7</b> 14088	<b>50.9</b> 11443	<b>41.3</b> 9295	<b>31.4</b> 7061	<b>25.5</b> 5735	<b>24.2</b> 5430	<b>22.6</b> 5078	<b>21.4</b> 4808	<b>20.4</b> 4591	<b>19.6</b> 4410	<b>18.9</b> 4257		
			100000	<b>53.8</b> 12086	<b>43.7</b> 9817	<b>35.5</b> 7974	<b>26.9</b> 6057	<b>21.9</b> 4920	<b>20.7</b> 4658	<b>19.4</b> 4357	<b>18.3</b> 4125	<b>17.5</b> 3938	<b>16.8</b> 3784	<b>16.2</b> 3652		
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22219	<b>385</b> 86600	10000	<b>138.9</b> 31216	<b>112.8</b> 25356	<b>91.6</b> 20595	<b>69.6</b> 15645	<b>56.5</b> 12708	<b>53.5</b> 12032	<b>50.1</b> 11252	<b>47.4</b> 10654	<b>45.2</b> 10172	<b>43.5</b> 9773	<b>42.0</b> 9433		
			30000	<b>99.9</b> 22452	<b>81.1</b> 18236	<b>65.9</b> 14813	<b>50.1</b> 11252	<b>40.7</b> 9140	<b>38.5</b> 8653	<b>36.0</b> 8093	<b>34.1</b> 7662	<b>32.5</b> 7316	<b>31.3</b> 7029	<b>30.2</b> 6785		
			40000	<b>91.6</b> 20595	<b>74.4</b> 16729	<b>60.4</b> 13588	<b>45.9</b> 10322	<b>37.3</b> 8384	<b>35.3</b> 7938	<b>33.0</b> 7424	<b>31.3</b> 7029	<b>29.9</b> 6711	<b>28.7</b> 6448	<b>27.7</b> 6224		
			60000	<b>81.1</b> 18236	<b>65.9</b> 14813	<b>53.5</b> 12032	<b>40.7</b> 9140	<b>33.0</b> 7424	<b>31.3</b> 7029	<b>29.2</b> 6574	<b>27.7</b> 6224	<b>26.4</b> 5942	<b>25.4</b> 5709	<b>24.5</b> 5511		
			100000	<b>69.6</b> 15645	<b>56.5</b> 12708	<b>45.9</b> 10322	<b>34.9</b> 7841	<b>28.3</b> 6369	<b>26.8</b> 6030	<b>25.1</b> 5640	<b>23.7</b> 5339	<b>22.7</b> 5098	<b>21.8</b> 4898	<b>21.0</b> 4728		

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

*Continued on next page.*

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

ENGINEERING • BEARING LOAD

## LOAD RATINGS – *continued*

TABLE C-5. V-LOCK SERIES – ALLOWABLE RADIAL LOAD (kN/LBS.) AT VARIOUS RPM<sup>(1)</sup> – *continued*

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>										
				RPM										
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>
80, 85, 90 3 3/16, 3 1/4, 3 7/16, 3 1/2	22220	435 97700	10000	156.7 35218	127.2 28606	103.4 23235	78.5 17651	63.8 14337	60.4 13574	56.5 12695	53.5 12019	51.0 11476	49.0 11025	47.3 10642
			30000	112.7 25329	91.5 20574	74.3 16711	56.5 12695	45.9 10311	43.4 9762	40.6 9130	38.5 8644	36.7 8254	35.3 7930	34.0 7654
			40000	103.4 23235	84.0 18873	68.2 15329	51.8 11645	42.1 9459	39.8 8955	37.3 8375	35.3 7930	33.7 7571	32.4 7274	31.2 7021
			60000	91.5 20574	74.3 16711	60.4 13574	45.9 10311	37.3 8375	35.3 7930	33.0 7416	31.2 7021	29.8 6704	28.7 6441	27.7 6217
			100000	78.5 17651	63.8 14337	51.8 11645	39.3 8846	32.0 7185	30.3 6803	28.3 6362	26.8 6024	25.6 5752	24.6 5526	23.7 5334
				50	100	200	500	1000	1200	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	
100 3 11/16, 3 3/4, 3 15/16, 4	22222	555 125000	10000	200.4 45058	162.8 36599	132.2 29727	100.5 22583	81.6 18343	77.3 17367	72.2 16242	68.4 15377	65.3 14683	62.7 14106	
			30000	144.2 32407	117.1 26323	95.1 21381	72.2 16242	58.7 13193	55.6 12490	52.0 11682	49.2 11060	47.0 10560	45.1 10145	
			40000	132.2 29727	107.4 24146	87.2 19613	66.3 14899	53.8 12102	51.0 11458	47.7 10716	45.1 10145	43.1 9687	41.4 9306	
			60000	117.1 26323	95.1 21381	77.3 17367	58.7 13193	47.7 10716	45.1 10145	42.2 9488	40.0 8983	38.2 8577	36.7 8241	
			100000	100.5 22583	81.6 18343	66.3 14899	50.3 11318	40.9 9193	38.7 8704	36.2 8140	34.3 7707	32.7 7359	31.4 7070	
				50	100	200	500	1000	1200	1500	1800	2100	2400	
110 –	22224	647 145000	10000	232.5 52268	188.8 42455	153.4 34484	116.5 26196	94.6 21278	89.6 20145	83.8 18841	79.3 17838	75.8 17032	72.8 16363	
			30000	167.2 37592	135.8 30534	110.3 24802	83.8 18841	68.1 15303	64.5 14489	60.3 13551	57.1 12829	54.5 12250	52.4 11769	
			40000	153.4 34484	124.6 28010	101.2 22751	76.9 17283	62.4 14038	59.1 13291	55.3 12430	52.4 11769	50.0 11237	48.0 10796	
			60000	135.8 30534	110.3 24802	89.6 20145	68.1 15303	55.3 12430	52.4 11769	49.0 11007	46.4 10421	44.3 9950	42.5 9559	
			100000	116.5 26196	94.6 21278	76.9 17283	58.4 13129	47.4 10664	44.9 10097	42.0 9443	39.8 8940	38.0 8536	36.5 8201	

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

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Continued from *previous page*.

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>									
				RPM									
mm in.		kN lbs.		50	100	200	500	1000	1200 <sup>(1)</sup>	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>	
<b>110, 115</b> 4 7/16, 4 1/2	22226	757 170000	10000	<b>272.6</b> 61279	<b>221.4</b> 49774	<b>179.8</b> 40429	<b>136.6</b> 30712	<b>111.0</b> 24946	<b>105.1</b> 23618	<b>98.3</b> 22089	<b>93.0</b> 20913	<b>88.8</b> 19968	
			30000	<b>196.1</b> 44074	<b>159.2</b> 35799	<b>129.3</b> 29078	<b>98.3</b> 22089	<b>79.8</b> 17942	<b>75.6</b> 16987	<b>70.7</b> 15887	<b>66.9</b> 15041	<b>63.9</b> 14362	
			40000	<b>179.8</b> 40429	<b>146.1</b> 32839	<b>118.6</b> 26673	<b>90.1</b> 20263	<b>73.2</b> 16458	<b>69.3</b> 15582	<b>64.8</b> 14573	<b>61.4</b> 13798	<b>58.6</b> 13174	
			60000	<b>159.2</b> 35799	<b>129.3</b> 29078	<b>105.1</b> 23618	<b>79.8</b> 17942	<b>64.8</b> 14573	<b>61.4</b> 13798	<b>57.4</b> 12904	<b>54.3</b> 12217	<b>51.9</b> 11665	
			100000	<b>136.6</b> 30712	<b>111.0</b> 24946	<b>90.1</b> 20263	<b>68.5</b> 15393	<b>55.6</b> 12503	<b>52.7</b> 11837	<b>49.2</b> 11071	<b>46.6</b> 10482	<b>44.5</b> 10008	
<b>125, 130</b> 4 15/16, 5	22228	863 194000	10000	<b>311.1</b> 69931	<b>252.7</b> 56801	<b>205.2</b> 46137	<b>155.9</b> 35048	<b>126.6</b> 28468	<b>119.9</b> 26953	<b>112.1</b> 25208	<b>106.2</b> 23866		
			30000	<b>223.7</b> 50296	<b>181.7</b> 40853	<b>147.6</b> 33183	<b>112.1</b> 25208	<b>91.1</b> 20475	<b>86.2</b> 19385	<b>80.6</b> 18130	<b>76.4</b> 17165		
			40000	<b>205.2</b> 46137	<b>166.7</b> 37475	<b>135.4</b> 30439	<b>102.9</b> 23123	<b>83.5</b> 18782	<b>79.1</b> 17782	<b>74.0</b> 16631	<b>70.0</b> 15746		
			60000	<b>181.7</b> 40853	<b>147.6</b> 33183	<b>119.9</b> 26953	<b>91.1</b> 20475	<b>74.0</b> 16631	<b>70.0</b> 15746	<b>65.5</b> 14726	<b>62.0</b> 13942		
			100000	<b>155.9</b> 35048	<b>126.6</b> 28468	<b>102.9</b> 23123	<b>78.1</b> 17566	<b>63.5</b> 14268	<b>60.1</b> 13508	<b>56.2</b> 12634	<b>53.2</b> 11961		

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

ENGINEERING • BEARING LOAD

## LOAD RATINGS – *continued*

TABLE C-6. CL SERIES – ALLOWABLE RADIAL LOAD (kN/LBS.) AT VARIOUS RPM<sup>(1)</sup>

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>														
				RPM														
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000	3200	3500	
35 1 7/16, 1 1/2	22208	104 23400	10000	37.5 8435	30.5 6851	24.8 5565	18.8 4227	15.3 3434	14.5 3251	13.5 3041	12.8 2879	12.2 2749	11.7 2641	11.3 2549	11.0 2470	10.8 2422	10.5 2358	
			30000	27.0 6067	21.9 4928	17.8 4002	13.5 3041	11.0 2470	10.4 2338	9.7 2187	9.2 2070	8.8 1977	8.4 1899	8.2 1833	7.9 1776	7.7 1742	7.5 1696	
			40000	24.8 5565	20.1 4520	16.3 3672	12.4 2789	10.1 2265	9.5 2145	8.9 2006	8.4 1899	8.1 1813	7.7 1742	7.5 1682	7.2 1629	7.1 1629	7.1 1598	6.9 1556
			60000	21.9 4928	17.8 4002	14.5 3251	11.0 2470	8.9 2006	8.4 1899	7.9 1776	7.5 1682	7.1 1606	6.9 1543	6.6 1489	6.4 1443	6.3 1415	6.3 1415	6.1 1378
			100000	18.8 4227	15.3 3434	12.4 2789	9.4 2119	7.7 1721	7.2 1629	6.8 1524	6.4 1443	6.1 1378	5.9 1323	5.7 1278	5.5 1238	5.4 1214	5.4 1214	5.3 1182
							50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000
40, 45 1 11/16, 1 3/4	22209	109 24500	10000	39.3 8831	31.9 7173	25.9 5827	19.7 4426	16.0 3595	15.1 3404	14.2 3183	13.4 3014	12.8 2878	12.3 2765	11.9 2669	11.5 2586	11.3 2536	11.0 2469	
			30000	28.3 6352	22.9 5159	18.6 4191	14.2 3183	11.5 2586	10.9 2448	10.2 2290	9.6 2168	9.2 2070	8.8 1988	8.5 1919	8.3 1860	8.1 1824	7.9 1776	
			40000	25.9 5827	21.1 4733	17.1 3844	13.0 2920	10.6 2372	10.0 2246	9.3 2100	8.8 1988	8.4 1899	8.1 1824	7.8 1761	7.6 1706	7.4 1673	7.4 1673	7.2 1629
			60000	22.9 5159	18.6 4191	15.1 3404	11.5 2586	9.3 2100	8.8 1988	8.3 1860	7.8 1761	7.5 1681	7.2 1615	6.9 1559	6.7 1511	6.6 1482	6.6 1482	6.4 1442
			100000	19.7 4426	16.0 3595	13.0 2920	9.9 2218	8.0 1802	7.6 1706	7.1 1595	6.7 1511	6.4 1442	6.2 1386	6.0 1338	5.8 1296	5.7 1271	5.7 1271	5.5 1237
							50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000
50 1 15/16, 2	22210	117 26300	10000	42.2 9480	34.3 7700	27.8 6255	21.1 4751	17.2 3859	16.3 3654	15.2 3417	14.4 3235	13.7 3089	13.2 2968	12.7 2865	12.3 2776	12.1 2723	11.8 2650	
			30000	30.3 6818	24.6 5538	20.0 4498	15.2 3417	12.3 2776	11.7 2628	10.9 2458	10.4 2327	9.9 2222	9.5 2135	9.2 2060	8.9 1996	8.7 1958	8.5 1906	
			40000	27.8 6255	22.6 5080	18.4 4127	13.9 3135	11.3 2546	10.7 2411	10.0 2255	9.5 2135	9.1 2038	8.7 1958	8.4 1890	8.1 1831	8.0 1796	8.0 1796	7.8 1749
			60000	24.6 5538	20.0 4498	16.3 3654	12.3 2776	10.0 2255	9.5 2135	8.9 1996	8.4 1890	8.0 1805	7.7 1734	7.4 1674	7.2 1622	7.1 1590	7.1 1590	6.9 1548
			100000	21.1 4751	17.2 3859	13.9 3135	10.6 2381	8.6 1934	8.1 1831	7.6 1713	7.2 1622	6.9 1548	6.6 1487	6.4 1436	6.2 1391	6.1 1364	6.1 1364	5.9 1328
							50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000
55 2 3/16, 2 1/4	22211	140 31400	10000	50.3 11319	40.9 9194	33.2 7468	25.2 5673	20.5 4608	19.4 4362	18.1 4080	17.2 3863	16.4 3688	15.8 3543	15.2 3420	14.7 3314	14.5 3250	14.1 3164	
			30000	36.2 8141	29.4 6612	23.9 5371	18.1 4080	14.7 3314	14.0 3138	13.1 2934	12.4 2778	11.8 2653	11.3 2549	10.9 2460	10.6 2383	10.4 2338	10.1 2276	
			40000	33.2 7468	27.0 6066	21.9 4927	16.6 3743	13.5 3040	12.8 2878	12.0 2692	11.3 2549	10.8 2433	10.4 2338	10.0 2257	9.7 2186	9.5 2144	9.3 2088	
			60000	29.4 6612	23.9 5371	19.4 4362	14.7 3314	12.0 2692	11.3 2549	10.6 2383	10.0 2257	9.6 2155	9.2 2070	8.9 1998	8.6 1936	8.4 1899	8.2 1849	
			100000	25.2 5673	20.5 4608	16.6 3743	12.6 2843	10.3 2309	9.7 2186	9.1 2045	8.6 1936	8.2 1849	7.9 1776	7.6 1714	7.4 1661	7.2 1629	7.1 1586	
							50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000 <sup>(1)</sup>
60, 65 2 7/16, 2 1/2	22213	206 46400	10000	74.4 16726	60.4 13585	49.1 11035	37.3 8383	30.3 6809	28.7 6446	26.8 6029	25.4 5708	24.2 5450	23.3 5236	22.5 5054	21.8 4897	21.4 4803	20.8 4676	
			30000	53.5 12030	43.5 9771	35.3 7937	26.8 6029	21.8 4897	20.6 4636	19.3 4336	18.3 4105	17.4 3920	16.8 3766	16.2 3635	15.7 3522	15.4 3455	15.0 3363	
			40000	49.1 11035	39.9 8963	32.4 7280	24.6 5531	20.0 4492	18.9 4253	17.7 3978	16.8 3766	16.0 3596	15.4 3455	14.8 3335	14.4 3231	14.1 3169	13.7 3085	
			60000	43.5 9771	35.3 7937	28.7 6446	21.8 4897	17.7 3978	16.8 3766	15.7 3522	14.8 3335	14.2 3184	13.6 3059	13.1 2953	12.7 2861	12.5 2806	12.2 2732	
			100000	37.3 8383	30.3 6809	24.6 5531	18.7 4201	15.2 3413	14.4 3231	13.4 3022	12.7 2861	12.2 2732	11.7 2624	11.3 2533	10.9 2454	10.7 2407	10.4 2343	
							50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000 <sup>(1)</sup>

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

*Continued on next page.*

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

ENGINEERING • BEARING LOAD

Continued from previous page.

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>														
				RPM														
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800	2100	2400	2700 <sup>(1)</sup>	3000 <sup>(1)</sup>	3200 <sup>(1)</sup>		
70, 75 2 11/16, 2 3/4, 2 15/16, 3	22215	220 49900	10000	80.0 17987	65.0 14610	52.8 11867	40.1 9015	32.6 7322	30.8 6933	28.8 6484	27.3 6139	26.1 5861	25.0 5631	24.2 5436	23.4 5266	23.0 5166		
			30000	57.5 12937	46.7 10508	38.0 8535	28.8 6484	23.4 5266	22.2 4986	20.7 4663	19.6 4415	18.8 4216	18.0 4050	17.4 3909	16.8 3788	16.5 3715		
			40000	52.8 11867	42.9 9639	34.8 7829	26.5 5948	21.5 4831	20.3 4574	19.0 4278	18.0 4050	16.8 3788	16.0 3586	15.2 3424	14.6 3290	14.1 3175	13.7 3077	13.4 3018
			60000	46.7 10508	38.0 8535	30.8 6933	23.4 5266	19.0 4278	18.0 4050	16.8 3788	16.0 3586	15.2 3424	14.6 3290	14.1 3175	13.7 3077	13.4 3018		
			100000	40.1 9015	32.6 7322	26.5 5948	20.1 4518	16.3 3670	15.5 3475	14.5 3250	13.7 3077	13.1 2938	12.6 2822	12.1 2724	11.7 2639	11.5 2589		
				50	100	200	500	1000	1200	1500	1800	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>				
80, 85, 90 3 3/16, 3 1/4, 3 7/16, 3 1/2	22218	355 79700	10000	127.8 28729	103.8 23335	84.3 18954	64.0 14399	52.0 11695	49.3 11073	46.1 10356	43.6 9805	41.6 9362	40.0 8994	38.6 8682				
			30000	91.9 20663	74.7 16783	60.6 13632	46.1 10356	37.4 8412	35.4 7964	33.1 7448	31.4 7052	29.9 6733	28.8 6469	27.8 6244				
			40000	84.3 18954	68.5 15396	55.6 12505	42.3 9500	34.3 7716	32.5 7305	30.4 6832	28.8 6469	27.5 6176	26.4 5934	25.5 5728				
			60000	74.7 16783	60.6 13632	49.3 11073	37.4 8412	30.4 6832	28.8 6469	26.9 6050	25.5 5728	24.3 5469	23.4 5254	22.6 5072				
			100000	64.0 14399	52.0 11695	42.3 9500	32.1 7216	26.1 5862	24.7 5550	23.1 5190	21.9 4914	20.9 4692	20.1 4508	19.4 4351				
				50	100	200	500	1000	1200	1500	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>				
100 3 15/16, 4	22220	435 97700	10000	156.7 35218	127.2 28606	103.4 23235	78.5 17651	63.8 14337	60.4 13574	56.5 12695	53.5 12019	51.0 11476	49.0 11025	47.3 10642				
			30000	112.7 25329	91.5 20574	74.3 16711	56.5 12695	45.9 10311	43.4 9762	40.6 9130	38.5 8644	36.7 8254	35.3 7930	34.0 7654				
			40000	103.4 23235	84.0 18873	68.2 15329	51.8 11645	42.1 9459	39.8 8955	37.3 8375	35.3 7930	33.7 7571	32.4 7274	31.2 7021				
			60000	91.5 20574	74.3 16711	60.4 13574	45.9 10311	37.3 8375	35.3 7930	33.0 7416	31.2 7021	29.8 6704	28.7 6441	27.7 6217				
			100000	78.5 17651	63.8 14337	51.8 11645	39.3 8846	32.0 7185	30.3 6803	28.3 6362	26.8 6024	25.6 5752	24.6 5526	23.7 5334				
				50	100	200	500	1000	1200	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>					
110, 115 4 7/16, 4 1/2	22222	555 125000	10000	200.4 45058	162.8 36599	132.2 29727	100.5 22583	81.6 18343	77.3 17367	72.2 16242	68.4 15377	65.3 14683	62.7 14106					
			30000	144.2 32407	117.1 26323	95.1 21381	72.2 16242	58.7 13193	55.6 12490	52.0 11682	49.2 11060	47.0 10560	45.1 10145					
			40000	132.2 29727	107.4 24146	87.2 19613	66.3 14899	53.8 12102	51.0 11458	47.7 10716	45.1 10145	43.1 9687	41.4 9306					
			60000	117.1 26323	95.1 21381	77.3 17367	58.7 13193	47.7 10716	45.1 10145	42.2 9488	40.0 8983	38.2 8577	36.7 8241					
			100000	100.5 22583	81.6 18343	66.3 14899	50.3 11318	40.9 9193	38.7 8704	36.2 8140	34.3 7707	32.7 7359	31.4 7070					
				50	100	200	500	1000	1200 <sup>(1)</sup>	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>						
125, 130 4 15/16, 5	22226	757 170000	10000	272.6 61279	221.4 49774	179.8 40429	136.6 30712	111.0 24946	105.1 23618	98.3 22089	93.0 20913	88.8 19968						
			30000	196.1 44074	159.2 35799	129.3 29078	98.3 22089	79.8 17942	75.6 16987	70.7 15887	66.9 15041	63.9 14362						
			40000	179.8 40429	146.1 32839	118.6 26673	90.1 20263	73.2 16458	69.3 15582	64.8 14573	61.4 13798	58.6 13174						
			60000	159.2 35799	129.3 29078	105.1 23618	79.8 17942	64.8 14573	61.4 13798	57.4 12904	54.3 12217	51.9 11665						
			100000	136.6 30712	111.0 24946	90.1 20263	68.5 15393	55.6 12503	52.7 11837	49.2 11071	46.6 10482	44.5 10008						

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

ENGINEERING • BEARING LOAD

## LOAD RATINGS – *continued*

TABLE C-7. EC SERIES – ALLOWABLE RADIAL LOAD (kN/LBS.) AT VARIOUS RPM<sup>(1)</sup>

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>													
				RPM													
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000	3200	3500
35 1 7/16, 1 1/2	22208	104 23400	10000	37.5 8435	30.5 6851	24.8 5565	18.8 4227	15.3 3434	14.5 3251	13.5 3041	12.8 2879	12.2 2749	11.7 2641	11.3 2549	11.0 2470	10.8 2422	10.5 2358
			30000	27.0 6067	21.9 4928	17.8 4002	13.5 3041	11.0 2470	10.4 2338	9.7 2187	9.2 2070	8.8 1977	8.4 1899	8.2 1833	7.9 1776	7.7 1742	7.5 1696
			40000	24.8 5565	20.1 4520	16.3 3672	12.4 2789	10.1 2265	9.5 2145	8.9 2006	8.4 1899	8.1 1813	7.7 1742	7.5 1682	7.2 1629	7.1 1598	6.9 1556
			60000	21.9 4928	17.8 4002	14.5 3251	11.0 2470	8.9 2006	8.4 1899	7.9 1776	7.5 1682	7.1 1606	6.9 1543	6.6 1489	6.4 1443	6.3 1415	6.1 1378
			100000	18.8 4227	15.3 3434	12.4 2789	9.4 2119	7.7 1721	7.2 1629	6.8 1524	6.4 1443	6.1 1378	5.9 1323	5.7 1278	5.5 1238	5.4 1214	5.3 1182
40, 45 1 15/16, 1 3/4	22209	109 24500	10000	39.3 8831	31.9 7173	25.9 5827	19.7 4426	16.0 3595	15.1 3404	14.2 3183	13.4 3014	12.8 2878	12.3 2765	11.9 2669	11.5 2586	11.3 2536	11.0 2469
			30000	28.3 6352	22.9 5159	18.6 4191	14.2 3183	11.5 2586	10.9 2448	10.2 2290	9.6 2168	9.2 2070	8.8 1988	8.5 1919	8.3 1860	8.1 1824	7.9 1776
			40000	25.9 5827	21.1 4733	17.1 3844	13.0 2920	10.6 2372	10.0 2246	9.3 2100	8.8 1988	8.4 1899	8.1 1824	7.8 1761	7.6 1706	7.4 1673	7.2 1629
			60000	22.9 5159	18.6 4191	15.1 3404	11.5 2586	9.3 2100	8.8 1988	8.3 1860	7.8 1761	7.5 1681	7.2 1615	6.9 1559	6.7 1511	6.6 1482	6.4 1442
			100000	19.7 4426	16.0 3595	13.0 2920	9.9 2218	8.0 1802	7.6 1706	7.1 1595	6.7 1511	6.4 1442	6.2 1386	6.0 1338	5.8 1296	5.7 1271	5.5 1237
50 1 15/16, 2	22210	117 26300	10000	42.2 9480	34.3 7700	27.8 6255	21.1 4751	17.2 3859	16.3 3654	15.2 3417	14.4 3235	13.7 3089	13.2 2968	12.7 2865	12.3 2776	12.1 2723	11.8 2650
			30000	30.3 6818	24.6 5538	20.0 4498	15.2 3417	12.3 2776	11.7 2628	10.9 2458	10.4 2327	9.9 2222	9.5 2135	9.2 2060	8.9 1996	8.7 1958	8.5 1906
			40000	27.8 6255	22.6 5080	18.4 4127	13.9 3135	11.3 2546	10.7 2411	10.0 2255	9.5 2135	9.1 2038	8.7 1958	8.4 1890	8.1 1831	8.0 1796	7.8 1749
			60000	24.6 5538	20.0 4498	16.3 3654	12.3 2776	10.0 2255	9.5 2135	8.9 1996	8.4 1890	8.0 1805	7.7 1734	7.4 1674	7.2 1622	7.1 1590	6.9 1548
			100000	21.1 4751	17.2 3859	13.9 3135	10.6 2381	8.6 1934	8.1 1831	7.6 1713	7.2 1622	6.9 1548	6.6 1487	6.4 1436	6.2 1391	6.1 1364	5.9 1328
55 2 3/16, 2 1/4	22211	140 31400	10000	50.3 11319	40.9 9194	33.2 7468	25.2 5673	20.5 4608	19.4 4362	18.1 4080	17.2 3863	16.4 3688	15.8 3543	15.2 3420	14.7 3314	14.5 3250	14.1 3164
			30000	36.2 8141	29.4 6612	23.9 5371	18.1 4080	14.7 3314	14.0 3138	13.1 2934	12.4 2778	11.8 2653	11.3 2549	10.9 2460	10.6 2383	10.4 2338	10.1 2276
			40000	33.2 7468	27.0 6066	21.9 4927	16.6 3743	13.5 3040	12.8 2878	12.0 2692	11.3 2549	10.8 2433	10.4 2338	10.0 2257	9.7 2186	9.5 2144	9.3 2088
			60000	29.4 6612	23.9 5371	19.4 4362	14.7 3314	12.0 2692	11.3 2549	10.6 2383	10.0 2257	9.6 2155	9.2 2070	8.9 1998	8.6 1936	8.4 1899	8.2 1849
			100000	25.2 5673	20.5 4608	16.6 3743	12.6 2843	10.3 2309	9.7 2186	9.1 2045	8.6 1936	8.2 1849	7.9 1776	7.6 1714	7.4 1661	7.2 1629	7.1 1586
60, 65 2 7/16, 2 1/2	22213	206 46400	10000	74.4 16726	60.4 13585	49.1 11035	37.3 8383	30.3 6809	28.7 6446	26.8 6029	25.4 5708	24.2 5450	23.3 5236	22.5 5054	21.8 4897	21.4 4803	20.8 4676
			30000	53.5 12030	43.5 9771	35.3 7937	26.8 6029	21.8 4897	20.6 4636	19.3 4336	18.3 4105	17.4 3920	16.8 3766	16.2 3635	15.7 3522	15.4 3455	15.0 3363
			40000	49.1 11035	39.9 8963	32.4 7280	24.6 5531	20.0 4492	18.9 4253	17.7 3978	16.8 3766	16.0 3596	15.4 3455	14.8 3335	14.4 3231	14.1 3169	13.7 3085
			60000	43.5 9771	35.3 7937	28.7 6446	21.8 4897	17.7 3978	16.8 3766	15.7 3522	14.8 3335	14.2 3184	13.6 3059	13.1 2953	12.7 2861	12.5 2806	12.2 2732
			100000	37.3 8383	30.3 6809	24.6 5531	18.7 4201	15.2 3413	14.4 3231	13.4 3022	12.7 2861	12.2 2732	11.7 2624	11.3 2533	10.9 2454	10.7 2407	10.4 2343

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

*Continued on next page.*

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

ENGINEERING • BEARING LOAD

Continued from previous page.

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>															
				RPM															
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800	2100	2400	2700 <sup>(1)</sup>	3000 <sup>(1)</sup>	3200 <sup>(1)</sup>			
<b>70, 75</b> 2 1/16, 2 3/4, 2 15/16, 3	22215	222 49900	10000	80.0 17987	65.0 14610	52.8 11867	40.1 9015	32.6 7322	30.8 6933	28.8 6484	27.3 6139	26.1 5861	25.0 5631	24.2 5436	23.4 5266	23.0 5166			
			30000	57.5 12937	46.7 10508	38.0 8535	28.8 6484	23.4 5266	22.2 4986	20.7 4663	19.6 4415	18.8 4216	18.0 4050	17.4 3909	16.8 3788	16.5 3715			
			40000	52.8 11867	42.9 9639	34.8 7829	26.5 5948	21.5 4831	20.3 4574	19.0 4278	18.0 4050	17.2 3867	16.5 3715	16.0 3586	15.5 3475	15.2 3408			
			60000	46.7 10508	38.0 8535	30.8 6933	23.4 5266	19.0 4278	18.0 4050	16.8 3788	16.0 3586	15.2 3424	14.6 3290	14.1 3175	13.7 3077	13.4 3018			
			100000	40.1 9015	32.6 7322	26.5 5948	20.1 4518	16.3 3670	15.5 3475	14.5 3250	13.7 3077	13.1 2938	12.6 2822	12.1 2724	11.7 2639	11.5 2589			
				50	100	200	500	1000	1200	1500	1800	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>					
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22218	355 79700	10000	127.8 28729	103.8 23335	84.3 18954	64.0 14399	52.0 11695	49.3 11073	46.1 10356	43.6 9805	41.6 9362	40.0 8994	38.6 8682					
			30000	91.9 20663	74.7 16783	60.6 13632	46.1 10356	37.4 8412	35.4 7964	33.1 7448	31.4 7052	29.9 6733	28.8 6469	27.8 6244					
			40000	84.3 18954	68.5 15396	55.6 12505	42.3 9500	34.3 7716	32.5 7305	30.4 6832	28.8 6469	27.5 6176	26.4 5934	25.5 5728					
			60000	74.7 16783	60.6 13632	49.3 11073	37.4 8412	30.4 6832	28.8 6469	26.9 6050	25.5 5728	24.3 5469	23.4 5254	22.6 5072					
			100000	64.0 14399	52.0 11695	42.3 9500	32.1 7216	26.1 5862	24.7 5550	23.1 5190	21.9 4914	20.9 4692	20.1 4508	19.4 4351					
				50	100	200	500	1000	1200	1500	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>					
<b>100</b> 3 11/16, 3 3/4, 3 15/16, 4	22220	435 97700	10000	156.7 35218	127.2 28606	103.4 23235	78.5 17651	63.8 14337	60.4 13574	56.5 12695	53.5 12019	51.0 11476	49.0 11025	47.3 10642					
			30000	112.7 25329	91.5 20574	74.3 16711	56.5 12695	45.9 10311	43.4 9762	40.6 9130	38.5 8644	36.7 8254	35.3 7930	34.0 7654					
			40000	103.4 23235	84.0 18873	68.2 15329	51.8 11645	42.1 9459	39.8 8955	37.3 8375	35.3 7930	33.7 7571	32.4 7274	31.2 7021					
			60000	91.5 20574	74.3 16711	60.4 13574	45.9 10311	37.3 8375	35.3 7930	33.0 7416	31.2 7021	29.8 6704	28.7 6441	27.7 6217					
			100000	78.5 17651	63.8 14337	51.8 11645	39.3 8846	32.0 7185	30.3 6803	28.3 6362	26.8 6024	25.6 5752	24.6 5526	23.7 5334					
				50	100	200	500	1000	1200	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>						
<b>110, 115</b> 4 7/16, 4 1/2	22222	555 125000	10000	200.4 45058	162.8 36599	132.2 29727	100.5 22583	81.6 18343	77.3 17367	72.2 16242	68.4 15377	65.3 14683	62.7 14106						
			30000	144.2 32407	117.1 26323	95.1 21381	72.2 16242	58.7 13193	55.6 12490	52.0 11682	49.2 11060	47.0 10560	45.1 10145						
			40000	132.2 29727	107.4 24146	87.2 19613	66.3 14899	53.8 12102	51.0 11458	47.7 10716	45.1 10145	43.1 9687	41.4 9306						
			60000	117.1 26323	95.1 21381	77.3 17367	58.7 13193	47.7 10716	45.1 10145	42.2 9488	40.0 8983	38.2 8577	36.7 8241						
			100000	100.5 22583	81.6 18343	66.3 14899	50.3 11318	40.9 9193	38.7 8704	36.2 8140	34.3 7707	32.7 7359	31.4 7070						
				50	100	200	500	1000	1200 <sup>(1)</sup>	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>							
<b>125, 130</b> 4 15/16, 5	22226	757 170000	10000	272.6 61279	221.4 49774	179.8 40429	136.6 30712	111.0 24946	105.1 23618	98.3 22089	93.0 20913	88.8 19968							
			30000	196.1 44074	159.2 35799	129.3 29078	98.3 22089	79.8 17942	75.6 16987	70.7 15887	66.9 15041	63.9 14362							
			40000	179.8 40429	146.1 32839	118.6 26673	90.1 20263	73.2 16458	69.3 15582	64.8 14573	61.4 13798	58.6 13174							
			60000	159.2 35799	129.3 29078	105.1 23618	79.8 17942	64.8 14573	61.4 13798	57.4 12904	54.3 12217	51.9 11665							
			100000	136.6 30712	111.0 24946	90.1 20263	68.5 15393	55.6 12503	52.7 11837	49.2 11071	46.6 10482	44.5 10008							

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

Continued on next page.

### LOAD RATINGS – *continued*

**TABLE C-7. EC SERIES – ALLOWABLE RADIAL LOAD (kN/LBS.) AT VARIOUS RPM<sup>(1)</sup> – *continued***

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>					
				RPM					
mm in.		kN lbs.		50	100	200	500	1000 <sup>(1)</sup>	1200 <sup>(1)</sup>
<b>140, 150</b> 5 7/16, 5 1/2, 5 15/16, 6	23230	<b>1270</b> 286000	10000	<b>458.6</b> 103094	<b>372.5</b> 83738	<b>302.6</b> 68016	<b>229.8</b> 51669	<b>186.7</b> 41968	<b>176.8</b> 39735
			30000	<b>329.8</b> 74147	<b>267.9</b> 60226	<b>217.6</b> 48919	<b>165.3</b> 37162	<b>134.3</b> 30185	<b>127.1</b> 28578
			40000	<b>302.6</b> 68016	<b>245.8</b> 55247	<b>199.6</b> 44874	<b>151.6</b> 34089	<b>123.2</b> 27689	<b>116.6</b> 26215
			60000	<b>267.9</b> 60226	<b>217.6</b> 48919	<b>176.8</b> 39735	<b>134.3</b> 30185	<b>109.1</b> 24518	<b>103.3</b> 23213
			100000	<b>229.8</b> 51669	<b>186.7</b> 41968	<b>151.6</b> 34089	<b>115.2</b> 25896	<b>93.6</b> 21034	<b>88.6</b> 19914
<b>170, 180</b> 6 7/16, 6 1/2, 6 15/16, 7	23234	<b>1660</b> 373000		50	100	200	500	1000 <sup>(1)</sup>	
			10000	<b>598.1</b> 134454	<b>485.8</b> 109211	<b>394.6</b> 88707	<b>299.8</b> 67387	<b>243.5</b> 54735	
			30000	<b>430.2</b> 96703	<b>349.4</b> 78547	<b>283.8</b> 63800	<b>215.6</b> 48466	<b>175.1</b> 39367	
			40000	<b>394.6</b> 88707	<b>320.5</b> 72052	<b>260.3</b> 58525	<b>197.8</b> 44459	<b>160.6</b> 36112	
			60000	<b>349.4</b> 78547	<b>283.8</b> 63800	<b>230.5</b> 51822	<b>175.1</b> 39367	<b>142.2</b> 31976	
			100000	<b>299.8</b> 67387	<b>243.5</b> 54735	<b>197.8</b> 44459	<b>150.2</b> 33773	<b>122.0</b> 27433	

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.



TABLE C-8. TA/DV SERIES – ALLOWABLE RADIAL LOAD (kN/LBS.) AT VARIOUS RPM<sup>(1)</sup>

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>														
				RPM														
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000	3200	3500	
40 1 7/16, 1 1/2	22209	109 24500	10000	39.3 8831	31.9 7173	25.9 5827	19.7 4426	16.0 3595	15.1 3404	14.2 3183	13.4 3014	12.8 2878	12.3 2765	11.9 2669	11.5 2586	11.3 2536	11.0 2469	
			30000	28.3 6352	22.9 5159	18.6 4191	14.2 3183	11.5 2586	10.9 2448	10.2 2290	9.6 2168	9.2 2070	8.8 1988	8.5 1919	8.3 1860	8.1 1824	7.9 1776	
			40000	25.9 5827	21.1 4733	17.1 3844	13.0 2920	10.6 2372	10.0 2246	9.3 2100	8.8 1988	8.4 1899	8.1 1824	7.8 1761	7.7 1761	7.6 1706	7.4 1673	7.2 1629
			60000	22.9 5159	18.6 4191	15.1 3404	11.5 2586	9.3 2100	8.8 1988	8.3 1860	7.8 1761	7.5 1681	7.2 1615	6.9 1559	6.7 1511	6.6 1482	6.4 1442	
			100000	19.7 4426	16.0 3595	13.0 2920	9.9 2218	8.0 1802	7.6 1706	7.1 1595	6.7 1511	6.4 1442	6.2 1386	6.0 1338	5.8 1296	5.7 1271	5.5 1237	
				50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000	3200	3500	
45 1 11/16, 1 3/4	22210	117 26300	10000	42.2 9480	34.3 7700	27.8 6255	21.1 4751	17.2 3859	16.3 3654	15.2 3417	14.4 3235	13.7 3089	13.2 2968	12.7 2865	12.3 2776	12.1 2723	11.8 2650	
			30000	30.3 6818	24.6 5538	20.0 4498	15.2 3417	12.3 2776	11.7 2628	10.9 2458	10.4 2327	9.9 2222	9.5 2135	9.2 2060	8.9 1996	8.7 1958	8.5 1906	
			40000	27.8 6255	22.6 5080	18.4 4127	13.9 3135	11.3 2546	10.7 2411	10.0 2255	9.5 2135	9.1 2038	8.7 1958	8.4 1890	8.1 1831	8.0 1796	7.8 1749	
			60000	24.6 5538	20.0 4498	16.3 3654	12.3 2776	10.0 2255	9.5 2135	8.9 1996	8.4 1890	8.0 1805	7.7 1734	7.4 1674	7.2 1622	7.1 1590	6.9 1548	
			100000	21.1 4751	17.2 3859	13.9 3135	10.6 2381	8.6 1934	8.1 1831	7.6 1713	7.2 1622	6.9 1548	6.6 1487	6.4 1436	6.2 1391	6.1 1364	5.9 1328	
				50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000	3200	3500 <sup>(1)</sup>	
50 1 15/16, 2	22211	140 31400	10000	50.3 11319	40.9 9194	33.2 7468	25.2 5673	20.5 4608	19.4 4362	18.1 4080	17.2 3863	16.4 3688	15.8 3543	15.2 3420	14.7 3314	14.5 3250	14.1 3164	
			30000	36.2 8141	29.4 6612	23.9 5371	18.1 4080	14.7 3314	14.0 3138	13.1 2934	12.4 2778	11.8 2653	11.3 2549	10.9 2460	10.6 2383	10.4 2338	10.1 2276	
			40000	33.2 7468	27.0 6066	21.9 4927	16.6 3743	13.5 3040	12.8 2878	12.0 2692	11.3 2549	10.8 2433	10.4 2338	10.0 2257	9.7 2186	9.5 2144	9.3 2088	
			60000	29.4 6612	23.9 5371	19.4 4362	14.7 3314	12.0 2692	11.3 2549	10.6 2383	10.0 2257	9.6 2155	9.2 2070	8.9 1998	8.6 1936	8.4 1899	8.2 1849	
			100000	25.2 5673	20.5 4608	16.6 3743	12.6 2843	10.3 2309	9.7 2186	9.1 2045	8.6 1936	8.2 1849	7.9 1776	7.6 1714	7.4 1661	7.2 1629	7.1 1586	
				50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000	3200 <sup>(1)</sup>	3500 <sup>(1)</sup>	
55 –	22212	169 38100	10000	61.1 13734	49.6 11155	40.3 9061	30.6 6883	24.9 5591	23.5 5293	22.0 4951	20.8 4687	19.9 4475	19.1 4300	18.5 4150	17.9 4021	17.5 3944	17.1 3839	
			30000	43.9 9878	35.7 8023	29.0 6517	22.0 4951	17.9 4021	16.9 3807	15.8 3561	15.0 3371	14.3 3219	13.8 3092	13.3 2985	12.9 2892	12.6 2837	12.3 2761	
			40000	40.3 9061	32.7 7360	26.6 5978	20.2 4541	16.4 3689	15.5 3492	14.5 3266	13.8 3092	13.1 2953	12.6 2837	12.2 2738	11.8 2653	11.6 2602	11.3 2533	
			60000	35.7 8023	29.0 6517	23.5 5293	17.9 4021	14.5 3266	13.8 3092	12.9 2892	12.2 2738	11.6 2614	11.2 2512	10.8 2425	10.4 2349	10.2 2304	10.0 2243	
			100000	30.6 6883	24.9 5591	20.2 4541	15.3 3450	12.5 2802	11.8 2653	11.0 2481	10.4 2349	10.0 2243	9.6 2155	9.3 2080	9.0 2015	8.8 1977	8.6 1924	
				50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000 <sup>(1)</sup>	3200 <sup>(1)</sup>	3500 <sup>(1)</sup>	
60 2 3/16, 2 1/4	22213	206 46400	10000	74.4 16726	60.4 13585	49.1 11035	37.3 8383	30.3 6809	28.7 6446	26.8 6029	25.4 5708	24.2 5450	23.3 5236	22.5 5054	21.8 4897	21.4 4803	20.8 4676	
			30000	53.5 12030	43.5 9771	35.3 7937	26.8 6029	21.8 4897	20.6 4636	19.3 4336	18.3 4105	17.4 3920	16.8 3766	16.2 3635	15.7 3522	15.4 3455	15.0 3363	
			40000	49.1 11035	39.9 8963	32.4 7280	24.6 5531	20.0 4492	18.9 4253	17.7 3978	16.8 3766	16.0 3596	15.4 3455	14.8 3335	14.4 3231	14.1 3169	13.7 3085	
			60000	43.5 9771	35.3 7937	28.7 6446	21.8 4897	17.7 3978	16.8 3766	15.7 3522	14.8 3335	14.2 3184	13.6 3059	13.1 2953	12.7 2861	12.5 2806	12.2 2732	
			100000	37.3 8383	30.3 6809	24.6 5531	18.7 4201	15.2 3413	14.4 3231	13.4 3022	12.7 2861	12.2 2732	11.7 2624	11.3 2533	10.9 2454	10.7 2407	10.4 2343	
				50	100	200	500	1000	1200	1500	1800	2100	2400	2700	3000 <sup>(1)</sup>	3200 <sup>(1)</sup>	3500 <sup>(1)</sup>	

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

ENGINEERING • BEARING LOAD

## LOAD RATINGS – continued

TABLE C-8. TA/DV SERIES – ALLOWABLE RADIAL LOAD (kN/LBS.) AT VARIOUS RPM<sup>(1)</sup> – continued

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>												
				RPM												
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800	2100	2400	2700 <sup>(1)</sup>	3000 <sup>(1)</sup>	3200 <sup>(1)</sup>
65 2 7/16, 2 1/2	22215	222 49900	10000	80.0 17987	65.0 14610	52.8 11867	40.1 9015	32.6 7322	30.8 6933	28.8 6484	27.3 6139	26.1 5861	25.0 5631	24.2 5436	23.4 5266	23.0 5166
			30000	57.5 12937	46.7 10508	38.0 8535	28.8 6484	23.4 5266	22.2 4986	20.7 4663	19.6 4415	18.8 4216	18.0 4050	17.4 3909	16.8 3788	16.5 3715
			40000	52.8 11867	42.9 9639	34.8 7829	26.5 5948	21.5 4831	20.3 4574	19.0 4278	18.0 4050	17.2 3867	16.5 3715	16.0 3586	15.5 3475	15.2 3408
			60000	46.7 10508	38.0 8535	30.8 6933	23.4 5266	19.0 4278	18.0 4050	16.8 3788	16.0 3586	15.2 3424	14.6 3290	14.1 3175	13.7 3077	13.4 3018
			100000	40.1 9015	32.6 7322	26.5 5948	20.1 4518	16.3 3670	15.5 3475	14.5 3250	13.7 3077	13.1 2938	12.6 2822	12.1 2724	11.7 2639	11.5 2589
						50	100	200	500	1000	1200	1500	1800	2100	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>
70 2 11/16, 2 3/4	22216	254 57200	10000	91.7 20619	74.5 16748	60.5 13603	46.0 10334	37.3 8394	35.4 7947	33.1 7432	31.3 7037	29.9 6719	28.7 6455	27.7 6231	26.9 6037	
			30000	66.0 14829	53.6 12045	43.5 9784	33.1 7432	26.9 6037	25.4 5716	23.8 5346	22.5 5061	21.5 4832	20.7 4643	19.9 4481	19.3 4342	
			40000	60.5 13603	49.1 11049	39.9 8975	30.3 6818	24.6 5538	23.3 5243	21.8 4904	20.7 4643	19.7 4433	18.9 4259	18.3 4111	17.7 3983	
			60000	53.6 12045	43.5 9784	35.4 7947	26.9 6037	21.8 4904	20.7 4643	19.3 4342	18.3 4111	17.5 3925	16.8 3771	16.2 3640	15.7 3527	
			100000	46.0 10334	37.3 8394	30.3 6818	23.0 5179	18.7 4207	17.7 3983	16.6 3725	15.7 3527	15.0 3367	14.4 3235	13.9 3123	13.5 3026	
						50	100	200	500	1000	1200	1500	1800	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>
75 2 15/16, 3	22217	297 66900	10000	107.3 24115	87.1 19588	70.8 15910	53.8 12086	43.7 9817	41.3 9295	38.7 8693	36.6 8230	35.0 7858	33.6 7550	32.4 7287		
			30000	77.1 17344	62.7 14088	50.9 11443	38.7 8693	31.4 7061	29.7 6685	27.8 6252	26.3 5919	25.1 5652	24.2 5430	23.3 5241		
			40000	70.8 15910	57.5 12923	46.7 10497	35.5 7974	28.8 6477	27.3 6132	25.5 5735	24.2 5430	23.1 5184	22.2 4981	21.4 4808		
			60000	62.7 14088	50.9 11443	41.3 9295	31.4 7061	25.5 5735	24.2 5430	22.6 5078	21.4 4808	20.4 4591	19.6 4410	18.9 4257		
			100000	53.8 12086	43.7 9817	35.5 7974	26.9 6057	21.9 4920	20.7 4658	19.4 4357	18.3 4125	17.5 3938	16.8 3784	16.2 3652		
						50	100	200	500	1000	1200	1500	1800	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>
80 3 3/16, 3 1/4	22218	355 79700	10000	127.8 28729	103.8 23335	84.3 18954	64.0 14399	52.0 11695	49.3 11073	46.1 10356	43.6 9805	41.6 9362	40.0 8994	38.6 8682		
			30000	91.9 20663	74.7 16783	60.6 13632	46.1 10356	37.4 8412	35.4 7964	33.1 7448	31.4 7052	29.9 6733	28.8 6469	27.8 6244		
			40000	84.3 18954	68.5 15396	55.6 12505	42.3 9500	34.3 7716	32.5 7305	30.4 6832	28.8 6469	27.5 6176	26.4 5934	25.5 5728		
			60000	74.7 16783	60.6 13632	49.3 11073	37.4 8412	30.4 6832	28.8 6469	26.9 6050	25.5 5728	24.3 5469	23.4 5254	22.6 5072		
			100000	64.0 14399	52.0 11695	42.3 9500	32.1 7216	26.1 5862	24.7 5550	23.1 5190	21.9 4914	20.9 4692	20.1 4508	19.4 4351		
						50	100	200	500	1000	1200	1500	1800	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>
85 –	22219	385 86600	10000	138.9 31216	112.8 25356	91.6 20595	69.6 15645	56.5 12708	53.5 12032	50.1 11252	47.4 10654	45.2 10172	43.5 9773	42.0 9433		
			30000	99.9 22452	81.1 18236	65.9 14813	50.1 11252	40.7 9140	38.5 8653	36.0 8093	34.1 7662	32.5 7316	31.3 7029	30.2 6785		
			40000	91.6 20595	74.4 16729	60.4 13588	45.9 10322	37.3 8384	35.3 7938	33.0 7424	31.3 7029	29.9 6711	28.7 6448	27.7 6224		
			60000	81.1 18236	65.9 14813	53.5 12032	40.7 9140	33.0 7424	31.3 7029	29.2 6574	27.7 6224	26.4 5942	25.4 5709	24.5 5511		
			100000	69.6 15645	56.5 12708	45.9 10322	34.9 7841	28.3 6369	26.8 6030	25.1 5640	23.7 5339	22.7 5098	21.8 4898	21.0 4728		
						50	100	200	500	1000	1200	1500	1800	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

ENGINEERING • BEARING LOAD

Continued from previous page.

Shaft Diameter	Bearing No.	C	L <sub>10</sub> Life	Speed <sup>(2)</sup>											
				RPM											
mm in.		kN lbs.		50	100	200	500	1000	1200	1500	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>	2400 <sup>(1)</sup>	2700 <sup>(1)</sup>	
<b>90</b> 3 7/16, 3 1/2	22220	<b>435</b> 97700	10000	<b>156.7</b> 35218	<b>127.2</b> 28606	<b>103.4</b> 23235	<b>78.5</b> 17651	<b>63.8</b> 14337	<b>60.4</b> 13574	<b>56.5</b> 12695	<b>53.5</b> 12019	<b>51.0</b> 11476	<b>49.0</b> 11025	<b>47.3</b> 10642	
			30000	<b>112.7</b> 25329	<b>91.5</b> 20574	<b>74.3</b> 16711	<b>56.5</b> 12695	<b>45.9</b> 10311	<b>43.4</b> 9762	<b>40.6</b> 9130	<b>38.5</b> 8644	<b>36.7</b> 8254	<b>35.3</b> 7930	<b>34.0</b> 7654	
			40000	<b>103.4</b> 23235	<b>84.0</b> 18873	<b>68.2</b> 15329	<b>51.8</b> 11645	<b>42.1</b> 9459	<b>39.8</b> 8955	<b>37.3</b> 8375	<b>35.3</b> 7930	<b>33.7</b> 7930	<b>33.7</b> 7571	<b>32.4</b> 7274	<b>31.2</b> 7021
			60000	<b>91.5</b> 20574	<b>74.3</b> 16711	<b>60.4</b> 13574	<b>45.9</b> 10311	<b>37.3</b> 8375	<b>35.3</b> 7930	<b>33.0</b> 7416	<b>31.2</b> 7021	<b>29.8</b> 6704	<b>28.7</b> 6441	<b>27.7</b> 6217	
			100000	<b>78.5</b> 17651	<b>63.8</b> 14337	<b>51.8</b> 11645	<b>39.3</b> 8846	<b>32.0</b> 7185	<b>30.3</b> 6803	<b>28.3</b> 6362	<b>26.8</b> 6024	<b>25.6</b> 5752	<b>24.6</b> 5526	<b>23.7</b> 5334	
							50	100	200	500	1000	1200	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>
<b>100</b> 3 15/16, 4	22222	<b>555</b> 125000	10000	<b>200.4</b> 45058	<b>162.8</b> 36599	<b>132.2</b> 29727	<b>100.5</b> 22583	<b>81.6</b> 18343	<b>77.3</b> 17367	<b>72.2</b> 16242	<b>68.4</b> 15377	<b>65.3</b> 14683	<b>62.7</b> 14106		
			30000	<b>144.2</b> 32407	<b>117.1</b> 26323	<b>95.1</b> 21381	<b>72.2</b> 16242	<b>58.7</b> 13193	<b>55.6</b> 12490	<b>52.0</b> 11682	<b>49.2</b> 11060	<b>47.0</b> 10560	<b>45.1</b> 10145		
			40000	<b>132.2</b> 29727	<b>107.4</b> 24146	<b>87.2</b> 19613	<b>66.3</b> 14899	<b>53.8</b> 12102	<b>51.0</b> 11458	<b>47.7</b> 10716	<b>45.1</b> 10145	<b>43.1</b> 9687	<b>41.4</b> 9306		
			60000	<b>117.1</b> 26323	<b>95.1</b> 21381	<b>77.3</b> 17367	<b>58.7</b> 13193	<b>47.7</b> 10716	<b>45.1</b> 10145	<b>42.2</b> 9488	<b>40.0</b> 8983	<b>38.2</b> 8577	<b>36.7</b> 8241		
			100000	<b>100.5</b> 22583	<b>81.6</b> 18343	<b>66.3</b> 14899	<b>50.3</b> 11318	<b>40.9</b> 9193	<b>38.7</b> 8704	<b>36.2</b> 8140	<b>34.3</b> 7707	<b>32.7</b> 7359	<b>31.4</b> 7070		
							50	100	200	500	1000	1200	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>
<b>110</b> 4 3/16, 4 1/4	22224	<b>647</b> 145000	10000	<b>232.5</b> 52268	<b>188.8</b> 42455	<b>153.4</b> 34484	<b>116.5</b> 26196	<b>94.6</b> 21278	<b>89.6</b> 20145	<b>83.8</b> 18841	<b>79.3</b> 17838	<b>75.8</b> 17032	<b>72.8</b> 16363		
			30000	<b>167.2</b> 37592	<b>135.8</b> 30534	<b>110.3</b> 24802	<b>83.8</b> 18841	<b>68.1</b> 15303	<b>64.5</b> 14489	<b>60.3</b> 13551	<b>57.1</b> 12829	<b>54.5</b> 12250	<b>52.4</b> 11769		
			40000	<b>153.4</b> 34484	<b>124.6</b> 28010	<b>101.2</b> 22751	<b>76.9</b> 17283	<b>62.4</b> 14038	<b>59.1</b> 13291	<b>55.3</b> 12430	<b>52.4</b> 11769	<b>50.0</b> 11237	<b>48.0</b> 10796		
			60000	<b>135.8</b> 30534	<b>110.3</b> 24802	<b>89.6</b> 20145	<b>68.1</b> 15303	<b>55.3</b> 12430	<b>52.4</b> 11769	<b>49.0</b> 11007	<b>46.4</b> 10421	<b>44.3</b> 9950	<b>42.5</b> 9559		
			100000	<b>116.5</b> 26196	<b>94.6</b> 21278	<b>76.9</b> 17283	<b>58.4</b> 13129	<b>47.4</b> 10664	<b>44.9</b> 10097	<b>42.0</b> 9443	<b>39.8</b> 8940	<b>38.0</b> 8536	<b>36.5</b> 8201		
							50	100	200	500	1000	1200 <sup>(1)</sup>	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	2100 <sup>(1)</sup>
<b>115</b> 4 7/16, 4 1/2	22226	<b>757</b> 170000	10000	<b>272.6</b> 61279	<b>221.4</b> 49774	<b>179.8</b> 40429	<b>136.6</b> 30712	<b>111.0</b> 24946	<b>105.1</b> 23618	<b>98.3</b> 22089	<b>93.0</b> 20913	<b>88.8</b> 19968			
			30000	<b>196.1</b> 44074	<b>159.2</b> 35799	<b>129.3</b> 29078	<b>98.3</b> 22089	<b>79.8</b> 17942	<b>75.6</b> 16987	<b>70.7</b> 15887	<b>66.9</b> 15041	<b>63.9</b> 14362			
			40000	<b>179.8</b> 40429	<b>146.1</b> 32839	<b>118.6</b> 26673	<b>90.1</b> 20263	<b>73.2</b> 16458	<b>69.3</b> 15582	<b>64.8</b> 14573	<b>61.4</b> 13798	<b>58.6</b> 13174			
			60000	<b>159.2</b> 35799	<b>129.3</b> 29078	<b>105.1</b> 23618	<b>79.8</b> 17942	<b>64.8</b> 14573	<b>61.4</b> 13798	<b>57.4</b> 12904	<b>54.3</b> 12217	<b>51.9</b> 11665			
			100000	<b>136.6</b> 30712	<b>111.0</b> 24946	<b>90.1</b> 20263	<b>68.5</b> 15393	<b>55.6</b> 12503	<b>52.7</b> 11837	<b>49.2</b> 11071	<b>46.6</b> 10482	<b>44.5</b> 10008			
							50	100	200	500	1000 <sup>(1)</sup>	1200 <sup>(1)</sup>	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	
<b>125</b> 4 15/16, 5	22228	<b>863</b> 194000	10000	<b>311.1</b> 69931	<b>252.7</b> 56801	<b>205.2</b> 46137	<b>155.9</b> 35048	<b>126.6</b> 28468	<b>119.9</b> 26953	<b>112.1</b> 25208	<b>106.2</b> 23866				
			30000	<b>223.7</b> 50296	<b>181.7</b> 40853	<b>147.6</b> 33183	<b>112.1</b> 25208	<b>91.1</b> 20475	<b>86.2</b> 19385	<b>80.6</b> 18130	<b>76.4</b> 17165				
			40000	<b>205.2</b> 46137	<b>166.7</b> 37475	<b>135.4</b> 30439	<b>102.9</b> 23123	<b>83.5</b> 18782	<b>79.1</b> 17782	<b>74.0</b> 16631	<b>70.0</b> 15746				
			60000	<b>181.7</b> 40853	<b>147.6</b> 33183	<b>119.9</b> 26953	<b>91.1</b> 20475	<b>74.0</b> 16631	<b>70.0</b> 15746	<b>65.5</b> 14726	<b>62.0</b> 13942				
			100000	<b>155.9</b> 35048	<b>126.6</b> 28468	<b>102.9</b> 23123	<b>78.1</b> 17566	<b>63.5</b> 14268	<b>60.1</b> 13508	<b>56.2</b> 12634	<b>53.2</b> 11961				
							50	100	200	500	1000 <sup>(1)</sup>	1200 <sup>(1)</sup>	1500 <sup>(1)</sup>	1800 <sup>(1)</sup>	

<sup>(1)</sup>Speeds referenced here may be higher than speed rating for seals. Please refer to the charts on pages C-25 and C-26.

<sup>(2)</sup>For speeds greater than thermal reference speed, contact your Timken engineer.

### HOUSING LOADS

Because solid-block housed unit bearings are made of cast steel, they are built to last with high allowable load in multiple orientations.

Refer to tables below for allowable housing loads.

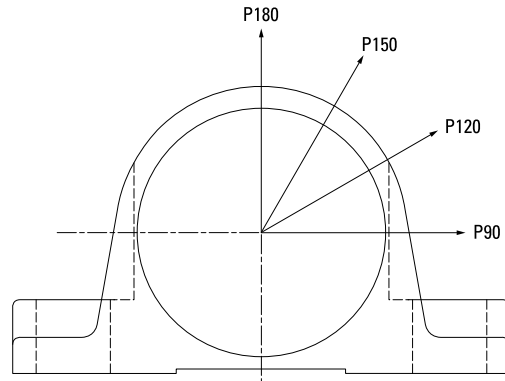


Fig. C-15. Allowable housing loads.

TABLE C-9. HOUSING CAPACITY CHART (222XX SERIES)

Bearing No.	Static Capacity	Fs Ratio 1:5	Timken Factor 180	Housing Capacity 180	Timken Factor 150	Housing Capacity 150	Timken Factor 120	Housing Capacity 120	Timken Factor 90	Housing Capacity 90
	kN lbs.			kN lbs.		kN lbs.		kN lbs.		kN lbs.
22208	99.7 22400	0.20	1	20 4480	0.86	17 3850	1	20 4480	1.73	34 7750
22209	108 24200	0.20	1	22 4840	0.86	18 4160	1	22 4840	1.73	37 8370
22210	118 26600	0.20	1	24 5320	0.86	20 4570	1	24 5320	1.73	41 9200
22211	142 31900	0.20	1	28 6380	0.86	24 5490	1	28 6380	1.73	49 11040
22212	174 39000	0.20	1	35 7800	0.86	30 6710	1	35 7800	1.73	60 13490
22213	216 48600	0.20	1	43 9720	0.86	37 8360	1	43 9720	1.73	75 16820
22214	231 52000	0.20	1	46 10400	0.86	40 8940	1	46 10400	1.73	800 17990
22215	240 54100	0.20	1	48 10820	0.86	41 9310	1	48 10820	1.73	83 18720
22216	278 62500	0.20	1	56 12500	0.86	48 10750	1	56 12500	1.73	96 21630
22217	320 71900	0.20	1	64 14380	0.86	55 12370	1	64 14380	1.73	111 24880
22218	388 87200	0.20	1	78 17440	0.86	67 15000	1	78 17440	1.73	134 30170
22219	441 99000	0.20	1	88 19800	0.86	76 17030	1	88 19800	1.73	152 34250
22220	502 113000	0.20	1	100 22600	0.86	86 19440	1	100 22600	1.73	174 39100
22222	653 147000	0.20	1	131 29400	0.86	112 25290	1	131 29400	1.73	226 50860
22224	772 174000	0.20	1	155 34800	0.86	133 29930	1	155 34800	1.73	268 60200
22226	945 212000	0.20	1	188 42400	0.86	162 36460	1	188 42400	1.73	326 73350
22228	1060 237000	0.20	1	211 47400	0.86	181 40760	1	211 47400	1.73	364 82000

TABLE C-10. HOUSING CAPACITY CHART (232XX SERIES)

Bearing	Static Capacity	Fs Ratio 1:5	Timken Factor 180	Housing Capacity 180	Timken Factor 150	Housing Capacity 150	Timken Factor 120	Housing Capacity 120	Timken Factor 90	Housing Capacity 90
	kN lbs.			kN lbs.		kN lbs.		kN lbs.		kN lbs.
23230	1660 372000	0.17	1	281 63240	0.86	242 54390	1	281 63240	1.73	486 109400
23234	2200 494000	0.17	1	373 83980	0.86	321 72220	1	373 83980	1.73	646 145290

## NORMAL SPEED RATINGS FOR SEALS

TABLE C-11. V-LOCK SERIES NORMAL SEAL SPEED RATINGS (RPM)

Shaft Dia.	Bearing No.	Oil Lubrication			Grease Lubrication		
		M/N Seal <sup>(1)</sup>	T Seal	B/C/O Seal <sup>(1)</sup>	M/N Seal <sup>(1)</sup>	T Seal	B/C/O Seal <sup>(1)</sup>
<b>mm</b> <b>in.</b>							
<b>50</b> 1 15/16, 2	22211	2200	3800	1800	2200	3200	1600
<b>55</b> 2 3/16, 2 1/4	22212 22213	2000 1800	3500 3200	1650 1500	2000 1800	3000 2800	1550 1500
<b>60, 65</b> 2 7/16, 2 1/2	22214 22215	1700 1600	3050 2900	1400 1300	1700 1600	2600 2400	1400 1300
<b>70, 75</b> 2 11/16, 2 3/4 2 15/16, 3	22216 22217	1500 1400	2650 2400	1200 1100	1500 1400	2200 2000	1150 1100
<b>80, 85, 90</b> 3 3/16, 3 1/4 3 7/16, 3 1/2	22219 22220	1300 1200	2200 2000	1000 900	1300 1200	1800 1600	950 900
<b>100</b> 3 11/16, 3 3/4 3 15/16, 4	22222	900	1700	600	900	1200	600
<b>110, 115</b> 4 7/16, 4 1/2	22224 22226	700	1500	400	700	1000	400
<b>125, 130</b> 4 15/16, 5	22228	650	1200	350	650	900	350

<sup>(1)</sup>Bearings with contact seals will have higher operating temperatures than bearings with labyrinth seals.

TABLE C-12. CL SERIES NORMAL SEAL SPEED RATINGS (RPM)

Shaft Dia.	Bearing No.	Oil Lubrication			Grease Lubrication		
		M/N Seal <sup>(1)</sup>	T Seal	B/C/O Seal <sup>(1)</sup>	M/N Seal <sup>(1)</sup>	T Seal	B/C/O Seal <sup>(1)</sup>
<b>mm</b> <b>in.</b>							
<b>35</b> 1 7/16, 1 1/2	22208	2700	4500	1950	2700	4000	1950
<b>40, 45</b> 1 11/16, 1 3/4	22209	2700	4500	1950	2700	4000	1950
<b>50</b> 1 15/16, 2	22210	2400	4200	1800	2400	3550	1800
<b>55</b> 2 3/16, 2 1/4	22211	2200	3800	1600	2200	3200	1600
<b>60, 65</b> 2 7/16, 2 1/2	22213	1800	3200	1500	1800	2800	1500
<b>70, 75</b> 2 11/16, 2 3/4 2 15/16, 3	22215	1600	2900	1300	1600	2400	1300
<b>80, 85, 90</b> 3 3/16, 3 1/4 3 7/16, 3 1/2	22218	1400	2400	1000	1400	2000	1000
<b>100</b> 3 15/16, 4	22220	1200	2000	900	1200	1600	900
<b>110, 115</b> 4 7/16, 4 1/2	22222	900	1700	600	900	1200	600
<b>125, 130</b> 4 15/16, 5	22226	700	1500	400	700	1000	400

<sup>(1)</sup>Bearings with contact seals will have higher operating temperatures than bearings with labyrinth seals.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## ENGINEERING • NORMAL SPEED RATINGS FOR SEALS

**TABLE C-13. EC SERIES NORMAL SEAL SPEED RATINGS (RPM)**

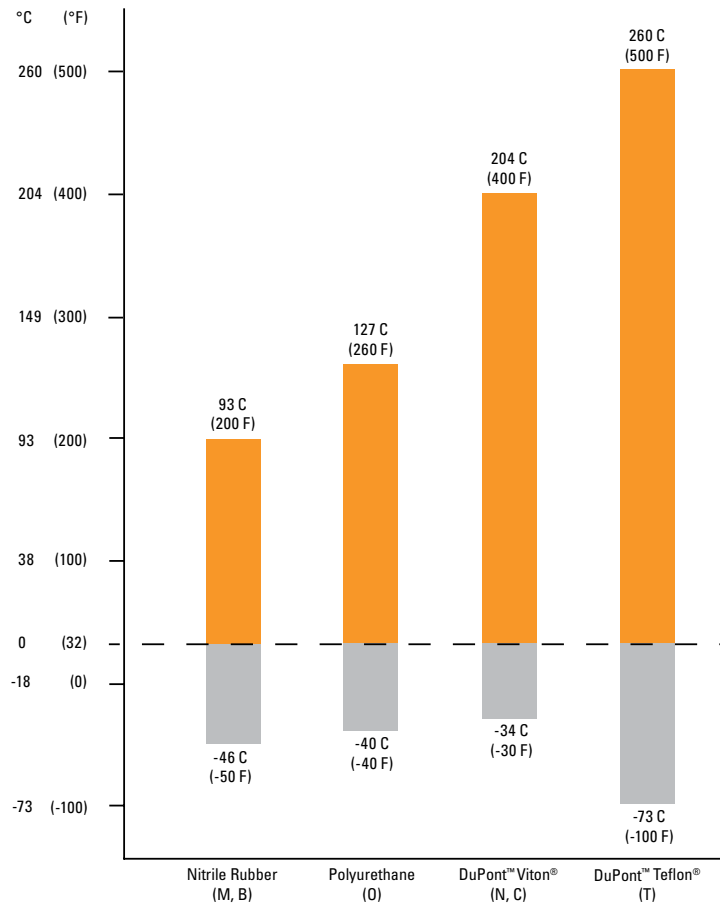
Shaft Dia. mm in.	Bearing No.	Oil Lubrication			Grease Lubrication		
		M/N Seal <sup>(1)</sup>	T Seal	B/C/O Seal <sup>(1)</sup>	M/N Seal <sup>(1)</sup>	T Seal	B/C/O Seal <sup>(1)</sup>
<b>35</b> 1 7/16, 1 1/2	22208	2700	4500	1950	2700	4000	1950
<b>40, 45</b> 1 11/16, 1 3/4	22209	2700	4500	1950	2700	4000	1950
<b>50</b> 1 15/16, 2	22210	2400	4200	1800	2400	3550	1800
<b>55</b> 2 3/16, 2 1/4	22211	2200	3800	1600	2200	3200	1600
<b>60, 65</b> 2 7/16, 2 1/2	22213	1800	3200	1500	1800	2800	1500
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22215	1600	2900	1300	1600	2400	1300
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22218	1400	2400	1000	1400	2000	1000
<b>100</b> 3 11/16, 3 3/4, 3 15/16, 4	22220	1200	2000	900	1200	1600	900
<b>110, 115</b> 4 7/16, 4 1/2	22222	900	1700	600	900	1200	600
<b>125, 130</b> 4 15/16, 5	22226	700	1500	400	700	1000	400
<b>140, 150</b> 5 7/16, 5 1/2, 5 15/16, 6	23230	650	950	350	600	800	350
<b>170, 180</b> 6 7/16, 6 1/2, 6 15/16, 7	23234	600	900	350	600	800	350

<sup>(1)</sup>Bearings with contact seals will have higher operating temperatures than bearings with labyrinth seals.

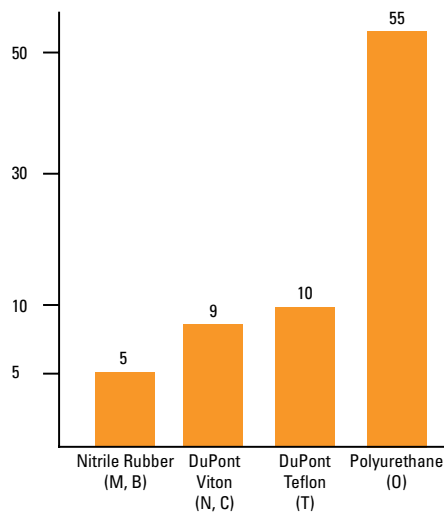
**TABLE C-14. TA/DV SERIES NORMAL SEAL SPEED RATINGS (RPM)**

Shaft Dia. mm in.	Bearing No.	Oil Lubrication			Grease Lubrication		
		M/N Seal <sup>(1)</sup>	T Seal	B/C/O Seal <sup>(1)</sup>	M/N Seal <sup>(1)</sup>	T Seal	B/C/O Seal <sup>(1)</sup>
<b>40</b> 1 7/16, 1 1/2	22209	2700	4500	1950	2700	4000	1950
<b>45</b> 1 11/16, 1 3/4	22210	2400	4200	1800	2400	3550	1800
<b>50</b> 1 15/16, 2	22211	2200	3800	1800	2200	3200	1600
<b>55</b> —	22212	2000	3500	1650	2000	3000	1550
<b>60</b> 2 3/16, 2 1/4	22213	1800	3200	1500	1800	2800	1500
<b>65</b> 2 7/16, 2 1/2	22215	1600	2900	1300	1600	2400	1300
<b>70</b> 2 11/16, 2 3/4	22216	1500	2650	1200	1500	2200	1150
<b>75</b> 2 15/16, 3	22217	1400	2400	1100	1400	2000	1100
<b>80</b> 3 3/16, 3 1/4	22218	1400	2400	1000	1400	2000	1000
<b>85</b> —	22219	1300	2200	1000	1300	1800	950
<b>90</b> 3 7/16, 3 1/2	22220	1200	2000	900	1200	1600	900
<b>100</b> 3 15/16, 4	22222	900	1700	600	900	1200	600
<b>110</b> 4 3/16, 4 1/4	22224	800	1600	500	800	1100	500
<b>115</b> 4 7/16, 4 1/2	22226	700	1500	400	700	1000	400
<b>125</b> 4 15/16, 5	22228	650	1200	350	650	900	350

<sup>(1)</sup>Bearings with contact seals will have higher operating temperatures than bearings with labyrinth seals.



**Fig. C-16. Seal temperature ratings based on analytics.**



**Fig. C-17. Relative abrasion resistance ratings.**

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### SEAL MATERIAL CHEMICAL COMPATIBILITY

A - Little to no effect B - Minor to moderate effect C - Severe effect to destruction N - No data – test prior to use.	Urethane	Nitrile rubber	DuPont™ Viton®	DuPont™ Teflon®
Acetaldehyde	C	C	C	A
Acetamide	N	A	B	A
Acetic Acid	C	B	B	A
Acetic Anhydride	C	C	C	A
Acetone	C	C	C	A
Acetyl Bromide	C	N	N	N
Acetyl Chloride	C	C	A	A
Acetylene	C	A	A	A
Adipic Acid	A	A	N	A
Aero Shell Grease	B	A-B	A	A
Aero Lubriplate	A	A	A	A
Aero Safe 2300	N	C	C	A
Aerzine 50	N	C	C	A
Aluminum Acetate	N	A	C	A
Aluminum Bromide	N	A	A	A
Aluminum Chloride	B	A	A	A
Aluminum Sulfate	B	A	A	A
Ammonia	B	B	C	A
Ammonium Carbonate	B	C	N	A
Ammonium Chloride	N	A	A	A
Ammonium Hydroxide	B	C	A	A
Ammonium Nitrate	B	A	N	A
Ammonium Persulfate	B	C	N	A
Ammonium Sulfate	B	A	C	A
Ammonium Sulfide	B	A	C	A
Ammonium Thiocyanate	B	N	N	A
Ammonium Acetate	C	N	N	A
Amyl Acetate	C	C	C	A
Amyl Alcohol	C	B	C	A
Aniline	C	C	C	A
Aniline Hydrochloride	C	B	B	B
Animal Fats and Oils	B	A	A	A
Antimony Salts	B	N	N	A
Aqua Regia	C	C	B	A
Arsenic Salts	B	N	N	A
ASTM Oil #1	A	A	A	A
ASTM Oil #2	B	A	A	A
ASTM Oil #3	B	A	A	A
ASTM Reference Fuel A	A	A	A	A
ASTM Reference Fuel B	B	B	A	A
Atlantic Oil	A	A	A	A
Barium Carbonate	B	A	A	A
Barium Hydroxide	A	A	A	A
Beer	A	A	A	A
Benzaldehyde	B	C	C	A
Benzene	C	C	B	A
Benzoic Acid	B	C	A	A
Black Sulphate Liquors	N	B	A	A

A - Little to no effect B - Minor to moderate effect C - Severe effect to destruction N - No data – test prior to use.	Urethane	Nitrile rubber	DuPont™ Viton®	DuPont™ Teflon®
Bleach Solutions	N	C	A	B
Boric Acid	A	A	A	A
Brake Fluid	N	C	C	N
Bromine	B	C	A	C
Bunker Oil	A	A	A	A
Butane	A	A	A	A
Butyl Acetate	C	C	C	A
Butyl Alcohol	B	A	A	A
Calcium Carbonate	B	A	A	A
Calcium Chloride	A	A	A	A
Calcium Hydroxide	A	A	A	A
Calcium Nitrate	B	A	A	A
Calcium Sulfate	B	B	B	A
Carbon Dioxide	A	A	A	A
Carbon Disulfide	B	C	A	A
Carbon Monoxide	A	A	A	A
Carbon Tetrachloride	C	C	A	A
Chlorine	N	C	A	B
Chloroacetic Acid	C	C	C	N
Chloroform	C	N	N	B
Chromic Acid	C	C	A	B
Chromium Potassium Sulfate	A	N	N	N
Citric Acid	B	A	A	A
Corn Oil	A	A	A	A
Cottonseed Oil	A	A	A	A
Cresol	C	C	A	A
Crude Oil	B	B	A	A
Cupric Chloride	A	B	B	A
Cupric Nitrate	B	N	N	A
Cupric Sulfate	B	B	B	A
Cutting Oil	B	A	A	A
Cyclohexane	B	A	A	A
Cyclohexanone	C	C	A	A
Dibutyl Phthalate	C	C	C	B
Dichlorobenzene	C	N	N	B
Diesel Fuel	B	A	A	A
Diester Oil	B	B	A	A
Dimethyl Acetamide	C	N	N	A
Dimethyl Formamide	C	B	C	A
Dodecyl Mercaptan	B	N	N	N
DTE Oil	B	A	N	N
Dubutyl Ether	B	C	C	N
EP Lubes	A	A	A	A
Esso #90 Lube Oil	A	A	A	A
Ether	B	N	N	A
Ethyl Acetate	C	C	C	A
Ethyl Alcohol (Ethanol)	C	A	C	A
Formic Acid	C	B	C	A

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*Continued on next page.*



# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## ENGINEERING • SEAL MATERIAL CHEMICAL COMPATIBILITY

Continued from *previous page*.

A - Little to no effect B - Minor to moderate effect C - Severe effect to destruction N - No data – test prior to use.	Urethane	Nitrile rubber	DuPont™ Viton®	DuPont™ Teflon®
Freon, 12 or 113	A	A	B	A
Fuel Oil	B	A	A	A
Gasoline	B	B	A	A
Glucose	A	A	A	A
Glue	N	A	A	A
Glycerin	A	A	A	A
Heptane	A	N	N	A
Hexane	A	A	A	A
Hydrazine	C	B	C	B
Hydrobromic Acid	B	C	A	A
Hydrocarbon Oil	A	A	A	A
Hydrochloric Acid	B	C	B	A
Hydrofluoric Acid	B	C	C	A
Hydrogen	A	A	A	A
Hydrogen Peroxide	B	C	A	B
Hydrogen Sulfide	C	C	C	A
Hydrologic Acid	B	N	N	N
Iodine	A	B	A	A
Isobutyl Alcohol	N	B	A	A
Isopropyl Chloride	N	C	A	A
Isopropyl Ether	B	B	C	N
Isopropyl Alcohol (Propanol)	B	A	A	N
JP4 Oil	B	A	A	A
JP5 and 6 Oil	C	A	A	A
Kerosene	B	A	A	A
Lactic Acid	B	B	A	A
Lead Acetate	B	B	C	A
Linseed Oil	B	A	A	A
Liquefied Petroleum Gas	A	A	A	N
Lubrication Oil	B	A	A	A
Lye	N	B	B	A
Magnesium Chloride	N	A	A	A
Magnesium Hydroxide	A	B	A	A
Magnesium Salts	B	A	A	A
Maleic Acid	C	C	A	A
Mercury	B	A	A	A
Methyl Alcohol (Methanol)	A	C	A	N
Methyl Ethyl Ketone	C	C	C	A
Methylene Chloride	C	C	B	A
MIL-D-5606 Oil	C	A	A	A
MIL-L7808 Oil	B	B	A	A
Mineral Oil	A	A	A	A
Mineral Spirits	N	B	A	A
Naphthalene	B	C	A	A
Natural Gas	B	A	A	A
Nickel Salts	C	A	A	A
Oxygen	A	B	A	A
Ozone	A	C	A	A

A - Little to no effect B - Minor to moderate effect C - Severe effect to destruction N - No data – test prior to use.	Urethane	Nitrile rubber	DuPont™ Viton®	DuPont™ Teflon®
Palmitic Acid	A	A	A	A
Paint Thinner	B	C	B	A
Peanut Oil	A	A	A	A
Perchloric Acid	C	C	A	A
Perchloroethylene	C	B	A	A
Petroleum	B	A	A	A
Phenol (Carbolic Acid)	C	C	A	A
Phosphoric Acid	C	C	A	A
Potassium Cyanide	A	A	A	A
Potassium Salts	B	A	A	A
Propane	B	A	A	A
Propyl Alcohol	B	A	A	A
Propylene Glycol	B	N	N	A
Pydraul Oil	C	C	A	A
SAE #10 Oil	A	A	A	A
Seawater	A	A	A	A
Silicic Acid	B	N	N	A
Silver Nitrate	B	B	A	A
Skydrol Oil	C	C	C	A
Soap	B	A	A	A
Sodium Acetate	A	B	C	A
Sodium Bicarbonate	B	A	A	A
Sodium Borate	B	A	A	A
Sodium Carbonate	B	A	A	A
Sodium Chloride	B	A	A	A
Sodium Cyanide	B	A	A	A
Sodium Hydrosulfite	B	N	N	A
Sodium Hydroxide	B	B	B	A
Sodium Hypochlorite	C	B	A	A
Sodium Nitrate	B	B	N	A
Sodium Silicate	A	A	A	A
Sodium Sulfate	B	A	A	A
Sodium Sulfide	B	A	A	A
Steam	C	C	C	A
Styrene	B	C	B	A
Sulfur Dioxide	B	C	A	A
Sulfuric Acid	C	C	A	A
Tannic Acid	A	A	A	A
Tartaric Acid	A	A	A	A
Toluene	C	N	N	A
Transformer Oil	B	N	N	A
Turpentine	C	A	A	A
Urea	B	N	N	A
Varnish	B	B	A	A
Water	B	A	A	A

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### INTERNAL RADIAL CLEARANCES

**TABLE C-15. V-LOCK SERIES (TAPERED BORE, C3)**

Shaft Dia.	Bearing No.	Clearance	
		Min.	Max.
mm in.		mm in.	mm in.
<b>50</b> 1 15/16, 2	22211	<b>0.075</b> 0.003	<b>0.095</b> 0.0037
<b>55</b> 2 3/16, 2 1/4	22212	<b>0.075</b> 0.003	<b>0.095</b> 0.0037
<b>55</b> 2 3/16, 2 1/4	22213	<b>0.075</b> 0.003	<b>0.095</b> 0.0037
<b>60, 65</b> 2 7/16, 2 1/2	22214	<b>0.075</b> 0.003	<b>0.095</b> 0.0037
<b>60, 65</b> 2 7/16, 2 1/2	22215	<b>0.075</b> 0.003	<b>0.095</b> 0.0037
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22216	<b>0.095</b> 0.0037	<b>0.120</b> 0.0047
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22217	<b>0.095</b> 0.0037	<b>0.120</b> 0.0047
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22219	<b>0.110</b> 0.0043	<b>0.140</b> 0.0055
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22220	<b>0.110</b> 0.0043	<b>0.140</b> 0.0055
<b>100</b> 3 11/16, 3 3/4, 3 15/16, 4	22222	<b>0.135</b> 0.0053	<b>0.170</b> 0.0067
<b>110</b> —	22224	<b>0.135</b> 0.0053	<b>0.170</b> 0.0067
<b>110, 115</b> 4 7/16, 4 1/2	22226	<b>0.135</b> 0.0053	<b>0.170</b> 0.0067
<b>125, 130</b> 4 15/16, 5	22228	<b>0.160</b> 0.0063	<b>0.200</b> 0.0079

**TABLE C-16. CL SERIES (STRAIGHT BORE, C NORMAL)**

Shaft Dia.	Bearing No.	Clearance	
		Min.	Max.
mm in.		mm in.	mm in.
<b>35</b> 1 7/16, 1 1/2	22208	<b>0.030</b> 0.0012	<b>0.045</b> 0.0018
<b>40, 45</b> 1 11/16, 1 3/4	22209	<b>0.035</b> 0.0014	<b>0.055</b> 0.0022
<b>50</b> 1 15/16, 2	22210	<b>0.040</b> 0.0016	<b>0.065</b> 0.0026
<b>55</b> 2 3/16, 2 1/4	22211	<b>0.040</b> 0.0016	<b>0.065</b> 0.0026
<b>60, 65</b> 2 7/16, 2 1/2	22213	<b>0.040</b> 0.0016	<b>0.065</b> 0.0026
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	22215	<b>0.050</b> 0.002	<b>0.080</b> 0.0031
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	22218	<b>0.060</b> 0.0024	<b>0.100</b> 0.0039
<b>100</b> 3 15/16, 4	22220	<b>0.075</b> 0.003	<b>0.120</b> 0.0047
<b>110, 115</b> 4 7/16, 4 1/2	22222	<b>0.075</b> 0.003	<b>0.120</b> 0.0047
<b>125, 130</b> 4 15/16, 5	22226	<b>0.095</b> 0.0037	<b>0.145</b> 0.0057

TABLE C-17. EC SERIES (STRAIGHT BORE, C NORMAL)

Shaft Dia.	Bearing No.	Clearance		Shaft Dia.	Bearing No.	Clearance	
		Min.	Max.			Min.	Max.
mm in.		mm in.	mm in.	mm in.		mm in.	mm in.
<b>35</b> 1 7/16, 1 1/2	22208	<b>0.030</b> 0.0012	<b>0.045</b> 0.0018	<b>80, 85, 90</b> 3 3/16, 3 1/4 3 7/16, 3 1/2	22218	<b>0.060</b> 0.0024	<b>0.100</b> 0.0039
<b>40, 45</b> 1 11/16, 1 3/4	22209	<b>0.0350</b> 0.0014	<b>0.055</b> 0.0022	<b>100</b> 3 11/16, 3 3/4 3 15/16, 4	22220	<b>0.075</b> 0.003	<b>0.120</b> 0.0047
<b>50</b> 1 15/16, 2	22210	<b>0.040</b> 0.0016	<b>0.065</b> 0.0026	<b>110, 115</b> 4 7/16, 4 1/2	22222	<b>0.075</b> 0.003	<b>0.120</b> 0.0047
<b>55</b> 2 3/16, 2 1/4	22211	<b>0.040</b> 0.0016	<b>0.065</b> 0.0026	<b>125, 130</b> 4 15/16, 5	22226	<b>0.095</b> 0.0037	<b>0.145</b> 0.0057
<b>60, 65</b> 2 7/16, 2 1/2	22213	<b>0.040</b> 0.0016	<b>0.065</b> 0.0026	<b>140, 150</b> 5 7/16, 5 1/2 5 15/16, 6	23230	<b>0.110</b> 0.0043	<b>0.170</b> 0.0067
<b>70, 75</b> 2 11/16, 2 3/4 2 15/16, 3	22215	<b>0.050</b> 0.002	<b>0.080</b> 0.0031	<b>170, 180</b> 6 7/16, 6 1/2, 6 15/16, 7	23234	<b>0.120</b> 0.0047	<b>0.180</b> 0.0071

TABLE C-18. TA/DV SERIES (TAPERED BORE, C3)

Shaft Dia.	Bearing No.	Clearance Prior To Installation		Recommended Reduction Of Internal Radial Clearance		Recommended Axial Movement Of Adapter Sleeve		Minimum Internal
		Min.	Max.	Min.	Max.	Min.	Max.	
mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
<b>40</b> 1 7/16, 1 1/2	22209	<b>0.061</b> 0.0024	<b>0.079</b> 0.0031	<b>0.025</b> 0.0010	<b>0.030</b> 0.0012	<b>0.381</b> 0.015	<b>0.457</b> 0.018	<b>0.030</b> 0.0012
<b>45</b> 1 11/16, 1 3/4	22210	<b>0.061</b> 0.0024	<b>0.079</b> 0.0031	<b>0.025</b> 0.0010	<b>0.030</b> 0.0012	<b>0.381</b> 0.015	<b>0.457</b> 0.018	<b>0.030</b> 0.0012
<b>50</b> 1 15/16, 2	22211	<b>0.076</b> 0.0030	<b>0.094</b> 0.0037	<b>0.030</b> 0.0012	<b>0.038</b> 0.0015	<b>0.457</b> 0.018	<b>0.559</b> 0.022	<b>0.038</b> 0.0015
<b>55</b> —	22212	<b>0.076</b> 0.0030	<b>0.094</b> 0.0037	<b>0.030</b> 0.0012	<b>0.038</b> 0.0015	<b>0.457</b> 0.018	<b>0.559</b> 0.022	<b>0.038</b> 0.0015
<b>60</b> 2 3/16, 2 1/4	22213	<b>0.076</b> 0.0030	<b>0.094</b> 0.0037	<b>0.030</b> 0.0012	<b>0.038</b> 0.0015	<b>0.457</b> 0.018	<b>0.559</b> 0.022	<b>0.038</b> 0.0015
<b>65</b> 2 7/16, 2 1/2	22215	<b>0.094</b> 0.0037	<b>0.119</b> 0.0047	<b>0.038</b> 0.0015	<b>0.051</b> 0.0020	<b>0.559</b> 0.022	<b>0.762</b> 0.030	<b>0.043</b> 0.0017
<b>70</b> 2 11/16, 2 3/4	22216	<b>0.094</b> 0.0037	<b>0.119</b> 0.0047	<b>0.038</b> 0.0015	<b>0.051</b> 0.0020	<b>0.559</b> 0.022	<b>0.762</b> 0.030	<b>0.043</b> 0.0017
<b>75</b> 2 15/16, 3	22217	<b>0.109</b> 0.0043	<b>0.140</b> 0.0055	<b>0.046</b> 0.0018	<b>0.064</b> 0.0025	<b>0.686</b> 0.027	<b>0.965</b> 0.038	<b>0.051</b> 0.0020
<b>80</b> 3 3/16, 3 1/4	22218	<b>0.109</b> 0.0043	<b>0.140</b> 0.0055	<b>0.046</b> 0.0018	<b>0.064</b> 0.0025	<b>0.686</b> 0.027	<b>0.965</b> 0.038	<b>0.051</b> 0.0020
<b>85</b> —	22219	<b>0.109</b> 0.0043	<b>0.140</b> 0.0055	<b>0.046</b> 0.0018	<b>0.064</b> 0.0025	<b>0.686</b> 0.027	<b>0.965</b> 0.038	<b>0.051</b> 0.0020
<b>90</b> 3 7/16, 3 1/2	22220	<b>0.109</b> 0.0043	<b>0.140</b> 0.0055	<b>0.046</b> 0.0018	<b>0.064</b> 0.0025	<b>0.686</b> 0.027	<b>0.965</b> 0.038	<b>0.051</b> 0.0020
<b>100</b> 3 15/16, 4	22222	<b>0.135</b> 0.0053	<b>0.170</b> 0.0067	<b>0.051</b> 0.0020	<b>0.071</b> 0.0028	<b>0.762</b> 0.030	<b>1.067</b> 0.042	<b>0.064</b> 0.0025
<b>110</b> 4 3/16, 4 1/4	22224	<b>0.135</b> 0.0053	<b>0.170</b> 0.0067	<b>0.051</b> 0.0020	<b>0.071</b> 0.0028	<b>0.762</b> 0.030	<b>1.067</b> 0.042	<b>0.064</b> 0.0025
<b>115</b> 4 7/16, 4 1/2	22226	<b>0.160</b> 0.0063	<b>0.201</b> 0.0079	<b>0.064</b> 0.0025	<b>0.089</b> 0.0035	<b>0.889</b> 0.035	<b>1.270</b> 0.050	<b>0.076</b> 0.0030
<b>125</b> 4 15/16, 5	22228	<b>0.160</b> 0.0063	<b>0.201</b> 0.0079	<b>0.064</b> 0.0025	<b>0.089</b> 0.0035	<b>0.889</b> 0.035	<b>1.270</b> 0.050	<b>0.076</b> 0.0030

### SHAFTING

When installing and using housed unit bearings, all shafting should be straight, clean, free from burrs and within the recommended shaft tolerances in tables C-19 and C-20 below. For applications that involve high speed or extreme vibration conditions, we recommend that all shafting be machined to one-half the recommended tolerances below.

### SHAFT EXPANSION

Steel expands or contracts 0.0000113 millimeter per millimeter for each degree Celsius (0.0000063 inch per inch for each degree Fahrenheit) relative temperature increase or decrease respectively. Expansion bearings are used to accommodate thermal expansion of steel. Where the shafting and the framework on which the bearings and shafting are mounted are made from steel, the relative difference in expansion between the shaft and the

framework will be minimal. In these conditions, fixed bearings can be used on both ends of the shaft. However, if there is a difference in material between the shaft and the framework, or if the application involves different temperatures from the shaft to the frame, then only one fixed bearing should be used on each shaft. All other bearings on the same shaft should be converted to floating to accommodate thermal expansion of the shaft.

**TABLE C-19. V-LOCK, CL AND EC SERIES – RECOMMENDED SHAFT TOLERANCES**

Shaft Dia.	Shaft Tolerance
mm in.	mm in.
<b>35</b> 1 7/16, 1 1/2	<b>+0.00/-0.025</b> +0.00/-0.0010
<b>40, 45</b> 1 11/16, 1 3/4	<b>+0.00/-0.038</b> + 0.00/-0.0015
<b>50</b> 1 15/16, 2	<b>+0.00/-0.038</b> + 0.00/-0.0015
<b>55</b> 2 3/16, 2 1/4	<b>+0.00/-0.038</b> + 0.00/-0.0015
<b>60, 65</b> 2 7/16, 2 1/2	<b>+0.00/-0.038</b> + 0.00/-0.0015
<b>70, 75</b> 2 11/16, 2 3/4, 2 15/16, 3	<b>+0.00/-0.051</b> + 0.00/-0.0020
<b>80, 85, 90</b> 3 3/16, 3 1/4, 3 7/16, 3 1/2	<b>+0.00/-0.076</b> + 0.00/-0.0030
<b>100</b> 3 11/16, 3 3/4, 3 15/16, 4	<b>+0.00/-0.076</b> + 0.00/-0.0030
<b>110, 115</b> 4 7/16, 4 1/2	<b>+0.00/-0.127</b> + 0.00/-0.0050
<b>125, 130</b> 4 15/16, 5	<b>+0.00/-0.127</b> + 0.00/-0.0050
<b>140, 150</b> 5 7/16, 5 1/2, 5 15/16, 6	<b>+0.00/-0.127</b> + 0.00/-0.0050
<b>170, 180</b> 6 7/16, 6 1/2, 6 15/16, 7	<b>+0.00/-0.127</b> + 0.00/-0.0050

**TABLE C-20. TA/DV SERIES – RECOMMENDED SHAFT TOLERANCES**

Shaft Dia.	Shaft Tolerance
mm in.	mm in.
<b>40</b> 1 7/16, 1 1/2	<b>+0.00/-0.025</b> +0.00/-0.0010
<b>45</b> 1 11/16, 1 3/4	<b>+0.00/-0.051</b> +0.00/-0.0020
<b>50</b> 1 15/16, 2	<b>+0.00/-0.076</b> + 0.00/-0.0030
<b>55</b> –	<b>+0.00/-0.076</b> –
<b>60</b> 2 3/16, 2 1/4	<b>+0.00/-0.076</b> + 0.00/-0.0030
<b>65</b> 2 7/16, 2 1/2	<b>+0.00/-0.089</b> + 0.00/-0.0035
<b>70</b> 2 11/16, 2 3/4	<b>+0.00/-0.102</b> + 0.00/-0.0040
<b>75</b> 2 15/16, 3	<b>+0.00/-0.102</b> + 0.00/-0.0040
<b>80</b> 3 3/16, 3 1/4	<b>+0.00/-0.102</b> + 0.00/-0.0040
<b>85</b> –	<b>+0.00/-0.102</b> –
<b>90</b> 3 7/16, 3 1/2	<b>+0.00/-0.102</b> + 0.00/-0.0040
<b>100</b> 3 15/16, 4	<b>+0.00/-0.102</b> + 0.00/-0.0040
<b>110</b> 4 3/16, 4 1/4	<b>+0.00/-0.102</b> + 0.00/-0.0040
<b>115</b> 4 7/16, 4 1/2	<b>+0.00/-0.102</b> + 0.00/-0.0040
<b>125</b> 4 15/16, 5	<b>+0.00/-0.127</b> + 0.00/-0.0050

**TABLE C-21. AMOUNT OF FLOAT PER ONE ROTATION OF EXTERNAL HOUSING NUT**

Bearing Number	Float	Bearing Number	Float	Bearing Number	Float
	mm in.		mm in.		mm in.
22208	1.270 0.050	22215	2.108 0.083	22224	2.108 0.083
22209	1.270 0.050	22216	2.108 0.083	22226	2.108 0.083
22210	1.270 0.050	22217	2.108 0.083	22228	2.108 0.083
22211	1.270 0.050	22218	2.108 0.083	23230	2.108 0.083
22212	1.270 0.050	22219	2.108 0.083	23234	2.108 0.083
22213	2.108 0.083	22220	2.108 0.083	–	–
22214	2.108 0.083	22222	2.108 0.083	–	–

## CONVERSION FROM FIXED TO FLOATING

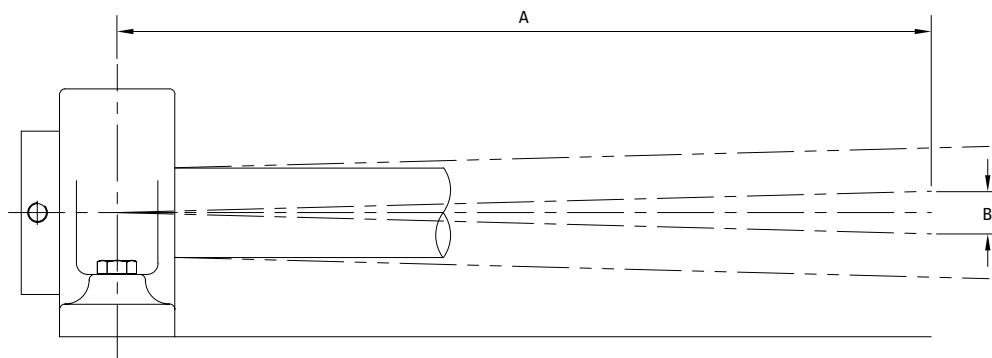
Housed unit bearings are easily converted from fixed to floating in the field (see the appropriate installation guide in this catalog for instructions). The following table will help you determine the amount of float for each bearing based on the number of revolutions the external housing nut is backed out.

## MISALIGNMENT

All spherical roller bearing housed units utilize self-aligning double-row spherical roller bearings. Because of this, the housed unit can accept up to ±1.5 degrees of misalignment. The performance life of our housed unit is not reduced while under misalignment conditions within these guidelines. It will accept both radial and thrust loads under static, oscillatory or dynamic load conditions.

**TABLE C-22. MISALIGNMENT SCALE AT ±1.5 DEGREES**

A	B
m in.	mm in.
0.305 1	15.951 0.628
1.524 5	79.756 3.140



**Fig. C-18. Misalignment.**

## LUBRICATION

Timken is dedicated to using the highest quality components in everything we do. This is why we use premium industrial grease in spherical roller bearing solid-block housed units. The lithium-complex extreme-pressure grease combines the benefits of wide operating temperatures and broad compatibility. This grease offers excellent thermal stability through temperatures ranging from -34° C to 177° C (-30° F to 350° F). When dealing with temperatures above 149° C (300° F), consult your Timken engineer for optional grease recommendations. Application-specific lubrication options are also available ranging from Timken Food Safe Grease (aluminum-complex) to Timken Mill grease (calcium-sulfonate) along with many others.

## European REACH Compliance

Timken lubricants, greases and similar products sold in stand-alone containers or delivery systems are subject to the European REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) directive. For import into the European Union, Timken can sell and provide only those lubricants and greases that are registered with ECHA (European Chemical Agency). For further information, please contact your Timken engineer.

## INSTALLATION GUIDES

### V-LOCK® SERIES

Timken® solid-block housed unit V-Lock® bearings are easy to install and remove because of their unique adapters.

Please complete the following steps to install and/or remove Timken steel housed unit V-Lock bearings. (Refer to fig. C-19.)

- Ensure that the shaft is clean, free from nicks and burrs, straight and of proper diameter. See table C-24 for recommended shaft tolerances. The housed unit should not be mounted on a worn section of the shaft. Using shafts with hardness greater than HRC 45 will reduce the effectiveness of locking devices.
- If using an open-end cover, slide the open-end cover/seal combination into position on the shaft.
- Remove the wedge assembly from the sleeve by unscrewing the wedge nut. See fig. C-19.
- Clean oil off of the sleeve and wedge.
- Apply a thin oil film to the shaft only.
  - For **QV** single-nut housed units:
    - Slide the sleeve, non-threaded end first, into position on the shaft.
  - For **QVV** double-nut housed units:
    - Make sure the sleeve nut is flush with the end of the sleeve.
    - Slide the sleeve/nut assembly, nut end first, into position on the shaft.

- Slide the housed unit into place over the sleeve.
- Loosely install the housed unit mounting bolts. Check the housed unit alignment. Verify that the mounting surfaces are in the same flat plane to help achieve good alignment. If shimming is required to minimize misalignment, use full shims across the entire housing base where possible (fig. C-20). Washers should be properly sized to bolt diameter and should not be an SAE grade, which is smaller.
- Seat the sleeve as best as possible into the mounted unit.
- Tighten the wedge assembly by turning the wedge nut clockwise until tight. Please note that it is designed to prevent overtightening.
- If installing a double-nut housed unit, tighten the sleeve assembly by turning the sleeve nut clockwise until snug.
- Tighten both the wedge nut and sleeve nut set screws alternately according to fig. C-19.
- Install the housed unit mounting bolts. Check the housed unit alignment. Verify that the mounting surfaces are in the same flat plane to achieve good alignment. If shimming is required to minimize misalignment, use full shims across the entire housing base where possible (fig. C-20). The bolts then need to be alternately torqued securely to their mounting supports.
- Tighten the housing mounting bolts.

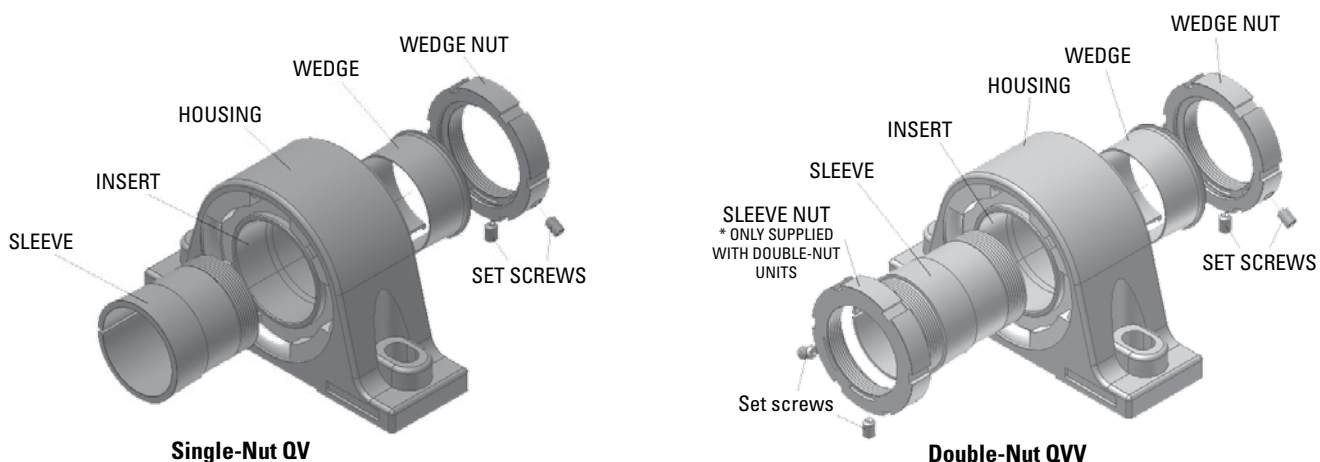


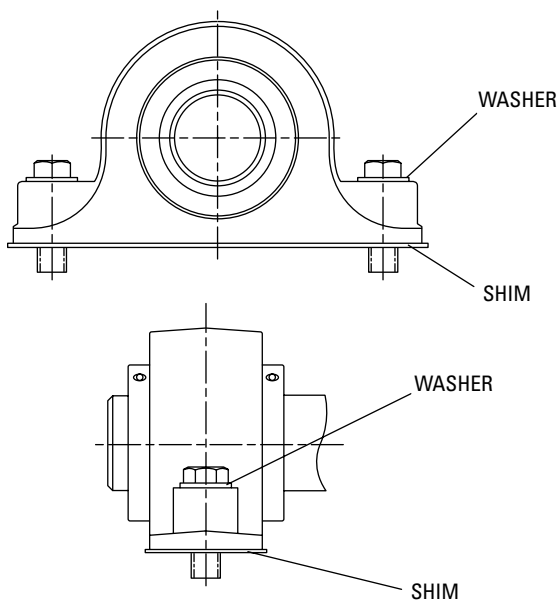
Fig. C-19. V-Lock® insert components.

**TABLE C-23. SET SCREW TORQUE VALUES**

Bearing Size	Set Screw Size	Torque
		Nm in. - lbs.
SLV11 to SLV20	3/8 - 24 TPI	32.8
		290
SLV22	7/16 - 20 TPI	47.5 420
SLV24 to SLV28	1/2 - 20 TPI	70.1
		620

If using covers:

- Make sure the mating surface of the cover and retaining nuts are clean and dry.
  - Urethane cover: slightly roughen the mating surface of the cover, place a 3 mm – 6 mm (1/8 in. – 1/4 in.) bead of polyurethane adhesive sealant on the roughened surface.
  - Steel cover: place a 3 mm – 6 mm (1/8 in. – 1/4 in.) bead of silicone adhesive sealant on the mating surface of the cover.
- Align the cover mounting holes with the mounting holes on the retaining housing nut (make sure that the grease fitting on the cover is accessible when doing so).
- Apply and tighten the cover mounting hardware.



**Fig. C-20. Use washers and full shims.**

## REMOVAL

- Remove covers, if applicable, by removing cover hardware and disengaging the cover from the housed unit retaining nut.
- Loosen the set screws on the wedge nut.
- Turn the wedge nut counterclockwise to remove the wedge from the locked position.
- Completely remove the wedge/wedge nut assembly.
  - For **QV** housed units:
    - Remove the bearing and sleeve from the shaft.
  - For **QVV** housed units:
    - Loosen the set screws on the sleeve nut.
    - Turn the sleeve nut clockwise to un-seat the sleeve.
    - Remove the bearing and sleeve/sleeve nut from the shaft.

**TABLE C-24. RECOMMENDED SHAFT TOLERANCES**

Shaft Dia.	Bearing No.	Tolerance
mm in.		mm in.
50 1 15/16, 2	22211	+0.00/0.038 +0.00/-0.0015
	22212 22213	
60, 65 2 7/16, 2 1/2	22214	+0.00/-0.051 +0.00/-0.0020
	22215	
70, 75 2 11/16, 2 3/4, 2 15/16, 3	22216	+0.00/-0.076 +0.00/-0.0030
	22217	
80, 85, 90 3 3/16, 3 1/4, 3 7/16, 3 1/2	22219	+0.00/-0.076 +0.00/-0.0030
	22220	
100 3 11/16, 3 15/16, 4	22222	+0.00/-0.127 +0.00/-0.0050
	22224 22226	
125, 130 4 15/16, 5	22228	

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM FIXED TO EXPANSION (FLOATING)

### Flange Cartridge and Flange Block

- Make a reference mark on the housing and retaining nut.
- Loosen the Teflon-tipped set screw that locks the retaining nut in place.
- Loosen the retaining nut by tapping it with a hammer and punch, rotating the retaining nut counterclockwise one complete revolution.
- Tighten the Teflon-tipped set screw.

### Pillow Block

- Decide the amount and direction of expansion that's needed. If unidirectional expansion is required, follow the directions outlined in the previous page for flange housed units on the nut that is on the side you want the expansion.
- If multi-directional expansion is required, follow the directions outlined in the previous section for both nuts on flange housed units.



#### **WARNING**

**Failure to observe the following warnings could create a risk of death or serious injury.**

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such as from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM EXPANSION (FLOATING) TO FIXED

### Flange Cartridge and Flange Block

- Loosen the Teflon-tipped set screw that locks the retaining nut in place.
- Tighten the retaining nut by tapping it with a hammer and punch, rotating the retaining nut clockwise until it's tight. It is not possible to overtighten the retaining nut.
- Tighten the Teflon-tipped set screw.

#### NOTE

*When converting a solid-block housed unit bearing from fixed to expansion, it is imperative that the unit that is going to be converted is correctly oriented. Since the insert in a steel housed unit flange bearing is held against either a shoulder or snap ring opposite the housing retaining nut, a flange bearing that has been converted to expansion can only float in the direction of the retaining nut. Based on this, the retaining nut must be on the side of the housing opposite the fixed bearing.*

### Pillow Block

- Follow the directions above for flange housed units on both nuts on either side of the housing.

#### NOTE

*When converting a solid-block housed unit from expansion to fixed on a mounted bearing, the locking-collar set screws must be released to allow the insert to move both in the housing and on the shaft.*

## LUBRICATION

This information is to aid in the proper lubrication of Timken spherical roller bearing solid-block housed units for the majority of applications.

Housed units have been factory-prelubricated with an NLGI No. 2 lithium-complex, extreme-pressure synthetic grease that combines the benefits of wide operating temperatures and broad compatibility with varied materials. This grease offers excellent thermal stability through temperatures ranging from -40° C to 177° C (-40° F to 350° F). Housed units should be relubricated with this grease or one that is compatible and made for roller bearings. It is vital that the greases used are compatible. Please consult with your Timken engineer for the grease specifications if the use of a grease other than the grease mentioned above is needed.

Normal service is considered as operation in a clean, dry environment at temperatures between -34° C to +82° C (-30° F to +180° F). If service is beyond normal conditions due to speed, temperature, or exposure to moisture, dirt or corrosive chemicals,



more frequent relubrication may be necessary. For extreme conditions or conditions in which special chemicals are used, consult with your Timken engineer.

After extended storage or periods when the housed unit is not in operation, fresh grease should be added.

It's important to have the right amount of lubrication, because it affects the housed unit bearing operating temperature as well. An inadequate amount of grease could lead to higher operating temperatures due to inadequate lubrication film thickness. Excessive grease also will lead to higher operating temperatures due to grease churning, which can cause bearing overheating. It is best to observe the bearing and its temperature and adjust the lubrication as needed. If necessary, use the purge valve or seals that purge to reduce the amount of grease.

### RELUBRICATION

Adequate lubrication is an essential element to the housed unit bearing life. Use table C-25 as a suggested initial point of reference. Relubrication frequency and quantity intervals are best determined through experience for each application, based on types of service, which may differ from the suggestions in the table.

When the housed unit is not in operation for an extended period of time, grease should be added to prevent corrosion.

Table C-25 shows general lubrication suggested starting points only. Please read the entire installation instructions prior to using these tables. Applications should be regularly reviewed and lubrication amounts and intervals modified as needed to ensure best results.

### NOTE

*Please check with the manufacturer of your grease delivery system for specific information.*

**TABLE C-25. RELUBRICATION INTERVALS**

Shaft Diameter	Bearing No.	Initial Weight	Relubrication Weight	Relubrication Interval (Hours of Service based on RPM and Temperature deg. F)											
				100 RPM		250 RPM		500 RPM		1000 RPM		2000 RPM		3000 RPM	
				<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°
mm in.		g oz.	g oz.												
<b>50</b> 1 15/16, 2	22211	<b>28.4</b> 1	<b>8.5</b> 0.3	1200	600	800	400	440	220	160	80	100	50	60	30
<b>55</b> 2 3/16, 2 1/4	22212	<b>34.0</b> 1.2	<b>8.5</b> 0.3	1150	580	750	380	400	200	140	70	90	50	50	20
	22213	<b>36.9</b> 1.3	<b>11.3</b> 0.4	1130	570	740	370	380	190	130	65	85	45	45	20
<b>60, 65</b> 2 7/16, 2 1/2	22214	<b>39.7</b> 1.4	<b>11.3</b> 0.4	1120	560	720	360	360	180	120	60	80	40	40	20
	22215	<b>56.7</b> 2	<b>14.2</b> 0.5	1080	540	700	350	350	175	110	55	70	35		
<b>70, 75</b> 2 11/16, 2 3/4 2 15/16, 3	22216	<b>76.5</b> 2.7	<b>19.9</b> 0.7	1040	520	680	340	340	170	100	50	60	30		
	22217	<b>96.4</b> 3.4	<b>25.5</b> 0.9	1000	500	640	320	320	160	100	50	60	30		
<b>80, 85, 90</b> 3 3/16, 3 1/4 3 7/16, 3 1/2	22219	<b>104.9</b> 3.7	<b>25.5</b> 0.9	960	480	600	300	300	150	80	40	40	20		
	22220	<b>184.3</b> 6.5	<b>45.4</b> 1.6	840	420	520	260	240	120	70	35	30	18		
<b>100</b> 3 11/16, 3 3/4 3 15/16, 4	22222	<b>209.8</b> 7.4	<b>53.9</b> 1.9	680	340	440	220	200	100	60	30	20	16		
<b>110, 115</b> 4 7/16, 4 1/2	22224	<b>260.8</b> 9.2	<b>68.0</b> 2.4	640	320	400	200	180	90	50	25				
	22226	<b>300.5</b> 10.6	<b>76.5</b> 2.7	560	280	360	180	160	80						
<b>125, 130</b> 4 15/16, 5	22228	<b>396.9</b> 14	<b>99.2</b> 3.5	520	260	340	170	140	75						

**DISCLAIMER:** Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.

### CL SERIES

Please complete the following steps to install Timken solid-block housed unit CL Series bearings.

- Ensure that the shaft is clean, free from nicks and burrs, straight and of proper diameter. See table C-26 for recommended shaft tolerances. The housed unit should not be mounted on a worn section of the shaft. Using shafts with hardness greater than HRC 45 will reduce the effectiveness of locking devices.
- If using an open-end cover, slide the open-end cover/seal combination into position on the shaft.
- Apply a thin oil film to the shaft and bearing bore.
- Slide the housed unit into position on the shaft.
- Install the housed unit mounting bolts. Check the housed unit alignment. Verify mounting surfaces are in the same flat plane to help achieve good alignment. If shimming is required to minimize misalignment, use full shims across the entire housing base where possible (fig. C-22). The bolts then need to be alternately torqued securely to their mounting supports.
- Tighten set screws alternately as per table C-27. Set screws in multiple units should be aligned to each other (fig. C-21).

If using covers:

- Make sure the mating surface of the cover and retaining nuts are clean and dry.
  - Urethane cover: slightly roughen the mating surface of the cover, place a 3 mm – 6 mm ( $\frac{1}{8}$  in. –  $\frac{1}{4}$  in.) bead of polyurethane adhesive sealant on the roughened surface.
  - Steel cover: place a 3 mm – 6 mm ( $\frac{1}{8}$  in. –  $\frac{1}{4}$  in.) bead of silicone adhesive sealant on the mating surface of the cover.
- Align the cover mounting holes with the mounting holes on the retaining housing nut (make sure that the grease fitting on the cover is accessible when doing so).
- Apply and tighten the cover mounting hardware.

TABLE C-26. RECOMMENDED SHAFT TOLERANCES

Shaft Dia.	Bearing No.	Tolerance
mm in.		mm in.
<b>35</b> 1 $\frac{7}{16}$ , 1 $\frac{1}{2}$	22208	<b>+0.00/-0.025</b> +0.00/0.0010
<b>40, 45</b> 1 $\frac{11}{16}$ , 1 $\frac{3}{4}$	22209	<b>+0.00/-0.038</b> +0.00/0.0015
<b>50</b> 1 $\frac{15}{16}$ , 2	22210	<b>+0.00/-0.038</b> +0.00/-0.0015
<b>55</b> 2 $\frac{3}{16}$ , 2 $\frac{1}{4}$	22211	<b>+0.00/-0.038</b> +0.00/-0.0015
<b>60, 65</b> 2 $\frac{7}{16}$ , 2 $\frac{1}{2}$	22213	<b>+0.00/-0.038</b> +0.00/-0.0015
<b>70, 75</b> 2 $\frac{11}{16}$ , 2 $\frac{3}{4}$ 2 $\frac{15}{16}$ , 3	22215	<b>+0.00/-0.51</b> +0.00/-0.0020
<b>80, 85, 90</b> 3 $\frac{3}{16}$ , 3 $\frac{1}{4}$ 3 $\frac{7}{16}$ , 3 $\frac{1}{2}$	22218	<b>+0.00/-0.076</b> +0.00/-0.0030
<b>100</b> 3 $\frac{15}{16}$ , 4	22220	<b>+0.00/-0.076</b> +0.00/-0.0030
<b>110, 115</b> 4 $\frac{7}{16}$ , 4 $\frac{1}{2}$	22222	<b>+0.00/-0.127</b> +0.00/-0.0050
<b>125, 130</b> 4 $\frac{15}{16}$ , 5	22226	<b>+0.00/-0.127</b> +0.00/-0.0050

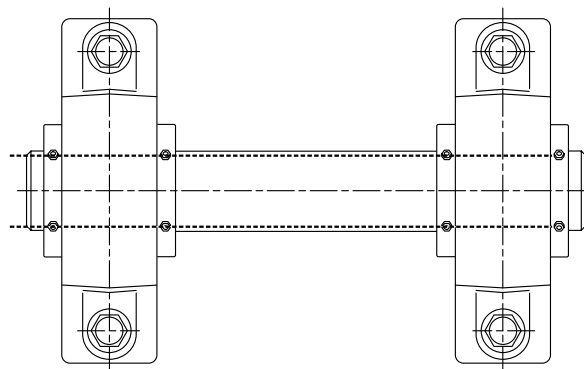


Fig. C-21. Line up set screws in multiple units.

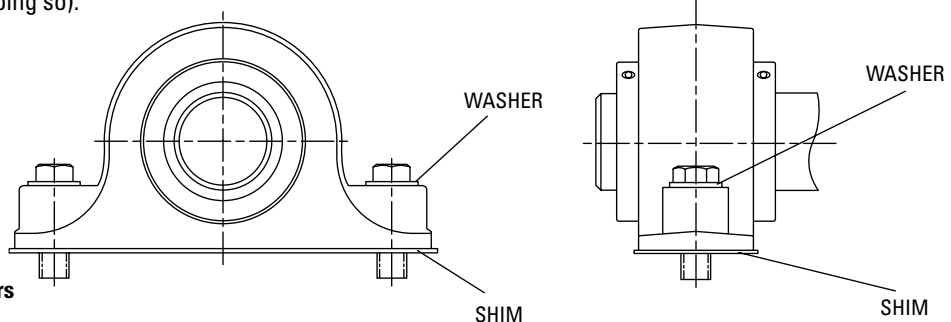


Fig. C-22. Use washers and full shims.

TABLE C-27. SET SCREW TORQUE VALUES

Shaft Dia.	Bearing No.	Set Screw Size	Torque
mm in.			Nm in. - lbs.
<b>35</b> 1 7/16, 1 1/2	22208	3/8 - 24TPI	<b>32.8</b> 290
<b>40</b> 1 11/16, 1 3/4	22209	3/8 - 24TPI	<b>32.8</b> 290
<b>50</b> 1 15/16, 2	22210	3/8 in. - 24TPI	<b>32.8</b> 290
<b>55</b> 2 3/16, 2 1/4	22211	3/8 in. - 24TPI	<b>32.8</b> 290
<b>60, 65</b> 2 7/16, 2 1/2	22213	1/2 in. - 20TPI	<b>70.1</b> 620
<b>70, 75</b> 2 11/16, 2 3/4 2 15/16, 3	22215	1/2 in. - 20TPI	<b>70.1</b> 620
<b>80, 85, 90</b> 3 3/16, 3 1/4 3 7/16, 3 1/2	22218	1/2 in. - 20TPI	<b>70.1</b> 620
<b>100</b> 3 15/16, 4	22220	5/8 in. - 18TPI	<b>149.7</b> 1325
<b>110, 115</b> 4 7/16, 4 1/2	22222	5/8 in. - 18TPI	<b>149.7</b> 1325
<b>125, 130</b> 4 15/16, 5	22226	5/8 in. - 18TPI	<b>149.7</b> 1325

## LUBRICATION

This information is to aid in the proper lubrication of Timken spherical roller bearing solid-block housed units for the majority of applications.

Housed units have been factory-prelubricated with an NLGI No. 2 lithium-complex, extreme pressure synthetic grease that combines the benefits of wide operating temperatures and broad compatibility with varied materials. This grease offers excellent thermal stability through temperatures ranging from -40° C to 177° C (-40° F to 350° F). Housed units should be relubricated with this grease or one that is compatible and made for roller bearings. It is vital that the greases used are compatible. Please consult with your Timken engineer for the grease specifications if the use of a grease other than the grease mentioned above is needed.

Normal service is considered as operation in a clean, dry environment at temperatures between -34° C to +82° C (-30° F to +180° F). If service is beyond normal conditions due to speed, temperature, or exposure to moisture, dirt or corrosive chemicals, periodic relubrication may be necessary. For extreme conditions or conditions in which special chemicals are used, consult with your Timken engineer.

After extended storage or periods when the housed unit is not in operation, fresh grease should be added.

It's important to have the right amount of lubrication, because it affects the housed unit bearing operating temperature as well. An inadequate amount of grease could lead to higher operating temperatures due to inadequate lubrication film thickness. Excessive grease also will lead to higher operating temperatures due to grease churning, which can cause bearing overheating. It is best to observe the bearing and its temperature and adjust the lubrication as needed. If necessary, use the purge valve or seals that purge to reduce the amount of grease.

### NOTE

*Please check with the manufacturer of your grease delivery system for specific information.*



### WARNING

**Failure to observe the following warnings could create a risk of death or serious injury.**

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such as from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.

### RELUBRICATION

Adequate lubrication is an essential element to the housed unit bearing life. Use table C-28 as a suggested initial point of reference. Relubrication frequency and quantity intervals are best determined through experience for each application based on types of service, which may differ from the suggestions in the table.

When the housed unit is not in operation for an extended period of time, grease should be added to prevent corrosion.

Table C-28 shows general lubrication suggested starting points only. Please read the entire installation instructions prior to using

these tables. Applications should be regularly reviewed and lubrication amounts and intervals modified as needed to ensure the best results.

**TABLE C-28. RELUBRICATION INTERVALS**

Shaft Dia.	Bearing No.	Initial Weight	Relubrication Weight	Relubrication Interval (Hours of Service based on RPM and Temperature deg. F)											
				100 RPM		250 RPM		500 RPM		1000 RPM		2000 RPM		3000 RPM	
				<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°
mm in.		g oz.	g oz.												
<b>35</b> 1 7/16, 1 1/2	22208	<b>14.2</b> 0.5	<b>2.4</b> 0.1	2200	1000	1400	700	1000	500	240	120	120	60	40	20
<b>40, 45</b> 1 11/16, 1 3/4	22209	<b>317.5</b> 0.7	<b>5.7</b> 0.2	2000	1000	1200	600	800	400	320	160	160	80	80	40
<b>50</b> 1 15/16, 2	22210	<b>22.7</b> 0.8	<b>5.7</b> 0.2	1600	800	1000	500	640	320	240	120	120	60	60	30
<b>55</b> 2 3/16, 2 1/4	22211	<b>28.4</b> 1	<b>8.5</b> 0.3	1200	600	800	400	440	220	160	80	100	50	60	30
<b>60, 65</b> 2 7/16, 2 1/2	22213	<b>39.7</b> 1.4	<b>11.3</b> 0.4	1120	560	720	360	360	180	120	60	80	40	40	20
<b>70, 75</b> 2 11/16, 2 3/4 2 15/16, 3	22215	<b>76.5</b> 2.7	<b>19.4</b> 0.7	1040	520	680	340	340	170	100	50	60	30		
<b>80, 85, 90</b> 3 3/16, 3 1/4 3 7/16, 3 1/2	22218	<b>104.9</b> 3.7	<b>25.5</b> 0.9	960	480	600	300	300	150	80	40	40	20		
<b>100</b> 3 15/16, 4	22220	<b>184.3</b> 6.5	<b>45.4</b> 1.6	840	420	520	260	240	120	60	30	20	16		
<b>110, 115</b> 4 7/16, 4 1/2	22222	<b>209.8</b> 7.4	<b>53.9</b> 1.9	680	340	440	220	200	100	60	30	20	16		
<b>125, 130</b> 4 15/16, 5	22226	<b>300.5</b> 10.6	<b>76.5</b> 2.7	560	280	360	180	160	80						

**DISCLAIMER:** Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM FIXED TO EXPANSION (FLOATING)

### Flange Cartridge and Flange Block

- Make a reference mark on the housing and retaining nut.
- Loosen the Teflon-tipped set screw that locks the retaining nut in place.
- Loosen the retaining nut by tapping it with a hammer and punch, rotating the retaining nut counterclockwise one complete revolution.
- Tighten the Teflon-tipped set screw.

#### NOTE

*When converting a solid-block housed unit bearing from fixed to expansion, it is imperative that the unit that is going to be converted is correctly oriented. Since the insert in a steel housed unit flange bearing is held against either a shoulder or snap ring opposite the housing retaining nut, a flange bearing that has been converted to expansion can only float in the direction of the retaining nut. Based on this, the retaining nut must be on the side of the housing opposite the fixed bearing.*

### Pillow Block

- Decide the amount and direction of expansion that's needed. If unidirectional expansion is required, follow the directions outlined above for flange bearings on the nut that is on the side you want the expansion.
- If multi-directional expansion is required, follow the directions as outlined above for both nuts on flange housed units.

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM EXPANSION (FLOATING) TO FIXED

### Flange Cartridge and Flange Block

- Loosen the Teflon-tipped set screw that locks the retaining nut in place.
- Tighten the retaining nut by tapping it with a hammer and punch, rotating the retaining nut clockwise until it's tight. It is not possible to overtighten the retaining nut.
- Tighten the Teflon-tipped set screw.

### Pillow Block

- Follow the directions above for flange bearings on both nuts on either side of the housing.

#### NOTE

*When converting a solid-block housed unit from expansion to fixed on a mounted bearing, the locking-collar set screws must be released to allow the insert to move both in the housing and on the shaft.*

### EC SERIES

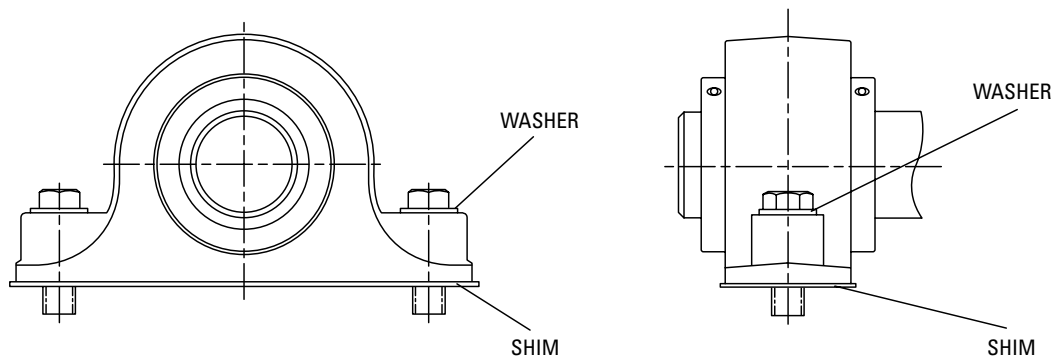
Please complete the following steps to install Timken EC series spherical roller bearing solid-block housed units.

- Ensure that the shaft is clean, free from nicks and burrs, straight and of proper diameter. See table C-29 for recommended shaft tolerances. The housed unit should not be mounted on a worn section of the shaft. Using shafts with hardness greater than HRC 45 will reduce the effectiveness of locking devices.
- If using an open-end cover, slide the open-end cover/seal combination into position on the shaft.
- Apply a thin oil film to the shaft and bearing bore.
- Slide the housed unit into position on the shaft.
- Install the housed unit mounting bolts. Check the housed unit alignment. Verify that the mounting surfaces are in the same flat plane to help achieve good alignment. If shimming is required to minimize misalignment, use full shims across the entire housing base where possible (fig. C-23). The bolts then need to be alternately torqued securely to their mounting supports.

- Slide the eccentric locking collar along shaft and onto the extended portion of the bearing's inner ring.
- Rotate the eccentric locking collar until it is hand-tight (the direction of rotation does not matter).
- Lock the eccentric locking collar firmly in place by using a spanner wrench or a hammer and drift.

When using a hammer and drift, one or two firm, but not too hard, blows will be sufficient due to the shallow eccentric ramp on EC series housed units. Make sure you drive the collar in the same direction in which you hand-tightened it so as to turn it to a tighter position on the bearing's inner ring.

- Tighten the eccentric locking collar set screws alternately as per table C-30.



**Fig. C-23. Use washers and full shims.**

If using covers:

- Make sure the mating surface of the cover and retaining nuts are clean and dry.
  - Urethane cover: slightly roughen the mating surface of the cover, place a 3 mm – 6 mm (1/8 in. – 1/4 in.) bead of polyurethane adhesive sealant on the roughened surface.
  - Steel cover: place a 3 mm – 6 mm (1/8 in. – 1/4 in.) bead of silicone adhesive sealant on the mating surface of the cover.
- Align the cover mounting holes with the mounting holes on the retaining housing nut (make sure that the grease fitting on the cover is accessible when doing so).
- Apply and tighten the cover mounting hardware.

**TABLE C-29. RECOMMENDED SHAFT TOLERANCES**

Shaft Dia.	Bearing No.	Tolerance
mm in.		mm in.
<b>35</b> 1 7/16, 1 1/2	22208	<b>+0.00/-0.025</b> +0.00/-0.0010
<b>40, 45</b> 1 11/16, 1 3/4	22209	<b>+0.00/-0.038</b> +0.00/-0.0015
<b>50</b> 1 15/16, 2	22210	<b>+0.00/-0.038</b> +0.00/-0.0015
<b>55</b> 2 3/16, 2 1/4	22211	<b>+0.00/-0.038</b> +0.00/-0.0015
<b>60, 65</b> 2 7/16, 2 1/2	22213	<b>+0.00/-0.038</b> +0.00/-0.0015
<b>70, 75</b> 2 11/16, 2 3/4 2 15/16, 3	22215	<b>+0.00/-0.051</b> +0.00/-0.0020
<b>80, 85, 90</b> 3 3/16, 3 1/4 3 7/16, 3 1/2	22218	<b>+0.00/-0.076</b> +0.00/-0.0030
<b>100</b> 3 11/16, 3 3/4 3 15/16, 4	22220	<b>+0.00/-0.076</b> +0.00/-0.0030
<b>110, 115</b> 4 7/16, 4 1/2	22222	<b>+0.00/-0.127</b> +0.00/-0.0050
<b>125, 130</b> 4 15/16, 5	22226	<b>+0.00/-0.127</b> +0.00/-0.0050
<b>140, 150</b> 5 7/16, 5 1/2 5 15/16, 6	23230	<b>+0.00/-0.127</b> +0.00/-0.0050
<b>170, 180</b> 6 7/16, 6 1/2 6 15/16, 7	23234	<b>+0.00/-0.127</b> +0.00/-0.0050

**TABLE C-30. SET SCREW TORQUE VALUES**

Shaft Dia.	Bearing No.	Set Screw Size	Torque
mm in.			Nm in. - lbs.
<b>35</b> 1 7/16, 1 1/2	22208	3/8-24TPI	<b>32.8</b> 290
<b>40, 45</b> 1 11/16, 1 3/4	22209	3/8-24TPI	<b>32.8</b> 290
<b>50</b> 1 15/16, 2	22210	3/8-24TPI	<b>32.8</b> 290
<b>55</b> 2 3/16, 2 1/4	22211	3/8-24TPI	<b>32.8</b> 290
<b>60, 65</b> 2 7/16, 2 1/2	22213	7/16-20TPI	<b>48.6</b> 430
<b>70, 75</b> 2 11/16, 2 3/4 2 15/16, 3	22215	7/16-20TPI	<b>48.6</b> 430
<b>80, 85, 90</b> 3 3/16, 3 1/4 3 7/16, 3 1/2	22218	7/16-20TPI	<b>48.6</b> 430
<b>100</b> 3 11/16, 3 3/4 3 15/16, 4	22220	9/16-18TPI	<b>70.1</b> 620
<b>110, 115</b> 4 7/16, 4 1/2	22222	5/8-18TPI	<b>149.7</b> 1325
<b>125, 130</b> 4 15/16, 5	22226	5/8-18TPI	<b>149.7</b> 1325
<b>140, 150</b> 5 7/16, 5 1/2 5 15/16, 6	23230	5/8-18TPI	<b>149.7</b> 1325
<b>170, 180</b> 6 7/16, 6 1/2 6 15/16, 7	23234	5/8-18TPI	<b>149.7</b> 1325

### LUBRICATION

This information is to aid in the proper lubrication of Timken spherical roller bearing solid-block housed units for the majority of applications.

Housed units have been factory-prelubricated with an NLGI No. 2 lithium-complex, extreme-pressure synthetic grease that combines the benefits of wide operating temperatures and broad compatibility with varied materials. This grease offers excellent thermal stability through temperatures ranging from -40° C to 177° C (-40° F to 350° F). Housed units should be relubricated with this grease or one that is compatible and made for roller bearings. It is vital that the greases used are compatible. Please consult with your Timken engineer for the grease specifications if the use of a grease other than the grease mentioned above is needed.

Normal service is considered as operation in a clean, dry environment at temperatures between -34° C to +82° C (-30° F to +180° F). If service is beyond normal conditions due to speed, temperature, or exposure to moisture, dirt or corrosive chemicals, periodic relubrication may be necessary. For extreme conditions or conditions in which special chemicals are used, consult with your Timken engineer.

After extended storage or periods when the housed unit is not in operation, fresh grease should be added.

It's important to have the right amount of lubrication, because it affects the housed unit bearing operating temperature as well. An inadequate amount of grease could lead to higher operating temperatures due to inadequate lubrication film thickness. Excessive grease also will lead to higher operating temperatures due to grease churning, which can cause bearing overheating. It is best to observe the bearing and its temperature and adjust the lubrication as needed. If necessary, use the purge valve or seals that purge to reduce the amount of grease.

### NOTE

*Please check with the manufacturer of your grease delivery system for specific information.*

### RELUBRICATION

Adequate lubrication is an essential element to the housed unit bearing life. Use table C-31 as a suggested initial point of reference. Relubrication frequency and quantity intervals are best developed through experience for each application based on types of service, which may differ from the suggestions in the table.

When the housed unit is not in operation for an extended period of time, grease should be added to prevent corrosion.

Table C-31 shows general lubrication suggested starting points only. Please read the entire installation instructions prior to using these tables. Applications should be regularly reviewed and lubrication amounts and intervals modified as needed to ensure the best results.



### WARNING

***Failure to observe the following warnings could create a risk of death or serious injury.***

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such as from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.

### DISCLAIMER

***Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.***



TABLE C-31. RELUBRICATION INTERVALS

Shaft Dia.	Bearing No.	Initial Weight	Relubrication Weight	Relubrication Interval (Hours of Service based on RPM and Temperature deg. F)											
				100 RPM		250 RPM		500 RPM		1000 RPM		2000 RPM		3000 RPM	
				<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°
mm in.		g oz.	g oz.												
<b>35</b> 1 7/16, 1 1/2	22208	<b>14.2</b> 0.5	<b>2.8</b> 0.1	2200	1000	1400	700	1000	500	240	120	120	60	40	20
<b>40, 45</b> 1 11/16, 1 3/4	22209	<b>19.9</b> 0.7	<b>5.7</b> 0.2	2000	1000	1200	600	800	400	320	160	160	80	80	40
<b>50</b> 1 15/16, 2	22210	<b>22.7</b> 0.8	<b>5.7</b> 0.2	1600	800	1000	500	640	320	240	120	120	60	60	30
<b>55</b> 2 3/16, 2 1/4	22211	<b>28.4</b> 1	<b>8.5</b> 0.3	1200	600	800	400	440	220	160	80	100	50	60	30
<b>60, 65</b> 2 7/16, 2 1/2	22213	<b>39.7</b> 1.4	<b>11.3</b> 0.4	1120	560	720	360	360	180	120	60	80	40	40	20
<b>70, 75</b> 2 11/16, 2 3/4 2 15/16, 3	22215	<b>76.5</b> 2.7	<b>19.8</b> 0.7	1040	520	680	340	340	170	100	50	60	30		
<b>80, 85, 90</b> 3 3/16, 3 1/4 3 7/16, 3 1/2	22218	<b>104.9</b> 3.7	<b>25.5</b> 0.9	960	480	600	300	300	150	80	40	40	20		
<b>100</b> 3 11/16, 3 3/4 3 15/16, 4	22220	<b>184.3</b> 6.5	<b>45.4</b> 1.6	840	420	520	260	240	120	60	30	20	16		
<b>110, 115</b> 4 7/16, 4 1/2	22222	<b>209.8</b> 7.4	<b>53.9</b> 1.9	680	340	440	220	200	100	60	30	20	16		
<b>125, 130</b> 4 15/16, 5	22226	<b>300.5</b> 10.6	<b>76.5</b> 2.7	560	280	360	180	160	80						
<b>140, 150</b> 5 7/16, 5 1/2 5 15/16, 6	23230	<b>589.7</b> 20.8	<b>147.4</b> 5.2	480	240	320	160	120	68						
<b>170, 180</b> 6 7/16, 6 1/2 6 15/16, 7	23234	<b>85.0</b> 30.0	<b>241.0</b> 8.5	400	160	240	160	110	60						

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM FIXED TO EXPANSION (FLOATING)

### Flange Cartridge and Flange Block

- Make a reference mark on the housing and retaining nut.
- Loosen the Teflon-tipped set screw that locks the retaining nut in place.
- Loosen the retaining nut by tapping it with a hammer and punch, rotating the retaining nut counterclockwise one complete revolution.
- Tighten the Teflon-tipped set screw.

#### NOTE

*When converting a solid-block housed unit bearing from fixed to expansion, it is imperative that the unit that is going to be converted is correctly oriented. Since the insert in a steel housed unit flange bearing is held against either a shoulder or snap ring opposite the housing retaining nut, a flange bearing that has been converted to expansion can only float in the direction of the retaining nut. Based on this, the retaining nut must be on the side of the housing opposite the fixed bearing.*

### Pillow Block

- Decide the amount and direction of expansion that's needed. If unidirectional expansion is required, follow the directions outlined above for flange bearings on the nut that is on the side you want the expansion.
- If multi-directional expansion is required, follow the directions outlined above for both nuts on flange housed units.

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM EXPANSION (FLOATING) TO FIXED

### Flange Cartridge and Flange Block

- Loosen the Teflon-tipped set screw that locks the retaining nut in place.
- Tighten the retaining nut by tapping it with a hammer and punch, rotating the retaining nut clockwise until it's tight. It is not possible to overtighten the retaining nut.
- Tighten the Teflon-tipped set screw.

### Pillow Block

- Follow the directions above for flange bearings on both nuts on either side of the housing.

#### NOTE

*When converting a solid-block housed unit from expansion to fixed on a mounted bearing, the locking collar set screws must be released to allow the insert to move both in the housing and on the shaft.*

## TA/DV SERIES

Choose one of the following two methods for installing your housed unit depending on your situation. Timken recommends the axial drive-up method for most applications. If your application is not as critical, the simpler tang counting method is fine.

### AXIAL DRIVE-UP METHOD

- Clean all components of any debris and apply a thin oil film to all mating surfaces to ensure proper seating.
- If using an open-end cover, slide the open-end cover/seal combination into position on the shaft.
- Slide the adapter sleeve into position on the shaft, then put the housed unit into place on the adapter sleeve.
- Loosely install the housed unit mounting bolts. Check the housed unit alignment. Verify mounting surfaces are in the same flat plane to help achieve good alignment. If shimming is required to minimize misalignment, use full shims across the entire housing base where possible (fig. C-24). Washers should be properly sized to the bolt diameter and should not be an SAE grade, which is smaller.
- Put the lockwasher on and thread the locknut onto the adapter sleeve leaving approximately 6.350 mm (¼ in.) between the lockwasher and the inner ring of the bearing.
- Use a large screwdriver or pry bar to lever the sleeve into position until there is no relative movement between the shaft, the adapter sleeve, and the bearing's inner ring.
- Rotate the locknut until hand-tight.
- Tighten the locknut while using a dial indicator to measure the axial movement of the tapered adapter sleeve relative to the bearing's inner ring (see table C-32).
- Bend a tang on the lockwasher into a slot on the locknut to prevent the locknut from loosening.
- Tighten the housed unit mounting bolts.

If using covers:

- Make sure the mating surface of the cover and retaining nuts are clean and dry.
  - Urethane cover: slightly roughen the mating surface of the cover, place a 3 mm – 6 mm (⅛ in. – ¼ in.) bead of polyurethane adhesive sealant on the roughened surface.
  - Steel cover: place a 3 mm – 6 mm (⅛ in. – ¼ in.) bead of silicone adhesive sealant on the mating surface of the cover.
- Align the cover mounting holes with the mounting holes on the retaining housing nut (make sure that the grease fitting on the cover is accessible when doing so).
- Apply and tighten the cover mounting hardware.

**TABLE C-32. AXIAL MOVEMENT OF TAPERED ADAPTER SLEEVE RELATIVE TO INNER RING**

Shaft Dia.	Bearing No.	Minimum Axial Movement	Maximum Axial Movement
mm in.		mm in.	mm in.
40 1 7/16, 1 1/2	22209	0.38 0.015	0.46 0.018
45 1 11/16, 1 3/4	22210	0.38 0.015	0.46 0.018
50 1 15/16, 2	22211	0.46 0.018	0.56 0.022
55 —	22212	0.46 0.018	0.56 0.022
60 2 3/16, 2 1/4	22213	0.46 0.018	0.56 0.022
65 2 7/16, 2 1/2	22215	0.64 0.025	0.76 0.030
70 2 11/16, 2 3/4	22216	0.64 0.025	0.76 0.030
75 2 15/16, 3	22217	0.69 0.027	0.97 0.038
80 3 3/16, 3 1/4	22218	0.69 0.027	0.97 0.038
85 —	22219	0.69 0.027	0.97 0.038
90 3 7/16, 3 1/2	22220	0.69 0.027	0.97 0.038
100 3 15/16, 4	22222	0.76 0.030	1.07 0.042
110 4 3/16, 4 1/4	22224	0.76 0.030	1.07 0.042
115 4 7/16, 4 1/2	22226	0.89 0.035	1.27 0.050
125 4 15/16, 5	22228	0.89 0.035	1.27 0.050

### TANG COUNTING METHOD

- Clean all components of any debris and apply a thin oil film to all mating surfaces to ensure proper seating.
- If using an open-end cover, slide the open-end cover/seal combination into position on the shaft.
- Slide the adapter sleeve into the correct position on the shaft, then put the housed unit into place on the adapter sleeve.
- Loosely install the housed unit mounting bolts. Check the housed unit alignment. Verify mounting surfaces are in the same flat plane to help achieve good alignment. If shimming is required to minimize misalignment, use full shims across the entire housing base where possible (fig. C-24). Washers should be properly sized to the bolt diameter and should not be an SAE grade, which is smaller.
- Put the lockwasher on and thread the locknut onto the adapter sleeve, leaving approximately  $\frac{1}{4}$  in. between the lockwasher and the inner ring of the bearing.
- Use a large screwdriver or pry bar to lever the sleeve into position until there is no relative movement between the shaft, the adapter sleeve and the bearing's inner ring.
- Rotate the locknut until hand-tight.
- Note which tang is in line with one slot on the locknut.
- Tighten the locknut until the slot on the locknut passes the number of tangs shown in table C-33.
- Bend a tang on the lockwasher into a slot on the locknut to prevent the locknut from loosening.
- Tighten the housed unit mounting bolts.

#### If using covers:

- Make sure the mating surface of the cover and retaining nuts are clean and dry.
  - Urethane cover: slightly roughen the mating surface of the cover, place a 3 mm – 6 mm ( $\frac{1}{8}$  in. –  $\frac{1}{4}$  in.) bead of polyurethane adhesive sealant on the roughened surface.
  - Steel cover: place a 3 mm – 6 mm ( $\frac{1}{8}$  in. –  $\frac{1}{4}$  in.) bead of silicone adhesive sealant on the mating surface of the cover.
- Align the cover mounting holes with the mounting holes on the retaining housing nut (make sure that the grease fitting on the cover is accessible when doing so).
- Apply and tighten the cover mounting hardware.

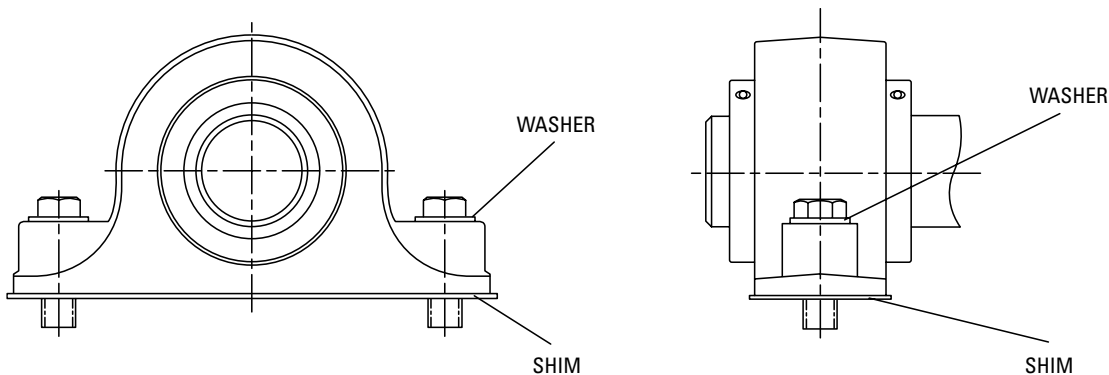


Fig. C-24. Use washers and full shims.

**TABLE C-33. NUMBER OF TANGS TO LOCKING**

Shaft Dia.	Bearing No.	Number of Tangs
mm in.		
<b>40</b> 1 7/16, 1 1/2	22209	3-4
<b>45</b> 1 11/16, 1 3/4	22210	3-4
<b>50</b> 1 15/16, 2	22211	4-5
<b>55</b> —	22212	4-5
<b>60</b> 2 3/16, 2 1/4	22213	4-5
<b>65</b> 2 7/16, 2 1/2	22215	5-6
<b>70</b> 2 11/16, 2 3/4	22216	5-6
<b>75</b> 2 15/16, 3	22217	8-9
<b>80</b> 3 3/16, 3 1/4	22218	8-9
<b>85</b> —	22219	8-9
<b>90</b> 3 7/16, 3 1/2	22220	8-9
<b>100</b> 3 15/16, 4	22222	10-11
<b>110</b> 4 3/16, 4 1/4	22224	10-11
<b>115</b> 4 7/16, 4 1/2	22226	10-11
<b>125</b> 4 15/16, 5	22228	10-11

## LUBRICATION

This information is to aid in the proper lubrication of Timken spherical roller bearing solid-block housed units for the majority of applications.

Housed units have been factory-prelubricated with an NLGI No. 2 lithium-complex, extreme-pressure synthetic grease that combines the benefits of wide operating temperatures and broad compatibility with varied materials. This grease offers excellent thermal stability through temperatures ranging from -40° C to 177° C (-40° F to 350° F). Housed units should be relubricated with this grease or one that is compatible and made for roller bearings. It is vital that the greases used are compatible. Please consult with your Timken engineer for the grease specifications if the use of a grease other than the grease mentioned above is needed.

Normal service is considered as operation in a clean, dry environment at temperatures between -34° C to +82° C (-30° F to +180° F). If service is beyond normal conditions due to speed, temperature or exposure to moisture, dirt or corrosive chemicals, periodic relubrication may be necessary. For extreme conditions or conditions in which special chemicals are used, consult with your Timken engineer.

After extended storage or periods when the housed unit is not in operation, fresh grease should be added.

It's important to have the right amount of lubrication, because it affects the housed unit bearing operating temperature as well. An inadequate amount of grease could lead to higher operating temperatures due to inadequate lubrication film thickness. Excessive grease will lead to higher operating temperatures due to grease churning, which can cause bearing overheating. It is best to observe the bearing and its temperature and adjust the lubrication as needed. If necessary, use the purge valve or seals that purge to reduce the amount of grease.

### NOTE

*Please check with the manufacturer of your grease delivery system for specific information.*

### RELUBRICATION

Adequate lubrication is an essential element to the housed unit bearing life. Use table C-34 as a suggested initial point of reference. Relubrication frequency and quantity intervals are best determined through experience for each application based on types of service, which may differ from the suggestions in the table.

When the housed unit is not in operation for an extended period of time, grease should be added to prevent corrosion.

Table C-34 shows general lubrication suggested starting points only. Please read the entire installation instructions prior to using these tables. Applications should be regularly reviewed and lubrication amounts and intervals modified as needed to ensure the best results.


**WARNING**

Failure to observe the following warnings could create a risk of death or serious injury.

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such as from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.

**TABLE C-34. RELUBRICATION INTERVALS**

Shaft Dia.	Bearing No.	Initial Weight	Relubrication Weight	Relubrication Interval (Hours of Service based on RPM and Temperature deg. F)											
				100 RPM		250 RPM		500 RPM		1000 RPM		2000 RPM		3000 RPM	
				<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°	<160°	>160°
mm in.		g oz.	g oz.												
40 1 7/16, 1 1/2	22209	19.8 0.7	5.7 0.2	2000	1000	1200	600	800	400	320	160	160	80	80	40
45 1 11/16, 1 3/4	22210	22.7 0.8	5.7 0.7	1600	800	1000	500	640	320	240	120	120	60	60	30
50 1 15/16, 2	22211	28.4 1.0	8.5 0.3	1200	600	800	400	440	220	160	80	100	50	60	30
55 —	22212	34.0 1.2	8.5 0.3	1150	580	750	380	400	200	140	70	90	50	50	20
60 2 3/16, 2 1/4	22213	39.7 1.4	11.3 0.4	1120	560	720	360	360	180	120	60	80	40	40	20
65 2 7/16, 2 1/2	22215	76.5 2.7	19.8 0.7	1040	520	680	340	340	170	100	50	60	30		
70 2 11/16, 2 3/4	22216	76.5 2.7	19.8 0.7	1040	520	680	340	340	170	10	50	60	30		
75 2 15/16, 3	22217	96.4 3.4	25.5 0.9	1000	500	640	320	320	160	100	50	60	30		
80 3 3/16, 3 1/4	22218	104.9 3.7	25.5 0.9	960	480	600	300	300	150	80	40	40	20		
85 —	22219	104.9 3.7	25.5 0.9	960	480	600	300	300	150	80	40	40	20		
90 3 7/16, 3 1/2	22220	184.3 6.5	45.4 1.6	840	420	520	260	240	120	60	30				
100 3 15/16, 4	22222	209.8 7.4	53.9 1.9	680	340	440	220	200	100	60	30				
110 4 3/16, 4 1/4	22224	260.8 9.2	68.0 2.4	640	320	400	200	180	90	50	25				
115 4 7/16, 4 1/2	22226	340.2 12.0	85.0 3.0	600	300	360	180	160	80	40	20				
125 4 15/16, 5	22228	396.9 14.0	99.2 3.5	520	260	340	170	140	75						

**DISCLAIMER:** Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM FIXED TO EXPANSION (FLOATING)

### Flange Cartridge and Flange Block

- Make a reference mark on the housing and retaining nut.
- Loosen the Teflon-tipped set screw that locks the retaining nut in place.
- Loosen the retaining nut by tapping it with a hammer and punch, rotating the retaining nut counterclockwise one complete revolution.
- Tighten the Teflon-tipped set screw.

#### NOTE

*When converting a solid-block housed unit bearing from fixed to expansion, it is imperative that the unit that is going to be converted is correctly oriented. Since the insert in a steel housed unit flange bearing is held against either a shoulder or snap ring opposite the housing retaining nut, a flange bearing that has been converted to expansion can only float in the direction of the retaining nut. Based on this, the retaining nut must be on the side of the housing opposite the fixed bearing.*

### Pillow Block

- Decide the amount and direction of expansion that's needed. If unidirectional expansion is required, follow the directions outlined above for flange bearings on the nut that is on the side you want the expansion.
- If multi-directional expansion is required, follow the directions above for both nuts on flange housed units.

## HOW TO CONVERT A SOLID-BLOCK HOUSED UNIT FROM EXPANSION (FLOATING) TO FIXED

### Flange Cartridge and Flange Block

- Loosen the Teflon-tipped set screw that locks the retaining nut in place.
- Tighten the retaining nut by tapping it with a hammer and punch, rotating the retaining nut clockwise until tight. It is not possible to overtighten the retaining nut.
- Tighten the Teflon-tipped set screw.

### Pillow Block

- Follow the directions above for flange bearings on both nuts on either side of the housing.

#### NOTE

*When converting a solid-block housed unit from expansion to fixed on a mounted bearing, the locking-collar set screws must be released to allow the insert to move both in the housing and on the shaft.*





***SPHERICAL ROLLER BEARING  
SOLID-BLOCK HOUSED UNITS  
PRODUCT DATA TABLES***

When your equipment faces harsh environments, you need spherical roller bearing solid-block housed units rugged enough to withstand tough conditions and deliver exceptional performance. You gain both with Timken® spherical roller bearing solid-block housed units.

Nomenclatures.....	C-54
Seal and Cover Options.....	C-59
V-Lock® Series (double taper lock).....	C-73
CL Series (concentric [set screw] lock).....	C-99
EC Series (eccentric lock).....	C-129
TA/DV Series (tapered adapter lock).....	C-153
Take-Up Frames.....	C-169



# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNIT NOMENCLATURE

### SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNIT NOMENCLATURE

QM P 13 J 207 S E M

**LOCKING STYLE**  
 QM – eccentric lock  
 QA – concentric (set screw) lock, single-collar  
 QAA – concentric (set screw) lock, double-collar  
 QV – V-Lock®, single-nut  
 QVV – V-Lock, double-nut  
 DV – tapered adapter lock (heavy-duty block)  
 TA – tapered adapter lock (extreme-duty block)

**HOUSING STYLE**

P – Type E dimension two-bolt pillow block	PX – 5000 series four-bolt pillow block
PL – two-bolt pillow block, S2000 style	F – square flange block
PA – SAF-style two-bolt pillow block	FB – square flange block
PN – SN-style two-bolt pillow block	FL – square flange block
SN – SN-style two-bolt pillow block	FX – 5000 series flange block
PKT – 9000 series two-bolt pillow block	FY – round flange block
PXT – 5000 series two-bolt pillow block	FK – 9000 series flange block
PR – Type E dimension four-bolt pillow block	C – piloted flange cartridge
PF – four-bolt pillow block, S2000 style	CW – piloted flange cartridge
PH – SAF-style four-bolt pillow block	FC – piloted flange cartridge
PG – SN-style four-bolt pillow block	MC – cartridge block
PK – 9000 series four-bolt pillow block	TU – take-up block

**BEARING INSERT BORE SERIES**  
 222XX (i.e., 13 = 22213)  
 232XX (for size 30 and 34 bearing only)

**BEARING INSERT LOCKING TYPE**  
 J – EC series  
 A and AA – CL series  
 V – V-Lock series  
 K – TA/DV series

**SHAFT DIAMETER**  
 In inch (i.e., 207 = 2 7/16 in.) and metric (i.e., 050 = 50 mm) sizes

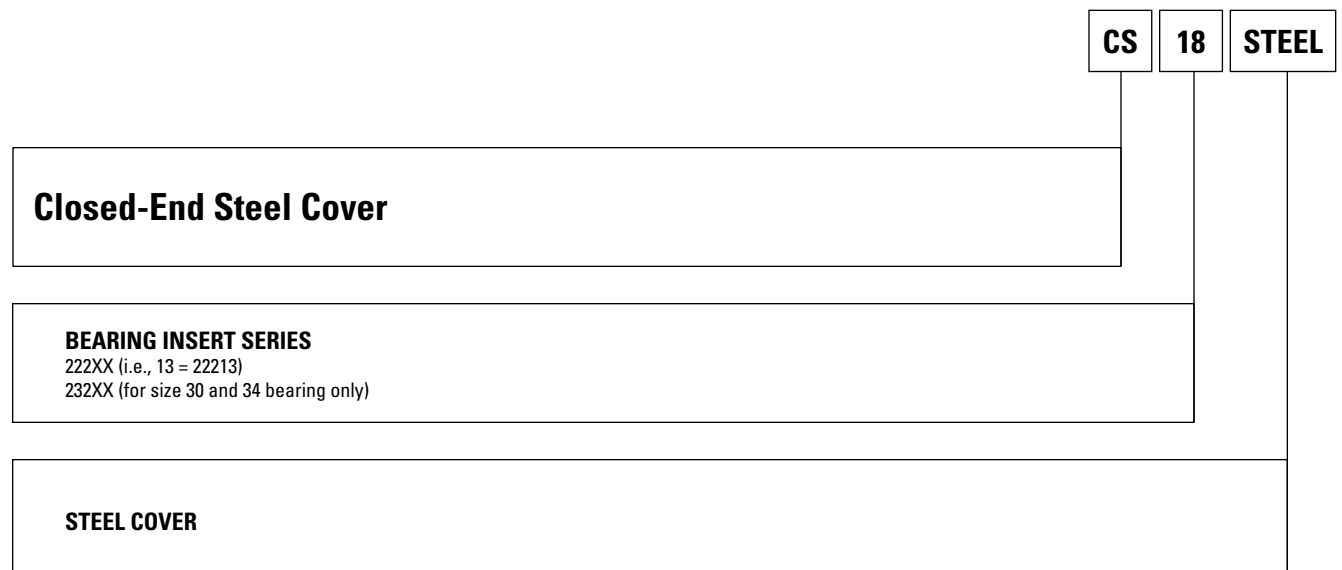
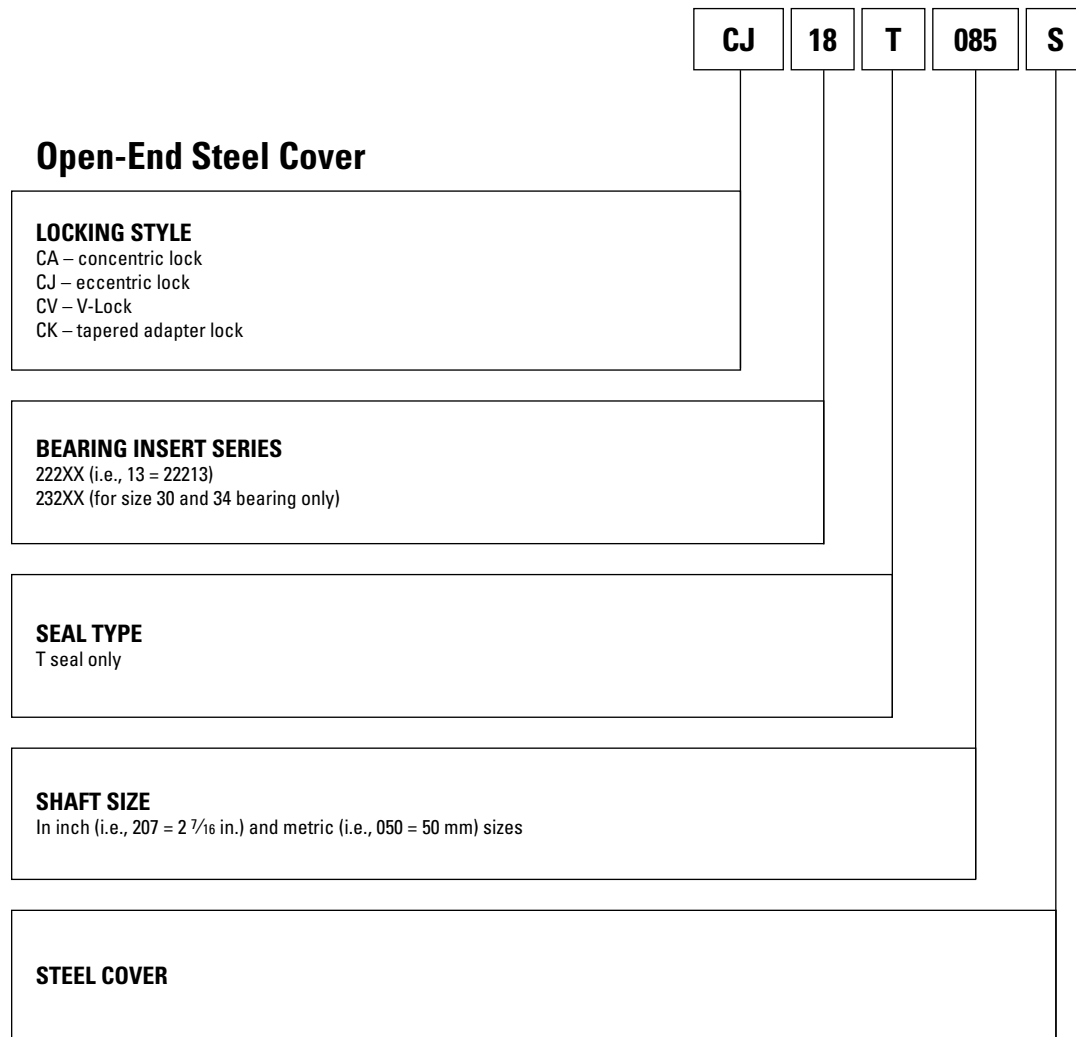
**CAST-STEEL HOUSING**

**EXPANSION OR NON-EXPANSION**  
 BLANK (No letter) – Non-expansion (fixed)  
 E – Expansion (floating)

**SEAL TYPE**

M – M seal (triple-lip nitrile rubber)	C – C seal (double-lip Viton)	DuPont™ is a trademark of E.I. du Pont de Nemours and Company. Teflon® is a registered trademark of E.I. du Pont de Nemours and Company. Viton® is a registered trademark of E.I. du Pont de Nemours and Company.
N – N seal (triple-lip DuPont™ Viton®)	T – T seal (DuPont™ Teflon® labyrinth)	
O – O seal (triple-lip urethane)	YDR – flange cartridge backing plate with DR triple-lip seal	
B – B seal (double-lip nitrile rubber)		

## STEEL COVER NOMENCLATURE



**URETHANE COVER NOMENCLATURE**

**Open-End Cover with DR Seal**

**CJ** **DR** **207**

<p><b>LOCKING STYLE</b>                  CA – concentric lock                  CJ – eccentric lock                  CK – tapered adapter lock</p>
<p><b>TRIPLE-LIP SECONDARY SEAL</b></p>
<p><b>SHAFT SIZE</b>                  In inch (i.e., 207 = 2 7/16 in.) and metric (i.e., 050 = 50 mm) sizes</p>

**Open-End Cover with VR Seal**

**CJ** **VR** **13**

<p><b>LOCKING STYLE</b>                  CV – V-Lock                  CA – concentric lock                  CJ – eccentric lock                  CK – tapered adapter lock</p>
<p><b>SEAL TYPE</b>                  VR ring</p>
<p><b>BEARING INSERT SERIES</b>                  222XX (i.e., 13 = 22213)                  232XX (for size 30 and 34 bearing only)</p>

**V-Lock® Open-End Cover with DR Seal**

**CV** **DR** **13** – **085**

<p><b>LOCKING STYLE</b>                  CV – V-Lock</p>
<p><b>TRIPLE-LIP SECONDARY SEAL</b></p>
<p><b>BEARING INSERT SERIES</b>                  222XX (i.e., 13 = 22213)                  232XX (for size 30 and 34 bearing only)</p>
<p><b>SHAFT SIZE</b>                  In inch (i.e., 207 = 2 7/16 in.) and metric (i.e., 050 = 50 mm) sizes</p>

**CS** **13**

**Closed-End Cover**

<p><b>BEARING INSERT SERIES</b>                  222XX (i.e., 13 = 22213)                  232XX (for size 30 and 34 bearing only)</p>
--

## BACKING PLATE NOMENCLATURE

**UFP** **207**

### Backing Plate (Only Available for CA and CJ Series Bearings)

**SQUARE FLANGE BLOCK WITH VR SEAL**

**SHAFT SIZE**  
In inch (i.e., 207 = 2 7/16 in.) and metric (i.e., 050 = 50 mm) sizes

**HSY** **085**

### Backing Plate (Only Available for CA and CJ Series Bearings)

**ROUND PILOTED FLANGE CARTRIDGE WITH DR SEAL**

**SHAFT SIZE**  
In inch (i.e., 207 = 2 7/16 in.) and metric (i.e., 050 = 50 mm) sizes

### ***ORDERING SOLID-BLOCK HOUSED UNITS***

Every solid-block housed unit is made of cast steel for greater strength (compared to cast iron). All bearings feature a double-row, spherical roller bearing design for a high load-carrying capacity, misalignment tolerance and reduced friction.

Starting with these standard design advantages, you can choose from a wide range of sizes, locking styles, seal options and housing styles suited precisely for your application.

There are many ways to determine the correct solid-block housed unit part number for ordering purposes:

- Once you determine the best locking style, housing and seal options for your application, you can easily find the correct part number in the tables included in the following sections.
- If you are ordering a replacement for an existing housed unit, locate the part number for that housed unit on the housing tag.
- If none of the above apply, or if you have additional questions or concerns about ordering the correct housed unit, contact your Timken engineer.

## SEAL AND COVER OPTIONS

### PRIMARY SEALS

Primary seals are installed between the inner ring of the bearing and the housing. They are held securely in place by the external housing nut. Primary seals can be contacting or non-contacting, purging or non-purging and are available in several material compounds for a variety of applications.

#### TRIPLE-LIP SEALS – CONTACTING, SELF-PURGING, LOW TO MODERATE SPEEDS<sup>(1)</sup>

Timken offers three kinds of medium-contact triple-lip seals. Choose from seals made of nitrile synthetic rubber (acrylonitrile butadiene), DuPont™ Viton® fluoroelastomer or urethane.

- **M Seal** – This seal, made of nitrile rubber, offers superior sealing in moist and dirty applications. It is chemical- and corrosion-resistant and provides excellent lubrication retention. It also allows excess grease to purge from the bearing cavity.
- **N Seal** – Made of DuPont Viton, this seal provides excellent chemical resistance and can operate at higher temperatures than nitrile rubber.
- **O Seal** – Made of high-strength urethane for superior abrasion resistance.

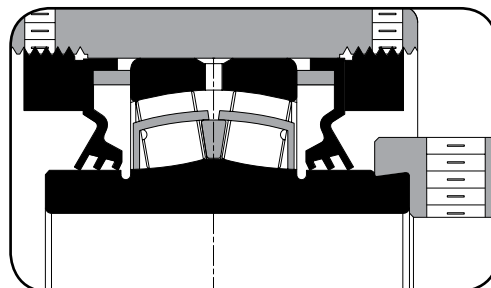


Fig. C-25. Triple-lip seals.

#### LABYRINTH SEALS – NON-CONTACTING, NON-PURGING, ALL SPEEDS<sup>(2)</sup>

Instead of trying to form a seal with a single strong barrier, a labyrinth seal uses a winding passageway to accomplish the same reduction in flow. Not only is seal friction reduced, but so is seal wear.

- **T Seal** – This seal consists of a DuPont™ Teflon® ring pressed onto the inner ring of the bearing that floats between two pieces of formed steel to accommodate misalignment. When using this seal, the housing comes with a vent fitting. Developed for higher-speed applications involving dirty conditions or moisture-affected areas, it is able to operate at higher temperatures and is impervious to most chemicals.

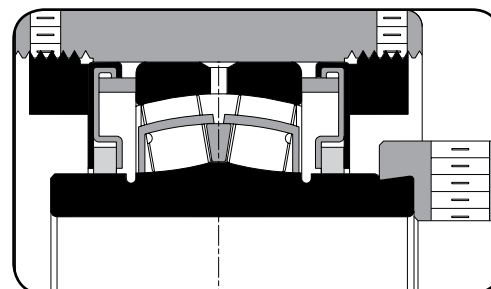


Fig.C-26. T seal.

#### DOUBLE-LIP SEALS – CONTACTING, NON-PURGING, LOW SPEEDS<sup>(1)(2)</sup>

These seals incorporate a double-lip seal, a garter spring for maximum contact, and a heavy-duty steel shield that protects the seal from large pieces of debris that could damage the seal itself.

- **B Seal** – Made of nitrile rubber, this seal offers superior protection in applications with oil lubrication and is designed for extreme moisture, fine dust or extremely dirty applications. When using this seal, the housing comes with a vent fitting.
- **C Seal** – Made of DuPont Viton, this seal provides excellent chemical and abrasion resistance and can operate at higher temperatures than nitrile rubber. When using this seal, the housing comes with a vent fitting.

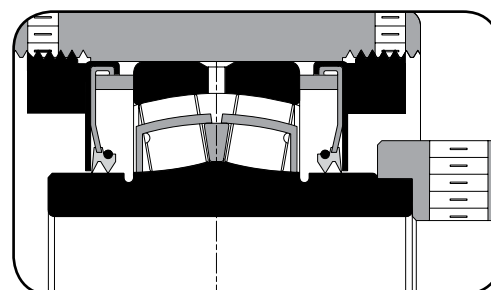


Fig. C-27. Double-lip seals.

<sup>(1)</sup>Temperature limit -40° C to 121° C (-40° F to 250° F) continuous, 149° C (300° F) intermittent. Constant seal-lip pressure on the inner ring results in higher operating temperatures of the complete unit. (See pages C-25 and C-26).

<sup>(2)</sup>Relief valve is standard.

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### SECONDARY SEALS

In many circumstances, bearings become damaged in housed units due to premature primary seal wear. This is usually the result of harsh operating environments or lubrication issues. Timken offers secondary sealing options that provide an additional barrier to protect the primary seal. These economical secondary seals and covers are easily outfitted on virtually all solid-block housed units.

#### STEEL COVERS

##### Labyrinth Seals – Non-Contacting, Non-Purging, All Speeds

A labyrinth seal uses a winding passageway to accomplish a reduction in flow instead of trying to form a seal with a single strong barrier. Seal friction and wear is reduced.

- **T Seal** – This seal, which is used in the open-end steel covers, consists of a DuPont Teflon ring pressed onto the shaft that floats between two pieces of formed steel to accommodate misalignment. Developed for higher-speed applications involving dirty conditions or moisture-affected areas, it is able to operate at higher temperatures and is impervious to most chemicals, while avoiding shaft damage.

#### URETHANE COVERS

##### DR Triple-Lip Secondary Seal – low speeds

The DR seal is the standard triple-lip seal adapted for use on the open-end covers and piloted flange cartridge backing plates (HSY). This seal can move within the cover or backing plate opening to accommodate misalignment while maintaining full contact to the shaft for positive sealing.

##### VR V-Ring Secondary Seal – high speeds

The VR seal, made of nitrile rubber, rides on the shaft and seals against the open-end covers and flange block backing plates (UFP).

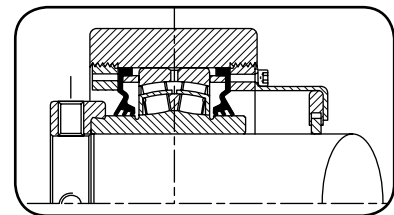


Fig. C-28. Open-end steel cover with T seal.

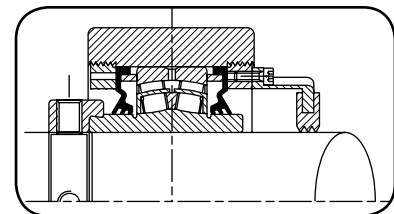


Fig. C-29. Open-end urethane cover with DR seal.

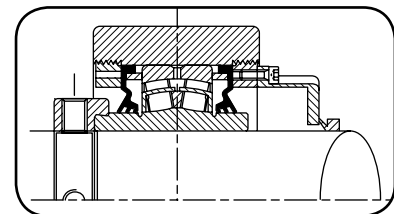


Fig. C-30. Open-end urethane cover with VR seal.

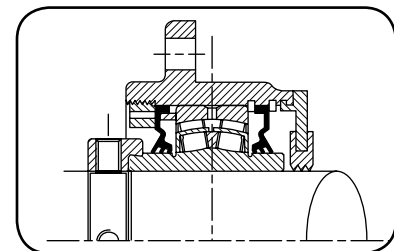


Fig. C-31. HSY backing plate with DR seal.

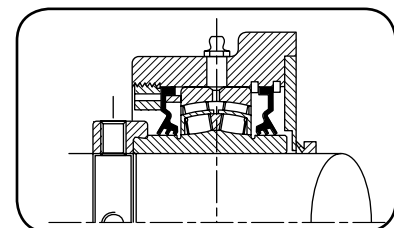


Fig. C-32. UFP backing plate with VR seal.



**STEEL AUXILIARY COVERS**

Steel auxiliary covers bolt directly onto spherical roller bearing solid-block housed units. A DuPont Teflon labyrinth seal on the open-ended covers guards against shaft damage and gives protection at high running speeds. Made from steel to withstand the toughest applications, the covers are black-oxide treated for improved corrosion protection.

These covers are available in both open-ended and closed-ended designs for standard and custom configurations of Timken spherical roller bearing solid-block housed units.

**Closed-End Covers (CS)**

These bolt-on covers are designed to be virtually indestructible and extremely convenient. They are made from structural steel or urethane and are easy to install. The cover completely seals the bearing, preventing contamination from reaching the primary seal. Every cover is outfitted with a grease fitting to fill the cover cavity for an added barrier against contamination.



**Fig. C-33. Closed-end covers.**

**Open-End Covers (CJ/CK/CV)**

These bolt-on covers are made from structural steel or urethane for repeated and continuous use. The covers are used with either a DuPont Teflon (T seal), triple-lip seal (DR) or a V-ring seal (VR) to help prevent contamination from reaching the primary seal. Every cover is outfitted with a grease fitting to fill the cover cavity for an added barrier against contamination.



**Fig. C-34. Open-end covers.**

**PILOTED FLANGE CARTRIDGE BACKING PLATES (HSY)**

The HSY backing plate is designed to work in conjunction with the piloted flange cartridge housed units. Made of structural urethane, these plates are fitted to the back side of the pilot for extra protection. The HSY plate comes supplied with a triple-lip seal (DR) or a contamination collar (optional) to form an additional barrier against contamination for the most demanding applications.



**Fig. C-35. Piloted flange cartridge backing plates.**

**FLANGE BLOCK BACKING PLATES (UFP)**

These backing plates are made from structural urethane and are uniquely designed to work with our flange block housed units. Made to fit flush against the back of the housing, these plates create a labyrinth over the inner ring for additional contamination protection. The UFP plate, when used with an optional V-ring seal (VR), provides an extra barrier against extreme contamination.



**Fig. C-36. Flange block backing plates.**

### STEEL COVER DIMENSIONS

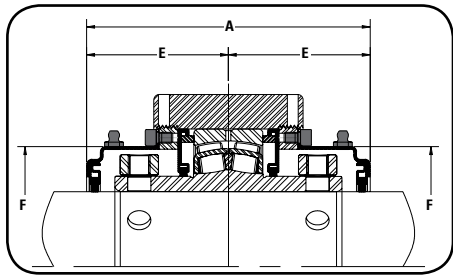


Fig. C-37. Double open-end cover.<sup>(1)</sup>

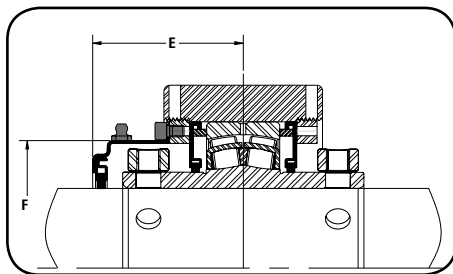


Fig. C-38. Single open-end cover.

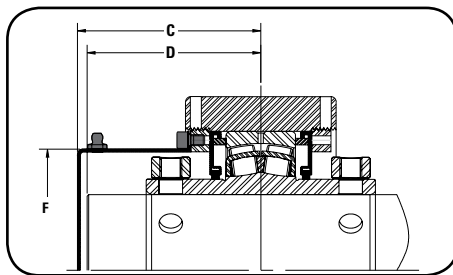


Fig. C-39. Single closed-end cover.

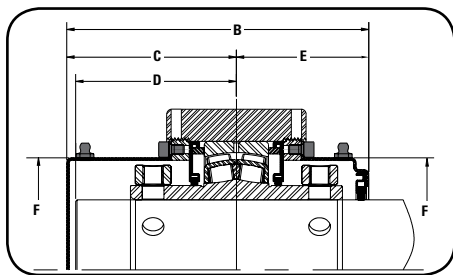


Fig. C-40. Single closed-end cover and single open-end cover.<sup>(1)</sup>

TABLE C-35. V-LOCK® SERIES – STRAIGHT BORE EQUIVALENTS

Cover Part No.	Shaft Dia.	Bearing No.	Steel Cover Dimensions					
			A	B	C	D	E	F
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
CS11STEEL	CLOSED	22211						
CV11T115S	1 15/16 in.		128.5	143.3	79.2	75.2	64.3	89.7
CV11T050S	50 mm		5.06	5.64	3.12	2.96	2.53	3.53
CV11T200S	2 in.							
CS12STEEL	CLOSED	22212						
CV12T055S	55 mm		129.0	141.5	77.0	72.9	64.5	98.6
CV12T203S	2 3/16 in.		5.08	5.57	3.03	2.87	2.54	3.88
CV12T204S	2 1/4 in.							
CS14STEEL	CLOSED	22214						
CV14T060S	60 mm		135.4	159.3	91.4	87.4	67.8	103.6
CV14T207S	2 7/16 in.		5.33	6.27	3.60	3.44	2.67	4.08
CV14T208S	2 1/2 in.							
CV14T065S	65 mm							
CS16STEEL	CLOSED	22216						
CV16T211S	2 11/16 in.		150.1	167.6	92.5	88.4	75.2	116.1
CV16T212S	2 3/4 in.		5.91	6.60	3.64	3.48	2.96	4.57
CV16T070S	70 mm							
CV16T215S	2 15/16 in.							
CV16T075S	75 mm							
CV16T300S	3 in.							
CS19STEEL	CLOSED	22219						
CV19T080S	80 mm		167.9	191.0	106.9	102.9	84.1	139.4
CV19T303S	3 3/16 in.		6.61	7.52	4.21	4.05	3.31	5.49
CV19T304S	3 1/4 in.							
CV19T085S	85 mm							
CV19T307S	3 7/16 in.							
CV19T308S	3 1/2 in.							
CV19T090S	90 mm							
CS22STEEL	CLOSED	22222						
CV22T311S	3 11/16 in.		217.7	241.8	133.1	129.0	109.0	180.1
CV22T312S	3 3/4 in.		8.57	9.52	5.24	5.08	4.29	7.09
CV22T100S	100 mm							
CV22T315S	3 15/16 in.							
CV22T400S	4 in.							
CS26STEEL	CLOSED	22226						
CV26T110S	110 mm		219.7	242.8	133.1	129.0	110.0	209.3
CV26T407S	4 7/16 in.		8.65	9.56	5.24	5.08	4.33	8.24
CV26T408S	4 1/2 in.							
CV26T115S	115 mm							
CS28STEEL	CLOSED	22228						
CV28T125S	125 mm		223.5	246.9	135.1	131.1	111.8	209.3
CV28T415S	4 15/16 in.		8.80	9.72	5.32	5.16	4.40	8.24
CV28T500S	5 in.							
CV28T130S	130 mm							

<sup>(1)</sup>Double covers available only on pillow block and take-up style bearings.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## SEAL AND COVER OPTIONS • STEEL COVER DIMENSIONS

**TABLE C-36. V-LOCK SERIES – TAPERED BORE EQUIVALENTS**

Cover Part No.	Shaft Dia.	Bearing No.	Steel Cover Dimensions					
			A	B	C	D	E	F
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
CS11STEEL	CLOSED	22211	<b>124.2</b> 4.89	<b>139.2</b> 5.48	<b>77.0</b> 3.03	<b>72.9</b> 2.87	<b>62.2</b> 2.45	<b>89.7</b> 3.53
CV11T115S	1 15/16 in.							
CV11T050S	<b>50 mm</b>							
CV11T200S	2 in.							
CS13STEEL	CLOSED	22213	<b>130.3</b> 5.13	<b>154.2</b> 6.07	<b>88.9</b> 3.50	<b>84.8</b> 3.34	<b>65.3</b> 2.57	<b>103.6</b> 4.08
CV13T055S	<b>55 mm</b>							
CV13T203S	2 3/16 in.							
CV13T204S	2 1/4 in.							
CS15STEEL	CLOSED	22215	<b>142.7</b> 5.62	<b>160.3</b> 6.31	<b>88.9</b> 3.50	<b>84.8</b> 3.34	<b>71.4</b> 2.81	<b>116.1</b> 4.57
CV15T060S	<b>60 mm</b>							
CV15T207S	2 7/16 in.							
CV15T208S	2 1/2 in.							
CV15T065S	<b>65 mm</b>	22217	<b>133.9</b> 5.27	<b>156.0</b> 6.14	<b>88.9</b> 3.50	<b>84.8</b> 3.34	<b>67.1</b> 2.64	<b>132.1</b> 5.2
CS17STEEL	CLOSED							
CV17T211S	2 11/16 in.							
CV17T212S	2 3/4 in.							
CV17T070S	<b>70 mm</b>	22220	<b>170.4</b> 6.71	<b>193.0</b> 7.60	<b>108.0</b> 4.25	<b>103.9</b> 4.09	<b>85.3</b> 3.36	<b>160.3</b> 6.31
CV17T215S	2 15/16 in.							
CV17T075S	<b>75 mm</b>							
CV17T300S	3 in.							
CS20STEEL	CLOSED	22222	<b>208.5</b> 8.21	<b>232.9</b> 9.17	<b>128.5</b> 5.06	<b>124.5</b> 4.90	<b>104.4</b> 4.11	<b>180.1</b> 7.09
CV20T080S	<b>80 mm</b>							
CV20T303S	3 3/16 in.							
CV20T304S	3 1/4 in.							
CV20T085S	<b>85 mm</b>	22224	<b>213.6</b> 8.41	<b>237.7</b> 9.36	<b>131.1</b> 5.16	<b>127.0</b> 5.00	<b>106.7</b> 4.20	<b>180.1</b> 7.09
CV20T307S	3 7/16 in.							
CV20T308S	3 1/2 in.							
CV20T090S	<b>90 mm</b>							
CS22STEEL	CLOSED	22226	<b>210.6</b> 8.29	<b>233.9</b> 9.21	<b>128.5</b> 5.06	<b>124.5</b> 4.90	<b>105.4</b> 4.15	<b>209.3</b> 8.24
CV22T311S	3 11/16 in.							
CV22T312S	3 3/4 in.							
CV22T100S	<b>100 mm</b>							
CV22T315S	3 15/16 in.	22228	<b>214.6</b> 8.45	<b>238.0</b> 9.37	<b>130.6</b> 5.14	<b>126.5</b> 4.98	<b>107.2</b> 4.22	<b>209.3</b> 8.24
CV22T400S	4 in.							
CS24STEEL	CLOSED							
CV24T110S	<b>110 mm</b>							
CS26STEEL	CLOSED	22226	<b>210.6</b> 8.29	<b>233.9</b> 9.21	<b>128.5</b> 5.06	<b>124.5</b> 4.90	<b>105.4</b> 4.15	<b>209.3</b> 8.24
CV26T110S	<b>110 mm</b>							
CV26T407S	4 7/16 in.							
CV26T408S	4 1/2 in.							
CV26T115S	<b>115 mm</b>	22222	<b>217.7</b> 8.57	<b>241.8</b> 9.52	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>109.0</b> 4.29	<b>180.1</b> 7.09
CS28STEEL	CLOSED							
CV28T125S	<b>125 mm</b>							
CV28T415S	4 15/16 in.							
CV28T500S	5 in.	22226	<b>219.7</b> 8.65	<b>242.8</b> 9.56	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>110.0</b> 4.33	<b>209.3</b> 8.24
CV28T130S	<b>130 mm</b>							
CS26STEEL	CLOSED							
CA26T125S	<b>125 mm</b>							
CA26T415S	4 15/16 in.	22226	<b>219.7</b> 8.65	<b>242.8</b> 9.56	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>110.0</b> 4.33	<b>209.3</b> 8.24
CA26T500S	5 in.							
CA26T130S	<b>130 mm</b>							
CS26STEEL	CLOSED							

**TABLE C-37. CL SERIES – SINGLE AND DOUBLE SET SCREW LOCKS**

Cover Part No.	Shaft Dia.	Bearing No.	Steel Cover Dimensions					
			A	B	C	D	E	F
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
CS08STEEL	CLOSED	22208	<b>115.6</b> 4.55	<b>127.8</b> 5.03	<b>69.9</b> 2.75	<b>65.8</b> 2.59	<b>57.9</b> 2.28	<b>69.6</b> 2.74
CA08T035S	<b>35 mm</b>							
CA08T107S	1 7/16 in.							
CA08T108S	1 1/2 in.							
CS09STEEL	CLOSED	22209	<b>121.7</b> 4.79	<b>130.8</b> 5.15	<b>69.9</b> 2.75	<b>65.8</b> 2.59	<b>61.0</b> 2.40	<b>74.7</b> 2.94
CA09T040S	<b>40 mm</b>							
CA09T111S	1 11/16 in.							
CA09T112S	1 3/4 in.							
CA09T045S	<b>45 mm</b>	22210	<b>122.7</b> 4.83	<b>132.8</b> 5.23	<b>73.2</b> 2.88	<b>69.1</b> 2.72	<b>61.5</b> 2.42	<b>79.8</b> 3.14
CS10STEEL	CLOSED							
CA10T115S	1 15/16 in.							
CA10T050S	<b>50 mm</b>							
CA10T200S	2 in.	22211	<b>128.5</b> 5.06	<b>143.3</b> 5.64	<b>79.2</b> 3.12	<b>75.2</b> 2.96	<b>64.3</b> 2.53	<b>89.7</b> 3.53
CS11STEEL	CLOSED							
CA11T055S	<b>55 mm</b>							
CA11T203S	2 3/16 in.							
CA11T204S	2 1/4 in.	22213	<b>135.4</b> 5.33	<b>159.3</b> 6.27	<b>91.4</b> 3.60	<b>87.4</b> 3.44	<b>67.8</b> 2.67	<b>103.6</b> 4.08
CS13STEEL	CLOSED							
CA13T060S	<b>60 mm</b>							
CA13T207S	2 7/16 in.							
CA13T208S	2 1/2 in.	22215	<b>148.1</b> 5.83	<b>165.6</b> 6.52	<b>91.4</b> 3.60	<b>87.4</b> 3.44	<b>74.2</b> 2.92	<b>116.1</b> 4.57
CA13T065S	<b>65 mm</b>							
CS15STEEL	CLOSED							
CA15T211S	2 11/16 in.							
CA15T212S	2 3/4 in.	22218	<b>164.8</b> 6.49	<b>188.0</b> 7.40	<b>105.7</b> 4.16	<b>101.6</b> 4.00	<b>82.6</b> 3.25	<b>139.4</b> 5.49
CA15T070S	<b>70 mm</b>							
CA15T215S	2 15/16 in.							
CA15T075S	<b>75 mm</b>							
CA15T300S	3 in.	22220	<b>179.6</b> 7.07	<b>202.2</b> 7.96	<b>112.5</b> 4.43	<b>108.5</b> 4.27	<b>89.9</b> 3.54	<b>160.3</b> 6.31
CS18STEEL	CLOSED							
CA18T080S	<b>80 mm</b>							
CA18T303S	3 3/16 in.							
CA18T304S	3 1/4 in.	22222	<b>217.7</b> 8.57	<b>241.8</b> 9.52	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>109.0</b> 4.29	<b>180.1</b> 7.09
CA18T085S	<b>85 mm</b>							
CA18T307S	3 7/16 in.							
CA18T308S	3 1/2 in.							
CA18T090S	<b>90 mm</b>	22226	<b>219.7</b> 8.65	<b>242.8</b> 9.56	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>110.0</b> 4.33	<b>209.3</b> 8.24
CS20STEEL	CLOSED							
CA20T311S	3 11/16 in.							
CA20T312S	3 3/4 in.							
CA20T100S	<b>100 mm</b>	22222	<b>217.7</b> 8.57	<b>241.8</b> 9.52	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>109.0</b> 4.29	<b>180.1</b> 7.09
CA20T315S	3 15/16 in.							
CA20T400S	4 in.							
CS22STEEL	CLOSED							
CA22T110S	<b>110 mm</b>	22222	<b>217.7</b> 8.57	<b>241.8</b> 9.52	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>109.0</b> 4.29	<b>180.1</b> 7.09
CA22T407S	4 7/16 in.							
CA22T408S	4 1/2 in.							
CA22T115S	<b>115 mm</b>							
CS26STEEL	CLOSED	22226	<b>219.7</b> 8.65	<b>242.8</b> 9.56	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>110.0</b> 4.33	<b>209.3</b> 8.24
CA26T125S	<b>125 mm</b>							
CA26T415S	4 15/16 in.							
CA26T500S	5 in.							
CA26T130S	<b>130 mm</b>	22226	<b>219.7</b> 8.65	<b>242.8</b> 9.56	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>110.0</b> 4.33	<b>209.3</b> 8.24
CS26STEEL	CLOSED							
CA26T125S	<b>125 mm</b>							
CA26T415S	4 15/16 in.							
CA26T500S	5 in.	22226	<b>219.7</b> 8.65	<b>242.8</b> 9.56	<b>133.1</b> 5.24	<b>129.0</b> 5.08	<b>110.0</b> 4.33	<b>209.3</b> 8.24
CA26T130S	<b>130 mm</b>							
CS26STEEL	CLOSED							
CA26T125S	<b>125 mm</b>							

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## SEAL AND COVER OPTIONS • STEEL COVER DIMENSIONS

TABLE C-38. EC SERIES—ECCENTRIC LOCK

Cover Part No.	Shaft Dia.	Bearing No.	Steel Cover Dimensions					
			A	B	C	D	E	F
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
CS08STEEL	CLOSED	22208	115.6 4.55	127.8 5.03	69.9 2.75	65.8 2.59	57.9 2.28	69.6 2.74
CJ08T035S	35 mm							
CJ08T107S	1 7/16 in.							
CJ08T108S	1 1/2 in.							
CS09STEEL	Closed	22209	121.7 4.79	130.8 5.15	69.9 2.75	65.8 2.59	61.0 2.40	74.7 2.94
CJ09T040S	40 mm							
CJ09T111S	1 11/16 in.							
CJ09T112S	1 3/4 in.							
CJ09T045S	45 mm	22210	122.7 4.83	132.8 5.23	73.2 2.88	69.1 2.72	61.5 2.42	79.8 3.14
CS10STEEL	CLOSED							
CJ10T115S	1 15/16 in.							
CJ10T050S	50 mm							
CJ10T200S	2 in.	22211	128.5 5.06	143.3 5.64	79.2 3.12	75.2 2.96	64.3 2.53	89.7 3.53
CS11STEEL	CLOSED							
CJ11T055S	55 mm							
CJ11T203S	2 3/16 in.							
CJ11T204S	2 1/4 in.	22213	135.4 5.33	159.3 6.27	91.4 3.60	87.4 3.44	67.8 2.67	103.6 4.08
CS13STEEL	CLOSED							
CJ13T060S	60 mm							
CJ13T207S	2 7/16 in.							
CJ13T208S	2 1/2 in.	22215	148.1 5.83	165.6 6.52	91.4 3.60	87.4 3.44	74.2 2.92	116.1 4.57
CJ13T065S	65 mm							
CS15STEEL	CLOSED							
CJ15T211S	2 11/16 in.							
CJ15T212S	2 3/4 in.	22218	164.8 6.49	188.0 7.40	105.7 4.16	101.6 4.00	82.6 3.25	139.4 5.49
CJ15T070S	70 mm							
CJ15T215S	2 15/16 in.							
CJ15T075S	75 mm							
CJ15T300S	3 in.	22218	164.8 6.49	188.0 7.40	105.7 4.16	101.6 4.00	82.6 3.25	139.4 5.49
CS18STEEL	CLOSED							
CJ18T080S	80 mm							
CJ18T303S	3 3/16 in.							
CJ18T304S	3 1/4 in.	22218	164.8 6.49	188.0 7.40	105.7 4.16	101.6 4.00	82.6 3.25	139.4 5.49
CJ18T085S	85 mm							
CJ18T307S	3 7/16 in.							
CJ18T308S	3 1/2 in.							
CJ18T090S	90 mm							

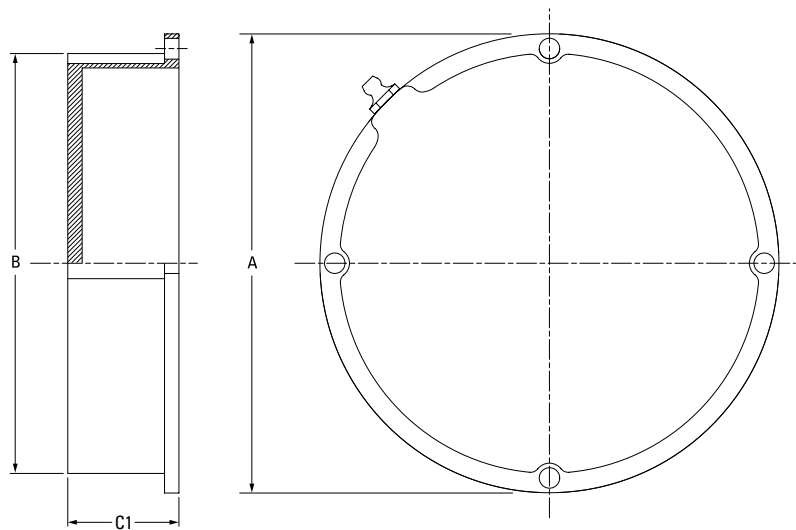
Cover Part No.	Shaft Dia.	Bearing No.	Steel Cover Dimensions					
			A	B	C	D	E	F
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
CS20STEEL	CLOSED	22220	179.6 7.07	202.2 7.96	112.5 4.43	108.5 4.27	89.9 3.54	160.3 6.31
CJ20T311S	3 11/16 in.							
CJ20T312S	3 3/4 in.							
CJ20T100S	100 mm							
CJ20T315S	3 15/16 in.	22222	217.7 8.57	241.8 9.52	133.1 5.24	129.0 5.08	109.0 4.29	180.1 7.09
CJ20T400S	4 in.							
CS22STEEL	CLOSED							
CJ22T110S	110 mm							
CJ22T407S	4 7/16 in.	22226	219.7 8.65	242.8 9.56	133.1 5.24	129.0 5.08	110.0 4.33	209.3 8.24
CJ22T408S	4 1/2 in.							
CJ22T115S	115 mm							
CS26STEEL	CLOSED							
CJ26T125S	125 mm	23230	270.3 10.64	283.2 11.15	148.1 5.83	144.0 5.67	135.1 5.32	239.5 9.43
CJ26T415S	4 15/16 in.							
CJ26T500S	5 in.							
CJ26T130S	130 mm							
CS30STEEL	CLOSED	23234	300.5 11.83	305.3 12.02	155.2 6.11	151.1 5.95	150.1 5.91	279.4 11.00
CJ30T507S	5 7/16 in.							
CJ30T508S	5 1/2 in.							
CJ30T140S	140 mm							
CJ30T515S	5 15/16 in.	23234	300.5 11.83	305.3 12.02	155.2 6.11	151.1 5.95	150.1 5.91	279.4 11.00
CJ30T600S	6 in.							
CJ30T150S	150 mm							
CS34STEEL	CLOSED							
CJ34T607S	6 7/16 in.	23234	300.5 11.83	305.3 12.02	155.2 6.11	151.1 5.95	150.1 5.91	279.4 11.00
CJ34T608S	6 1/2 in.							
CJ34T170S	170 mm							
CJ34T615S	6 15/16 in.							
CJ34T700S	7 in.	23234	300.5 11.83	305.3 12.02	155.2 6.11	151.1 5.95	150.1 5.91	279.4 11.00
CJ34T180S	180 mm							

TABLE C-39. TA/DV SERIES – TAPERED ADAPTER LOCK

Cover Part No.	Shaft Dia.	Bearing No.	Steel Cover Dimensions					
			A	B	C	D	E	F
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
CS09STEEL	CLOSED							
CK09T107S	1 7/16 in.	22209	118.4	127.5	68.3	64.3	59.2	74.7
CK09T108S	1 1/2 in.		4.66	5.02	2.69	2.53	2.33	2.94
CK09T040S	40 mm							
CS10STEEL	CLOSED							
CK10T111S	1 1/16 in.	22210	118.4	130.0	70.9	66.8	59.2	79.8
CK10T112S	1 3/4 in.		4.66	5.12	2.79	2.63	2.33	3.14
CK10T045S	45 mm							
CS11STEEL	CLOSED							
CK11T115S	1 15/16 in.	22211	124.2	139.2	77.0	72.9	62.2	89.7
CK11T050S	50 mm		4.89	5.48	3.03	2.87	2.45	3.53
CK11T200S	2 in.							
CS12STEEL	CLOSED	22212	123.7	136.4	74.4	70.4	62.0	98.6
CK12T055S	55 mm		4.87	5.37	2.93	2.77	2.44	3.88
CS13STEEL	CLOSED							
CK13T203S	2 3/16 in.	22213	130.3	154.2	88.9	84.8	65.3	103.6
CK13T204S	2 1/4 in.		5.13	6.07	3.50	3.34	2.57	4.08
CK13T060S	60 mm							
CS15STEEL	CLOSED							
CK15T207S	2 7/16 in.	22215	142.7	160.3	88.9	84.8	71.4	116.1
CK15T208S	2 1/2 in.		5.62	6.31	3.50	3.34	2.81	4.57
CK15T065S	65 mm							
CS16STEEL	CLOSED							
CK16T211S	2 1/16 in.	22216	144.8	162.3	89.9	85.9	72.4	116.1
CK16T212S	2 3/4 in.		5.70	6.39	3.54	3.38	2.85	4.57
CK16T070S	70 mm							
CS17STEEL	CLOSED							
CK17T215S	2 15/16 in.	22217	133.9	156.0	88.9	84.8	67.1	132.1
CK17T075S	75 mm		5.27	6.14	3.50	3.34	2.64	5.20
CK17T300S	3 in.							
CS18STEEL	CLOSED							
CK18T080S	80 mm	22218	159.5	182.9	102.9	98.8	79.8	139.4
CK18T303S	3 3/16 in.		6.28	7.20	4.05	3.89	3.14	5.49
CK18T304S	3 1/4 in.							
CS19STEEL	CLOSED	22219	162.6	185.7	104.4	100.3	81.3	139.4
CK19T085S	85 mm		6.40	7.31	4.11	3.95	3.20	5.49
CS20STEEL	CLOSED							
CK20T307S	3 7/16 in.	22220	170.4	193.0	108.0	103.9	85.3	160.3
CK20T308S	3 1/2 in.		6.71	7.60	4.25	4.09	3.36	6.31
CK20T090S	90 mm							
CS22STEEL	CLOSED							
CK22T315S	3 15/16 in.	22222	208.5	232.9	128.5	124.5	104.4	180.1
CK22T400S	4 in.		8.21	9.17	5.06	4.90	4.11	7.09
CK22T100S	100 mm							
CS24STEEL	CLOSED							
CK24T403S	4 3/16 in.	22224	213.6	237.7	131.1	127.0	106.7	180.1
CK24T404S	4 1/4 in.		8.41	9.36	5.16	5.00	4.20	7.09
CK24T110S	110 mm							
CS26STEEL	CLOSED							
CK26T407S	4 7/16 in.	22226	210.6	233.9	128.5	124.5	105.4	209.3
CK26T408S	4 1/2 in.		8.29	9.21	5.06	4.90	4.15	8.24
CK26T115S	115 mm							
CS28STEEL	CLOSED							
CK28T415S	4 15/16 in.	22228	214.6	238.0	130.6	126.5	107.2	209.3
CK28T500S	5 in.		8.45	9.37	5.14	4.98	4.22	8.24
CK28T125S	125 mm							

**URETHANE**

**CLOSED-END COVER DIMENSIONS**



**TABLE C-40. CLOSED-END COVER DIMENSIONS**

Cover Part No. <sup>(1)</sup>	A	B	C1 <sup>(2)</sup>
	mm in.	mm in.	mm in.
CS08	97.0 3.82	76.7 3.02	31.8 1.25
CS09	101.8 4.01	81.5 3.21	31.8 1.25
CS10	106.9 4.21	86.6 3.41	31.8 1.25
CS11	117.1 4.61	96.8 3.81	31.8 1.25
CS12V	126.0 4.96	105.7 4.16	31.8 1.25
CS13/CS14V	132.1 5.20	116.1 4.57	31.8 1.08
CS15/CS16V	142.0 5.59	122.9 4.84	33.0 1.30
CS17	160.5 6.32	141.5 5.57	31.0 1.22
CS18/CS19V	168.1 6.62	149.1 5.87	38.9 1.53
CS20	192.0 7.56	174.7 6.88	44.5 1.75
CS22	212.1 8.35	194.8 7.67	52.6 2.07
CS24	212.1 8.35	194.8 7.67	52.6 2.07
CS26/CS28V	241.3 9.50	223.8 8.81	56.9 2.24
CS30	271.5 10.69	254.0 10.00	56.9 2.24
CS34	304.8 12.00	287.3 11.31	56.9 2.24

<sup>(1)</sup>Cover part number, CSXX, is determined by the bearing insert series of unit on which cover will be installed. See nomenclature guide on page C-54 to determine bearing insert series.

<sup>(2)</sup>Extended covers available upon request.

OPEN-END COVERS WITH DR SEALS

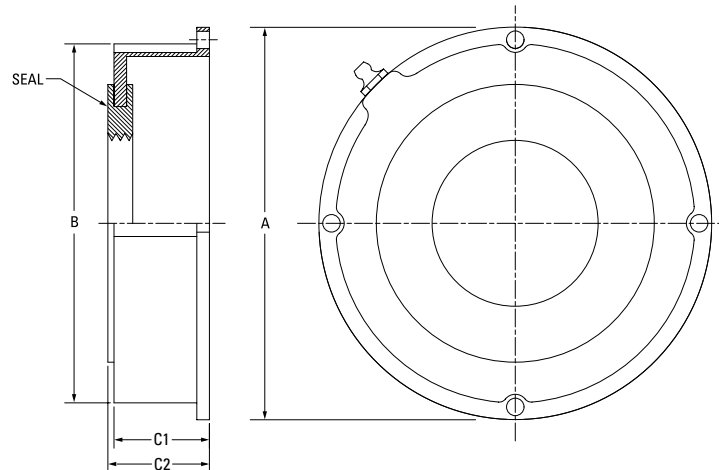


TABLE C-41. V-LOCK SERIES – STRAIGHT BORE EQUIVALENT – OPEN-END COVER WITH DR SEAL – (QV[V]...P, PL, SN, PF, PR, C, CW, F, FL, FY, FX, TU)

Cover Part No.	Shaft Dia.	A	B	C1	C2
	mm in.	mm in.	mm in.	mm in.	mm in.
CVDR115	1 15/16 in.	117.1 4.61	96.8 3.81	31.8 1.25	34.3 1.35
CVDR200	2 in.				
CVDR050MM	50 mm	126.0 4.96	105.7 4.16	31.8 1.25	34.3 1.35
CVDR203	2 3/16 in.				
CVDR204	2 1/4 in.	132.1 5.20	116.1 4.57	27.4 1.08	30.0 1.18
CVDR055MM	55 mm				
CVDR060MM	60 mm	142.0 5.59	122.9 4.84	33.0 1.30	35.6 1.40
CVDR207	2 7/16 in.				
CVDR208	2 1/2 in.	168.1 6.62	149.1 5.87	38.9 1.53	41.4 1.63
CVDR065MM	65 mm				
CVDR211	2 11/16 in.	212.1 8.35	194.8 7.67	52.6 2.07	55.1 2.17
CVDR212	2 3/4 in.				
CVDR070MM	70 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR215	2 15/16 in.				
CVDR300	3 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR075MM	75 mm				
CVDR303	3 3/16 in.	212.1 8.35	194.8 7.67	52.6 2.07	55.1 2.17
CVDR304	3 1/4 in.				
CVDR080MM	80 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR085MM	85 mm				
CVDR307	3 7/16 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR308	3 1/2 in.				
CVDR090MM	90 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR311	3 11/16 in.				
CVDR312	3 3/4 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR100MM	100 mm				
CVDR315	3 15/16 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR400	4 in.				
CVDR110MM	110 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR407	4 7/16 in.				
CVDR408	4 1/2 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR115MM	115 mm				
CVDR125MM	125 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR415	4 15/16 in.				
CVDR500	5 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CVDR130MM	130 mm				

TABLE C-42. V-LOCK SERIES – TAPERED ADAPTER EQUIVALENT – OPEN-END COVER WITH DR SEAL – (QV[V]...PA, PN, PKT, PK, PH, PG, FC, FB, MC)

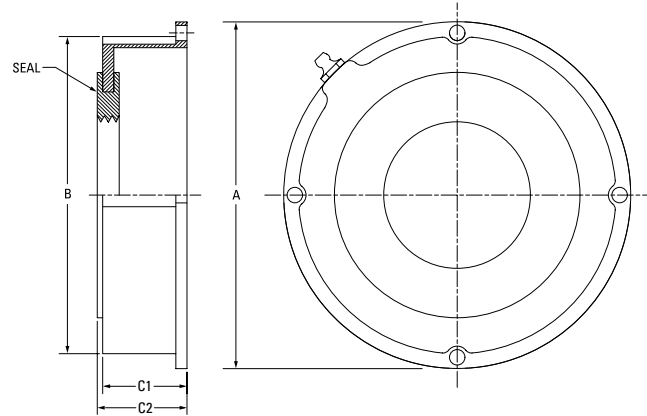
Cover Part No.	Shaft Dia.	A	B	C1	C2
	mm in.	mm in.	mm in.	mm in.	mm in.
CKDR115	1 15/16 in.	117.1 4.61	96.8 3.81	31.8 1.25	34.3 1.35
CKDR200	2 in.				
CKDR050MM	50 mm	132.1 5.20	116.1 4.57	27.4 1.08	30.0 1.18
CKDR203	2 3/16 in.				
CKDR204	2 1/4 in.	142.0 5.59	122.9 4.84	33.0 1.30	35.6 1.40
CKDR055MM	55 mm				
CKDR060MM	60 mm	160.5 6.32	141.5 5.57	31.0 1.22	33.5 1.32
CKDR207	2 7/16 in.				
CKDR208	2 1/2 in.	192.0 7.56	174.8 6.88	44.5 1.75	47.0 1.85
CKDR065MM	65 mm				
CKDR211	2 11/16 in.	212.1 8.35	194.8 7.67	52.6 2.07	55.1 2.17
CKDR212	2 3/4 in.				
CKDR070MM	70 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR215	2 15/16 in.				
CKDR300	3 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR075MM	75 mm				
CKDR303	3 3/16 in.	212.1 8.35	194.8 7.67	52.6 2.07	55.1 2.17
CKDR304	3 1/4 in.				
CKDR080MM	80 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR085MM	85 mm				
CKDR307	3 7/16 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR308	3 1/2 in.				
CKDR090MM	90 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR311	3 11/16 in.				
CKDR312	3 3/4 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR100MM	100 mm				
CKDR315	3 15/16 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR400	4 in.				
CKDR110MM	110 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR407	4 7/16 in.				
CKDR408	4 1/2 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR115MM	115 mm				
CKDR125MM	125 mm	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR415	4 15/16 in.				
CKDR500	5 in.	241.3 9.50	223.8 8.81	56.9 2.24	59.4 2.34
CKDR130MM	130 mm				

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

SEAL AND COVER OPTIONS • URETHANE • OPEN-END COVERS WITH DR SEALS

**TABLE C-43. CL AND EC SERIES – OPEN-END COVER WITH DR SEAL**

Cover Part No.	Shaft Dia.	A	B	C1	C2
	mm in.	mm in.	mm in.	mm in.	mm in.
CJDR035MM	35 mm	97.0	76.7	31.8	34.3
CJDR107	1 7/16 in.				
CJDR108	1 1/2 in.				
CJDR040MM	40 mm	101.9	81.6	31.8	34.3
CJDR111	1 11/16 in.				
CJDR112	1 3/4 in.				
CJDR045MM	45 mm	106.9	86.6	31.8	34.3
CJDR115	1 15/16 in.				
CJDR200	2 in.				
CJDR050MM	50 mm	117.1	96.8	31.8	34.3
CJDR203	2 3/16 in.				
CJDR204	2 1/4 in.				
CJDR055MM	55 mm	117.1	96.8	31.8	34.3
CJDR060MM	60 mm				
CJDR207	2 7/16 in.				
CJDR208	2 1/2 in.	132.1	116.1	27.4	30.0
CJDR065MM	65 mm				
CJDR211	2 11/16 in.				
CJDR070MM	70 mm	142	122.9	33.0	35.6
CJDR212	2 3/4 in.				
CJDR215	2 15/16 in.				
CJDR300	3 in.	142	122.9	33.0	35.6
CJDR075MM	75 mm				
CJDR303	3 3/16 in.				
CJDR304	3 1/4 in.	168.1	149.1	38.9	41.4
CJDR080MM	80 mm				
CJDR085MM	85 mm				
CJDR307	3 7/16 in.	168.1	149.1	38.9	41.4
CJDR308	3 1/2 in.				
CJDR090MM	90 mm				
CJDR315	3 15/16 in.	192	174.8	44.5	47.0
CJDR400	4 in.				
CJDR100MM	100 mm				
CJDR110MM	110 mm	212.1	194.8	52.6	55.1
CJDR407	4 7/16 in.				
CJDR408	4 1/2 in.				
CJDR115MM	115 mm	212.1	194.8	52.6	55.1
CJDR125MM	125 mm				
CJDR415	4 15/16 in.				
CJDR500	5 in.	241.3	223.8	56.9	59.4
CJDR130MM	130 mm				
CJDR507	5 7/16 in.				
CJDR508	5 1/2 in.	271.6	254.0	56.9	59.4
CJDR140MM	140 mm				
CJDR515	5 15/16 in.				
CJDR600	6 in.	271.6	254.0	56.9	59.4
CJDR150MM	150 mm				
CJDR607	6 7/16 in.				
CJDR608	6 1/2 in.	304.8	287.3	56.9	59.4
CJDR170MM	170 mm				
CJDR615	6 15/16 in.				
CJDR700	7 in.	304.8	287.3	56.9	59.4
CJDR180MM	180 mm				

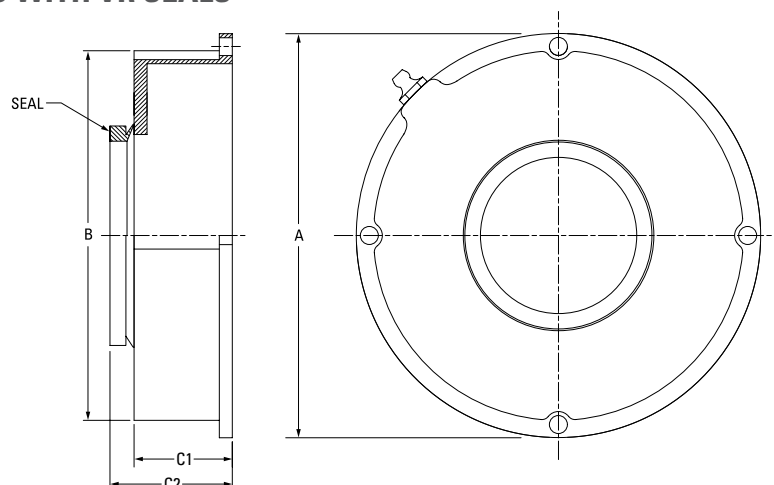


**TABLE C-44. TA/DV SERIES – OPEN-END COVER WITH DR SEAL**

Cover Part No.	Shaft Dia.	A	B	C1	C2
	mm in.	mm in.	mm in.	mm in.	mm in.
CKDR107	1 7/16 in.	101.9	81.5	31.8	34.3
CKDR108	1 1/2 in.				
CKDR040MM	40 mm				
CKDR111	1 11/16 in.	106.9	86.6	31.8	34.3
CKDR112	1 3/4 in.				
CKDR045MM	45 mm				
CKDR115	1 15/16 in.	117.1	96.8	31.8	34.3
CKDR200	2 in.				
CKDR050MM	50 mm				
CKDR055MM	55 mm	126.0	105.7	31.8	34.3
CKDR203	2 3/16 in.				
CKDR204	2 1/4 in.				
CKDR060MM	60 mm	132.1	116.1	27.4	30.0
CKDR207	2 7/16 in.				
CKDR208	2 1/2 in.				
CKDR065MM	65 mm	142.0	122.9	33.0	35.6
CKDR211	2 11/16 in.				
CKDR212	2 3/4 in.				
CKDR070MM	70 mm	142.0	122.9	33.0	35.6
CKDR215	2 15/16 in.				
CKDR300	3 in.				
CKDR075MM	75 mm	160.5	141.5	31.0	33.5
CKDR215	2 15/16 in.				
CKDR300	3 in.				
CKDR080MM	80 mm	160.5	141.5	31.0	33.5
CKDR303	3 3/16 in.				
CKDR304	3 1/4 in.				
CKDR085MM	85 mm	168.1	149.1	38.9	41.4
CKDR307	3 7/16 in.				
CKDR308	3 1/2 in.				
CKDR090MM	90 mm	192.0	174.8	44.5	47.0
CKDR307	3 7/16 in.				
CKDR308	3 1/2 in.				
CKDR315	3 15/16 in.	212.1	194.8	52.6	55.1
CKDR400	4 in.				
CKDR100MM	100 mm				
CKDR403	4 3/16 in.	212.1	194.8	52.6	55.1
CKDR404	4 1/4 in.				
CKDR110MM	110 mm				
CKDR407	4 7/16 in.	241.3	223.8	56.9	59.4
CKDR408	4 1/2 in.				
CKDR115MM	115 mm				
CKDR415	4 15/16 in.	241.3	223.8	56.9	59.4
CKDR500	5 in.				
CKDR125MM	125 mm				



### OPEN-END COVERS WITH VR SEALS



**TABLE C-45. V-LOCK SERIES – STRAIGHT BORE EQUIVALENT – OPEN-END COVER WITH VR SEAL – (QV[V])...P, PL, SN, PF, PR, PX, PXT, C, CW, F, FL, FY, FX, TU)**

Cover Part No. <sup>(1)</sup>	Shaft Dia.	A	B	C1	C2
	mm in.	mm in.	mm in.	mm in.	mm in.
CVVR11	1 15/16 in.	117.1	96.8	31.8	40.6
	2 in.				
	50 mm				
CVVR12	2 3/16 in.	126.0	105.7	31.8	40.6
	2 1/4 in.				
	55 mm				
CVVR14	2 7/16 in.	132.1	116.1	27.4	36.3
	2 1/2 in.				
	65 mm				
CVVR16	2 11/16 in.	142.0	122.9	33.0	44.0
	2 3/4 in.				
	70 mm				
	2 15/16 in.				
	3 in.				
CVVR19	3 in.	168.1	149.1	38.9	50.0
	3 1/4 in.				
	80 mm				
	85 mm				
	3 7/16 in.				
CVVR22	3 1/2 in.	212.1	194.8	52.6	63.5
	3 11/16 in.				
	3 3/4 in.				
	100 mm				
	3 15/16 in.				
CVVR26	4 in.	241.3	223.8	56.9	69.6
	4 7/16 in.				
	4 1/2 in.				
CVVR28	110 mm	241.3	223.8	56.9	69.6
	115 mm				
	125 mm				

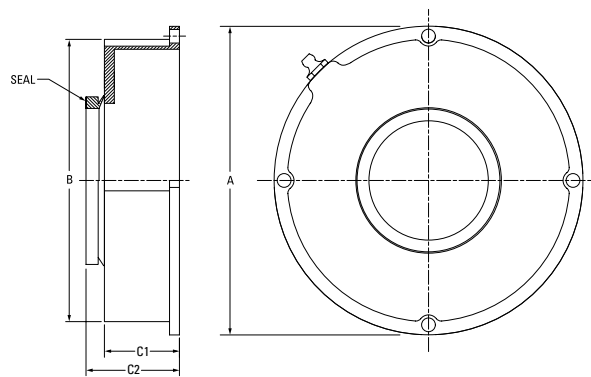
**TABLE C-46. V-LOCK SERIES – TAPERED ADAPTER EQUIVALENT – OPEN-END COVER WITH VR SEAL – (QV[V])...PA, PN, PKT, PK, PH, PG, FC, FB, MC)**

Cover Part No.	Shaft Dia.	A	B	C1	C2
	mm in.	mm in.	mm in.	mm in.	mm in.
CKVR11	1 15/16 in.	117.1	96.8	31.8	40.6
	2 in.				
	50 mm				
CKVR13	2 3/16 in.	132.1	116.1	27.4	36.3
	2 1/4 in.				
	55 mm				
CKVR15	60 mm	142.0	122.9	33.0	41.9
	2 7/16 in.				
	2 1/2 in.				
CKVR17	65 mm	160.6	141.5	31.0	41.9
	2 11/16 in.				
	2 3/4 in.				
	70 mm				
	2 15/16 in.				
CKVR20	3 in.	192.0	174.8	44.4	55.4
	3 3/16 in.				
	3 1/4 in.				
	80 mm				
	85 mm				
CKVR22	3 7/16 in.	212.1	194.8	52.6	63.5
	3 1/2 in.				
	90 mm				
	3 11/16 in.				
	3 3/4 in.				
CKVR24	100 mm	212.1	194.8	52.6	63.5
	3 15/16 in.				
	4 in.				
CKVR26	110 mm	241.3	223.8	56.9	69.6
	110 mm				
	4 7/16 in.				
CKVR28	4 1/2 in.	241.3	223.8	56.9	69.6
	115 mm				
	125 mm				

<sup>(1)</sup>Please refer to bore size when choosing cover for straight-bore V-Lock®.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

SEAL AND COVER OPTIONS • URETHANE • OPEN-END COVERS WITH VR SEALS



**TABLE C-47. CL AND EC SERIES – OPEN-END COVER WITH VR SEAL**

Cover Part No.	Shaft Dia.	A	B	C1	C2
	mm in.	mm in.	mm in.	mm in.	mm in.
CJVR08	35 mm	97.0 3.82	76.7 3.02	31.8 1.25	39.4 1.55
	1 7/16 in.				
	1 1/2 in.				
CJVR09	40 mm	101.9 4.01	81.5 3.21	31.8 1.25	40.6 1.60
	1 11/16 in.				
	1 3/4 in.				
CJVR10	45 mm	106.9 4.21	86.6 3.41	31.8 1.25	40.6 1.60
	1 15/16 in.				
	2 in.				
CJVR11	50 mm	117.1 4.61	96.8 3.81	31.8 1.25	40.6 1.60
	2 3/16 in.				
	2 1/4 in.				
CJVR13	55 mm	132.1 5.20	116.1 4.57	27.4 1.08	36.3 1.43
	60 mm				
	2 7/16 in.				
CJVR15	65 mm	142.0 5.59	122.9 4.84	33.0 1.30	44.0 1.73
	70 mm				
	2 3/4 in.				
	2 15/16 in.				
	3 in.				
CJVR18	75 mm	168.1 6.62	149.1 5.87	38.9 1.53	49.8 1.96
	80 mm				
	3 3/16 in.				
	3 1/4 in.				
	3 7/16 in.				
CJVR20	90 mm	192.0 7.56	174.8 6.88	44.5 1.75	55.4 2.18
	100 mm				
	3 15/16 in.				
CJVR22	110 mm	212.1 8.35	194.8 7.67	52.6 2.07	65.3 2.57
	115 mm				
	4 7/16 in.				
CJVR26	125 mm	241.3 9.50	223.8 8.81	56.9 2.24	69.6 2.74
	4 15/16 in.				
	5 in.				

**TABLE C-48. TA/DV SERIES – OPEN-END COVER WITH VR SEAL**

Cover Part No.	Shaft Dia.	A	B	C1	C2
	mm in.	mm in.	mm in.	mm in.	mm in.
CKVR09	1 7/16 in.	101.9 4.01	81.5 3.21	31.8 1.25	39.4 1.55
	1 1/2 in.				
	40 mm				
CKVR10	1 11/16 in.	106.9 4.21	86.6 3.41	31.8 1.25	40.6 1.6
	1 3/4 in.				
	45 mm				
CKVR11	1 15/16 in.	117.1 4.61	96.8 3.81	31.8 1.25	40.6 1.60
	2 in.				
	50 mm				
CKVR12	55 mm	126.0 4.96	105.7 4.16	31.8 1.25	40.6 1.6
	2 3/16 in.				
CKVR13	60 mm	132.1 5.20	116.1 4.57	27.4 1.08	36.3 1.43
	2 1/4 in.				
	65 mm				
CKVR15	70 mm	142.0 5.59	122.9 4.84	33.0 1.30	41.9 1.65
	2 7/16 in.				
	2 1/2 in.				
CKVR16	75 mm	142.0 5.59	122.9 4.84	33.0 1.30	41.9 1.65
	2 11/16 in.				
	2 3/4 in.				
CKVR17	80 mm	160.5 6.32	141.5 5.57	31.0 1.22	41.9 1.65
	2 15/16 in.				
	3 in.				
CKVR18	85 mm	168.1 6.62	149.1 5.87	38.9 1.53	49.8 1.96
	3 3/16 in.				
	3 1/4 in.				
CKVR19	90 mm	168.1 6.62	149.1 5.87	38.9 1.53	49.8 1.96
	3 7/16 in.				
CKVR20	95 mm	192.0 7.56	174.8 6.88	44.5 1.75	55.4 2.18
	3 1/2 in.				
	90 mm				
CKVR22	100 mm	212.1 8.35	194.8 7.67	52.6 2.07	63.5 2.50
	3 15/16 in.				
	4 in.				
CKVR24	110 mm	212.1 8.35	194.8 7.67	52.6 2.07	63.5 2.50
	4 3/16 in.				
	4 1/4 in.				
CKVR26	115 mm	241.3 9.50	223.8 8.81	56.9 2.24	69.6 2.74
	4 7/16 in.				
	4 1/2 in.				
CKVR28	125 mm	241.3 9.50	223.8 8.81	56.9 2.24	69.6 2.74
	4 15/16 in.				
	5 in.				

UFP AND HSY FLANGE BLOCK BACKING PLATE DIMENSIONS

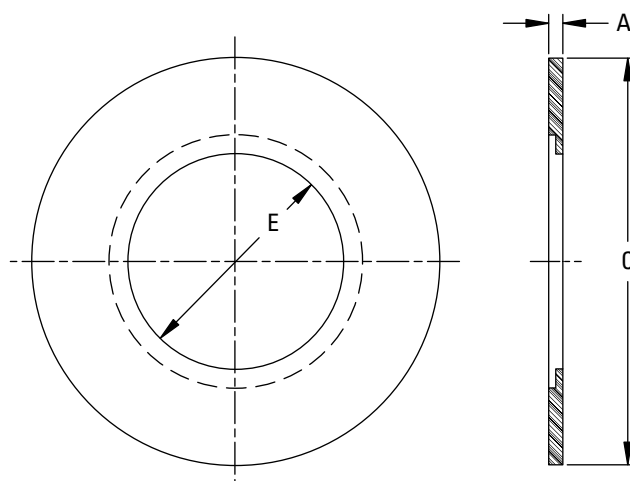


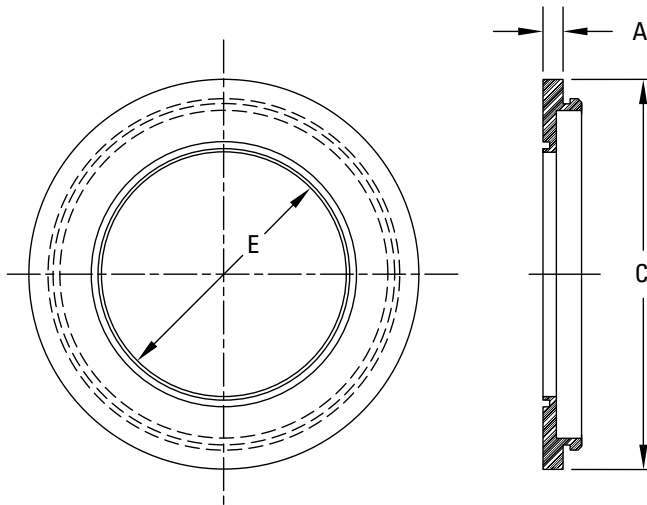
TABLE C-49. UFP BACKING PLATE DIMENSIONS<sup>(1)</sup>

Cover Part No.	A	C	E
	mm in.	mm in.	mm in.
UFP08	5.1 0.20	95.3 3.75	39.4 1.55
UFP09	5.1 0.20	105.9 4.17	44.7 1.76
UFP10	3.8 0.15	106.4 4.19	51.8 2.04
UFP11	6.4 0.25	114.6 4.51	59.7 2.35
UFP13	5.1 0.20	146.1 5.75	64.8 2.55
UFP15	5.1 0.20	146.6 5.77	78.0 3.07
UFP18	5.1 0.20	187.5 7.38	90.4 3.56
UFP20	5.1 0.20	206.5 8.13	104.1 4.10
UFP22	5.1 0.20	215.9 8.50	130.3 5.13
UFP26	5.1 0.20	299 11.77	128.3 5.05

<sup>(1)</sup>Actual backing plate may differ from drawing.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## SEAL AND COVER OPTIONS • UFP AND HSY FLANGE BLOCK BACKING PLATE DIMENSIONS



**TABLE C-50. HSY BACKING PLATE DIMENSIONS**

Cover Part No.	A	C	E
	mm in.	mm in.	mm in.
HSY10	5.1 0.20	108.0 4.25	68.3 2.69
HSY11	5.1 0.20	120.1 4.73	74.7 2.94
HSY13	6.4 0.25	133.4 5.25	81.0 3.19
HSY14	6.4 0.25	133.4 5.25	81.0 3.19
HSY15	6.4 0.25	155.7 6.13	93.7 3.69
HSY16	8.9 0.35	155.7 6.13	93.7 3.69
HSY18	5.1 0.20	181.1 7.13	106.4 4.19
HSY19	7.6 0.30	181.1 7.13	106.4 4.19
HSY20	5.1 0.20	199.9 7.87	119.1 4.69
HSY22	7.6 0.30	254.0 10.00	131.8 5.19

## V-LOCK® SERIES

The V-Lock® locking mechanism (U.S. Pat. No. 7344313) evenly distributes force on the shaft, helping eliminate fretting corrosion. V-Lock provides maximum holding power and prevents overtightening.

In response to customer input, V-Lock was specifically designed to address common spherical roller bearing solid-block housed unit problems:

- Reliable mechanical withdrawal.
- Preset spherical inner ring radial internal clearances (feeler gages are not required).
- Quick installation (typically 10 minutes or less).
- Highest shaft-holding power.
- Works well in high-speed applications where shaft centering is an issue.



Fig. C-41. V-Lock® series insert.

## YOU HAVE CHOICES

For the V-Lock series, you can select either single-nut or double-nut versions and choose from many seal configurations and housing styles, which are shown on [page C-74](#).

### HOUSINGS

- Two-bolt pillow blocks.
- Four-bolt pillow blocks.
- Flange blocks.
- Piloted flange cartridges.
- Cartridge blocks.
- Take-up blocks.

### SEALS

- Labyrinth: DuPont Teflon (T).
- Triple-lip: nitrile rubber (M), urethane (O) and DuPont Viton (N).
- Double-lip: nitrile rubber (B) and DuPont Viton (C).
- Steel and urethane closed-end covers (CS).
- Steel and urethane open-end covers (CV) with:
  - DuPont Teflon (T).
  - Triple-lip seal (DR).
  - V-ring seal (VR).

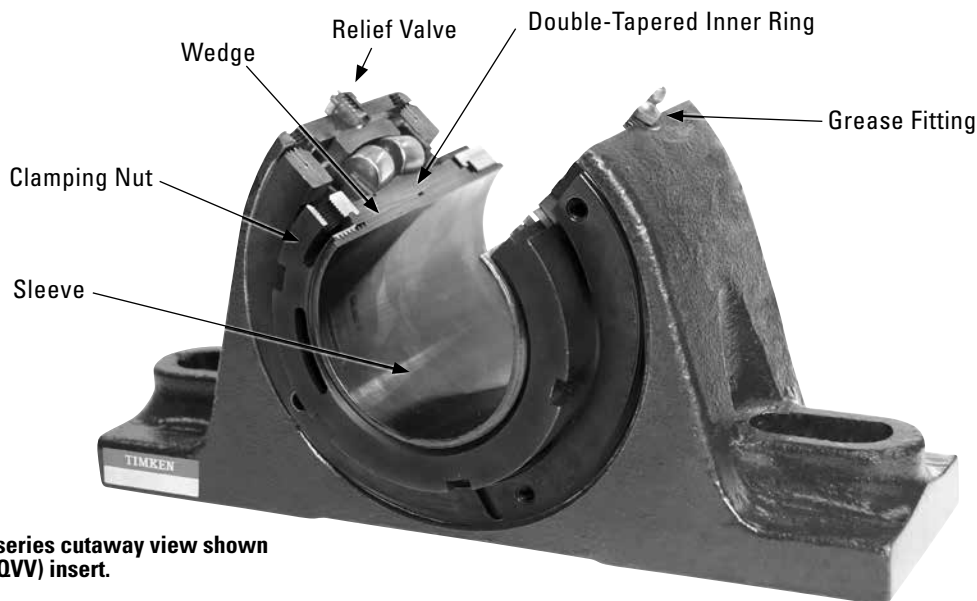


Fig. C-42. V-Lock series cutaway view shown with double-nut (QVV) insert.

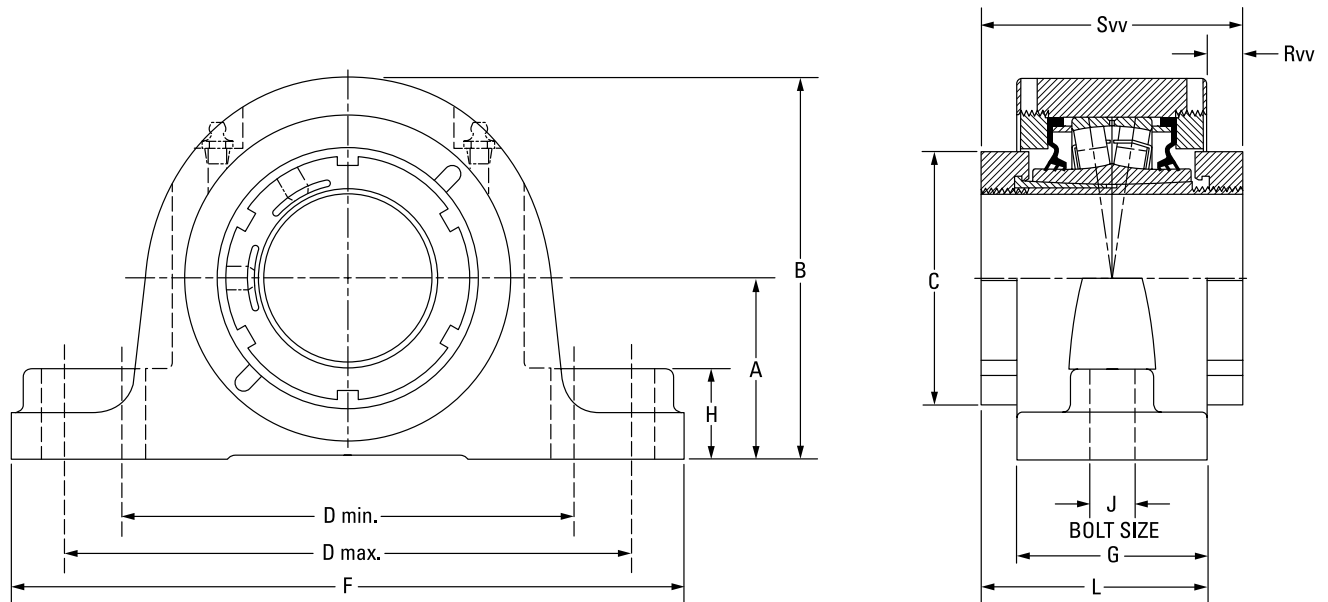
# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## V-LOCK SERIES

### V-LOCK SERIES (ADAPTER LOCK) U.S. PAT. NO. 7344313

	Housing Type	Primary Seals						Secondary Seals and Covers						
		M	N	O	B	C	T	Open-End Cover			Closed-End Cover	HSY Flange Cartridge Backing Plate		UFP Backing Plate
								DR	VR	T		DR		
V-Lock® (Timken Exclusive Double Taper Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
CL Series (Set Screw Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		•
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•	•	
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
	Hangar Block	•	•	•	•	•	•	•	•	•	•	•		
EC Series (Eccentric Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		•
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•	•	
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
	Hangar Block	•	•	•	•	•	•	•	•	•	•	•		
TA Series (Tapered Adapter Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
DV Series (Tapered Adapter Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		

### QVVP TWO-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT



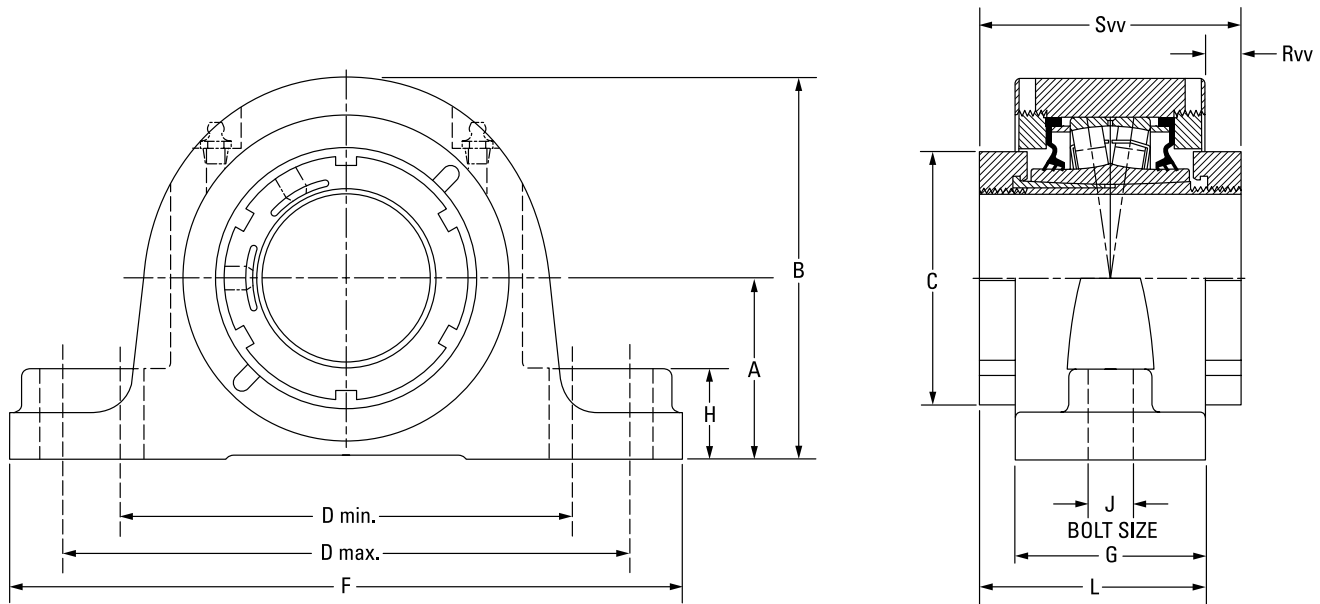
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	Rvv	Svv	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QVVP11V115S	1 15/16 in.	22211	57.2	122.2	75.9	152.4	181.1	225.6	62.0	31.8	16	82.0	20.1	102.1	6.4
QVVP11V200S	2 in.		2.25	4.81	2.99	6.00	7.13	8.88	2.44	1.25	5/8	3.23	0.79	4.02	14
QVVP11V050S	50 mm														
QVVP12V203S	2 3/16 in.	22212	63.5	133.4	80.3	165.1	200.2	244.6	66.8	31.8	16	84.6	17.8	102.1	7.7
QVVP12V204S	2 1/4 in.		2.50	5.25	3.16	6.50	7.88	9.63	2.63	1.25	5/8	3.33	0.70	4.02	17
QVVP12V055S	55 mm														
QVVP14V060S	60 mm	22214	69.9	147.3	94.0	174.8	219.2	260.4	73.7	35.1	16	88.9	15.2	103.9	10.0
QVVP14V207S	2 7/16 in.		2.75	5.80	3.70	6.88	8.63	10.25	2.90	1.38	5/8	3.50	0.60	4.09	22
QVVP14V208S	2 1/2 in.														
QVVP14V065S	65 mm	22216	79.5	164.3	106.4	200.2	244.6	295.4	76.2	35.1	20	91.2	15.0	106.2	12.7
QVVP16V211S	2 11/16 in.		3.13	6.47	4.19	7.88	9.63	11.63	3.00	1.38	3/4	3.59	0.59	4.18	28
QVVP16V212S	2 3/4 in.														
QVVP16V070S	70 mm	22219	95.3	195.3	124.5	238.3	285.8	342.9	86.6	47.8	24	102.1	15.5	117.6	20.4
QVVP16V215S	2 15/16 in.		3.75	7.69	4.90	9.38	11.25	13.50	3.41	1.88	7/8	4.02	0.61	4.63	45
QVVP16V300S	3 in.														
QVVP16V075S	75 mm	22222	104.9	219.7	139.7	255.0	320.0	362.0	102.6	50.8	24	116.6	14.0	130.3	26.8
QVVP19V303S	3 3/16 in.		4.13	8.65	5.50	10.04	12.60	14.25	4.04	2.00	1	4.59	0.55	5.13	59
QVVP19V304S	3 1/4 in.														
QVVP19V080S	80 mm	22222	104.9	219.7	139.7	255.0	320.0	362.0	102.6	50.8	24	116.6	14.0	130.3	26.8
QVVP19V085S	85 mm		4.13	8.65	5.50	10.04	12.60	14.25	4.04	2.00	1	4.59	0.55	5.13	59
QVVP19V307S	3 7/16 in.														
QVVP19V308S	3 1/2 in.														
QVVP19V090S	90 mm	22222	104.9	219.7	139.7	255.0	320.0	362.0	102.6	50.8	24	116.6	14.0	130.3	26.8
QVVP22V311S	3 11/16 in.		4.13	8.65	5.50	10.04	12.60	14.25	4.04	2.00	1	4.59	0.55	5.13	59
QVVP22V312S	3 3/4 in.														
QVVP22V100S	100 mm	22222	104.9	219.7	139.7	255.0	320.0	362.0	102.6	50.8	24	116.6	14.0	130.3	26.8
QVVP22V315S	3 15/16 in.		4.13	8.65	5.50	10.04	12.60	14.25	4.04	2.00	1	4.59	0.55	5.13	59
QVVP22V400S	4 in.														

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVPL TWO-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT

## QVVPL TWO-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT



Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	Rvv	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVVPL11V115S	1 15/16 in.	22211	57.2	122.2	75.9	150.6	161.5	212.9	62.0	31.8	16	82.0	20.1	102.1	6.4
QVVPL11V200S	2 in.		2.25	4.81	2.99	5.93	6.36	8.38	2.44	1.25	5/8	3.23	0.79	4.02	14
QVVPL11V050S	50 mm														
QVVPL12V203S	2 3/16 in.	22212	63.5	133.4	80.3	165.1	179.3	225.6	65.5	31.8	16	83.8	18.3	102.1	7.7
QVVPL12V204S	2 1/4 in.		2.50	5.25	3.16	6.50	7.06	8.88	2.58	1.25	5/8	3.30	0.72	4.02	17
QVVPL12V055S	55 mm														
QVVPL14V060S	60 mm	22214	69.9	147.3	94.0	173	189.0	235.0	73.7	35.1	16	88.9	15.2	103.9	10.0
QVVPL14V207S	2 7/16 in.		2.75	5.80	3.70	6.81	7.44	9.25	2.90	1.38	5/8	3.50	0.60	4.09	22
QVVPL14V208S	2 1/2 in.														
QVVPL14V065S	65 mm	22216	69.9	147.3	94.0	173	189.0	235.0	73.7	35.1	16	88.9	15.2	103.9	10.0
QVVPL16V211S	2 11/16 in.		3.25	6.59	4.19	7.70	8.40	10.44	3.00	1.38	3/4	3.59	0.59	4.18	28
QVVPL16V212S	2 3/4 in.														
QVVPL16V070S	70 mm	22219	82.6	167.4	106.4	195.6	213.4	265.2	76.2	35.1	20	91.2	15.0	106.2	12.7
QVVPL16V215S	2 15/16 in.		3.25	6.59	4.19	7.70	8.40	10.44	3.00	1.38	3/4	3.59	0.59	4.18	28
QVVPL16V300S	3 in.														
QVVPL16V075S	75 mm	22219	95.3	195.3	124.5	235.0	273.1	330.2	86.6	47.8	24	102.1	15.5	117.6	20.4
QVVPL19V303S	3 3/16 in.		3.75	7.69	4.90	9.25	10.75	13.00	3.41	1.88	7/8	4.02	0.61	4.63	45
QVVPL19V304S	3 1/4 in.														
QVVPL19V080S	80 mm	22222	95.3	195.3	124.5	235.0	273.1	330.2	86.6	47.8	24	102.1	15.5	117.6	20.4
QVVPL19V085S	85 mm		3.75	7.69	4.90	9.25	10.75	13.00	3.41	1.88	7/8	4.02	0.61	4.63	45
QVVPL19V307S	3 7/16 in.														
QVVPL19V308S	3 1/2 in.	22222	108	223	139.7	255.0	320.0	362.0	102.6	53.8	24	116.6	14.0	130.3	26.8
QVVPL19V090S	90 mm		4.25	8.78	5.50	10.04	12.60	14.25	4.04	2.12	1	4.59	0.55	5.13	59
QVVPL22V311S	3 11/16 in.														
QVVPL22V312S	3 3/4 in.	22222	108	223	139.7	255.0	320.0	362.0	102.6	53.8	24	116.6	14.0	130.3	26.8
QVVPL22V100S	100 mm		4.25	8.78	5.50	10.04	12.60	14.25	4.04	2.12	1	4.59	0.55	5.13	59
QVVPL22V315S	3 15/16 in.														
QVVPL22V400S	4 in.														

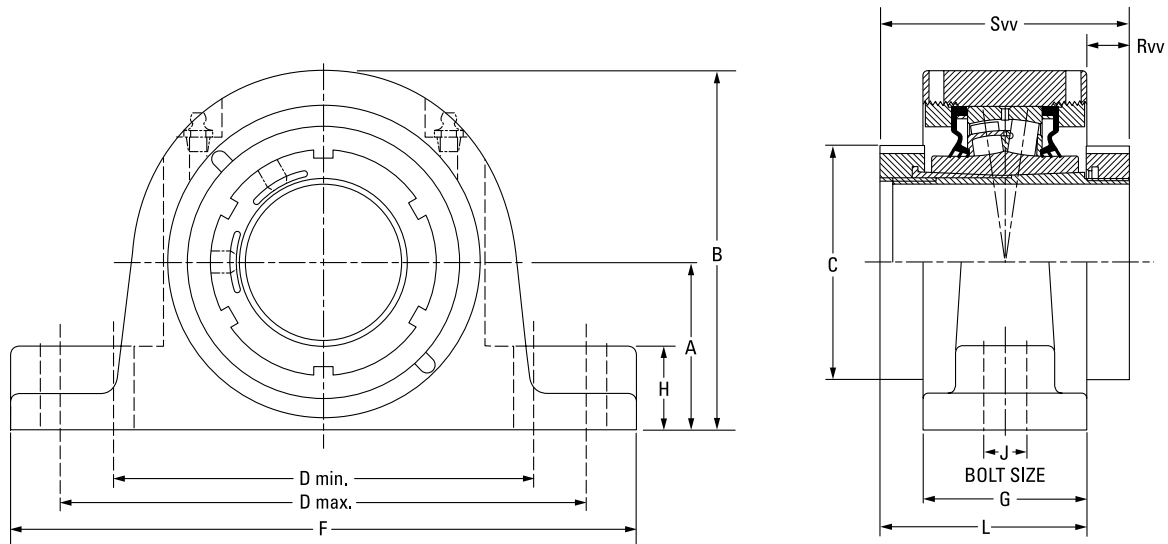
<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.



# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVPPA SAF TWO-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT

## QVPPA SAF TWO-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT



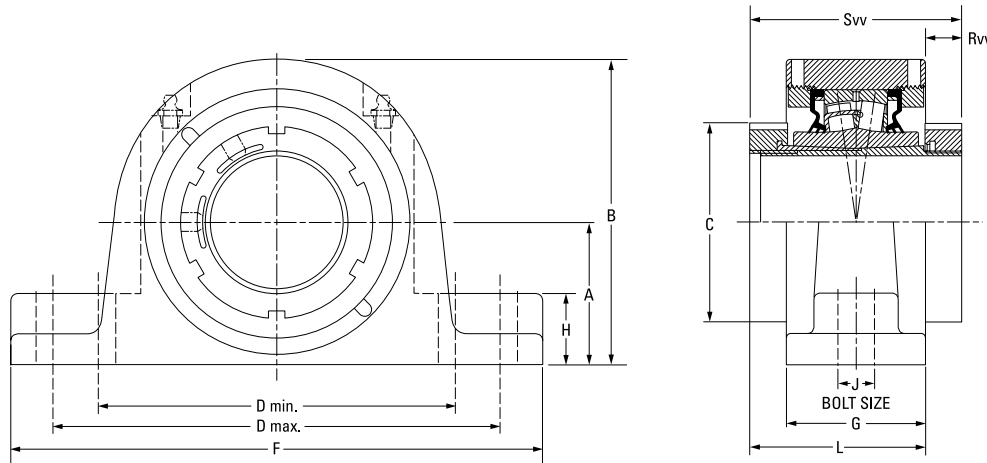
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	Rvv	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVPPA13V203S	2 3/16 in.	22213	<b>76.2</b>	<b>151.1</b>	<b>80.3</b>	<b>182.9</b>	<b>233.7</b>	<b>261.9</b>	<b>68.6</b>	<b>31.2</b>	<b>16</b>	<b>85.3</b>	<b>16.8</b>	<b>102.1</b>	<b>10.4</b>
QVPPA13V204S	2 1/4 in.		3.00	5.95	3.16	7.20	9.20	10.31	2.70	1.23	5/8	3.36	0.66	4.02	23
QVPPA13V055S	<b>55 mm</b>														
QVPPA15V060S	<b>60 mm</b>														
QVPPA15V207S	2 7/16 in.	22215	<b>82.6</b>	<b>163.3</b>	<b>94.0</b>	<b>200.2</b>	<b>244.6</b>	<b>276.4</b>	<b>68.6</b>	<b>31.8</b>	<b>16</b>	<b>86.4</b>	<b>17.8</b>	<b>103.9</b>	<b>12.2</b>
QVPPA15V208S	2 1/2 in.		3.25	6.43	3.70	7.88	9.63	10.88	2.70	1.25	5/8	3.40	0.70	4.09	27
QVPPA15V065S	<b>65 mm</b>														
QVPPA17V211S	2 11/16 in.	22217	<b>95.3</b>	<b>186</b>	<b>106.4</b>	<b>241.3</b>	<b>279.4</b>	<b>320.8</b>	<b>76.2</b>	<b>33.8</b>	<b>20</b>	<b>91.2</b>	<b>15.0</b>	<b>106.2</b>	<b>15.0</b>
QVPPA17V212S	2 3/4 in.														
QVPPA17V070S	<b>70 mm</b>														
QVPPA17V215S	2 15/16 in.														
QVPPA17V300S	3 in.														
QVPPA17V075S	<b>75 mm</b>														
QVPPA20V303S	3 3/16 in.	22220	<b>114.3</b>	<b>219.2</b>	<b>124.5</b>	<b>276.4</b>	<b>327.2</b>	<b>368.3</b>	<b>86.9</b>	<b>41.4</b>	<b>24</b>	<b>102.4</b>	<b>15.5</b>	<b>117.6</b>	<b>29.5</b>
QVPPA20V304S	3 1/4 in.														
QVPPA20V080S	<b>80 mm</b>														
QVPPA20V085S	<b>85 mm</b>														
QVPPA20V307S	3 7/16 in.														
QVPPA20V308S	3 1/2 in.														
QVPPA20V090S	<b>90 mm</b>														
QVPPA22V311S	3 11/16 in.	22222	<b>125.5</b>	<b>240.5</b>	<b>139.7</b>	<b>317.5</b>	<b>368.3</b>	<b>406.4</b>	<b>100.6</b>	<b>50.8</b>	<b>24</b>	<b>115.6</b>	<b>15.0</b>	<b>130.3</b>	<b>38.1</b>
QVPPA22V312S	3 3/4 in.														
QVPPA22V100S	<b>100 mm</b>														
QVPPA22V315S	3 15/16 in.														
QVPPA22V400S	4 in.														
QVPPA26V110S	<b>110 mm</b>	22226	<b>152.4</b>	<b>284.0</b>	<b>174.8</b>	<b>362.0</b>	<b>400.1</b>	<b>444.5</b>	<b>128</b>	<b>51.8</b>	<b>24</b>	<b>153.2</b>	<b>25.1</b>	<b>178.3</b>	<b>61.7</b>
QVPPA26V407S	4 7/16 in.														
QVPPA26V408S	4 1/2 in.														
QVPPA26V115S	<b>115 mm</b>														
QVPPA28V125S	<b>125 mm</b>	22228	<b>152.4</b>	<b>290.8</b>	<b>190.0</b>	<b>384.3</b>	<b>447.8</b>	<b>499.9</b>	<b>85.6</b>	<b>51.8</b>	<b>30</b>	<b>132.0</b>	<b>46.5</b>	<b>178.3</b>	<b>61.8</b>
QVPPA28V415S	4 15/16 in.														
QVPPA28V500S	5 in.														
QVPPA28V130S	<b>130 mm</b>														

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVPN SN-STYLE TWO-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT

## QVVPN SN-STYLE TWO-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT



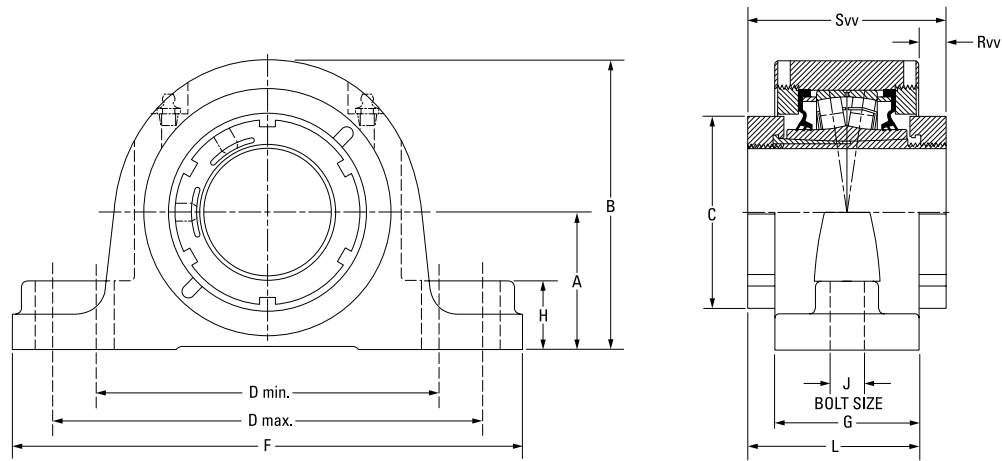
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	Rvv	Svv	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QVVPN11V115S	1 15/16 in.	22211	69.9	135.4	75.9	165.1	221.0	251.0	60.5	31.8	16	81.3	20.8	102.1	7.7	
QVVPN11V200S	2 in.		2.750	5.33	2.99	6.50	8.70	9.88	2.38	1.25	5/8	3.20	0.82	4.02	17	
QVVPN11V050S	50 mm															
QVVPN12V055S	55 mm	22212	70.0	140.5	80.0	177.8	219.2	254.0	60.5	31.8	16	81.3	20.8	102.1	9.1	
			2.756	5.53	3.15	7.00	8.63	10.00	2.38	1.25	5/8	3.20	0.82	4.02	20	
QVVPN13V203S	2 3/16 in.	22213	80.0	154.9	80.3	182.9	233.7	261.9	68.6	35.1	16	85.3	16.8	102.1	10.4	
QVVPN13V204S	2 1/4 in.		3.150	6.10	3.16	7.20	9.20	10.31	2.70	1.38	5/8	3.36	0.66	4.02	23	
QVVPN14V060S	60 mm	22214	80.0	154.9	94.0	182.9	233.7	261.9	68.6	35.1	16	86.4	17.8	104.0	10.4	
			3.150	6.10	3.70	7.20	9.20	10.31	2.70	1.38	5/8	3.40	0.70	4.09	23	
QVVPN15V207S	2 7/16 in.	22215	80.0	160.8	94.0	200.2	244.6	276.4	68.6	29.2	16	86.4	17.8	103.9	12.2	
QVVPN15V208S	2 1/2 in.		3.150	6.33	3.70	7.88	9.63	10.88	2.70	1.15	5/8	3.40	0.70	4.09	27	
QVVPN15V065S	65 mm															
QVVPN16V211S	2 11/16 in.	22216	95.0	180.3	106.0	235.0	266.7	315.0	72.6	31.8	20	89.4	16.8	106.0	13.6	
QVVPN16V212S	2 3/4 in.		3.74	7.10	4.17	9.25	10.50	12.40	2.86	1.25	3/4	3.52	0.66	4.17	30	
QVVPN16V070S	70 mm															
QVVPN17V215S	2 15/16 in.	22217	95.3	185.9	106.4	241.3	279.4	320.8	76.2	33.8	20	91.2	15.0	106.2	15.0	
QVVPN17V300S	3 in.		3.750	7.32	4.19	9.50	11.00	12.63	3.00	1.33	3/4	3.59	0.59	4.18	33	
QVVPN17V075S	75 mm															
QVVPN19V303S	3 3/16 in.	22219	100.0	195.3	124.0	285.8	295.4	346.2	79.8	38.9	20	99.1	19.3	118.1	22.2	
QVVPN19V304S	3 1/4 in.		3.937	7.69	4.88	11.25	11.63	13.63	3.14	1.53	3/4	3.90	0.76	4.65	49	
QVVPN19V080S	80 mm															
QVVPN19V085S	85 mm	22219	112.0	212.3	124.0	285.8	295.4	346.2	82.8	38.9	20	100.6	17.8	118.1	23.1	
			4.409	8.36	4.88	11.25	11.63	13.63	3.26	1.53	3/4	3.96	0.70	4.65	51	
QVVPN20V307S	3 7/16 in.	22220	112.0	216.9	124.5	276.4	327.2	368.3	86.9	38.9	24	102.4	15.5	117.6	29.5	
QVVPN20V308S	3 1/2 in.		4.409	8.54	4.90	10.88	12.88	14.50	3.42	1.53	7/8	4.03	0.61	4.63	65	
QVVPN20V090S	90 mm															
QVVPN22V311S	3 11/16 in.	22222	125.0	240.5	139.7	317.5	368.3	406.4	100.6	50.8	24	115.6	15.0	130.3	38.1	
QVVPN22V312S	3 3/4 in.		4.921	9.47	5.50	12.50	14.50	16.00	3.96	2.00	7/8	4.55	0.59	5.13	84	
QVVPN22V100S	100 mm															
QVVPN22V315S	3 15/16 in.															
QVVPN22V400S	4 in.															
QVVPN24V110S	110 mm	22224	140.0	262.9	174.8	344.4	355.6	409.7	97.8	50.8	24	138.2	40.4	178.3	49.9	
			5.512	10.35	6.88	13.56	14.00	16.13	3.85	2.00	7/8	5.44	1.59	7.02	110	
QVVPN26V407S	4 7/16 in.	22226	150.0	281.7	174.8	367.3	400.1	444.5	128.0	49.3	24	153.2	25.1	178.3	61.7	
QVVPN26V408S	4 1/2 in.		5.906	11.09	6.88	14.46	15.75	17.50	5.04	1.94	1	6.03	0.99	7.02	136	
QVVPN26V115S	115 mm															
QVVPN28V125S	125 mm	22228	150.0	288.5	190.0	384.3	447.8	499.9	85.6	49.3	30	132.0	46.5	178.3	61.8	
QVVPN28V415S	4 15/16 in.		5.906	11.36	7.48	15.13	17.63	19.68	3.37	1.94	1 1/4	5.20	1.83	7.02	136	
QVVPN28V500S	5 in.															
QVVPN28V130S	130 mm															

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVSN SN-STYLE TWO-BOLT PILLOW BLOCKS – PURE METRIC DESIGN

## QVVSN SN-STYLE TWO-BOLT PILLOW BLOCKS – PURE METRIC DESIGN



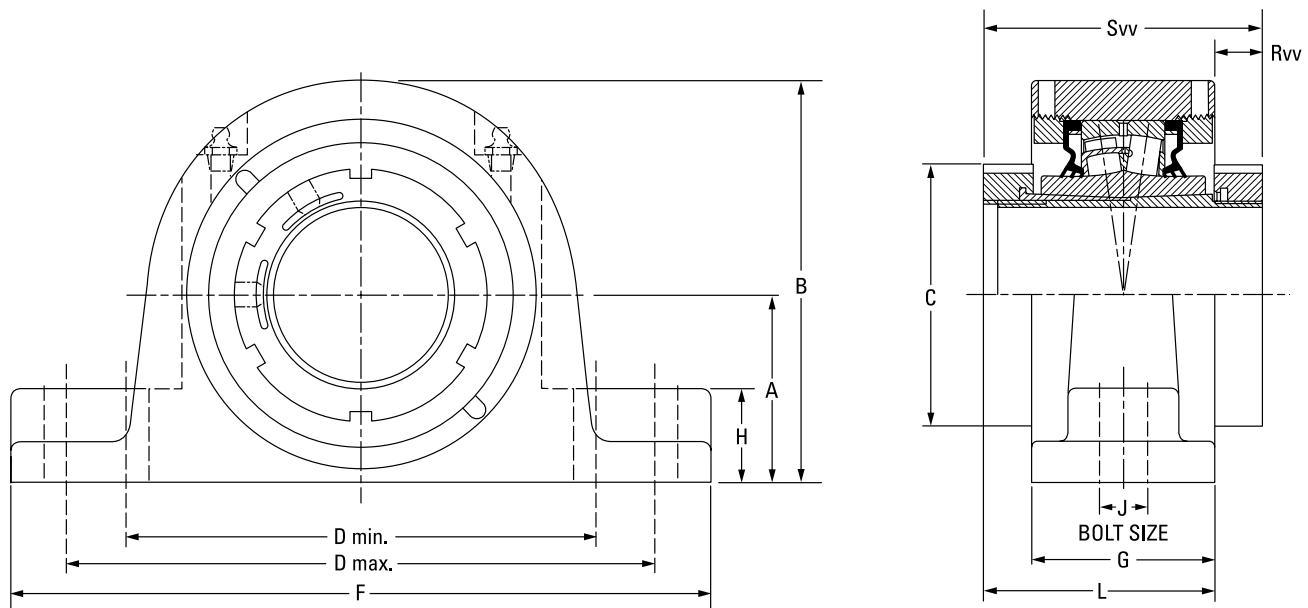
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	Rvv	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVVSN11V115S	1 15/16 in.	22211	<b>70</b>	<b>136</b>	<b>76</b>	<b>183</b>	<b>216</b>	<b>254</b>	<b>68</b>	<b>25</b>	<b>16</b>	<b>85</b>	<b>17</b>	<b>102</b>	<b>13.2</b>
QVVSN11V200S	2 in.		2.76	5.35	2.99	7.20	8.50	10.00	2.68	1.00	5/8	3.35	0.67	4.02	29
QVVSN11V050S	<b>50 mm</b>														
QVVSN12V203S	2 3/16 in.	22212	<b>70</b>	<b>141</b>	<b>80</b>	<b>183</b>	<b>216</b>	<b>254</b>	<b>68</b>	<b>25</b>	<b>16</b>	<b>85</b>	<b>17</b>	<b>102</b>	<b>13.2</b>
QVVSN12V204S	2 1/4 in.		2.76	5.55	3.15	7.20	8.50	10.00	2.68	1.00	5/8	3.35	0.67	4.02	29
QVVSN12V055S	<b>55 mm</b>														
QVVSN14V060S	<b>60 mm</b>	22214	<b>80</b>	<b>157</b>	<b>94</b>	<b>196</b>	<b>235</b>	<b>275</b>	<b>74</b>	<b>35</b>	<b>16</b>	<b>89</b>	<b>15</b>	<b>104</b>	<b>16.8</b>
QVVSN14V207S	2 7/16 in.		3.15	6.18	3.70	7.72	9.25	10.83	2.91	1.38	5/8	3.50	0.59	4.09	37
QVVSN14V208S	2 1/2 in.														
QVVSN14V065S	<b>65 mm</b>	22216	<b>95</b>	<b>183</b>	<b>106</b>	<b>241</b>	<b>279</b>	<b>316</b>	<b>76</b>	<b>34</b>	<b>20</b>	<b>91</b>	<b>15</b>	<b>106</b>	<b>20.9</b>
QVVSN16V211S	2 11/16 in.		3.74	7.2	4.17	9.49	10.98	12.44	2.99	1.33	3/4	3.58	0.59	4.17	46
QVVSN16V212S	2 3/4 in.														
QVVSN16V070S	<b>70 mm</b>	22219	<b>100</b>	<b>200</b>	<b>124</b>	<b>279</b>	<b>292</b>	<b>345</b>	<b>86</b>	<b>39</b>	<b>20</b>	<b>102</b>	<b>16</b>	<b>118</b>	<b>25.4</b>
QVVSN16V215S	2 15/16 in.		3.94	7.87	4.88	10.98	11.50	13.58	3.39	1.53	3/4	4.02	0.63	4.65	56
QVVSN16V300S	3 in.														
QVVSN16V075S	<b>75 mm</b>	22219	<b>112</b>	<b>212</b>	<b>124</b>	<b>279</b>	<b>292</b>	<b>345</b>	<b>86</b>	<b>39</b>	<b>20</b>	<b>102</b>	<b>16</b>	<b>118</b>	<b>25.4</b>
QVVSN19V303S	3 3/16 in.		4.41	8.34	4.88	10.98	11.50	13.58	3.39	1.53	3/4	4.02	0.63	4.65	56
QVVSN19V304S	3 1/4 in.														
QVVSN19V080S	<b>80 mm</b>	22219	<b>112</b>	<b>212</b>	<b>124</b>	<b>290</b>	<b>327</b>	<b>380</b>	<b>86</b>	<b>39</b>	<b>24</b>	<b>102</b>	<b>16</b>	<b>118</b>	<b>25.4</b>
QVVSN19V085S	<b>85 mm</b>		4.41	8.34	4.88	11.42	12.87	14.96	3.39	1.53	7/8	4.02	0.63	4.65	56
QVVSN19V307S	3 7/16 in.														
QVVSN19V308S	3 1/2 in.	22222	<b>125</b>	<b>241</b>	<b>140</b>	<b>319</b>	<b>366</b>	<b>410</b>	<b>101</b>	<b>50</b>	<b>24</b>	<b>116</b>	<b>15</b>	<b>130</b>	<b>35.8</b>
QVVSN19V090S	<b>90 mm</b>		4.92	9.49	5.51	12.56	14.41	16.14	3.98	2.00	7/8	4.57	0.59	5.12	79
QVVSN22V311S	3 11/16 in.														
QVVSN22V312S	3 3/4 in.	22226	<b>140</b>	<b>270</b>	<b>175</b>	<b>332</b>	<b>365</b>	<b>410</b>	<b>113</b>	<b>39</b>	<b>24</b>	<b>146</b>	<b>33</b>	<b>178</b>	<b>39.9</b>
QVVSN22V100S	<b>100 mm</b>		5.51	10.63	6.89	13.07	14.37	16.14	4.45	1.53	7/8	5.75	1.30	7.01	88
QVVSN22V315S	3 15/16 in.														
QVVSN22V400S	4 in.	22226	<b>150</b>	<b>280</b>	<b>175</b>	<b>367</b>	<b>400</b>	<b>445</b>	<b>113</b>	<b>49</b>	<b>24</b>	<b>146</b>	<b>33</b>	<b>178</b>	<b>39.9</b>
QVVSN26V110S	<b>110 mm</b>		5.91	11.02	6.89	14.45	15.75	17.52	4.45	1.92	7/8	5.75	1.30	7.01	88
QVVSN26V407S	4 7/16 in.														
QVVSN26V408S	4 1/2 in.	22228	<b>150</b>	<b>290</b>	<b>190</b>	<b>402</b>	<b>435</b>	<b>500</b>	<b>117</b>	<b>49</b>	<b>30</b>	<b>148</b>	<b>31</b>	<b>178</b>	<b>39.9</b>
QVVSN26V115S	<b>115 mm</b>		5.91	11.41	7.48	15.83	17.13	19.68	4.61	1.92	1 1/4	5.83	1.22	7.01	88
QVVSN28V125S	<b>125 mm</b>														
QVVSN28V415S	4 15/16 in.	22228	<b>150</b>	<b>290</b>	<b>190</b>	<b>402</b>	<b>435</b>	<b>500</b>	<b>117</b>	<b>49</b>	<b>30</b>	<b>148</b>	<b>31</b>	<b>178</b>	<b>39.9</b>
QVVSN28V500S	5 in.		5.91	11.41	7.48	15.83	17.13	19.68	4.61	1.92	1 1/4	5.83	1.22	7.01	88
QVVSN28V130S	<b>130 mm</b>														

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVPKT 9000 SERIES TWO-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT

## QVVPKT 9000 SERIES TWO-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT



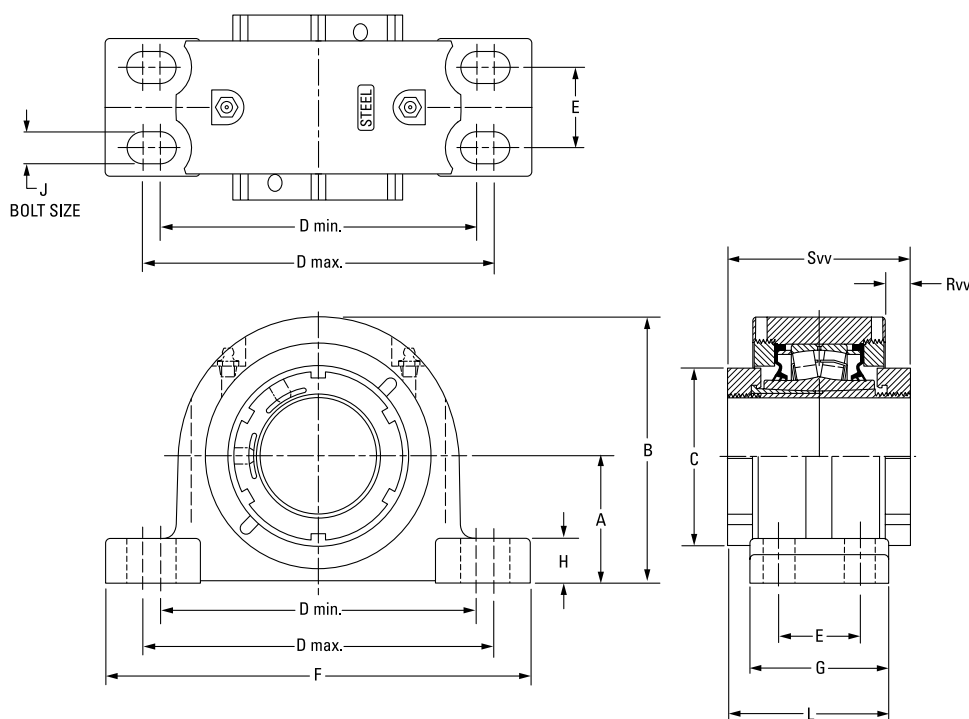
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	Rvv	Svv	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QVVPKT13V203S	2 3/16 in.	22213	<b>76.2</b>	<b>153.7</b>	<b>80.3</b>	<b>194.6</b>	<b>223.0</b>	<b>285.8</b>	<b>73.7</b>	<b>35.1</b>	<b>20</b>	<b>87.9</b>	<b>14.2</b>	<b>102.1</b>	<b>10.0</b>	
QVVPKT13V204S	2 1/4 in.		3.00	6.05	3.16	7.66	8.78	11.25	2.90	1.38	3/4	3.46	0.56	4.02	22	
QVVPKT13V055S	<b>55 mm</b>															
QVVPKT15V060S	<b>60 mm</b>	22215	<b>88.9</b>	<b>173.7</b>	<b>94.0</b>	<b>230.1</b>	<b>265.2</b>	<b>330.2</b>	<b>75.7</b>	<b>35.1</b>	<b>24</b>	<b>89.9</b>	<b>14.2</b>	<b>103.9</b>	<b>12.7</b>	
QVVPKT15V207S	2 7/16 in.		3.50	6.84	3.70	9.06	10.44	13.00	2.98	1.38	7/8	3.54	0.56	4.09	28	
QVVPKT15V208S	2 1/2 in.															
QVVPKT15V065S	<b>65 mm</b>															

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVPF FOUR-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT

## QVVPF FOUR-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT



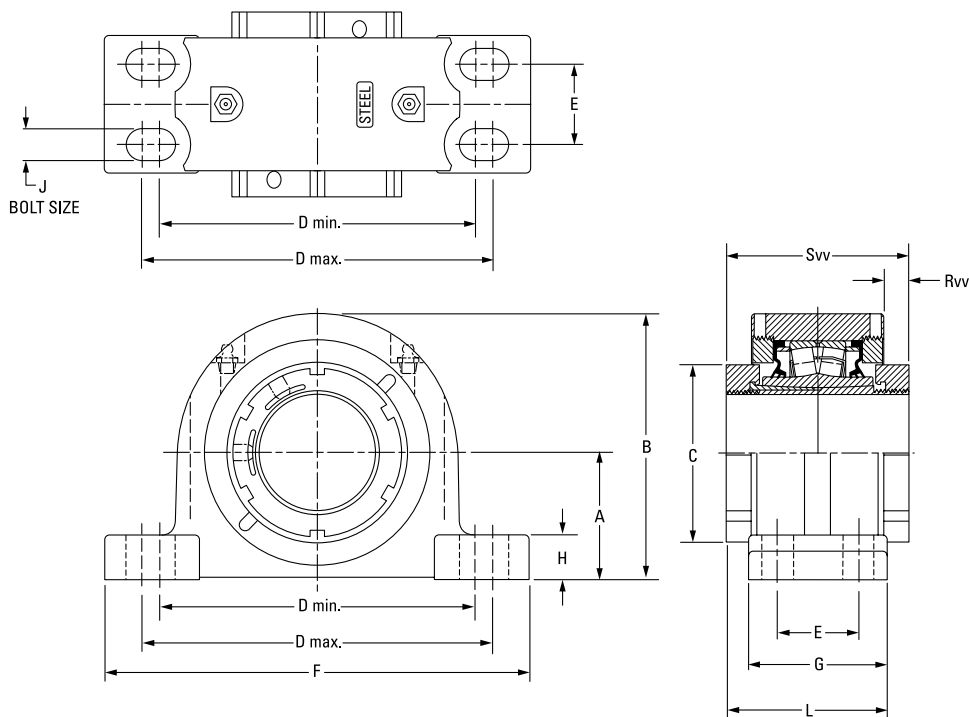
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	Rvv	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVVPF14V060S	<b>60 mm</b>	22214	<b>69.9</b> 2.75	<b>147.3</b> 5.80	<b>94.0</b> 3.70	<b>174.8</b> 6.88	<b>193.8</b> 7.63	<b>44.5</b> 1.75	<b>235.0</b> 9.25	<b>76.2</b> 3.00	<b>24.9</b> 0.98	<b>16</b> 5/8	<b>90.2</b> 3.55	<b>15.2</b> 0.60	<b>103.9</b> 4.09	<b>9.1</b> 20
QVVPF14V207S	2 7/16 in.															
QVVPF14V208S	2 1/2 in.															
QVVPF14V065S	<b>65 mm</b>	22216	<b>82.6</b> 3.25	<b>167.4</b> 6.59	<b>106.4</b> 4.19	<b>193.0</b> 7.60	<b>231.1</b> 9.10	<b>47.8</b> 1.88	<b>265.2</b> 10.44	<b>79.5</b> 3.13	<b>32.8</b> 1.29	<b>16</b> 5/8	<b>93.0</b> 3.66	<b>15.2</b> 0.60	<b>106.2</b> 4.18	<b>12.2</b> 27
QVVPF16V211S	2 11/16 in.															
QVVPF16V212S	2 3/4 in.															
QVVPF16V070S	<b>70 mm</b>	22219	<b>95.3</b> 3.75	<b>195.3</b> 7.69	<b>124.5</b> 4.90	<b>225.6</b> 8.88	<b>276.4</b> 10.88	<b>50.8</b> 2.00	<b>312.4</b> 12.30	<b>95.3</b> 3.75	<b>39.6</b> 1.56	<b>20</b> 3/4	<b>106.4</b> 4.19	<b>14.5</b> 0.57	<b>117.6</b> 4.63	<b>22.2</b> 49
QVVPF16V215S	2 15/16 in.															
QVVPF16V300S	3 in.															
QVVPF16V075S	<b>75 mm</b>	22222	<b>108.0</b> 4.25	<b>223.0</b> 8.78	<b>139.7</b> 5.50	<b>276.4</b> 10.88	<b>339.9</b> 13.38	<b>57.2</b> 2.25	<b>378.0</b> 14.88	<b>109.5</b> 4.31	<b>35.6</b> 1.40	<b>20</b> 3/4	<b>119.9</b> 4.72	<b>14.7</b> 0.58	<b>130.3</b> 5.13	<b>30.4</b> 67
QVVPF19V303S	3 3/16 in.															
QVVPF19V304S	3 1/4 in.															
QVVPF19V080S	<b>80 mm</b>	22226	<b>120.7</b> 4.75	<b>250.7</b> 9.87	<b>174.8</b> 6.88	<b>301.8</b> 11.88	<b>368.3</b> 14.50	<b>63.5</b> 2.50	<b>409.7</b> 16.13	<b>120.7</b> 4.75	<b>40.1</b> 1.58	<b>20</b> 3/4	<b>149.6</b> 5.89	<b>32.8</b> 1.29	<b>178.3</b> 7.02	<b>37.2</b> 82
QVVPF19V085S	<b>85 mm</b>															
QVVPF19V307S	3 7/16 in.															
QVVPF19V308S	3 1/2 in.	22228	<b>139.7</b> 5.50	<b>279.7</b> 11.01	<b>190.0</b> 7.48	<b>349.3</b> 13.75	<b>403.4</b> 15.88	<b>69.9</b> 2.75	<b>444.5</b> 17.50	<b>128.0</b> 5.04	<b>39.1</b> 1.54	<b>24</b> 7/8	<b>153.2</b> 6.03	<b>31.5</b> 1.24	<b>178.3</b> 7.02	<b>60.8</b> 134
QVVPF19V090S	<b>90 mm</b>															
QVVPF22V311S	3 11/16 in.															
QVVPF22V312S	3 3/4 in.															
QVVPF22V100S	<b>100 mm</b>															
QVVPF22V315S	3 15/16 in.															
QVVPF22V400S	4 in.															
QVVPF26V110S	<b>110 mm</b>															
QVVPF26V407S	4 7/16 in.															
QVVPF26V408S	4 1/2 in.															
QVVPF26V115S	<b>115 mm</b>															
QVVPF28V125S	<b>125 mm</b>															
QVVPF28V415S	4 15/16 in.															
QVVPF28V500S	5 in.															
QVVPF28V130S	<b>130 mm</b>															

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVPR FOUR-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT

## QVVPR FOUR-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT



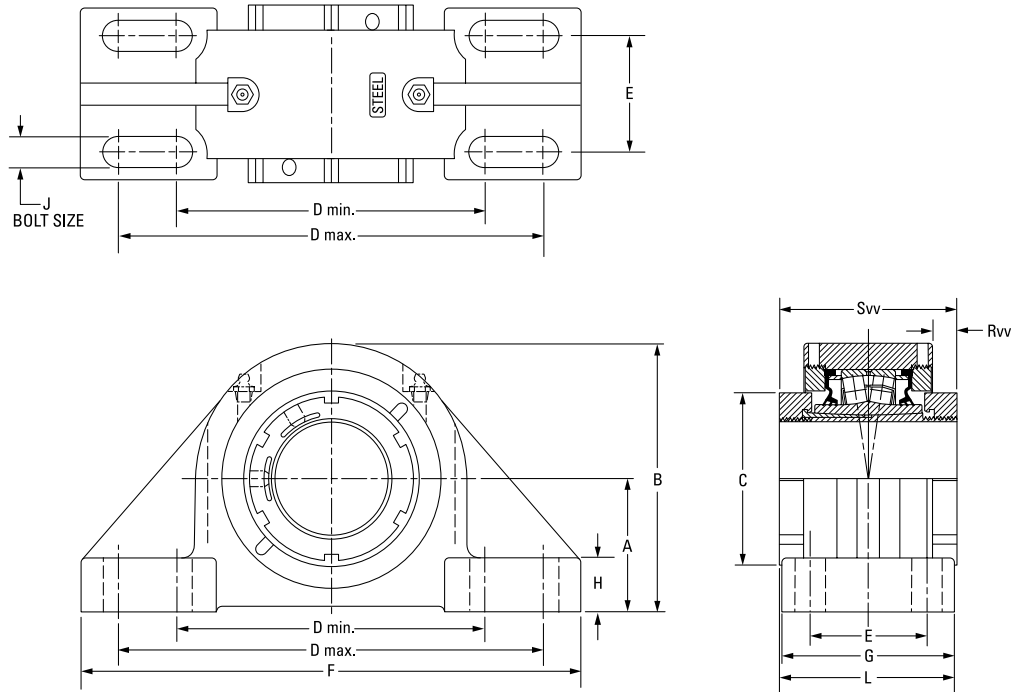
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	Rvv	Svv	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVVPR14V060S	60 mm	22214	69.9	147.3	94.0	181.1	222.2	47.8	260.4	82.6	24.9	16	93.2	15.2	103.9	9.1
QVVPR14V207S	2 7/16 in.		2.75	5.80	3.70	7.13	8.75	1.88	10.25	3.25	0.98	5/8	3.67	0.60	4.09	20
QVVPR14V208S	2 1/2 in.															
QVVPR14V065S	65 mm	22216	79.5	164.3	106.4	203.2	243.8	54.1	275.1	85.9	29.5	16	96.0	15.2	106.2	12.2
QVVPR16V211S	2 11/16 in.		3.13	6.47	4.19	8.00	9.60	2.13	10.83	3.38	1.16	5/8	3.78	0.60	4.18	27
QVVPR16V212S	2 3/4 in.															
QVVPR16V070S	70 mm	22219	95.3	195.3	124.5	235.0	285.8	60.5	346.2	95.3	39.6	20	106.4	14.5	117.6	22.2
QVVPR16V215S	2 15/16 in.		3.75	7.69	4.90	9.25	11.25	2.38	13.63	3.75	1.56	3/4	4.19	0.57	4.63	49
QVVPR16V300S	3 in.															
QVVPR16V075S	75 mm	22219	95.3	195.3	124.5	235.0	285.8	60.5	346.2	95.3	39.6	20	106.4	14.5	117.6	22.2
QVVPR19V303S	3 3/16 in.		3.75	7.69	4.90	9.25	11.25	2.38	13.63	3.75	1.56	3/4	4.19	0.57	4.63	49
QVVPR19V304S	3 1/4 in.															
QVVPR19V080S	80 mm	22219	95.3	195.3	124.5	235.0	285.8	60.5	346.2	95.3	39.6	20	106.4	14.5	117.6	22.2
QVVPR19V085S	85 mm		3.75	7.69	4.90	9.25	11.25	2.38	13.63	3.75	1.56	3/4	4.19	0.57	4.63	49
QVVPR19V307S	3 7/16 in.															
QVVPR19V308S	3 1/2 in.															
QVVPR19V090S	90 mm															

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVPX 5000 SERIES FOUR-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT

## QVVPX 5000 SERIES FOUR-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT



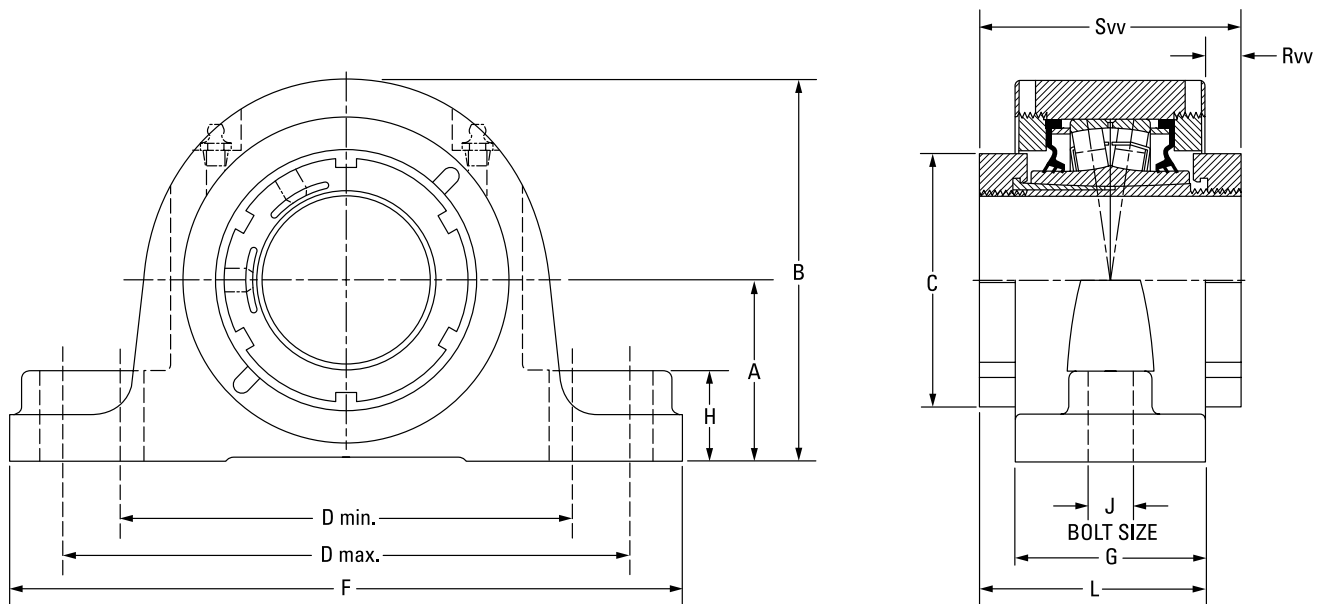
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	Rvv	SvV	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVVPX14V060S	<b>60 mm</b>	22214	76.2 3.00	153.7 6.05	94.0 3.70	176.3 6.94	242.8 9.56	66.8 2.63	285.8 11.25	98.6 3.88	31.0 1.22	16 5/8	101.3 3.99	15.2 0.60	103.9 4.09	10.4 23
QVVPX14V207S	2 7/16 in.															
QVVPX14V208S	2 1/2 in.															
QVVPX14V065S	<b>65 mm</b>	22216	88.9 3.50	173.5 6.83	106.4 4.19	230.1 9.06	265.2 10.44	69.9 2.75	330.2 13.00	108.0 4.25	39.1 1.54	20 3/4	107.2 4.22	14.2 0.56	106.2 4.18	12.7 28
QVVPX16V211S	2 11/16 in.															
QVVPX16V212S	2 3/4 in.															
QVVPX16V070S	<b>70 mm</b>	22219	101.6 4.00	201.2 7.92	124.5 4.90	274.6 10.81	309.6 12.19	76.2 3.00	381.0 15.00	120.7 4.75	38.1 1.50	20 3/4	119.1 4.69	14.5 0.57	117.6 4.63	22.2 49
QVVPX16V215S	2 15/16 in.															
QVVPX16V300S	3 in.															
QVVPX16V075S	<b>75 mm</b>	22222	127.0 5.00	239.8 9.44	139.7 5.50	317.5 12.50	355.6 14.00	88.9 3.50	425.5 16.75	139.7 5.50	41.4 1.63	24 7/8	135.1 5.32	15.2 0.60	130.3 5.13	30.4 67
QVVPX19V303S	3 3/16 in.															
QVVPX19V304S	3 1/4 in.															
QVVPX19V080S	<b>80 mm</b>	22226	146.1 5.75	273.8 10.78	174.8 6.88	354.1 13.94	395.2 15.56	101.6 4.00	469.9 18.50	158.8 6.25	45.7 1.80	24 1	168.7 6.64	38.4 1.51	178.3 7.02	37.2 82
QVVPX19V085S	<b>85 mm</b>															
QVVPX19V307S	3 7/16 in.															
QVVPX19V308S	3 1/2 in.	22228	155.6 6.125	293.4 11.55	190.0 7.48	387.4 15.25	452.5 16.75	108.0 4.25	514.4 20.25	171.5 6.75	50.8 2.00	24 1 1/8	175.0 6.89	30.7 1.21	178.3 7.02	61.7 136
QVVPX19V090S	<b>90 mm</b>															
QVVPX22V311S	3 11/16 in.															
QVVPX22V312S	3 3/4 in.	22226	146.1 5.75	273.8 10.78	174.8 6.88	354.1 13.94	395.2 15.56	101.6 4.00	469.9 18.50	158.8 6.25	45.7 1.80	24 1	168.7 6.64	38.4 1.51	178.3 7.02	37.2 82
QVVPX22V315S	3 15/16 in.															
QVVPX22V400S	4 in.															
QVVPX22V100S	<b>100 mm</b>	22226	146.1 5.75	273.8 10.78	174.8 6.88	354.1 13.94	395.2 15.56	101.6 4.00	469.9 18.50	158.8 6.25	45.7 1.80	24 1	168.7 6.64	38.4 1.51	178.3 7.02	37.2 82
QVVPX26V110S	<b>110 mm</b>															
QVVPX26V407S	4 7/16 in.															
QVVPX26V408S	4 1/2 in.	22228	155.6 6.125	293.4 11.55	190.0 7.48	387.4 15.25	452.5 16.75	108.0 4.25	514.4 20.25	171.5 6.75	50.8 2.00	24 1 1/8	175.0 6.89	30.7 1.21	178.3 7.02	61.7 136
QVVPX26V115S	<b>115 mm</b>															
QVVPX28V125S	<b>125 mm</b>															
QVVPX28V415S	4 15/16 in.	22228	155.6 6.125	293.4 11.55	190.0 7.48	387.4 15.25	452.5 16.75	108.0 4.25	514.4 20.25	171.5 6.75	50.8 2.00	24 1 1/8	175.0 6.89	30.7 1.21	178.3 7.02	61.7 136
QVVPX28V500S	5 in.															
QVVPX28V130S	<b>130 mm</b>															

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVPXT 5000 SERIES TWO-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT

## QVVPXT 5000 SERIES TWO-BOLT PILLOW BLOCKS – STRAIGHT BORE EQUIVALENT



Bearing Part No. <sup>(1)</sup>	Shaft Size	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	Rvv	Svv	Wt.	
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QVVPXT14V060S	<b>60 mm</b>	22214	<b>76.2</b> 3.00	<b>153.7</b> 6.05	<b>94.0</b> 3.70	<b>194.6</b> 7.66	<b>233.0</b> 8.78	<b>285.8</b> 11.25	<b>73.7</b> 2.90	<b>35.1</b> 1.38	<b>20</b> ¾	<b>88.9</b> 3.50	<b>15.2</b> 0.60	<b>103.9</b> 4.09	<b>10.0</b> 22	
QVVPXT14V207S	2 7/16 in.															
QVVPXT14V208S	2 ½ in.															
QVVPXT14V065S	<b>65 mm</b>	22216	<b>88.9</b> 3.50	<b>173.7</b> 6.84	<b>106.4</b> 4.19	<b>230.1</b> 9.06	<b>265.2</b> 10.44	<b>330.2</b> 13.00	<b>75.7</b> 2.98	<b>35.1</b> 1.38	<b>24</b> 7/8	<b>90.9</b> 3.58	<b>15.2</b> 0.60	<b>106.2</b> 4.18	<b>12.7</b> 28	
QVVPXT16V211S	2 11/16 in.															
QVVPXT16V212S	2 ¾ in.															
QVVPXT16V070S	<b>70 mm</b>															
QVVPXT16V215S	2 15/16 in.															
QVVPXT16V300S	3 in.															
QVVPXT16V075S	<b>75 mm</b>															

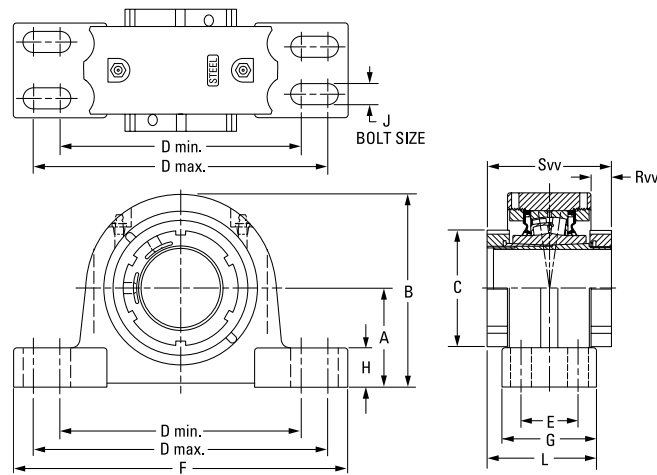
<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.



# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## V-LOCK SERIES • QVVPG SN-STYLE FOUR-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT

### QVVPG SN-STYLE FOUR-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT



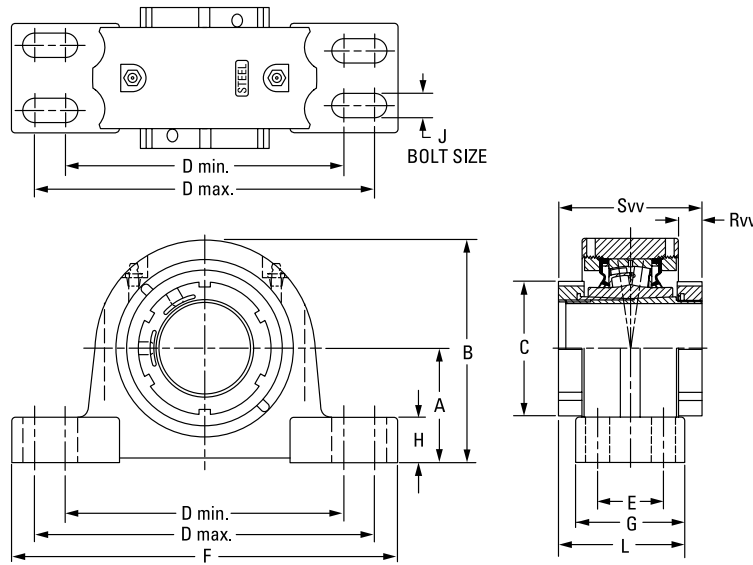
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	Rvv	Svv	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QVVPG11V115S	1 15/16 in.	22211	69.9	134.9	75.9	182.4	217.4	39.9	251.0	68.6	31.8	16	85.3	20.8	102.1	8.6	
QVVPG11V200S	2 in.		2.75	5.31	2.99	7.18	8.56	1.57	9.88	2.70	1.25	5/8	3.36	0.82	4.02	19	
QVVPG11V050S	50 mm																
QVVPG12V055S	55 mm	22212	70.0	140.5	80.0	177.8	219.2	35.1	254.0	69.9	31.8	12	86.1	20.8	102.1	9.9	
			2.756	5.53	3.15	7.00	8.63	1.38	10.00	2.75	1.25	1/2	3.39	0.82	4.02	22	
QVVPG13V203S	2 3/16 in.	22213	80.0	154.9	80.3	182.4	217.4	48.0	261.9	82.6	35.1	16	92.5	17.0	102.1	11.3	
QVVPG13V204S	2 1/4 in.		3.15	6.10	3.16	7.18	8.56	1.89	10.31	3.25	1.38	5/8	3.64	0.67	4.02	25	
QVVPG14V060S	60 mm	22214	80.0	154.9	94.0	182.4	217.4	48.0	261.9	82.6	35.1	16	93.2	86.1	103.9	11.3	
			3.15	6.10	3.70	7.18	8.56	1.89	10.31	3.25	1.38	5/8	3.67	3.39	4.09	25	
QVVPG15V207S	2 7/16 in.	22215	80.0	162.1	94.0	201.7	246.1	39.6	276.4	79.5	30.2	16	91.7	15.7	103.9	13.2	
QVVPG15V208S	2 1/2 in.		3.15	6.38	3.70	7.94	9.69	1.56	10.88	3.13	1.19	5/8	3.61	0.62	4.09	29	
QVVPG15V065S	65 mm																
QVVPG16V211S	2 11/16 in.	22216	95.0	180.3	105.9	235.0	266.7	50.0	315.0	89.9	31.8	16	98.0	16.8	105.9	14.9	
QVVPG16V212S	2 3/4 in.		3.74	7.10	4.17	9.25	10.50	1.97	12.4	3.54	1.25	5/8	3.86	0.66	4.17	33	
QVVPG16V070S	70 mm																
QVVPG17V215S	2 15/16 in.	22217	95.0	182.9	106.4	240.0	287.3	52.3	320.8	92.2	31.8	20	99.3	15.0	106.2	16.8	
QVVPG17V300S	3 in.		3.74	7.20	4.19	9.44	11.31	2.06	12.63	3.63	1.25	3/4	3.91	0.59	4.18	37	
QVVPG17V075S	75 mm																
QVVPG19V303S	3 3/16 in.	22219	100.0	195.3	124.0	282.7	298.5	50.0	344.9	100.1	39.6	16	109.2	19.3	118.1	24.5	
QVVPG19V304S	3 1/4 in.		3.937	7.69	4.88	11.13	11.75	1.97	13.58	3.94	1.56	5/8	4.30	0.76	4.65	54	
QVVPG19V080S	80 mm																
QVVPG19V085S	85 mm	22219	112.0	212.3	124.0	282.7	298.5	50.0	344.9	100.1	39.6	16	109.2	17.8	118.1	25.4	
			4.409	8.36	4.88	11.13	11.75	1.97	13.58	3.94	1.56	5/8	4.30	0.70	4.65	56	
QVVPG20V307S	3 7/16 in.	22220	112.0	214.6	124.5	276.4	339.9	60.5	381.0	109.5	39.6	20	113.5	11.2	117.6	31.8	
QVVPG20V308S	3 1/2 in.		4.409	8.45	4.90	10.88	13.38	2.38	15.00	4.31	1.56	3/4	4.47	0.44	4.63	70	
QVVPG20V090S	90 mm																
QVVPG22V311S	3 11/16 in.	22222	125.0	238.3	139.7	301.8	368.3	69.9	409.7	120.7	44.5	20	125.5	14.5	130.3	39.5	
QVVPG22V312S	3 3/4 in.		4.921	9.38	5.50	11.88	14.50	2.75	16.13	4.75	1.75	3/4	4.94	0.57	5.13	87	
QVVPG22V100S	100 mm																
QVVPG22V315S	3 15/16 in.																
QVVPG22V400S	4 in.																
QVVPG24V110S	110 mm	22224	140.0	262.9	174.8	342.9	355.6	70.1	410.0	120.7	50.8	16	149.6	40.4	178.3	49.9	
			5.512	10.35	6.88	13.50	14.00	2.76	16.14	4.75	2.00	5/8	5.89	1.59	7.02	110	
QVVPG26V407S	4 7/16 in.	22226	150.0	281.7	174.8	367.3	400.1	81.0	444.5	128.0	49.3	24	153.2	36.6	178.3	61.7	
QVVPG26V408S	4 1/2 in.		5.906	11.09	6.88	14.46	15.75	3.19	17.50	5.04	1.94	1	6.03	1.44	7.02	136	
QVVPG26V115S	115 mm																
QVVPG28V125S	125 mm	22228	150.0	288.5	190.0	384.3	447.8	80.0	500.4	128.0	49.3	24	152.9	31.8	178.3	61.7	
QVVPG28V415S	4 15/16 in.		5.906	11.36	7.48	15.13	17.63	3.15	19.70	5.04	1.94	1	6.02	1.25	7.02	136	
QVVPG28V500S	5 in.																
QVVPG28V130S	130 mm																

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVPH SAF-STYLE FOUR-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT

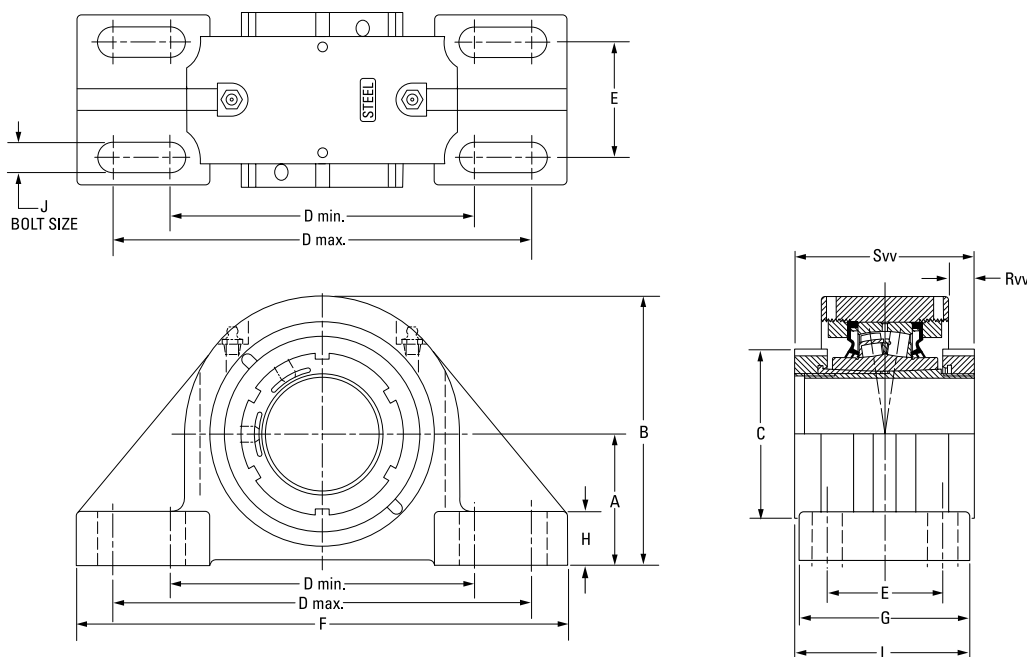
## QVVPH SAF-STYLE FOUR-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT



Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	Rvv	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVVPH11V115S	1 15/16 in.	22211	69.9	134.9	75.9	182.4	217.4	39.9	251.0	68.6	31.8	16	85.3	20.8	102.1	8.6
QVVPH11V200S	2 in.		2.75	5.31	2.99	7.18	8.56	1.57	9.88	2.70	1.25	5/8	3.36	0.82	4.02	19
QVVPH11V050S	50 mm															
QVVPH13V203S	2 3/4 in.	22213	76.2	151.1	80.3	182.4	217.4	50.8	261.9	82.6	31.2	12	92.5	17.0	102.1	11.3
QVVPH13V204S	2 1/4 in.		3.00	5.95	3.16	7.18	8.56	2.00	10.31	3.25	1.23	1/2	3.64	0.67	4.02	25
QVVPH13V055S	55 mm															
QVVPH15V060S	60 mm	22215	82.6	162.1	94.0	201.7	246.1	47.8	276.4	79.5	32.8	12	91.7	18.0	103.9	13.2
QVVPH15V207S	2 7/16 in.		3.25	6.38	3.70	7.94	9.69	1.88	10.88	3.13	1.29	1/2	3.61	0.71	4.09	29
QVVPH15V208S	2 1/2 in.															
QVVPH15V065S	65 mm	22217	95.3	182.9	106.4	240.0	287.3	54.1	320.8	92.2	32.0	16	99.3	15.0	106.2	16.8
QVVPH17V211S	2 11/16 in.		3.75	7.20	4.19	9.44	11.31	2.13	12.63	3.63	1.26	5/8	3.91	0.59	4.18	37
QVVPH17V212S	2 3/4 in.															
QVVPH17V070S	70 mm	22220	114.3	216.9	124.5	276.4	339.9	60.5	381.0	109.5	41.9	20	113.5	11.2	117.6	31.8
QVVPH17V215S	2 15/16 in.		4.50	8.54	4.90	10.88	13.38	2.38	15.00	4.31	1.65	3/4	4.47	0.44	4.63	70
QVVPH17V300S	3 in.															
QVVPH17V075S	75 mm	22222	125.5	238.3	139.7	301.8	368.3	69.9	406.4	120.7	45.0	20	125.5	14.5	130.3	39.5
QVVPH20V303S	3 3/16 in.		4.94	9.38	5.50	11.88	14.50	2.75	16.00	4.75	1.77	3/4	4.94	0.57	5.13	87
QVVPH20V304S	3 1/4 in.															
QVVPH20V080S	80 mm	22226	152.4	284.0	174.8	362.0	400.1	82.6	444.5	128.0	51.8	20	153.2	36.6	178.3	61.7
QVVPH20V085S	85 mm		4.50	8.54	4.90	10.88	13.38	2.38	15.00	4.31	1.65	3/4	4.47	0.44	4.63	70
QVVPH20V307S	3 7/16 in.															
QVVPH20V308S	3 1/2 in.	22228	152.4	290.8	190.0	406.4	435.1	85.9	500.4	128.0	51.8	24	152.9	31.8	178.3	61.7
QVVPH20V090S	90 mm		6.00	11.18	6.88	14.25	15.75	3.25	17.50	5.04	2.04	3/4	6.03	1.44	7.02	136
QVVPH22V311S	3 11/16 in.															
QVVPH22V312S	3 3/4 in.	22228	152.4	290.8	190.0	406.4	435.1	85.9	500.4	128.0	51.8	24	152.9	31.8	178.3	61.7
QVVPH22V100S	100 mm		6.00	11.45	7.48	16.00	17.13	3.38	19.70	5.04	2.04	1	6.02	1.25	7.02	136
QVVPH22V315S	3 15/16 in.															
QVVPH22V400S	4 in.															
QVVPH26V110S	110 mm	22226	152.4	284.0	174.8	362.0	400.1	82.6	444.5	128.0	51.8	20	153.2	36.6	178.3	61.7
QVVPH26V407S	4 7/16 in.		6.00	11.18	6.88	14.25	15.75	3.25	17.50	5.04	2.04	3/4	6.03	1.44	7.02	136
QVVPH26V408S	4 1/2 in.															
QVVPH26V115S	115 mm	22228	152.4	290.8	190.0	406.4	435.1	85.9	500.4	128.0	51.8	24	152.9	31.8	178.3	61.7
QVVPH28V125S	125 mm		6.00	11.45	7.48	16.00	17.13	3.38	19.70	5.04	2.04	1	6.02	1.25	7.02	136
QVVPH28V415S	4 15/16 in.															
QVVPH28V500S	5 in.															
QVVPH28V130S	130 mm															

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

QVVPK 9000 SERIES FOUR-BOLT PILLOW BLOCKS – TAPERED BORE EQUIVALENT



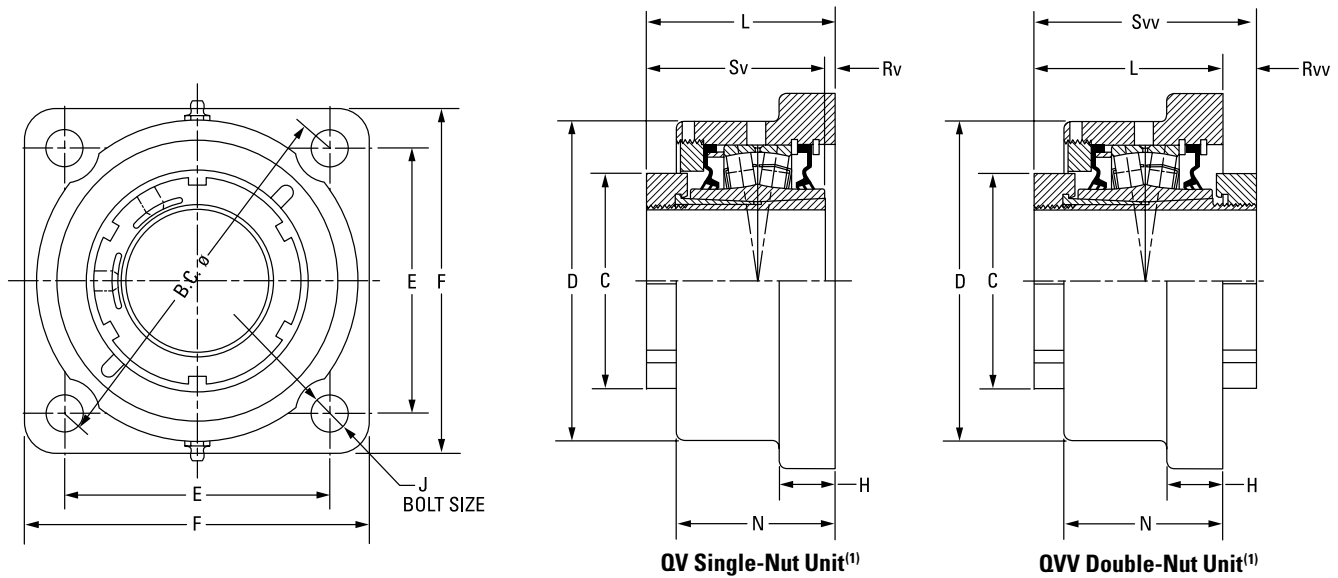
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	Rvv	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVVPK15V060S	60 mm	22215	88.9 3.50	176.0 6.83	94.0 3.70	230.1 9.06	265.2 10.44	69.9 2.75	330.2 13.00	108.0 4.25	39.1 1.54	20 3/4	105.9 4.17	12.6 0.51	103.9 4.09	13.2 29
QVVPK15V207S	2 7/16 in.															
QVVPK15V208S	2 1/2 in.															
QVVPK15V065S	65 mm	22217	101.6 4.00	201.2 7.92	106.4 4.19	274.6 10.81	309.6 12.19	76.2 3.00	381.0 15.00	120.7 4.75	38.1 1.50	20 3/4	113.5 4.47	8.64 0.34	106.2 4.18	16.8 37
QVVPK17V211S	2 11/16 in.															
QVVPK17V212S	2 3/4 in.															
QVVPK17V070S	70 mm	22220	127.0 5.00	240.0 9.44	124.5 4.90	317.5 12.50	355.6 14.00	88.9 3.50	425.5 16.75	139.7 5.50	41.4 1.63	24 7/8	128.8 5.07	8.9 0.35	117.6 4.63	31.8 70
QVVPK17V215S	2 15/16 in.															
QVVPK17V300S	3 in.															
QVVPK17V075S	75 mm	22222	146.1 5.75	273.8 10.78	139.7 5.50	354.1 13.94	395.2 15.56	101.6 4.00	469.9 18.50	158.8 6.25	45.7 1.80	24 1	138.4 5.45	14.5 0.57	130.3 5.13	39.5 87
QVVPK20V303S	3 3/16 in.															
QVVPK20V304S	3 1/4 in.															
QVVPK20V080S	80 mm	22226	155.7 6.13	283.2 11.15	174.8 6.88	387.4 15.25	425.5 16.75	108.0 4.25	514.4 20.25	171.5 6.75	50.8 2.00	24 1	175.3 6.90	31.5 1.24	178.3 7.02	61.7 136
QVVPK20V085S	85 mm															
QVVPK20V307S	3 7/16 in.															
QVVPK20V308S	3 1/2 in.															
QVVPK20V090S	90 mm															
QVVPK22V311S	3 11/16 in.															
QVVPK22V312S	3 3/4 in.															
QVVPK22V100S	100 mm															
QVVPK22V315S	3 15/16 in.															
QVVPK22V400S	4 in.															
QVVPK26V110S	110 mm															
QVVPK26V407S	4 7/16 in.															
QVVPK26V408S	4 1/2 in.															
QVVPK26V115S	115 mm															

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVF AND QVVF SQUARE FLANGE BLOCKS – STRAIGHT BORE EQUIVALENT

## QVF AND QVVF SQUARE FLANGE BLOCKS – STRAIGHT BORE EQUIVALENT



Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	C	D	E	B.C.	F	H	J	L	L	N	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QVF11V115S	1 15/16 in.	22211	75.9	120.7	111.3	157.0	139.7	22.4	12	84.1	86.1	65.0	4.1	18.3	79.8	102.1	5.0
QVF11V200S	2 in.		2.99	4.75	4.38	6.18	5.50	0.88	1/2	3.31	3.39	2.56	0.16	0.72	3.14	4.02	11
QVF11V050S	50 mm																
QVF12V203S	2 3/16 in.	22212	80.3	130.3	124.0	175.0	157.2	25.4	16	84.3	86.4	66.8	4.6	17.8	79.8	102.1	6.4
QVF12V204S	2 1/4 in.		3.16	5.13	4.88	6.89	6.19	1.00	5/8	3.32	3.40	2.63	0.18	0.70	3.14	4.02	14
QVF12V055S	55 mm																
QVF14V060S	60 mm	22214	94.0	146.1	136.7	193.0	168.4	25.4	16	85.1	87.1	72.4	4.1	16.0	81.0	101.3	7.7
QVF14V207S	2 7/16 in.		3.70	5.75	5.38	7.60	6.63	1.00	5/8	3.35	3.43	2.85	0.16	0.63	3.19	3.99	17
QVF14V208S	2 1/2 in.																
QVF14V065S	65 mm	22216	106.4	168.9	152.4	215.4	189.0	26.9	20	87.6	89.7	75.7	4.1	16.3	83.6	103.6	10.4
QVF16V211S	2 11/16 in.		4.19	6.65	6.00	8.48	7.44	1.06	3/4	3.45	3.53	2.98	0.16	0.64	3.29	4.08	23
QVF16V212S	2 3/4 in.																
QVF16V070S	70 mm	22219	124.5	193.8	177.8	251.7	219.2	33.3	20	98.3	100.3	84.1	4.6	15.7	93.7	114.0	15.9
QVF16V215S	2 15/16 in.		4.90	7.63	7.00	9.91	8.63	1.31	3/4	3.87	3.95	3.31	0.18	0.62	3.69	4.49	35
QVF16V300S	3 in.																
QVF16V075S	75 mm	22219	124.5	193.8	177.8	251.7	219.2	33.3	20	98.3	100.3	84.1	4.6	15.7	93.7	114.0	15.9
QVF19V303S	3 3/16 in.		4.90	7.63	7.00	9.91	8.63	1.31	3/4	3.87	3.95	3.31	0.18	0.62	3.69	4.49	35
QVF19V304S	3 1/4 in.																
QVF19V080S	80 mm	22219	124.5	193.8	177.8	251.7	219.2	33.3	20	98.3	100.3	84.1	4.6	15.7	93.7	114.0	15.9
QVF19V085S	85 mm		4.90	7.63	7.00	9.91	8.63	1.31	3/4	3.87	3.95	3.31	0.18	0.62	3.69	4.49	35
QVF19V307S	3 7/16 in.																
QVF19V308S	3 1/2 in.	22222	139.7	224.0	196.9	278.4	253.2	38.1	24	114.0	116.1	103.1	9.1	12.7	104.9	126.7	24.9
QVF19V090S	90 mm		5.50	8.82	7.75	10.96	9.97	1.50	7/8	4.49	4.57	4.06	0.36	0.50	4.13	4.99	55
QVF22V311S	3 11/16 in.																
QVF22V312S	3 3/4 in.	22222	139.7	224.0	196.9	278.4	253.2	38.1	24	114.0	116.1	103.1	9.1	12.7	104.9	126.7	24.9
QVF22V100S	100 mm		5.50	8.82	7.75	10.96	9.97	1.50	7/8	4.49	4.57	4.06	0.36	0.50	4.13	4.99	55
QVF22V315S	3 15/16 in.																
QVF22V400S	4 in.	22226	174.8	256.8	222.3	314.5	276.4	38.1	24	140.5	142.7	106.9	7.4	37.8	147.8	178.3	28.6
QVF26V110S	110 mm		6.88	10.11	8.75	12.38	10.88	1.50	7/8	5.53	5.62	4.21	0.29	1.49	5.82	7.02	63
QVF26V407S	4 7/16 in.																
QVF26V408S	4 1/2 in.	22226	174.8	256.8	222.3	314.5	276.4	38.1	24	140.5	142.7	106.9	7.4	37.8	147.8	178.3	28.6
QVF26V115S	115 mm		6.88	10.11	8.75	12.38	10.88	1.50	7/8	5.53	5.62	4.21	0.29	1.49	5.82	7.02	63

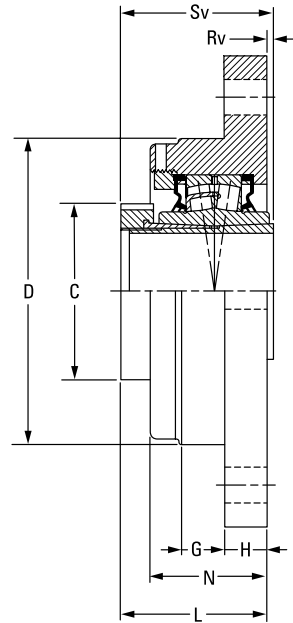
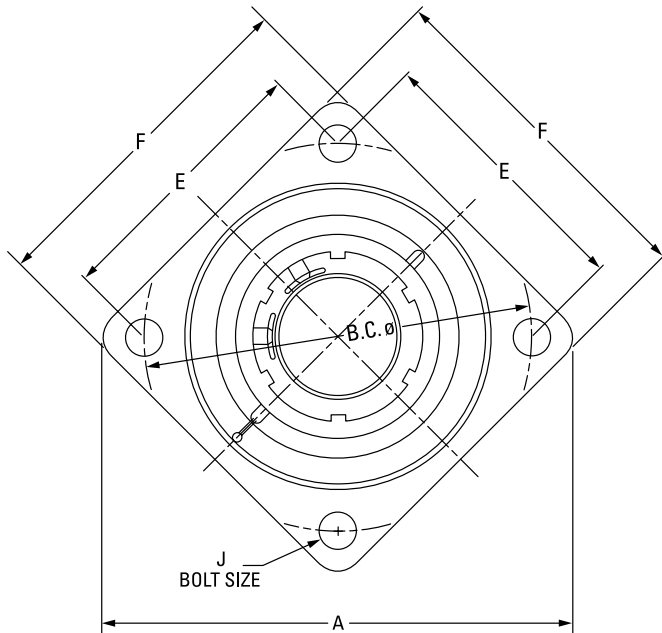
<sup>(1)</sup>Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Svv dimensions).

<sup>(2)</sup>Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

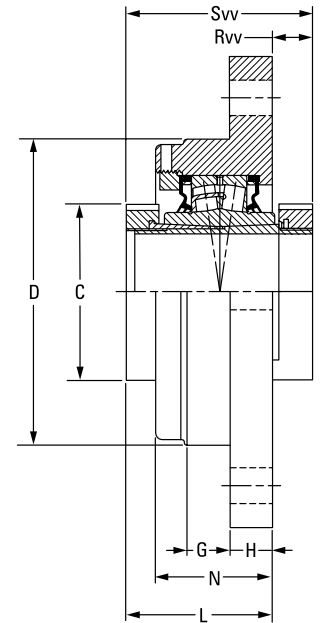
# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVFB AND QVFB FLANGE BLOCKS – TAPERED ADAPTER EQUIVALENT

## QVFB AND QVFB FLANGE BLOCKS – TAPERED ADAPTER EQUIVALENT



QV Single-Nut Unit<sup>(1)</sup>



QVV Double-Nut Unit<sup>(1)</sup>

Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	A	B.C.	C	D	E	F	G	H	J	L	N	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVFB15V060S	60 mm	22215	255.0 10.04	215.1 8.47	94.0 3.70	169.9 6.69	152.4 6.00	192.0 7.56	25.4 1.00	23.9 0.94	16 5/8	81.5 3.21	64.8 2.55	0.8 0.03	22.4 0.88	82.6 3.25	103.9 4.09	11.3 25
QVFB15V207S	2 7/16 in.																	
QVFB15V208S	2 1/2 in.																	
QVFB15V065S	65 mm	22217	282.4 11.12	240.0 9.45	106.4 4.19	190.0 7.48	169.7 6.68	212.1 8.35	25.4 1.00	25.4 1.00	16 5/8	83.8 3.30	69.9 2.75	1.0 0.04	22.4 0.88	84.6 3.33	106.2 4.18	13.6 30
QVFB17V211S	2 11/16 in.																	
QVFB17V212S	2 3/4 in.																	
QVFB17V070S	70 mm	22220	330.2 13.00	279.9 11.02	124.5 4.90	230.1 9.06	197.9 7.79	247.9 9.76	31.8 1.25	28.7 1.13	20 3/4	106.7 4.20	94.2 3.71	11.4 0.45	10.9 0.43	95.3 3.75	117.3 4.62	18.1 40
QVFB20V303S	3 3/16 in.																	
QVFB20V304S	3 1/4 in.																	
QVFB20V080S	80 mm	22222	367.0 14.45	309.9 12.20	139.7 5.50	255.0 10.04	219.2 8.63	274.3 10.80	44.5 1.75	26.4 1.04	20 3/4	112.0 4.41	101.1 3.98	7.4 0.29	14.7 0.58	104.9 4.13	126.7 4.99	27.2 60
QVFB20V085S	85 mm																	
QVFB20V307S	3 7/16 in.																	
QVFB20V308S	3 1/2 in.	22226	416.1 16.38	355.1 13.98	174.8 6.88	290.1 11.42	251.0 9.88	298.5 11.75	41.9 1.65	32.0 1.26	24 7/8	148.3 5.84	114.3 4.50	0.5 0.02	30.0 1.18	147.8 5.82	178.3 7.02	42.6 94
QVFB20V090S	90 mm																	
QVFB22V311S	3 11/16 in.																	
QVFB22V312S	3 3/4 in.																	
QVFB22V100S	100 mm																	
QVFB22V315S	3 15/16 in.																	
QVFB22V400S	4 in.																	
QVFB26V110S	110 mm																	
QVFB26V407S	4 7/16 in.																	
QVFB26V408S	4 1/2 in.																	
QVFB26V115S	115 mm																	

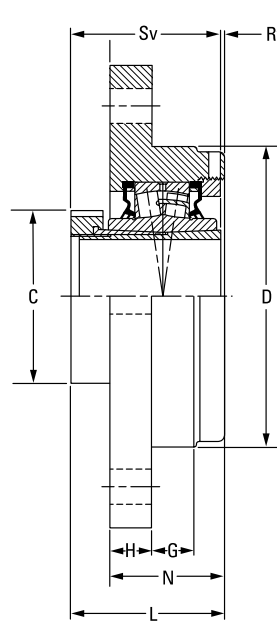
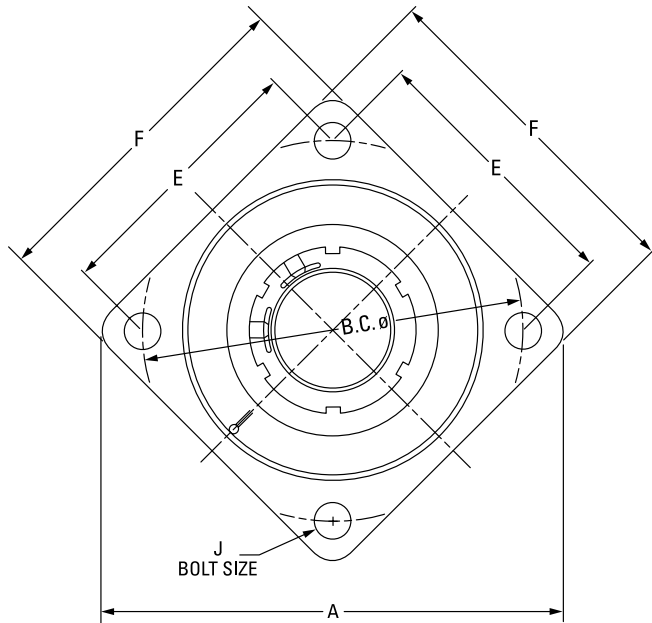
<sup>(1)</sup>Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Svv dimensions).

<sup>(2)</sup>Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

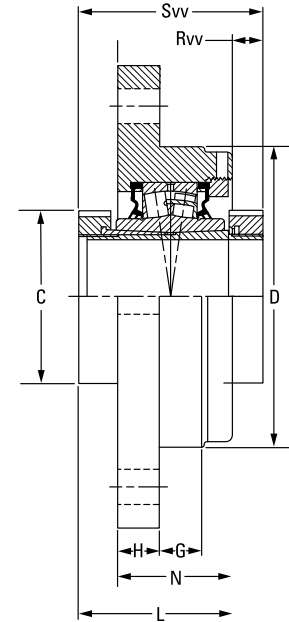
# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVFC AND QVVFC PILOTED FLANGE CARTRIDGES – TAPERED ADAPTER EQUIVALENT

## QVFC AND QVVFC PILOTED FLANGE CARTRIDGES – TAPERED ADAPTER EQUIVALENT



QV Single-Nut Unit<sup>(1)</sup>



QVV Double-Nut Unit<sup>(1)</sup>

Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	A	B.C.	C	D <sup>(3)</sup>	E	F	G	H	J	L	N	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.	
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QVFC15V060S	60 mm	22215	255.0 10.04	215.1 8.47	94.0 3.70	169.9 6.690	152.4 6.00	192.0 7.56	25.4 1.00	23.9 0.94	16 5/8	87.1 3.43	64.8 2.55	4.6 0.18	16.8 0.66	82.6 3.25	103.9 4.09	11.3 25	
QVFC15V207S	2 7/16 in.																		
QVFC15V208S	2 1/2 in.																		
QVFC15V065S	65 mm	22217	282.4 11.12	240.0 9.45	106.4 4.19	190.0 7.480	169.7 6.68	212.1 8.35	25.4 1.00	25.4 1.00	16 5/8	91.7 3.61	69.9 2.75	6.6 0.26	14.5 0.57	84.6 3.33	106.2 4.18	13.6 30	
QVFC17V211S	2 11/16 in.																		
QVFC17V212S	2 3/4 in.																		
QVFC17V070S	70 mm	22220	330.2 13.00	279.9 11.02	124.5 4.90	230.1 9.060	197.9 7.79	247.9 9.76	31.8 1.25	28.7 1.13	20 3/4	105.2 4.14	94.2 3.71	9.7 0.38	12.4 0.49	95.3 3.75	117.3 4.62	18.1 40	
QVFC20V303S	3 3/16 in.																		
QVFC20V304S	3 1/4 in.																		
QVFC20V080S	80 mm	22222	367.0 14.45	309.9 12.20	139.7 5.50	255.0 10.040	219.2 8.63	274.3 10.80	44.5 1.75	26.4 1.04	20 3/4	112.8 4.44	101.1 3.98	8.1 0.32	5.8 0.23	104.9 4.13	126.7 4.99	27.2 60	
QVFC20V085S	85 mm																		
QVFC20V307S	3 7/16 in.																		
QVFC20V308S	3 1/2 in.	22226	416.1 16.38	355.1 13.98	174.8 6.88	290.0 11.417	251.0 9.88	298.5 11.75	41.9 1.65	32.0 1.26	24 7/8	144.3 5.68	114.3 4.50	3.6 0.14	34.0 1.34	147.8 5.82	178.3 7.02	42.6 94	
QVFC20V090S	90 mm																		
QVFC22V311S	3 11/16 in.																		
QVFC22V312S	3 3/4 in.																		
QVFC22V100S	100 mm																		
QVFC22V315S	3 15/16 in.																		
QVFC22V400S	4 in.																		
QVFC26V110S	110 mm																		
QVFC26V407S	4 7/16 in.																		
QVFC26V408S	4 1/2 in.																		
QVFC26V115S	115 mm																		

<sup>(1)</sup>Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Svv dimensions).

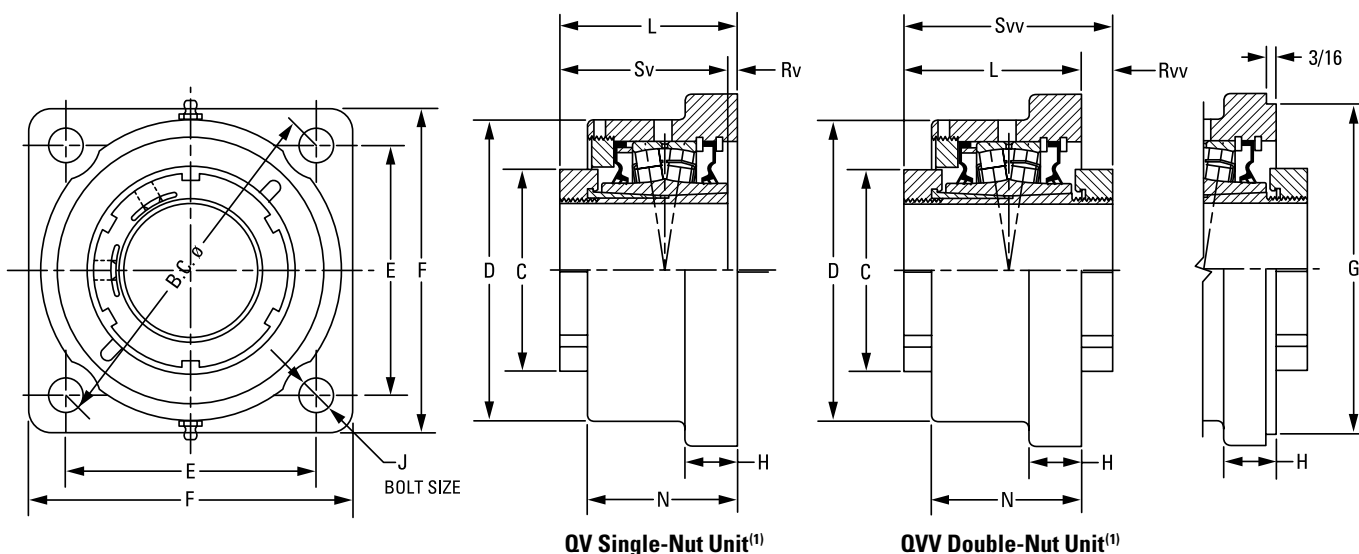
<sup>(2)</sup>Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

<sup>(3)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVFL AND QVVFL SQUARE FLANGE BLOCKS – STRAIGHT BORE EQUIVALENT

## QVFL AND QVVFL SQUARE FLANGE BLOCKS – STRAIGHT BORE EQUIVALENT



Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	C	D	E	B.C.	F	G <sup>(3)(4)(5)</sup>	H	J	L <sub>FIX</sub>	L <sub>EXP</sub>	N	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVFL11V115S	1 15/16 in.	22211	75.9	115.3	103.4	146.1	131.8	N/A	23.1	12	82.6	84.6	61.2	2.5	19.8	79.8	102.1	5.0
QVFL11V200S	2 in.		2.99	4.54	4.07	5.75	5.19		0.91	1/2	3.25	3.33	2.41	0.10	0.78	3.14	4.02	11
QVFL11V050S	50 mm																	
QVFL12V203S	2 3/16 in.	22212	80.3	130.3	114.6	162.1	149.4	N/A	19.1	16	84.3	86.4	66.8	4.6	17.8	79.8	102.1	6.4
QVFL12V204S	2 1/4 in.		3.16	5.13	4.51	6.38	5.88		0.75	5/8	3.32	3.40	2.63	0.18	0.70	3.14	4.02	14
QVFL12V055S	55 mm																	
QVFL14V060S	60 mm	22214	94.0	146.1	121.2	171.5	157.2	N/A	25.4	16	86.1	88.1	72.6	5.1	15.2	81.0	101.3	7.7
QVFL14V207S	2 7/16 in.		3.70	5.75	4.77	6.75	6.19		1.00	5/8	3.39	3.47	2.86	0.20	0.60	3.19	3.99	17
QVFL14V208S	2 1/2 in.																	
QVFL14V065S	65 mm	22216	106.4	168.4	141.2	200.2	182.6	N/A	26.9	20	86.9	88.9	74.4	3.3	17.0	83.6	103.6	10.4
QVFL16V211S	2 11/16 in.		4.19	6.63	5.56	7.88	7.19		1.06	3/4	3.42	3.50	2.93	0.13	0.67	3.29	4.08	23
QVFL16V212S	2 3/4 in.																	
QVFL16V070S	70 mm	22219	124.5	193.8	170.7	241.3	212.9	187.33	32.5	20	97.3	99.3	86.4	3.6	17.0	93.7	114.0	15.9
QVFL16V215S	2 15/16 in.		4.90	7.63	6.72	9.50	8.38	7.375	1.28	3/4	3.83	3.91	3.40	0.14	0.67	3.69	4.49	35
QVFL16V300S	3 in.																	
QVFL16V075S	75 mm	22222	139.7	229.6	193.0	273.1	241.3	215.90	38.1	24	116.8	118.9	104.6	11.9	9.9	104.9	126.7	24.9
QVFL19V303S	3 3/16 in.		4.90	7.63	6.72	9.50	8.38	7.375	1.28	3/4	3.83	3.91	3.40	0.14	0.67	3.69	4.49	35
QVFL19V304S	3 1/4 in.																	
QVFL19V080S	80 mm	22222	139.7	229.6	193.0	273.1	241.3	215.90	38.1	24	116.8	118.9	104.6	11.9	9.9	104.9	126.7	24.9
QVFL19V085S	85 mm		4.90	7.63	6.72	9.50	8.38	7.375	1.28	3/4	3.83	3.91	3.40	0.14	0.67	3.69	4.49	35
QVFL19V307S	3 7/16 in.																	
QVFL19V308S	3 1/2 in.	22222	139.7	229.6	193.0	273.1	241.3	215.90	38.1	24	116.8	118.9	104.6	11.9	9.9	104.9	126.7	24.9
QVFL19V090S	90 mm		4.90	7.63	6.72	9.50	8.38	7.375	1.28	3/4	3.83	3.91	3.40	0.14	0.67	3.69	4.49	35
QVFL22V311S	3 11/16 in.																	
QVFL22V312S	3 3/4 in.	22222	139.7	229.6	193.0	273.1	241.3	215.90	38.1	24	116.8	118.9	104.6	11.9	9.9	104.9	126.7	24.9
QVFL22V100S	100 mm		4.90	7.63	6.72	9.50	8.38	7.375	1.28	3/4	3.83	3.91	3.40	0.14	0.67	3.69	4.49	35
QVFL22V315S	3 15/16 in.																	
QVFL22V400S	4 in.																	

<sup>(1)</sup> Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Svv dimensions).

<sup>(2)</sup> Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

<sup>(3)</sup> Pilot tolerance: +0/-0.08 mm (+0/-0.003 in.).

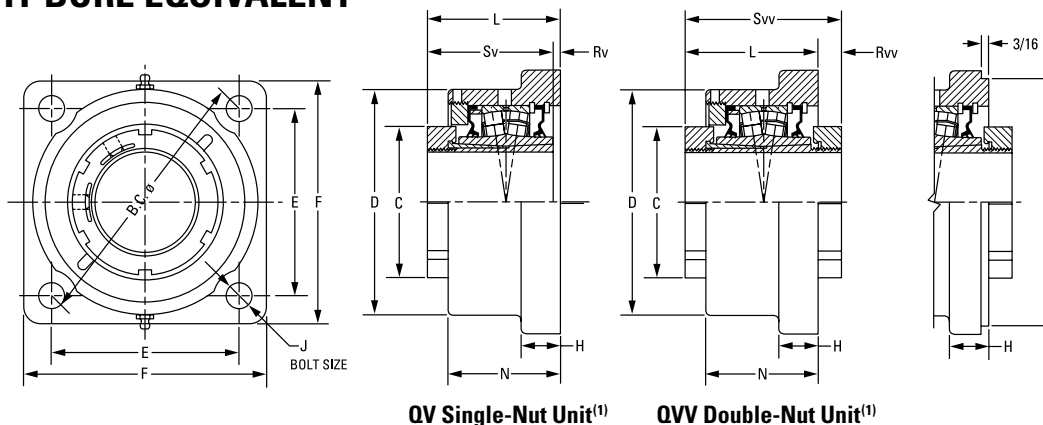
<sup>(4)</sup> Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(5)</sup> Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVFX AND QVVF 5000 SERIES SQUARE FLANGE BLOCKS – STRAIGHT BORE EQUIVALENT

## QVFX AND QVVF 5000 SERIES SQUARE FLANGE BLOCKS – STRAIGHT BORE EQUIVALENT



QV Single-Nut Unit<sup>(1)</sup>

QVV Double-Nut Unit<sup>(1)</sup>

Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	C	D	E	B.C.	F	G <sup>(3)(4)(5)</sup>	H	J	L FIX	L EXP	N	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QVFX11V115S	1 15/16 in.	22211	75.9	120.7	103.6	146.1	134.9	111.13	22.4	12	84.1	86.1	65.0	4.1	18.3	79.8	102.1	5.0
QVFX11V200S	2 in.		2.99	4.75	4.08	5.75	5.31	4.375	0.88	1/2	3.31	3.39	2.56	0.16	0.72	3.14	4.02	11
QVFX11V050S	50 mm																	
QVFX12V203S	2 3/16 in.	22212	80.3	130.3	114.3	161.5	149.4	127.00	25.4	16	84.3	86.4	66.8	4.6	17.5	79.8	102.1	6.4
QVFX12V204S	2 1/4 in.		3.16	5.13	4.50	6.36	5.88	5.000	1.00	5/8	3.32	3.40	2.63	0.18	0.69	3.14	4.02	14
QVFX12V055S	55 mm																	
QVFX14V060S	60 mm	22214	94.0	146.1	127.8	180.8	157.2	138.13	25.4	16	85.1	87.4	72.4	4.1	16.0	81.0	101.3	7.7
QVFX14V207S	2 7/16 in.		3.70	5.75	5.03	7.12	6.19	5.438	1.00	5/8	3.35	3.44	2.85	0.16	0.63	3.19	3.99	17
QVFX14V208S	2 1/2 in.																	
QVFX14V065S	65 mm	22216	106.4	168.9	152.7	215.9	189.0	160.35	26.9	20	87.6	89.7	76.2	4.1	16.3	83.6	103.6	10.4
QVFX16V211S	2 11/16 in.		4.19	6.65	6.01	8.50	7.44	6.313	1.06	3/4	3.45	3.53	3.00	0.16	0.64	3.29	4.08	23
QVFX16V212S	2 3/4 in.																	
QVFX16V070S	70 mm	22219	124.5	193.8	170.7	241.3	212.6	187.33	33.3	20	98.3	100.6	84.1	4.8	15.7	93.7	114.0	15.9
QVFX16V215S	2 15/16 in.		4.90	7.63	6.72	9.50	8.37	7.375	1.31	3/4	3.87	3.96	3.31	0.19	0.62	3.69	4.49	35
QVFX16V300S	3 in.																	
QVFX16V075S	75 mm	22222	139.7	215.9	211.1	298.5	268.2	225.43	38.1	24	114.0	116.3	100.6	9.4	12.7	104.9	126.7	24.9
QVFX19V303S	3 3/16 in.		5.50	8.50	8.31	11.75	10.56	8.875	1.50	1	4.49	4.58	3.96	0.37	0.50	4.13	4.99	55
QVFX19V304S	3 1/4 in.																	
QVFX19V080S	80 mm	22226	174.8	256.5	163.6	327.2	384.3	263.53	38.1	24	140.5	142.7	106.9	7.4	37.8	147.8	178.3	49.0
QVFX19V085S	85 mm		6.88	10.10	6.44 <sup>(6)</sup>	12.88 <sup>(6)</sup>	15.13	10.375	1.50	1 <sup>(6)</sup>	5.53	5.62	4.21	0.29	1.49	5.82	7.02	108
QVFX19V307S	3 7/16 in.																	
QVFX19V308S	3 1/2 in.	22228	189.7	284.2	177.8	355.6	419.1	284.18	38.1	24	166.1	168.1	138.4	18.3	12.2	147.8	178.3	52.2
QVFX19V090S	90 mm		7.47	11.19	7.00 <sup>(6)</sup>	14.00 <sup>(6)</sup>	16.50	11.188	1.50	1 1/8 <sup>(6)</sup>	6.54	6.62	5.45	0.72	0.48	5.82	7.02	115
QVFX22V311S	3 11/16 in.																	
QVFX22V312S	3 3/4 in.																	
QVFX22V100S	100 mm																	
QVFX22V315S	3 15/16 in.																	
QVFX22V400S	4 in.																	
QVFX26V110S <sup>(6)</sup>	110 mm																	
QVFX26V407S <sup>(6)</sup>	4 7/16 in.																	
QVFX26V408S <sup>(6)</sup>	4 1/2 in.																	
QVFX26V115S <sup>(6)</sup>	115 mm																	
QVFX28V125S <sup>(6)</sup>	125 mm																	
QVFX28V415S <sup>(6)</sup>	4 15/16 in.																	
QVFX28V500S <sup>(6)</sup>	5 in.																	
QVFX28V130S <sup>(6)</sup>	130 mm																	

<sup>(1)</sup> Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Sv dimensions).

<sup>(2)</sup> Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

<sup>(3)</sup> Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

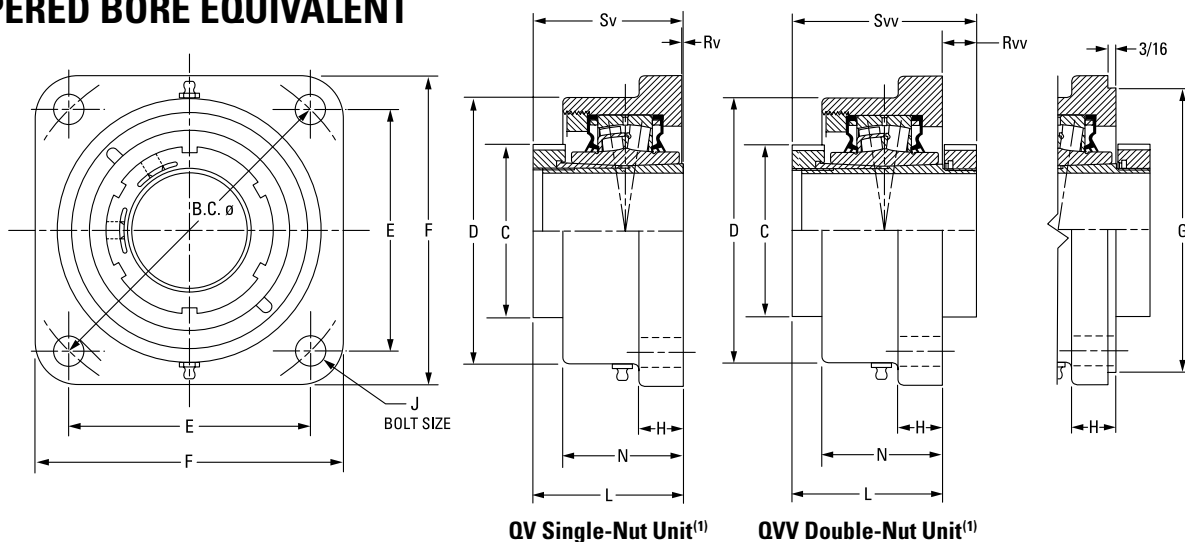
<sup>(4)</sup> Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(5)</sup> Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

<sup>(6)</sup> Six-bolt round housing.



**QVFK AND QVVFK 9000 SERIES SQUARE FLANGE BLOCKS – TAPERED BORE EQUIVALENT**



Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	C	D	E	B.C.	F	G <sup>(3)(4)(5)</sup>	H	J	L <sub>FIX</sub>	L <sub>EXP</sub>	N	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVFK11V115S	1 15/16 in.	22211	75.9	130.3	114.3	161.5	149.4	127.00	25.4	16	87.1	88.4	66.8	7.4	15.0	79.8	102.1	5.0
QVFK11V200S	2 in.		2.99	5.13	4.50	6.36	5.88	5.000	1.00	5/8	3.43	3.48	2.63	0.29	0.59	3.14	4.02	11
QVFK11V050S	50 mm																	
QVFK13V203S	2 3/16 in.	22213	80.3	146.1	127.8	180.8	157.2	138.13	25.4	16	92.2	94.2	72.4	6.9	15.5	85.3	107.7	6.4
QVFK13V204S	2 1/4 in.		3.16	5.75	5.03	7.12	6.19	5.438	1.00	5/8	3.63	3.71	2.85	0.27	0.61	3.36	4.24	14
QVFK13V055S	55 mm																	
QVFK15V060S	60 mm	22215	94.0	168.9	152.7	215.9	189.0	160.35	26.9	20	92.5	94.5	76.2	9.9	11.4	82.6	103.9	7.7
QVFK15V207S	2 7/16 in.		3.70	6.65	6.01	8.50	7.44	6.313	1.06	3/4	3.64	3.72	3.00	0.39	0.45	3.25	4.09	17
QVFK15V208S	2 1/2 in.																	
QVFK15V065S	65 mm	22217	106.4	193.8	170.7	241.3	212.9	187.33	33.3	20	92.5	101.1	84.1	14.5	7.1	84.6	106.2	10.4
QVFK17V211S	2 11/16 in.		4.19	7.63	6.72	9.50	8.38	7.375	1.31	3/4	3.64	3.98	3.31	0.57	0.28	3.33	4.18	23
QVFK17V212S	2 3/4 in.																	
QVFK17V070S	70 mm	22220	124.5	215.9	211.1	298.5	268.2	225.43	38.1	24	113.3	115.3	103.1	18.0	4.1	95.3	117.3	15.9
QVFK17V215S	2 15/16 in.		4.90	8.50	8.31	11.75	10.56	8.875	1.50	7/8	4.46	4.54	4.06	0.71	0.16	3.75	4.62	35
QVFK17V300S	3 in.																	
QVFK17V075S	75 mm	22222	139.7	256.5	168.7	327.2	384.3	263.53	31.8	24	117.3	119.4	106.9	12.4	9.7	104.9	126.7	24.9
QVFK20V303S	3 3/16 in.		4.90	8.50	8.31	11.75	10.56	8.875	1.50	7/8	4.46	4.54	4.06	0.71	0.16	3.75	4.62	35
QVFK20V304S	3 1/4 in.																	
QVFK20V080S	80 mm	22226	174.8	284.2	177.8	355.6	419.1	124.18	38.1	28.6	164.6	166.6	135.1	11.7	13.7	147.8	178.3	49.0
QVFK20V085S	85 mm		4.90	8.50	8.31	11.75	10.56	8.875	1.50	7/8	4.46	4.54	4.06	0.71	0.16	3.75	4.62	35
QVFK20V307S	3 7/16 in.																	
QVFK20V308S	3 1/2 in.	22222	139.7	256.5	168.7	327.2	384.3	263.53	31.8	24	117.3	119.4	106.9	12.4	9.7	104.9	126.7	24.9
QVFK20V090S	90 mm		4.90	8.50	8.31	11.75	10.56	8.875	1.50	7/8	4.46	4.54	4.06	0.71	0.16	3.75	4.62	35
QVFK22V311S <sup>(6)</sup>	3 11/16 in.																	
QVFK22V312S <sup>(6)</sup>	3 3/4 in.	22222	139.7	256.5	168.7	327.2	384.3	263.53	31.8	24	117.3	119.4	106.9	12.4	9.7	104.9	126.7	24.9
QVFK22V100S <sup>(6)</sup>	100 mm		5.50	10.10	6.64 <sup>(6)</sup>	12.88 <sup>(6)</sup>	15.13	10.375	1.25	1 <sup>(6)</sup>	4.62	4.70	4.21	0.49	0.38	4.13	4.99	55
QVFK22V315S <sup>(6)</sup>	3 15/16 in.																	
QVFK22V400S <sup>(6)</sup>	4 in.	22226	174.8	284.2	177.8	355.6	419.1	124.18	38.1	28.6	164.6	166.6	135.1	11.7	13.7	147.8	178.3	49.0
QVFK26V110S <sup>(6)</sup>	110 mm		6.88	11.19	7.00 <sup>(6)</sup>	14.00 <sup>(6)</sup>	16.50	4.89	1.50	1 1/8 <sup>(6)</sup>	6.48	6.56	5.32	0.46	0.54	5.82	7.02	108
QVFK26V407S <sup>(6)</sup>	4 7/16 in.																	
QVFK26V408S <sup>(6)</sup>	4 1/2 in.	22226	174.8	284.2	177.8	355.6	419.1	124.18	38.1	28.6	164.6	166.6	135.1	11.7	13.7	147.8	178.3	49.0
QVFK26V115S <sup>(6)</sup>	115 mm		6.88	11.19	7.00 <sup>(6)</sup>	14.00 <sup>(6)</sup>	16.50	4.89	1.50	1 1/8 <sup>(6)</sup>	6.48	6.56	5.32	0.46	0.54	5.82	7.02	108

<sup>(1)</sup> Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Svv dimensions).

<sup>(2)</sup> Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

<sup>(3)</sup> Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(4)</sup> Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

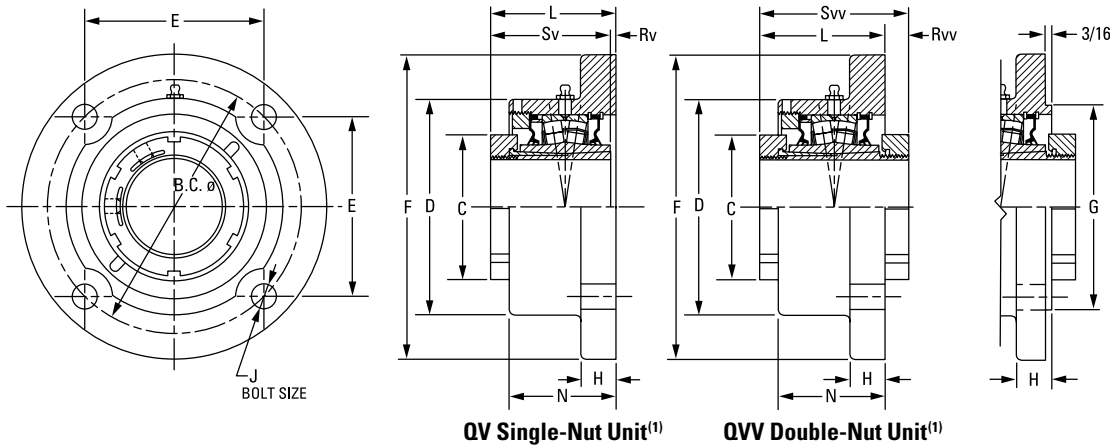
<sup>(5)</sup> Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

<sup>(6)</sup> Six-bolt round housing.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVfy AND QVfy ROUND FLANGE BLOCKS – STRAIGHT BORE EQUIVALENT

## QVfy AND QVfy ROUND FLANGE BLOCKS – STRAIGHT BORE EQUIVALENT



Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	C	D	E	B.C.	F	G <sup>(3)(4)(5)</sup>	H	J	L <sub>FIX</sub>	L <sub>EXP</sub>	N	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVfy11V115S	1 15/16 in.	22211	75.9	115.3	103.4	146.1	177.8	111.13	19.1	12	78.5	80.5	58.4	1.5	23.9	79.8	102.1	5.4
QVfy11V200S	2 in.		2.99	4.54	4.07	5.75	7.00	4.375	0.75	1/2	3.09	3.17	2.30	0.06	0.94	3.14	4.02	12
QVfy11V050S	50 mm																	
QVfy12V203S	2 3/16 in.	22212	80.3	130.3	114.6	162.1	196.9	127.00	19.1	16	80.0	82.0	62.0	0.3	22.1	79.8	102.1	6.8
QVfy12V204S	2 1/4 in.		3.16	5.13	4.51	6.38	7.75	5.000	0.75	5/8	3.15	3.23	2.44	0.01	0.87	3.14	4.02	15
QVfy12V055S	55 mm																	
QVfy14V060S	60 mm	22214	94.0	146.1	121.2	171.5	206.5	138.13	23.9	16	84.8	86.9	72.4	3.8	16.5	81.0	101.3	8.6
QVfy14V207S	2 7/16 in.		3.70	5.75	4.77	6.75	8.13	5.438	0.94	5/8	3.34	3.42	2.85	0.15	0.65	3.19	3.99	19
QVfy14V208S	2 1/2 in.																	
QVfy14V065S	65 mm	22216	106.4	168.4	141.2	200.2	241.3	160.35	23.9	20	88.4	90.4	76.2	4.8	15.2	83.6	103.6	12.7
QVfy16V211S	2 11/16 in.		4.19	6.63	5.56	7.88	9.50	6.313	0.94	3/4	3.48	3.56	3.00	0.19	0.60	3.29	4.08	28
QVfy16V212S	2 3/4 in.																	
QVfy16V070S	70 mm	22219	124.5	193.8	170.7	241.3	282.7	187.33	28.7	24	98.3	116.1	85.3	4.8	15.7	93.7	114.0	19.1
QVfy16V215S	2 15/16 in.		4.90	7.63	6.72	9.50	11.13	7.375	1.13	7/8	3.87	4.57	3.36	0.19	0.62	3.69	4.49	42
QVfy16V300S	3 in.																	
QVfy16V075S	75 mm	22222	139.7	222.5	193.0	273.1	320.8	N/A	28.7	24	115.3	117.3	103.1	10.4	11.4	104.9	126.7	29.9
QVfy19V303S	3 3/16 in.		5.50	8.76	7.60	10.75	12.63	N/A	1.13	1	4.54	4.62	4.06	0.41	0.45	4.13	4.99	66
QVfy19V304S	3 1/4 in.																	
QVfy19V080S	80 mm	22226	174.8	230.1	163.6	327.2	384.3	N/A	38.1	24	140.5	142.7	106.9	7.4	37.8	147.8	178.3	49.0
QVfy19V085S	85 mm		6.88	9.06	6.44 <sup>(6)</sup>	12.88 <sup>(6)</sup>	15.13	N/A	1.50	1 <sup>(6)</sup>	5.53	5.62	4.21	0.29	1.49	5.82	7.02	108
QVfy19V307S	3 7/16 in.																	
QVfy19V308S	3 1/2 in.	22228	190.0	284.2	177.8	355.6	419.1	N/A	38.1	24	166.1	168.1	138.4	18.3	12.2	147.8	178.3	52.2
QVfy19V090S	90 mm		7.48	11.19	7.00 <sup>(6)</sup>	14.00 <sup>(6)</sup>	16.50	N/A	1.50	1 1/8 <sup>(6)</sup>	6.54	6.62	5.45	0.72	0.48	5.82	7.02	115
QVfy22V311S	3 11/16 in.																	
QVfy22V312S	3 3/4 in.																	
QVfy22V100S	100 mm																	
QVfy22V315S	3 15/16 in.																	
QVfy22V400S	4 in.																	
QVfy26V110S <sup>(6)</sup>	110 mm																	
QVfy26V407S <sup>(6)</sup>	4 7/16 in.																	
QVfy26V408S <sup>(6)</sup>	4 1/2 in.																	
QVfy26V115S <sup>(6)</sup>	115 mm																	
QVfy28V125S <sup>(6)</sup>	125 mm																	
QVfy28V415S <sup>(6)</sup>	4 15/16 in.																	
QVfy28V500S <sup>(6)</sup>	5 in.																	
QVfy28V130S <sup>(6)</sup>	130 mm																	

<sup>(1)</sup> Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Sv dimensions).

<sup>(2)</sup> Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

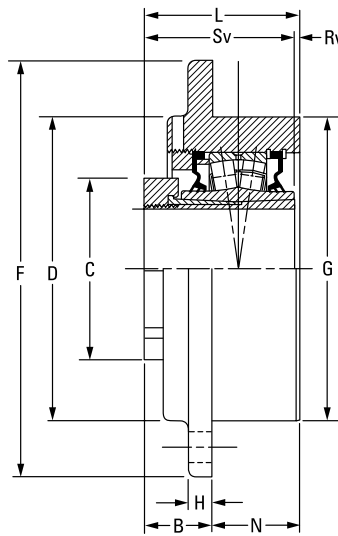
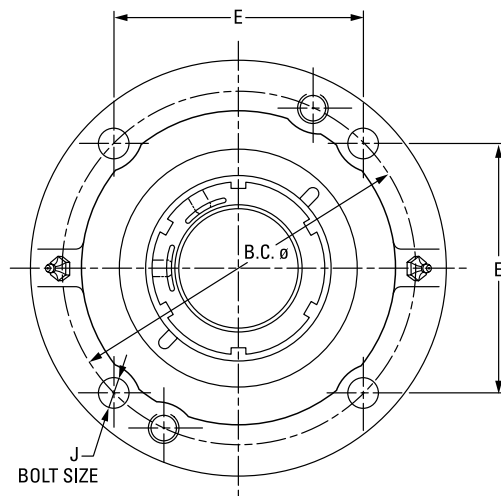
<sup>(3)</sup> Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(4)</sup> Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

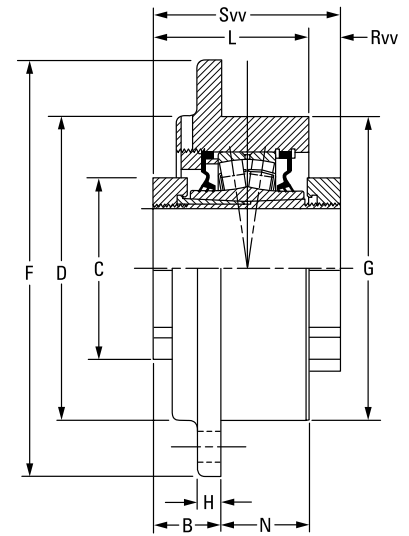
<sup>(5)</sup> Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

<sup>(6)</sup> Six-bolt round housing.

### QVC AND QVVC PILOTED FLANGE CARTRIDGES – STRAIGHT BORE EQUIVALENT



QV Single-Nut Unit<sup>(1)</sup>



QVV Double-Nut Unit<sup>(1)</sup>

Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	B <sub>FIX</sub>	B <sub>EXP</sub>	C	D	B.C.	E	F	G <sup>(3)</sup>	H	J	L	N	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVC11V115S	1 15/16 in.	22211	53.8	55.9	75.9	113.5	136.7	96.5	162.1	114.3	16.0	10	80.8	26.9	0.8	21.6	79.8	102.1	4.5	
QVC11V200S	2 in.		2.12	2.20	2.99	4.47	5.38	3.80	6.38	4.500	0.63	7/16	3.18	1.06	0.03	0.85	3.14	4.02	10	
QVC11V050S	50 mm																			
QVC12V203S	2 3/16 in.	22212	51.3	53.3	80.3	127.0	152.4	107.7	185.4	127.0	14.7	12	80.0	28.7	0.3	22.1	79.8	102.1	5.9	
QVC12V204S	2 1/4 in.		2.02	2.10	3.16	5.00	6.00	4.24	7.30	5.000	0.58	1/2	3.15	1.13	0.01	0.87	3.14	4.02	13	
QVC12V055S	55 mm																			
QVC14V060S	60 mm	22214	56.1	58.2	94.0	139.7	165.1	116.8	193.8	139.7	17.5	12	84.6	28.7	3.8	16.5	81.0	101.3	7.3	
QVC14V207S	2 7/16 in.		2.21	2.29	3.70	5.50	6.50	4.60	7.63	5.500	0.69	1/2	3.33	1.13	0.15	0.65	3.19	3.99	16	
QVC14V208S	2 1/2 in.																			
QVC14V065S	65 mm	22216	52.8	54.9	106.4	162.1	190.5	134.6	222.3	161.9	20.6	16	84.6	31.8	1.0	19.3	83.6	103.6	10.0	
QVC16V211S	2 11/16 in.		2.08	2.16	4.19	6.38	7.50	5.30	8.75	6.375	0.81	5/8	3.33	1.25	0.04	0.76	3.29	4.08	22	
QVC16V212S	2 3/4 in.																			
QVC16V070S	70 mm	22219	62.5	64.5	124.5	185.2	219.2	154.9	262.6	187.3	25.4	20	95.8	33.3	2.0	18.5	93.7	114.0	14.5	
QVC16V215S	2 15/16 in.		2.46	2.54	4.90	7.29	8.63	6.10	10.34	7.375	1.00	3/4	3.77	1.31	0.08	0.73	3.69	4.49	32	
QVC16V300S	3 in.																			
QVC16V075S	75 mm	22222	60.2	62.2	139.7	222.5	238.3	168.4	276.4	206.4	25.4	20	115.3	54.1	10.4	11.7	104.9	126.7	19.5	
QVC19V303S	3 3/16 in.		2.37	2.45	5.50	8.76	9.38	6.63	10.88	8.125	1.00	3/4	4.54	2.13	0.41	0.46	4.13	4.99	43	
QVC19V304S	3 1/4 in.																			
QVC19V080S	80 mm	22226	86.4	88.4	174.8	260.4	298.5	149.4	342.9	260.4	25.4	20	134.6	48.3	13.2	43.7	147.8	178.3	32.7	
QVC19V085S	85 mm		3.40	3.48	6.88	10.25	11.75 <sup>(4)</sup>	5.88 <sup>(4)</sup>	13.50	10.250	1.00	3/4 <sup>(4)</sup>	5.30	1.90	0.52	1.72	5.82	7.02	72	
QVC19V307S	3 7/16 in.																			
QVC19V308S	3 1/2 in.																			
QVC19V090S	90 mm																			
QVC22V311S	3 11/16 in.																			
QVC22V312S	3 3/4 in.																			
QVC22V100S	100 mm																			
QVC22V315S	3 15/16 in.																			
QVC22V400S	4 in.																			
QVC26V110S <sup>(4)</sup>	110 mm																			
QVC26V407S <sup>(4)</sup>	4 7/16 in.																			
QVC26V408S <sup>(4)</sup>	4 1/2 in.																			
QVC26V115S <sup>(4)</sup>	115 mm																			

<sup>(1)</sup> Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Svv dimensions).

<sup>(2)</sup> Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

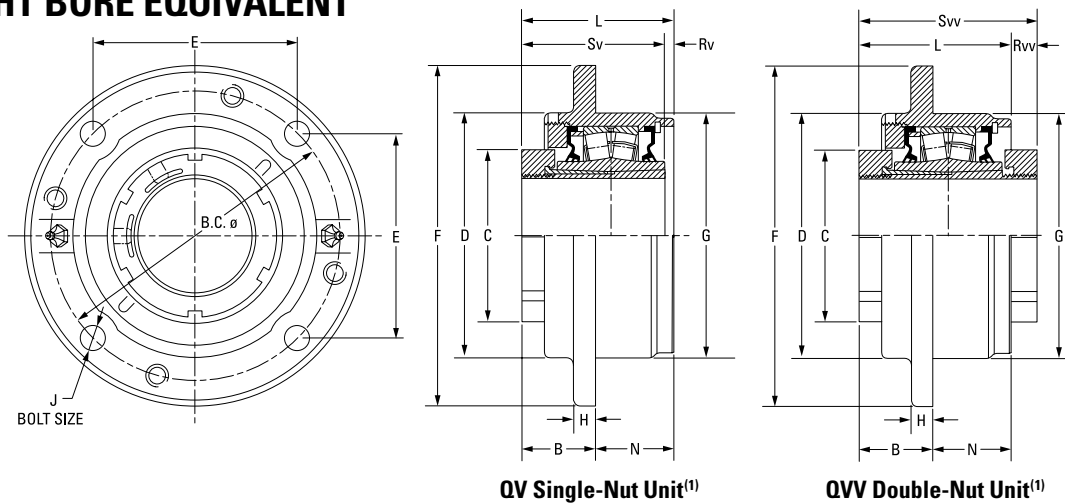
<sup>(3)</sup> Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(4)</sup> Six-bolt round housing.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVCW AND QVVCW PILOTED FLANGE CARTRIDGES – STRAIGHT BORE EQUIVALENT

## QVCW AND QVVCW PILOTED FLANGE CARTRIDGES – STRAIGHT BORE EQUIVALENT



QV Single-Nut Unit<sup>(1)</sup>

QVV Double-Nut Unit<sup>(1)</sup>

Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	B <sub>FIX</sub>	B <sub>EXP</sub>	C	D	B.C.	E	F	G <sup>(3)</sup>	H	J	L	N	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVCW11V115S	1 15/16 in.	22211	42.2	44.2	75.9	113.5	136.7	96.5	162.1	114.3	9.7	10	80.3	38.1	0.8	21.8	79.8	102.1	4.5	
QVCW11V200S	2 in.		1.66	1.74	2.99	4.47	5.38	3.80	6.38	4.500	0.38	7/16	3.16	1.50	0.03	0.86	3.14	4.02	10	
QVCW11V050S	50 mm																			
QVCW12V203S	2 3/16 in.	22212	43.2	45.5	80.3	127.0	152.4	107.7	181.1	127.0	14.2	12	84.6	41.4	4.8	17.5	79.8	102.1	5.9	
QVCW12V204S	2 1/4 in.		1.70	1.79	3.16	5.00	6.00	4.24	7.13	5.000	0.56	1/2	3.33	1.63	0.19	0.69	3.14	4.02	13	
QVCW12V055S	55 mm																			
QVCW14V060S	60 mm	22214	41.9	43.9	94.0	139.7	165.1	116.8	193.8	139.7	12.7	12	86.4	42.9	5.3	15.0	81.0	101.3	7.3	
QVCW14V207S	2 7/16 in.		1.65	1.73	3.70	5.50	6.50	4.60	7.63	5.500	0.50	1/2	3.40	1.69	0.21	0.59	3.19	3.99	16	
QVCW14V208S	2 1/2 in.																			
QVCW14V065S	65 mm	22216	37.6	39.6	106.4	162.1	190.5	134.6	222.3	161.9	12.7	16	85.1	47.8	1.8	18.5	83.6	103.6	10.0	
QVCW16V211S	2 11/16 in.		1.48	1.56	4.19	6.38	7.50	5.30	8.75	6.375	0.50	5/8	3.35	1.88	0.07	0.73	3.29	4.08	22	
QVCW16V212S	2 3/4 in.																			
QVCW16V070S	70 mm	22219	49.8	51.8	124.5	187.5	219.2	154.9	260.4	187.3	22.4	20	97.5	47.8	3.8	16.8	93.7	114.0	14.5	
QVCW16V215S	2 15/16 in.		1.96	2.04	4.90	7.38	8.63	6.10	10.25	7.375	0.88	3/4	3.84	1.88	0.15	0.66	3.69	4.49	32	
QVCW16V300S	3 in.																			
QVCW16V075S	75 mm	22222	51.6	53.6	139.7	222.5	238.3	168.4	276.4	206.4	25.4	20	109.7	57.2	4.8	17.3	104.9	126.7	19.5	
QVCW19V303S	3 3/16 in.		2.03	2.11	5.50	8.76	9.38	6.63	10.88	8.125	1.00	3/4	4.32	2.25	0.19	0.68	4.13	4.99	43	
QVCW19V304S	3 1/4 in.																			
QVCW19V080S	80 mm	22226	72.4	74.4	174.8	260.4	298.5	149.4	342.9	260.4	25.4	20	140.5	68.3	7.4	37.8	147.8	178.3	32.7	
QVCW19V085S	85 mm		1.96	2.04	4.90	7.38	8.63	6.10	10.25	7.375	0.88	3/4	3.84	1.88	0.15	0.66	3.69	4.49	32	
QVCW19V307S	3 7/16 in.																			
QVCW19V308S	3 1/2 in.	22228	66.5	68.6	190.0	266.7	323.9	162.1	374.7	279.4	26.2	24	144.5	78.0	3.3	33.8	147.8	178.3	46.3	
QVCW19V090S	90 mm		2.62	2.70	7.48	10.50	12.75 <sup>(4)</sup>	6.38 <sup>(4)</sup>	14.75	11.000	1.03 <sup>(4)</sup>	7/8	5.69	3.07	0.13	1.33	5.82	7.02	102	
QVCW22V311S	3 11/16 in.																			
QVCW22V312S	3 3/4 in.	22226	72.4	74.4	174.8	260.4	298.5	149.4	342.9	260.4	25.4	20	140.5	68.3	7.4	37.8	147.8	178.3	32.7	
QVCW22V100S	100 mm		2.85	2.93	6.88	10.25	11.75 <sup>(4)</sup>	5.88 <sup>(4)</sup>	13.50	10.250	1.00 <sup>(4)</sup>	3/4	5.53	2.69	0.29	1.49	5.82	7.02	72	
QVCW22V315S	3 15/16 in.																			
QVCW22V400S	4 in.	22228	66.5	68.6	190.0	266.7	323.9	162.1	374.7	279.4	26.2	24	144.5	78.0	3.3	33.8	147.8	178.3	46.3	
QVCW26V110S <sup>(4)</sup>	110 mm		2.62	2.70	7.48	10.50	12.75 <sup>(4)</sup>	6.38 <sup>(4)</sup>	14.75	11.000	1.03 <sup>(4)</sup>	7/8	5.69	3.07	0.13	1.33	5.82	7.02	102	
QVCW28V407S <sup>(4)</sup>	4 7/16 in.																			
QVCW26V408S <sup>(4)</sup>	4 1/2 in.	22228	66.5	68.6	190.0	266.7	323.9	162.1	374.7	279.4	26.2	24	144.5	78.0	3.3	33.8	147.8	178.3	46.3	
QVCW26V115S <sup>(4)</sup>	115 mm		2.62	2.70	7.48	10.50	12.75 <sup>(4)</sup>	6.38 <sup>(4)</sup>	14.75	11.000	1.03 <sup>(4)</sup>	7/8	5.69	3.07	0.13	1.33	5.82	7.02	102	
QVCW28V125S <sup>(4)</sup>	125 mm																			
QVCW28V415S <sup>(4)</sup>	4 15/16 in.	22228	66.5	68.6	190.0	266.7	323.9	162.1	374.7	279.4	26.2	24	144.5	78.0	3.3	33.8	147.8	178.3	46.3	
QVCW28V500S <sup>(4)</sup>	5 in.		2.62	2.70	7.48	10.50	12.75 <sup>(4)</sup>	6.38 <sup>(4)</sup>	14.75	11.000	1.03 <sup>(4)</sup>	7/8	5.69	3.07	0.13	1.33	5.82	7.02	102	
QVCW28V130S <sup>(4)</sup>	130 mm																			

<sup>(1)</sup>Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Sv dimensions).

<sup>(2)</sup>Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

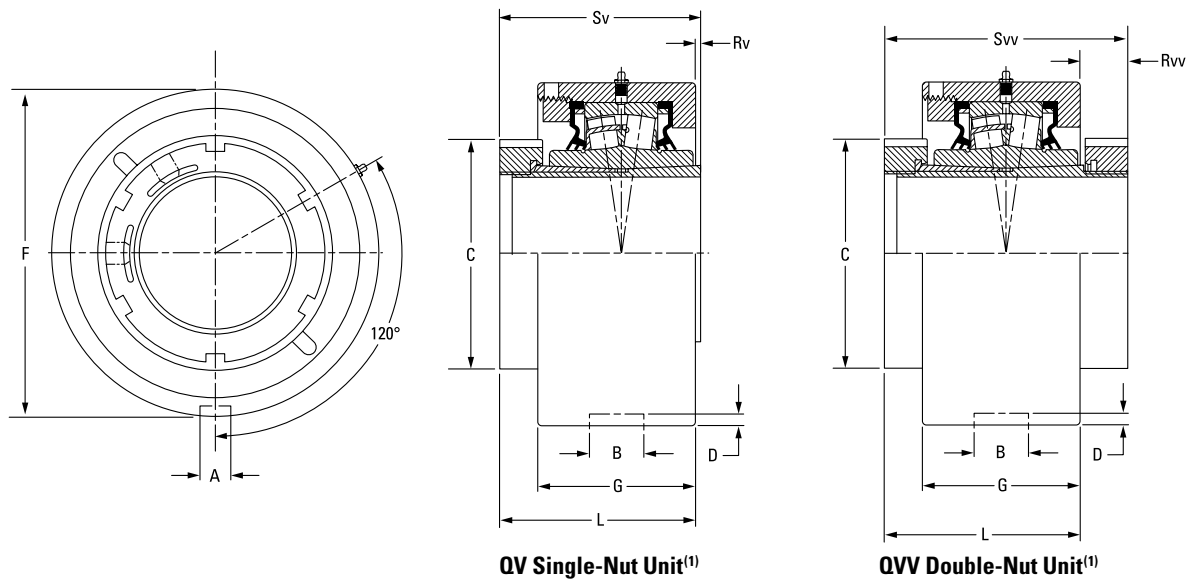
<sup>(3)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(4)</sup>Six-bolt round housing.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVMC AND QVVMC CARTRIDGE BLOCKS – TAPERED BORE EQUIVALENT

## QVMC AND QVVMC CARTRIDGE BLOCKS – TAPERED BORE EQUIVALENT



Bearing Part No. <sup>(1)(2)</sup>	Shaft Dia.	Bearing No.	A	B	C	D	F	G	L FIX	L EXP	Rv <sup>(1)</sup>	Rvv	Sv <sup>(1)</sup>	Svv	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QVMC11V115S	1 15/16 in.	22211	13.5 0.530	23.0 0.906	75.9 2.99	4.8 0.188	115.09	55.4 2.180	79.0 3.11	81.0 3.19	0.8 0.03	23.1 0.91	79.8 3.14	102.1 4.02	4.5 10
QVMC11V200S	2 in.						(+0/-0.05) 4.531								
QVMC11V050S	50 mm						(+0/-0.002)								
QVMC13V203S	2 3/16 in.	22213	13.5 0.530	23.0 0.906	80.3 3.16	4.8 0.188	127.00	67.1 2.640	85.9 3.38	87.9 3.46	0.5 0.02	21.8 0.86	85.3 3.36	107.7 4.24	5.4 12
QVMC13V204S	2 1/4 in.						(+0/-0.05) 5.000								
QVMC13V055S	55 mm						(+0/-0.002)								
QVMC15V060S	60 mm	22215	15.1 0.594	26.2 1.032	94.0 3.70	6.4 0.250	149.23	70.6 2.780	87.4 3.44	89.4 3.52	5.1 0.20	16.5 0.65	82.6 3.25	103.9 4.09	8.2 18
QVMC15V207S	2 7/16 in.						(+0/-0.05) 5.875								
QVMC15V208S	2 1/2 in.						(+0/-0.002)								
QVMC15V065S	65 mm	22217	15.1 0.594	27.5 1.083	106.4 4.19	7.1 0.281	171.45	74.9 2.950	91.2 3.59	93.2 3.67	6.4 0.25	15.0 0.59	84.6 3.33	106.2 4.18	11.8 26
QVMC17V211S	2 11/16 in.						(+0/-0.05) 6.75								
QVMC17V212S	2 3/4 in.						(+0/-0.002)								
QVMC17V070S	70 mm	22220	19.8 0.781	32.5 1.281	124.5 4.90	8.0 0.313	206.38	85.6 3.370	102.1 4.02	104.1 4.10	6.9 0.27	15.2 0.60	95.3 3.75	117.3 4.62	14.5 32
QVMC20V303S	3 3/16 in.						(+0/-0.05) 8.125								
QVMC20V304S	3 1/4 in.						(+0/-0.002)								
QVMC20V080S	80 mm	22222	19.8 0.781	32.5 1.281	139.7 5.50	8.0 0.313	222.25	97.8 3.850	113.0 4.45	115.1 4.53	8.1 0.32	14.0 0.55	104.9 4.13	126.7 4.99	18.1 40
QVMC20V085S	85 mm						(+0/-0.08) 8.75								
QVMC20V307S	3 7/16 in.						(+0/-0.003)								
QVMC20V308S	3 1/2 in.	22226	19.8 0.780	38.1 1.500	174.8 6.88	8.0 0.313	265.10	104.4 4.110	141.5 5.57	143.5 5.65	6.4 0.25	36.8 1.45	147.8 5.82	178.3 7.02	23.6 52
QVMC20V090S	90 mm						(+0/-0.08) 10.437								
QVMC22V311S	3 11/16 in.						(+0/-0.003)								
QVMC22V312S	3 3/4 in.	22226	19.8 0.780	38.1 1.500	174.8 6.88	8.0 0.313	265.10	104.4 4.110	141.5 5.57	143.5 5.65	6.4 0.25	36.8 1.45	147.8 5.82	178.3 7.02	23.6 52
QVMC22V100S	100 mm						(+0/-0.08) 10.437								
QVMC22V315S	3 15/16 in.						(+0/-0.003)								
QVMC22V400S	4 in.	22226	19.8 0.780	38.1 1.500	174.8 6.88	8.0 0.313	265.10	104.4 4.110	141.5 5.57	143.5 5.65	6.4 0.25	36.8 1.45	147.8 5.82	178.3 7.02	23.6 52
QVMC26V110S	110 mm						(+0/-0.08) 10.437								
QVMC26V407S	4 7/16 in.						(+0/-0.003)								
QVMC26V408S	4 1/2 in.	22226	19.8 0.780	38.1 1.500	174.8 6.88	8.0 0.313	265.10	104.4 4.110	141.5 5.57	143.5 5.65	6.4 0.25	36.8 1.45	147.8 5.82	178.3 7.02	23.6 52
QVMC26V115S	115 mm						(+0/-0.003)								

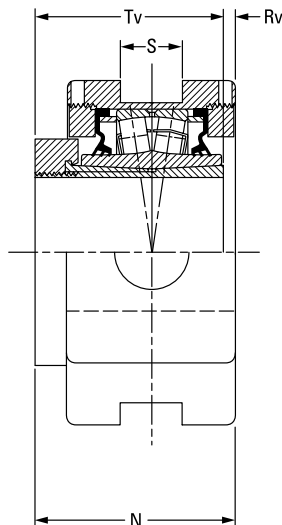
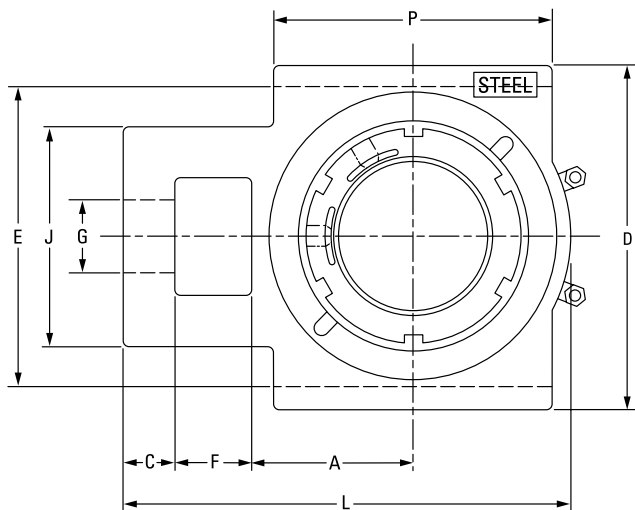
<sup>(1)</sup>Bearing part numbers use QV to designate single-nut units (uses Rv and Sv dimensions) and QVV to designate double-nut units (uses Rvv and Sv dimensions).

<sup>(2)</sup>Single-nut (QV) part number shown. Double-nut (QVV) version available upon request.

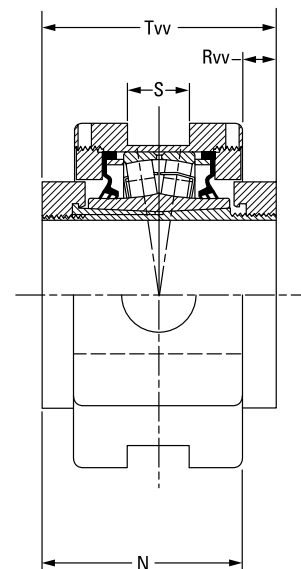
# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

V-LOCK SERIES • QVVTU TAKE-UP BLOCKS – STRAIGHT BORE EQUIVALENT

## QVVTU TAKE-UP BLOCKS – STRAIGHT BORE EQUIVALENT



QV Single-Nut Unit



QVV Double-Nut Unit

Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	C	D	E	F	G	J	L	N	P	S	Rv <sup>(1)</sup>	Rvv	Tv <sup>(1)</sup>	Tvv	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg in.	
QVVTU14V060S	60 mm	22214	69.9	22.4	149.4	130.3	33.3	33.3	95.3	193.8	88.4	120.7	26.9	3.3	15.5	85.1	103.9	7.7	
QVVTU14V207S	2 7/16 in.		2.75	0.88	5.88	5.13	1.31	1.31	3.75	7.63	3.48	4.75	1.06	0.13	0.61	3.35	4.09	17	
QVVTU14V208S	2 1/2 in.																		
QVVTU14V065S	65 mm																		
QVVTU16V211S	2 11/16 in.	22216	76.2	25.4	171.5	150.9	39.6	39.6	108.0	219.7	90.2	120.7	46.0	2.3	16.3	87.6	106.2	15.9	
QVVTU16V212S	2 3/4 in.		3.00	1.00	6.75	5.94	1.56	1.56	4.25	8.65	3.55	4.75	1.81	0.09	0.64	3.45	4.18	35	
QVVTU16V070S	70 mm																		
QVVTU16V215S	2 15/16 in.																		
QVVTU16V300S	3 in.																		
QVVTU16V075S	75 mm																		
QVVTU19V303S	3 3/16 in.	22219	92.2	25.4	193.8	173.0	46.0	47.8	124.0	257.0	99.6	158.8	46.0	0.5	18.0	99.1	117.6	20.0	
QVVTU19V304S	3 1/4 in.		3.63	1.00	7.63	6.81	1.81	1.88	4.88	10.12	3.92	6.25	1.81	0.02	0.71	3.90	4.63	44	
QVVTU19V080S	80 mm																		
QVVTU19V085S	85 mm																		
QVVTU19V307S	3 7/16 in.																		
QVVTU19V308S	3 1/2 in.																		
QVVTU19V090S	90 mm																		
QVVTU22V311S	3 11/16 in.	22222	104.9	28.7	239.8	219.2	54.1	52.3	143.0	296.9	111.3	177.8	52.3	1.5	18.8	110.0	130.3	26.3	
QVVTU22V312S	3 3/4 in.		4.13	1.13	9.44	8.63	2.13	2.06	5.63	11.69	4.38	7.00	2.06	0.06	0.74	4.33	5.13	58	
QVVTU22V100S	100 mm																		
QVVTU22V315S	3 15/16 in.																		
QVVTU22V400S	4 in.																		

<sup>(1)</sup>Double-nut (QVV) part number shown. Single-nut (QV) version available upon request.

## CL SERIES

Available in both single-collar (QA) and double-collar (QAA) versions, the CL bearing series features a concentric locking collar with two set screws at 60 degrees to provide maximum positive locking power with minimal run out.



Fig. C-43. CL series single-collar (QA) insert available up to 100 mm (4 in.).



Fig. C-44. CL series double-collar (QAA) insert for size ranges 50 mm – 130 mm (1 <sup>15</sup>/<sub>16</sub> in. – 5 in.).

## YOU HAVE CHOICES

For the CL series, you can select either single-collar or double-collar versions and choose from many seal configurations and housing styles, which are shown on page C-100.

### HOUSINGS

- Two-bolt pillow blocks.
- Four-bolt pillow blocks.
- Flange blocks.
- Piloted flange cartridges.
- Take-up blocks.
- Cartridge blocks.
- Hanger blocks.

### SEALS

- Labyrinth: DuPont Teflon (T).
- Triple-lip: nitrile rubber (M), urethane (O) and DuPont Viton (N).
- Double-lip: nitrile rubber (B) and DuPont Viton (C).
- Steel and urethane closed-end covers (CS).
- Steel and urethane open-end covers (CJ) with:
  - DuPont Teflon (T).
  - Triple-lip seal (DR).
  - V-ring seal (VR).
- Piloted flange cartridge backing plates (HSY) with:
  - Triple-lip seal (DR).
- Flange block backing plates (UFP).
  - V-ring (VR).

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

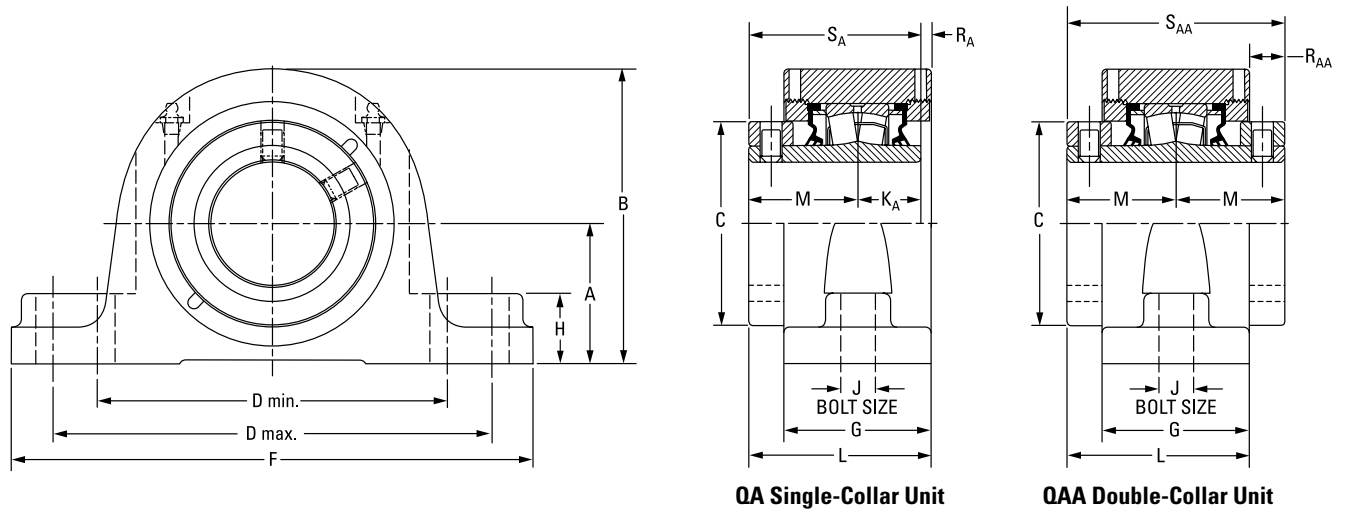
## CL SERIES

### CL SERIES

	Housing Type	Primary Seals						Secondary Seals and Covers						
		M	N	O	B	C	T	Open-End Cover			Closed-End Cover	HSY Flange Cartridge Backing Plate		UFP Backing Plate
								DR	VR	T		DR		
V-Lock (Timken Exclusive Double Taper Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
CL Series (Set Screw Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		•
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•	•	
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
	Hangar Block	•	•	•	•	•	•	•	•	•	•	•		
EC Series (Eccentric Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		•
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•	•	
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
	Hangar Block	•	•	•	•	•	•	•	•	•	•	•		
TA Series (Tapered Adapter Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
DV Series (Tapered Adapter Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		



QAP AND QAAP TWO-BOLT PILLOW BLOCKS



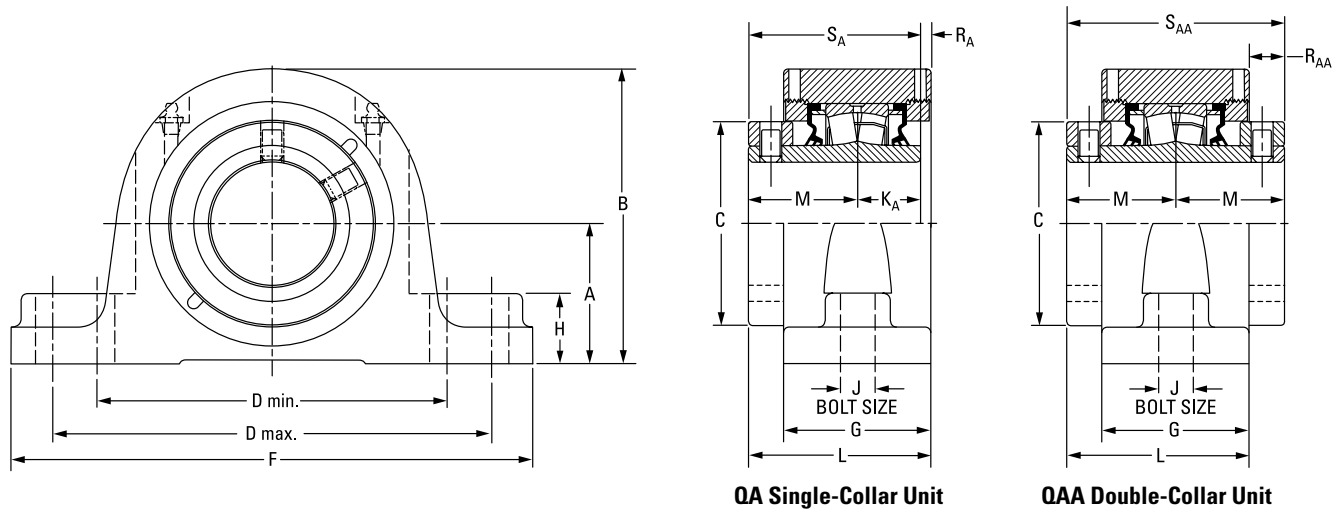
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K <sub>A</sub>	L	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QAP08A035S	35 mm	22208	47.8	94.7	60.5	119.1	152.4	174.8	57.2	25.4	12	25.4	73.2	44.5	3.3	-	69.9	-	4.1
QAP08A107S	1 7/16 in.		1.88	3.73	2.38	4.69	6.00	6.88	2.25	1.00	1/2	1.00	2.88	1.75	0.13	-	2.75	-	9
QAP08A108S	1 1/2 in.	22208	54.1	101.1	60.5	119.1	165.1	200.2	57.2	25.4	12	25.4	73.2	44.5	3.3	-	69.9	-	4.1
			2.13	3.98	2.38	4.69	6.50	7.88	2.25	1.00	1/2	1.00	2.88	1.75	0.13	-	2.75	-	9
QAP09A111S	1 11/16 in.	22209	54.1	104.9	66.8	144.8	165.1	200.2	60.2	31.8	12	25.4	78.0	47.8	4.8	-	73.2	-	4.5
			2.13	4.13	2.63	5.70	6.50	7.88	2.37	1.25	1/2	1.00	3.07	1.88	0.19	-	2.88	-	10
QAP09A040S	40 mm	22209	57.2	108.0	66.8	158.8	180.8	225.6	62.0	31.8	16	25.4	78.7	47.8	5.6	-	73.2	-	4.5
QAP09A112S	1 3/4 in.		2.25	4.25	2.63	6.25	7.12	8.88	2.44	1.25	5/8	1.00	3.10	1.88	0.22	-	2.88	-	10
QAP09A045S	45mm																		
QAP10A115S	1 15/16 in.	22210	57.2	122.2	73.2	152.4	181.1	225.6	62.0	31.8	16	25.4	79.0	47.5	6.1	17.0	72.9	95.3	5.9
QAAP10A115S			2.25	4.81	2.88	6.00	7.13	8.88	2.44	1.25	5/8	1.00	3.11	1.87	0.24	0.67	2.87	3.75	13
QAP10A200S	2 in.																		
QAAP10A200S																			
QAP10A050S	50 mm																		
QAAP10A050S																			
QAP11A203S	2 3/16 in.	22211	63.5	133.4	82.6	165.1	200.2	244.6	66.8	31.8	16	28.7	84.3	50.8	4.8	17.5	79.5	101.6	7.7
QAAP11A203S			2.50	5.25	3.25	6.50	7.88	9.63	2.63	1.25	5/8	1.13	3.32	2.00	0.19	0.69	3.13	4.00	17
QAP11A204S	2 1/4 in.																		
QAAP11A204S																			
QAP11A055S	55 mm																		
QAAP11A055S																			
QAP13A060S	60 mm	22213	69.9	147.3	96.8	174.8	219.2	260.4	73.7	35.1	16	31.5	91.4	54.6	5.3	17.8	86.1	109.2	10.0
QAAP13A060S			2.75	5.80	3.81	6.88	8.63	10.25	2.90	1.38	5/8	1.24	3.60	2.15	0.21	0.70	3.39	4.30	22
QAP13A207S	2 7/16 in.																		
QAAP13A207S																			
QAP13A208S	2 1/2 in.																		
QAAP13A208S																			
QAP13A065S	65 mm																		
QAAP13A065S																			

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## CL SERIES • QAP AND QAAP TWO-BOLT PILLOW BLOCKS

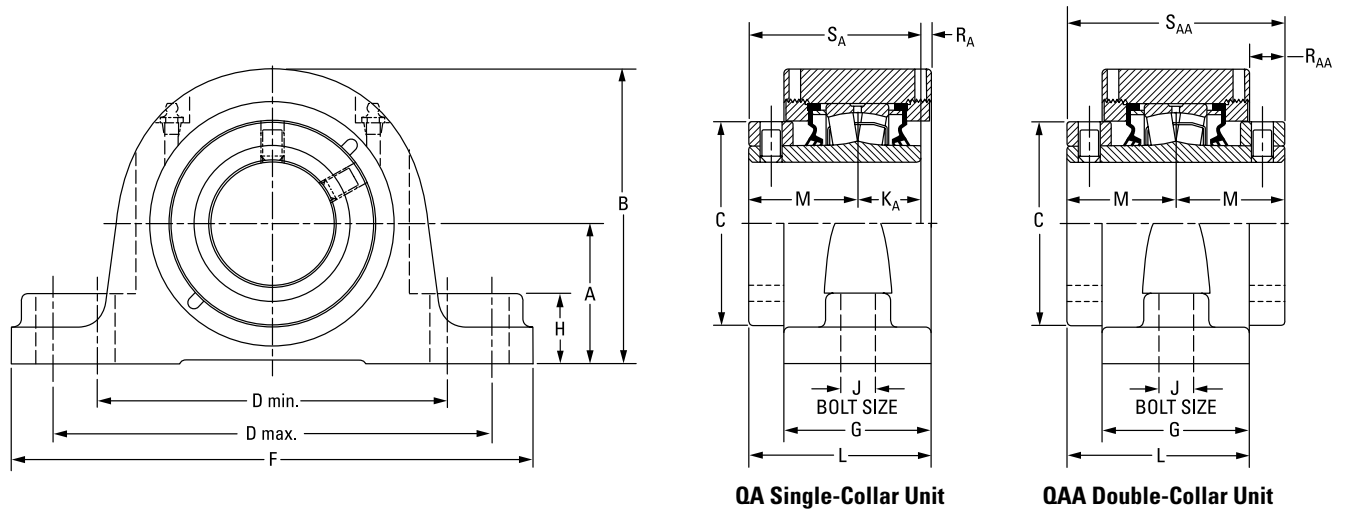


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Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K <sub>A</sub>	L	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAP15A211S QAAP15A211S	2 1/16 in.	22215	79.5 3.13	164.3 6.47	109.0 4.29	200.2 7.88	244.6 9.63	295.4 11.63	76.2 3.00	35.1 1.38	20 3/4	31.8 1.25	98.3 3.87	60.2 2.37	6.4 0.25	22.1 0.87	91.9 3.62	120.4 4.74	12.7 28	
QAP15A212S QAAP15A212S	2 3/4 in.																			
QAP15A070S QAAP15A070S	70 mm																			
QAP15A215S QAAP15A215S	2 15/16 in.																			
QAP15A300S QAAP15A300S	3 in.																			
QAP15A075S QAAP15A075S	75 mm																			
QAP18A303S QAAP18A303S	3 3/16 in.	22218	95.3 3.75	195.3 7.69	130.3 5.13	238.3 9.38	285.8 11.25	342.9 13.50	86.6 3.41	47.8 1.88	24 7/8	36.6 1.44	109.2 4.30	65.8 2.59	6.9 0.27	22.6 0.89	102.4 4.03	131.6 5.18	20.4 45	
QAP18A304S QAAP18A304S	3 1/4 in.																			
QAP18A080S QAAP18A080S	80 mm																			
QAP18A085S QAAP18 A085S	85 mm																			
QAP18A307S QAAP18A307S	3 7/16 in.																			
QAP18A308S QAAP18A308S	3 1/2 in.																			
QAP18A090S QAAP18A090S	90 mm	22220	104.9 4.13	209.8 8.26	152.4 6.00	255.0 10.04	320.0 12.60	362.0 14.25	94.7 3.73	50.8 2.00	24 1	41.4 1.63	122.9 4.84	75.4 2.97	6.1 0.24	28.2 1.11	116.8 4.60	150.9 5.94	26.8 59	
QAP20A315S QAAP20A315S	3 15/16 in.																			
QAP20A400S QAAP20A400S	4 in.																			
QAP20A100S QAAP20A100S	100 mm																			

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

QAPL AND QAAPL TWO-BOLT PILLOW BLOCKS



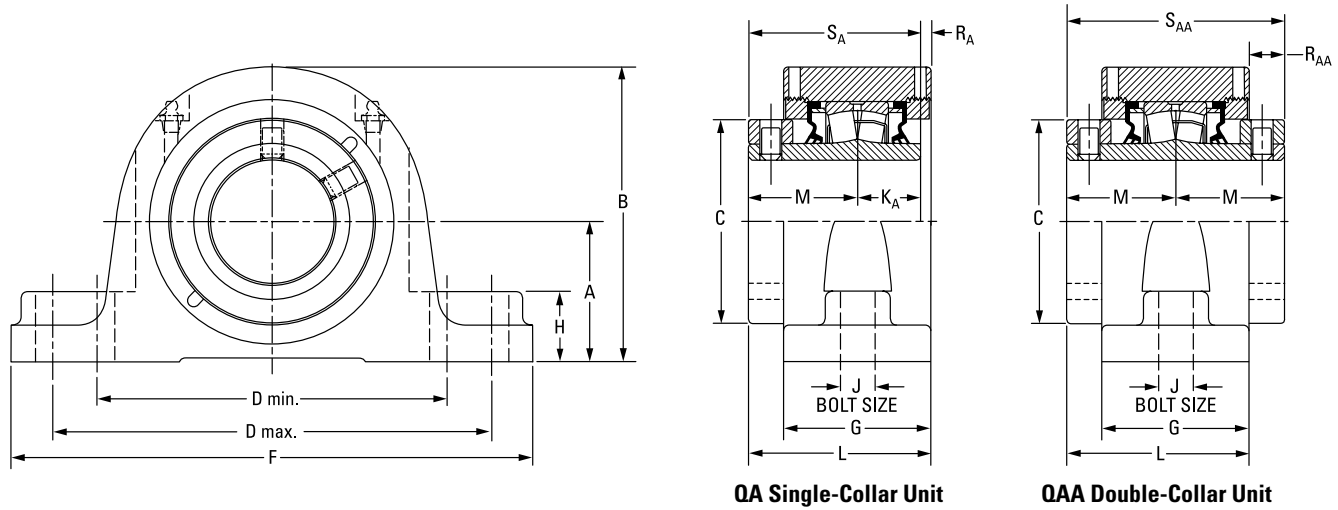
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K <sub>A</sub>	L	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAPL08A035S	35 mm	22208	47.8	94.7	60.5	119.1	152.4	174.8	57.2	25.4	12	25.4	73.2	44.5	3.3	-	69.9	-	4.1
QAPL08A107S	1 7/16 in.		1.88	3.73	2.38	4.69	6.00	6.88	2.25	1.00	1/2	1.00	2.88	1.75	0.13	-	2.75	-	9
QAPL08A108S	1 1/2 in.																		
QAPL09A040S	40 mm	22209	54.1	104.9	66.8	133.4	146.1	181.1	60.2	31.8	12	25.4	78.0	47.8	4.8	-	73.2	-	4.5
QAPL09A111S	1 11/16 in.		2.13	4.13	2.63	5.25	5.75	7.13	2.37	1.25	1/2	1.00	3.07	1.88	0.19	-	2.88	-	10
QAPL09A112S	1 3/4 in.																		
QAPL09A045S	45 mm	22210	57.2	122.2	73.2	150.6	161.5	212.9	62.0	31.8	16	25.4	79.0	47.5	6.1	17.0	72.9	95.3	5.9
QAPL10A115S QAAPL10A115S	1 15/16 in.		2.25	4.81	2.88	5.93	6.36	8.38	2.44	1.25	5/8	1.00	3.11	1.87	0.24	0.67	2.87	3.75	13
QAPL10A200S QAAPL10A200S	2 in.																		
QAPL10A050S QAAPL10A050S	50 mm	22211	63.5	133.4	82.6	165.1	179.3	225.6	65.5	31.8	16	28.7	83.6	50.8	4.1	18.0	79.5	101.6	7.7
QAPL11A203S QAAPL11A203S	2 3/16 in.		2.50	5.25	3.25	6.50	7.06	8.88	2.58	1.25	5/8	1.13	3.29	2.00	0.16	0.71	3.13	4.00	17
QAPL11A204S QAAPL11A204S	2 1/4 in.																		
QAPL11A055S QAAPL11A055S	55 mm	22213	69.9	147.3	96.8	173.0	189.0	235.0	73.7	35.1	16	31.5	91.4	54.6	5.3	17.8	86.1	109.2	10.0
QAPL13A060S QAAPL13A060S	60 mm		2.75	5.80	3.81	6.81	7.44	9.25	2.90	1.38	5/8	1.24	3.60	2.15	0.21	0.70	3.39	4.30	22
QAPL13A207S QAAPL13A207S	2 7/16 in.																		
QAPL13A208S QAAPL13A208S	2 1/2 in.																		
QAPL13A065S QAAPL13A065S	65 mm																		

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## CL SERIES • QAPL AND QAAPL TWO-BOLT PILLOW BLOCKS

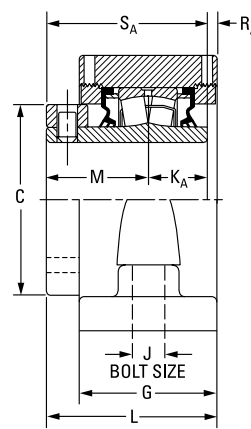
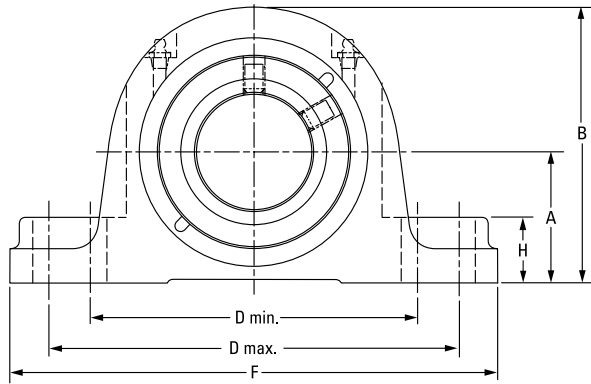


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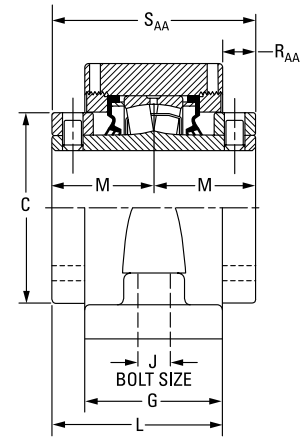
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K <sub>A</sub>	L	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAPL15A211S QAAPL15A211S	2 11/16 in.	22215	82.6 3.25	167.4 6.59	109.0 4.29	195.6 7.70	213.4 8.40	265.2 10.44	76.2 3.00	35.1 1.38	20 3/4	31.8 1.25	98.3 3.87	60.2 2.37	6.4 0.25	22.1 0.87	91.9 3.62	120.4 4.74	12.7 28	
QAPL15A212S QAAPL15A212S	2 3/4 in.																			
QAPL15A070S QAAPL15A070S	70 mm																			
QAPL15A215S QAAPL15A215S	2 15/16 in.																			
QAPL15A300S QAAPL15A300S	3 in.																			
QAPL15A075S QAAPL15A075S	75 mm																			
QAPL18A303S QAAPL18A303S	3 3/16 in.																			22218
QAPL18A304S QAAPL18A304S	3 1/4 in.																			
QAPL18A080S QAAPL18A080S	80 mm																			
QAPL18A085S QAAPL18A085S	85 mm																			
QAPL18A307S QAAPL18A307S	3 7/16 in.																			
QAPL18A308S QAAPL18A308S	3 1/2 in.																			
QAPL18A090S QAAPL18A090S	90 mm																			
QAPL20A315S QAAPL20A315S	3 15/16 in.	22220	108.0 4.25	212.9 8.38	152.4 6.00	255.0 10.04	320.0 12.60	362.0 14.25	94.7 3.73	54.1 2.13	24 1	41.4 1.63	122.9 4.84	75.4 2.97	6.1 0.24	28.2 1.11	116.8 4.60	150.9 5.94	26.8 59	
QAPL20A400S QAAPL20A400S	4 in.																			
QAPL20A100S QAAPL20A100S	100 mm																			

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

**QASN AND QAASN SN-STYLE TWO-BOLT PILLOW BLOCKS – PURE METRIC DESIGN**



QA Single-Collar Unit



QAA Double-Collar Unit

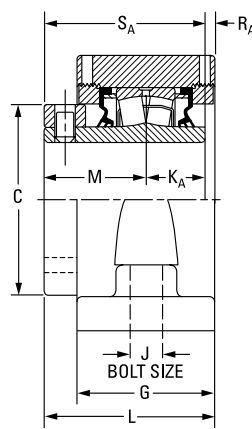
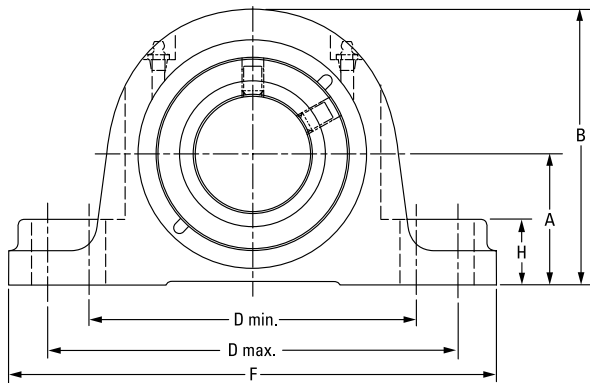
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K <sub>A</sub>	L	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QASN08A035S	<b>35 mm</b>																		
QASN08A107S	1 7/16 in.	22208	60	111	60.5	159	175	205	62	35	12	25	75	44	5	—	70	—	10.5
QASN08A108S	1 1/2 in.		2.36	4.37	2.38	6.26	6.89	8.07	2.44	1.38	1/2	1.00	2.95	1.75	0.20	—	2.75	—	23
QASN09A040S	<b>40 mm</b>																		
QASN09A111S	1 11/16 in.	22209	60	111	66.8	159	175	205	62	35	12	25	79	48	6	—	73	—	10.5
QASN09A112S	1 3/4 in.		2.36	4.37	2.63	6.26	6.89	8.07	2.44	1.38	1/2	1.00	3.10	1.88	0.22	—	2.88	—	23
QASN09A045S	45mm																		
QASN10A115S	1 15/16 in.																		
QAASN10A115S																			
QASN10A200S	2 in.	22210	70	136	73	183	216	254	68	25	16	25.4	82	48	9	14	73	95	12.7
QAASN10A200S			2.76	5.35	2.87	7.20	8.50	10.00	2.68	0.98	5/8	1	3.23	1.87	0.35	0.55	2.87	3.75	28
QASN10A050S	<b>50 mm</b>																		
QAASN10A050S																			
QASN11A203S	2 3/16 in.																		
QAASN11A203S																			
QASN11A204S	2 1/4 in.	22211	70	141	83	183	216	254	68	25	16	29	85	51	5	17	80	102	13.2
QAASN11A204S			2.76	5.55	3.27	7.20	8.50	10.00	2.68	0.98	5/8	1.14	3.35	2.01	0.20	0.67	3.15	4.02	29
QASN11A055S	<b>55 mm</b>																		
QAASN11A055S																			
QASN13A060S	<b>60 mm</b>																		
QAASN13A060S																			
QASN13A207S	2 7/16 in.																		
QAASN13A207S		22213	80	157	96.8	196	235	275	74	35	16	31	92	55	6	18	86	110	15.9
QASN13A208S	2 1/2 in.		3.15	6.18	3.81	7.72	9.25	10.83	2.91	1.38	5/8	1.22	3.62	2.17	0.24	0.71	3.39	4.33	35
QAASN13A208S																			
QASN13A065S	<b>65 mm</b>																		
QAASN13A065S																			
QASN15A211S	2 11/16 in.																		
QAASN15A211S																			
QASN15A212S	2 3/4 in.																		
QAASN15A212S																			
QASN15A070S	<b>70 mm</b>																		
QAASN15A070S		22215	95	183	109.0	241	279	316	76	34	20	32	98	60	6	22	92	120	20.9
QASN15A215S	2 15/16 in.		3.74	7.20	4.29	9.49	10.98	12.44	2.99	1.34	3/4	1.26	3.86	2.36	0.24	0.87	3.62	4.72	46
QAASN15A215S																			
QASN15A300S	3 in.																		
QAASN15A300S																			
QASN15A075S	<b>75 mm</b>																		
QAASN15A075S																			

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

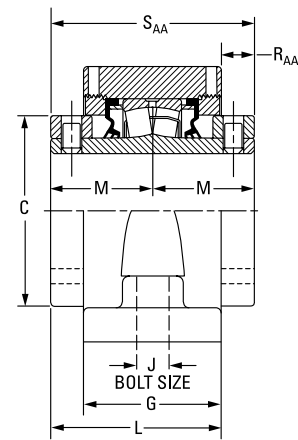
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# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QASN AND QAASN SN-STYLE TWO-BOLT PILLOW BLOCKS – PURE METRIC DESIGN



QA Single-Collar Unit



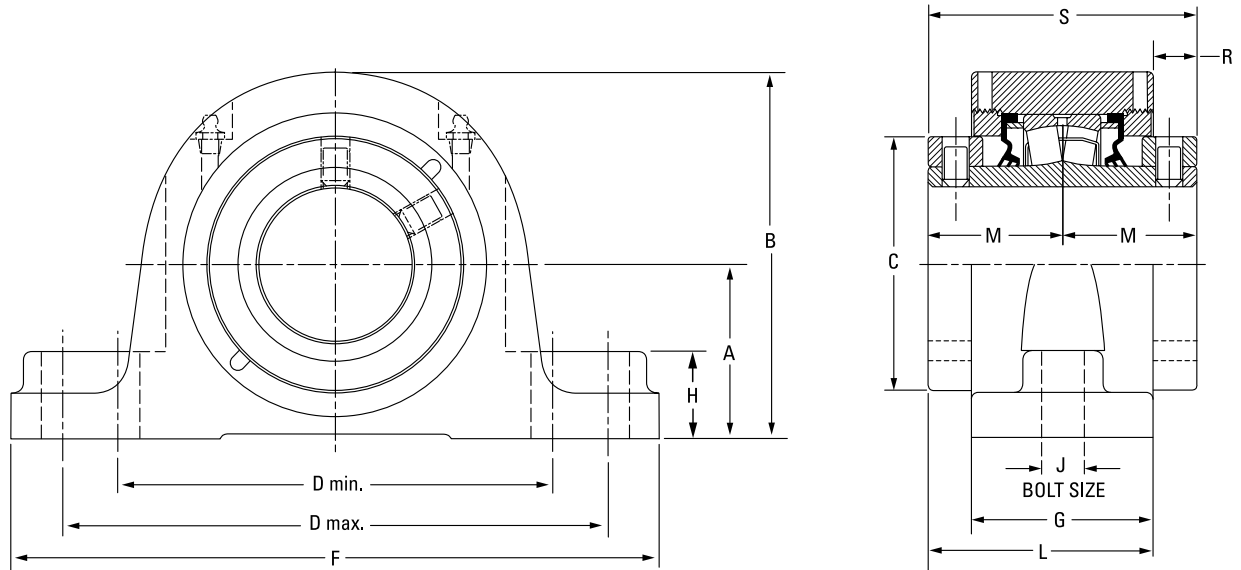
QAA Double-Collar Unit

Continued from previous page.

Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K <sub>A</sub>	L	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QASN18A303S QAASN18A303S	3 3/16 in.	22218	100	200	130	279	292	345	86	39	20	37	109	66	6	23	102	132	25.5	
QASN18A304S QAASN18A304S	3 1/4 in.		3.94	7.87	5.12	10.98	11.50	13.58	3.39	1.54	3/4	1.46	4.29	2.60	0.24	0.91	4.02	5.20	56	
QASN18A080S QAASN18A080S	80 mm	22218	112	212	130	279	292	345	86	39	20	37	109	66	6	23	102	132	25.5	
QASN18A085S QAASN18A085S	85 mm		4.41	8.35	5.12	10.98	11.50	13.58	3.39	1.54	3/4	1.46	4.29	2.60	0.24	0.91	4.02	5.20	56	
QASN18A307S QAASN18A307S	3 7/16 in.	22218	112	212	130	290	327	380	86	39	24	37	109	66	6	23	102	132	25.5	
QASN18A308S QAASN18A308S	3 1/2 in.		4.41	8.35	5.12	11.42	12.87	14.96	3.39	1.54	7/8	1.46	4.29	2.60	0.24	0.91	4.02	5.20	56	
QASN18A090S QAASN18A090S	90 mm	22220	125	241	152	319	366	410	101	50	24	41	126	75	10	25	117	150	35.9	
QASN20A315S QAASN20A315S	3 15/16 in.		4.92	9.49	5.98	12.56	14.41	16.14	3.98	1.97	7/8	1.61	4.96	2.95	0.39	0.98	4.61	5.91	79	
QASN20A400S QAASN20A400S	4 in.	22222	140	255	160	332	365	410	105	39	24	41	133	80	—	28	—	160	35.9	
QASN20A100S QAASN20A100S	100 mm		5.51	10.04	6.30	13.07	14.37	16.14	4.13	1.54	7/8	—	5.24	3.15	—	1.10	—	6.30	79	
QAASN22A110S	110 mm	22222	150	265	160	367	400	445	105	49	24	—	133	80	—	28	—	160	40.0	
QAASN22A407S	4 7/16 in.		5.91	10.43	6.30	14.45	15.75	17.52	4.13	1.93	7/8	—	5.24	3.15	—	1.10	—	6.30	88	
QAASN22A408S	4 1/2 in.	22226	150	282	175	402	435	500	113	49	30	—	151	94	—	38	—	188	40.0	
QAASN22A115S	115 mm		5.91	11.1	6.89	15.83	17.13	19.69	4.45	1.93	1 1/4	—	5.94	3.7	—	1.5	—	7.4	88	
QAASN26A125S	125 mm	22226	150	282	175	402	435	500	113	49	30	—	151	94	—	38	—	188	40.0	
QAASN26A415S	4 15/16 in.		5.91	11.1	6.89	15.83	17.13	19.69	4.45	1.93	1 1/4	—	5.94	3.7	—	1.5	—	7.4	88	
QAASN26A500S	5 in.																			
QAASN26A130S	130 mm																			

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

QAAPXT 5000 SERIES TWO-BOLT PILLOW BLOCKS

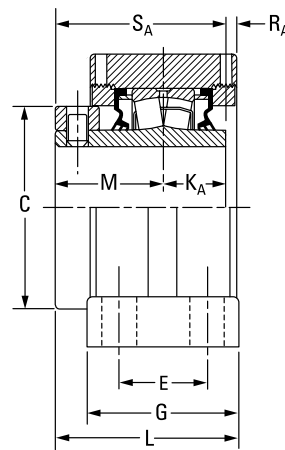
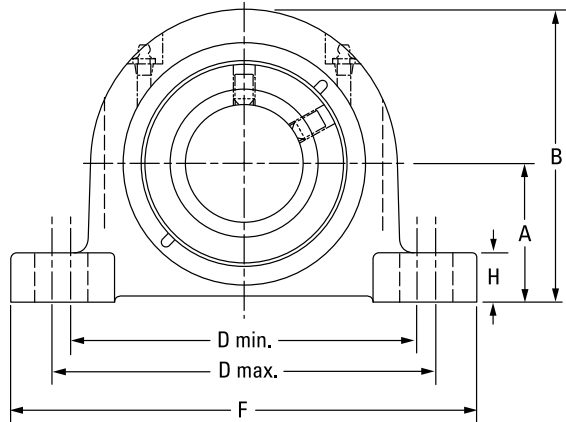
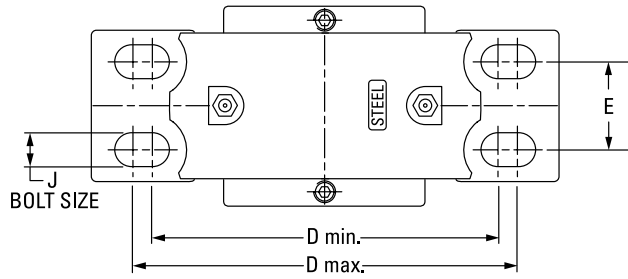


Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAAPXT13A060S	60 mm	22213	76.2 3.00	153.7 6.05	96.8 3.81	194.6 7.66	223.0 8.78	285.8 11.25	73.7 2.90	35.1 1.38	20 ¾	91.4 3.60	54.6 2.15	17.8 0.70	109.2 4.30	10.0 22
QAAPXT13A207S	2 7/16 in.															
QAAPXT13A208S	2 1/2 in.															
QAAPXT13A065S	65 mm	22215	88.9 3.50	173.7 6.84	109.0 4.29	230.1 9.06	265.2 10.44	330.2 13.00	75.7 2.98	35.1 1.38	24 7/8	98.0 3.86	60.2 2.37	22.4 0.88	120.4 4.74	12.7 28
QAAPXT15A211S	2 11/16 in.															
QAAPXT15A212S	2 3/4 in.															
QAAPXT15A070S	70 mm															
QAAPXT15A215S	2 15/16 in.															
QAAPXT15A300S	3 in.															
QAAPXT15A075S	75 mm															

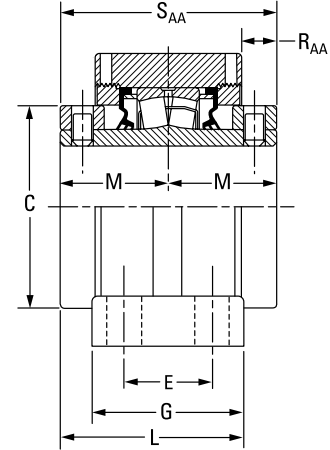
# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAPF AND QAAPF FOUR-BOLT PILLOW BLOCKS

## QAPF AND QAAPF FOUR-BOLT PILLOW BLOCKS



QA Single-Collar Unit



QAA Double-Collar Unit

Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	K <sub>A</sub>	L	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAPF13A060S QAAPF13A060S	60 mm	22213	69.9 2.75	147.3 5.80	96.8 3.81	174.8 6.88	193.8 7.63	44.5 1.75	235.0 9.25	76.2 3.00	24.9 0.98	16 5/8	31.5 1.24	92.7 3.65	54.6 2.15	5.3 0.21	17.8 0.70	86.1 3.39	109.2 4.30	9.1 20	
QAPF13A207S QAAPF13A207S	2 7/16 in.																				
QAPF13A208S QAAPF13A208S	2 1/2 in.																				
QAPF13A065S QAAPF13A065S	65 mm																				
QAPF15A211S QAAPF15A211S	2 11/16 in.	22215	82.6 3.25	167.6 6.60	109.0 4.29	193.0 7.60	231.1 9.10	47.8 1.88	265.2 10.44	79.5 3.13	32.8 1.29	16 5/8	31.8 1.25	100.1 3.94	60.2 2.37	6.1 0.24	22.4 0.88	91.9 3.62	120.4 4.74	12.2 27	
QAPF15A212S QAAPF15A212S	2 3/4 in.																				
QAPF15A070S QAAPF15A070S	70 mm																				
QAPF15A215S QAAPF15A215S	2 15/16 in.																				
QAPF15A300S QAAPF15A300S	3 in.																				
QAPF15A075S QAAPF15A075S	75 mm																				

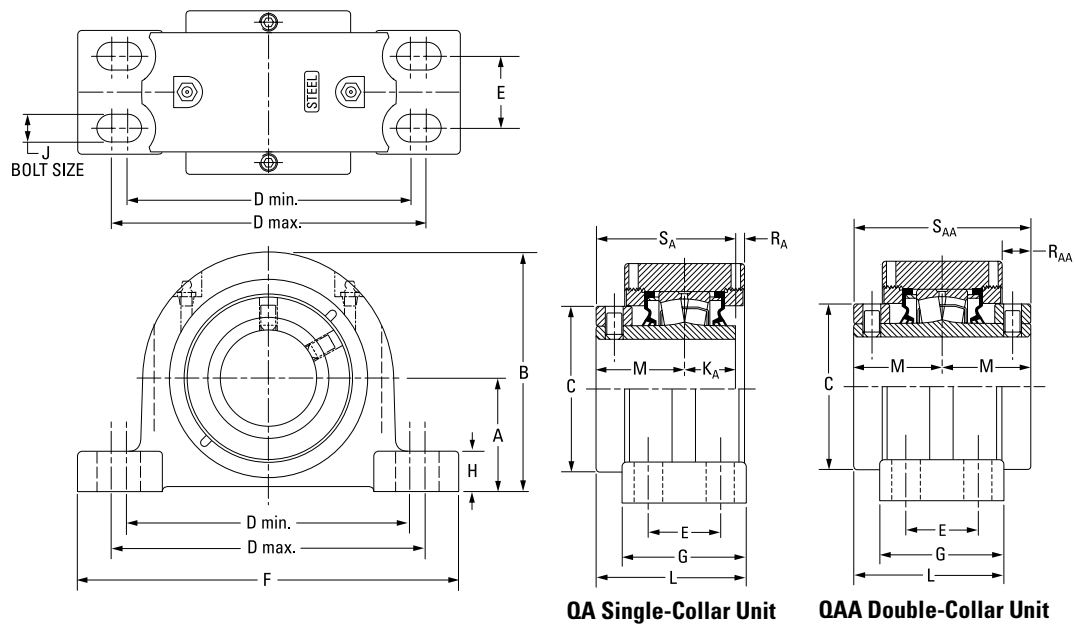
<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

Continued on next page.



# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAPF AND QAAPF FOUR-BOLT PILLOW BLOCKS



Continued from previous page.

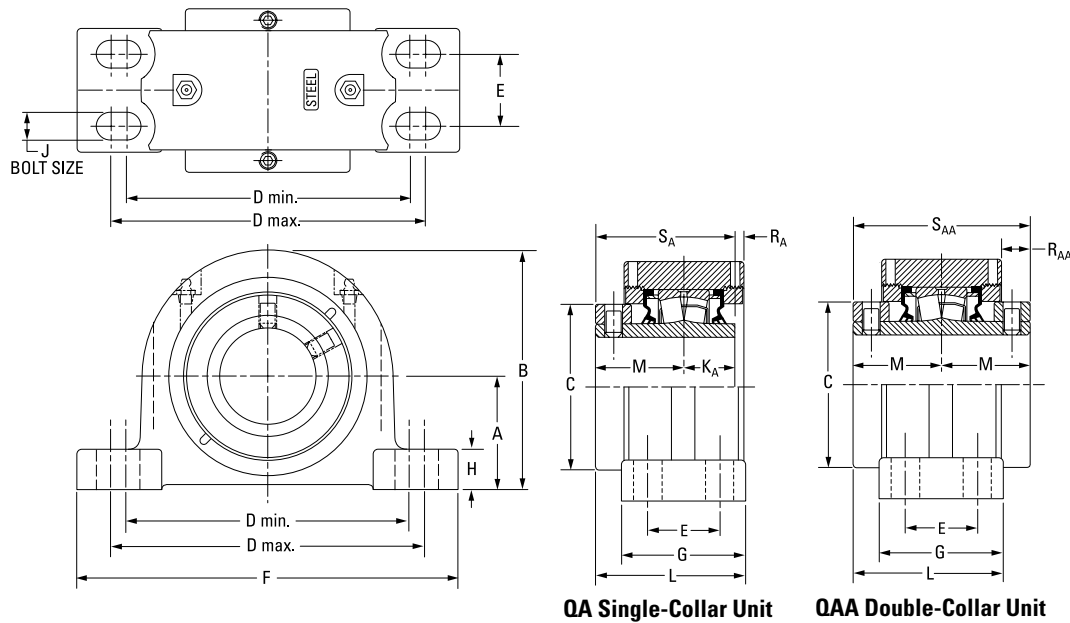
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	K <sub>A</sub>	L	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.		
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAPF18A303S QAAPF18A303S	3 3/16 in.	22218																				
QAPF18A304S QAAPF18A304S	3 1/4 in.																					
QAPF18A080S QAAPF18A080S	80 mm		95.3 3.75	195.3 7.69	130.3 5.13	225.6 8.88	276.4 10.88	50.8 2.00	312.4 12.30	95.3 3.75	39.6 1.56	20 3/4	36.6 1.44	113.5 4.47	65.8 2.59	7.9 0.31	21.3 0.84	102.4 4.03	131.6 5.18	22.2 49		
QAPF18A085S QAAPF18A085S	85 mm																					
QAPF18A307S QAAPF18A307S	3 7/16 in.																					
QAPF18A308S QAAPF18A308S	3 1/2 in.																					
QAPF18A090S QAAPF18A090S	90 mm																					
QAPF20A315S QAAPF20A315S	3 15/16 in.		22220	108.0 4.25	223.0 8.78	152.4 6.00	276.4 10.88	339.9 13.38	57.2 2.25	378.0 14.88	109.5 4.31	35.6 1.40	20 3/4	41.4 1.63	130.3 5.13	75.4 2.97	8.9 0.35	25.1 0.99	116.6 4.59	150.9 5.94	30.4 67	
QAPF20A400S QAAPF20A400S	4 in.																					
QAPF20A100S QAAPF20A100S	100 mm																					
QAAPF22A110S	110 mm	22222	120.7 4.75	233.4 9.19	160.0 6.30	301.8 11.88	368.3 14.50	63.5 2.50	409.7 16.13	120.7 4.75	40.1 1.58	20 3/4	-	140.0 5.51	79.5 3.13	-	28.7 1.13	-	158.8 6.25	37.2 82		
QAAPF22A407S	4 7/16 in.																					
QAAPF22A408S	4 1/2 in.																					
QAAPF22A115S	115 mm	22226	139.7 5.50	279.7 11.01	175.0 6.89	349.3 13.75	403.4 15.88	69.9 2.75	444.5 17.50	128.0 5.04	39.1 1.54	24 7/8	-	158.5 6.24	94.5 3.72	-	36.8 1.45	-	189.0 7.44	60.8 134		
QAAPF26A125S	125 mm																					
QAAPF26A415S	4 15/16 in.																					
QAAPF26A500S	5 in.																					
QAAPF26A130S	130 mm																					

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAPR AND QAAPR FOUR-BOLT PILLOW BLOCKS

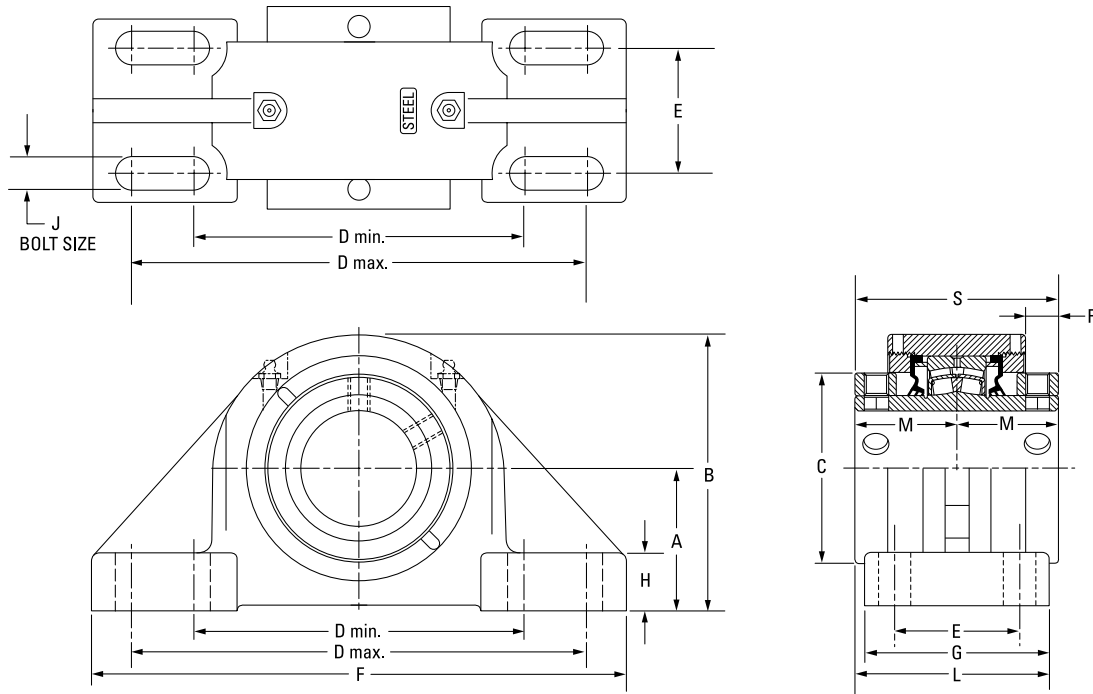
## QAPR AND QAAPR FOUR-BOLT PILLOW BLOCKS



Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	K <sub>A</sub>	L	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QAPR13A060S QAAPR13A060S	<b>60 mm</b>	22213	69.9 2.75	147.3 5.80	96.8 3.81	181.1 7.13	222.3 8.75	47.8 1.88	260.4 10.25	82.6 3.25	24.9 0.98	16 5/8	31.5 1.24	95.8 3.77	54.6 2.15	5.3 0.21	17.8 0.70	86.1 3.39	109.2 4.30	9.1 20	
QAPR13A207S QAAPR13A207S	2 7/16 in.																				
QAPR13A208S QAAPR13A208S	2 1/2 in.																				
QAPR13A065S QAAPR13A065S	<b>65 mm</b>																				
QAPR15A211S QAAPR15A211S	2 11/16 in.	22215	79.5 3.13	164.3 6.47	109.0 4.29	203.2 8.00	243.8 9.60	54.1 2.13	275.1 10.83	85.9 3.38	29.5 1.16	16 5/8	31.8 1.25	102.1 4.02	60.2 2.37	6.1 0.24	22.4 0.88	91.9 3.62	120.4 4.74	12.2 27	
QAPR15A212S QAAPR15A212S	2 3/4 in.																				
QAPR15A070S QAAPR15A070S	<b>70 mm</b>																				
QAPR15A215S QAAPR15A215S	2 15/16 in.																				
QAPR15A300S QAAPR15A300S	3 in.	22218	95.3 3.75	195.3 7.69	130.3 5.13	235.0 9.25	285.8 11.25	60.5 2.38	346.2 13.63	95.3 3.75	39.6 1.56	20 3/4	36.6 1.44	113.5 4.47	65.8 2.59	7.9 0.31	21.3 0.84	102.4 4.03	131.6 5.18	22.2 49	
QAPR15A075S QAAPR15A075S	<b>75 mm</b>																				
QAPR18A303S QAAPR18A303S	3 3/16 in.																				
QAPR18A304S QAAPR18A304S	3 1/4 in.																				
QAPR18A080S QAAPR18A080S	<b>80 mm</b>	22218	95.3 3.75	195.3 7.69	130.3 5.13	235.0 9.25	285.8 11.25	60.5 2.38	346.2 13.63	95.3 3.75	39.6 1.56	20 3/4	36.6 1.44	113.5 4.47	65.8 2.59	7.9 0.31	21.3 0.84	102.4 4.03	131.6 5.18	22.2 49	
QAPR18A085S QAAPR18A085S	<b>85 mm</b>																				
QAPR18A307S QAAPR18A307S	3 7/16 in.																				
QAPR18A308S QAAPR18A308S	3 1/2 in.																				
QAPR18A090S QAAPR18A090S	<b>90 mm</b>																				

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

QAAPX 5000 SERIES FOUR-BOLT PILLOW BLOCKS



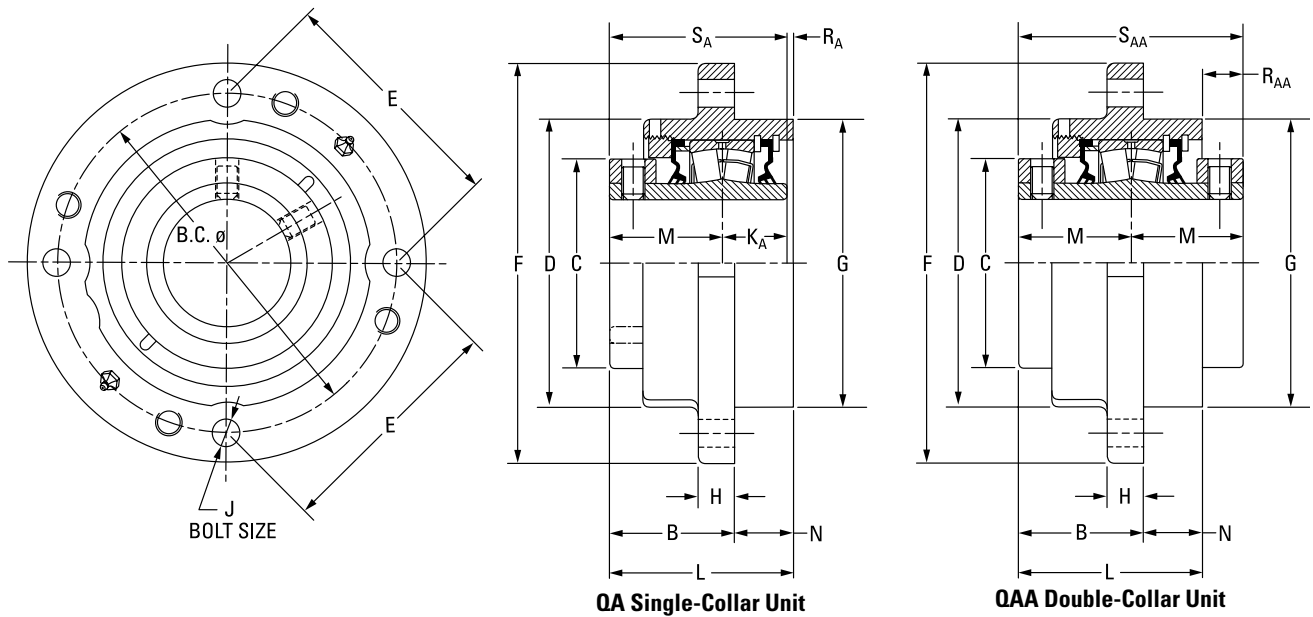
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	M	R	S	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QAAPX13A060S	60 mm	22213	76.2 3.00	153.7 6.05	96.8 3.81	176.3 6.94	242.8 9.56	66.8 2.63	285.8 11.25	98.6 3.88	31.0 1.22	20 3/4	103.9 4.09	54.6 2.15	17.8 0.70	109.2 4.30	13.2 29
QAAPX13A207S	2 7/16 in.																
QAAPX13A208S	2 1/2 in.																
QAAPX13A065S	65 mm	22215	88.9 3.50	173.5 6.83	109.0 4.29	230.1 9.06	265.2 10.44	69.9 2.75	330.2 13.00	108.0 4.25	39.1 1.54	20 3/4	114.3 4.50	60.2 2.37	21.3 0.84	120.4 4.74	20.4 45
QAAPX15A211S	2 11/16 in.																
QAAPX15A212S	2 3/4 in.																
QAAPX15A070S	70 mm	22218	101.6 4.00	201.2 7.92	130.3 5.13	274.6 10.81	309.6 12.19	76.2 3.00	381.0 15.00	120.7 4.75	38.1 1.50	20 3/4	126.2 4.97	65.8 2.59	21.3 0.84	131.6 5.18	29.0 64
QAAPX18A303S	3 3/16 in.																
QAAPX18A304S	3 1/4 in.																
QAAPX18A080S	80 mm	22220	127.0 5.00	239.8 9.44	152.4 6.00	317.5 12.50	355.6 14.00	88.9 3.50	425.5 16.75	139.7 5.50	41.4 1.63	24 7/8	145.0 5.71	75.2 2.96	25.4 1.00	150.4 5.92	44.9 99
QAAPX18A085S	85 mm																
QAAPX18A307S	3 7/16 in.																
QAAPX18A308S	3 1/2 in.	22222	146.1 5.75	273.8 10.78	159.8 6.29	354.1 13.94	395.2 15.56	101.6 4.00	469.9 18.50	158.8 6.25	45.7 1.80	24 1	158.8 6.25	79.5 3.13	28.7 1.13	158.8 6.25	63.0 139
QAAPX20A315S	3 15/16 in.																
QAAPX20A400S	4 in.																
QAAPX20A100S	100 mm	22226	155.7 6.13	283.2 11.15	174.8 6.88	387.4 15.25	425.5 16.75	108.0 4.25	514.4 20.25	171.5 6.75	50.8 2.00	28.6 1 1/8	180.3 7.10	94.5 3.72	37.3 1.47	189.0 7.44	67.6 149
QAAPX22A110S	110 mm																
QAAPX22A407S	4 7/16 in.																
QAAPX22A408S	4 1/2 in.	22226	155.7 6.13	283.2 11.15	174.8 6.88	387.4 15.25	425.5 16.75	108.0 4.25	514.4 20.25	171.5 6.75	50.8 2.00	28.6 1 1/8	180.3 7.10	94.5 3.72	37.3 1.47	189.0 7.44	67.6 149
QAAPX22A115S	115 mm																
QAAPX26A125S	125 mm																
QAAPX26A415S	4 15/16 in.	22226	155.7 6.13	283.2 11.15	174.8 6.88	387.4 15.25	425.5 16.75	108.0 4.25	514.4 20.25	171.5 6.75	50.8 2.00	28.6 1 1/8	180.3 7.10	94.5 3.72	37.3 1.47	189.0 7.44	67.6 149
QAAPX26A500S	5 in.																
QAAPX26A130S	130 mm																

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAC AND QAAC PILOTED FLANGE CARTRIDGES

## QAC AND QAAC PILOTED FLANGE CARTRIDGES



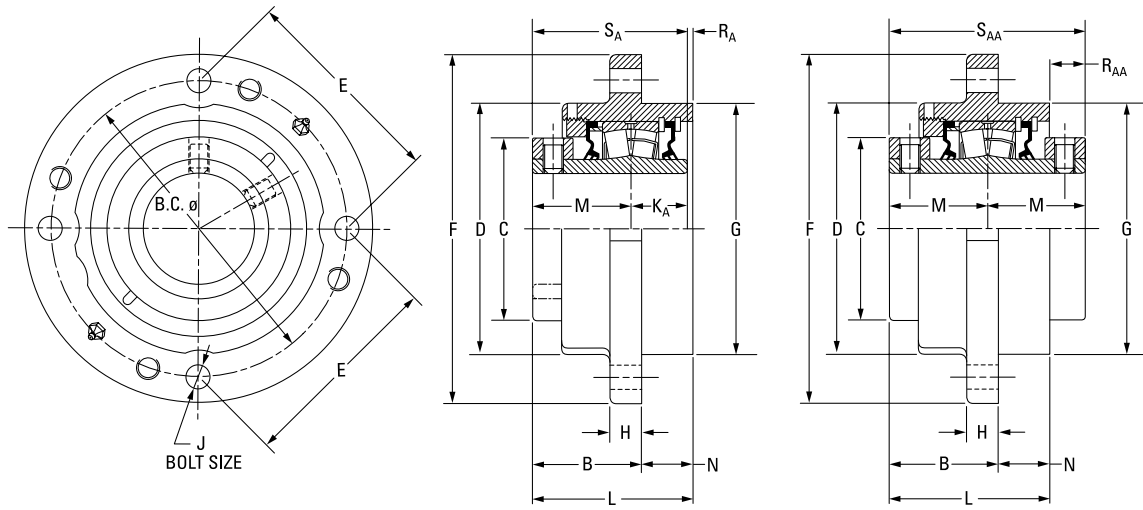
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B	B	B.C.	C	D	E	F	G <sup>(2)</sup>	H	J	K <sub>A</sub>	L	L	M	N	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.
			FIX	EXP										FIX	EXP					mm	in.	
QAC08A035S	<b>35 mm</b>	22208	<b>49.8</b>	<b>51.8</b>	<b>111.3</b>	<b>60.5</b>	<b>92.2</b>	<b>78.5</b>	<b>133.4</b>	<b>92.1</b>	<b>12.7</b>	<b>10</b>	<b>25.4</b>	<b>73.7</b>	<b>75.7</b>	<b>44.5</b>	<b>23.9</b>	<b>3.8</b>	-	<b>69.9</b>	-	<b>3.6</b>
QAC08A107S	1 7/16 in.		1.96	2.04	4.38	2.38	3.63	3.09	5.25	3.625	0.50	7/16	1.00	2.90	2.98	1.75	0.94	0.15	-	2.75	-	8
QAC08A108S	1 1/2 in.																					
QAC09A040S	<b>40 mm</b>	22209	<b>54.6</b>	<b>56.6</b>	<b>130.3</b>	<b>66.8</b>	<b>111.3</b>	<b>91.9</b>	<b>155.7</b>	<b>108.0</b>	<b>12.7</b>	<b>10</b>	<b>25.4</b>	<b>77.0</b>	<b>78.2</b>	<b>47.8</b>	<b>22.4</b>	<b>3.8</b>	-	<b>73.2</b>	-	<b>4.1</b>
QAC09A111S	1 11/16 in.		2.15	2.23	5.13	2.63	4.38	3.62	6.13	4.250	0.50	7/16	1.00	3.03	3.08	1.88	0.88	0.15	-	2.88	-	9
QAC09A112S	1 3/4 in.																					
QAC09A045S	<b>45 mm</b>	22210	<b>50.5</b>	<b>52.6</b>	<b>136.7</b>	<b>73.2</b>	<b>113.5</b>	<b>96.5</b>	<b>162.1</b>	<b>114.3</b>	<b>16.0</b>	<b>10</b>	<b>25.4</b>	<b>77.5</b>	<b>79.5</b>	<b>47.5</b>	<b>26.9</b>	<b>4.6</b>	<b>18.5</b>	<b>72.9</b>	<b>95.3</b>	<b>4.5</b>
QAC10A115S QAAC10A115S	1 15/16 in.		1.99	2.07	5.38	2.88	4.47	3.80	6.38	4.500	0.63	7/16	1.00	3.05	3.13	1.87	1.06	0.18	0.73	2.87	3.75	10
QAC10A200S QAAC10A200S	2 in.																					
QAC10A050S QAAC10A050S	<b>50 mm</b>	22211	<b>54.4</b>	<b>56.4</b>	<b>152.4</b>	<b>82.6</b>	<b>127.0</b>	<b>107.7</b>	<b>185.4</b>	<b>127.0</b>	<b>14.7</b>	<b>12</b>	<b>28.7</b>	<b>83.1</b>	<b>85.1</b>	<b>50.8</b>	<b>28.7</b>	<b>3.6</b>	<b>18.5</b>	<b>79.5</b>	<b>101.6</b>	<b>5.9</b>
QAC11A203S QAAC11A203S	2 3/16 in.		2.14	2.22	6.00	3.25	5.00	4.24	7.30	5.000	0.58	1/2	1.13	3.27	3.35	2.00	1.13	0.14	0.73	3.13	4.00	13
QAC11A204S QAAC11A204S	2 1/4 in.																					
QAC11A055S QAAC11A055S	<b>55 mm</b>	22213	<b>60.5</b>	<b>62.5</b>	<b>165.1</b>	<b>96.8</b>	<b>139.7</b>	<b>116.8</b>	<b>193.8</b>	<b>139.7</b>	<b>17.5</b>	<b>12</b>	<b>31.5</b>	<b>88.9</b>	<b>90.9</b>	<b>54.6</b>	<b>28.7</b>	<b>3.0</b>	<b>20.3</b>	<b>86.1</b>	<b>109.2</b>	<b>7.3</b>
QAC13A060S QAAC13A060S	<b>60 mm</b>		2.38	2.46	6.50	3.81	5.50	4.60	7.63	5.500	0.69	1/2	1.24	3.50	3.58	2.15	1.13	0.12	0.80	3.39	4.30	16
QAC13A207S QAAC13A207S	2 7/16 in.																					
QAC13A208S QAAC13A208S	2 1/2 in.																					
QAC13A065S QAAC13A065S	<b>65 mm</b>																					

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).  
<sup>(2)</sup>Pilot tolerance: +0/-0.051 mm (+0/-0.002 in.).  
<sup>(3)</sup>Six-bolt housing.

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## CL SERIES • QAC AND QAAC PILOTED FLANGE CARTRIDGES



**QA Single-Collar Unit**

**QAA Double-Collar Unit**

Continued from previous page.

Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B <sub>FIX</sub>	B <sub>EXP</sub>	B.C.	C	D	E	F	G <sup>(2)</sup>	H	J	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAC15A211S QAAC15A211S	2 1 <sup>1</sup> / <sub>16</sub> in.	22215	62.5 2.46	64.5 2.54	190.5 7.50	109.0 4.29	162.1 6.38	134.6 5.30	222.3 8.75	161.9 6.375	20.6 0.81	16 5/8	31.8 1.25	94.2 3.71	96.3 3.79	60.2 2.37	31.8 1.25	2.3 0.09	21.6 0.85	91.9 3.62	120.4 4.74	10.0 22	
QAC15A212S QAAC15A212S	2 3/4 in.																						
QAC15A070S QAAC15A070S	70 mm																						
QAC15A215S QAAC15A215S	2 15/16 in.																						
QAC15A300S QAAC15A300S	3 in.																						
QAC15A075S QAAC15A075S	75 mm																						
QAC18A303S QAAC18A303S	3 3/16 in.	22218	73.2 2.88	75.2 2.96	219.2 8.63	130.3 5.13	187.5 7.38	154.9 6.10	262.6 10.34	187.3 7.375	25.4 1.00	20 3/4	36.6 1.44	106.4 4.19	108.5 4.27	65.8 2.59	33.3 1.31	4.1 0.16	25.1 0.99	102.4 4.03	131.6 5.18	14.5 32	
QAC18A304S QAAC18A304S	3 1/4 in.																						
QAC18A080S QAAC18A080S	80 mm																						
QAC18A085S QAAC18A085S	85 mm																						
QAC18A307S QAAC18A307S	3 7/16 in.																						
QAC18A308S QAAC18A308S	3 1/2 in.																						
QAC18A090S QAAC18A090S	90 mm	22220	72.1 2.84	74.2 2.92	238.3 9.38	152.4 6.00	206.5 8.13	168.4 6.63	276.4 10.88	206.4 8.125	25.4 1.00	20 3/4	41.4 1.63	126.0 4.96	128.0 5.04	75.4 2.97	54.1 2.13	9.4 0.37	24.9 0.98	116.6 4.59	150.9 5.94	19.5 43	
QAC20A315S QAAC20A315S	3 15/16 in.																						
QAC20A400S QAAC20A400S	4 in.																						
QAC20A100S QAAC20A100S	100 mm																						
QAAC22A110S	110 mm																						
QAAC22A407S <sup>(3)</sup>	4 7/16 in.																						
QAAC22A408S <sup>(3)</sup>	4 1/2 in.	22222	78.0 3.07	80.0 3.15	298.5 11.75 <sup>(3)</sup>	160.0 6.30	254.0 10.00	149.4 5.88 <sup>(3)</sup>	342.9 13.50	260.4 10.250	25.4 1.00	20 3/4 <sup>(3)</sup>	-	126.2 4.97	128.3 5.05	79.5 3.13	48.3 1.90	-	32.8 1.29	-	158.8 6.25	32.7 72	
QAAC22A115S <sup>(3)</sup>	115 mm																						

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

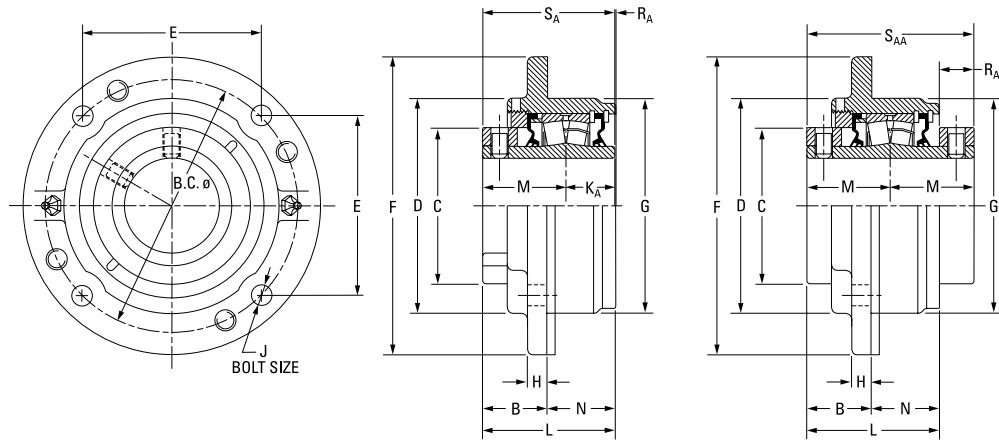
<sup>(2)</sup>Pilot tolerance: +0/-0.051 mm (+0/-0.002 in.).

<sup>(3)</sup>Six-bolt housing.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QACW AND QAACW PILOTED FLANGE CARTRIDGES

## QACW AND QAACW PILOTED FLANGE CARTRIDGES



QA Single-Collar Unit

QAA Double-Collar Unit

Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B <sub>FIX</sub>	B <sub>EXP</sub>	B.C.	C	D	E	F	G <sup>(2)</sup>	H	J	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QACW08A035S	35 mm	22208	38.9	40.9	111.3	60.5	92.2	78.5	133.4	92.1	12.7	10	25.4	73.7	75.7	44.5	35.1	3.8	-	69.9	-	3.6	
QACW08A107S	1 7/16 in.		1.53	1.61	4.38	2.38	3.63	3.09	5.25	3.625	0.50	7/16	1.00	2.90	2.98	1.75	1.38	0.15	-	2.75	-	8	
QACW08A108S	1 1/2 in.																						
QACW09A040S	40 mm	22209	38.9	40.1	130.3	66.8	111.3	91.9	155.7	108.0	10.2	10	25.4	77.0	78.2	47.8	38.1	4.1	-	73.2	-	4.1	
QACW09A111S	1 11/16 in.		1.53	1.58	5.13	2.63	4.38	3.62	6.13	4.250	0.40	7/16	1.00	3.03	3.08	1.88	1.5	0.16	-	2.88	-	9	
QACW09A112S	1 3/4 in.																						
QACW09A045S	45 mm	22210	35.3	37.3	136.7	73.2	113.5	96.5	162.1	114.3	9.7	10	25.4	73.4	75.4	47.5	38.1	0.5	22.6	72.9	95.3	4.5	
QACW10A115S	1 15/16 in.		1.39	1.47	5.38	2.88	4.47	3.80	6.38	4.500	0.38	7/16	1.00	2.89	2.97	1.87	1.50	0.02	0.89	2.87	3.75	10	
QAACW10A115S	2 in.																						
QACW10A050S	50 mm	22211	38.9	40.9	152.4	82.6	126.7	107.7	181.1	127.0	14.2	12	28.7	80.3	82.3	50.8	41.4	0.8	14.7	79.5	101.6	5.9	
QACW11A203S	2 3/16 in.		1.53	1.61	6.00	3.25	4.99	4.24	7.13	5.000	0.56	1/2	1.13	3.16	3.24	2.00	1.63	0.03	0.58	3.13	4.00	13	
QAACW11A203S	2 1/4 in.																						
QACW11A204S	2 1/4 in.																						
QAACW11A204S	2 1/4 in.																						
QACW11A055S	55 mm	22213	47.2	49.3	165.1	96.8	139.7	116.8	193.8	139.7	12.7	12	31.5	90.2	92.2	54.6	42.9	4.3	19.1	86.1	109.2	7.3	
QACW13A060S	60 mm		1.86	1.94	6.50	3.81	5.50	4.60	7.63	5.500	0.50	1/2	1.24	3.55	3.63	2.15	1.69	0.17	0.75	3.39	4.30	16	
QAACW13A060S	2 7/16 in.																						
QACW13A207S	2 7/16 in.																						
QAACW13A207S	2 7/16 in.																						
QACW13A208S	2 1/2 in.																						
QAACW13A208S	2 1/2 in.																						
QACW13A065S	65 mm	22215	46.0	48.0	190.5	109.0	162.1	134.6	222.3	161.9	12.7	16	31.8	93.5	95.5	60.2	47.8	1.5	26.9	91.9	120.4	10.0	
QACW15A211S	2 11/16 in.		1.81	1.89	7.50	4.29	6.38	5.30	8.75	6.375	0.50	5/8	1.25	3.68	3.76	2.37	1.88	0.06	1.06	3.62	4.74	22	
QAACW15A211S	2 3/4 in.																						
QACW15A070S	70 mm																						
QAACW15A070S	70 mm																						
QACW15A215S	2 15/16 in.																						
QAACW15A215S	2 15/16 in.																						
QACW15A300S	3 in.																						
QAACW15A300S	3 in.																						
QACW15A075S	75 mm																						
QAACW15A075S	75 mm																						

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

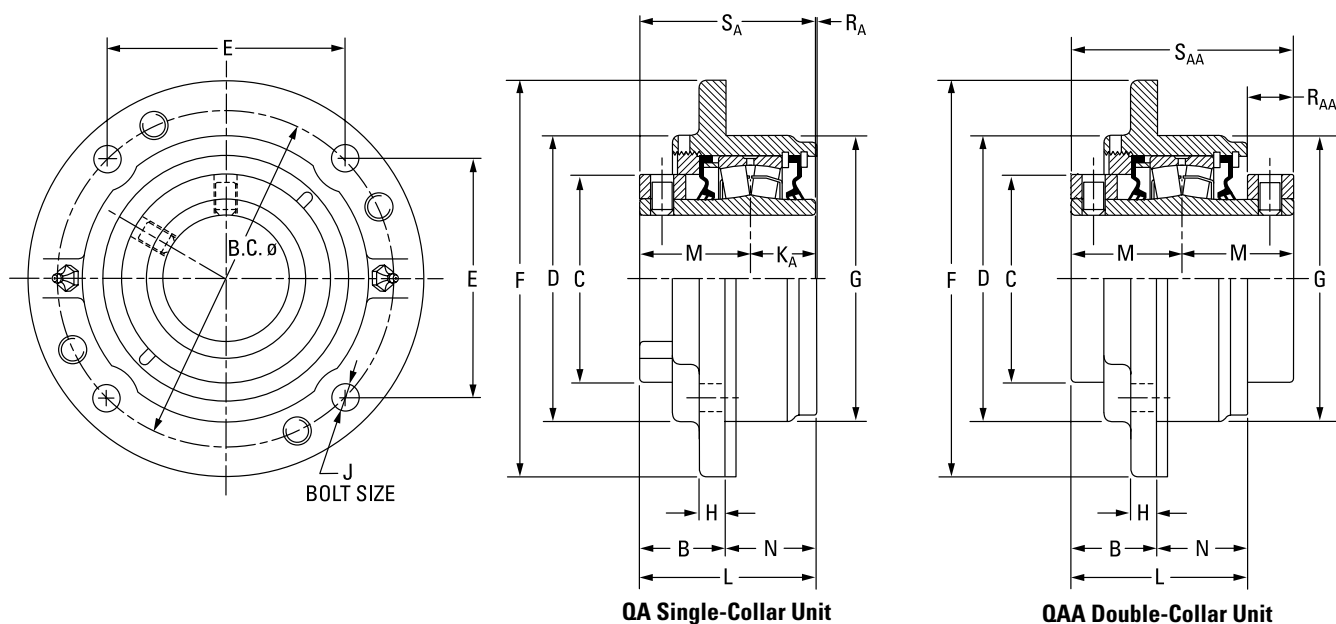
<sup>(2)</sup>Pilot tolerance: +0/-0.051 mm (+0/-0.002 in.).

<sup>(3)</sup>Six-bolt housing.

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# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## CL SERIES • QACW AND QAACW PILOTED FLANGE CARTRIDGES



Continued from previous page.

Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B <sub>FIX</sub>	B <sub>EXP</sub>	B.C.	C	D	E	F	G <sup>(2)</sup>	H	J	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QACW18A303S QAACW18A303S	3 3/16 in.	22218	58.2 2.29	60.2 2.37	219.2 8.63	130.3 5.13	187.5 7.38	154.9 6.10	260.4 10.25	187.3 7.375	22.4 0.88	20 3/4	36.6 1.44	105.9 4.17	108.0 4.25	65.8 2.59	47.8 1.88	3.3 0.13	21.3 0.84	102.4 4.03	131.6 5.18	14.5 32	
QACW18A080S QAACW18A080S	80 mm																						
QACW18A085S QAACW18A085S	85 mm																						
QACW18A307S QAACW18A307S	3 7/16 in.																						
QACW18A308S QAACW18A308S	3 1/2 in.																						
QACW18A090S QAACW18A090S	90 mm																						
QACW20A315S QAACW20A315S	3 15/16 in.	22220	65.5 2.58	67.6 2.66	238.3 9.38	152.4 6.00	206.5 8.13	168.4 6.63	276.4 10.88	206.4 8.125	25.4 1.00	20 3/4	41.4 1.63	123.4 4.86	125.5 4.94	75.4 2.97	57.9 2.28	6.9 0.27	30.2 1.19	116.6 4.59	150.9 5.94	19.5 43	
QACW20A400S QAACW20A400S	4 in.																						
QACW20A100S QAACW20A100S	100 mm																						
QAACW22A110S	110 mm	22222	62.0 2.44	64.0 2.52	298.5 11.75 <sup>(3)</sup>	160.0 6.30	254.0 10.00	149.4 5.88 <sup>(3)</sup>	342.9 13.50	260.4 10.250	25.4 1.00	20 3/4 <sup>(3)</sup>	130.0 5.12	132.1 5.20	79.5 3.13	68.3 2.69	-	28.7 1.13	-	-	158.8 6.25	32.7 72	
QAACW22A407S <sup>(3)</sup>	4 7/16 in.																						
QAACW22A408S <sup>(3)</sup>	4 1/2 in.																						
QAACW26A125S <sup>(3)</sup>	125 mm	22226	73.7 2.90	75.7 2.98	323.9 12.75 <sup>(3)</sup>	175.0 6.89	266.7 10.50	162.1 6.38 <sup>(3)</sup>	374.7 14.75	279.4 11.000	26.2 1.03	24 7/8 <sup>(3)</sup>	153.2 6.03	155.2 6.11	94.5 3.72	78.0 3.07	-	35.8 1.41	-	-	189.0 7.44	46.3 102	
QAACW26A415S <sup>(3)</sup>	4 15/16 in.																						
QAACW26A500S <sup>(3)</sup>	5 in.																						
QAACW26A130S <sup>(3)</sup>	130 mm																						

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

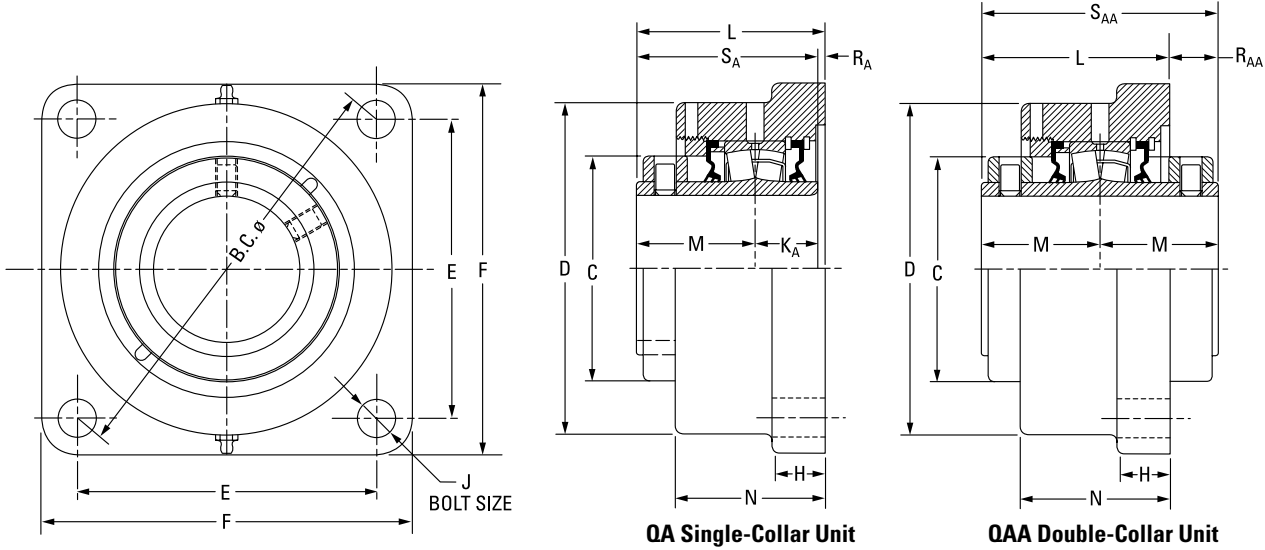
<sup>(2)</sup>Pilot tolerance: +0/-0.051 mm (+0/-0.002 in.).

<sup>(3)</sup>Six-bolt housing.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAF AND QAAF SQUARE FLANGE BLOCKS

## QAF AND QAAF SQUARE FLANGE BLOCKS



Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	H	J	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAF08A035S	35 mm	22208	125.7	60.5	93.7	88.9	117.6	22.4	12	25.4	72.9	74.9	44.5	57.2	3.0	-	69.9	-	4.5	
QAF08A107S	1 7/16 in.		4.95	2.38	3.69	3.50	4.63	0.88	1/2	1.00	2.87	2.95	1.75	2.25	0.12	-	2.75	-	10	
QAF08A108S	1 1/2 in.	22208	148.3	60.5	108.0	104.9	136.7	22.4	12	25.4	73.7	75.7	44.5	59.4	3.8	-	69.9	-	4.5	
			5.84	2.38	4.25	4.13	5.38	0.88	1/2	1.00	2.90	2.98	1.75	2.34	0.15	-	2.75	-	10	
QAF09A040S	40 mm	22209	148.3	66.8	118.4	104.9	136.7	22.4	12	25.4	79.5	81.5	47.8	63.5	6.4	-	73.2	-	5.0	
QAF09A111S	1 11/16 in.		5.84	2.63	4.66	4.13	5.38	0.88	1/2	1.00	3.13	3.21	1.88	2.50	0.25	-	2.88	-	11	
QAF09A112S	1 3/4 in.	22209	157.2	66.8	118.4	111.3	143.0	22.4	12	25.4	79.5	81.5	47.8	63.5	6.4	-	73.2	-	5.0	
QAF09A045S	45 mm		6.19	2.63	4.66	4.38	5.63	0.88	1/2	1.00	3.13	3.21	1.88	2.50	0.25	-	2.88	-	11	
QAF10A115S QAAF10A115S	1 15/16 in.	22210	157.2	73.2	120.7	111.3	139.7	22.4	12	25.4	80.8	82.8	47.5	65.0	7.9	15.2	72.9	95.3	5.0	
QAF10A200S QAAF10A200S	2 in.		6.19	2.88	4.75	4.38	5.50	0.88	1/2	1.00	3.18	3.26	1.87	2.56	0.31	0.60	2.87	3.75	11	
QAF10A050S QAAF10A050S	50 mm																			
QAF11A203S QAAF11A203S	2 3/16 in.	22211	175.0	82.6	130.3	124.0	157.2	25.4	16	28.7	83.1	85.1	50.8	66.8	3.8	18.5	79.5	101.6	6.4	
QAF11A204S QAAF11A204S	2 1/4 in.		6.89	3.25	5.13	4.88	6.19	1.00	5/8	1.13	3.27	3.35	2.00	2.63	0.15	0.73	3.13	4.00	14	
QAF11A055S QAAF11A055S	55 mm																			
QAF13A060S QAAF13A060S	60 mm	22213	193.0	96.8	146.1	136.7	168.4	25.4	16	31.5	89.2	91.2	54.6	72.4	3.0	20.1	86.1	109.2	7.7	
QAF13A207S QAAF13A207S	2 7/16 in.		7.60	3.81	5.75	5.38	6.63	1.00	5/8	1.24	3.51	3.59	2.15	2.85	0.12	0.79	3.39	4.30	17	
QAF13A208S QAAF13A208S	2 1/2 in.																			
QAF13A065S QAAF13A065S	65 mm																			

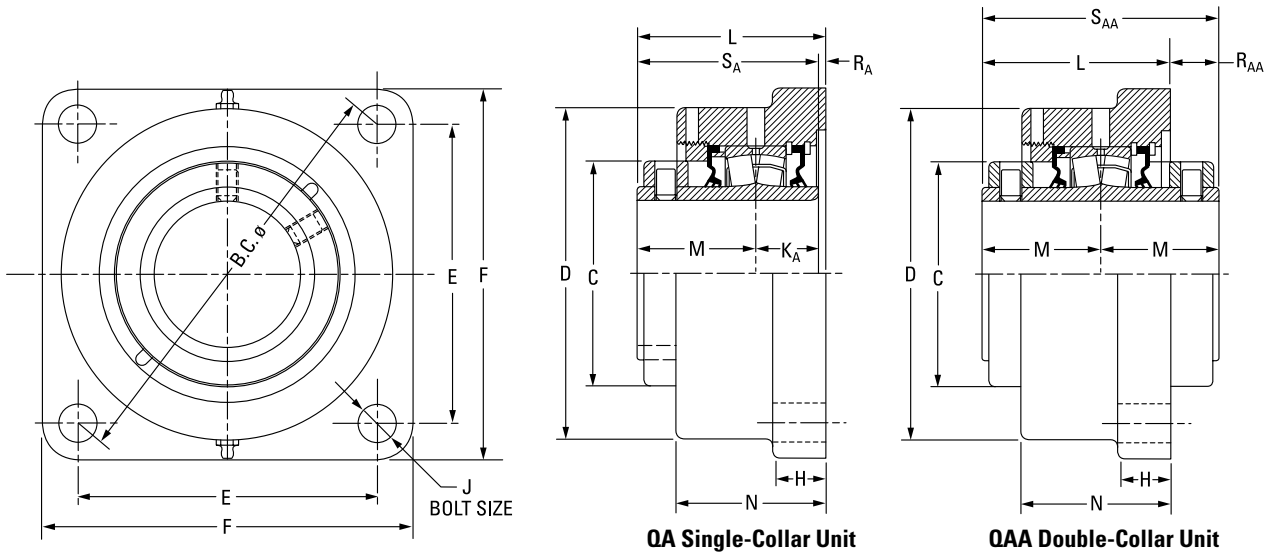
<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

Continued on next page.



# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAF AND QAAF SQUARE FLANGE BLOCKS



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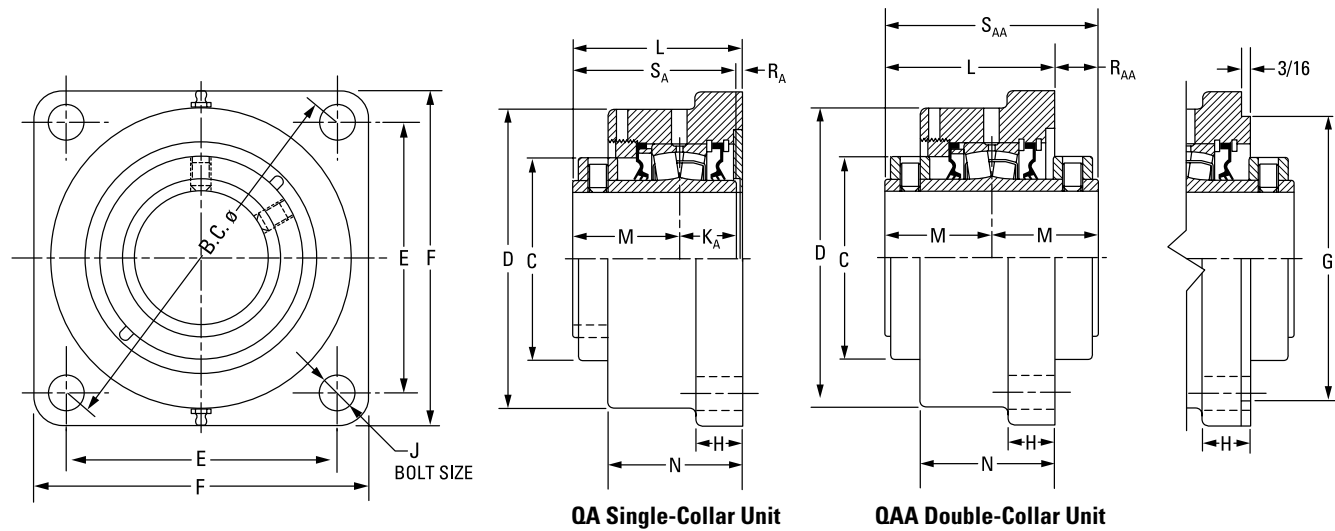
Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	H	J	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QAF15A211S QAAF15A211S	2 11/16 in.	22215	215.4 8.48	109.0 4.29	168.9 6.65	152.4 6.00	189.0 7.44	26.9 1.06	20 3/4	31.8 1.25	95.8 3.77	97.8 3.85	60.2 2.37	76.2 3.00	3.8 0.15	24.6 0.97	91.9 3.62	120.4 4.74	10.4 23
QAF15A212S QAAF15A212S	2 3/4 in.																		
QAF15A070S QAAF15A070S	<b>70 mm</b>																		
QAF15A215S QAAF15A215S	2 15/16 in.																		
QAF15A300S QAAF15A300S	3 in.																		
QAF15A075S QAAF15A075S	<b>75 mm</b>																		
QAF18A303S QAAF18A303S	3 3/16 in.	22218	251.7 9.91	130.3 5.13	193.8 7.63	177.8 7.00	219.2 8.63	33.3 1.31	20 3/4	36.6 1.44	107.2 4.22	109.2 4.30	65.8 2.59	84.1 3.31	4.8 0.19	24.4 0.96	102.4 4.03	131.6 5.18	15.9 35
QAF18A304S QAAF18A304S	3 1/4 in.																		
QAF18A080S QAAF18A080S	<b>80 mm</b>																		
QAF18A085S QAAF18A085S	<b>85 mm</b>																		
QAF18A307S QAAF18A307S	3 7/16 in.																		
QAF18A308S QAAF18A308S	3 1/2 in.																		
QAF18A090S QAAF18A090S	<b>90 mm</b>																		
QAF20A315S QAAF20A315S	3 15/16 in.	22220	278.4 10.96	152.4 6.00	224.0 8.82	196.9 7.75	253.2 9.97	38.1 1.50	24 7/8	41.4 1.63	126.0 4.96	128.0 5.04	75.4 2.97	103.1 4.06	9.4 0.37	24.1 0.95	116.6 4.59	150.4 5.92	24.9 55
QAF20A400S QAAF20A400S	4 in.																		
QAF20A100S QAAF20A100S	<b>100 mm</b>																		
QAAF22A110S	<b>110 mm</b>	22222	314.5 12.38	160.0 6.30	222.3 8.75	222.3 8.75	276.4 10.88	38.1 1.50	24 7/8	-	135.6 5.34	137.7 5.42	79.5 3.13	106.9 4.21	-	23.4 0.92	-	158.8 6.25	28.6 63
QAAF22A407S	4 7/16 in.																		
QAAF22A408S	4 1/2 in.																		
QAAF22A115S	<b>115 mm</b>																		

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## CL SERIES • QAFL AND QAAFL SQUARE FLANGE BLOCKS

### QAFL AND QAAFL SQUARE FLANGE BLOCKS



Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(2)(3)(4)</sup>	H	J	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAFL08A035S	35 mm	22208	127.0	60.5	93.7	89.9	117.6	N/A	22.4	12	25.4	72.9	74.9	44.5	57.2	3.0	-	69.9	-	4.5	
QAFL08A107S	1 7/16 in.		5.00	2.38	3.69	3.54	4.63	N/A	0.88	1/2	1.00	2.87	2.95	1.75	2.25	0.12	-	2.75	-	10	
QAFL08A108S	1 1/2 in.																				
QAFL09A040S	40 mm	22209	139.7	66.8	118.4	98.8	136.7	N/A	22.4	12	25.4	79.5	81.5	47.8	63.5	6.6	-	73.2	-	5.0	
QAFL09A111S	1 11/16 in.		5.50	2.63	4.66	3.89	5.38	N/A	0.88	1/2	1.00	3.13	3.21	1.88	2.50	0.26	-	2.88	-	11	
QAFL09A112S	1 3/4 in.																				
QAFL09A045S	45 mm	22210	146.1	73.2	120.7	103.4	131.8	N/A	23.1	12	25.4	80.8	82.8	47.5	62.5	7.9	15.2	72.9	95.3	5.0	
QAFL10A115S	1 15/16 in.		5.75	2.88	4.75	4.07	5.19	N/A	0.91	1/2	1.00	3.18	3.26	1.87	2.46	0.31	0.60	2.87	3.75	11	
QAFL10A200S	2 in.																				
QAFL10A050S	50 mm	22211	162.1	82.6	131.8	114.3	149.4	N/A	19.1	16	28.7	83.3	85.3	50.8	66.8	3.8	18.3	79.5	101.6	6.4	
QAFL11A203S	2 3/16 in.		6.38	3.25	5.19	4.50	5.88	N/A	0.75	5/8	1.13	3.28	3.36	2.00	2.63	0.15	0.72	3.13	4.00	14	
QAFL11A204S	2 1/4 in.																				
QAFL11A055S	55 mm	22213	171.5	96.8	146.1	121.2	157.2	N/A	25.4	16	31.5	89.2	91.2	54.6	72.6	3.0	20.1	86.1	109.2	7.7	
QAFL13A060S	60 mm		6.75	3.81	5.75	4.77	6.19	N/A	1.00	5/8	1.24	3.51	3.59	2.15	2.86	0.12	0.79	3.39	4.30	17	
QAFL13A207S	2 7/16 in.																				
QAFL13A208S	2 1/2 in.																				
QAFL13A065S	65 mm																				

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

<sup>(2)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

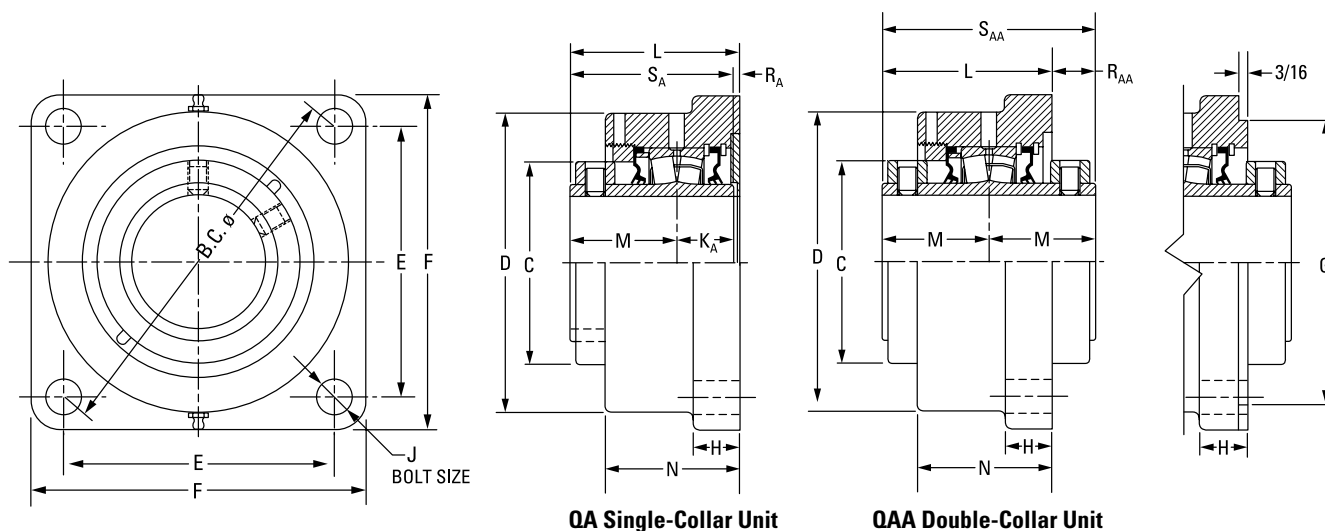
<sup>(3)</sup>Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(4)</sup>Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAFL AND QAAFL SQUARE FLANGE BLOCKS



Continued from previous page.

Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(2)(3)(4)</sup>	H	J	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAFL15A211S QAAFL15A211S	2 1/16 in.	22215	200.2 7.88	109.0 4.29	168.4 6.63	141.2 5.56	182.6 7.19	N/A	26.9 1.06	20 3/4	31.8 1.25	95.8 3.77	97.8 3.85	60.2 2.37	74.4 2.93	3.8 0.15	24.6 0.97	91.9 3.62	120.4 4.74	10.4 23
QAFL15A212S QAAFL15A212S	2 3/4 in.																			
QAFL15A070S QAAFL15A070S	70 mm																			
QAFL15A215S QAAFL15A215S	2 15/16 in.																			
QAFL15A300S QAAFL15A300S	3 in.																			
QAFL15A075S QAAFL15A075S	75 mm																			
QAFL18A303S QAAFL18A303S	3 3/16 in.	22218	241.3 9.50	130.3 5.13	193.8 7.63	170.7 6.72	212.9 8.38	187.33 7.375	32.5 1.28	20 3/4	36.6 1.44	106.4 4.19	108.5 4.27	65.8 2.59	86.4 3.40	4.1 0.16	25.1 0.99	102.4 4.03	131.6 5.18	15.9 35
QAFL18A304S QAAFL18A304S	3 1/4 in.																			
QAFL18A080S QAAFL18A080S	80 mm																			
QAFL18A085S QAAFL18A085S	85 mm																			
QAFL18A307S QAAFL18A307S	3 7/16 in.																			
QAFL18A308S QAAFL18A308S	3 1/2 in.																			
QAFL18A090S QAAFL18A090S	90 mm	22220	273.1 10.75	152.4 6.00	229.6 9.04	193.0 7.60	241.3 9.50	215.90 8.500	38.1 1.50	24 1	41.4 1.63	132.3 5.21	134.4 5.29	75.4 2.97	104.6 4.12	15.7 0.62	18.0 0.71	116.6 4.59	150.4 5.92	24.9 55
QAFL20A315S QAAFL20A315S	3 15/16 in.																			
QAFL20A400S QAAFL20A400S	4 in.																			
QAFL20A100S QAAFL20A100S	100 mm																			

<sup>(1)</sup> Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

<sup>(2)</sup> Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

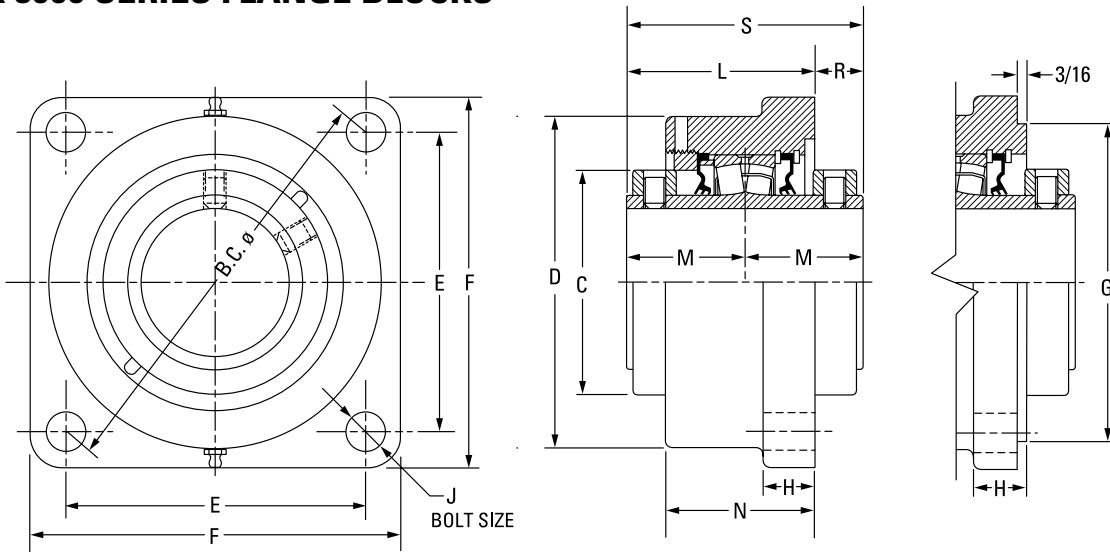
<sup>(3)</sup> Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(4)</sup> Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAAFX 5000 SERIES FLANGE BLOCKS

## QAAFX 5000 SERIES FLANGE BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(1)(2)(3)</sup>	H	J	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAAFX10A115S	1 15/16 in.	22210	146.1	73.2	120.7	103.1	134.9	111.13	22.4	12	80.8	82.8	47.5	65.0	15.2	95.3	5.4
QAAFX10A200S	2 in.		5.75	2.88	4.75	4.06	5.31	4.375	0.88	1/2	3.18	3.26	1.87	2.56	0.60	3.75	12
QAAFX10A050S	50 mm																
QAAFX11A203S	2 3/16 in.	22211	161.5	82.6	130.3	114.3	149.4	127.00	25.4	16	83.1	85.1	50.5	66.8	18.5	101.6	6.8
QAAFX11A204S	2 1/4 in.		6.36	3.25	5.13	4.50	5.88	5.000	1.00	5/8	3.27	3.35	1.99	2.63	0.73	4.00	15
QAAFX11A055S	55 mm																
QAAFX13A060S	60 mm	22213	180.8	96.8	146.1	127.8	157.2	138.13	25.4	16	89.2	91.2	54.6	72.4	19.6	109.2	8.6
QAAFX13A207S	2 7/16 in.		7.12	3.81	5.75	5.03	6.19	5.438	1.00	5/8	3.51	3.59	2.15	2.85	0.77	4.30	19
QAAFX13A208S	2 1/2 in.																
QAAFX13A065S	65 mm	22215	215.9	109.0	168.9	152.7	189.0	160.35	26.9	20	96.0	98.0	60.2	76.2	24.4	120.4	12.7
QAAFX15A211S	2 1/16 in.		8.50	4.29	6.65	6.01	7.44	6.313	1.06	3/4	3.78	3.86	2.37	3.00	0.96	4.74	28
QAAFX15A212S	2 3/4 in.																
QAAFX15A070S	70 mm	22218	241.3	130.3	193.8	170.7	212.9	187.33	33.3	20	107.2	109.2	65.8	84.1	24.6	131.6	19.1
QAAFX15A215S	2 15/16 in.		9.50	5.13	7.63	6.72	8.38	7.375	1.31	3/4	4.22	4.30	2.59	3.31	0.97	5.18	42
QAAFX15A300S	3 in.																
QAAFX15A075S	75 mm	22220	298.5	152.4	215.9	211.1	268.2	225.43	38.1	24	126.0	128.0	75.4	103.1	24.6	150.4	29.9
QAAFX18A303S	3 3/16 in.		11.75	6.00	8.50	8.31	10.56	8.875	1.50	7/8	4.96	5.04	2.97	4.06	0.97	5.92	66
QAAFX18A304S	3 1/4 in.																
QAAFX18A080S	80 mm	22222	327.2	160.0	256.5	163.6	384.3	263.53	31.8	24	143.8	145.8	94.0	106.9	15.0	158.8	46.3
QAAFX18A085S	85 mm		12.88 <sup>(4)</sup>	6.30	10.10	6.44 <sup>(4)</sup>	15.13	10.375	1.25	7/8	5.66	5.74	3.70	4.21	0.59	6.25	102
QAAFX18A307S	3 7/16 in.																
QAAFX18A308S	3 1/2 in.	22226	355.6	175.0	284.2	177.8	419.1	284.18	38.1	24	174.8	176.8	94.5	135.1	14.2	189.0	52.2
QAAFX18A090S	90 mm		14.00 <sup>(4)</sup>	6.89	11.19	7.00 <sup>(4)</sup>	16.50	11.188	1.50	1	6.88	6.96	3.72	5.32	0.56	7.44	115
QAAFX20A315S	3 15/16 in.																
QAAFX20A400S	4 in.																
QAAFX20A100S	100 mm																
QAAFX22A110S	110 mm																
QAAFX22A407S <sup>(4)</sup>	4 7/16 in.																
QAAFX22A408S <sup>(4)</sup>	4 1/2 in.																
QAAFX22A115S <sup>(4)</sup>	115 mm																
QAAFX26A125S <sup>(4)</sup>	125 mm																
QAAFX26A415S <sup>(4)</sup>	4 15/16 in.																
QAAFX26A500S <sup>(4)</sup>	5 in.																
QAAFX26A130S <sup>(4)</sup>	130 mm																

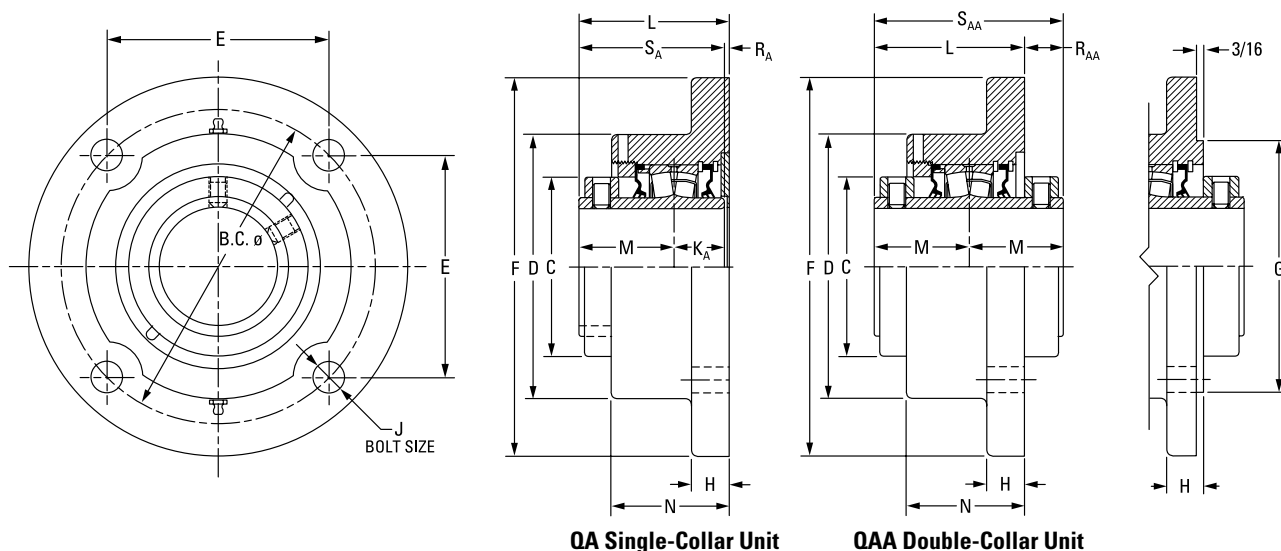
<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(2)</sup>Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(3)</sup>Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

<sup>(4)</sup>Six-bolt round housing.

QAFY AND QAAFY ROUND FLANGE BLOCKS



Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(2)(3)(4)</sup>	H	J	KA	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	RA	RAA	SA	SAA	Wt.	
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAFY08A035S <sup>(6)</sup>	<b>35 mm</b>	22208	<b>127.0</b>	<b>60.5</b>	<b>108.0</b>	<b>89.9</b>	<b>158.8</b>	<b>90.50</b>	<b>19.1</b>	<b>12</b>	<b>25.4</b>	<b>73.2</b>	<b>75.2</b>	<b>44.5</b>	<b>57.4</b>	<b>3.3</b>		<b>69.9</b>		<b>4.5</b>	
QAFY08A107S <sup>(6)</sup>	1 7/16 in.		<b>5.00</b>	<b>2.38</b>	<b>4.25</b>	<b>3.54</b>	<b>6.25</b>	<b>3.563</b>	<b>0.75</b>	<b>1/2</b>	<b>1.00</b>	<b>2.88</b>	<b>2.96</b>	<b>1.75</b>	<b>2.26</b>	<b>0.13</b>		<b>2.75</b>		<b>10</b>	
QAFY08A108S <sup>(6)</sup>	1 1/2 in.																				
QAFY09A040S	<b>40 mm</b>	22209	<b>139.7</b>	<b>66.8</b>	<b>104.9</b>	<b>98.8</b>	<b>171.5</b>	<b>103.20</b>	<b>20.6</b>	<b>12</b>	<b>25.4</b>	<b>76.2</b>	<b>78.2</b>	<b>47.8</b>	<b>60.5</b>	<b>3.0</b>		<b>73.2</b>		<b>5.0</b>	
QAFY09A112S	1 3/4 in.		<b>5.50</b>	<b>2.63</b>	<b>4.13</b>	<b>3.89</b>	<b>6.75</b>	<b>4.063</b>	<b>0.81</b>	<b>1/2</b>	<b>1.00</b>	<b>3.00</b>	<b>3.08</b>	<b>1.88</b>	<b>2.38</b>	<b>0.12</b>		<b>2.88</b>		<b>11</b>	
QAFY09A045S	<b>45 mm</b>																				
QAFY10A115S	1 15/16 in.	22210	<b>146.1</b>	<b>73.2</b>	<b>115.3</b>	<b>103.4</b>	<b>177.8</b>	<b>111.13</b>	<b>19.1</b>	<b>12</b>	<b>25.4</b>	<b>75.9</b>	<b>78.0</b>	<b>47.5</b>	<b>57.2</b>	<b>3.0</b>	<b>20.1</b>	<b>72.9</b>	<b>95.3</b>	<b>5.4</b>	
QAFY10A200S	2 in.		<b>5.75</b>	<b>2.88</b>	<b>4.54</b>	<b>4.07</b>	<b>7.00</b>	<b>4.375</b>	<b>0.75</b>	<b>1/2</b>	<b>1.00</b>	<b>2.99</b>	<b>3.07</b>	<b>1.87</b>	<b>2.25</b>	<b>0.12</b>	<b>0.79</b>	<b>2.87</b>	<b>3.75</b>	<b>12</b>	
QAFY10A050S	<b>50 mm</b>																				
QAFY10A050S	<b>50 mm</b>																				
QAFY11A203S	2 3/16 in.	22211	<b>162.1</b>	<b>82.6</b>	<b>130.3</b>	<b>114.3</b>	<b>196.9</b>	<b>127.00</b>	<b>19.1</b>	<b>16</b>	<b>28.7</b>	<b>82.3</b>	<b>84.3</b>	<b>50.8</b>	<b>62.0</b>	<b>3.0</b>	<b>19.3</b>	<b>79.5</b>	<b>101.6</b>	<b>6.8</b>	
QAFY11A204S	2 1/4 in.		<b>6.38</b>	<b>3.25</b>	<b>5.13</b>	<b>4.50</b>	<b>7.75</b>	<b>5.000</b>	<b>0.75</b>	<b>5/8</b>	<b>1.13</b>	<b>3.24</b>	<b>3.32</b>	<b>2.00</b>	<b>2.44</b>	<b>0.12</b>	<b>0.76</b>	<b>3.13</b>	<b>4.00</b>	<b>15</b>	
QAFY11A055S	<b>55 mm</b>																				
QAFY11A055S	<b>55 mm</b>																				
QAFY13A060S	<b>60 mm</b>	22213	<b>171.5</b>	<b>96.8</b>	<b>146.1</b>	<b>121.2</b>	<b>206.5</b>	<b>138.13</b>	<b>23.9</b>	<b>16</b>	<b>31.5</b>	<b>91.2</b>	<b>93.2</b>	<b>54.6</b>	<b>72.4</b>	<b>5.1</b>	<b>20.6</b>	<b>86.1</b>	<b>109.2</b>	<b>8.6</b>	
QAFY13A207S	2 7/16 in.		<b>6.75</b>	<b>3.81</b>	<b>5.75</b>	<b>4.77</b>	<b>8.13</b>	<b>5.438</b>	<b>0.94</b>	<b>5/8</b>	<b>1.24</b>	<b>3.59</b>	<b>3.67</b>	<b>2.15</b>	<b>2.85</b>	<b>0.20</b>	<b>0.81</b>	<b>3.39</b>	<b>4.30</b>	<b>19</b>	
QAFY13A208S	2 1/2 in.																				
QAFY13A208S	2 1/2 in.																				
QAFY13A065S	<b>65 mm</b>																				
QAAFY10A115S	1 15/16 in.																				
QAAFY10A200S	2 in.																				
QAAFY10A050S	<b>50 mm</b>																				
QAAFY10A050S	<b>50 mm</b>																				

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use SA and RA dimensions) and QAA to designate double-collar units (use SAA and RAA dimensions).

<sup>(2)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(3)</sup>Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(4)</sup>Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

<sup>(5)</sup>Six-bolt housing.

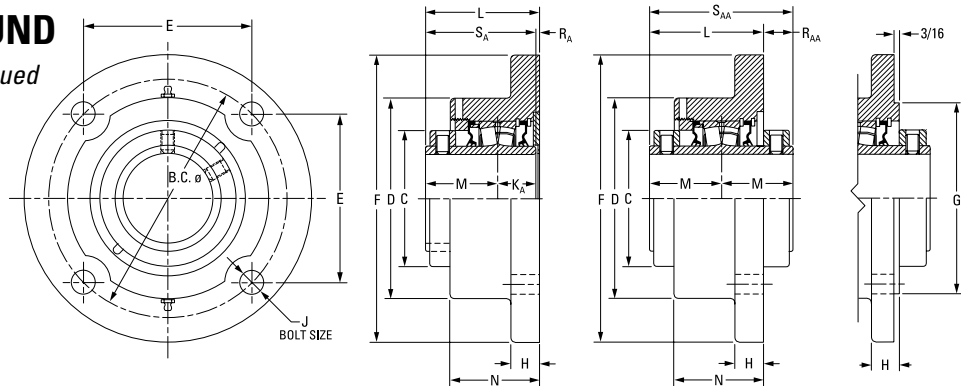
<sup>(6)</sup>Three-bolt housing.

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAFY AND QAAFY ROUND FLANGE BLOCKS

## QAFY AND QAAFY ROUND FLANGE BLOCKS – continued



QA Single-Collar Unit    QAA Double-Collar Unit

Continued from previous page.

Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(2)(3)(4)</sup>	H	J	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.																			
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.																		
QAFY15A211S QAAFY15A211S	2 11/16 in.	22215	200.2 7.88	109.0 4.29	168.4 6.63	141.5 5.57	241.3 9.50	160.35 6.313	23.9 0.94	20 3/4	31.8 1.25	98.3 3.87	100.3 3.95	60.2 2.37	74.4 2.93	6.4 0.25	21.8 0.86	91.9 3.62	120.4 4.74	12.7 28																			
QAFY15A212S QAAFY15A212S	2 3/4 in.																																						
QAFY15A070S QAAFY15A070S	70 mm																																						
QAFY15A215S QAAFY15A215S	2 15/16 in.																																						
QAFY15A300S QAAFY15A300S	3 in.																																						
QAFY15A075S QAAFY15A075S	75 mm																																						
QAFY18A303S QAAFY18A303S	3 3/16 in.																				22218	241.3 9.50	130.3 5.13	193.8 7.63	170.7 6.72	282.7 11.13	N/A	28.7 1.13	24 7/8	36.6 1.44	108.7 4.28	110.7 4.36	65.8 2.59	85.3 3.36	6.4 0.25	22.9 0.90	102.4 4.03	131.6 5.18	19.1 42
QAFY18A304S QAAFY18A304S	3 1/4 in.																																						
QAFY18A080S QAAFY18A080S	80 mm																																						
QAFY18A085S QAAFY18A085S	85 mm																																						
QAFY18A307S QAAFY18A307S	3 7/16 in.																																						
QAFY18A308S QAAFY18A308S	3 1/2 in.																																						
QAFY18A090S QAAFY18A090S	90 mm																																						
QAFY20A315S QAAFY20A315S	3 15/16 in.	22220	273.1 10.75	152.4 6.00	212.9 8.38	193.0 7.60	320.8 12.63	N/A	28.7 1.13	24 1	41.4 1.63	123.7 4.87	125.7 4.95	75.4 2.97	96.8 3.81	6.9 0.27	26.7 1.05	116.6 4.59	150.4 5.92	29.9 66																			
QAFY20A400S QAAFY20A400S	4 in.																																						
QAFY20A100S QAAFY20A100S	100 mm																																						
QAAFY22A110S <sup>(5)</sup>	110 mm																																						
QAAFY22A407S <sup>(5)</sup>	4 7/16 in.	22222	327.2 12.88 <sup>(5)</sup>	160.0 6.30	254.0 10.00	163.6 6.44 <sup>(5)</sup>	384.3 15.13	N/A	31.8 1.25	24 1 <sup>(5)</sup>	129.0 5.08	131.1 5.16	79.5 3.13	100.3 3.95	-	-	30.0 1.18	-	158.8 6.25	46.3 102																			
QAAFY22A408S <sup>(5)</sup>	4 1/2 in.																																						
QAAFY22A115S <sup>(5)</sup>	115 mm	22226	355.6 14.00 <sup>(5)</sup>	175.0 6.89	284.2 11.19	177.8 7.00 <sup>(5)</sup>	419.1 16.50	N/A	38.1 1.50	27 1 1/8 <sup>(5)</sup>	-	169.9 6.69	172.0 6.77	94.5 3.72	139.7 5.50	-	19.1 0.75	-	189.0 7.44	52.2 115																			
QAAFY26A125S <sup>(5)</sup>	125 mm																																						
QAAFY26A415S <sup>(5)</sup>	4 15/16 in.																																						
QAAFY26A500S <sup>(5)</sup>	5 in.																																						
QAAFY26A130S <sup>(5)</sup>	130 mm																																						

<sup>(1)</sup> Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

<sup>(2)</sup> Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

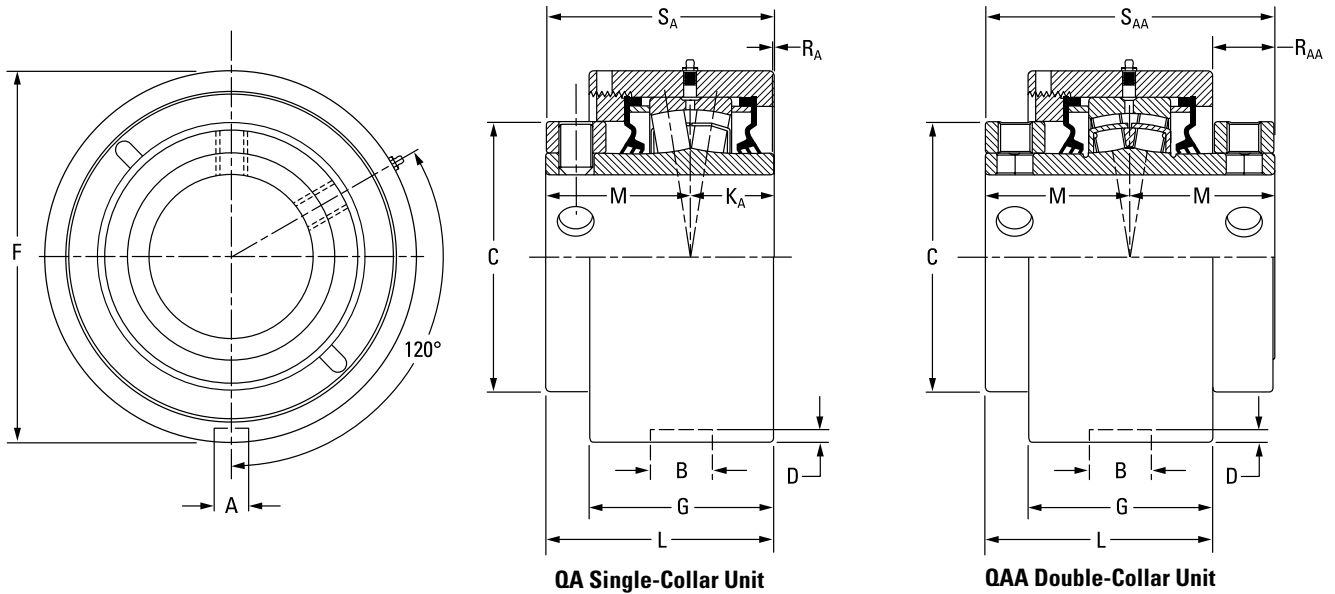
<sup>(3)</sup> Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(4)</sup> Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

<sup>(5)</sup> Six-bolt housing.

<sup>(6)</sup> Three-bolt housing.

QAMC AND QAAMC CARTRIDGE BLOCKS



Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D	F	G	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QAMC10A115S QAAMC10A115S	1 15/16 in.	22210	13.5 0.53	23.1 0.91	73.2 2.88	4.8 0.19	104.78 (+0/-0.05) 4.125 (+0/-0.002)	62.2 2.45	25.4 1.00	79.2 3.12	81.3 3.20	47.5 1.87	6.1 0.24	16.8 0.66	72.9 2.87	95.3 3.75	3.6 8
QAMC10A200S QAAMC10A200S	2 in.																
QAMC10A050S QAAMC10A050S	50 mm																
QAMC11A203S QAAMC11A203S	2 3/16 in.	22211	13.5 0.53	23.1 0.91	82.6 3.25	4.8 0.19	115.09 (+0/-0.05) 4.531 (+0/-0.002)	65.5 2.58	28.7 1.13	83.8 3.30	85.9 3.38	50.8 2.00	4.1 0.16	18.0 0.71	79.5 3.13	101.6 4.00	4.5 10
QAMC11A204S QAAMC11A204S	2 1/4 in.																
QAMC11A055S QAAMC11A055S	55 mm																
QAMC13A060S QAAMC13A060S	60 mm	22213	13.5 0.53	23.1 0.91	96.8 3.81	3.6 0.14	127.00 (+0/-0.05) 5.000 (+0/-0.002)	69.3 2.73	31.5 1.24	85.9 3.38	87.9 3.46	54.6 2.15	0.0 0.00	14.0 0.55	86.1 3.39	109.2 4.30	5.4 12
QAMC13A207S QAAMC13A207S	2 7/16 in.																
QAMC13A208S QAAMC13A208S	2 1/2 in.																
QAMC13A065S QAAMC13A065S	65 mm	22215	15.0 0.59	26.2 1.03	109.0 4.29	6.4 0.25	149.225 (+0/-0.05) 5.875 (+0/-0.002)	79.8 3.14	31.8 1.25	100.6 3.96	102.6 4.04	60.2 2.37	8.1 0.32	19.8 0.78	91.9 3.62	120.4 4.74	8.2 18
QAMC15A211S QAAMC15A211S	2 11/16 in.																
QAMC15A212S QAAMC15A212S	2 3/4 in.																
QAMC15A070S QAAMC15A070S	70 mm																
QAMC15A215S QAAMC15A215S	2 15/16 in.																
QAMC15A300S QAAMC15A300S	3 in.																
QAMC15A075S QAAMC15A075S	75 mm																

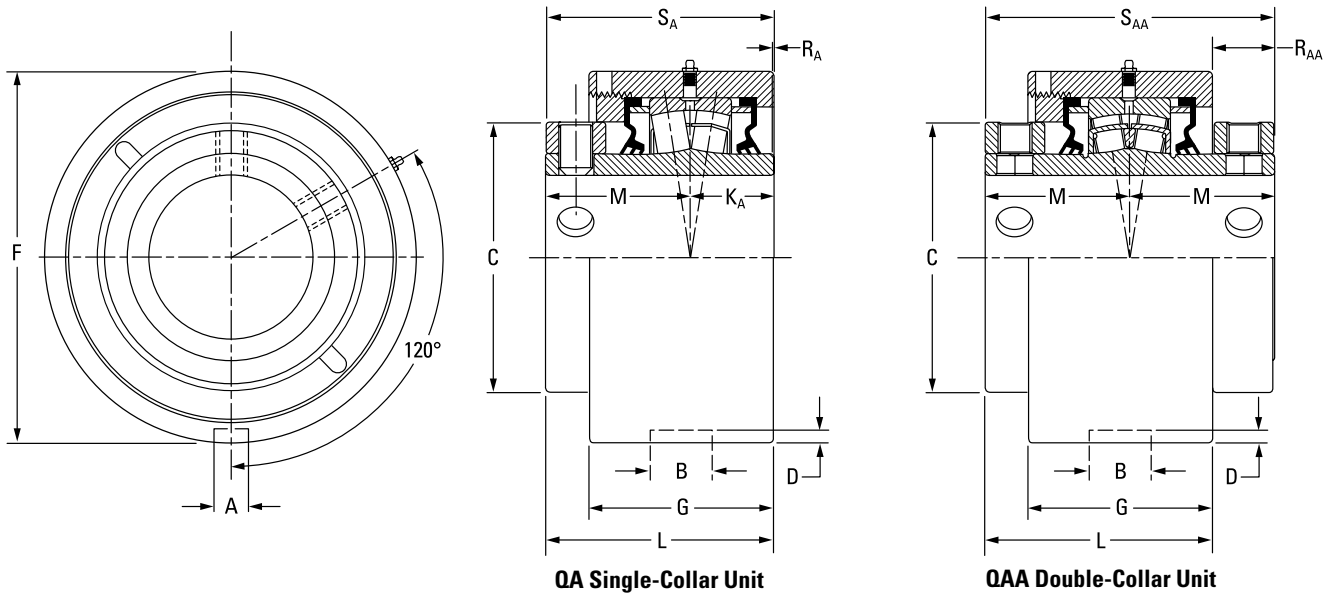
<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QAMC AND QAAMC CARTRIDGE BLOCKS

## QAMC AND QAAMC CARTRIDGE BLOCKS – continued



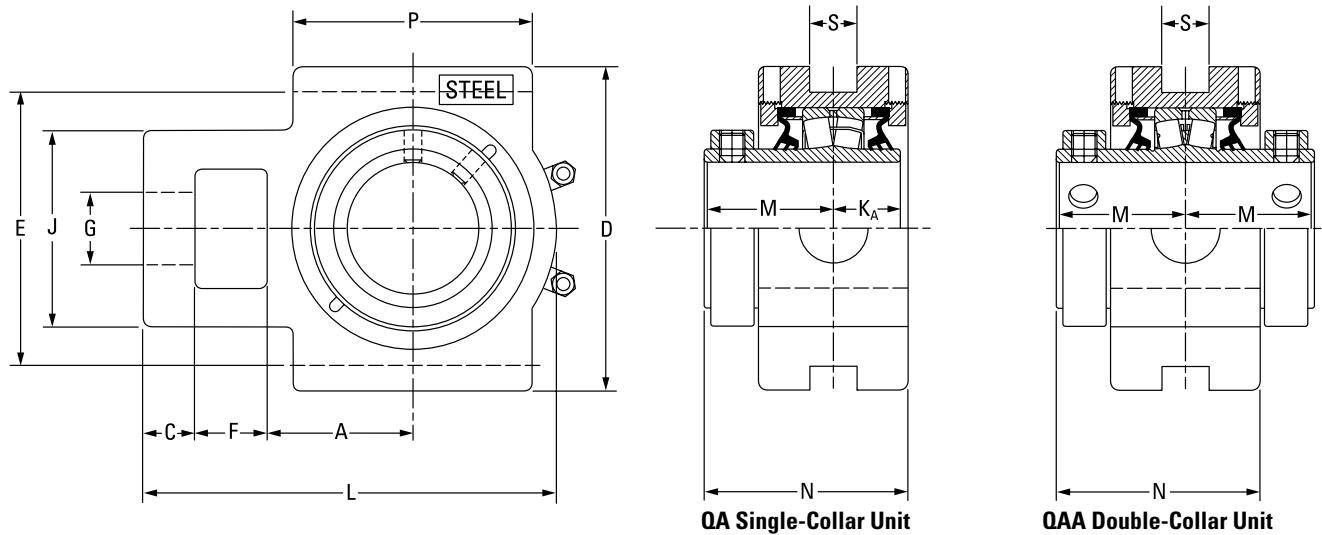
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Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	B	C	D	F	G	K <sub>A</sub>	L <sub>FIX</sub>	L <sub>EXP</sub>	M	R <sub>A</sub>	R <sub>AA</sub>	S <sub>A</sub>	S <sub>AA</sub>	Wt.																
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.																
QAMC18A303S QAAMC18A303S	3 3/16 in.	22218	15.0 0.59	26.9 1.06	130.3 5.13	5.8 0.23	171.45 (+0/-0.05) 6.750 (+0/-0.002)	87.6 3.45	36.6 1.44	110.2 4.34	112.3 4.42	65.8 2.59	7.4 0.29	21.3 0.84	102.4 4.03	131.6 5.18	11.8 26																
QAMC18A304S QAAMC18A304S	3 1/4 in.																																
QAMC18A080S QAAMC18A080S	80 mm																																
QAMC18A085S QAAMC18A085S	85 mm																																
QAMC18A307S QAAMC18A307S	3 7/16 in.																																
QAMC18A308S QAAMC18A308S	3 1/2 in.																																
QAMC18A090S QAAMC18A090S	90 mm																																
QAMC20A315S QAAMC20A315S	3 15/16 in.																	22220	19.8 0.78	32.5 1.28	152.4 6.00	7.9 0.31	206.375 (+0/-0.05) 8.125 (+0/-0.002)	105.2 4.14	41.4 1.63	128.3 5.05	130.3 5.13	75.4 2.97	11.4 0.45	22.6 0.89	116.6 4.59	150.9 5.94	14.5 32
QAMC20A400S QAAMC20A400S	4 in.																																
QAMC20A100S QAAMC20A100S	100 mm																																
QAAMC22A110S	110 mm	22222	19.8 0.78	38.1 1.50	160.0 6.30	7.9 0.31	222.25 (+0/-0.08) 8.75 (+0/-0.003)	108.5 4.27	-	133.6 5.26	135.6 5.34	79.5 3.13	-	25.1 0.99	-	158.8 6.25	18.1 40																
QAAMC22A407S	4 7/16 in.																																
QAAMC22A408S	4 1/2 in.																																
QAAMC22A115	115 mm	22226	19.8 0.78	38.1 1.50	175.0 6.89	7.9 0.31	265.13 (+0/-0.08) 10.438 (+0/-0.003)	141.7 5.58	-	165.4 6.51	167.4 6.59	94.5 3.72	-	23.6 0.93	-	189.0 7.44	18.1 40																
QAAMC26A125S	125 mm																																
QAAMC26A415S	4 15/16 in.																																
QAAMC26A500S	5 in.																																
QAAMC26A130S	130 mm																																

<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units (use S<sub>A</sub> and R<sub>A</sub> dimensions) and QAA to designate double-collar units (use S<sub>AA</sub> and R<sub>AA</sub> dimensions).



QATU AND QAATU TAKE-UP BLOCKS



Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	C	D	E	F	G	J	K <sub>A</sub>	L	M	N	P	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QATU10A115S QAATU10A115S	1 15/16 in.	22210	54.1 2.13	19.1 0.75	120.7 4.75	101.6 4.00	26.9 1.06	26.9 1.06	73.2 2.88	25.4 1.00	153.4 6.04	47.5 1.87	75.7 2.98	88.9 3.50	17.5 0.69	7.7 17
QATU10A200S QAATU10A200S	2 in.															
QATU10A050S QAATU10A050S	50 mm															
QATU11A203S QAATU11A203S	2 3/16 in.	22211	60.5 2.38	19.1 0.75	133.4 5.25	114.3 4.50	28.7 1.13	30.2 1.19	88.9 3.50	28.7 1.13	167.9 6.61	50.8 2.00	81.8 3.22	95.3 3.75	20.6 0.81	9.5 21
QATU11A204S QAATU11A204S	2 1/4 in.															
QATU11A055S QAATU11A055S	55 mm															
QATU13A060S QAATU13A060S	60 mm	22213	69.9 2.75	22.4 0.88	149.4 5.88	130.3 5.13	33.3 1.31	33.3 1.31	95.3 3.75	31.5 1.24	193.8 7.63	54.6 2.15	91.2 3.59	120.7 4.75	26.9 1.06	12.2 27
QATU13A207S QAATU13A207S	2 7/16 in.															
QATU13A208S QAATU13A208S	2 1/2 in.															
QATU13A065S QAATU13A065S	65 mm	22215	76.2 3.00	25.4 1.00	171.5 6.75	150.9 5.94	39.6 1.56	39.6 1.56	108.0 4.25	31.8 1.25	219.7 8.65	60.2 2.37	97.0 3.82	120.7 4.75	46.0 1.81	15.9 35
QATU15A211S QAATU15A211S	2 11/16 in.															
QATU15A212S QAATU15A212S	2 3/4 in.															
QATU15A070S QAATU15A070S	70 mm															
QATU15A215S QAATU15A215S	2 15/16 in.															
QATU15A300S QAATU15A300S	3 in.															
QATU15A075S QAATU15A075S	75 mm															

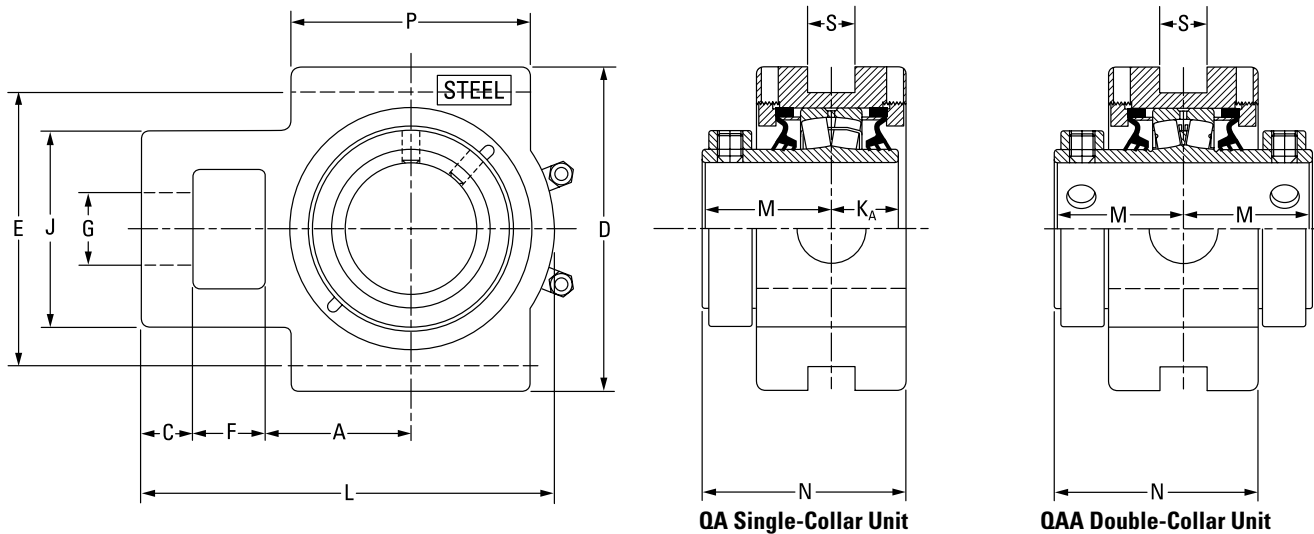
<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units and QAA to designate double-collar units.  
NOTE: Please refer to page C-169 for take-up frames.

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

CL SERIES • QATU AND QAATU TAKE-UP BLOCKS

## QATP AND QAATP TOP PULL TAKE-UP BLOCKS



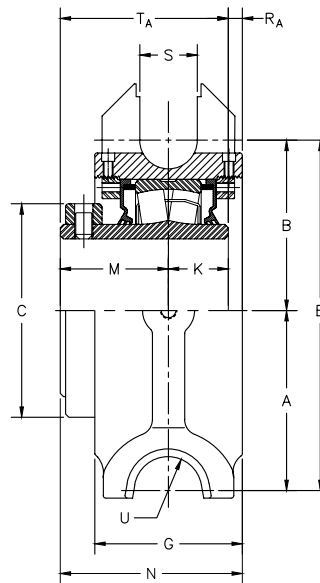
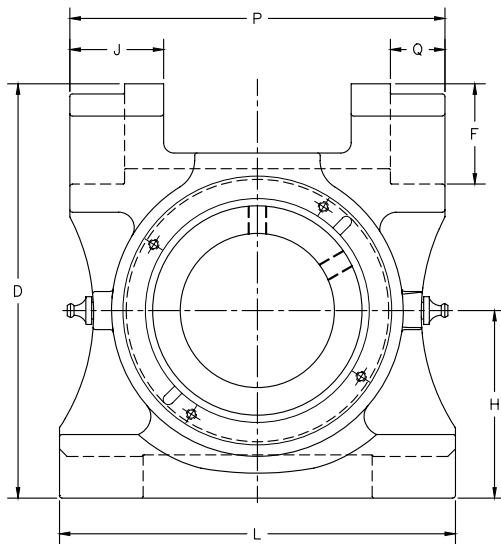
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Bearing Part No. <sup>(1)</sup>	Shaft Dia.	Bearing No.	A	C	D	E	F	G	J	K <sub>A</sub>	L	M	N	P	S	Wt.															
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.															
QATU18A303S QAATU18A303S	3 3/16 in.	22218	92.2 3.63	25.4 1.00	193.8 7.63	173.0 6.81	46.0 1.81	47.8 1.88	124.0 4.88	36.6 1.44	257.0 10.12	65.8 2.59	107.2 4.22	158.8 6.25	46.0 1.81	20.0 44															
QATU18A304S QAATU18A304S	3 1/4 in.																														
QATU18A080S QAATU18A080S	80 mm																														
QATU18A085S QAATU18A085S	85 mm																														
QATU18A307S QAATU18A307S	3 7/16 in.																														
QATU18A308S QAATU18A308S	3 1/2 in.																														
QATU18A090S QAATU18A090S	90 mm																														
QATU20A315S QAATU20A315S	3 15/16 in.																22220	104.9 4.13	28.7 1.13	239.8 9.44	219.2 8.63	54.1 2.13	52.3 2.06	143.0 5.63	41.4 1.63	296.9 11.69	75.4 2.97	121.7 4.79	177.8 7.00	52.3 2.06	26.3 58
QATU20A400S QAATU20A400S	4 in.																														
QATU20A100S QAATU20A100S	100 mm																														
QAATU22A110S	110 mm	22222	128.5 5.06	38.1 1.50	263.7 10.38	241.3 9.50	54.1 2.13	54.1 2.13	162.1 6.38	-	341.4 13.44	79.5 3.13	143.8 5.66	199.9 7.87	52.3 2.06	36.4 80															
QAATU22A407S	4 7/16 in.																														
QAATU22A408S	4 1/2 in.																														
QAATU22A115S	115 mm	22226	134.9 5.31	63.5 2.50	285.8 11.25	260.4 10.25	63.5 2.50	60.5 2.38	177.8 7.00	-	396.7 15.62	94.5 3.72	150.9 5.94	228.6 9.00	52.3 2.06	60.8 134															
QAATU26A125S	125 mm																														
QAATU26A415S	4 15/16 in.																														
QAATU26A500S	5 in.																														
QAATU26A130S	130 mm																														

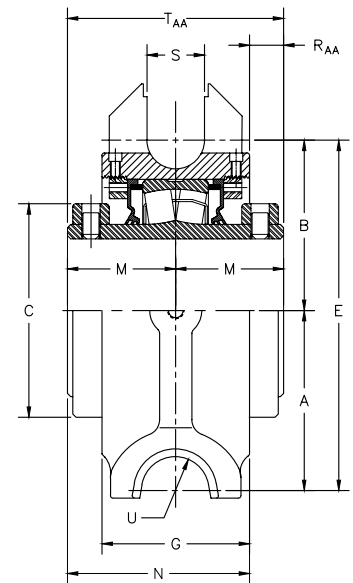
<sup>(1)</sup>Bearing part numbers use QA to designate single-collar units and QAA to designate double-collar units.

NOTE: Please refer to page C-169 for take-up frames.

QATP AND QAATP TOP PULL TAKE-UP BLOCKS – continued



QATP



QAATP

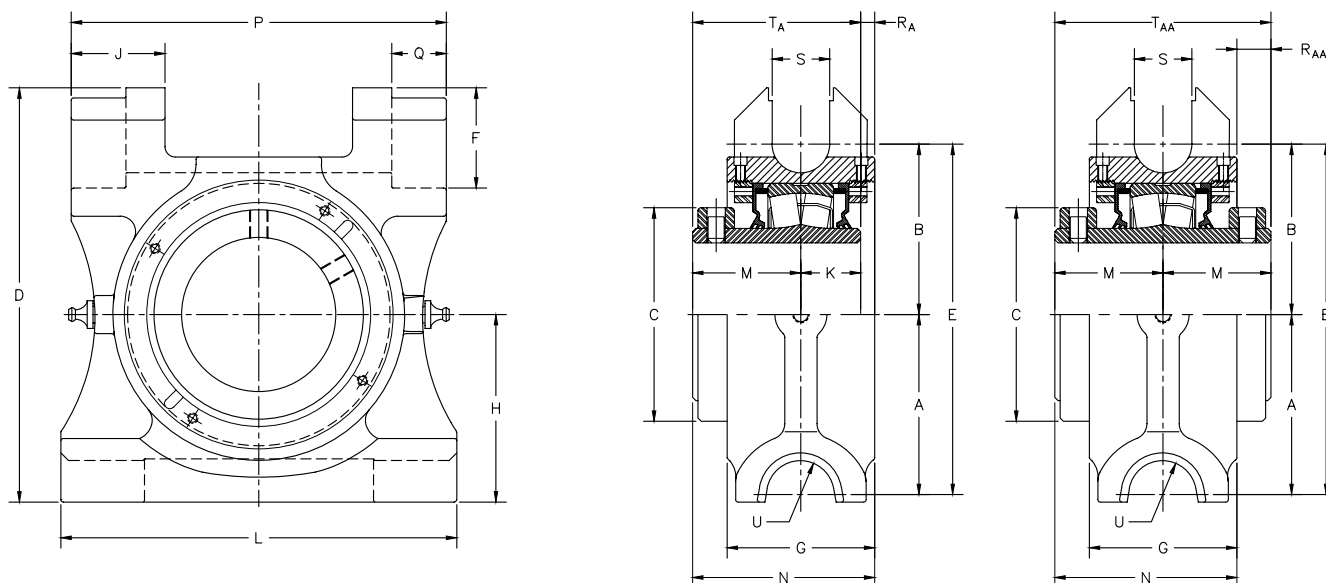
Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	RA	RAA	S	TA	TAA	U	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QATP10A115S QAATP10A115S	1 15/16 in.	22210	71.4	60.5	73.0	163.6	131.8	42.2	62.7	77.8	41.9	25.0	165.1	48.0	79.3	152.4	20.6	6.3	16.7	22.4	73.0	96.0	20.6	
QATP10A200S QAATP10A200S	2 in.		2.81	2.38	2.88	6.44	5.19	1.66	2.47	3.06	1.65	0.98	6.50	1.89	3.12	6.00	0.81	0.25	0.66	0.88	2.87	3.78	0.81	
QATP10A050S QAATP10A050S	50 mm																							
QATP11A203S QAATP11A203S	2 3/16 in.	22211	82.6	72.8	82.6	193.8	158.8	49.3	69.9	88.9	44.4	28.7	190.6	50.8	88.5	177.8	26.9	9.0	13.1	98.4	79.5	101.6	20.6	
QATP11A204S QAATP11A204S	2 1/4 in.		3.25	2.87	3.25	7.63	6.25	1.94	2.75	3.50	1.75	1.13	7.50	2.00	3.49	7.0	1.06	0.36	0.51	1.12	3.13	4.0	0.81	
QATP11A055S QAATP11A055S	55 mm																							
QATP13A207S QAATP13A207S	2 7/16 in.	22213	96.8	84.6	96.6	210.3	181.4	47.8	81.0	97.5	44.5	31.5	215.9	54.5	95.0	203.2	26.9	9.0	14.0	28.4	86.0	109.0	20.6	
QATP13A208S QAATP13A208S	2 1/2 in.		3.81	3.33	3.81	8.28	7.14	1.88	3.19	3.84	1.75	1.24	8.50	2.15	3.74	8.00	1.06	0.35	0.55	1.12	3.39	4.29	0.81	
QATP13A060S QAATP13A060S	60 mm																							
QATP15A211S QAATP15A211S	2 11/16 in.	22215	97.0	84.1	108.9	215.9	181.1	49.3	81.0	101.4	44.4	31.8	215.9	60.2	100.7	203.2	26.9	8.7	19.7	28.4	92.0	120.4	20.6	
QATP15A212S QAATP15A212S	2 3/4 in.		3.82	3.31	4.29	8.50	7.13	1.94	3.19	3.99	1.75	1.25	8.50	2.37	3.96	8.00	1.06	0.34	0.78	1.12	3.62	4.74	0.81	
QATP15A070S QAATP15A070S	70 mm																							
QATP15A215S QAATP15A215S	2 15/16 in.																							
QATP15A300S QAATP15A300S	3 in.																							
QATP15A075S QAATP15A075S	75 mm																							

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

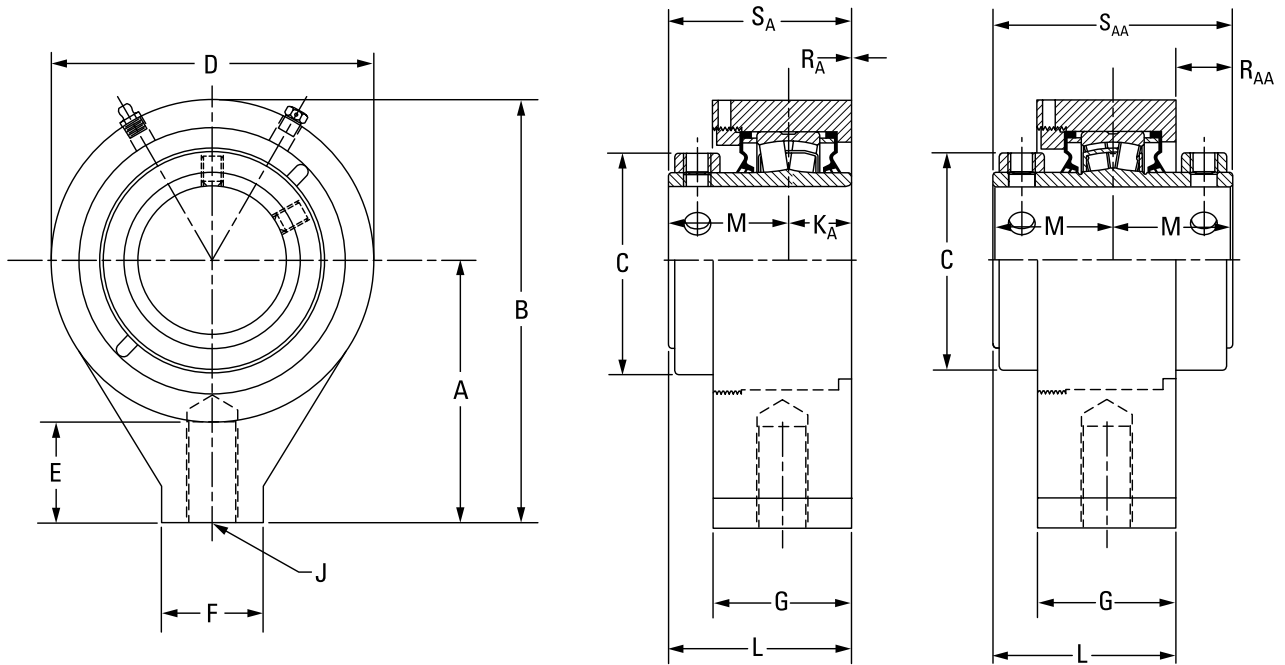
CL SERIES • QATP AND QAATP

## QATP AND QAATP – continued



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	RA	RAA	S	TA	TAA	U
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QATP18A303S QAATP18A303S	3 3/16 in.																						
QATP18A304S QAATP18A304S	3 1/4 in.																						
QATP18A080S QAATP18A080S	80 mm																						
QATP18A085S QAATP18A085S	85 mm	22218	109.7 4.32	103.9 4.09	130.2 5.13	252.5 9.94	213.6 8.41	61.3 2.41	90.0 3.54	114.3 4.50	57.1 2.25	36.5 1.44	241.3 9.50	65.9 2.59	110.9 4.37	228.6 9.00	33.3 1.31	8.6 0.34	20.8 0.82	35.1 1.38	102.4 4.03	131.8 5.19	20.6 0.81
QATP18A307S QAATP18A307S	3 7/16 in.																						
QATP18A308S QAATP18A308S	3 1/2 in.																						
QATP18A090S QAATP18A090S	90 mm																						
QATP20A311S QAATP20A311S	3 11/16 in.																						
QATP20A312S QAATP20A312S	3 3/4 in.																						
QATP20A315S QAATP20A315S	3 15/16 in.	22220	121.0 4.76	117.6 4.63	152.4 6.00	289.1 11.38	234.9 9.25	63.5 2.50	79.5 3.13	139.7 5.50	58.7 2.31	41.3 1.63	279.4 11.00	75.4 2.97	126.1 4.97	266.7 10.50	33.3 1.31	9.4 0.37	24.7 0.97	35.1 1.38	116.7 4.59	150.8 5.94	20.6 0.81
QATP20A400S QAATP20A400S	4 in.																						
QATP20A100S QAATP20A100S	100 mm																						

QAMH AND QAAMH HANGER BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D	E	F	G	J	KA	L	M	RA	RAA	SA	SAA	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QAMH15A211S QAAMH15A211S	2 1/16 in.	22215	131.8 5.19	212.9 8.38	109.0 4.29	162.1 6.38	50.8 2.00	50.8 2.00	69.9 2.75	1 - 8UNC	31.8 1.25	91.9 3.62	60.2 2.37	0.0 0.00	28.4 1.12	91.9 3.62	120.7 4.75	10.0 22
QAMH15A212S QAAMH15A212S	2 3/4 in.																	
QAMH15A070S QAAMH15A070S	70 mm																	
QAMH15A215S QAAMH15A215S	2 15/16 in.																	
QAMH15A300S QAAMH15A300S	3 in.																	
QAMH15A075S QAAMH15A075S	75 mm																	
QAMH18A303S QAAMH18A303S	3 3/16 in.																	
QAMH18A304S QAAMH18A304S	3 1/4 in.																	
QAMH18A080S QAAMH18A080S	80 mm																	
QAMH18A085S QAAMH18A085S	85 mm																	
QAMH18A307S QAAMH18A307S	3 7/16 in.																	
QAMH18A308S QAAMH18A308S	3 1/2 in.																	
QAMH18A090S QAAMH18A090S	90 mm																	



## EC SERIES

The reduced eccentric offset of our EC series locking collar results in a secure shaft lock that is designed not to release from a properly prepared shaft. EC series housed units also are suitable for reversing applications.



Fig. C-45. EC series eccentric lock.

## YOU HAVE CHOICES

For the EC series, you can select from many seal configurations and housing styles, which are shown on page C-130.

### HOUSINGS

- Two-bolt pillow blocks.
- Four-bolt pillow blocks.
- Flange blocks.
- Piloted flange cartridges.
- Take-up blocks.
- Cartridge blocks.
- Hanger blocks.

### SEALS

- Labyrinth: DuPont Teflon (T).
- Triple-lip: nitrile rubber (M), urethane (O) and DuPont Viton (N).
- Double-lip: nitrile rubber (B) and DuPont Viton (C).
- Steel and urethane closed-end covers (CS).
- Steel and urethane open-end covers (CJ) with:
  - DuPont Teflon (T).
  - Triple-lip seal (DR).
  - V-ring seal (VR).
- Piloted flange cartridge backing plates (HSY) with:
  - Triple-lip seal (DR).
- Flange block backing plates (UFP).
  - V-ring (VR).

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

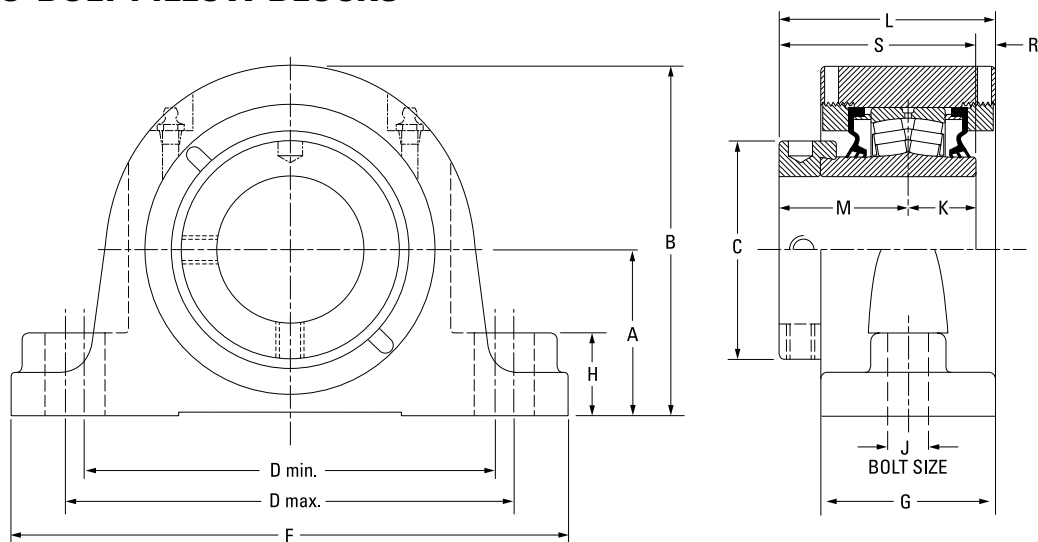
## EC SERIES

### EC SERIES

	Housing Type	Primary Seals						Secondary Seals and Covers						
		M	N	O	B	C	T	Open-End Cover			Closed-End Cover	HSY Flange Cartridge Backing Plate		UFP Backing Plate
								DR	VR	T		DR		
V-Lock (Timken Exclusive Double Taper Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
CL Series (Set Screw Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		•
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•	•	
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
	Hangar Block	•	•	•	•	•	•	•	•	•	•	•		
EC Series (Eccentric Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		•
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•	•	
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
	Hangar Block	•	•	•	•	•	•	•	•	•	•	•		
TA Series (Tapered Adapter Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
DV Series (Tapered Adapter Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		



QMP TWO-BOLT PILLOW BLOCKS

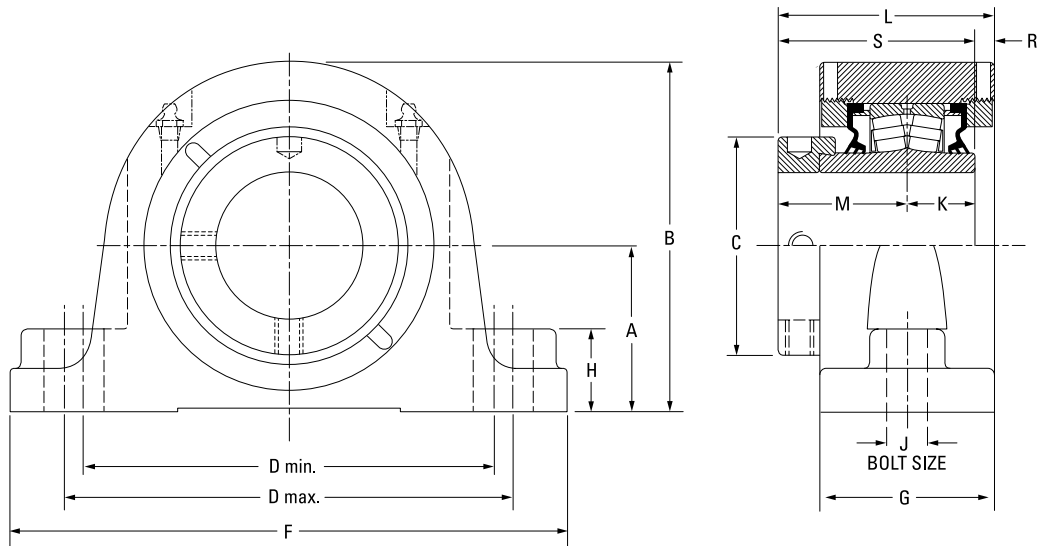


Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K	L	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMP08J035S	35 mm	22208	47.8	94.7	60.5	119.1	152.4	174.8	57.2	25.4	12	25.4	73.2	44.5	3.3	69.9	4.1
QMP08J107S	1 7/16 in.		1.88	3.73	2.38	4.69	6.00	6.88	2.25	1.00	1/2	1.00	2.88	1.75	0.13	2.75	9
QMP08J108S	1 1/2 in.	22208	54.1	101.1	60.5	119.1	165.1	200.2	57.2	25.4	12	25.4	73.2	44.5	3.3	69.9	4.1
			2.13	3.98	2.38	4.69	6.50	7.88	2.25	1.00	1/2	1.00	2.88	1.75	0.13	2.75	9
QMP09J111S	1 11/16 in.	22209	54.1	104.9	66.5	144.8	165.1	200.2	60.2	31.8	12	25.4	77.7	47.8	4.8	73.2	4.5
			2.13	4.13	2.62	5.70	6.50	7.88	2.37	1.25	1/2	1.00	3.06	1.88	0.19	2.88	10
QMP09J040S	40 mm	22209	57.2	108.0	66.5	158.8	180.8	225.6	62.0	31.8	16	25.4	78.7	47.8	5.8	73.2	4.5
QMP09J112S	1 3/4 in.		2.25	4.25	2.62	6.25	7.12	8.88	2.44	1.25	5/8	1.00	3.10	1.88	0.23	2.88	10
QMP09J045S	45 mm																
QMP10J115S	1 15/16 in.	22210	57.2	122.2	71.4	152.4	181.1	225.6	62.0	31.8	16	25.4	79.0	47.5	6.1	72.9	5.9
QMP10J200S	2 in.		2.25	4.81	2.81	6.00	7.13	8.88	2.44	1.25	5/8	1.00	3.11	1.87	0.24	2.87	13
QMP10J050S	50 mm																
QMP11J203S	2 3/16 in.	22211	63.5	133.4	75.9	165.1	200.2	244.6	66.8	31.8	16	28.7	84.1	50.8	4.8	79.5	7.7
QMP11J204S	2 1/4 in.		2.50	5.25	2.99	6.50	7.88	9.63	2.63	1.25	5/8	1.13	3.31	2.00	0.19	3.13	17
QMP11J055S	55 mm																
QMP13J060S	60 mm	22213	69.9	147.3	91.9	174.8	219.2	260.4	73.7	35.1	16	31.5	91.2	54.1	5.3	85.6	10.0
QMP13J207S	2 7/16 in.		2.75	5.80	3.62	6.88	8.63	10.25	2.90	1.38	5/8	1.24	3.59	2.13	0.21	3.37	22
QMP13J208S	2 1/2 in.																
QMP13J065S	65 mm																
QMP15J211S	2 11/16 in.	22215	79.5	164.3	101.9	200.2	244.6	295.4	76.2	35.1	20	31.8	98.3	60.2	6.4	91.9	12.7
QMP15J212S	2 3/4 in.		3.13	6.47	4.01	7.88	9.63	11.63	3.00	1.38	3/4	1.25	3.87	2.37	0.25	3.62	28
QMP15J070S	70 mm																
QMP15J215S	2 15/16 in.																
QMP15J300S	3 in.																
QMP15J075S	75 mm																
QMP18J303S	3 3/16 in.	22218	95.3	195.3	120.9	238.3	285.8	342.9	86.6	47.8	24	36.6	109.2	65.8	7.1	102.4	20.4
QMP18J304S	3 1/4 in.		3.75	7.69	4.76	9.38	11.25	13.50	3.41	1.88	7/8	1.44	4.30	2.59	0.28	4.03	45
QMP18J080S	80 mm																
QMP18J085S	85 mm																
QMP18J307S	3 7/16 in.																
QMP18J308S	3 1/2 in.																
QMP18J090S	90 mm																
QMP20J311S	3 11/16 in.	22220	104.9	209.8	152.4	255.0	320.0	362.0	94.7	50.8	24	41.4	122.9	75.2	6.1	116.6	26.8
QMP20J312S	3 3/4 in.		4.13	8.26	6.00	10.04	12.60	14.25	3.73	2.00	1	1.63	4.84	2.96	0.24	4.59	59
QMP20J315S	3 15/16 in.																
QMP20J400S	4 in.																
QMP20J100S	100 mm																

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

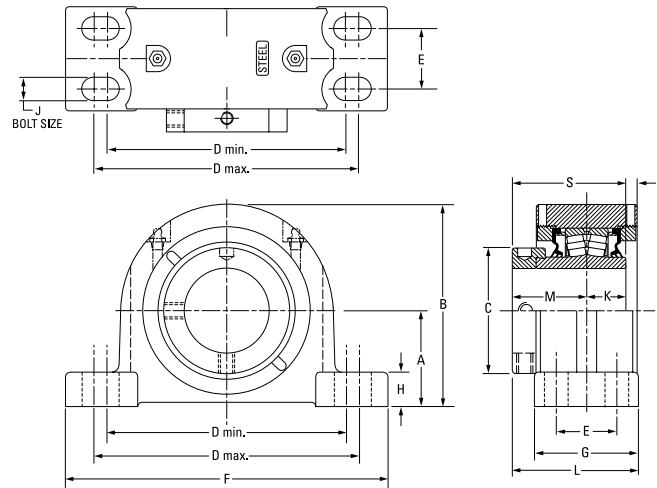
## EC SERIES • QMPL TWO-BOLT PILLOW BLOCKS

### QMPL TWO-BOLT PILLOW BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K	L	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMPL08J035S	35 mm	22208	47.8	94.7	60.5	119.1	152.4	174.8	57.2	25.4	12	25.4	73.2	44.5	3.3	69.9	4.1
QMPL08J107S	1 7/16 in.		1.88	3.73	2.38	4.69	6.00	6.88	2.25	1.00	1/2	1.00	2.88	1.75	0.13	2.75	9
QMPL08J108S	1 1/2 in.																
QMPL09J040S	40 mm	22209	54.1	104.9	66.5	133.4	146.1	181.1	60.2	31.8	12	25.4	77.7	47.8	4.8	73.2	4.5
QMPL09J111S	1 11/16 in.		2.13	4.13	2.62	5.25	5.75	7.13	2.37	1.25	1/2	1.00	3.06	1.88	0.19	2.88	10
QMPL09J112S	1 3/4 in.																
QMPL09J045S	45 mm	22210	57.2	122.2	71.4	150.6	161.5	212.9	62.0	31.8	16	25.4	79.0	47.5	6.1	72.9	5.9
QMPL10J115S	1 15/16 in.		2.25	4.81	2.81	5.93	6.36	8.38	2.44	1.25	5/8	1.00	3.11	1.87	0.24	2.87	13
QMPL10J200S	2 in.																
QMPL10J050S	50 mm	22211	63.5	133.4	75.9	165.1	179.3	225.6	65.5	31.8	16	28.4	83.3	50.8	4.3	79.2	7.7
QMPL11J203S	2 3/16 in.		2.50	5.25	2.99	6.50	7.06	8.88	2.58	1.25	5/8	1.12	3.28	2.00	0.17	3.12	17
QMPL11J204S	2 1/4 in.																
QMPL11J055S	55 mm	22213	69.9	147.3	91.9	173.0	189.0	235.0	73.7	35.1	16	31.5	90.9	54.1	5.3	85.6	10.0
QMPL13J060S	60 mm		2.75	5.80	3.62	6.81	7.44	9.25	2.90	1.38	5/8	1.24	3.58	2.13	0.21	3.37	22
QMPL13J207S	2 7/16 in.																
QMPL13J065S	65 mm	22215	82.6	167.4	101.9	195.6	213.4	265.2	76.2	35.1	20	31.8	98.3	60.2	6.4	91.9	12.7
QMPL15J211S	2 11/16 in.		3.25	6.59	4.01	7.70	8.40	10.44	3.00	1.38	3/4	1.25	3.87	2.37	0.25	3.62	28
QMPL15J212S	2 3/4 in.																
QMPL15J070S	70 mm	22218	95.3	195.3	120.9	235.0	273.1	330.2	86.6	47.8	24	36.6	109.2	65.8	7.1	102.4	20.4
QMPL15J300S	3 in.		3.75	7.69	4.76	9.25	10.75	13.00	3.41	1.88	7/8	1.44	4.30	2.59	0.28	4.03	45
QMPL15J075S	75 mm																
QMPL18J303S	3 3/16 in.	22220	108.0	212.9	152.4	255.0	320.0	362.0	94.7	53.8	24	41.4	122.9	75.2	6.1	116.6	26.8
QMPL18J304S	3 1/4 in.		4.25	8.38	6.00	10.04	12.60	14.25	3.73	2.12	1	1.63	4.84	2.96	0.24	4.59	59
QMPL18J080S	80 mm																
QMPL18J085S	85 mm																
QMPL18J307S	3 7/16 in.																
QMPL18J308S	3 1/2 in.																
QMPL18J090S	90 mm																
QMPL20J311S	3 11/16 in.																
QMPL20J312S	3 3/4 in.																
QMPL20J315S	3 15/16 in.																
QMPL20J400S	4 in.																
QMPL20J100S	100 mm																

**QMPF FOUR-BOLT PILLOW BLOCKS**

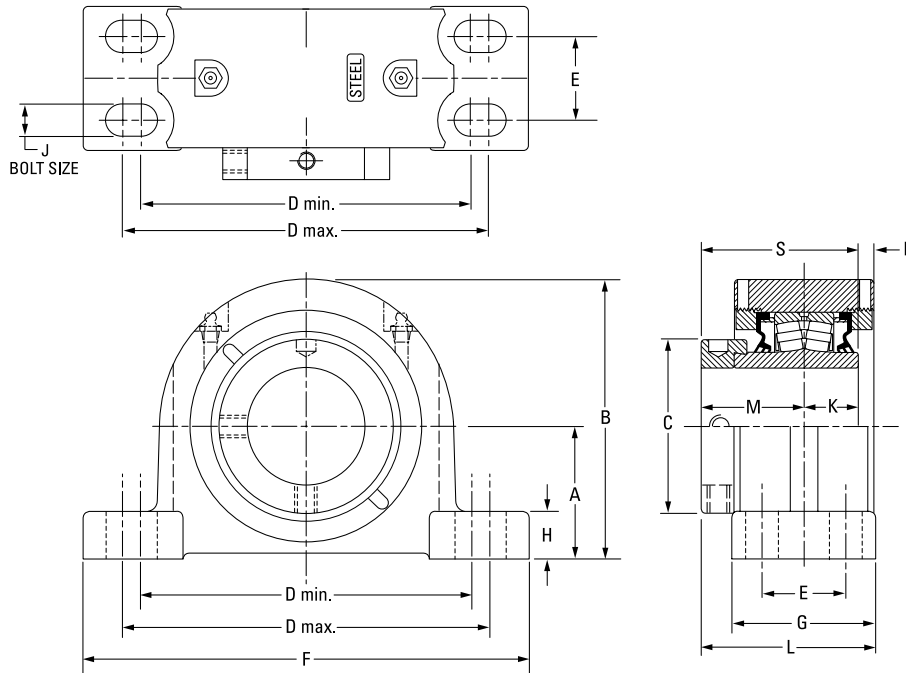


Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	K	L	M	R	S	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QMPF13J060S	<b>60 mm</b>	22213	<b>69.9</b>	<b>147.3</b>	<b>91.9</b>	<b>174.8</b>	<b>193.8</b>	<b>44.5</b>	<b>235.0</b>	<b>76.2</b>	<b>24.9</b>	<b>16</b>	<b>31.5</b>	<b>92.2</b>	<b>54.1</b>	<b>5.3</b>	<b>85.6</b>	<b>9.1</b>	
QMPF13J207S	2 7/16 in.		2.75	5.80	3.62	6.88	7.63	1.75	9.25	3.00	0.98	5/8	1.24	3.63	2.13	0.21	3.37	20	
QMPF13J208S	2 1/2 in.																		
QMPF13J065S	<b>65 mm</b>	22215	<b>82.6</b>	<b>167.6</b>	<b>101.9</b>	<b>193.0</b>	<b>231.1</b>	<b>47.8</b>	<b>265.2</b>	<b>79.5</b>	<b>32.8</b>	<b>16</b>	<b>31.8</b>	<b>99.8</b>	<b>60.2</b>	<b>6.1</b>	<b>91.9</b>	<b>12.2</b>	
QMPF15J211S	2 11/16 in.		3.25	6.60	4.01	7.60	9.10	1.88	10.44	3.13	1.29	5/8	1.25	3.93	2.37	0.24	3.62	27	
QMPF15J212S	2 3/4 in.																		
QMPF15J070S	<b>70 mm</b>	22218	<b>95.3</b>	<b>195.3</b>	<b>120.9</b>	<b>225.6</b>	<b>276.4</b>	<b>50.8</b>	<b>312.4</b>	<b>95.3</b>	<b>39.6</b>	<b>20</b>	<b>36.6</b>	<b>113.3</b>	<b>65.8</b>	<b>8.1</b>	<b>102.4</b>	<b>22.2</b>	
QMPF15J215S	2 15/16 in.		3.75	7.69	4.76	8.88	10.88	2.00	12.30	3.75	1.56	3/4	1.44	4.46	2.59	0.32	4.03	49	
QMPF15J300S	3 in.																		
QMPF15J075S	<b>75 mm</b>	22220	<b>108.0</b>	<b>223.0</b>	<b>152.4</b>	<b>276.4</b>	<b>339.9</b>	<b>57.2</b>	<b>378.0</b>	<b>109.5</b>	<b>35.6</b>	<b>20</b>	<b>41.4</b>	<b>130.3</b>	<b>75.2</b>	<b>9.1</b>	<b>116.6</b>	<b>30.4</b>	
QMPF18J303S	3 3/16 in.		4.25	8.78	6.00	10.88	13.38	2.25	14.88	4.31	1.40	3/4	1.63	5.13	2.96	0.36	4.59	67	
QMPF18J304S	3 1/4 in.																		
QMPF18J080S	<b>80 mm</b>	22222	<b>120.7</b>	<b>233.4</b>	<b>160.0</b>	<b>301.8</b>	<b>368.3</b>	<b>63.5</b>	<b>409.7</b>	<b>120.7</b>	<b>40.1</b>	<b>20</b>	<b>46.5</b>	<b>154.4</b>	<b>94.0</b>	<b>4.3</b>	<b>140.5</b>	<b>37.2</b>	
QMPF18J085S	85 mm		4.75	9.19	6.30	11.88	14.50	2.50	16.13	4.75	1.58	3/4	1.83	6.08	3.70	0.17	5.53	82	
QMPF18J307S	3 7/16 in.																		
QMPF18J308S	3 1/2 in.	22226	<b>139.7</b>	<b>279.7</b>	<b>175.0</b>	<b>349.3</b>	<b>403.4</b>	<b>69.9</b>	<b>444.5</b>	<b>128.0</b>	<b>39.1</b>	<b>24</b>	<b>58.7</b>	<b>158.8</b>	<b>94.7</b>	<b>-0.8</b>	<b>153.4</b>	<b>60.8</b>	
QMPF18J090S	90 mm		5.50	11.01	6.89	13.75	15.88	2.75	17.5	5.04	1.54	7/8	2.31	6.25	3.73	-0.03	6.04	134	
QMPF20J311S	3 11/16 in.																		
QMPF20J312S	3 3/4 in.	23230	<b>169.9</b>	<b>330.2</b>	<b>205.0</b>	<b>441.5</b>	<b>485.9</b>	<b>95.3</b>	<b>558.8</b>	<b>171.5</b>	<b>76.2</b>	<b>24</b>	<b>75.9</b>	<b>201.7</b>	<b>116.1</b>	<b>6.6</b>	<b>192.0</b>	<b>113.4</b>	
QMPF20J315S	3 15/16 in.		6.69	13.00	8.07	17.38	19.13	3.75	22.00	6.75	3.00	1	2.99	7.94	4.57	0.26	7.56	250	
QMPF20J400S	4 in.																		
QMPF20J100S	<b>100 mm</b>	23234	<b>190.5</b>	<b>390.7</b>	<b>235.0</b>	<b>530.4</b>	<b>600.2</b>	<b>117.5</b>	<b>660.4</b>	<b>190.5</b>	<b>63.5</b>	<b>24</b>	<b>85.1</b>	<b>224.3</b>	<b>129.0</b>	<b>5.6</b>	<b>214.1</b>	<b>170.1</b>	
QMPF22J110S	110 mm		7.50	15.38	9.25	20.88	23.63	4.625	26.00	7.50	2.50	1	3.35	8.83	5.08	0.22	8.43	375	
QMPF22J407S	4 7/16 in.																		
QMPF22J408S	4 1/2 in.																		
QMPF22J115S	<b>115 mm</b>	23230	<b>169.9</b>	<b>330.2</b>	<b>205.0</b>	<b>441.5</b>	<b>485.9</b>	<b>95.3</b>	<b>558.8</b>	<b>171.5</b>	<b>76.2</b>	<b>24</b>	<b>75.9</b>	<b>201.7</b>	<b>116.1</b>	<b>6.6</b>	<b>192.0</b>	<b>113.4</b>	
QMPF26J125S	125 mm		6.69	13.00	8.07	17.38	19.13	3.75	22.00	6.75	3.00	1	2.99	7.94	4.57	0.26	7.56	250	
QMPF26J415S	4 15/16 in.																		
QMPF26J500S	5 in.	23230	<b>169.9</b>	<b>330.2</b>	<b>205.0</b>	<b>441.5</b>	<b>485.9</b>	<b>95.3</b>	<b>558.8</b>	<b>171.5</b>	<b>76.2</b>	<b>24</b>	<b>75.9</b>	<b>201.7</b>	<b>116.1</b>	<b>6.6</b>	<b>192.0</b>	<b>113.4</b>	
QMPF26J130S	130 mm		6.69	13.00	8.07	17.38	19.13	3.75	22.00	6.75	3.00	1	2.99	7.94	4.57	0.26	7.56	250	
QMPF30J507S	5 7/16 in.																		
QMPF30J508S	5 1/2 in.	23234	<b>190.5</b>	<b>390.7</b>	<b>235.0</b>	<b>530.4</b>	<b>600.2</b>	<b>117.5</b>	<b>660.4</b>	<b>190.5</b>	<b>63.5</b>	<b>24</b>	<b>85.1</b>	<b>224.3</b>	<b>129.0</b>	<b>5.6</b>	<b>214.1</b>	<b>170.1</b>	
QMPF30J140S	140 mm		7.50	15.38	9.25	20.88	23.63	4.625	26.00	7.50	2.50	1	3.35	8.83	5.08	0.22	8.43	375	
QMPF30J515S	5 15/16 in.																		
QMPF30J600S	6 in.	23234	<b>190.5</b>	<b>390.7</b>	<b>235.0</b>	<b>530.4</b>	<b>600.2</b>	<b>117.5</b>	<b>660.4</b>	<b>190.5</b>	<b>63.5</b>	<b>24</b>	<b>85.1</b>	<b>224.3</b>	<b>129.0</b>	<b>5.6</b>	<b>214.1</b>	<b>170.1</b>	
QMPF30J150S	150 mm		7.50	15.38	9.25	20.88	23.63	4.625	26.00	7.50	2.50	1	3.35	8.83	5.08	0.22	8.43	375	
QMPF34J607S	6 7/16 in.																		
QMPF34J608S	6 1/2 in.	23234	<b>190.5</b>	<b>390.7</b>	<b>235.0</b>	<b>530.4</b>	<b>600.2</b>	<b>117.5</b>	<b>660.4</b>	<b>190.5</b>	<b>63.5</b>	<b>24</b>	<b>85.1</b>	<b>224.3</b>	<b>129.0</b>	<b>5.6</b>	<b>214.1</b>	<b>170.1</b>	
QMPF34J170S	170 mm		7.50	15.38	9.25	20.88	23.63	4.625	26.00	7.50	2.50	1	3.35	8.83	5.08	0.22	8.43	375	
QMPF34J615S	6 15/16 in.																		
QMPF34J700S	7 in.	23234	<b>190.5</b>	<b>390.7</b>	<b>235.0</b>	<b>530.4</b>	<b>600.2</b>	<b>117.5</b>	<b>660.4</b>	<b>190.5</b>	<b>63.5</b>	<b>24</b>	<b>85.1</b>	<b>224.3</b>	<b>129.0</b>	<b>5.6</b>	<b>214.1</b>	<b>170.1</b>	
QMPF34J180S	180 mm		7.50	15.38	9.25	20.88	23.63	4.625	26.00	7.50	2.50	1	3.35	8.83	5.08	0.22	8.43	375	

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

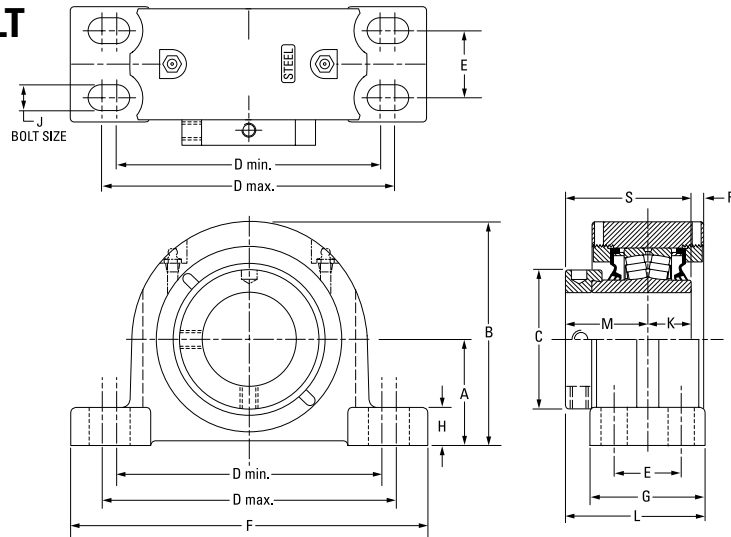
## EC SERIES • QMPR FOUR-BOLT PILLOW BLOCKS

### QMPR FOUR-BOLT PILLOW BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	K	L	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMPR13J060S	60 mm	22213	69.9 2.75	147.3 5.80	91.9 3.62	181.1 7.13	222.3 8.75	47.8 1.88	260.4 10.25	82.6 3.25	24.9 0.98	16 5/8	31.5 1.24	95.5 3.76	54.1 2.13	5.3 0.21	85.6 3.37	9.1 20
QMPR13J207S	2 7/16 in.																	
QMPR13J208S	2 1/2 in.																	
QMPR13J065S	65 mm	22215	79.5 3.13	164.3 6.47	101.9 4.01	203.2 8.00	243.8 9.60	54.1 2.13	275.1 10.83	85.9 3.38	29.5 1.16	16 5/8	31.8 1.25	103.1 4.06	60.2 2.37	6.1 0.24	91.9 3.62	12.2 27
QMPR15J211S	2 11/16 in.																	
QMPR15J212S	2 3/4 in.																	
QMPR15J070S	70 mm	22218	95.3 3.75	195.3 7.69	120.9 4.76	235.0 9.25	285.8 11.25	60.5 2.38	346.2 13.63	95.3 3.75	39.6 1.56	20 3/4	36.6 1.44	113.3 4.46	65.8 2.59	8.1 0.32	102.4 4.03	22.2 49
QMPR15J215S	2 15/16 in.																	
QMPR15J300S	3 in.																	
QMPR15J075S	75 mm	22218	95.3 3.75	195.3 7.69	120.9 4.76	235.0 9.25	285.8 11.25	60.5 2.38	346.2 13.63	95.3 3.75	39.6 1.56	20 3/4	36.6 1.44	113.3 4.46	65.8 2.59	8.1 0.32	102.4 4.03	22.2 49
QMPR18J303S	3 3/16 in.																	
QMPR18J304S	3 1/4 in.																	
QMPR18J080S	80 mm	22218	95.3 3.75	195.3 7.69	120.9 4.76	235.0 9.25	285.8 11.25	60.5 2.38	346.2 13.63	95.3 3.75	39.6 1.56	20 3/4	36.6 1.44	113.3 4.46	65.8 2.59	8.1 0.32	102.4 4.03	22.2 49
QMPR18J085S	85 mm																	
QMPR18J307S	3 7/16 in.																	
QMPR18J308S	3 1/2 in.	22218	95.3 3.75	195.3 7.69	120.9 4.76	235.0 9.25	285.8 11.25	60.5 2.38	346.2 13.63	95.3 3.75	39.6 1.56	20 3/4	36.6 1.44	113.3 4.46	65.8 2.59	8.1 0.32	102.4 4.03	22.2 49
QMPR18J090S	90 mm																	

**QMPH/QMPG FOUR-BOLT PILLOW BLOCKS**



**QMPH SAF STYLE FOUR-BOLT PILLOW BLOCK DIMENSIONS**

Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	K	L	M	R	S	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QMPH26J125S	125 mm	22226	152.4 6.00	284 11.18	175 6.89	406.4 16.00	435.1 17.13	85.9 3.38	500.4 19.70	128 5.04	51.8 2.04	24 1	58.7 2.31	158.5 6.24	94.5 3.72	-0.7 -0.028	153.4 6.04	60.8 134	
QMPH26J415S	4 15/16 in.																		
QMPH26J500S	5 in.																		
QMPH26J130S	130 mm	23230	169.9 6.688	330.7 13.02	205.0 8.07	441.5 17.38	485.9 19.13	95.3 3.75	558.8 22.00	171.5 6.75	76.2 3.00	24 1	75.9 2.99	199.1 7.84	116.1 4.57	5.1 0.20	192.0 7.56	113.4 250	
QMPH30J507S	5 7/16 in.																		
QMPH30J508S	5 1/2 in.																		
QMPH30J140S	140 mm	23230	179.4 7.063	339.9 13.38	205.0 8.07	492.3 19.38	549.4 21.63	108.0 4.25	628.7 24.75	171.5 6.75	85.9 3.38	24 1	75.9 2.99	201.7 7.94	116.1 4.57	6.6 0.26	192.0 7.56	113.4 250	
QMPH30J515S	5 15/16 in.																		
QMPH30J600S	6 in.																		
QMPH30J150S	150 mm	23234	190.5 7.50	390.7 15.38	235.0 9.25	530.4 20.88	600.2 23.63	117.5 4.625	711.2 28.00	190.5 7.50	63.5 2.50	24 1	85.1 3.35	224.3 8.83	129.0 5.08	5.6 0.22	214.1 8.43	170.1 375	
QMPH34J607S	6 7/16 in.																		
QMPH34J608S	6 1/2 in.																		
QMPH34J170S	170 mm	23234	200.0 7.875	400.1 15.75	235.0 9.25	549.4 21.63	619.3 24.38	114.3 4.50	711.2 28.00	190.5 7.50	73.2 2.88	30 1 1/4	85.1 3.35	224.3 8.83	129.0 5.08	5.6 0.22	214.1 8.43	170.1 375	
QMPH34J616S	6 15/16 in.																		
QMPH34J700S	7 in.																		
QMPH34J180S	180 mm																		

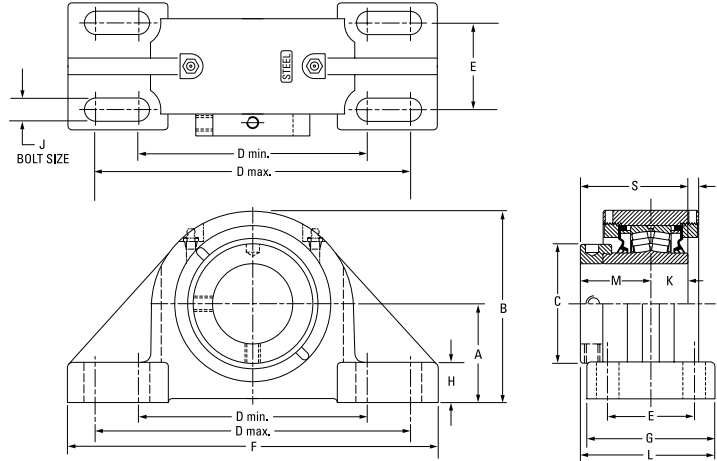
**QMPG SN STYLE FOUR-BOLT PILLOW BLOCK DIMENSIONS**

Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	K	L	M	R	S	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QMPG26J125S	125 mm	22226	150.0 5.906	281.4 11.08	175.0 6.89	384.3 15.13	447.8 17.63	80.0 3.15	500.1 19.69	128 5.04	49.3 1.94	24 1	58.7 2.31	158.5 6.24	94.5 3.72	-6.9 -0.27	153.4 6.04	60.8 134	
QMPG26J415S	4 15/16 in.																		
QMPG26J500S	5 in.																		
QMPG26J130S	130 mm	23230	170.0 6.693	332.2 13.08	205.0 8.07	438.2 17.25	482.6 19.00	89.9 3.54	547.6 21.65	171.5 6.75	76.2 3.00	24 1	75.9 2.99	198.6 7.82	116.1 4.57	9.7 0.38	192.0 7.56	113.4 250	
QMPG30J507S	5 7/16 in.																		
QMPG30J508S	5 1/2 in.																		
QMPG30J140S	140 mm	23234	190.5 7.50	390.7 15.38	235.0 9.25	530.4 20.88	600.2 23.63	117.5 4.625	711.2 28.00	190.5 7.50	63.5 2.50	24 1	85.1 3.35	224.3 8.83	129.0 5.08	5.6 0.22	214.1 8.43	170.1 375	
QMPG30J515S	5 15/16 in.																		
QMPG30J600S	6 in.																		
QMPG30J150S	150 mm	23234	200.0 7.875	400.1 15.75	235.0 9.25	549.4 21.63	619.3 24.38	114.3 4.50	711.2 28.00	190.5 7.50	73.2 2.88	30 1 1/4	85.1 3.35	224.3 8.83	129.0 5.08	5.6 0.22	214.1 8.43	170.1 375	
QMPG34J607S	6 7/16 in.																		
QMPG34J608S	6 1/2 in.																		
QMPG34J170S	170 mm																		

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

EC SERIES • QMPX 5000 SERIES FOUR-BOLT PILLOW BLOCKS

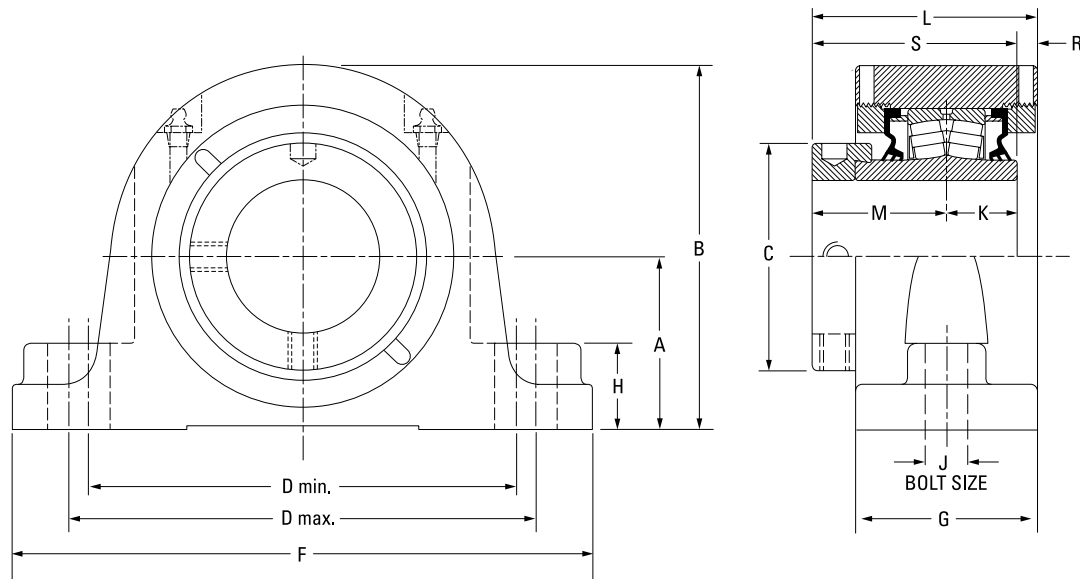
## QMPX 5000 SERIES FOUR-BOLT PILLOW BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	K	L	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMPX13J060S	60 mm	22213	76.2	153.7	91.9	176.3	242.8	66.8	285.8	98.6	31.0	16	31.5	103.4	54.1	5.3	85.6	10.4
QMPX13J207S	2 7/16 in.		3.00	6.05	3.62	6.94	9.56	2.63	11.25	3.88	1.22	5/8	1.24	4.07	2.13	0.21	3.37	23
QMPX13J208S	2 1/2 in.																	
QMPX13J065S	65 mm	22215	88.9	173.5	101.9	230.1	265.2	68.9	330.2	108.0	39.1	20	31.8	114.3	60.2	7.1	91.9	12.7
QMPX15J211S	2 11/16 in.		3.50	6.83	4.01	9.06	10.44	2.75	13.00	4.25	1.54	3/4	1.25	4.50	2.37	0.28	3.62	28
QMPX15J212S	2 3/4 in.																	
QMPX15J070S	70 mm	22218	101.6	201.2	120.9	274.6	309.6	76.2	381.0	120.7	38.1	20	36.6	126.0	65.8	8.1	102.4	22.2
QMPX15J215S	2 15/16 in.		4.00	7.92	4.76	10.81	12.19	3.00	15.00	4.75	1.50	3/4	1.44	4.96	2.59	0.32	4.03	49
QMPX15J300S	3 in.																	
QMPX15J075S	75 mm	22220	127.0	239.8	152.4	317.5	355.6	88.9	425.5	139.7	41.4	24	41.4	145.3	75.2	8.6	116.6	30.4
QMPX18J303S	3 3/16 in.		5.00	9.44	6.00	12.50	14.00	3.50	16.75	5.50	1.63	7/8	1.63	5.72	2.96	0.34	4.59	67
QMPX18J304S	3 1/4 in.																	
QMPX18J080S	80 mm	22222	146.1	273.8	160.0	354.1	395.2	101.6	469.9	158.8	45.7	24	46.5	171.2	94.0	2.3	140.5	37.2
QMPX18J085S	85 mm		5.75	10.78	6.30	13.94	15.56	4.00	18.50	6.25	1.80	1	1.83	6.74	3.70	0.09	5.53	82
QMPX18J307S	3 7/16 in.																	
QMPX18J308S	3 1/2 in.	22226	155.6	283.2	175.0	387.4	425.5	108.0	514.4	171.5	50.8	24	58.7	180.3	94.5	-1.5	153.4	60.8
QMPX18J090S	90 mm		6.125	11.15	6.89	15.25	16.75	4.25	20.25	6.75	2.00	1 1/8	2.31	7.10	3.72	-0.06	6.04	134
QMPX20J311S	3 11/16 in.																	
QMPX20J312S	3 3/4 in.	23230	169.9	330.2	205.0	439.9	485.8	93.5	558.8	171.5	76.2	24	75.9	201.7	116.1	6.6	192.0	113.4
QMPX20J315S	3 15/16 in.		6.688	13.00	8.07	17.32	19.125	3.68	22.00	6.75	3.00	1 1/8	2.99	7.94	4.57	0.26	7.56	250
QMPX20J400S	4 in.																	
QMPX20J100S	100 mm	23230	179.4	339.9	205.0	489.0	552.5	106.4	625.7	171.5	85.6	24	75.9	196.9	116.1	4.8	192.0	113.4
QMPX22J110S	110 mm		7.063	13.38	8.07	19.25	21.75	4.188	24.75	6.75	3.37	1 1/8	2.99	7.75	4.57	0.19	7.56	250
QMPX22J407S	4 7/16 in.																	
QMPX22J408S	4 1/2 in.	23234	200.0	400.1	235.0	549.4	619.3	112.8	711.2	190.5	73.2	30	80.1	224.3	129.0	5.6	214.1	179.2
QMPX22J115S	115 mm		7.875	15.75	9.25	21.63	24.38	4.44	28.00	7.50	2.88	1 1/4	3.35	8.83	5.08	0.22	8.43	395
QMPX26J125S	125 mm																	
QMPX26J415S	4 15/16 in.	23234	200.0	400.1	235.0	549.4	619.3	112.8	711.2	190.5	73.2	30	80.1	224.3	129.0	5.6	214.1	179.2
QMPX26J500S	5 in.		7.875	15.75	9.25	21.63	24.38	4.44	28.00	7.50	2.88	1 1/4	3.35	8.83	5.08	0.22	8.43	395
QMPX26J130S	130 mm																	
QMPX30J507S	5 7/16 in.	23230	169.9	330.2	205.0	439.9	485.8	93.5	558.8	171.5	76.2	24	75.9	201.7	116.1	6.6	192.0	113.4
QMPX30J508S	5 1/2 in.		6.688	13.00	8.07	17.32	19.125	3.68	22.00	6.75	3.00	1 1/8	2.99	7.94	4.57	0.26	7.56	250
QMPX30J140S	140 mm																	
QMPX30J515S <sup>(1)</sup>	5 15/16 in.	23230	179.4	339.9	205.0	489.0	552.5	106.4	625.7	171.5	85.6	24	75.9	196.9	116.1	4.8	192.0	113.4
QMPX30J600S <sup>(1)</sup>	6 in.		7.063	13.38	8.07	19.25	21.75	4.188	24.75	6.75	3.37	1 1/8	2.99	7.75	4.57	0.19	7.56	250
QMPX30J150S <sup>(1)</sup>	150 mm																	
QMPX34J607S <sup>(1)</sup>	6 7/16 in.	23234	200.0	400.1	235.0	549.4	619.3	112.8	711.2	190.5	73.2	30	80.1	224.3	129.0	5.6	214.1	179.2
QMPX34J608S <sup>(1)</sup>	6 1/2 in.		7.875	15.75	9.25	21.63	24.38	4.44	28.00	7.50	2.88	1 1/4	3.35	8.83	5.08	0.22	8.43	395
QMPX34J170S <sup>(1)</sup>	170 mm																	
QMPX34J615S <sup>(1)</sup>	6 15/16 in.	23234	200.0	400.1	235.0	549.4	619.3	112.8	711.2	190.5	73.2	30	80.1	224.3	129.0	5.6	214.1	179.2
QMPX34J700S <sup>(1)</sup>	7 in.		7.875	15.75	9.25	21.63	24.38	4.44	28.00	7.50	2.88	1 1/4	3.35	8.83	5.08	0.22	8.43	395
QMPX34J180S <sup>(1)</sup>	180 mm																	

<sup>(1)</sup>No gussets on outside housing.

QMPXT 5000 SERIES TWO-BOLT PILLOW BLOCKS

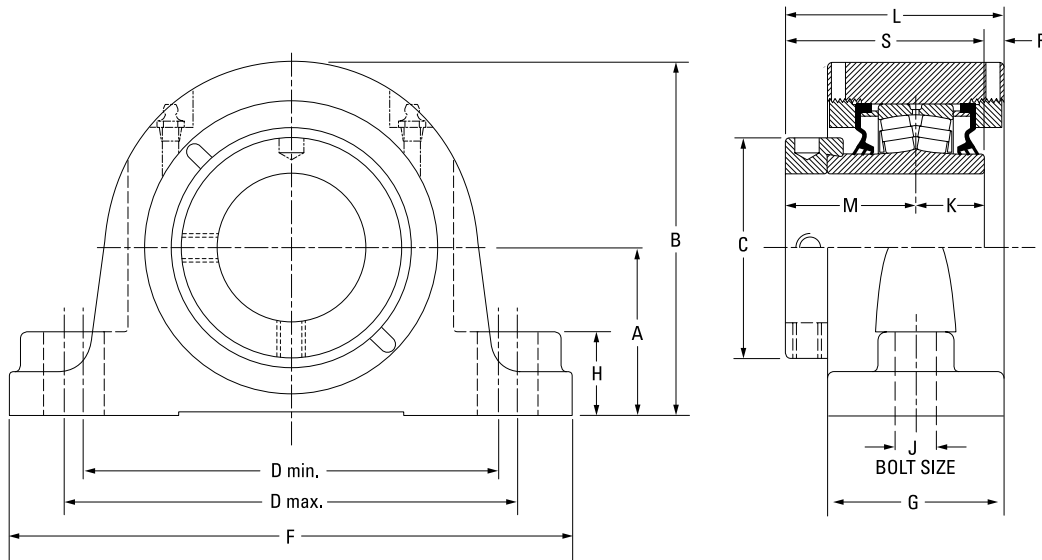


Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K	L	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMPXT13J060S	<b>60 mm</b>	22213	76.2 3.00	153.7 6.05	91.9 3.62	194.6 7.66	223.0 8.78	285.8 11.25	73.7 2.90	35.1 1.38	20 ¾	31.5 1.24	91.4 3.60	54.1 2.13	5.3 0.21	85.6 3.37	10.0 22
QMPXT13J207S	2 7/16 in.																
QMPXT13J208S	2 1/2 in.																
QMPXT13J065S	<b>65 mm</b>	22215	88.9 3.50	173.7 6.84	101.9 4.01	230.1 9.06	265.2 10.44	330.2 13.00	75.7 2.98	35.1 1.38	24 7/8	31.8 1.25	98.0 3.86	60.2 2.37	6.1 0.24	91.9 3.62	12.7 28
QMPXT15J211S	2 11/16 in.																
QMPXT15J212S	2 3/4 in.																
QMPXT15J070S	<b>70 mm</b>																
QMPXT15J215S	2 15/16 in.																
QMPXT15J300S	3 in.																
QMPXT15J075S	<b>75 mm</b>																

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

EC SERIES • QMSN SN-STYLE TWO-BOLT PILLOW BLOCKS – PURE METRIC DESIGN

## QMSN SN-STYLE TWO-BOLT PILLOW BLOCKS – PURE METRIC DESIGN



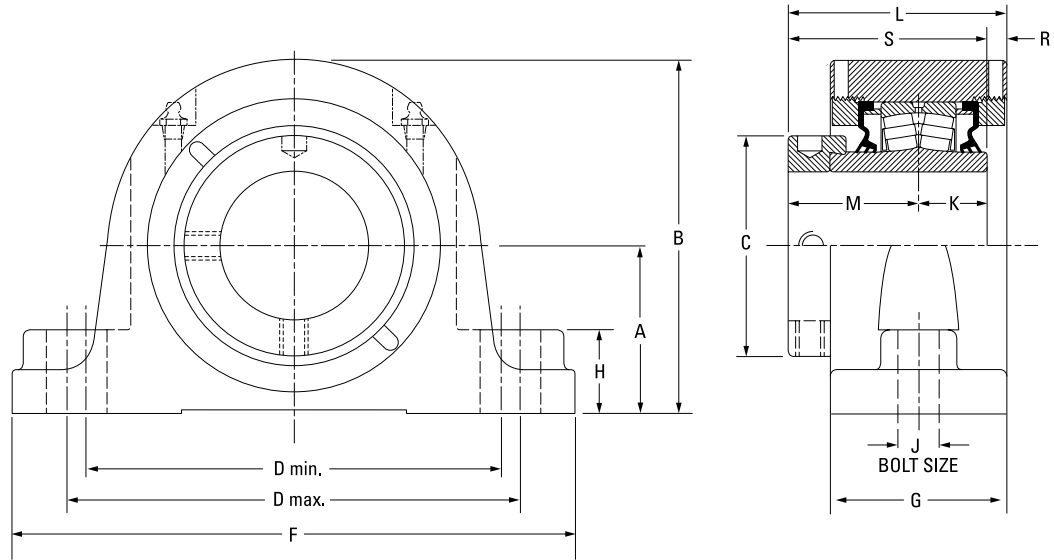
Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K	L	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMSN08J035S	<b>35 mm</b>	22208	<b>60</b>	<b>111</b>	<b>60.5</b>	<b>159</b>	<b>175</b>	<b>205</b>	<b>62</b>	<b>35</b>	<b>12</b>	<b>25</b>	<b>75</b>	<b>44</b>	<b>5</b>	<b>70</b>	<b>10.5</b>
QMSN08J107S	1 7/16 in.		2.36	4.37	2.38	6.26	6.89	8.07	2.44	1.38	1/2	1.00	2.95	1.75	0.20	2.75	23
QMSN08J108S	1 1/2 in.																
QMSN09J040S	<b>40 mm</b>	22209	<b>60</b>	<b>111</b>	<b>67</b>	<b>159</b>	<b>175</b>	<b>205</b>	<b>62</b>	<b>35</b>	<b>12</b>	<b>25</b>	<b>79</b>	<b>48</b>	<b>6</b>	<b>73</b>	<b>10.5</b>
QMSN09J111S	1 11/16 in.		2.36	4.37	2.64	6.26	6.89	8.07	2.44	1.38	1/2	0.98	3.11	1.89	0.24	2.87	23
QMSN09J112S	1 3/4 in.																
QMSN09J045S	<b>45 mm</b>	22210	<b>70</b>	<b>136</b>	<b>70</b>	<b>183</b>	<b>216</b>	<b>254</b>	<b>68</b>	<b>25</b>	<b>16</b>	<b>25</b>	<b>82</b>	<b>48</b>	<b>9</b>	<b>73</b>	<b>12.7</b>
QMSN10J115S	1 15/16 in.		2.76	5.35	2.76	7.20	8.50	10.00	2.68	0.98	5/8	0.98	3.23	1.89	0.35	2.87	28
QMSN10J200S	2 in.																
QMSN10J050S	<b>50 mm</b>	22211	<b>70</b>	<b>141</b>	<b>76</b>	<b>183</b>	<b>216</b>	<b>254</b>	<b>68</b>	<b>25</b>	<b>16</b>	<b>29</b>	<b>85</b>	<b>51</b>	<b>6</b>	<b>80</b>	<b>13.2</b>
QMSN11J203S	2 3/16 in.		2.76	5.55	2.99	7.20	8.50	10.00	2.68	0.98	5/8	1.14	3.35	2.01	0.24	3.15	29
QMSN11J204S	2 1/4 in.																
QMSN11J055S	<b>55 mm</b>	22213	<b>80</b>	<b>157</b>	<b>92</b>	<b>196</b>	<b>235</b>	<b>275</b>	<b>74</b>	<b>35</b>	<b>16</b>	<b>31</b>	<b>91</b>	<b>55</b>	<b>5</b>	<b>86</b>	<b>15.9</b>
QMSN13J060S	2 7/16 in.		3.15	6.18	3.62	7.72	9.25	10.83	2.91	1.38	5/8	1.22	3.58	2.17	0.20	3.39	35
QMSN13J208S	2 1/2 in.																
QMSN13J065S	<b>65 mm</b>	22215	<b>95</b>	<b>183</b>	<b>102</b>	<b>241</b>	<b>279</b>	<b>316</b>	<b>76</b>	<b>34</b>	<b>20</b>	<b>32</b>	<b>98</b>	<b>60</b>	<b>6</b>	<b>92</b>	<b>20.9</b>
QMSN15J211S	2 11/16 in.		3.74	7.20	4.02	9.49	10.98	12.44	2.99	1.34	3/4	1.26	3.86	2.36	0.24	3.62	46
QMSN15J212S	2 3/4 in.																
QMSN15J070S	<b>70 mm</b>	22218	<b>100</b>	<b>200</b>	<b>121</b>	<b>279</b>	<b>292</b>	<b>345</b>	<b>86</b>	<b>39</b>	<b>20</b>	<b>37</b>	<b>109</b>	<b>66</b>	<b>7</b>	<b>103</b>	<b>25.5</b>
QMSN15J215S	2 15/16 in.		3.94	7.87	4.76	10.98	11.50	13.58	3.39	1.54	3/4	1.46	4.29	2.60	0.28	4.06	56
QMSN18J303S	3 3/16 in.																
QMSN18J304S	3 1/4 in.																
QMSN18J080S	<b>80 mm</b>																

Continued on next page.



# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

EC SERIES • QMSN SN-STYLE TWO-BOLT PILLOW BLOCKS – PURE METRIC DESIGN



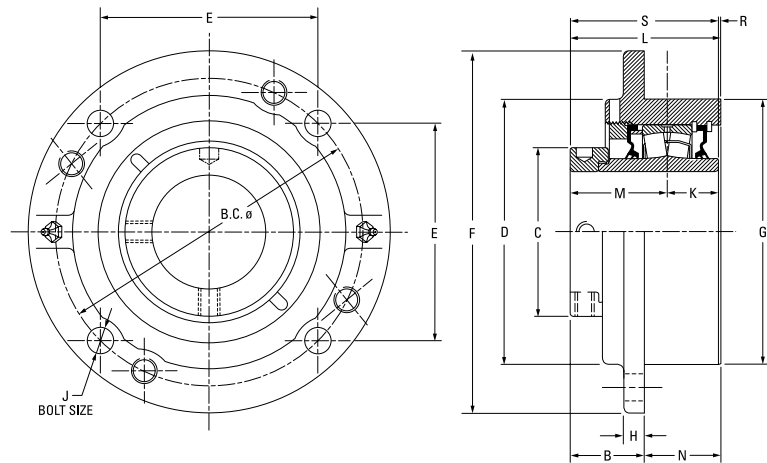
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Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	K	L	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMSN18J085S	<b>85 mm</b>	22218	<b>112</b> 4.41	<b>212</b> 8.35	<b>121</b> 4.76	<b>279</b> 10.98	<b>292</b> 11.50	<b>345</b> 13.58	<b>86</b> 3.39	<b>39</b> 1.54	<b>20</b> ¾	<b>37</b> 1.46	<b>109</b> 4.29	<b>66</b> 2.60	<b>7</b> 0.28	<b>103</b> 4.06	<b>25.5</b> 56
QMSN18J307S	3 7/16 in.	22218	<b>112</b> 4.41	<b>212</b> 8.35	<b>121</b> 4.76	<b>290</b> 11.42	<b>327</b> 12.87	<b>380</b> 14.96	<b>86</b> 3.39	<b>39</b> 1.54	<b>24</b> ¾	<b>37</b> 1.46	<b>109</b> 4.29	<b>66</b> 2.60	<b>7</b> 0.28	<b>103</b> 4.06	<b>25.5</b> 56
QMSN18J308S	3 1/2 in.																
QMSN18J090S	<b>90 mm</b>																
QMSN20J311S	3 11/16 in.	22220	<b>125</b> 4.92	<b>241</b> 9.49	<b>152</b> 5.98	<b>319</b> 12.56	<b>366</b> 14.41	<b>410</b> 16.14	<b>101</b> 3.98	<b>50</b> 1.97	<b>24</b> ¾	<b>41</b> 1.61	<b>126</b> 4.96	<b>75</b> 2.95	<b>9</b> 0.35	<b>116</b> 4.57	<b>35.9</b> 79
QMSN20J312S	3 ¾ in.																
QMSN20J315S	3 15/16 in.																
QMSN20J400S	4 in.																
QMSN20J100S	<b>100 mm</b>																
QMSN22J110S	<b>110 mm</b>	22222	<b>140</b> 5.51	<b>255</b> 10.04	<b>160</b> 6.30	<b>332</b> 13.07	<b>365</b> 14.37	<b>410</b> 16.14	<b>105</b> 4.13	<b>39</b> 1.54	<b>24</b> ¾	<b>47</b> 1.85	<b>147</b> 5.79	<b>94</b> 3.70	<b>6</b> 0.24	<b>141</b> 5.55	<b>35.9</b> 79
QMSN22J407S	4 7/16 in.	22222	<b>150</b> 5.91	<b>265</b> 10.43	<b>160</b> 6.30	<b>367</b> 14.45	<b>400</b> 15.75	<b>445</b> 17.52	<b>105</b> 4.13	<b>49</b> 1.93	<b>24</b> ¾	<b>47</b> 1.85	<b>147</b> 5.79	<b>94</b> 3.70	<b>6</b> 0.24	<b>141</b> 5.55	<b>35.5</b> 78
QMSN22J408S	4 1/2 in.																
QMSN22J115S	<b>115 mm</b>																
QMSN26J125S	<b>125 mm</b>	22226	<b>150</b> 5.91	<b>282</b> 11.10	<b>175</b> 6.89	<b>402</b> 15.83	<b>435</b> 17.13	<b>500</b> 19.69	<b>113</b> 4.45	<b>49</b> 1.93	<b>30</b> 1 ¼	<b>58</b> 2.28	<b>151</b> 5.94	<b>95</b> 3.74	<b>2</b> 0.08	<b>153</b> 6.02	<b>40.0</b> 88
QMSN26J415S	4 15/16 in.																
QMSN26J500S	5 in.																
QMSN26J130S	<b>130 mm</b>																

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## EC SERIES • QMC PILOTED FLANGE CARTRIDGES

### QMC PILOTED FLANGE CARTRIDGES

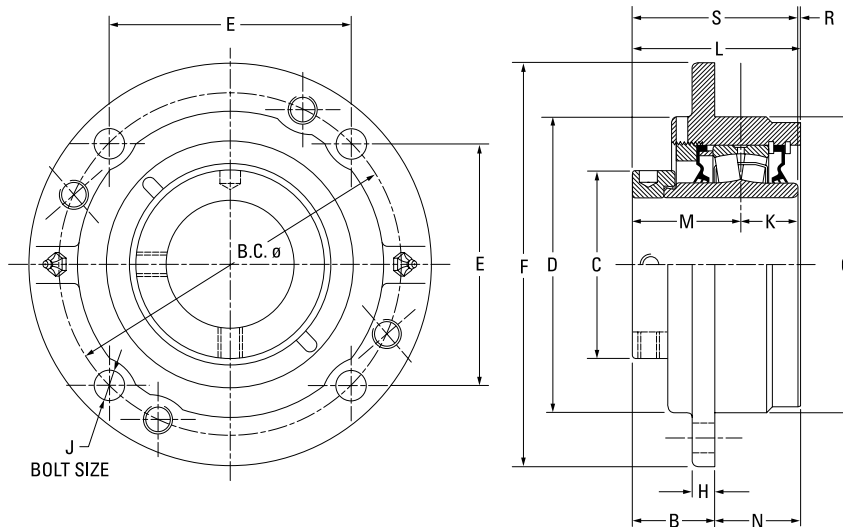


Bearing Part No.	Shaft Dia.	Bearing No.	B <sub>FIX</sub>	B <sub>EXP</sub>	B.C.	C	D	E	F	G <sup>(1)</sup>	H	J	K	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R	S	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMC08J035S	35 mm	22208	49.8	51.8	111.3	60.5	92.2	78.5	133.4	92.1	12.7	10	25.4	73.7	75.7	44.5	23.9	3.81	69.9	3.6	
QMC08J107S	1 7/16 in.		1.96	2.04	4.38	2.38	3.63	3.09	5.25	3.625	0.50	7/16	1.00	2.90	2.98	1.75	0.94	0.15	2.75	8	
QMC08J108S	1 1/2 in.																				
QMC09J040S	40 mm	22209	54.6	56.6	130.3	66.8	111.3	91.9	155.7	108.0	12.7	10	25.4	77.0	79.0	47.5	22.4	3.81	72.9	4.1	
QMC09J111S	1 11/16 in.		2.15	2.23	5.13	2.63	4.38	3.62	6.13	4.250	0.50	7/16	1.00	3.03	3.11	1.87	0.88	0.15	2.87	9	
QMC09J112S	1 3/4 in.																				
QMC09J045S	45 mm	22210	50.4	52.6	136.7	70.1	113.5	96.5	162.1	114.3	16.0	10	25.4	77.5	79.5	47.5	26.9	4.6	72.9	4.5	
QMC10J115S	1 15/16 in.		1.99	2.07	5.38	2.76	4.47	3.80	6.38	4.500	0.63	7/16	1.00	3.05	3.13	1.87	1.06	0.18	2.87	10	
QMC10J200S	2 in.																				
QMC10J050S	50 mm	22211	54.4	56.4	152.4	75.9	127.0	107.7	185.4	127.0	14.7	12	28.7	83.1	85.1	50.5	28.7	3.6	79.2	5.9	
QMC11J203S	2 3/16 in.		2.14	2.22	6.00	2.99	5.00	4.24	7.30	5.000	0.58	1/2	1.13	3.27	3.35	1.99	1.13	0.14	3.12	13	
QMC11J204S	2 1/4 in.																				
QMC11J055S	55 mm	22213	59.4	61.5	165.1	91.9	139.7	116.8	193.8	139.7	17.5	12	31.5	87.9	91.2	54.1	28.7	2.3	85.6	7.3	
QMC13J207S	2 7/16 in.		2.34	2.42	6.50	3.62	5.50	4.60	7.63	5.500	0.69	1/2	1.24	3.46	3.59	2.13	1.13	0.09	3.37	16	
QMC13J208S	2 1/2 in.																				
QMC13J065S	65 mm	22215	62.5	64.5	190.5	101.9	162.1	134.6	222.3	161.9	20.6	16	31.8	94.5	96.5	60.2	31.8	2.3	91.9	10.0	
QMC15J211S	2 11/16 in.		2.46	2.54	7.50	4.01	6.38	5.30	8.75	6.375	0.81	5/8	1.25	3.72	3.80	2.37	1.25	0.09	3.62	22	
QMC15J212S	2 3/4 in.																				
QMC15J070S	70 mm	22218	73.2	75.2	219.2	120.9	187.5	154.9	262.6	187.3	25.4	20	36.6	106.4	108.5	65.8	33.3	4.1	102.4	14.5	
QMC15J300S	3 in.		2.88	2.96	8.63	4.76	7.38	6.10	10.34	7.375	1.00	3/4	1.44	4.19	4.27	2.59	1.31	0.16	4.03	32	
QMC15J075S	75 mm																				
QMC18J303S	3 3/16 in.	22220	72.1	74.2	238.3	152.4	206.5	168.4	276.4	206.4	25.4	20	41.4	126.0	128.0	75.2	54.1	9.4	115.8	19.5	
QMC18J304S	3 1/4 in.		2.84	2.92	9.38	6.00	8.13	6.63	10.88	8.125	1.00	3/4	1.63	4.96	5.04	2.96	2.13	0.37	4.56	43	
QMC18J080S	80 mm																				
QMC18J085S	85 mm	22222	92.5	94.5	298.5	160.0	254.0	149.4	342.9	260.4	25.4	20	46.5	140.7	142.7	94.0	48.3	0.3	140.5	32.7	
QMC18J307S	3 7/16 in.		3.64	3.72	11.75 <sup>(2)</sup>	6.30	10.00	5.88 <sup>(2)</sup>	13.50	10.250	1.00	3/4 <sup>(2)</sup>	1.83	5.54	5.62	3.70	1.90	0.01	5.53	72	
QMC18J308S	3 1/2 in.																				
QMC18J090S	90 mm																				
QMC20J311S	3 11/16 in.	22222	92.5	94.5	298.5	160.0	254.0	149.4	342.9	260.4	25.4	20	46.5	140.7	142.7	94.0	48.3	0.3	140.5	32.7	
QMC20J312S	3 3/4 in.		3.64	3.72	11.75 <sup>(2)</sup>	6.30	10.00	5.88 <sup>(2)</sup>	13.50	10.250	1.00	3/4 <sup>(2)</sup>	1.83	5.54	5.62	3.70	1.90	0.01	5.53	72	
QMC20J315S	3 15/16 in.																				
QMC20J400S	4 in.																				
QMC20J100S	100 mm																				
QMC22J110S <sup>(2)</sup>	110 mm																				
QMC22J407S <sup>(2)</sup>	4 7/16 in.																				
QMC22J408S <sup>(2)</sup>	4 1/2 in.																				
QMC22J115S <sup>(2)</sup>	115 mm																				

<sup>(1)</sup>Pilot tolerance: +0/-0.051 mm (+0/-0.002 in.).

<sup>(2)</sup>Six-bolt housing.

QMCW PILOTED FLANGE CARTRIDGES



Bearing Part No.	Shaft Dia.	Bearing No.	B	B	B.C.	C	D	E	F	G <sup>(1)</sup>	H	J	K	L	L	M	N	R	S	Wt.		
			FIX	EXP	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
			in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.
QMCW08J035S	35 mm	22208	38.6	40.9	111.3	59.9	92.2	78.5	133.4	92.1	12.7	10	25.4	73.7	75.7	44.5	35.1	3.8	69.9	3.6		
QMCW08J107S	1 7/16 in.		1.53	1.61	4.38	2.36	3.63	3.09	5.25	3.625	0.50	7/16	1.00	2.90	2.98	1.75	1.38	0.15	2.75	8		
QMCW08J108S	1 1/2 in.																					
QMCW09J040S	40 mm	22209	38.9	40.1	130.3	66.8	111.3	91.9	155.7	108.0	10.2	10	25.1	77.0	78.2	47.8	38.1	4.1	72.9	4.1		
QMCW09J111S	1 11/16 in.		1.53	1.58	5.13	2.63	4.38	3.62	6.13	4.250	0.40	7/16	0.99	3.03	3.08	1.88	1.50	0.16	2.87	9		
QMCW09J112S	1 3/4 in.																					
QMCW09J045S	45 mm	22210	39.1	41.1	136.7	70.1	113.5	96.5	162.1	114.3	9.7	10	24.9	77.2	79.2	48.0	38.1	4.3	72.9	4.5		
QMCW10J115S	1 15/16 in.		1.54	1.62	5.38	2.76	4.47	3.80	6.38	4.500	0.38	7/16	0.98	3.04	3.12	1.89	1.50	0.17	2.87	10		
QMCW10J200S	2 in.																					
QMCW10J050S	50 mm	22211	45.7	47.8	152.4	75.9	127.0	107.7	181.1	127.0	14.2	12	28.7	86.9	88.9	50.5	41.4	7.62	79.2	5.9		
QMCW11J203S	2 3/16 in.		1.80	1.88	6.00	2.99	5.00	4.24	7.13	5.000	0.56	1/2	1.13	3.42	3.50	1.99	1.63	0.30	3.12	13		
QMCW11J204S	2 1/4 in.																					
QMCW11J055S	55 mm	22213	47.5	49.5	165.1	91.9	139.7	116.8	193.8	139.7	12.7	12	31.5	90.2	92.2	54.1	42.9	4.31	85.6	7.3		
QMCW13J060S	60 mm		1.87	1.95	6.50	3.62	5.50	4.60	7.63	5.500	0.50	1/2	1.24	3.55	3.63	2.13	1.69	0.17	3.37	16		
QMCW13J207S	2 7/16 in.																					
QMCW13J208S	2 1/2 in.	22215	46.0	48.0	190.5	101.9	162.1	134.6	222.3	161.9	12.7	16	31.8	93.5	95.5	60.2	47.8	1.5	91.9	10.0		
QMCW13J065S	65 mm		1.81	1.89	7.50	4.01	6.38	5.30	8.75	6.375	0.50	5/8	1.25	3.68	3.76	2.37	1.88	0.06	3.62	22		
QMCW15J211S	2 11/16 in.																					
QMCW15J212S	2 3/4 in.	22218	62.5	64.5	219.2	120.9	187.5	154.9	260.4	187.3	22.4	20	36.6	110.2	112.3	65.8	47.8	7.9	102.4	14.5		
QMCW15J070S	70 mm		2.46	2.54	8.63	4.76	7.38	6.10	10.25	7.375	0.88	3/4	1.44	4.34	4.42	2.59	1.88	0.31	4.03	32		
QMCW15J215S	2 15/16 in.																					
QMCW15J300S	3 in.	22218																				
QMCW15J075S	75 mm																					
QMCW18J303S	3 3/16 in.																					
QMCW18J304S	3 1/4 in.																					
QMCW18J080S	80 mm																					
QMCW18J085S	85 mm																					
QMCW18J307S	3 7/16 in.																					
QMCW18J308S	3 1/2 in.																					
QMCW18J090S	90 mm																					

<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

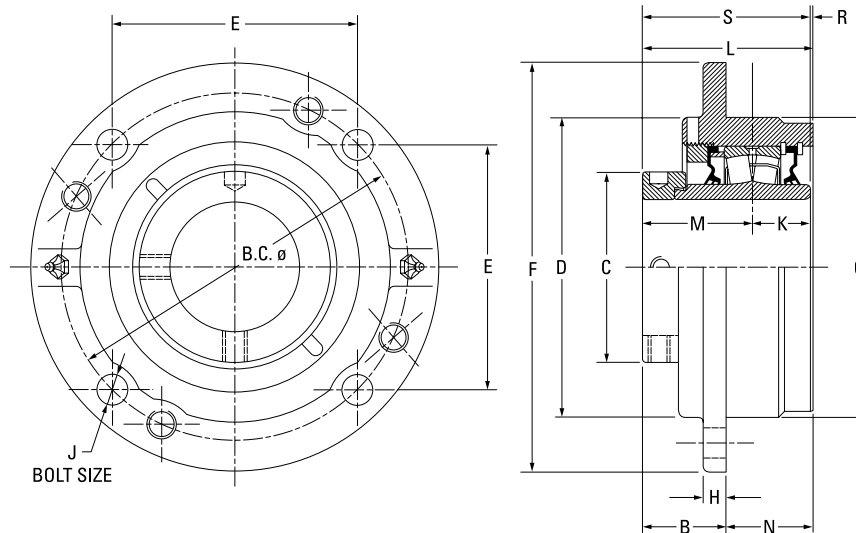
<sup>(2)</sup>Six-bolt housing.

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

EC SERIES • QMCW PILOTED FLANGE CARTRIDGES

## QMCW PILOTED FLANGE CARTRIDGES – continued



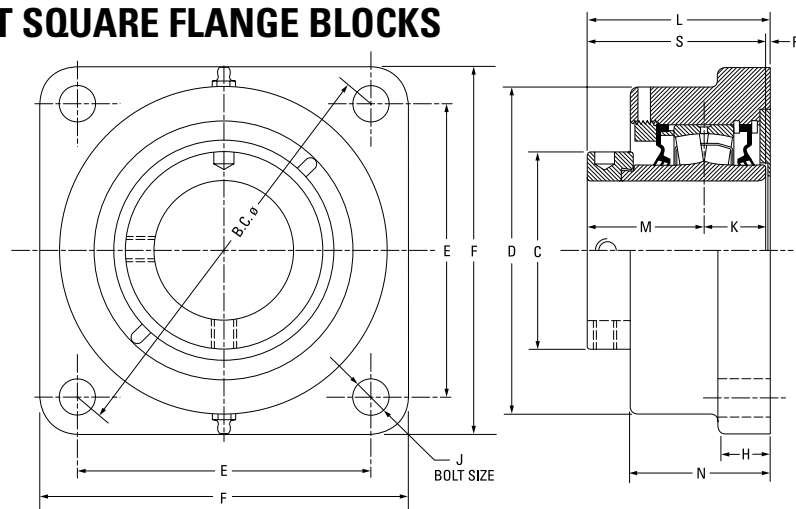
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Bearing Part No.	Shaft Dia.	Bearing No.	B <sub>FIX</sub>	B <sub>EXP</sub>	B.C.	C	D	E	F	G <sup>(1)</sup>	H	J	K	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R	S	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMCW20J311S	3 1/16 in.	22220	63.5 2.50	65.5 2.58	238.3 9.38	152.4 6.00	206.5 8.13	168.4 6.63	276.4 10.88	206.4 8.125	25.4 1.00	20 3/4	41.4 1.63	120.7 4.75	122.7 4.83	75.2 2.96	57.2 2.25	4.1 0.16	116.6 4.59	19.5 43	
QMCW20J312S	3 3/4 in.																				
QMCW20J315S	3 15/16 in.																				
QMCW20J400S	4 in.																				
QMCW20J100S	100 mm	22222	76.5 3.01	78.5 3.09	298.5 11.75 <sup>(2)</sup>	160.0 6.30	254.0 10.00	149.4 5.88 <sup>(2)</sup>	342.9 13.50	260.4 10.250	25.4 1.00	20 3/4 <sup>(2)</sup>	46.5 1.83	144.8 5.70	146.8 5.78	94.0 3.70	68.3 2.69	4.3 0.17	140.5 5.53	32.7 72	
QMCW22J110S <sup>(2)</sup>	110 mm																				
QMCW22J407S <sup>(2)</sup>	4 7/16 in.																				
QMCW22J408S <sup>(2)</sup>	4 1/2 in.																				
QMCW22J115S <sup>(2)</sup>	115 mm	22226	73.7 2.90	75.7 2.98	323.9 12.75 <sup>(2)</sup>	175.0 6.89	266.7 10.50	162.1 6.38 <sup>(2)</sup>	374.7 14.75	279.4 11.000	26.2 1.03	24 7/8 <sup>(2)</sup>	58.7 2.31	151.4 5.96	153.4 6.04	94.7 3.73	77.9 3.065	-1.8 -0.07	153.4 6.04	46.3 102	
QMCW26J415S <sup>(2)</sup>	4 15/16 in.																				
QMCW26J500S <sup>(2)</sup>	5 in.																				
QMCW26J130S <sup>(2)</sup>	130 mm																				
QMCW30J507S <sup>(2)</sup>	5 7/16 in.	23230	82.8 3.26	84.8 3.34	368.3 14.50 <sup>(2)</sup>	205.0 8.07	304.8 12.00	184.2 7.25 <sup>(2)</sup>	431.8 17.00	330.2 13.000	26.2 1.03	24 7/8 <sup>(2)</sup>	75.9 2.99	204.2 8.04	206.2 8.12	116.1 4.57	121.4 4.78	12.2 0.48	192.0 7.56	102.5 226	
QMCW30J508S <sup>(2)</sup>	5 1/2 in.																				
QMCW30J140S <sup>(2)</sup>	140 mm																				
QMCW30J515S <sup>(2)</sup>	5 15/16 in.																				
QMCW30J600S <sup>(2)</sup>	6 in.	23234	82.8 3.26	84.8 3.34	419.1 16.50 <sup>(2)</sup>	205.0 8.07	304.8 12.00	209.6 8.25 <sup>(2)</sup>	482.6 19.00	355.6 14.000	26.2 1.03	24 7/8 <sup>(2)</sup>	75.9 2.99	211.3 8.32	213.4 8.40	116.1 4.57	128.5 5.06	19.3 0.76	192.0 7.56	101.6 224	
QMCW30J150S <sup>(2)</sup>	150 mm																				
QMCW34J607S <sup>(2)</sup>	6 7/16 in.																				
QMCW34J608S <sup>(2)</sup>	6 1/2 in.																				
QMCW34J170S <sup>(2)</sup>	170 mm	23234	85.9 3.38	87.9 3.46	431.8 17.00	235.0 9.25	355.6 14.00	215.9 8.50	482.6 19.00	381.0 15.000	28.7 1.13	24 1 <sup>(2)</sup>	85.1 3.35	216.2 8.51	218.2 8.59	129.0 5.08	130.3 5.13	2.0 0.08	214.1 8.43	152.4 336	
QMCW34J615S <sup>(2)</sup>	6 15/16 in.																				
QMCW34J700S <sup>(2)</sup>	7 in.																				
QMCW34J180S <sup>(2)</sup>	180 mm																				

<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(2)</sup>Six-bolt housing.

QMF FOUR-BOLT SQUARE FLANGE BLOCKS

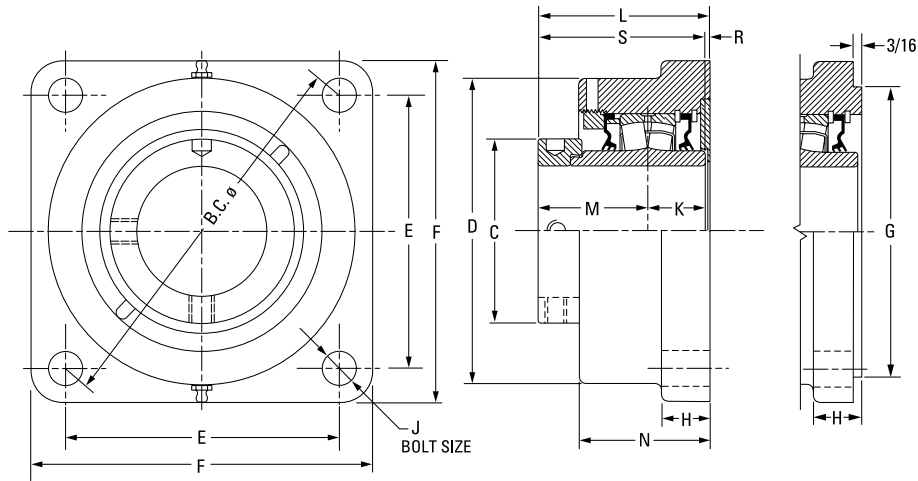


Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	H	J	K	L	L	M	N	R	S	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QMF08J035S	35 mm	22208	127.7	60.5	93.7	88.9	117.6	22.4	12	25.4	72.9	74.9	44.5	57.2	3.0	69.9	4.5
QMF08J107S	1 7/16 in.		4.95	2.38	3.69	3.50	4.63	0.88	1/2	1.00	2.87	2.95	1.75	2.25	0.12	2.75	10
QMF08J108S	1 1/2 in.	22208	148.3	60.5	108.0	104.9	136.7	22.4	12	25.4	73.7	75.7	44.5	59.4	3.8	69.9	4.5
QMF09J111S	1 11/16 in.		5.84	2.38	4.25	4.13	5.38	0.88	1/2	1.00	2.90	2.98	1.75	2.34	0.15	2.75	10
QMF09J040S	40 mm	22209	148.3	66.8	118.4	104.9	136.7	22.4	12	25.4	79.5	81.5	47.8	63.5	6.4	73.2	5.0
QMF09J112S	1 3/4 in.		5.84	2.63	4.66	4.13	5.38	0.88	1/2	1.00	3.13	3.21	1.88	2.50	0.25	2.88	11
QMF09J045S	45 mm	22209	157.2	66.8	118.4	111.3	143.0	22.4	12	25.4	79.5	81.5	47.8	63.5	6.4	72.9	5.0
QMF10J115S	1 15/16 in.		6.19	2.63	4.66	4.38	5.63	0.88	1/2	1.00	3.13	3.21	1.88	2.50	0.25	2.87	11
QMF10J200S	2 in.	22210	157.2	70.1	120.7	111.3	139.7	22.4	12	24.4	80.8	82.8	48.0	65.0	7.9	72.9	5.0
QMF10J050S	50 mm		6.19	2.76	4.75	4.38	5.50	0.88	1/2	0.98	3.18	3.26	1.89	2.56	0.31	2.87	11
QMF11J203S	2 3/16 in.	22211	175.0	75.9	130.3	124.0	157.2	25.4	16	28.7	82.8	84.8	50.5	66.8	3.3	79.2	6.4
QMF11J204S	2 1/4 in.		6.89	2.99	5.13	4.88	6.19	1.00	5/8	1.13	3.26	3.34	1.99	2.63	0.13	3.12	14
QMF11J055S	55 mm	22211	175.0	75.9	130.3	124.0	157.2	25.4	16	28.7	82.8	84.8	50.5	66.8	3.3	79.2	6.4
QMF13J060S	60 mm		6.89	2.99	5.13	4.88	6.19	1.00	5/8	1.13	3.26	3.34	1.99	2.63	0.13	3.12	14
QMF13J207S	2 7/16 in.	22213	193.0	91.9	146.1	136.7	168.4	25.4	16	31.5	88.6	90.7	54.1	72.4	3.0	85.6	7.7
QMF13J208S	2 1/2 in.		7.60	3.62	5.75	5.38	6.63	1.00	5/8	1.24	3.49	3.57	2.13	2.85	0.12	3.37	17
QMF13J065S	65 mm	22215	193.0	91.9	146.1	136.7	168.4	25.4	16	31.5	88.6	90.7	54.1	72.4	3.0	85.6	7.7
QMF15J211S	2 11/16 in.		7.60	3.62	5.75	5.38	6.63	1.00	5/8	1.24	3.49	3.57	2.13	2.85	0.12	3.37	17
QMF15J212S	2 3/4 in.	22215	215.6	101.9	168.9	152.4	189.0	26.9	20	31.8	96.0	98.0	60.2	76.2	4.1	91.9	10.4
QMF15J070S	70 mm		8.49	4.01	6.65	6.00	7.44	1.06	3/4	1.25	3.78	3.86	2.37	3.00	0.16	3.62	23
QMF15J215S	2 15/16 in.	22215	215.6	101.9	168.9	152.4	189.0	26.9	20	31.8	96.0	98.0	60.2	76.2	4.1	91.9	10.4
QMF15J300S	3 in.		8.49	4.01	6.65	6.00	7.44	1.06	3/4	1.25	3.78	3.86	2.37	3.00	0.16	3.62	23
QMF15J075S	75 mm	22218	251.7	120.9	193.8	177.8	219.2	33.3	20	36.6	107.2	109.2	66.8	84.1	4.8	102.4	15.9
QMF18J303S	3 3/16 in.		9.91	4.76	7.63	7.00	8.63	1.31	3/4	1.44	4.22	4.30	2.59	3.31	0.19	4.03	35
QMF18J304S	3 1/4 in.	22218	251.7	120.9	193.8	177.8	219.2	33.3	20	36.6	107.2	109.2	66.8	84.1	4.8	102.4	15.9
QMF18J080S	80 mm		9.91	4.76	7.63	7.00	8.63	1.31	3/4	1.44	4.22	4.30	2.59	3.31	0.19	4.03	35
QMF18J085S	85 mm	22218	251.7	120.9	193.8	177.8	219.2	33.3	20	36.6	107.2	109.2	66.8	84.1	4.8	102.4	15.9
QMF18J307S	3 7/16 in.		9.91	4.76	7.63	7.00	8.63	1.31	3/4	1.44	4.22	4.30	2.59	3.31	0.19	4.03	35
QMF18J308S	3 1/2 in.	22220	278.4	152.4	224.0	196.9	253.2	38.1	24	41.4	126.2	128.3	75.2	103.1	9.4	116.6	24.9
QMF18J090S	90 mm		10.96	6.00	8.82	7.75	9.97	1.50	7/8	1.63	4.97	5.05	2.96	4.06	0.37	4.59	55
QMF20J311S	3 11/16 in.	22220	278.4	152.4	224.0	196.9	253.2	38.1	24	41.4	126.2	128.3	75.2	103.1	9.4	116.6	24.9
QMF20J312S	3 3/4 in.		10.96	6.00	8.82	7.75	9.97	1.50	7/8	1.63	4.97	5.05	2.96	4.06	0.37	4.59	55
QMF20J315S	3 15/16 in.	22220	278.4	152.4	224.0	196.9	253.2	38.1	24	41.4	126.2	128.3	75.2	103.1	9.4	116.6	24.9
QMF20J400S	4 in.		10.96	6.00	8.82	7.75	9.97	1.50	7/8	1.63	4.97	5.05	2.96	4.06	0.37	4.59	55
QMF20J100S	100 mm	22222	314.5	160.0	256.8	222.3	276.4	38.1	24	46.5	150.1	152.1	94.0	106.9	9.7	140.5	28.6
QMF22J110S	110 mm		12.38	6.30	10.11	8.75	10.88	1.50	7/8	1.83	5.91	5.99	3.70	4.21	0.38	5.53	63
QMF22J407S	4 7/16 in.	22222	314.5	160.0	256.8	222.3	276.4	38.1	24	46.5	150.1	152.1	94.0	106.9	9.7	140.5	28.6
QMF22J408S	4 1/2 in.		12.38	6.30	10.11	8.75	10.88	1.50	7/8	1.83	5.91	5.99	3.70	4.21	0.38	5.53	63
QMF22J115S	115 mm	22222	314.5	160.0	256.8	222.3	276.4	38.1	24	46.5	150.1	152.1	94.0	106.9	9.7	140.5	28.6
QMF22J115S	115 mm		12.38	6.30	10.11	8.75	10.88	1.50	7/8	1.83	5.91	5.99	3.70	4.21	0.38	5.53	63

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## EC SERIES • QMFL FOUR-BOLT SQUARE FLANGE BLOCKS

### QMFL FOUR-BOLT SQUARE FLANGE BLOCKS



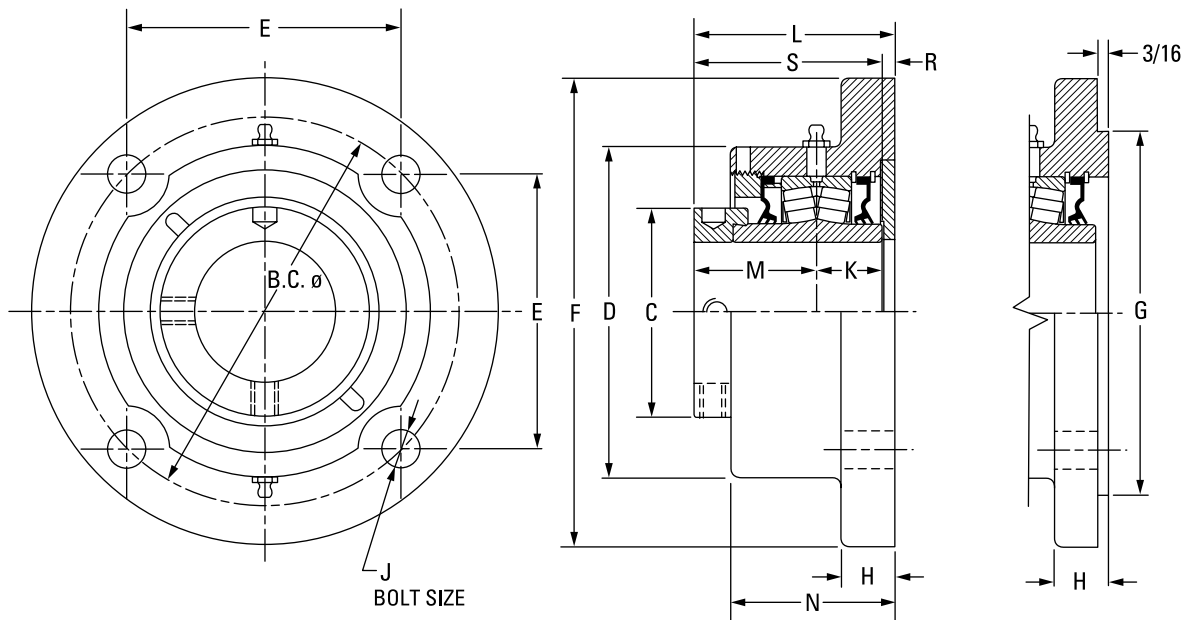
Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(1)(2)(3)</sup>	H	J	K	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMFL08J035S	<b>35 mm</b>																	
QMFL08J107S	1 7/16 in.	22208	127.0	60.5	93.7	89.9	117.6	N/A	22.4	12	25.4	72.9	74.9	44.5	57.2	3.0	69.9	4.5
QMFL08J108S	1 1/2 in.		5.00	2.38	3.69	3.54	4.63		0.88	1/2	1.00	2.87	2.95	1.75	2.25	0.12	2.75	10
QMFL09J111S	1 11/16 in.																	
QMFL09J040S	<b>40 mm</b>	22209	139.7	66.8	118.4	98.8	136.7	N/A	22.4	12	25.1	79.5	81.5	47.8	63.5	6.6	72.9	5.0
QMFL09J112S	1 3/4 in.		5.50	2.63	4.66	3.89	5.38		0.88	1/2	0.99	3.13	3.21	1.88	2.50	0.26	2.87	11
QMFL09J045S	<b>45 mm</b>																	
QMFL10J115S	1 15/16 in.																	
QMFL10J200S	2 in.	22210	146.1	70.1	115.3	103.4	131.8	N/A	23.1	12	24.9	80.8	82.8	48.0	62.5	7.9	72.9	5.0
QMFL10J050S	<b>50 mm</b>		5.75	2.76	4.54	4.07	5.19		0.91	1/2	0.98	3.18	3.26	1.89	2.46	0.31	2.87	11
QMFL11J203S	2 3/16 in.																	
QMFL11J204S	2 1/4 in.	22211	162.1	76.0	130.3	114.3	149.4	N/A	19.1	16	28.7	83.3	85.3	50.5	66.8	3.8	79.2	6.4
QMFL11J055S	<b>55 mm</b>		6.38	2.99	5.13	4.50	5.88		0.75	5/8	1.13	3.28	3.36	1.99	2.63	0.15	3.12	14
QMFL13J060S	<b>60 mm</b>																	
QMFL13J207S	2 7/16 in.	22213	171.5	91.9	146.1	121.2	157.2	N/A	25.4	16	31.5	88.9	90.7	54.1	72.6	3.0	85.6	7.7
QMFL13J208S	2 1/2 in.		6.75	3.62	5.75	4.77	6.19		1.00	5/8	1.24	3.50	3.57	2.13	2.86	0.12	3.37	17
QMFL13J065S	<b>65 mm</b>																	
QMFL15J211S	2 11/16 in.																	
QMFL15J212S	2 3/4 in.																	
QMFL15J070S	<b>70 mm</b>	22215	200.2	101.9	168.4	141.2	182.6	N/A	26.9	20	31.8	95.8	97.8	60.2	74.4	3.8	91.9	10.4
QMFL15J215S	2 15/16 in.		7.88	4.01	6.63	5.56	7.19		1.06	3/4	1.25	3.77	3.85	2.37	2.93	0.15	3.62	23
QMFL15J300S	3 in.																	
QMFL15J075S	<b>75 mm</b>																	
QMFL18J303S	3 3/16 in.																	
QMFL18J304S	3 1/4 in.																	
QMFL18J080S	<b>80 mm</b>	22218	241.3	120.9	193.8	170.7	212.9	187.33	32.5	20	36.6	106.4	108.5	65.8	86.4	4.1	102.4	15.9
QMFL18J085S	<b>85 mm</b>		9.50	4.76	7.63	6.72	8.38	7.375	1.28	3/4	1.44	4.19	4.27	2.59	3.40	0.16	4.03	35
QMFL18J307S	3 7/16 in.																	
QMFL18J308S	3 1/2 in.																	
QMFL18J090S	<b>90 mm</b>																	
QMFL20J311S	3 11/16 in.																	
QMFL20J312S	3 3/4 in.																	
QMFL20J315S	3 15/16 in.	22220	273.1	152.4	229.6	193.0	241.3	215.90	38.1	24	41.4	132.3	134.4	75.2	104.6	15.7	116.6	24.9
QMFL20J400S	4 in.		10.75	6.00	9.04	7.60	9.50	8.500	1.50	1	1.63	5.21	5.29	2.96	4.12	0.62	4.59	55
QMFL20J100S	<b>100 mm</b>																	

<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(2)</sup>Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(3)</sup>Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

QMFY ROUND FLANGE BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(1)(2)(3)</sup>	H	J	K	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMFY08J035S <sup>(4)</sup>	<b>35 mm</b>	22208	<b>127.0</b>	<b>60.5</b>	<b>108.0</b>	<b>88.9</b>	<b>158.8</b>	<b>90.50</b>	<b>19.1</b>	<b>12</b>	<b>25.4</b>	<b>73.2</b>	<b>75.2</b>	<b>44.5</b>	<b>57.4</b>	<b>3.3</b>	<b>69.9</b>	<b>4.5</b>
QMFY08J107S <sup>(4)</sup>	1 7/16 in.		5.00 <sup>(4)</sup>	2.38	4.25	3.54 <sup>(4)</sup>	6.25	3.563	0.75	1/2 <sup>(4)</sup>	1.00	2.88	2.96	1.75	2.26	0.13	2.75	10
QMFY08J108S <sup>(4)</sup>	1 1/2 in.																	
QMFY09J040S	<b>40 mm</b>	22209	<b>139.7</b>	<b>66.8</b>	<b>104.9</b>	<b>98.8</b>	<b>171.5</b>	<b>103.20</b>	<b>20.6</b>	<b>12</b>	<b>25.1</b>	<b>76.2</b>	<b>78.2</b>	<b>47.8</b>	<b>60.5</b>	<b>3.0</b>	<b>72.9</b>	<b>5.0</b>
QMFY09J111S	1 11/16 in.		5.50	2.63	4.13	3.89	6.75	4.063	0.81	1/2	0.99	3.00	3.08	1.88	2.38	0.12	2.87	11
QMFY09J112S	1 3/4 in.																	
QMFY09J045S	<b>45 mm</b>	22210	<b>146.1</b>	<b>70.1</b>	<b>115.3</b>	<b>103.4</b>	<b>177.8</b>	<b>111.13</b>	<b>19.1</b>	<b>12</b>	<b>24.9</b>	<b>75.9</b>	<b>78.0</b>	<b>48.0</b>	<b>58.4</b>	<b>3.0</b>	<b>72.9</b>	<b>5.4</b>
QMFY10J115S	1 15/16 in.		5.75	2.76	4.54	4.07	7.00	4.375	0.75	1/2	0.98	2.99	3.07	1.89	2.30	0.12	2.87	12
QMFY10J200S	2 in.																	
QMFY10J050S	<b>50 mm</b>	22211	<b>162.1</b>	<b>75.9</b>	<b>130.3</b>	<b>114.3</b>	<b>196.9</b>	<b>127.00</b>	<b>19.1</b>	<b>16</b>	<b>28.7</b>	<b>82.3</b>	<b>84.3</b>	<b>75.9</b>	<b>62.0</b>	<b>3.0</b>	<b>79.2</b>	<b>6.8</b>
QMFY11J203S	2 3/16 in.		6.38	2.99	5.13	4.50	7.75	5.000	0.75	5/8	1.13	3.24	3.32	2.99	2.44	0.12	3.12	15
QMFY11J204S	2 1/4 in.																	
QMFY11J055S	<b>55 mm</b>	22213	<b>171.5</b>	<b>91.9</b>	<b>146.1</b>	<b>121.2</b>	<b>206.5</b>	<b>138.13</b>	<b>23.9</b>	<b>16</b>	<b>31.5</b>	<b>88.1</b>	<b>90.4</b>	<b>54.1</b>	<b>72.4</b>	<b>2.3</b>	<b>85.6</b>	<b>8.6</b>
QMFY13J207S	2 7/16 in.		6.75	3.62	5.75	4.77	8.13	5.438	0.94	5/8	1.24	3.47	3.56	2.13	2.85	0.09	3.37	19
QMFY13J208S	2 1/2 in.																	
QMFY13J065S	<b>65 mm</b>	22215	<b>199.9</b>	<b>101.9</b>	<b>168.4</b>	<b>141.2</b>	<b>241.3</b>	<b>160.35</b>	<b>23.9</b>	<b>20</b>	<b>31.8</b>	<b>98.6</b>	<b>100.6</b>	<b>60.2</b>	<b>76.2</b>	<b>6.4</b>	<b>91.9</b>	<b>12.7</b>
QMFY15J211S	2 11/16 in.		7.87	4.01	6.63	5.56	9.50	6.313	0.94	3/4	1.25	3.88	3.96	2.37	3.00	0.25	3.62	28
QMFY15J212S	2 3/4 in.																	
QMFY15J070S	<b>70 mm</b>																	
QMFY15J215S	2 15/16 in.																	
QMFY15J300S	3 in.																	
QMFY15J075S	<b>75 mm</b>																	

<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(2)</sup>Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(3)</sup>Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFY\*\*J\*\*\*S.

<sup>(4)</sup>Three-bolt housing.

<sup>(5)</sup>Six-bolt housing.

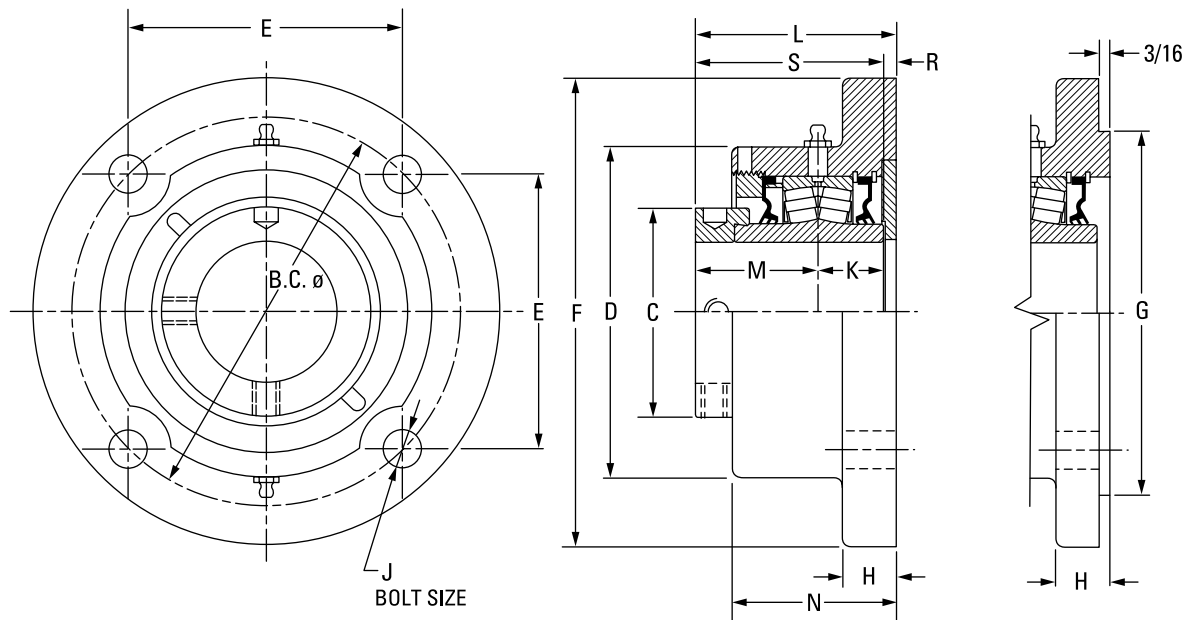
NOTE: Housings also are available with a 3/16 in. machined pilot. Please contact your Timken engineer for more information.

Continued on next page.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## EC SERIES • QMFY ROUND FLANGE BLOCKS

### QMFY ROUND FLANGE BLOCKS – continued



Continued from previous page.

Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(1)(2)(3)</sup>	H	J	K	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMFY18J303S	3 3/16 in.	22218	241.3 9.50	120.9 4.76	193.8 7.63	170.7 6.72	282.7 11.13	N/A	28.7 1.13	24 7/8	36.6 1.44	108.7 4.28	110.7 4.36	65.8 2.59	85.3 3.36	6.4 0.25	102.4 4.03	19.1 42
QMFY18J304S	3 1/4 in.																	
QMFY18J080S	80 mm																	
QMFY18J085S	85 mm																	
QMFY18J307S	3 7/16 in.																	
QMFY18J308S	3 1/2 in.																	
QMFY18J090S	90 mm	22220	273.1 10.75	152.4 6.00	212.9 8.38	193.0 7.60	320.8 12.63	N/A	28.7 1.13	24 1	41.4 1.63	123.7 4.87	125.7 4.95	75.2 2.96	96.8 3.81	6.9 0.27	116.6 4.59	29.9 66
QMFY20J311S	3 11/16 in.																	
QMFY20J312S	3 3/4 in.																	
QMFY20J315S	3 15/16 in.																	
QMFY20J400S	4 in.																	
QMFY20J100S	100 mm																	
QMFY22J110S <sup>(5)</sup>	110 mm	22222	327.2 12.88 <sup>(5)</sup>	160.0 6.30	254.0 10.00	163.6 6.44 <sup>(5)</sup>	384.3 15.13	N/A	31.8 1.25	24 1 <sup>(5)</sup>	46.5 1.83	143.5 5.65	145.5 5.73	94.0 3.70	100.3 3.95	3.0 0.12	140.5 5.53	46.3 102
QMFY22J407S <sup>(5)</sup>	4 7/16 in.																	
QMFY22J408S <sup>(5)</sup>	4 1/2 in.																	
QMFY22J115S <sup>(5)</sup>	115 mm																	
QMFY26J125S <sup>(5)</sup>	125 mm																	
QMFY26J415S <sup>(5)</sup>	4 15/16 in.																	
QMFY26J500S <sup>(5)</sup>	5 in.	22226	355.6 14.00 <sup>(5)</sup>	175.0 6.89	284.2 11.19	177.8 7.00 <sup>(5)</sup>	419.1 16.50	N/A	38.1 1.50	24 1 1/8 <sup>(5)</sup>	58.7 2.31	170.2 6.70	172.2 6.78	94.7 3.73	138.4 5.45	16.8 0.66	153.4 6.04	52.2 115
QMFY26J130S <sup>(5)</sup>	130 mm																	

<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(2)</sup>Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(3)</sup>Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

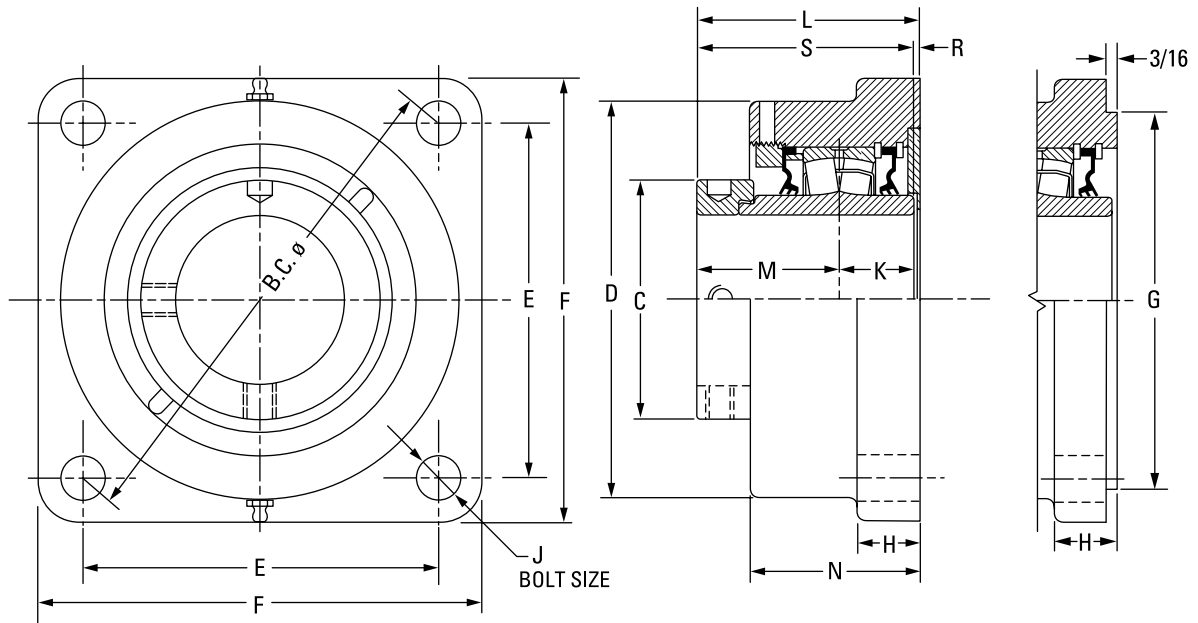
<sup>(4)</sup>Three-bolt housing.

<sup>(5)</sup>Six-bolt housing.

NOTE: Housings also are available with a 3/16 in. machined pilot. Please contact your Timken engineer for more information.



QMFX 5000 SERIES SQUARE FLANGE BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(1)(2)(3)</sup>	H	J	K	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R	S	Wt.																
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.																
QMFX08J035S	<b>35 mm</b>	22208	<b>133.6</b>	<b>59.9</b>	<b>93.7</b>	<b>94.5</b>	<b>117.6</b>	<b>90.50</b>	<b>22.1</b>	<b>12</b>	<b>25.4</b>	<b>72.9</b>	<b>74.9</b>	<b>44.5</b>	<b>57.2</b>	<b>3.0</b>	<b>69.9</b>	<b>4.5</b>																
QMFX08J107S	1 7/16 in.		5.26	2.36	3.69	3.72	4.63	3.563	0.88	1/2	1.00	2.87	2.95	1.75	2.25	0.12	2.75	10																
QMFX08J108S	1 1/2 in.	22208	<b>139.7</b>	<b>59.9</b>	<b>108.0</b>	<b>98.8</b>	<b>130.3</b>	<b>103.20</b>	<b>22.1</b>	<b>12</b>	<b>25.4</b>	<b>73.7</b>	<b>75.7</b>	<b>44.5</b>	<b>59.4</b>	<b>3.81</b>	<b>69.9</b>	<b>4.5</b>																
			5.50	2.36	4.25	3.89	5.13	4.063	0.88	1/2	1.00	2.90	2.98	1.75	2.34	0.15	2.75	10																
QMFX09J040S	<b>40 mm</b>	22209	<b>139.7</b>	<b>66.8</b>	<b>108.0</b>	<b>98.8</b>	<b>130.3</b>	<b>103.20</b>	<b>22.1</b>	<b>12</b>	<b>25.1</b>	<b>79.5</b>	<b>81.5</b>	<b>47.8</b>	<b>63.5</b>	<b>6.4</b>	<b>72.9</b>	<b>5.0</b>																
QMFX09J111S	1 11/16 in.																		5.50	2.63	4.25	3.89	5.13	4.063	0.88	1/2	0.99	3.13	3.21	1.88	2.50	0.25	2.87	11
QMFX09J112S	1 3/4 in.																																	
QMFX09J045S	<b>45 mm</b>	22210	<b>146.1</b>	<b>70.1</b>	<b>120.7</b>	<b>103.1</b>	<b>134.9</b>	<b>111.13</b>	<b>22.1</b>	<b>12</b>	<b>24.9</b>	<b>80.8</b>	<b>82.8</b>	<b>48.0</b>	<b>65.0</b>	<b>7.9</b>	<b>72.9</b>	<b>5.0</b>																
QMFX10J115S	1 15/16 in.																		5.75	2.76	4.75	4.06	5.31	4.375	0.88	1/2	0.98	3.18	3.26	1.89	2.56	0.31	2.87	11
QMFX10J200S	2 in.																																	
QMFX10J050S	<b>50 mm</b>	22211	<b>161.5</b>	<b>75.9</b>	<b>130.3</b>	<b>114.3</b>	<b>149.4</b>	<b>127.00</b>	<b>25.4</b>	<b>16</b>	<b>28.7</b>	<b>83.1</b>	<b>85.1</b>	<b>50.5</b>	<b>66.8</b>	<b>3.3</b>	<b>79.2</b>	<b>5.0</b>																
QMFX11J203S	2 3/16 in.																		6.36	2.99	5.13	4.50	5.88	5.000	1.00	5/8	1.13	3.27	3.35	1.99	2.63	0.13	3.12	11
QMFX11J204S	2 1/4 in.																																	
QMFX11J055S	<b>55 mm</b>	22213	<b>180.8</b>	<b>91.9</b>	<b>146.1</b>	<b>127.8</b>	<b>157.2</b>	<b>138.13</b>	<b>25.4</b>	<b>16</b>	<b>31.5</b>	<b>89.2</b>	<b>91.2</b>	<b>54.1</b>	<b>72.4</b>	<b>3.0</b>	<b>85.6</b>	<b>6.4</b>																
QMFX13J060S	<b>60 mm</b>																		7.12	3.62	5.75	5.03	6.19	5.438	1.00	5/8	1.24	3.51	3.59	2.13	2.85	0.12	3.37	14
QMFX13J207S	2 7/16 in.																																	
QMFX13J208S	2 1/2 in.																																	
QMFX13J065S	<b>65 mm</b>	22215	<b>215.9</b>	<b>102.1</b>	<b>168.9</b>	<b>152.7</b>	<b>189.0</b>	<b>160.35</b>	<b>26.9</b>	<b>20</b>	<b>31.8</b>	<b>96.0</b>	<b>98.0</b>	<b>60.2</b>	<b>76.2</b>	<b>4.1</b>	<b>91.9</b>	<b>7.7</b>																
QMFX15J211S	2 11/16 in.																		8.50	4.02	6.65	6.01	7.44	6.313	1.06	3/4	1.25	3.78	3.86	2.37	3.00	0.16	3.62	17
QMFX15J212S	2 3/4 in.																																	
QMFX15J070S	<b>70 mm</b>																																	
QMFX15J215S	2 15/16 in.																																	
QMFX15J300S	3 in.																																	
QMFX15J075S	<b>75 mm</b>																																	

<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(2)</sup>Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(3)</sup>Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

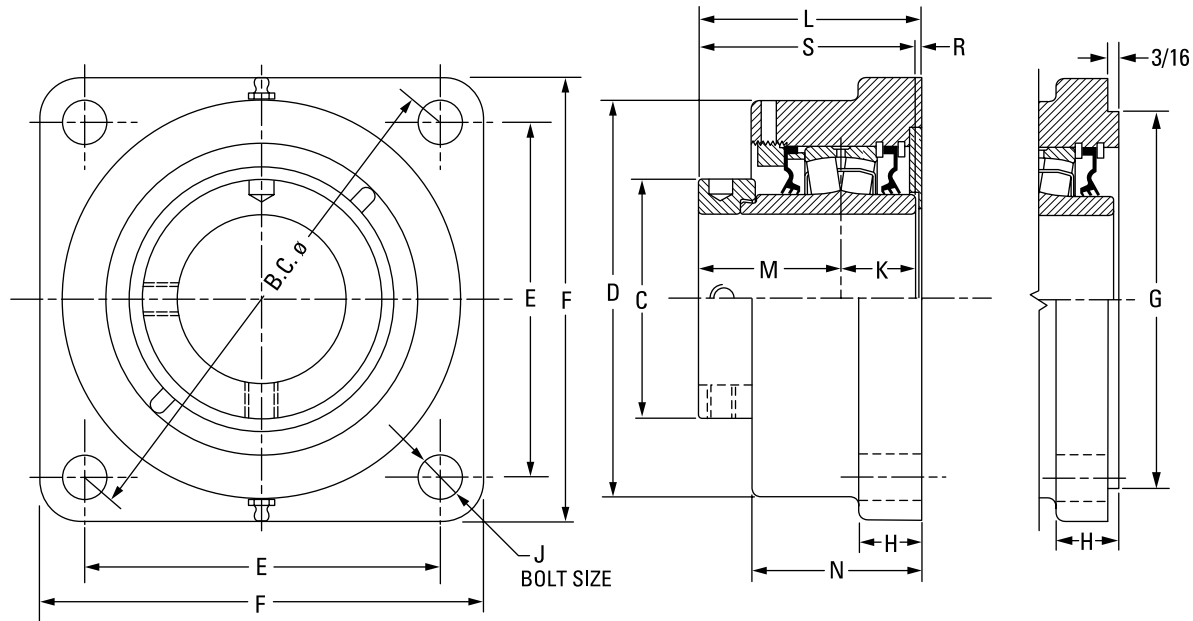
<sup>(4)</sup>Six-bolt round housing.

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# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

EC SERIES • QMFX 5000 SERIES SQUARE FLANGE BLOCKS

## QMFX 5000 SERIES SQUARE FLANGE BLOCKS – continued



Continued from previous page.

Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(1)(2)(3)</sup>	H	J	K	L <sub>FIX</sub>	L <sub>EXP</sub>	M	N	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMFX18J303S	3 3/16 in.	22218	241.3 9.50	120.9 4.76	193.8 7.63	170.7 6.72	212.9 8.38	187.33 7.375	33.3 1.31	20 3/4	36.6 1.44	107.2 4.22	109.2 4.30	65.8 2.59	84.1 3.31	4.8 0.19	102.4 4.03	10.4 23
QMFX18J304S	3 1/4 in.																	
QMFX18J080S	80 mm																	
QMFX18J085S	85 mm																	
QMFX18J307S	3 7/16 in.																	
QMFX18J308S	3 1/2 in.																	
QMFX18J090S	90 mm	22220	298.5 11.75	152.4 6.00	215.9 8.50	211.1 8.31	268.2 10.56	225.43 8.875	38.1 1.50	24 7/8	41.4 1.63	126.0 4.96	128.0 5.04	75.2 2.96	103.1 4.06	9.4 0.37	116.8 4.60	15.9 35
QMFX20J311S	3 11/16 in.																	
QMFX20J312S	3 3/4 in.																	
QMFX20J315S	3 15/16 in.																	
QMFX20J400S	4 in.																	
QMFX20J100S	100 mm																	
QMFX22J110S <sup>(4)</sup>	110 mm	22222	327.2 12.88 <sup>(1)</sup>	160.0 6.30	256.5 10.10	163.6 6.44 <sup>(1)</sup>	384.3 15.13	263.53 10.375	31.8 1.25	24 1 <sup>(1)</sup>	46.5 1.83	143.8 5.66	145.8 5.74	94.0 3.70	106.9 4.21	3.3 0.13	140.5 5.53	46.3 102
QMFX22J407S <sup>(4)</sup>	4 7/16 in.																	
QMFX22J408S <sup>(4)</sup>	4 1/2 in.																	
QMFX22J115S <sup>(4)</sup>	115 mm																	
QMFX26J125S <sup>(4)</sup>	125 mm	22226	355.6 14.00 <sup>(1)</sup>	175.0 6.89	284.2 11.19	177.8 7.00 <sup>(1)</sup>	419.1 16.50	284.18 11.188	38.1 1.50	24 1 1/8 <sup>(1)</sup>	58.7 2.31	172.2 6.78	174.2 6.86	94.7 3.73	135.1 5.32	17.3 0.68	153.4 6.04	52.2 115
QMFX26J415S <sup>(4)</sup>	4 15/16 in.																	
QMFX26J500S <sup>(4)</sup>	5 in.																	
QMFX26J130S <sup>(4)</sup>	130 mm																	

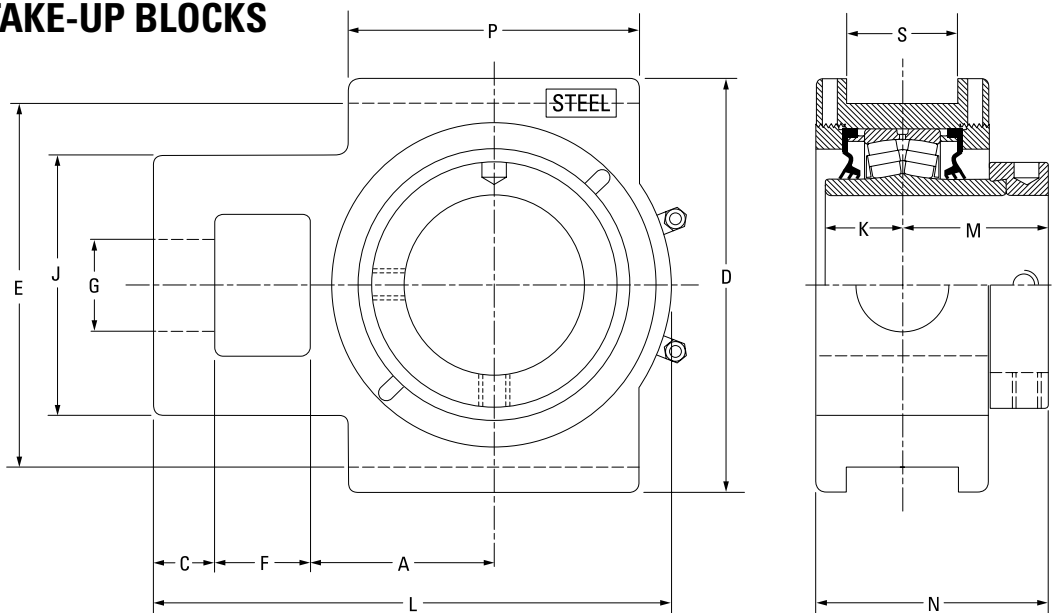
<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(2)</sup>Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

<sup>(3)</sup>Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

<sup>(4)</sup>Six-bolt round housing.

QMTU TAKE-UP BLOCKS



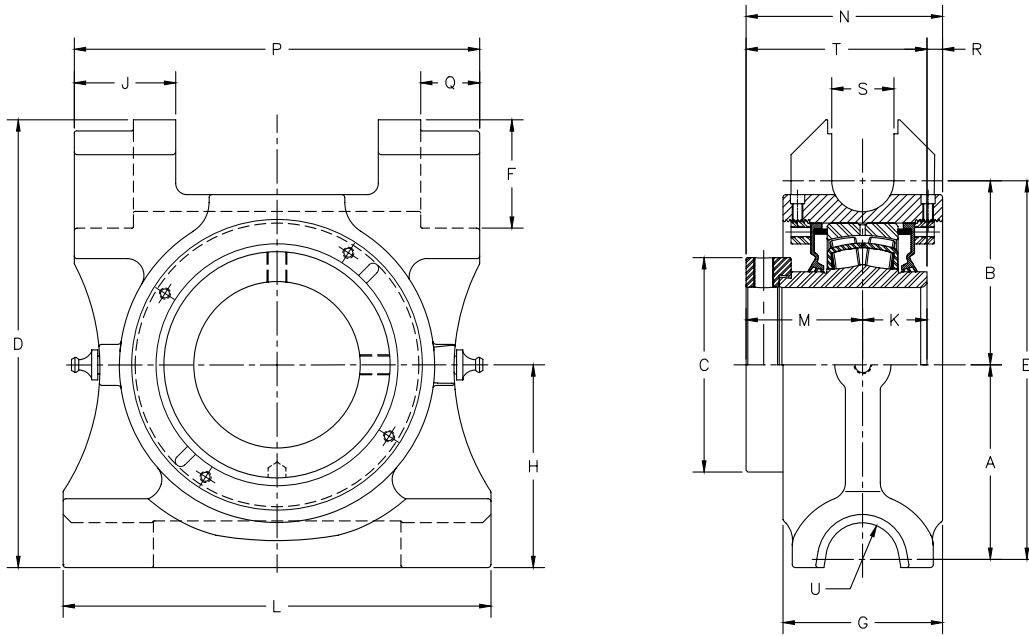
Bearing Part No.	Shaft Dia.	Bearing No.	A	C	D	E	F	G	J	K	L	M	N	P	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMTU10J115S	1 15/16 in.	22210	54.1	19.1	120.7	101.6	26.9	26.9	73.2	24.9	153.4	48.0	76.7	88.9	17.5	7.7
QMTU10J200S	2 in.		2.13	0.75	4.75	4.00	1.06	1.06	2.88	0.98	6.04	1.89	3.02	3.50	0.69	17
QMTU10J050S	50 mm															
QMTU11J203S	2 3/4 in.	22211	60.5	19.1	133.4	114.3	30.2	30.2	88.9	28.7	167.9	50.5	82.8	95.3	20.6	9.5
QMTU11J204S	2 1/4 in.		2.38	0.75	5.25	4.50	1.19	1.19	3.50	1.13	6.61	1.99	3.26	3.75	0.81	21
QMTU11J055S	55 mm															
QMTU13J060S	60 mm	22213	69.9	22.4	149.4	130.3	33.3	33.3	95.3	31.5	193.8	54.1	90.7	120.7	26.9	12.2
QMTU13J207S	2 7/16 in.		2.75	0.88	5.88	5.13	1.31	1.31	3.75	1.24	7.63	2.13	3.57	4.75	1.06	27
QMTU13J208S	2 1/2 in.															
QMTU13J065S	65 mm	22215	76.2	25.4	171.5	150.9	39.6	39.6	108.0	31.8	219.7	60.2	97.0	120.7	46.0	15.9
QMTU15J211S	2 11/16 in.		3.00	1.00	6.75	5.94	1.56	1.56	4.25	1.25	8.65	2.37	3.82	4.75	1.81	35
QMTU15J212S	2 3/4 in.															
QMTU15J070S	70 mm	22218	92.2	25.4	193.8	173.0	46.0	47.8	124.0	36.6	257.0	65.8	106.4	158.8	46.0	20.0
QMTU18J303S	3 3/16 in.		3.63	1.00	7.63	6.81	1.81	1.88	4.88	1.44	10.12	2.59	4.19	6.25	1.81	44
QMTU18J304S	3 1/4 in.															
QMTU18J080S	80 mm	22220	104.9	28.7	239.8	219.2	54.1	52.3	143.0	41.4	296.9	75.4	120.4	177.8	52.3	26.3
QMTU18J085S	85 mm		4.13	1.13	9.44	8.63	2.13	2.06	5.63	1.63	11.69	2.97	4.74	7.00	2.06	58
QMTU18J307S	3 7/16 in.															
QMTU18J308S	3 1/2 in.	22222	128.5	38.1	263.7	241.3	54.1	54.1	162.1	46.5	341.4	94.0	143.8	199.9	52.3	36.4
QMTU18J090S	90 mm		5.06	1.50	10.38	9.50	2.13	2.13	6.38	1.83	13.44	3.70	5.66	7.87	2.06	80
QMTU20J311S	3 11/16 in.															
QMTU20J312S	3 3/4 in.	22226	134.9	63.5	285.8	260.4	63.5	60.5	177.8	58.7	396.7	94.7	151.1	228.6	52.3	60.8
QMTU20J315S	3 15/16 in.		5.31	2.50	11.25	10.25	2.50	2.38	7.00	2.31	15.62	3.73	5.95	9.00	2.06	134
QMTU20J400S	4 in.															
QMTU20J100S	100 mm	22226	134.9	63.5	285.8	260.4	63.5	60.5	177.8	58.7	396.7	94.7	151.1	228.6	52.3	60.8
QMTU22J110S	110 mm		5.31	2.50	11.25	10.25	2.50	2.38	7.00	2.31	15.62	3.73	5.95	9.00	2.06	134
QMTU22J115S	115 mm															
QMTU26J125S	125 mm	22226	134.9	63.5	285.8	260.4	63.5	60.5	177.8	58.7	396.7	94.7	151.1	228.6	52.3	60.8
QMTU26J415S	4 15/16 in.		5.31	2.50	11.25	10.25	2.50	2.38	7.00	2.31	15.62	3.73	5.95	9.00	2.06	134
QMTU26J500S	5 in.															
QMTU26J130S	130 mm															

NOTE: Please refer to page C-169 for take-up frames.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

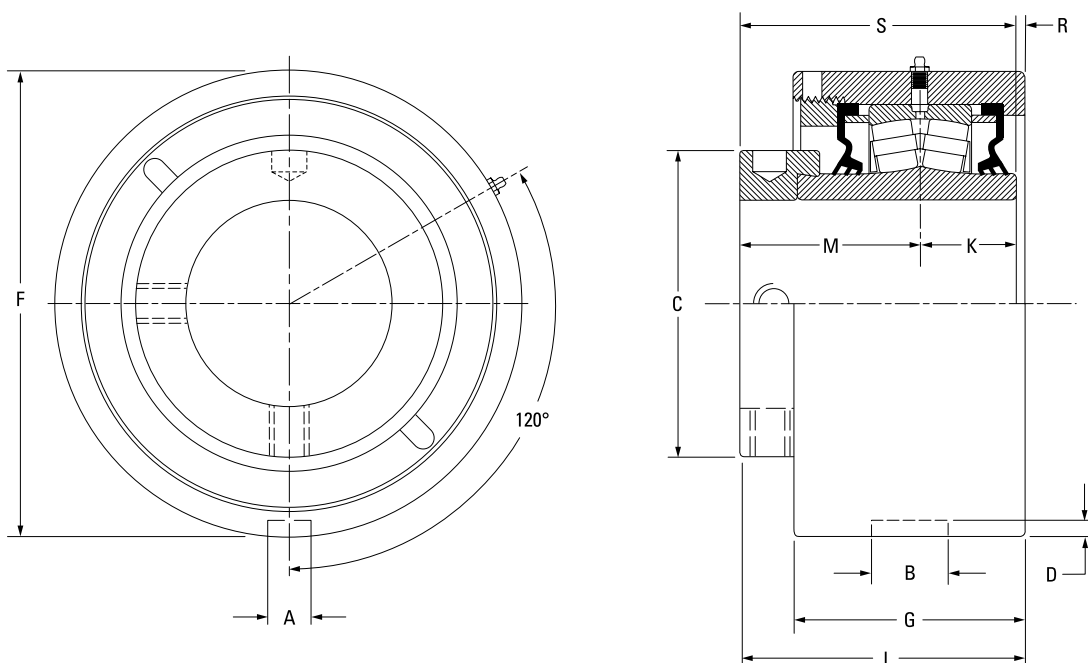
CL SERIES • QMPT

## QMTP – TOP PULL TAKE-UP BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
QMTP10J115S	1 15/16 in.	22210	<b>71.4</b>	<b>60.5</b>	<b>71.4</b>	<b>163.6</b>	<b>131.8</b>	<b>42.2</b>	<b>62.7</b>	<b>77.8</b>	<b>41.9</b>	<b>24.9</b>	<b>165.1</b>	<b>48.0</b>	<b>79.3</b>	<b>152.4</b>	<b>20.6</b>	<b>6.4</b>	<b>22.4</b>	<b>72.9</b>	<b>20.6</b>
QMTP10J200S	2 in.		2.81	2.38	2.81	6.44	5.19	1.66	2.47	3.06	1.65	0.98	6.50	1.89	3.12	6.00	0.81	.025	0.88	2.87	0.81
QMTP10J050S	<b>50 mm</b>																				
QMTP11J203S	2 3/16 in.	22211	<b>82.6</b>	<b>72.8</b>	<b>79.1</b>	<b>193.8</b>	<b>158.8</b>	<b>49.3</b>	<b>69.9</b>	<b>88.9</b>	<b>44.4</b>	<b>28.6</b>	<b>190.6</b>	<b>50.6</b>	<b>88.3</b>	<b>177.8</b>	<b>26.9</b>	<b>9.1</b>	<b>28.4</b>	<b>79.2</b>	<b>20.6</b>
QMTP11J204S	2 1/4 in.		3.25	2.87	3.12	7.63	6.25	1.94	2.75	3.50	1.75	1.13	7.50	1.99	3.48	7.00	1.06	0.36	1.12	3.12	0.81
QMTP11J055S	<b>55 mm</b>																				
QMTP13J207S	2 7/16 in.	22213	<b>96.8</b>	<b>84.6</b>	<b>91.9</b>	<b>210.3</b>	<b>181.4</b>	<b>47.8</b>	<b>81.0</b>	<b>97.5</b>	<b>44.5</b>	<b>31.5</b>	<b>215.9</b>	<b>54.2</b>	<b>94.7</b>	<b>203.2</b>	<b>26.9</b>	<b>9.0</b>	<b>28.4</b>	<b>85.7</b>	<b>20.6</b>
QMTP13J208S	2 1/2 in.		3.81	3.33	3.62	8.28	7.14	1.88	3.19	3.84	1.75	1.24	8.50	2.13	3.73	8.00	1.06	0.35	1.12	3.37	0.81
QMTP13J060S	<b>60 mm</b>																				
QMTP15J211S	2 11/16 in.	22215	<b>97.0</b>	<b>84.1</b>	<b>101.7</b>	<b>215.9</b>	<b>181.1</b>	<b>49.3</b>	<b>81.0</b>	<b>101.4</b>	<b>44.4</b>	<b>31.8</b>	<b>215.9</b>	<b>60.2</b>	<b>100.7</b>	<b>203.2</b>	<b>26.9</b>	<b>8.7</b>	<b>28.4</b>	<b>92.0</b>	<b>20.6</b>
QMTP15J212S	2 3/4 in.																				
QMTP15J070S	<b>70 mm</b>																				
QMTP15J215S	2 15/16 in.																				
QMTP15J300S	3 in.																				
QMTP15J075S	<b>75 mm</b>																				
QMTP18J303S	3 3/16 in.	22218	<b>109.7</b>	<b>103.9</b>	<b>121.0</b>	<b>252.5</b>	<b>213.6</b>	<b>61.3</b>	<b>90.0</b>	<b>114.3</b>	<b>57.1</b>	<b>36.3</b>	<b>241.3</b>	<b>65.8</b>	<b>110.9</b>	<b>228.6</b>	<b>33.3</b>	<b>8.8</b>	<b>35.1</b>	<b>102.1</b>	<b>20.6</b>
QMTP18J304S	3 1/4 in.																				
QMTP18J080S	<b>80 mm</b>																				
QMTP18J085S	<b>85 mm</b>																				
QMTP18J307S	3 7/16 in.																				
QMTP18J308S	3 1/2 in.																				
QMTP18J090S	<b>90 mm</b>																				
QMTP20J311S	3 11/16 in.	22220	<b>121.0</b>	<b>117.6</b>	<b>152.5</b>	<b>289.1</b>	<b>234.9</b>	<b>63.5</b>	<b>79.5</b>	<b>139.7</b>	<b>58.7</b>	<b>41.3</b>	<b>279.4</b>	<b>75.5</b>	<b>126.2</b>	<b>266.7</b>	<b>33.3</b>	<b>9.4</b>	<b>35.1</b>	<b>116.8</b>	<b>20.6</b>
QMTP20J312S	3 3/4 in.																				
QMTP20J315S	3 15/16 in.																				
QMTP20J400S	4 in.																				
QMTP20J100S	<b>100 mm</b>																				

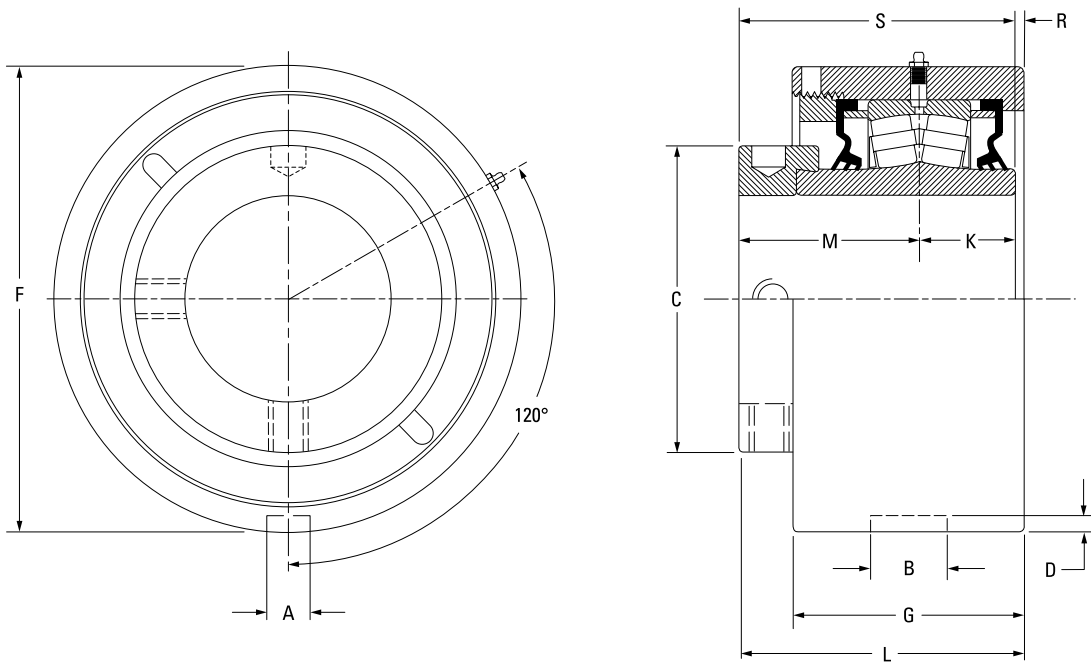
QMMC CARTRIDGE BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D	F	G	K	L FIX	L EXP	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMMC10J115S	1 15/16 in.	22210	13.5	23.1	70.1	4.8	104.78 (+0/-0.05)	62.2	24.9	79.2	81.3	48.0	6.1	72.9	3.6
QMMC10J200S	2 in.		0.53	0.91	2.76	0.19	4.125	2.45	0.98	3.12	3.20	1.89	0.24	2.87	8
QMMC10J050S	50 mm						(+0/-0.002)								
QMMC11J203S	2 3/16 in.	22211	13.5	23.1	75.9	4.8	115.09 (+0/-0.05)	65.5	28.7	83.6	85.6	50.5	4.1	79.2	4.5
QMMC11J204S	2 1/4 in.		0.53	0.91	2.99	0.19	4.531	2.58	1.13	3.29	3.37	1.99	0.16	3.12	10
QMMC11J055S	55 mm						(+0/-0.002)								
QMMC13J060S <sup>(1)</sup>	60 mm	22213	13.5	23.1	91.9	4.8	127.00 (+0/-0.05)	69.3	31.5	85.6	87.6	54.1	0.0	85.6	5.4
QMMC13J207S <sup>(1)</sup>	2 7/16 in.		0.53	0.91	3.62	0.19	5.000	2.73	1.24	3.37	3.45	2.13	0.00	3.37	12
QMMC13J208S <sup>(1)</sup>	2 1/2 in.						(+0/-0.002)								
QMMC13J065S <sup>(1)</sup>	65 mm	22215	15.0	26.2	101.9	6.4	149.225 (+0/-0.05)	79.8	31.8	100.1	102.1	60.2	8.1	91.9	8.2
QMMC15J211S	2 11/16 in.		0.59	1.03	4.01	0.25	5.875	3.14	1.25	3.94	4.02	2.37	0.32	3.62	18
QMMC15J212S	2 3/4 in.						(+0/-0.002)								
QMMC15J070S	70 mm	22218	15.0	26.9	120.9	5.8	171.45 (+0/-0.05)	87.6	36.6	109.7	111.8	65.0	7.4	102.4	11.8
QMMC15J215S	2 15/16 in.		0.59	1.06	4.76	0.23	6.750	3.45	1.44	4.32	4.40	2.56	0.29	4.03	26
QMMC15J300S	3 in.						(+0/-0.002)								
QMMC15J075S	75 mm	22220	19.8	32.5	152.4	7.9	206.375 (+0/-0.05)	105.2	41.4	128.0	130.0	75.2	11.4	116.6	14.5
QMMC18J303S	3 3/16 in.		0.78	1.28	6.00	0.31	8.125	4.14	1.63	5.039	5.12	2.96	0.45	4.59	32
QMMC18J304S	3 1/4 in.						(+0/-0.002)								
QMMC18J080S	80 mm	22218	15.0	26.9	120.9	5.8	171.45 (+0/-0.05)	87.6	36.6	109.7	111.8	65.0	7.4	102.4	11.8
QMMC18J085S	85 mm		0.59	1.06	4.76	0.23	6.750	3.45	1.44	4.32	4.40	2.56	0.29	4.03	26
QMMC18J307S	3 7/16 in.						(+0/-0.002)								
QMMC18J308S	3 1/2 in.	22220	19.8	32.5	152.4	7.9	206.375 (+0/-0.05)	105.2	41.4	128.0	130.0	75.2	11.4	116.6	14.5
QMMC18J090S	90 mm		0.78	1.28	6.00	0.31	8.125	4.14	1.63	5.039	5.12	2.96	0.45	4.59	32
QMMC20J311S	3 11/16 in.						(+0/-0.002)								
QMMC20J312S	3 3/4 in.	22220	19.8	32.5	152.4	7.9	206.375 (+0/-0.05)	105.2	41.4	128.0	130.0	75.2	11.4	116.6	14.5
QMMC20J315S	3 15/16 in.		0.78	1.28	6.00	0.31	8.125	4.14	1.63	5.039	5.12	2.96	0.45	4.59	32
QMMC20J400S	4 in.						(+0/-0.002)								
QMMC20J100S	100 mm														

<sup>(1)</sup>The grub screw is located in the external housing nut to secure to the housing.

Continued on next page.

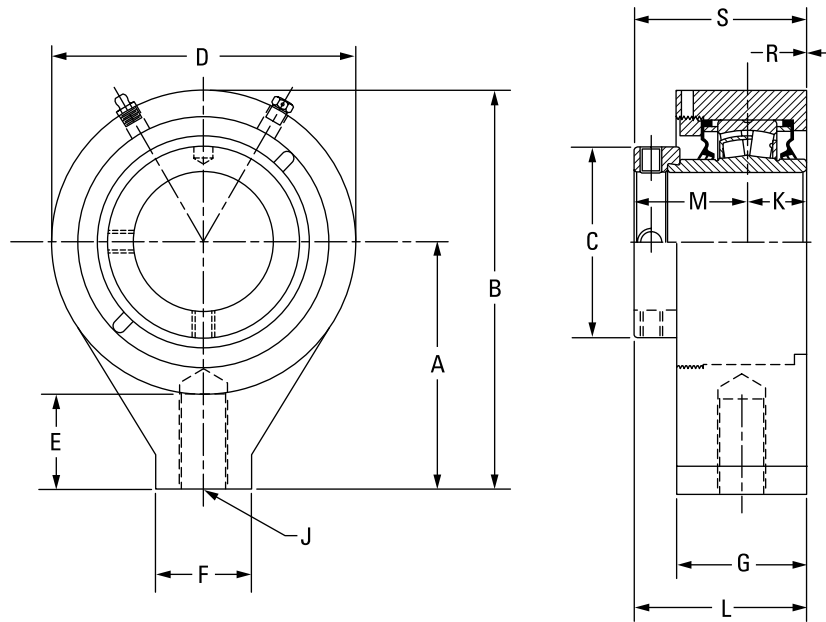


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Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D	F	G	K	L FIX	L EXP	M	R	S	Wt.	
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.	
QMMC22J110S	<b>110 mm</b>	22222	<b>19.8</b> 0.78	<b>38.1</b> 1.50	<b>160.0</b> 6.30	<b>7.9</b> 0.31	<b>222.25</b>	<b>108.5</b> 4.27	<b>46.5</b> 1.83	<b>148.0</b> 5.83	<b>150.1</b> 5.91	<b>94.0</b> 3.70	<b>7.6</b> 0.30	<b>140.5</b> 5.53	<b>18.1</b> 40	
QMMC22J407S	4 7/16 in.						(+0/-0.08)									8.75
QMMC22J408S	4 1/2 in.						(+0/-0.003)									8.75
QMMC22J115S	<b>115 mm</b>															
QMMC26J125S	<b>125 mm</b>	22226	<b>19.8</b> 0.78	<b>38.1</b> 1.50	<b>175.0</b> 6.89	<b>7.9</b> 0.31	<b>265.13</b>	<b>141.7</b> 5.58	<b>58.7</b> 2.31	<b>165.4</b> 6.51	<b>167.4</b> 6.59	<b>94.7</b> 3.73	<b>11.9</b> 0.47	<b>153.4</b> 6.04	<b>31.8</b> 70	
QMMC26J415S	4 15/16 in.						(+0/-0.08)									10.438
QMMC26J500S	5 in.						(+0/-0.003)									10.438
QMMC26J130S	<b>130 mm</b>															
QMMC30J507S	5 7/16 in.	23230	<b>19.8</b> 0.78	<b>38.1</b> 1.50	<b>205.0</b> 8.07	<b>5.6</b> 0.22	<b>292.10</b>	<b>154.4</b> 6.08	<b>75.9</b> 2.99	<b>188.2</b> 7.41	<b>190.2</b> 7.49	<b>116.1</b> 4.57	<b>-3.8</b> -0.15	<b>192.0</b> 7.56	<b>88.0</b> 194	
QMMC30J508S	5 1/2 in.						(+0/-0.08)									11.500
QMMC30J140S	<b>140 mm</b>						(+0/-0.003)									11.500
QMMC30J515S	5 15/16 in.															
QMMC30J600S	6 in.	23230	<b>19.8</b> 0.78	<b>38.1</b> 1.50	<b>205.0</b> 8.07	<b>5.6</b> 0.22	<b>311.15</b>	<b>154.4</b> 6.08	<b>75.9</b> 2.99	<b>188.2</b> 7.41	<b>190.2</b> 7.49	<b>116.1</b> 4.57	<b>-3.8</b> -0.15	<b>192.0</b> 7.56	<b>87.1</b> 192	
QMMC30J150S	<b>150 mm</b>						(+0/-0.08)									12.250
QMMC34J607S	6 7/16 in.						(+0/-0.003)									12.250
QMMC34J608S	6 1/2 in.															
QMMC34J170S	<b>170 mm</b>	23234	<b>19.8</b> 0.78	<b>38.1</b> 1.50	<b>235.0</b> 9.25	<b>5.6</b> 0.22	<b>344.50</b>	<b>181.1</b> 7.13	<b>85.1</b> 3.35	<b>219.5</b> 8.64	<b>221.5</b> 8.72	<b>129.0</b> 5.08	<b>5.33</b> 0.21	<b>214.1</b> 8.43	<b>155.6</b> 343	
QMMC34J615S	6 15/16 in.						(+0/-0.08)									13.563
QMMC34J700S	7 in.						(+0/-0.003)									13.563
QMMC34J180S	<b>180 mm</b>															

<sup>(1)</sup>The grub screw is located in the external housing nut to secure to the housing.

QMMH HANGER BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D	E	F	G	J	K	L	M	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMMH15J211S	2 11/16 in.	22215	131.8	212.9	101.9	162.1	50.8	50.8	69.9	1 -8UNC	31.8	91.9	60.2	0.0	91.9	10.0
QMMH15J212S	2 3/4 in.															
QMMH15J070S	70 mm															
QMMH15J215S	2 15/16 in.															
QMMH15J300S	3 in.															
QMMH15J075S	75 mm	22218	160.3	260.4	120.9	200.2	63.5	76.2	76.2	1 1/4 -7UNC	36.6	99.3	65.8	3.0	102.4	16.3
QMMH18J303S	3 3/16 in.															
QMMH18J304S	3 1/4 in.															
QMMH18J080S	80 mm															
QMMH18J085S	85 mm															
QMMH18J307S	3 7/16 in.															
QMMH18J308S	3 1/2 in.															
QMMH18J090S	90 mm															





## TA/DV SERIES

The TA and DV series feature a 2300-series tapered adapter sleeve for increased shaft contact. This design offers the best shaft concentricity and highest capacity all the while having the ability to accommodate undersized shafting.

### TA Series

TA series housed unit bearings are a direct drop-in replacement for SAF/SN split-cap housing dimensions.

### DV Series

DV series housed units are a drop-in replacement for common American set screw mounted units.



Fig. C-46. TA/DV series taper adapter insert.

## YOU HAVE CHOICES

For the TA and DV series, you can select from many seal options and housing styles, which are shown on page C-154.

### HOUSINGS

- Two-bolt pillow blocks.
- Four-bolt pillow blocks.
- Flange blocks.
- Piloted flange cartridges.
- Cartridge blocks.

### SEALS

- Labyrinth: DuPont Teflon (T).
- Triple-lip: nitrile rubber (M), urethane (O) and DuPont Viton (N).
- Double-lip: nitrile rubber (B) and DuPont Viton (C).
- Steel and urethane closed-end covers (CS).
- Steel and urethane open-end covers (CK) with:
  - DuPont Teflon (T).
  - Triple-lip seal (DR).
  - V-ring seal (VR).

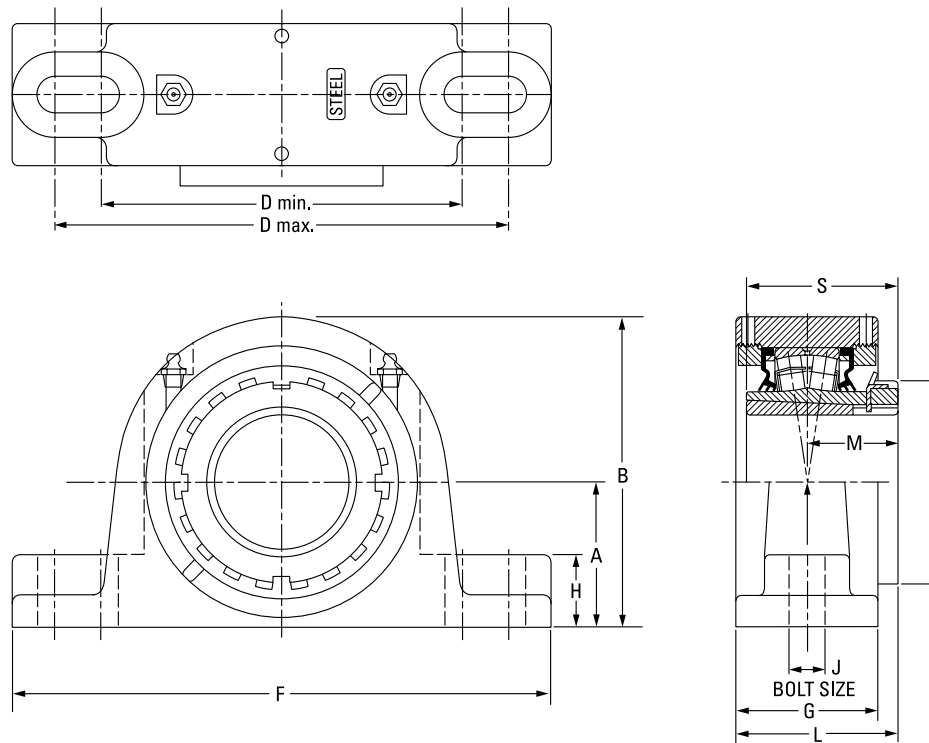
# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

TA/DV SERIES

## TA/DV SERIES

	Housing Type	Primary Seals						Secondary Seals and Covers						
		M	N	O	B	C	T	Open-End Cover			Closed-End Cover	HSY Flange Cartridge Backing Plate		UFP Backing Plate
								DR	VR	T		DR		
V-Lock (Timken Exclusive Double Taper Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
CL Series (Set Screw Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		•
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•	•	
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
	Hangar Block	•	•	•	•	•	•	•	•	•	•	•		
EC Series (Eccentric Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		•
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•	•	
	Take-Up Block	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
	Hangar Block	•	•	•	•	•	•	•	•	•	•	•		
TA Series (Tapered Adapter Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		
	Cartridge Block	•	•	•	•	•	•	•	•	•	•	•		
DV Series (Tapered Adapter Lock)	Pillow Block	•	•	•	•	•	•	•	•	•	•	•		
	Flange Block	•	•	•	•	•	•	•	•	•	•	•		
	Piloted Flange Cartridge	•	•	•	•	•	•	•	•	•	•	•		

DVP TWO-BOLT PILLOW BLOCKS

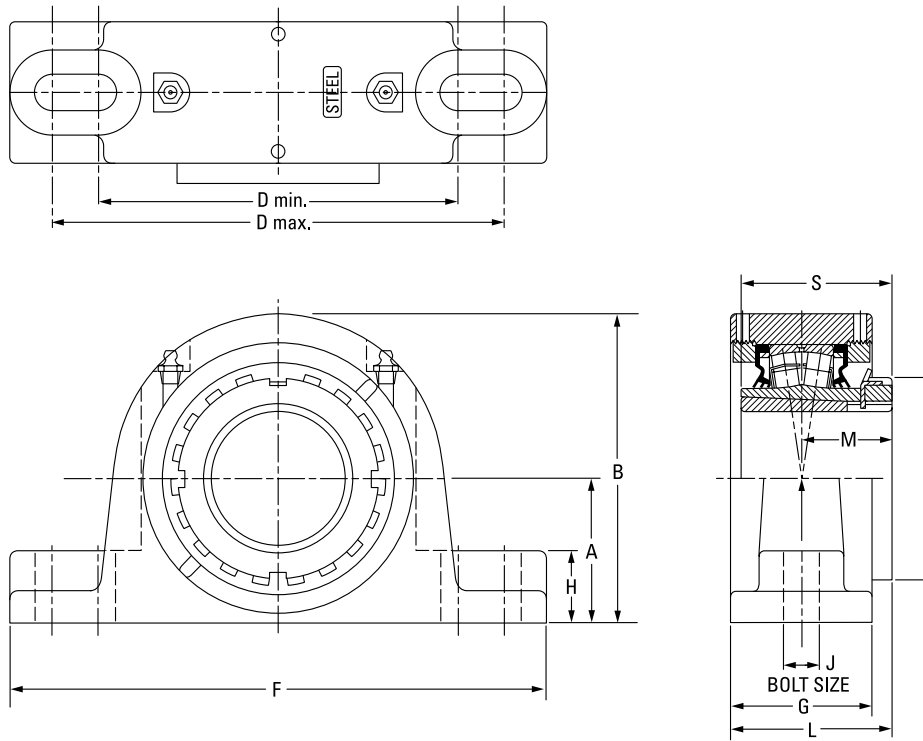


Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	M	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
DVP09K107S	1 7/16 in.	22209	47.8 1.88	98.6 3.88	65.0 2.56	119.1 4.69	152.4 6.00	174.8 6.88	53.3 2.10	25.4 1.00	12 1/2	57.4 2.26	30.7 1.21	50.3 1.98	4.5 10
DVP09K108S	1 1/2 in.	22209	54.1	104.9	65.0	119.1	165.1	200.2	53.3	25.4	12	57.4	30.7	50.3	4.5
DVP09K040S	40 mm		2.13	4.13	2.56	4.69	6.50	7.88	2.10	1.00	1/2	2.26	1.21	1.98	10
DVP10K111S	1 11/16 in.	22210	54.1 2.13	114.3 4.50	70.1 2.76	144.8 5.70	165.1 6.50	200.2 7.88	54.9 2.16	31.8 1.25	12 1/2	61.0 2.40	33.5 1.32	55.1 2.17	5.0 11
DVP10K112S	1 3/4 in.	22210	57.2	117.3	70.1	158.8	180.8	225.6	54.9	31.8	16	61.0	33.5	55.1	5.0
DVP10K045S	45 mm		2.25	4.62	2.76	6.25	7.12	8.88	2.16	1.25	5/8	2.40	1.32	2.17	11
DVP11K115S	1 15/16 in.	22211	57.2	123.4	74.9	152.4	181.1	225.6	61.7	31.8	16	66.5	35.6	58.9	5.9
DVP11K200S	2 in.		2.25	4.86	2.95	6.00	7.13	8.88	2.43	1.25	5/8	2.62	1.40	2.32	13
DVP11K050S	50 mm														
DVP13K203S	2 3/16 in.	22213	63.5	138.9	85.1	165.1	200.0	244.6	70.6	32.8	16	74.9	39.6	65.0	9.1
DVP13K204S	2 1/4 in.		2.50	5.47	3.35	6.50	7.87	9.63	2.78	1.29	5/8	2.95	1.56	2.56	20
DVP13K060S	60 mm														
DVP15K207S	2 7/16 in.	22215	69.9	149.9	98.0	174.8	219.2	260.4	68.6	35.1	16	78.2	43.9	73.4	11.3
DVP15K208S	2 1/2 in.		2.75	5.90	3.86	6.88	8.63	10.25	2.70	1.38	5/8	3.08	1.73	2.89	25
DVP15K065S	65 mm														
DVP17K215S	2 15/16 in.	22217	82.6	173.2	110.0	200.2	244.3	295.4	76.2	35.1	20	88.1	49.8	82.0	14.5
DVP17K300S	3 in.		3.25	6.82	4.33	7.88	9.62	11.63	3.00	1.38	3/4	3.47	1.96	3.23	32
DVP17K075S	75 mm														
DVP20K307S	3 7/16 in.	22220	95.3	202.7	130.0	238.3	285.8	342.9	85.9	47.8	24	101.3	58.4	97.0	25.9
DVP20K308S	3 1/2 in.		3.75	7.98	5.12	9.38	11.25	13.50	3.38	1.88	7/8	3.99	2.30	3.82	57
DVP20K090S	90 mm														
DVP22K315S	3 15/16 in.	22222	108.0	223.5	145.0	255.5	317.5	362.0	100.6	38.1	24	113.3	63.0	104.9	30.4
DVP22K400S	4 in.		4.25	8.80	5.71	10.06	12.50	14.25	3.96	1.50	1	4.46	2.48	4.13	67
DVP22K100S	100 mm														

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

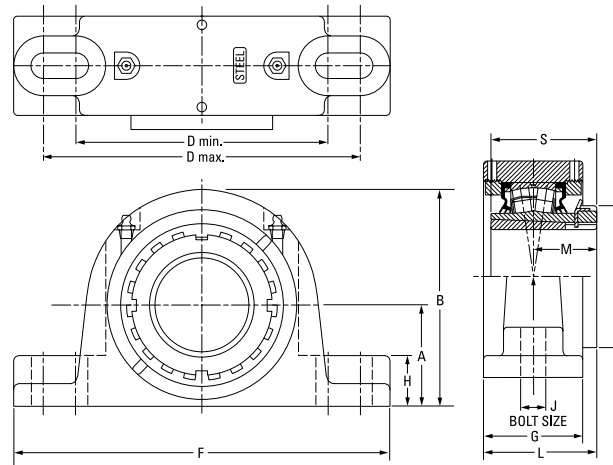
TA/DV SERIES • TAPA SAF-STYLE TWO-BOLT PILLOW BLOCKS

## TAPA SAF-STYLE TWO-BOLT PILLOW BLOCKS



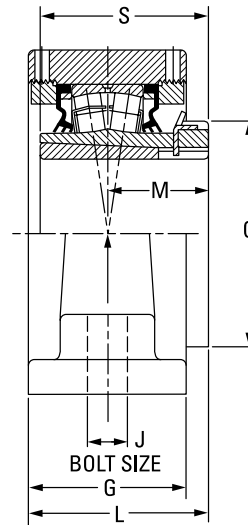
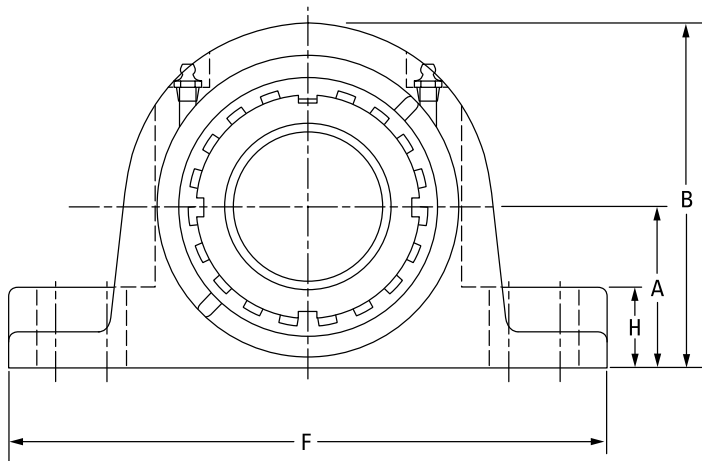
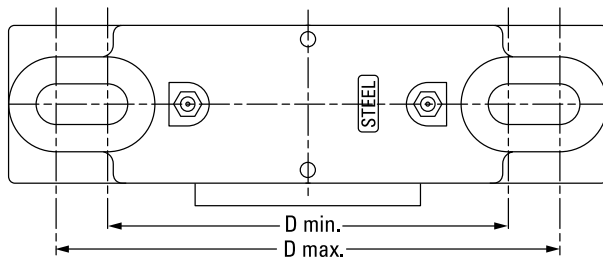
Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	M	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
TAPA09K107S	1 7/16 in.	22209	57.2	108.0	65.0	158.8	177.8	209.6	53.3	29.0	12	57.4	30.7	50.3	4.5
TAPA09K108S	1 1/2 in.		2.25	4.25	2.56	6.25	7.00	8.25	2.10	1.14	1/2	2.26	1.21	1.98	10
TAPA09K040S	40 mm														
TAPA10K111S	1 11/16 in.	22210	63.5	123.7	70.1	165.1	177.8	209.6	54.9	31.8	12	61.0	33.5	55.1	5.9
TAPA10K112S	1 3/4 in.		2.50	4.87	2.76	6.50	7.00	8.25	2.16	1.25	1/2	2.40	1.32	2.17	13
TAPA10K045S	45 mm														
TAPA11K115S	1 15/16 in.	22211	69.9	135.4	74.9	165.1	221.0	251.0	60.5	31.8	16	65.8	35.6	58.9	7.7
TAPA11K200S	2 in.		2.75	5.33	2.95	6.50	8.70	9.88	2.38	1.25	5/8	2.59	1.40	2.32	17
TAPA11K050S	50 mm														
TAPA13K203S	2 3/16 in.	22213	76.2	151.1	85.1	182.9	233.7	261.9	68.6	31.2	16	73.9	39.6	65.0	10.4
TAPA13K204S	2 1/4 in.		3.00	5.95	3.35	7.20	9.20	10.31	2.70	1.23	5/8	2.91	1.56	2.56	23
TAPA13K060S	60 mm														
TAPA15K207S	2 7/16 in.	22215	82.6	163.3	98.0	200.2	244.6	276.4	68.6	31.8	16	78.2	43.9	72.9	12.2
TAPA15K208S	2 1/2 in.		3.25	6.43	3.86	7.88	9.63	10.88	2.70	1.25	5/8	3.08	1.73	2.87	27
TAPA15K065S	65 mm														
TAPA17K215S	2 15/16 in.	22217	95.3	185.9	110.0	241.3	279.4	320.8	76.2	33.8	20	88.1	49.8	82.0	15.0
TAPA17K300S	3 in.		3.75	7.32	4.33	9.50	11.00	12.63	3.00	1.33	3/4	3.47	1.96	3.23	33
TAPA17K075S	75 mm														
TAPA20K307S	3 7/16 in.	22220	114.3	219.2	130.0	276.4	327.2	368.3	86.9	41.4	24	102.4	58.4	97.0	29.5
TAPA20K308S	3 1/2 in.		4.50	8.63	5.12	10.88	12.88	14.50	3.42	1.63	7/8	4.03	2.30	3.82	65
TAPA20K090S	90 mm														
TAPA22K315S	3 15/16 in.	22222	125.5	240.5	145.0	317.5	368.3	406.4	100.6	50.8	24	113.5	63.0	104.9	38.1
TAPA22K400S	4 in.		4.94	9.47	5.71	12.50	14.50	16.00	3.96	2.00	7/8	4.47	2.48	4.13	84
TAPA22K100S	100 mm														
TAPA26K407S	4 7/16 in.	22226	152.4	284.0	165.1	362.0	400.1	444.5	128.0	51.8	24	135.9	71.9	120.9	61.7
TAPA26K408S	4 1/2 in.		6.00	11.18	6.50	14.25	15.75	17.50	5.04	2.04	1	5.35	2.83	4.76	136
TAPA26K115S	115 mm														
TAPA28K415S	4 15/16 in.	22228	152.4	290.8	180.1	384.3	447.8	499.9	85.6	51.8	30	120.4	77.5	131.1	61.8
TAPA28K500S	5 in.		6.00	11.45	7.09	15.13	17.63	19.68	3.37	2.04	1 1/4	4.74	3.05	5.16	136
TAPA28K125S	125 mm														

TAPN SN-STYLE TWO-BOLT PILLOW BLOCKS



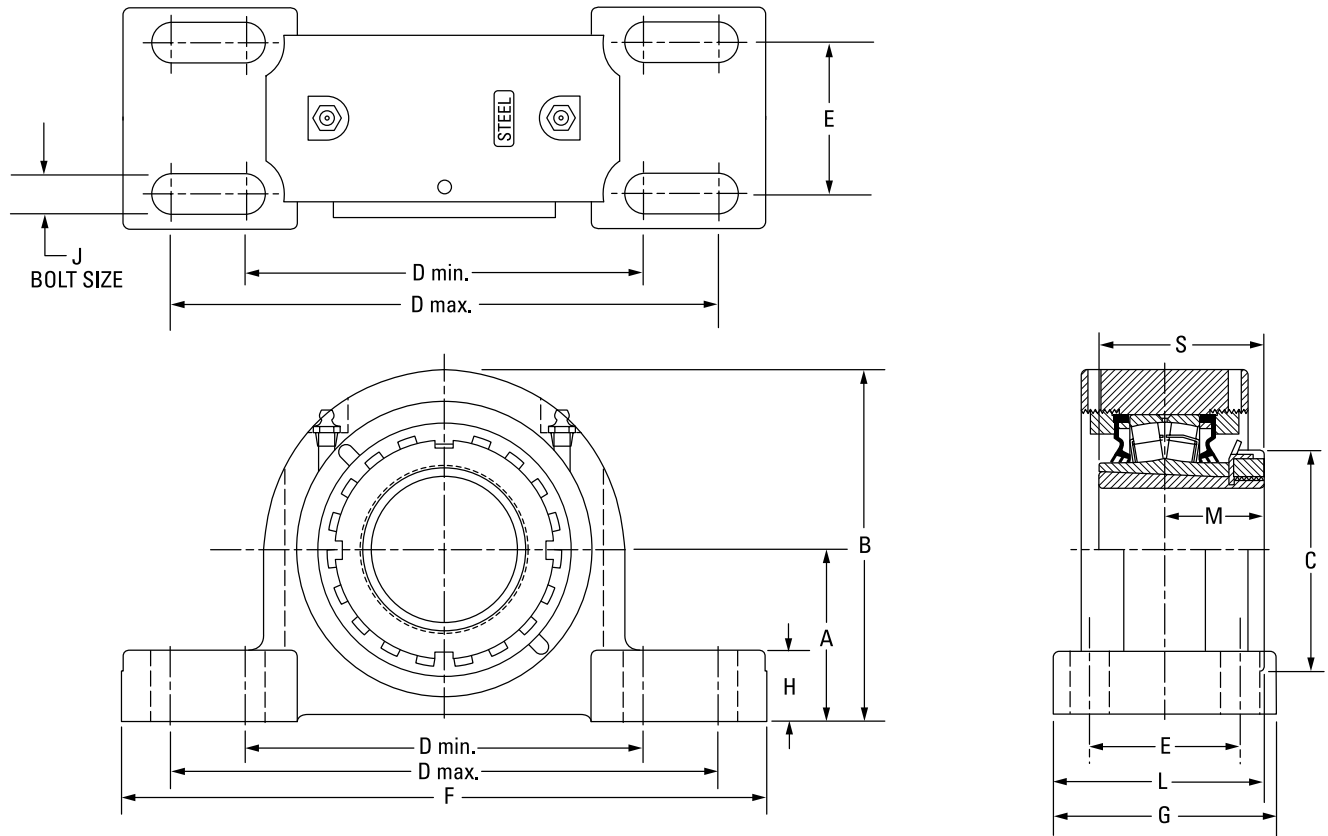
Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	M	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
TAPN09K107S	1 7/16 in.	22209	<b>60.0</b>	<b>108.0</b>	<b>65.0</b>	<b>158.8</b>	<b>177.8</b>	<b>209.6</b>	<b>53.3</b>	<b>29.0</b>	<b>12</b>	<b>57.4</b>	<b>30.7</b>	<b>50.3</b>	<b>4.5</b>
TAPN09K108S	1 1/2 in.		2.362	4.25	2.56	6.25	7.00	8.25	2.10	1.14	1/2	2.26	1.21	1.98	10
TAPN09K040S	<b>40 mm</b>														
TAPN10K111S	1 11/16 in.	22210	<b>60.0</b>	<b>120.1</b>	<b>70.1</b>	<b>165.1</b>	<b>177.8</b>	<b>209.6</b>	<b>54.9</b>	<b>28.2</b>	<b>12</b>	<b>61.0</b>	<b>33.5</b>	<b>55.1</b>	<b>5.9</b>
TAPN10K112S	1 3/4 in.		2.362	4.73	2.76	6.50	7.00	8.25	2.16	1.11	1/2	2.40	1.32	2.17	13
TAPN10K045S	<b>45 mm</b>														
TAPN11K115S	1 15/16 in.	22211	<b>69.9</b>	<b>135.4</b>	<b>74.9</b>	<b>165.1</b>	<b>221.0</b>	<b>251.0</b>	<b>60.5</b>	<b>31.8</b>	<b>16</b>	<b>65.8</b>	<b>35.6</b>	<b>58.9</b>	<b>7.7</b>
TAPN11K200S	2 in.		2.75	5.33	2.95	6.50	8.70	9.88	2.38	1.25	5/8	2.59	1.40	2.32	17
TAPN11K050S	<b>50 mm</b>														
TAPN12K055S	<b>55 mm</b>	22212	<b>70.0</b>	<b>140.5</b>	<b>79.8</b>	<b>177.8</b>	<b>219.2</b>	<b>254.0</b>	<b>60.5</b>	<b>31.8</b>	<b>16</b>	<b>67.6</b>	<b>37.6</b>	<b>62.0</b>	<b>9.1</b>
			2.756	5.53	3.14	7.00	8.63	10.00	2.38	1.25	5/8	2.66	1.48	2.44	20
TAPN13K203S	2 3/16 in.	22213	<b>80.0</b>	<b>154.9</b>	<b>85.1</b>	<b>182.9</b>	<b>233.7</b>	<b>261.9</b>	<b>68.6</b>	<b>35.1</b>	<b>16</b>	<b>73.9</b>	<b>39.6</b>	<b>65.0</b>	<b>10.4</b>
TAPN13K204S	2 1/4 in.		3.15	6.10	3.35	7.20	9.20	10.31	2.70	1.38	5/8	2.91	1.56	2.56	23
TAPN13K060S	<b>60 mm</b>														
TAPN15K207S	2 7/16 in.	22215	<b>80.0</b>	<b>160.8</b>	<b>98.0</b>	<b>200.2</b>	<b>244.6</b>	<b>276.4</b>	<b>68.6</b>	<b>29.2</b>	<b>16</b>	<b>78.2</b>	<b>43.9</b>	<b>72.9</b>	<b>12.2</b>
TAPN15K208S	2 1/2 in.		3.15	6.33	3.86	7.88	9.63	10.88	2.70	1.15	5/8	3.08	1.73	2.87	27
TAPN15K065S	<b>65 mm</b>														
TAPN16K211S	2 11/16 in.	22216	<b>95.0</b>	<b>180.3</b>	<b>104.6</b>	<b>235.0</b>	<b>266.7</b>	<b>315.0</b>	<b>72.6</b>	<b>31.8</b>	<b>20</b>	<b>83.8</b>	<b>47.5</b>	<b>78.0</b>	<b>13.6</b>
TAPN16K212S	2 3/4 in.		3.74	7.10	4.12	9.25	10.50	12.40	2.86	1.25	3/4	3.30	1.87	3.07	30
TAPN16K070S	<b>70 mm</b>														
TAPN17K215S	2 15/16 in.	22217	<b>95.3</b>	<b>185.9</b>	<b>110.0</b>	<b>241.3</b>	<b>279.4</b>	<b>320.8</b>	<b>76.2</b>	<b>33.8</b>	<b>20</b>	<b>88.1</b>	<b>49.8</b>	<b>82.0</b>	<b>15.0</b>
TAPN17K300S	3 in.		3.75	7.32	4.33	9.50	11.00	12.63	3.00	1.33	3/4	3.47	1.96	3.23	33
TAPN17K075S	<b>75 mm</b>														
TAPN18K080S	<b>80 mm</b>	22218	<b>100.0</b>	<b>195.3</b>	<b>119.6</b>	<b>285.8</b>	<b>295.4</b>	<b>346.2</b>	<b>79.8</b>	<b>38.9</b>	<b>20</b>	<b>91.7</b>	<b>52.1</b>	<b>86.1</b>	<b>22.2</b>
TAPN18K303S	3 3/16 in.		3.937	7.69	4.71	11.25	11.63	13.63	3.14	1.53	3/4	3.61	2.05	3.39	49
TAPN18K304S	3 1/4 in.														
TAPN19K085S	<b>85 mm</b>	22219	<b>112.0</b>	<b>212.3</b>	<b>124.7</b>	<b>285.8</b>	<b>295.4</b>	<b>346.2</b>	<b>82.8</b>	<b>38.9</b>	<b>20</b>	<b>96.0</b>	<b>54.6</b>	<b>89.9</b>	<b>23.1</b>
			4.409	8.36	4.91	11.25	11.63	13.63	3.26	1.53	3/4	3.78	2.15	3.54	51
TAPN20K307S	3 7/16 in.	22220	<b>112.0</b>	<b>216.9</b>	<b>130.0</b>	<b>276.4</b>	<b>327.2</b>	<b>368.3</b>	<b>86.9</b>	<b>38.9</b>	<b>24</b>	<b>102.4</b>	<b>58.4</b>	<b>97.0</b>	<b>29.5</b>
TAPN20K308S	3 1/2 in.		4.409	8.54	5.12	10.88	12.88	14.50	3.42	1.53	7/8	4.03	2.30	3.82	65
TAPN20K090S	<b>90 mm</b>														
TAPN22K315S	3 15/16 in.	22222	<b>125.0</b>	<b>240.5</b>	<b>145.0</b>	<b>317.5</b>	<b>368.3</b>	<b>406.4</b>	<b>100.6</b>	<b>50.8</b>	<b>24</b>	<b>113.5</b>	<b>63.0</b>	<b>104.9</b>	<b>38.1</b>
TAPN22K400S	4 in.		4.921	9.47	5.71	12.50	14.50	16.00	3.96	2.00	7/8	4.47	2.48	4.13	84
TAPN22K100S	<b>100 mm</b>														
TAPN24K403S	4 3/16 in.	22224	<b>140.0</b>	<b>262.9</b>	<b>154.4</b>	<b>344.4</b>	<b>355.6</b>	<b>409.7</b>	<b>97.8</b>	<b>50.8</b>	<b>24</b>	<b>116.1</b>	<b>67.1</b>	<b>112.0</b>	<b>49.9</b>
TAPN24K404S	4 1/4 in.		5.512	10.35	6.08	13.56	14.00	16.13	3.85	2.00	7/8	4.57	2.64	4.41	110
TAPN24K110S	<b>110 mm</b>														
TAPN26K407S	4 7/16 in.	22226	<b>150.0</b>	<b>281.7</b>	<b>165.1</b>	<b>367.3</b>	<b>400.1</b>	<b>444.5</b>	<b>128.0</b>	<b>49.3</b>	<b>24</b>	<b>135.9</b>	<b>71.9</b>	<b>120.9</b>	<b>61.7</b>
TAPN26K408S	4 1/2 in.		5.906	11.09	6.50	14.46	15.75	17.50	5.04	1.94	1	5.35	2.83	4.76	136
TAPN26K115S	<b>115 mm</b>														
TAPN28K415S	4 15/16 in.	22228	<b>150.0</b>	<b>288.5</b>	<b>180.1</b>	<b>384.3</b>	<b>447.8</b>	<b>499.9</b>	<b>85.6</b>	<b>49.3</b>	<b>30</b>	<b>120.4</b>	<b>77.5</b>	<b>131.1</b>	<b>61.8</b>
TAPN28K500S	5 in.		5.906	11.36	7.09	15.13	17.63	19.68	3.37	1.94	1 1/4	4.74	3.05	5.16	136
TAPN28K125S	<b>125 mm</b>														

**TAPKT 9000 SERIES TWO-BOLT PILLOW BLOCKS**



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	F	G	H	J	L	M	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
TAPKT13K203S	2 3/16 in.	22213	<b>76.2</b>	<b>153.7</b>	<b>85.1</b>	<b>194.6</b>	<b>223.0</b>	<b>285.8</b>	<b>73.7</b>	<b>35.1</b>	<b>20</b>	<b>76.5</b>	<b>36.6</b>	<b>65.0</b>	<b>10.0</b>
TAPKT13K204S	2 1/4 in.		3.00	6.05	3.35	7.66	8.78	11.25	2.90	1.38	3/4	3.01	1.56	2.56	22
TAPKT13K060S	<b>60 mm</b>														
TAPKT15K207S	2 7/16 in.	22215	<b>88.9</b>	<b>173.7</b>	<b>98.0</b>	<b>230.1</b>	<b>265.2</b>	<b>330.2</b>	<b>75.7</b>	<b>35.1</b>	<b>24</b>	<b>81.8</b>	<b>43.9</b>	<b>72.9</b>	<b>12.7</b>
TAPKT15K208S	2 1/2 in.		3.50	6.84	3.86	9.06	10.44	13.00	2.98	1.38	7/8	3.22	1.73	2.87	28
TAPKT15K065S	<b>65 mm</b>														

DVPF FOUR-BOLT PILLOW BLOCKS

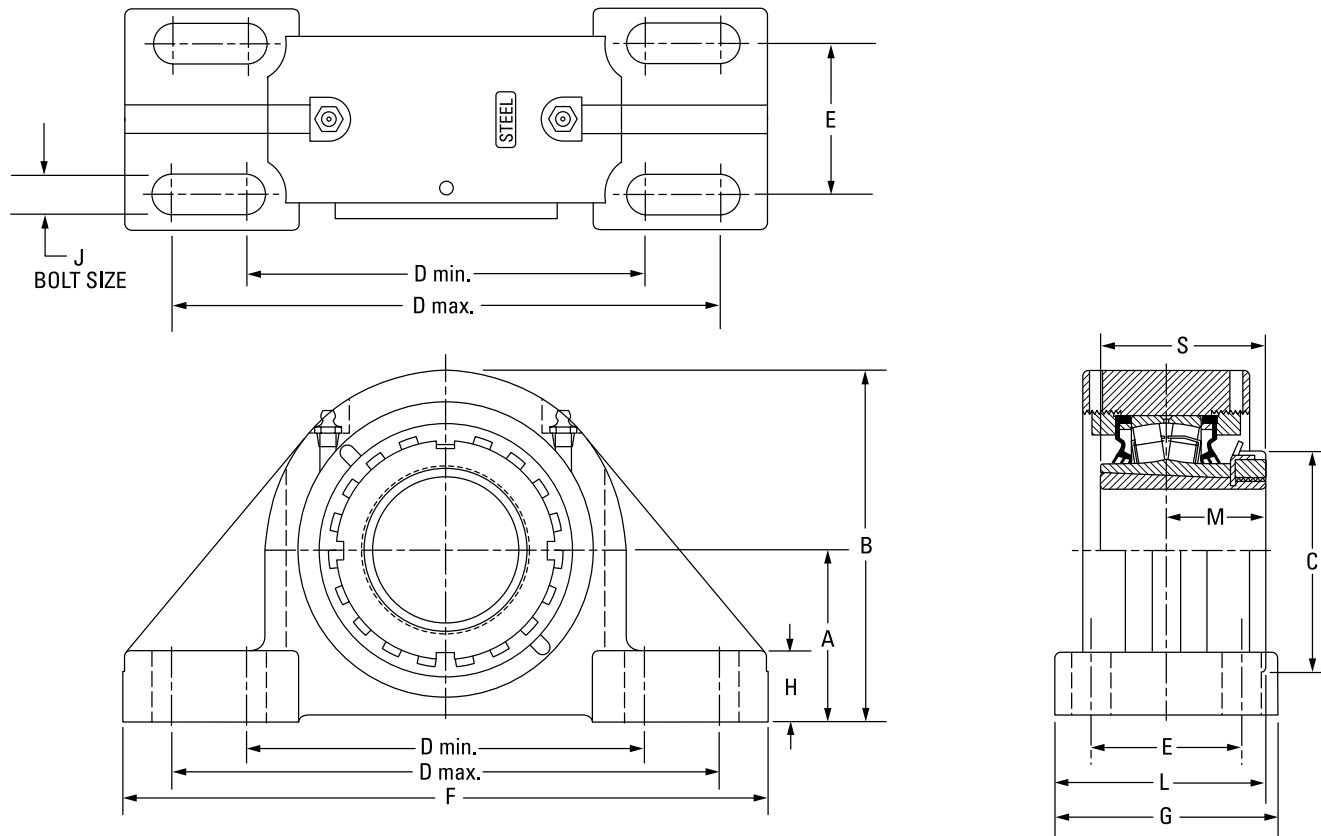


Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	M	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
DVPF17K215S	2 15/16 in.	22217	82.6	172.5	110.0	193.0	231.1	47.8	265.2	79.5	32.8	16	86.6	49.8	82.0	23.1
DVPF17K300S	3 in.		3.25	6.79	4.33	7.60	9.10	1.88	10.44	3.13	1.29	5/8	3.41	1.96	3.23	51
DVPF17K075S	75 mm															
DVPF20K307S	3 7/16 in.	22220	95.3	200.2	130.0	225.6	276.4	50.8	312.4	95.3	39.6	20	101.3	58.4	97.0	31.8
DVPF20K308S	3 1/2 in.		3.75	7.88	5.12	8.88	10.88	2.00	12.30	3.75	1.56	3/4	3.99	2.30	3.82	70
DVPF20K090S	90 mm															
DVPF22K315S	3 15/16 in.	22222	108.0	223.0	145.0	276.4	339.9	57.2	378.0	109.5	35.6	20	110.7	63.0	104.9	38.6
DVPF22K400S	4 in.		4.25	8.78	5.71	10.88	13.38	2.25	14.88	4.31	1.40	3/4	4.36	2.48	4.13	85
DVPF22K100S	100 mm															
DVPF26K407S	4 7/16 in.	22226	120.7	250.7	165.1	302.3	368.3	63.5	409.7	120.7	40.1	20	123.7	71.9	120.1	62.1
DVPF26K408S	4 1/2 in.		4.75	9.87	6.50	11.90	14.50	2.50	16.13	4.75	1.58	3/4	4.87	2.83	4.73	137
DVPF26K115S	115 mm															

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

TA/DV SERIES • TAPK 9000 SERIES FOUR-BOLT PILLOW BLOCKS

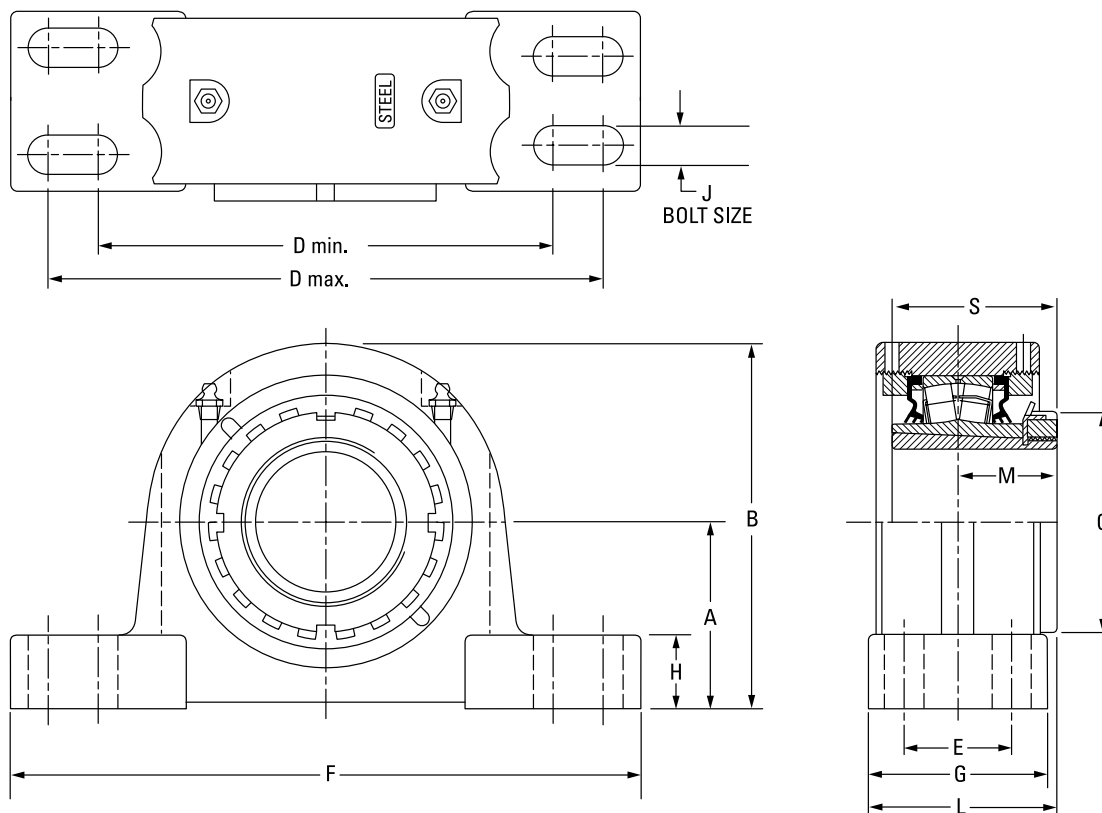
## TAPK 9000 SERIES FOUR-BOLT PILLOW BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	M	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
TAPK15K207S	2 7/16 in.	22215	88.9	173.5	98.0	230.1	265.2	69.9	330.2	108.0	39.1	20	98.0	43.9	72.9	13.2
TAPK15K208S	2 1/2 in.		3.50	6.83	3.86	9.06	10.44	2.75	13.00	4.25	1.54	3/4	3.86	1.73	2.87	29
TAPK15K065S	65 mm															
TAPK17K215S	2 15/16 in.	22217	101.6	201.2	110.0	274.6	309.6	76.2	381.0	120.7	38.1	20	110.2	49.8	82.0	16.8
TAPK17K300S	3 in.		4.00	7.92	4.33	10.81	12.19	3.00	15.00	4.75	1.50	3/4	4.34	1.96	3.23	37
TAPK17K075S	75 mm															
TAPK20K307S	3 7/16 in.	22220	127.0	239.8	130.0	317.5	355.6	88.9	425.5	139.7	41.4	24	128.3	58.4	97.0	31.8
TAPK20K308S	3 1/2 in.		5.00	9.44	5.12	12.50	14.00	3.50	16.75	5.50	1.63	7/8	5.05	2.30	3.82	70
TAPK20K090S	90 mm															
TAPK22K315S	3 15/16 in.	22222	146.1	273.8	145.0	354.1	395.2	101.6	469.9	158.8	45.7	24	138.2	63.0	104.9	39.5
TAPK22K400S	4 in.		5.75	10.78	5.71	13.94	15.56	4.00	18.50	6.25	1.80	1	5.44	2.48	4.13	87
TAPK22K100S	100 mm															
TAPK26K407S	4 7/16 in.	22226	155.6	283.2	165.1	387.4	425.5	108.0	514.4	171.5	50.8	24	157.5	71.9	120.9	61.7
TAPK26K408S	4 1/2 in.		6.125	11.15	6.50	15.25	16.75	4.25	20.25	6.75	2.00	1 1/8	6.20	2.83	4.76	136
TAPK26K115S	115 mm															



TAPH SAF-STYLE FOUR-BOLT PILLOW BLOCKS

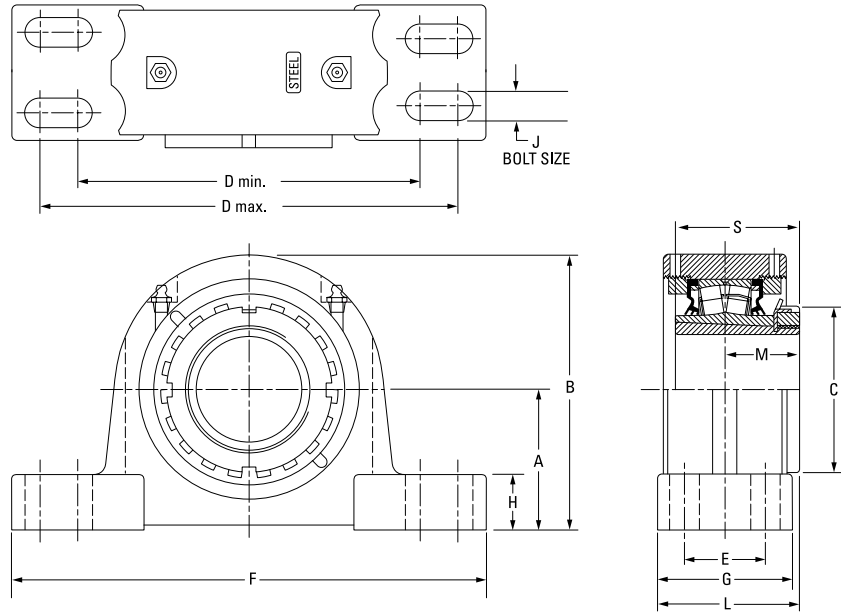


Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	M	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
TAPH11K115S	1 15/16 in.	22211	69.9	134.9	74.9	182.4	217.4	39.9	251.0	68.6	31.8	16	69.9	35.6	58.9	8.6
TAPH11K200S	2 in.		2.75	5.31	2.95	7.18	8.56	1.57	9.88	2.70	1.25	5/8	2.75	1.40	2.32	19
TAPH11K050S	50 mm															
TAPH13K203S	2 3/16 in.	22213	76.2	151.1	85.1	182.4	217.4	50.8	261.9	82.6	31.2	12	81.0	39.6	65.0	11.3
TAPH13K204S	2 1/4 in.		3.00	5.95	3.35	7.18	8.56	2.00	10.31	3.25	1.23	1/2	3.19	1.56	2.56	25
TAPH13K060S	60 mm															
TAPH15K207S	2 7/16 in.	22215	82.6	162.1	98.0	201.7	246.1	47.8	276.4	79.5	32.8	12	83.6	43.9	72.9	13.2
TAPH15K208S	2 1/2 in.		3.25	6.38	3.86	7.94	9.69	1.88	10.88	3.13	1.29	1/2	3.29	1.73	2.87	29
TAPH15K065S	65 mm															
TAPH17K215S	2 15/16 in.	22217	95.3	182.9	110.0	239.8	287.3	54.1	320.8	92.2	32.0	16	96.0	49.8	82.0	16.8
TAPH17K300S	3 in.		3.75	7.20	4.33	9.44	11.31	2.13	12.63	3.63	1.26	5/8	3.78	1.96	3.23	37
TAPH17K075S	75 mm															
TAPH20K307S	3 7/16 in.	22220	114.3	216.9	130.0	276.4	339.9	60.5	381	109.5	41.9	20	113.3	58.4	97.0	31.8
TAPH20K308S	3 1/2 in.		4.50	8.54	5.12	10.88	13.38	2.38	15.00	4.31	1.65	3/4	4.46	2.30	3.82	70
TAPH20K090S	90 mm															
TAPH22K315S	3 15/16 in.	22222	125.5	238.3	145.0	301.8	368.3	69.9	406.4	120.7	45.0	20	123.4	63.0	104.9	39.5
TAPH22K400S	4 in.		4.94	9.38	5.71	11.88	14.50	2.75	16.00	4.75	1.77	3/4	4.86	2.48	4.13	87
TAPH22K100S	100 mm															
TAPH26K407S	4 7/16 in.	22226	152.4	284.0	165.1	362.0	400.1	82.6	444.5	128.0	51.8	24	135.9	71.9	120.9	61.7
TAPH26K408S	4 1/2 in.		6.00	11.18	6.50	14.25	15.75	3.25	17.50	5.04	2.04	3/4	5.35	2.83	4.76	136
TAPH26K115S	115 mm															
TAPH28K415S	4 15/16 in.	22228	152.4	290.8	180.1	406.4	435.1	85.9	500.4	128.0	51.8	24	141.5	77.5	131.1	61.8
TAPH28K500S	5 in.		6.00	11.45	7.09	16.00	17.13	3.38	19.70	5.04	2.04	1	5.57	3.05	5.16	136
TAPH28K125S	125 mm															

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

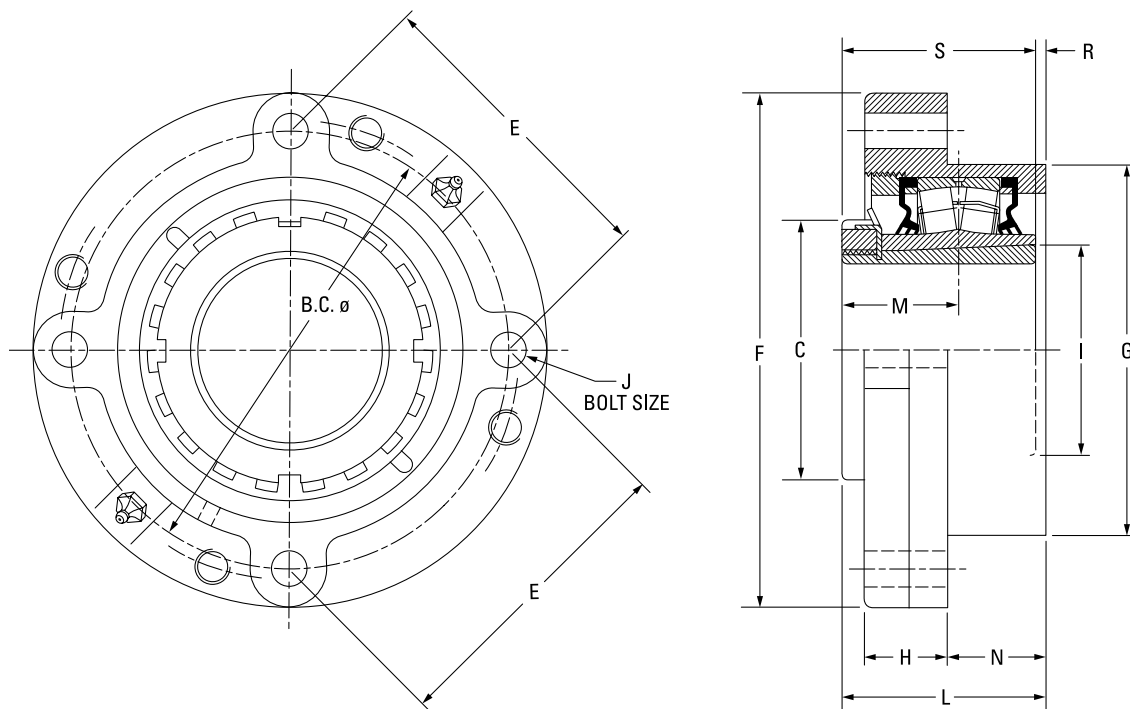
TA/DV SERIES • TAPG SN-STYLE FOUR-BOLT PILLOW BLOCKS

## TAPG SN-STYLE FOUR-BOLT PILLOW BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D min.	D max.	E	F	G	H	J	L	M	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
TAPG11K115S	1 15/16 in.	22211	69.9	134.9	74.9	182.4	217.4	39.9	251.0	68.6	31.8	16	69.9	35.6	58.9	8.6
TAPG11K200S	2 in.		2.75	5.31	2.95	7.18	8.56	1.57	9.88	2.70	1.25	5/8	2.75	1.40	2.32	19
TAPG11K050S	50 mm															
TAPG12K055S	55 mm	22212	70.0	140.5	79.8	177.8	219.2	35.1	254.0	69.9	31.8	12	72.6	37.6	62.0	9.9
			2.756	5.53	3.14	7.00	8.63	1.38	10.00	2.75	1.25	1/2	2.86	1.48	2.44	22
TAPG13K203S	2 3/16 in.	22213	80.0	154.9	85.1	182.4	217.4	48.0	261.9	82.6	35.1	16	81.0	39.6	65.0	11.3
TAPG13K204S	2 1/4 in.		3.15	6.10	3.35	7.18	8.56	1.89	10.31	3.25	1.38	5/8	3.19	1.56	2.56	25
TAPG13K060S	60 mm															
TAPG15K207S	2 7/16 in.	22215	80.0	162.1	98.0	201.7	246.1	39.6	276.4	79.5	30.2	16	83.8	43.9	72.9	13.2
TAPG15K208S	2 1/2 in.		3.15	6.38	3.86	7.94	9.69	1.56	10.88	3.13	1.19	5/8	3.30	1.73	2.87	29
TAPG15K065S	65 mm															
TAPG16K211S	2 11/16 in.	22216	95.0	180.3	104.6	235.0	266.7	50.0	315.0	89.9	31.8	16	92.5	47.5	78.0	14.9
TAPG16K212S	2 3/4 in.		3.74	7.10	4.12	9.25	10.50	1.97	12.40	3.54	1.25	5/8	3.64	1.87	3.07	33
TAPG16K070S	70 mm															
TAPG17K215S	2 15/16 in.	22217	95.0	182.9	110.0	239.8	287.3	52.3	320.8	92.2	31.8	20	96.0	49.8	82.0	16.8
TAPG17K300S	3 in.		3.74	7.20	4.33	9.44	11.31	2.06	12.63	3.63	1.25	3/4	3.78	1.96	3.23	37
TAPG17K075S	75 mm															
TAPG18K080S	80 mm	22218	100.0	195.3	119.6	282.7	298.5	50.0	344.9	100.1	39.6	16	102.1	52.1	86.1	24.5
TAPG18K303S	3 3/16 in.		3.937	7.69	4.71	11.13	11.75	1.97	13.58	3.94	1.56	5/8	4.02	2.05	3.39	54
TAPG18K304S	3 1/4 in.															
TAPG19K085S	85 mm	22219	112.0	212.3	124.7	282.7	298.5	50.0	344.9	100.1	39.6	16	104.6	54.6	89.9	25.4
			4.409	8.36	4.91	11.13	11.75	1.97	13.58	3.94	1.56	5/8	4.12	2.15	3.54	56
TAPG20K307S	3 7/16 in.	22220	112.0	214.6	130.0	276.4	339.9	60.5	381.0	109.5	39.6	20	113.3	58.4	97.0	31.8
TAPG20K308S	3 1/2 in.		4.409	8.45	5.12	10.88	13.38	2.38	15.00	4.31	1.56	3/4	4.46	2.30	3.82	70
TAPG20K090S	90 mm															
TAPG22K315S	3 15/16 in.	22222	112.0	238.3	145.0	301.8	368.3	69.9	406.4	120.7	44.5	20	123.4	63.0	104.9	39.5
TAPG22K400S	4 in.		4.921	9.38	5.71	11.88	14.50	2.75	16.00	4.75	1.75	3/4	4.86	2.48	4.13	87
TAPG22K100S	100 mm															
TAPG24K403S	4 3/16 in.	22224	140.0	262.9	154.4	342.9	355.6	70.1	410.0	120.7	50.8	16	127.5	67.1	112.0	49.9
TAPG24K404S	4 1/4 in.		5.512	10.35	6.08	13.50	14.00	2.76	16.14	4.75	2.00	5/8	5.02	2.64	4.41	110
TAPG24K110S	110 mm															
TAPG26K407S	4 7/16 in.	22226	150.0	281.7	165.1	367.28	400.1	81.0	444.5	128.0	49.3	24	135.9	71.88	120.9	61.7
TAPG26K408S	4 1/2 in.		5.906	11.09	6.50	14.46	15.75	3.19	17.50	5.04	1.94	1	5.35	2.83	4.76	136
TAPG26K115S	115 mm															
TAPG28K415S	4 15/16 in.	22228	150.0	288.4	180.1	384.3	447.8	80.0	500.4	128.0	49.3	24	141.5	77.5	131.1	61.8
TAPG28K500S	5 in.		5.906	11.36	7.09	15.13	17.63	3.15	19.70	5.04	1.94	1	5.57	3.05	5.16	136
TAPG28K125S	125 mm															

### DVC PILOTED FLANGE CARTRIDGES



Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	E	F	G <sup>(1)</sup>	H	I	J	L	M	N	R	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
DVC09K107S	1 7/16 in.	22209	111.3	65.0	78.5	133.4	92.1	26.7	48.3	10	55.4	30.7	23.9	5.1	50.3	4.1
DVC09K108S	1 1/2 in.		4.38	2.56	3.09	5.25	3.625	1.05	1.90	7/16	2.18	1.21	0.94	0.20	1.98	9
DVC09K040S	40 mm															
DVC10K111S	1 11/16 in.	22210	130.3	70.1	91.9	155.7	107.95	26.7	58.9	10	60.1	33.5	25.4	5.1	55.1	4.5
DVC10K112S	1 3/4 in.		5.13	2.76	3.62	6.13	4.250	1.05	2.32	7/16	2.37	1.32	1.00	0.20	2.17	10
DVC10K045S	45 mm															
DVC11K115S	1 15/16 in.	22211	136.7	74.9	96.5	162.1	114.3	31.5	62.2	10	63.2	35.6	25.4	4.1	58.9	5.0
DVC11K200S	2 in.		5.38	2.95	3.80	6.38	4.500	1.24	2.45	7/16	2.49	1.40	1.00	0.16	2.32	11
DVC11K050S	50 mm															
DVC13K203S	2 3/16 in.	22213	152.4	82.6	107.7	181.1	127.0	37.3	84.8	12	65.5	39.6	25.4	-2.8	65.0	7.3
DVC13K204S	2 1/4 in.		6.00	3.35	4.24	7.13	5.000	1.47	3.34	1/2	2.58	1.56	1.00	-0.11	2.56	16
DVC13K060S	60 mm															
DVC15K207S	2 7/16 in.	22215	165.1	98.0	116.8	193.8	139.7	32.3	79.0	12	69.9	43.9	31.8	3.6	72.9	8.2
DVC15K208S	2 1/2 in.		6.50	3.86	4.60	7.63	5.500	1.27	3.11	1/2	2.75	1.73	1.25	0.14	2.87	18
DVC15K065S	65 mm															
DVC17K215S	2 15/16 in.	22217	190.5	110.0	134.6	222.3	161.9	32.5	90.2	16	79.8	49.8	35.1	2.3	82.0	11.3
DVC17K300S	3 in.		7.50	4.33	5.30	8.75	6.375	1.28	3.55	5/8	3.14	1.96	1.38	0.09	3.23	25
DVC17K075S	75 mm															
DVC20K307S	3 7/16 in.	22220	219.2	130.0	154.9	260.4	187.3	41.1	106.2	20	91.9	58.4	35.1	5.1	97.0	16.8
DVC20K308S	3 1/2 in.		8.63	5.12	6.10	10.25	7.375	1.62	4.18	3/4	3.62	2.30	1.38	0.20	3.82	37
DVC20K090S	90 mm															
DVC22K315S	3 15/16 in.	22222	238.3	145.0	168.4	276.4	206.4	48.0	116.8	20	100.1	63.0	38.1	4.6	104.9	26.3
DVC22K400S	4 in.		9.38	5.71	6.63	10.88	8.125	1.89	4.60	3/4	3.94	2.48	1.50	0.18	4.13	58
DVC22K100S	100 mm															
DVC26K407S <sup>(2)</sup>	4 7/16 in.	22226	298.5	165.1	149.4	342.9	260.4	47.0	137.9	20	116.8	71.9	48.3	4.1	120.9	34.5
DVC26K408S <sup>(2)</sup>	4 1/2 in.		11.75 <sup>(2)</sup>	6.50	5.88 <sup>(2)</sup>	13.50	10.250	1.85	5.43	3/4 <sup>(2)</sup>	4.60	2.83	1.90	0.16	4.76	76
DVC26K115S <sup>(2)</sup>	115 mm															

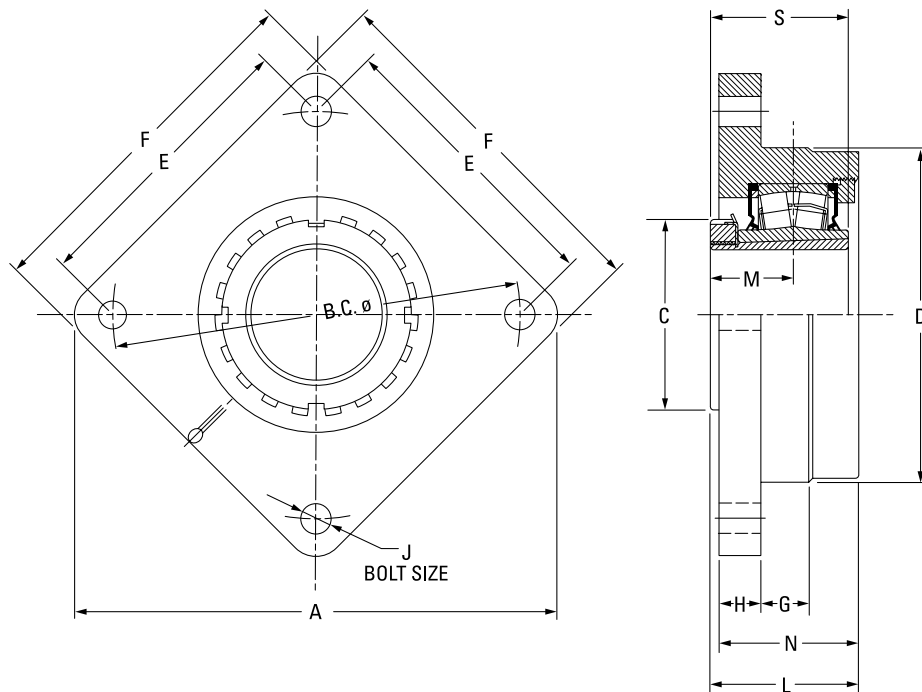
<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(2)</sup>Six-bolt housing.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

TA/DV SERIES • T AFC SQUARE PILOTED FLANGE CARTRIDGES

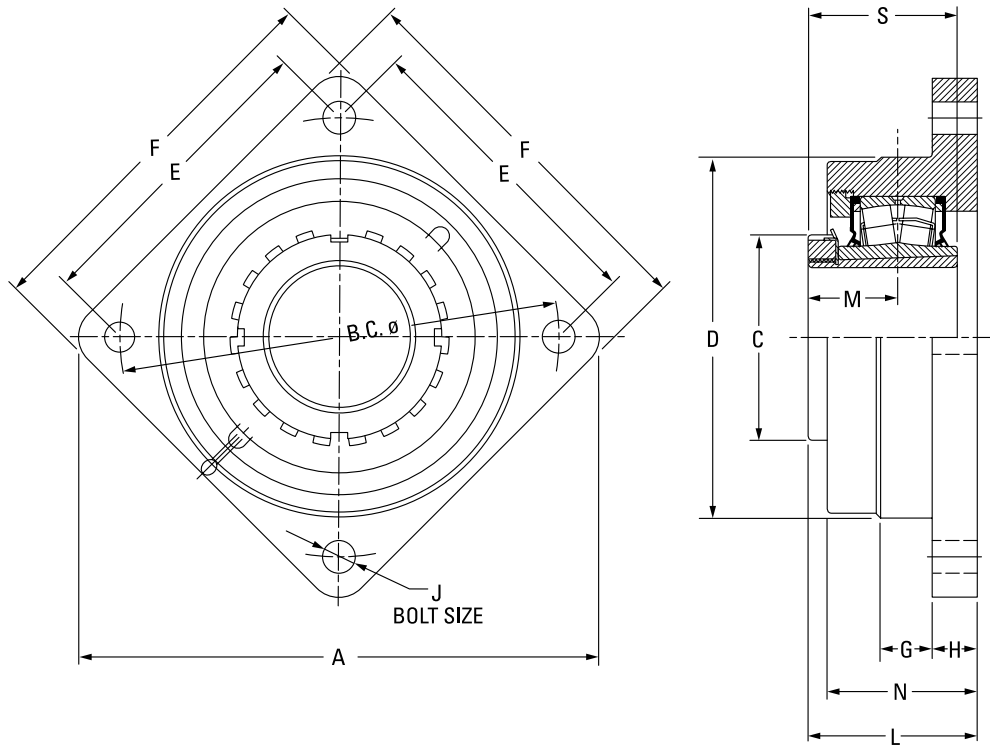
## T AFC SQUARE PILOTED FLANGE CARTRIDGES



Bearing Part No.	Shaft Dia.	Bearing No.	A	B.C.	C	D <sup>(1)</sup>	E	F	G	H	J	L	M	N	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
TAFC15K207S	2 7/16 in.	22215	255.0	215.1	98.0	169.9	152.4	192.0	25.4	23.9	16	79.5	43.9	64.8	72.9	11.3
TAFC15K208S	2 1/2 in.		10.04	8.47	3.86	6.690	6.00	7.56	1.00	0.94	5/8	3.13	1.73	2.55	2.87	25
TAFC15K065S	65 mm															
TAFC17K215S	2 15/16 in.	22217	282.4	240.0	110.0	190.0	169.7	212.1	25.4	25.4	16	88.6	49.8	69.9	82.0	13.6
TAFC17K300S	3 in.		11.12	9.45	4.33	7.480	6.68	8.35	1.00	1.00	5/8	3.49	1.96	2.75	3.23	30
TAFC17K075S	75 mm															
TAFC20K307S	3 7/16 in.	22220	330.2	279.9	130.0	230.1	197.9	247.9	31.8	28.7	20	105.7	58.4	94.2	97.0	18.1
TAFC20K308S	3 1/2 in.		13.00	11.02	5.12	9.060	7.79	9.76	1.25	1.13	3/4	4.16	2.30	3.71	3.82	40
TAFC20K090S	90 mm															
TAFC22K315S	3 15/16 in.	22222	367.0	309.9	145.0	255.0	219.2	274.3	44.5	26.4	20	113.0	63.0	101.1	104.9	27.2
TAFC22K400S	4 in.		14.45	12.20	5.71	10.039	8.63	10.80	1.75	1.04	3/4	4.45	2.48	3.98	4.13	60
TAFC22K100S	100 mm															
TAFC26K407S	4 7/16 in.	22226	411.5	355.1	165.1	290.0	251.0	298.5	41.9	32.0	24	130.6	71.9	114.3	120.9	42.6
TAFC26K408S	4 1/2 in.		16.20	13.98	6.50	11.417	9.88	11.75	1.65	1.26	7/8	5.14	2.83	4.50	4.76	94
TAFC26K115S	115 mm															

<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

TAFB SQUARE FLANGE BLOCKS

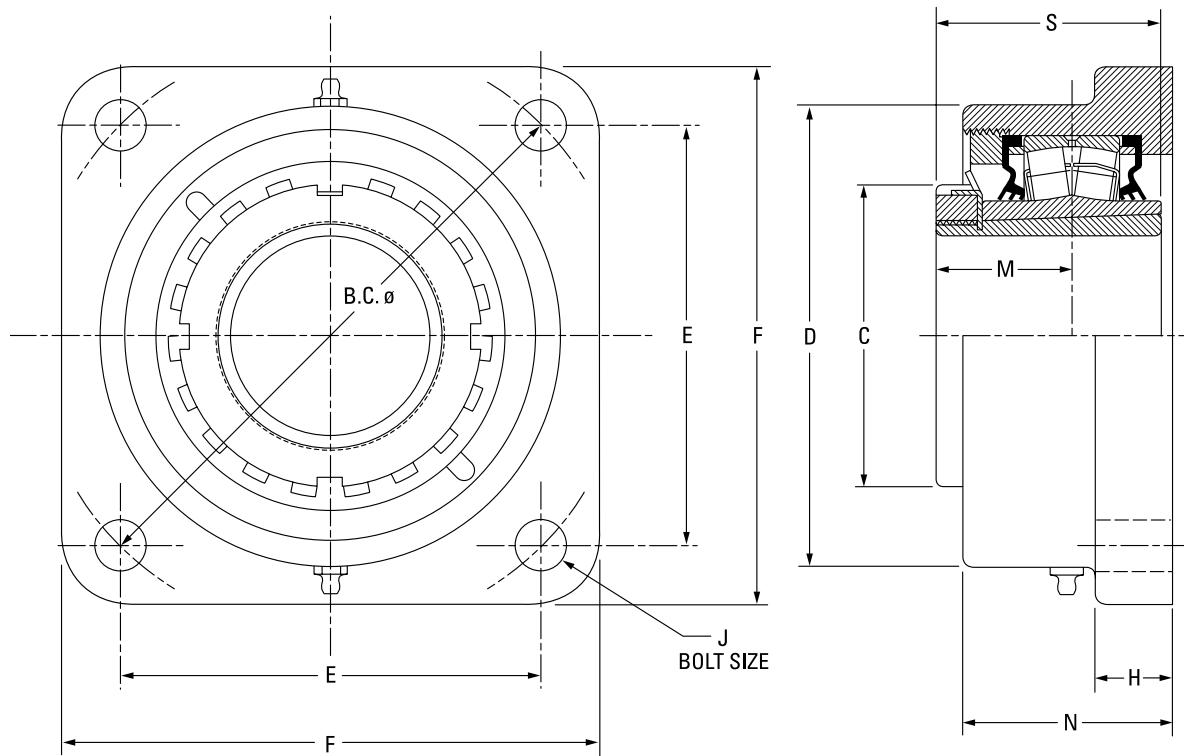


Bearing Part No.	Shaft Dia.	Bearing No.	A	B.C.	C	D	E	F	G	H	J	L	M	N	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
TAFB15K207S	2 7/16 in.	22215	255.0	215.1	98.0	169.9	152.4	192.0	25.4	23.9	16	73.7	43.9	64.8	72.9	11.3
TAFB15K208S	2 1/2 in.		10.04	8.47	3.86	6.69	6.00	7.56	1.00	0.94	5/8	2.90	1.73	2.55	2.87	25
TAFB15K065S	65 mm															
TAFB17K215S	2 15/16 in.	22217	282.4	240.0	110.0	190.0	169.7	212.1	25.4	25.4	16	88.6	49.8	69.9	82.0	13.6
TAFB17K300S	3 in.		11.12	9.45	4.33	7.48	6.68	8.35	1.00	1.00	5/8	3.49	1.96	2.75	3.23	30
TAFB17K075S	75 mm															
TAFB20K307S	3 7/16 in.	22220	330.2	280.0	130.0	230.1	197.9	247.9	31.8	28.7	20	105.7	58.4	94.2	97.0	18.1
TAFB20K308S	3 1/2 in.		13.00	11.02	5.12	9.06	7.79	9.76	1.25	1.13	3/4	4.16	2.30	3.71	3.82	40
TAFB20K090S	90 mm															
TAFB22K315S	3 15/16 in.	22222	367.0	309.9	145.0	255.0	219.2	279.4	44.5	26.4	20	113.0	63.0	101.1	104.9	27.2
TAFB22K400S	4 in.		14.45	12.20	5.71	10.04	8.63	11.00	1.75	1.04	3/4	4.45	2.48	3.98	4.13	60
TAFB22K100S	100 mm															
TAFB26K407S	4 7/16 in.	22226	411.5	354.8	165.1	290.0	251.0	298.5	41.9	32.0	24	130.6	71.9	114.3	120.9	42.6
TAFB26K408S	4 1/2 in.		16.20	13.97	6.50	11.42	9.88	11.75	1.65	1.26	7/8	5.14	2.83	4.50	4.76	94
TAFB26K115S	115 mm															

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

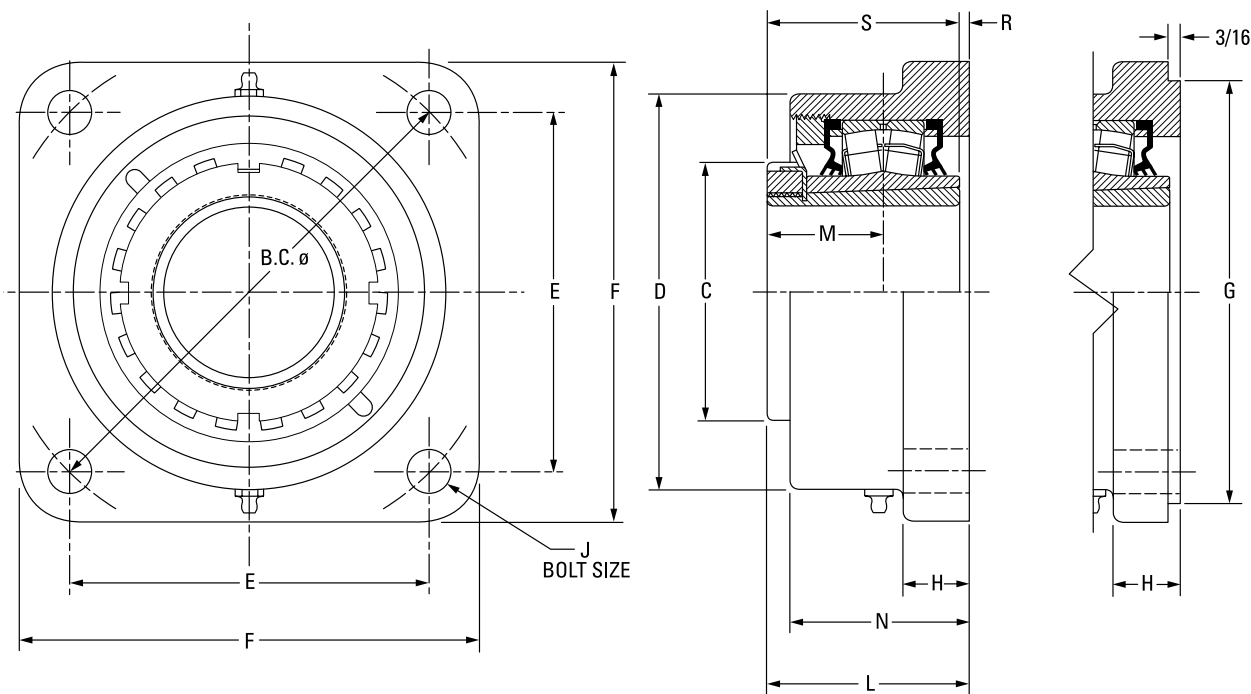
TA/DV SERIES • DVF SQUARE FLANGE BLOCKS

## DVF SQUARE FLANGE BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	H	J	M	N	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
DVF09K107S	1 7/16 in.	22209	125.7 4.95	65.0 2.56	101.6 4.00	88.9 3.50	117.6 4.63	19.1 0.75	12 1/2	30.7 1.21	56.1 2.21	50.3 1.98	5.0 11
DVF09K108S	1 1/2 in.	22209	148.3	65.0	107.8	104.9	136.7	19.1	12	30.7	56.1	50.3	5.0
DVF09K040S	40 mm	22209	5.84	2.56	4.25	4.13	5.38	0.75	1/2	1.21	2.21	1.98	11
DVF10K111S	1 11/16 in.	22210	148.3 5.84	70.1 2.76	118.4 4.66	104.9 4.13	136.7 5.38	22.4 0.88	12 1/2	33.5 1.32	52.3 2.06	55.1 2.17	5.5 12
DVF10K112S	1 3/4 in.	22210	157.2	70.1	118.4	111.3	143.0	22.4	12	33.5	52.3	55.1	5.5
DVF10K045S	45 mm	22210	6.19	2.76	4.66	4.38	5.63	0.88	1/2	1.32	2.06	2.17	12
DVF11K115S	1 15/16 in.	22211	157.2	74.9	121.9	111.3	139.7	22.4	12	35.6	65.0	58.9	5.44
DVF11K200S	2 in.	22211	6.19	2.95	4.80	4.38	5.50	0.88	1/2	1.40	2.56	2.32	12
DVF11K050S	50 mm	22211	6.19	2.95	4.80	4.38	5.50	0.88	1/2	1.40	2.56	2.32	12
DVF13K203S	2 3/16 in.	22213	175.0	85.1	137.9	124.0	157.2	25.4	16	39.6	66.8	65.0	6.8
DVF13K204S	2 1/4 in.	22213	6.89	3.35	5.43	4.88	6.19	1.00	5/8	1.56	2.63	2.56	15
DVF13K060S	60 mm	22213	6.89	3.35	5.43	4.88	6.19	1.00	5/8	1.56	2.63	2.56	15
DVF15K207S	2 7/16 in.	22215	193.0	98.0	146.0	136.7	168.4	25.4	16	43.9	72.4	72.9	8.2
DVF15K208S	2 1/2 in.	22215	7.60	3.86	5.75	5.38	6.63	1.00	5/8	1.73	2.85	2.87	18
DVF15K065S	65 mm	22215	7.60	3.86	5.75	5.38	6.63	1.00	5/8	1.73	2.85	2.87	18
DVF17K215S	2 15/16 in.	22217	215.4	110.0	170.7	152.4	189.0	26.9	20	49.8	77.0	82.0	12.7
DVF17K300S	3 in.	22217	8.48	4.33	6.72	6.00	7.44	1.06	3/4	1.96	3.03	3.23	28
DVF17K075S	75 mm	22217	8.48	4.33	6.72	6.00	7.44	1.06	3/4	1.96	3.03	3.23	28
DVF20K307S	3 7/16 in.	22220	251.5	130.0	193.8	177.8	219.2	33.3	20	58.4	84.1	97.0	17.7
DVF20K308S	3 1/2 in.	22220	9.90	5.12	7.63	7.00	8.63	1.31	3/4	2.30	3.31	3.82	39
DVF20K090S	90 mm	22220	9.90	5.12	7.63	7.00	8.63	1.31	3/4	2.30	3.31	3.82	39
DVF22K315S	3 15/16 in.	22222	278.4	145.0	215.9	196.9	253.2	38.1	24	63.0	103.1	104.9	24.0
DVF22K400S	4 in.	22222	10.96	5.71	8.50	7.75	9.97	1.50	7/8	2.48	4.06	4.13	53
DVF22K100S	100 mm	22222	10.96	5.71	8.50	7.75	9.97	1.50	7/8	2.48	4.06	4.13	53
DVF26K407S	4 7/16 in.	22226	314.5	165.1	263.7	222.3	276.4	38.1	24	71.9	106.9	120.9	34.0
DVF26K408S	4 1/2 in.	22226	12.38	6.50	10.38	8.75	10.88	1.50	7/8	2.83	4.21	4.76	75
DVF26K115S	115 mm	22226	12.38	6.50	10.38	8.75	10.88	1.50	7/8	2.83	4.21	4.76	75

TAFK 9000 SERIES SQUARE FLANGE BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	B.C.	C	D	E	F	G <sup>(1)(2)(3)</sup>	H	J	L FIX	L EXP	M	N	R	S	Wt.
																	mm in.
TAFK11K115S	1 15/16 in.	22211	161.5 6.36	74.9 2.95	130.3 5.13	114.3 4.50	149.4 5.88	127.00 5.000	25.4 1.00	16 5/8	71.6 2.82	72.9 2.87	35.6 1.40	66.8 2.63	12.7 0.50	58.9 2.32	5.0
TAFK11K200S	2 in.																11
TAFK11K050S	50 mm																11
TAFK13K203S	2 3/16 in.	22213	180.8 7.12	85.1 3.35	146.1 5.75	127.8 5.03	157.2 6.19	138.13 5.438	25.4 1.00	16 5/8	77.7 3.06	79.8 3.14	39.6 1.56	72.4 2.85	12.7 0.50	65.0 2.56	6.4
TAFK13K204S	2 1/4 in.																14
TAFK13K060S	60 mm																14
TAFK15K207S	2 7/16 in.	22215	215.9 8.50	98.0 3.86	168.9 6.65	152.7 6.01	189.0 7.44	160.35 6.313	26.9 1.06	20 3/4	84.8 3.34	86.9 3.42	43.9 1.73	76.2 3.00	11.9 0.47	72.9 2.87	7.7
TAFK15K208S	2 1/2 in.																17
TAFK15K065S	65 mm																17
TAFK17K215S	2 15/16 in.	22217	41.3 9.50	110.0 4.33	193.8 7.63	170.7 6.72	212.9 8.38	187.33 7.375	33.3 1.31	20 3/4	96.3 3.79	98.3 3.87	49.8 1.96	84.1 3.31	14.2 0.56	82.0 3.23	10.4
TAFK17K300S	3 in.																23
TAFK17K075S	75 mm																23
TAFK20K307S	3 7/16 in.	22220	298.5 11.75	130.0 5.12	215.9 8.50	211.1 8.31	268.2 10.56	225.43 8.875	38.1 1.50	24 7/8	114.6 4.51	116.6 4.59	58.4 2.30	103.1 4.06	17.5 0.69	97.0 3.82	15.9
TAFK20K308S	3 1/2 in.																35
TAFK20K090S	90 mm																35
TAFK22K315S <sup>(4)</sup>	3 15/16 in.	22222	327.2 12.88 <sup>(4)</sup>	145.0 5.71	256.5 10.10	163.6 6.44 <sup>(4)</sup>	384.3 15.13	263.53 10.375	38.1 1.50	24 1 <sup>(4)</sup>	117.3 4.62	119.4 4.70	63.0 2.48	106.9 4.21	12.4 0.49	104.9 4.13	24.9
TAFK22K400S <sup>(4)</sup>	4 in.																55
TAFK22K100S <sup>(4)</sup>	100 mm																55
TAFK26K407S <sup>(4)</sup>	4 7/16 in.	22226	355.6 14.00 <sup>(4)</sup>	165.1 6.50	284.2 11.19	177.8 7.00 <sup>(4)</sup>	419.1 16.50	284.18 11.188	38.1 1.50	27 1 1/8 <sup>(4)</sup>	147.3 5.80	149.4 5.88	71.9 2.83	135.1 5.32	26.4 1.04	120.9 4.76	49.0
TAFK26K408S <sup>(4)</sup>	4 1/2 in.																108
TAFK26K115S <sup>(4)</sup>	115 mm																108

<sup>(1)</sup>Pilot tolerance: +0/-0.05 mm (+0/-0.002 in.).

<sup>(2)</sup>Add (p) to the end of the housing designation in the part number to order with pilot using G dimension.

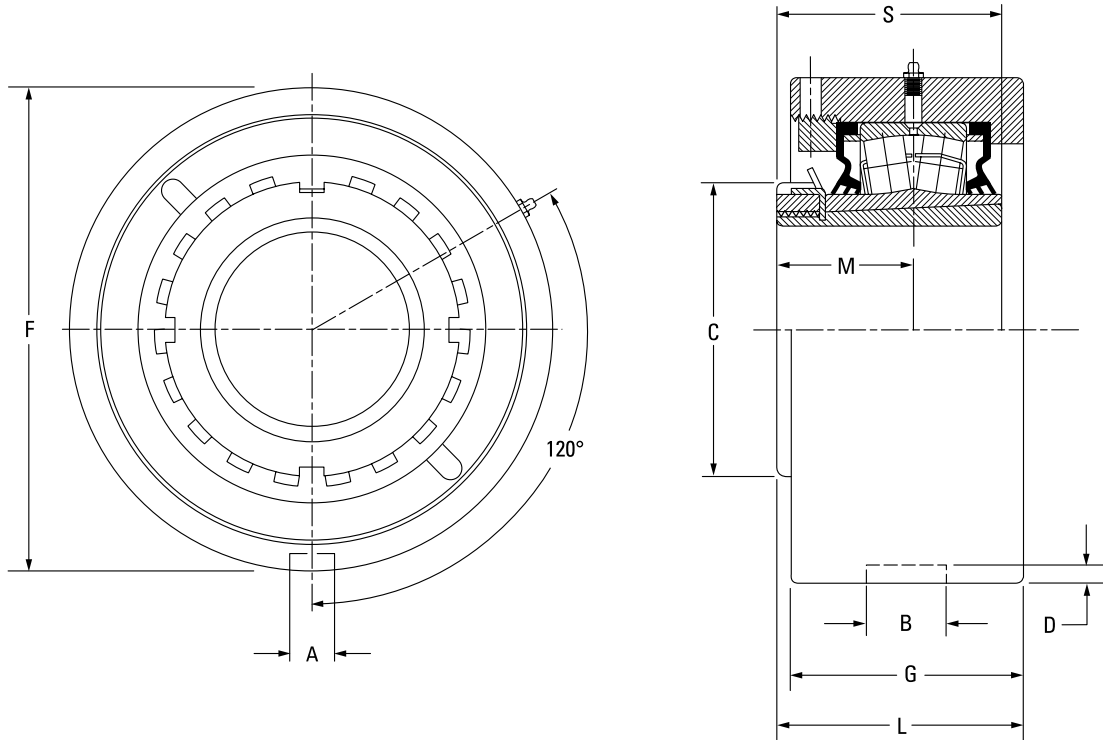
<sup>(3)</sup>Piloted flange blocks will be quoted (price and delivery) upon request. For optional spigot on flange side, insert the letter P as seen in the following example: QMFP\*\*J\*\*\*S.

<sup>(4)</sup>Six-bolt housing.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

TA/DV SERIES • TAMC CARTRIDGE BLOCKS

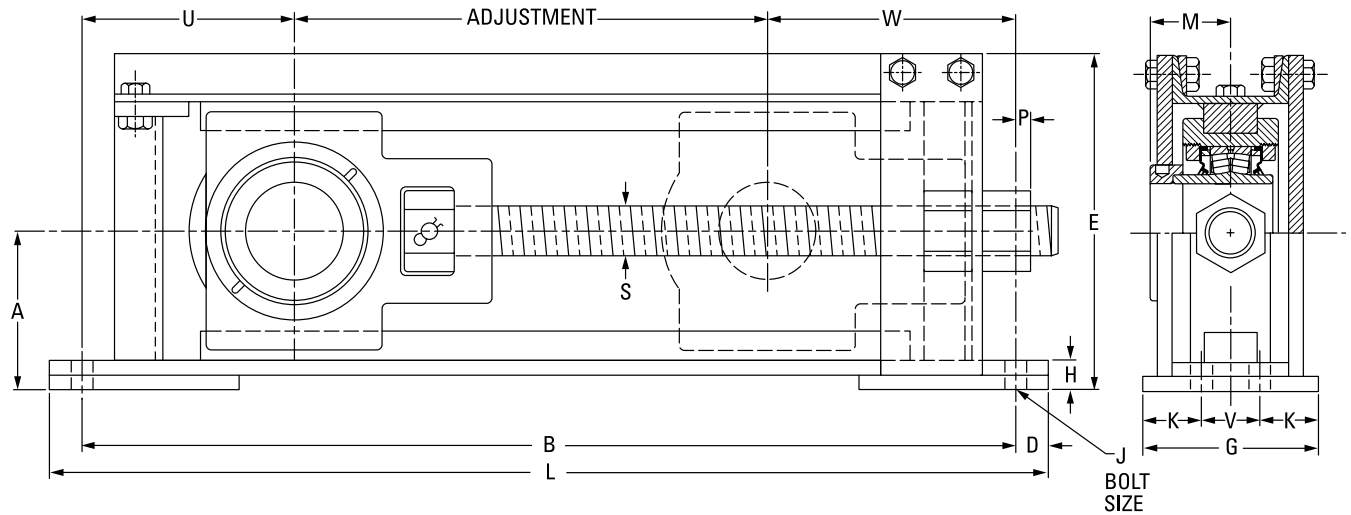
## TAMC CARTRIDGE BLOCKS



Bearing Part No.	Shaft Dia.	Bearing No.	A	B	C	D	F	G	L <sub>FIX</sub>	L <sub>EXP</sub>	M	S	Wt.
	mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
TAMC11K115S	1 15/16 in.	22211	13.5 0.530	23.0 0.906	74.9 2.95	4.8 0.188	115.09 (+0/-0.05) 4.531 (+0/-0.002)	55.4 2.18	63.2 2.49	64.5 2.54	35.6 1.40	58.9 2.32	4.5 10
TAMC11K200S	2 in.												
TAMC11K050S	50 mm												
TAMC13K203S	2 3/16 in.	22213	13.5 0.530	23.0 0.906	85.1 3.35	4.8 0.188	127.00 (+0/-0.05) 5.000 (+0/-0.002)	67.1 2.64	70.9 2.79	72.9 2.87	39.6 1.56	65.0 2.56	5.4 12
TAMC13K204S	2 1/4 in.												
TAMC13K060S	60 mm												
TAMC15K207S	2 7/16 in.	22215	15.1 0.594	26.2 1.032	98.0 3.86	6.4 0.250	149.23 (+0/-0.05) 5.875 (+0/-0.002)	70.6 2.78	78.2 3.08	80.3 3.16	43.9 1.73	72.9 2.87	8.2 18
TAMC15K208S	2 1/2 in.												
TAMC15K065S	65 mm												
TAMC17K215S	2 15/16 in.	22217	15.1 0.594	27.5 1.083	110.0 4.33	7.1 0.281	171.45 (+0/-0.05) 6.750 (+0/-0.002)	74.9 2.95	87.4 3.44	89.4 3.52	49.8 1.96	82.0 3.23	11.8 26
TAMC17K300S	3 in.												
TAMC17K075S	75 mm												
TAMC20K307S	3 7/16 in.	22220	19.8 0.781	32.5 1.281	130.0 5.12	8.0 0.313	206.38 (+0/-0.05) 8.125 (+0/-0.002)	85.6 3.37	101.3 3.99	103.4 4.07	58.4 2.30	97.0 3.82	14.5 32
TAMC20K308S	3 1/2 in.												
TAMC20K090S	90 mm												
TAMC22K315S	3 15/16 in.	22222	19.8 0.781	32.5 1.281	145.0 5.71	8.0 0.313	222.25 (+0/-0.08) 8.750 (+0/-0.003)	97.8 3.85	112.0 4.41	114.0 4.49	63.0 2.48	104.9 4.13	18.1 40
TAMC22K400S	4 in.												
TAMC22K100S	100 mm												
TAMC26K407S	4 7/16 in.	22226	19.8 0.780	38.1 1.500	165.1 6.50	8.0 0.313	265.10 (+0/-0.08) 10.437 (+0/-0.003)	104.4 4.11	124.2 4.89	126.2 4.97	71.9 2.83	120.9 4.76	23.6 52
TAMC26K408S	4 1/2 in.												
TAMC26K115S	115 mm												



**TAKE-UP FRAMES<sup>(1)</sup>**  
**QMTF TAKE-UP FRAMES**



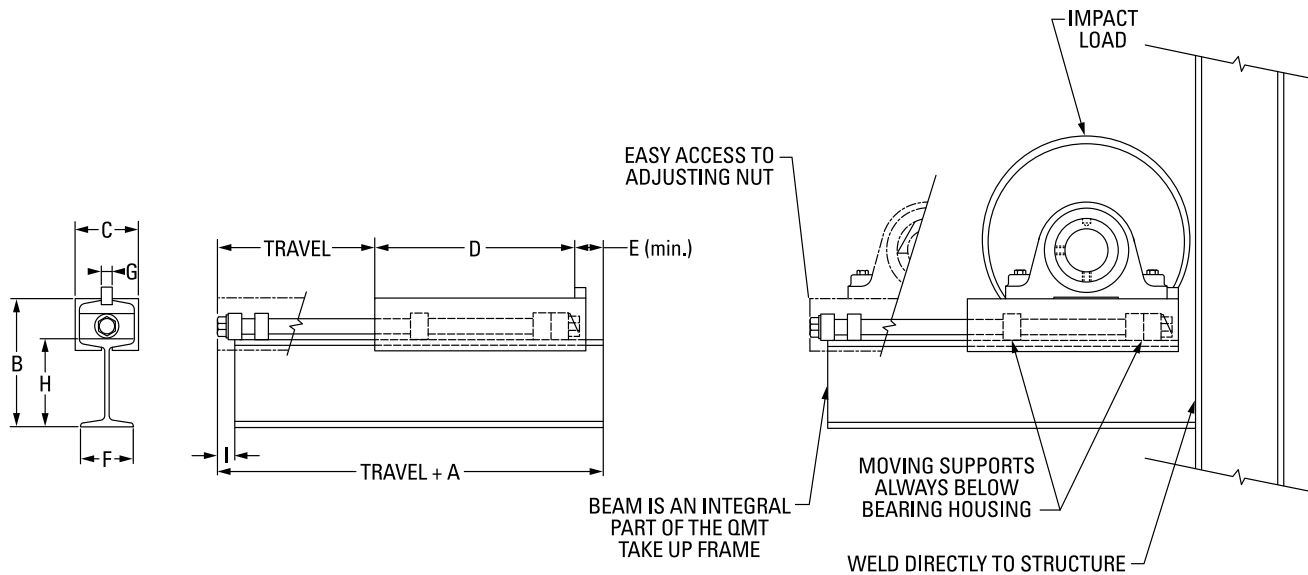
Frame Part No.	Travel Nom.	Travel Adj.	A	B	D	E	G	H	J	K	L	M	P	S	U	V	W	No. of Bolts Req.	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		
QMTF12-115	12	419.1 16.50	100.1 3.94	698.5 27.50	25.4 1.00	210.3 8.28	101.6 4.00	31.8 1.25	16 5/8	-	749.3 29.50	47.8 1.88	31.8 1.25	1-5 ACME	136.7 5.38	-	143.0 5.63	2	27.216 60
QMTF12-203	12	431.8 17.00	106.4 4.19	698.5 27.50	25.4 1.00	220.0 8.66	101.6 4.00	35.1 1.38	16 5/8	-	749.3 29.50	50.8 2.00	41.4 1.63	1.125-5 ACME	115.8 4.56	-	150.9 5.94	2	29.484 65
QMTF12-207	12	421.6 16.60	111.3 4.38	723.9 28.50	25.4 1.00	233.4 9.19	101.6 4.00	28.7 1.13	20 3/4	-	774.7 30.50	54.1 2.13	44.5 1.75	1.25-5 ACME	134.9 5.31	-	166.6 6.56	2	32.205 71
QMTF12-215	12	393.7 15.50	129.3 5.09	774.7 30.50	25.4 1.00	272.8 10.74	127.0 5.00	28.7 1.13	16 5/8	38.1 1.50	825.5 32.50	60.5 2.38	12.7 0.50	1.5-4 ACME	165.1 6.50	50.8 2.00	215.9 8.50	4	49.442 109
QMTF12-307	12	393.7 15.50	143.0 5.63	812.8 32.00	28.7 1.13	295.4 11.63	127.0 5.00	26.2 1.03	20 3/4	38.1 1.50	870.0 34.25	65.5 2.58	25.4 1.00	1.75-4 ACME	185.7 7.31	50.8 2.00	233.4 9.19	4	62.596 138
QMTF12-315	12	457.2 18.00	177.8 7.00	914.4 36.00	31.8 1.25	367.5 14.47	152.4 6.00	36.6 1.44	20 3/4	44.5 1.75	977.9 38.50	75.2 2.96	41.4 1.63	2-4 ACME	190.5 7.50	63.5 2.50	265.2 10.44	4	86.636 191
QMTF18-207	18	574.0 22.60	111.3 4.38	876.3 34.50	25.4 1.00	234.2 9.22	101.6 4.00	26.9 1.06	20 3/4	-	927.1 36.50	54.1 2.13	44.5 1.75	1.25-5 ACME	139.7 5.50	-	162.6 6.40	2	36.741 81
QMTF18-215	18	546.1 21.50	129.3 5.09	927.1 36.50	25.4 1.00	272.8 10.74	127.0 5.00	28.7 1.13	16 5/8	38.1 1.50	977.9 38.50	60.5 2.38	12.7 0.50	1.5-4 ACME	165.1 6.50	50.8 2.00	215.9 8.50	4	54.431 120
QMTF18-307	18	546.1 21.50	143.0 5.63	965.2 38.00	28.7 1.13	295.4 11.63	127.0 5.00	26.2 1.03	20 3/4	38.1 1.50	1022.4 40.25	65.5 2.58	25.4 1.00	1.75-4 ACME	185.7 7.31	50.8 2.00	233.4 9.19	4	70.760 156
QMTF18-315	18	609.6 24.00	177.8 7.00	1066.8 42.00	31.8 1.25	366.8 14.44	152.4 6.00	36.6 1.44	20 3/4	44.5 1.75	1130.3 44.50	75.2 2.96	41.4 1.63	2-4 ACME	190.5 7.50	63.5 2.50	265.2 10.44	4	101.150 223
QMTF24-207	24	726.4 28.60	111.3 4.38	1028.7 40.50	25.4 1.00	233.4 9.19	101.6 4.00	28.7 1.13	20 3/4	-	1079.5 42.50	54.1 2.13	44.5 1.75	1.25-5 ACME	115.8 4.56	-	166.6 6.56	2	41.277 91
QMTF24-215	24	698.5 27.50	129.3 5.09	1079.5 42.50	25.4 1.00	271.5 10.69	127.0 5.00	24.6 0.97	16 5/8	38.1 1.50	1130.3 44.50	60.5 2.38	12.7 0.50	1.5-4 ACME	165.1 6.50	50.8 2.00	215.9 8.50	4	63.957 141
QMTF24-307	24	698.5 27.50	143.0 5.63	1117.6 44.00	28.7 1.13	295.4 11.63	127.0 5.00	26.2 1.03	20 3/4	38.1 1.50	1174.8 46.25	65.5 2.58	25.4 1.00	1.75-4 ACME	185.7 7.31	50.8 2.00	233.4 9.19	4	81.193 179
QMTF24-315	24	762.0 30.00	177.8 7.00	1219.2 48.00	31.8 1.25	367.5 14.47	152.4 6.00	36.6 1.44	20 3/4	44.5 1.75	1282.7 50.50	75.2 2.96	41.4 1.63	2-4 ACME	190.5 7.50	63.5 2.50	265.2 10.44	4	112.940 249

<sup>(1)</sup>Frame only. Bearing unit must be ordered separately. See pages C-98 (V-Lock), C-125, C-120 (CL) and C-149 (EC) for information on take-up bearing units.  
 NOTE: All take-up frames come with Acme threaded rod.

# SPHERICAL ROLLER BEARING SOLID-BLOCK HOUSED UNITS

## TAKE-UP FRAMES • QMT PILLOW BLOCK TAKE-UP FRAMES

### QMT PILLOW BLOCK TAKE-UP FRAMES<sup>(1)</sup>



Frame Part No.	Bearing Size	Travel	A	B	C	D	E	F	G	H	I	Wt.
			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
QMT1 X 9	1 7/16 in. – 2 15/16 in.	9	330.2 13.0	187.3 7.375	92.1 3.625	289.1 11.38	41.4 1.63	76.2 3.00	20 3/4	127.0 5.0	25.4 1.0	11.793 26
QMT1 X 12	1 7/16 in. – 2 15/16 in.	12	330.2 13.0	187.3 7.375	92.1 3.625	289.1 11.38	41.4 1.63	76.2 3.00	20 3/4	127.0 5.0	25.4 1.0	13.608 30
QMT1 X 18	1 7/16 in. – 2 15/16 in.	18	330.2 13.0	187.3 7.375	92.1 3.625	289.1 11.38	41.4 1.63	76.2 3.00	20 3/4	127.0 5.0	25.4 1.0	16.329 36
QMT1 X 24	1 7/16 in. – 2 15/16 in.	24	330.2 13.0	187.3 7.375	92.1 3.625	289.1 11.38	41.4 1.63	76.2 3.00	20 3/4	127.0 5.0	25.4 1.0	19.051 42
QMT2 X 18	2 15/16 in. – 4 7/16 in.	18	482.6 19.0	311.2 12.25	125.4 4.938	431.8 17.00	50.8 2.00	106.4 4.19	24 1	203.2 8.0	38.1 1.5	33.566 74
QMT2 X 24	2 15/16 in. – 4 7/16 in.	24	482.6 19.0	311.2 12.25	125.4 4.938	431.8 17.00	50.8 2.00	106.4 4.19	24 1	203.2 8.0	38.1 1.5	40.823 90
QMT2 X 36	2 15/16 in. – 4 7/16 in.	36	482.6 19.0	311.2 12.25	125.4 4.938	431.8 17.00	50.8 2.00	106.4 4.19	24 1	203.2 8.0	38.1 1.5	43.545 96

<sup>(1)</sup>Frame only. Bearing unit must be ordered separately.  
NOTE: All take-up frames come with Acme threaded rod.







**TIMKEN® SAF SPLIT-BLOCK HOUSED UNITS**

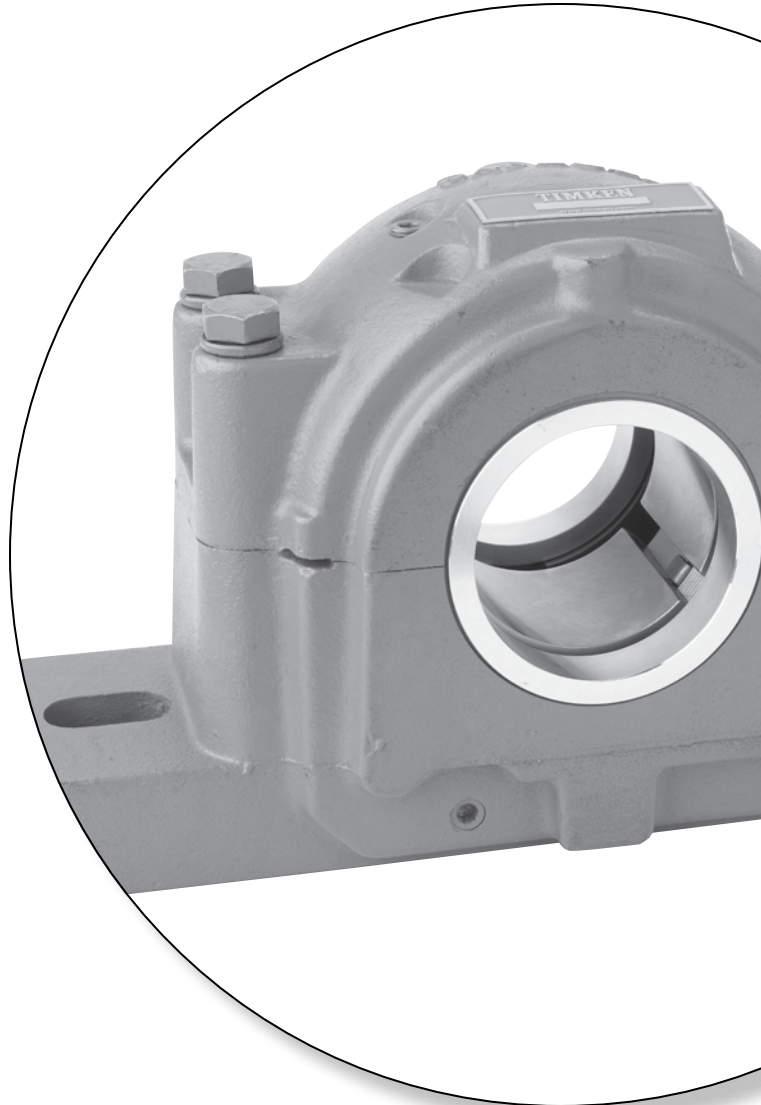
Timken’s split-block spherical pillow blocks combine rugged cast-iron or cast-steel housings with high-capacity spherical roller bearings to meet the toughest demands of heavy industry. The convenient split-housing design simplifies assembly and service. Each pillow block contains an advanced-design spherical roller bearing with improved geometry and raceway finish for optimal load capacity and service life. Timken manufactures pillow blocks in two main styles: SAF and SDAF. The larger SDAF block is suggested for extremely heavy duty applications.



Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken® Housed Unit Catalog.

**TYPICAL INDUSTRIES AND APPLICATIONS**

Common uses include processing and material handling equipment found in many industries, including power generation (coal), mining, aggregate, cement, metal mills, pulp, paper and other forestry operations, water treatment and food processing. Applications include conveyors, movable bridges/heavy structures, industrial fans and blowers.

Engineering . . . . . D-3  
 SAF Lubrication . . . . . D-23  
 Spherical Roller Bearing Nomenclature . . . . . D-36  
 Spherical Roller Bearing Product Data Tables . . . . . D-37  
 SAF Housed Unit Nomenclature . . . . . D-46  
 SAF Housed Unit Introduction . . . . . D-47  
 SAF Pillow Block Product Data Tables . . . . . D-50  
 SAF Spherical Roller Bearing Inch Accessories . . . . . D-83



 <p><b>WARNING</b>  <i>Failure to observe the following warnings could create a risk of death or serious injury.</i></p>
<p>Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.</p> <p>Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such as from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.</p>
 <p><b>CAUTION</b>  <i>Failure to follow these cautions could create a risk of injury.</i></p>
<p>Do not use damaged housed units. The use of a damaged housed unit can result in equipment damage and/or injury.</p>
<p><b>CAUTION</b>  <i>Failure to follow these cautions may result in property damage.</i></p>
<p>If hammer and bar are used for installation or removal of a part, use a mild steel bar (e.g., 1010 or 1020 grade). Mild steel bars are less likely to cause release of high-speed fragments from the hammer, bar or the part being removed.</p>

**NOTE**

*Do not use excessive force when mounting or dismantling the unit.*

*Follow all tolerance, fit and torque recommendations.*

*Always follow the Original Equipment Manufacturer's installation and maintenance guidelines.*

*Ensure proper alignment.*

*Never weld housed units.*

*Do not heat components with an open flame.*

*Do not operate at bearing temperatures above 121°C (250°F).*

**DISCLAIMER**

*This catalog is provided solely to give you analysis tools and data to assist you in your product selection. Product performance is affected by many factors beyond the control of Timken. Therefore, you must validate the suitability and feasibility of all product selections for your applications.*

*Timken products are sold subject to Timken terms and conditions of sale, which include our limited warranty and remedy. You can find these at <http://www.timken.com/en-us/purchase/Pages/TermsandConditionsofSale.aspx>.*

*Please consult with your Timken engineer for more information and assistance.*

*Every reasonable effort has been made to ensure the accuracy of the information in this writing, but no liability is accepted for errors, omissions or for any other reason.*

**Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken® Housed Unit Catalog.**

**Warnings for this product line are in this catalog and posted on [www.timken.com/en-us/products/warnings/Pages/TimkenHousedUnitWarnings.aspx](http://www.timken.com/en-us/products/warnings/Pages/TimkenHousedUnitWarnings.aspx).**

## ENGINEERING

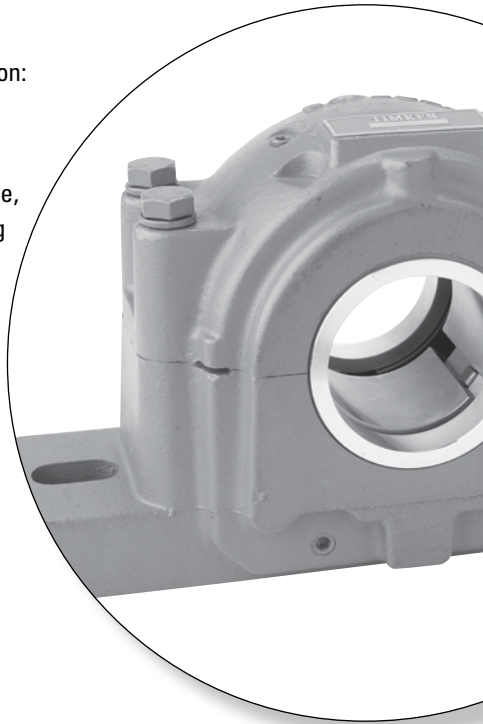
The following topics are covered within this engineering section:

- Spherical roller bearing design types.
- Shaft fitting practice and mounting recommendations.

This engineering section is not intended to be comprehensive, but does serve as a useful guide in spherical roller bearing and SAF pillow block housing selection.

To view the complete engineering catalog, please visit [www.timken.com](http://www.timken.com). To order the catalog, please contact your Timken engineer and request a copy of the Timken Engineering Manual, order number 10424.

Radial Spherical Roller Bearing Types and Cages . . . . .	D-4
Spherical Roller Bearing Tolerances . . . . .	D-4
Spherical Roller Bearing Mounting, Fitting, Setting and Installation . . . . .	D-7
Shaft Fits for Cylindrical Bore Bearings . . . . .	D-15
Fitting Practice Tables . . . . .	D-16



## **RADIAL SPHERICAL ROLLER BEARING TYPES AND CAGES**

The principle styles of radial spherical roller bearings that Timken offers are:

- ≤280 mm bore: EJ, EM and EMB
- >280 mm bore: YM and YMB

Above suffixes correspond to different types of designs depending on a bearing size and geometry. Main differences are the cage type used in the assembly. Spherical roller bearings with an EJ cage suffix are fitted with a stamped-steel cage. YM/EM/YMB suffixes are used with brass cage designs.

The newly redesigned Timken® EJ, EM and EMB bearings offer higher load ratings, increased thermal speed ratings and reduced

operating temperatures compared to the previous offering.

In addition to these improvements, cage designs vary between the different styles as noted below.

<b>Style</b>	<b>Cage Design</b>
EJ	Land-riding steel cage; one per row
EM/YM	Roller-riding one-piece brass cage
EMB/YMB	Land-riding one-piece brass cage

Most Timken® spherical roller bearings are available with a cylindrical bore as well as a tapered bore. Tapered bore bearing part numbers are designated with a K suffix.

## **METRIC SYSTEM TOLERANCES**

Spherical roller bearings are manufactured to a number of specifications, with each having classes that define tolerances on dimensions such as bore, O.D., width and runout. Metric bearings have been manufactured to corresponding standard negative tolerances.

The following table summarizes the different specifications and classes for spherical roller bearings and other available Timken bearing lines. For the purposes of this catalog, ISO specifications are shown for spherical roller bearings.

Boundary dimension tolerances for spherical roller bearing usage are listed in the following tables. These tolerances are provided for use in selecting bearings for general applications, in conjunction with the bearing mounting and fitting practices offered in later sections.

**TABLE D-1. BEARING SPECIFICATIONS AND CLASSES**

System	Specification	Bearing Type	Standard Bearing Class		Precision Bearing Class			
			P0	P6	P5	P4	P2	--
Metric	ISO/DIN	All Bearing Types						
Imperial	ABMA	Spherical	RBEC 1	RBEC 3	RBEC 5	RBEC 7	RBEC 9	--



Standard Timken radial spherical roller bearings maintain normal tolerances according to ISO 492. Tables D-2 and D-3 list the critical tolerances for these bearing types. Timken SAF housings are supplied with bearings that conform to ISO P0, or standard tolerances.

The term deviation is defined as the difference between a single ring dimension and the nominal dimension. For metric tolerances, the nominal dimension is at a +0 mm (0 in.) tolerance. The deviation is the tolerance range for the listed parameter. Variation is defined as the difference between the largest and smallest measurements of a given parameter for an individual ring.

TABLE D-2. SPHERICAL ROLLER BEARING TOLERANCES – INNER RING (METRIC)<sup>(1)</sup>

Bearing Bore		Bore Deviation <sup>(2)</sup> $\Delta_{dmp}$			Width Variation $V_{BS}$			Radial Runout $K_{ia}$			Face Runout with Bore $S_d$	Axial Runout $S_{ia}$	Width Deviation Inner & Outer Rings <sup>(2)</sup> $\Delta_{Bs}$ and $\Delta_{Cs}$	
Over	Incl.	P0	P6	P5	P0	P6	P5	P0	P6	P5	P5	P5	P0, P6	P5
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
2.5000 0.0984	10.000 0.3937	-0.008 -0.0003	-0.007 -0.0003	-0.005 -0.0002	0.015 0.0006	0.015 0.0006	0.005 0.0002	0.010 0.0004	0.006 0.0002	0.004 0.0002	0.007 0.0003	0.007 0.0003	-0.120 -0.0047	-0.040 -0.0157
10.000 0.3937	18.000 0.7087	-0.008 -0.0003	-0.007 -0.0003	-0.005 -0.0002	0.020 0.0008	0.020 0.0008	0.005 0.0002	0.010 0.0004	0.007 0.0003	0.004 0.0002	0.007 0.0003	0.007 0.0003	-0.120 -0.0047	-0.080 -0.0031
18.000 0.7087	30.000 1.1811	-0.010 -0.0004	-0.008 -0.0003	-0.006 -0.0002	0.020 0.0008	0.020 0.0008	0.005 0.0002	0.013 0.0005	0.008 0.0003	0.004 0.0002	0.008 0.0003	0.008 0.0003	-0.120 -0.0047	-0.120 -0.0047
30.000 1.1811	50.000 1.9685	-0.012 -0.0005	-0.010 -0.0004	-0.008 -0.0003	0.020 0.0008	0.020 0.0008	0.005 0.0002	0.015 0.0006	0.010 0.0004	0.005 0.0002	0.008 0.0003	0.008 0.0003	-0.120 -0.0047	-0.120 -0.0047
50.000 1.9685	80.000 3.1496	-0.015 -0.0006	-0.012 -0.0005	-0.009 -0.0004	0.025 0.0010	0.025 0.0010	0.006 0.0002	0.020 0.0008	0.010 0.0004	0.005 0.0002	0.008 0.0003	0.008 0.0003	-0.150 -0.0059	-0.150 -0.0059
80.000 3.1496	120.000 4.7244	-0.020 -0.0008	-0.015 -0.0006	-0.010 -0.0004	0.025 0.0010	0.025 0.0010	0.007 0.0003	0.025 0.0010	0.013 0.0005	0.006 0.0002	0.009 0.0004	0.009 0.0004	-0.200 -0.0079	-0.200 -0.0079
120.000 4.7244	150.000 5.9055	-0.025 -0.0010	-0.018 -0.0007	-0.013 -0.0005	0.030 0.0012	0.030 0.0012	0.008 0.0003	0.030 0.0012	0.018 0.0007	0.008 0.0003	0.010 0.0004	0.010 0.0004	-0.250 -0.0098	-0.250 -0.0098
150.000 5.9055	180.000 7.0866	-0.025 -0.0010	-0.018 -0.0007	-0.013 -0.0005	0.030 0.0012	0.030 0.0012	0.008 0.0003	0.030 0.0012	0.018 0.0007	0.008 0.0003	0.010 0.0004	0.010 0.0004	-0.250 -0.0098	-0.250 -0.0098
180.000 7.0866	250.000 9.8425	-0.030 -0.0012	-0.022 -0.0009	-0.015 -0.0006	0.030 0.0012	0.030 0.0012	0.010 0.0004	0.040 0.0016	0.020 0.0008	0.010 0.0004	0.011 0.0004	0.013 0.0005	-0.300 -0.0018	-0.300 -0.0018
250.000 9.8425	315.000 12.4016	-0.035 -0.0014	-0.025 -0.0010	-0.018 -0.0007	0.035 0.0014	0.035 0.0014	0.013 0.0005	0.050 0.0020	0.025 0.0010	0.013 0.0005	0.013 0.0005	0.015 0.0006	-0.350 -0.0138	-0.350 -0.0138
315.000 12.4016	400.000 15.7480	-0.040 -0.0016	-0.030 -0.0012	-0.023 -0.0009	0.040 0.0016	0.040 0.0016	0.015 0.0006	0.060 0.0024	0.030 0.0012	0.015 0.0006	0.015 0.0006	0.020 0.0008	-0.400 -0.0157	-0.400 -0.0157
400.000 15.7480	500.000 19.6850	-0.045 -0.0018	-0.035 -0.0014	-	0.050 0.0020	0.045 0.0018	-	0.065 0.0026	0.035 0.0014	-	-	-	-0.450 -0.0177	-
500.000 19.6850	630.000 24.8031	-0.050 -0.0020	-0.040 -0.0016	-	0.060 0.0024	0.050 0.0020	-	0.070 0.0028	0.040 0.0016	-	-	-	-0.500 -0.0197	-
630.000 24.8031	800.000 31.4961	-0.075 -0.0030	-	-	0.070 0.0028	-	-	0.080 0.0031	-	-	-	-	-0.750 -0.0295	-

<sup>(1)</sup>Symbol definitions are found on pages 32-33 of the Timken Engineering Manual (order number 10424).

<sup>(2)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

**TABLE D-3. SPHERICAL ROLLER BEARING TOLERANCES – OUTER RING (METRIC)<sup>(1)</sup>**

Bearing O.D.		Outside Deviation <sup>(2)</sup>			Width Variation		Radial Runout			Axial Runout	Outside Diameter Runout With Face
Over	Incl.	$\Delta_{Dmp}$			$V_{CS}$		$K_{ea}$			$S_{ea}$	$S_D$
mm	mm	P0	P6	P5	P0	P6	P0	P6	P5	P5	P5
in.	in.	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>0.000</b> 0.0000	<b>18.000</b> 0.7087	<b>-0.008</b> -0.0003	<b>-0.007</b> -0.0003	<b>-0.005</b> -0.0002	<b>0.015</b> 0.0006	<b>0.005</b> 0.0002	<b>0.015</b> 0.0006	<b>0.008</b> 0.0003	<b>0.005</b> 0.0002	<b>0.008</b> 0.0003	<b>0.008</b> 0.0003
<b>18.000</b> 0.7087	<b>30.000</b> 1.1811	<b>-0.009</b> -0.0004	<b>-0.008</b> -0.0003	<b>-0.006</b> -0.00024	<b>0.020</b> 0.0008	<b>0.005</b> 0.0002	<b>0.015</b> 0.0006	<b>0.009</b> 0.0004	<b>0.006</b> 0.00024	<b>0.008</b> 0.0003	<b>0.008</b> 0.0003
<b>30.000</b> 1.1811	<b>50.000</b> 1.9685	<b>-0.011</b> -0.0004	<b>-0.009</b> -0.0004	<b>-0.007</b> -0.0003	<b>0.020</b> 0.0008	<b>0.005</b> 0.0002	<b>0.020</b> 0.0008	<b>0.010</b> 0.0004	<b>0.007</b> 0.0003	<b>0.008</b> 0.0003	<b>0.008</b> 0.0003
<b>50.000</b> 1.9685	<b>80.000</b> 3.1496	<b>-0.013</b> -0.0005	<b>-0.011</b> -0.0004	<b>-0.009</b> -0.0004	<b>0.025</b> 0.0010	<b>0.006</b> 0.00024	<b>0.025</b> 0.0010	<b>0.013</b> 0.0005	<b>0.008</b> 0.0003	<b>0.010</b> 0.0004	<b>0.008</b> 0.0003
<b>80.000</b> 3.1496	<b>120.000</b> 4.7244	<b>-0.015</b> -0.0006	<b>-0.013</b> -0.0005	<b>-0.010</b> -0.0004	<b>0.025</b> 0.0010	<b>0.008</b> 0.0003	<b>0.035</b> 0.0014	<b>0.018</b> 0.0007	<b>0.010</b> 0.0004	<b>0.011</b> 0.0004	<b>0.009</b> 0.0004
<b>120.000</b> 4.7244	<b>150.000</b> 5.9055	<b>-0.018</b> -0.0007	<b>-0.015</b> -0.0006	<b>-0.011</b> -0.0004	<b>0.030</b> 0.0012	<b>0.008</b> 0.0003	<b>0.040</b> 0.0016	<b>0.020</b> 0.0008	<b>0.011</b> 0.0004	<b>0.013</b> 0.0005	<b>0.010</b> 0.0004
<b>150.000</b> 5.9055	<b>180.000</b> 7.0866	<b>-0.025</b> -0.0010	<b>-0.018</b> -0.0007	<b>-0.013</b> -0.0005	<b>0.030</b> 0.0012	<b>0.008</b> 0.0003	<b>0.045</b> 0.0018	<b>0.023</b> 0.0009	<b>0.013</b> 0.0005	<b>0.014</b> 0.0006	<b>0.010</b> 0.0004
<b>180.000</b> 7.0866	<b>250.000</b> 9.8425	<b>-0.030</b> -0.0012	<b>-0.020</b> -0.0008	<b>-0.015</b> -0.0006	<b>0.030</b> 0.0012	<b>0.010</b> 0.0004	<b>0.050</b> 0.0020	<b>0.025</b> 0.0010	<b>0.015</b> 0.0006	<b>0.015</b> 0.0006	<b>0.011</b> 0.0004
<b>250.000</b> 9.8425	<b>315.000</b> 12.4016	<b>-0.035</b> -0.0014	<b>-0.025</b> -0.0010	<b>-0.018</b> -0.0007	<b>0.035</b> 0.0014	<b>0.011</b> 0.0004	<b>0.060</b> 0.0024	<b>0.030</b> 0.0012	<b>0.018</b> 0.0007	<b>0.018</b> 0.0007	<b>0.013</b> 0.0005
<b>315.000</b> 12.4016	<b>400.000</b> 15.7480	<b>-0.040</b> -0.0016	<b>-0.028</b> -0.0011	<b>-0.020</b> -0.0008	<b>0.040</b> 0.0016	<b>0.013</b> 0.0005	<b>0.070</b> 0.0028	<b>0.035</b> 0.0014	<b>0.020</b> 0.0008	<b>0.020</b> 0.0008	<b>0.013</b> 0.0005
<b>400.000</b> 15.7480	<b>500.000</b> 19.6850	<b>-0.045</b> -0.0018	<b>-0.033</b> -0.0013	<b>-0.023</b> -0.0009	<b>0.045</b> 0.0018	<b>0.015</b> 0.0006	<b>0.080</b> 0.0031	<b>0.040</b> 0.0016	<b>0.023</b> 0.0009	<b>0.023</b> 0.0009	<b>0.015</b> 0.0006
<b>500.000</b> 19.6850	<b>630.000</b> 24.8031	<b>-0.050</b> -0.0020	<b>-0.038</b> -0.0015	<b>-0.028</b> -0.0011	<b>0.050</b> 0.0020	<b>0.018</b> 0.0007	<b>0.100</b> 0.0039	<b>0.050</b> 0.0020	<b>0.025</b> 0.0010	<b>0.025</b> 0.0010	<b>0.018</b> 0.0007
<b>630.000</b> 24.8031	<b>800.000</b> 31.4961	<b>-0.075</b> -0.0030	<b>-0.045</b> -0.0018	<b>-0.035</b> -0.0014	–	<b>0.020</b> 0.0008	<b>0.120</b> 0.0047	<b>0.060</b> 0.0024	<b>0.030</b> 0.0012	<b>0.030</b> 0.0012	<b>0.020</b> 0.0008
<b>800.000</b> 31.4961	<b>1000.000</b> 39.3701	<b>-0.100</b> -0.0040	<b>-0.060</b> -0.0024	–	–	–	<b>0.140</b> 0.0055	<b>0.075</b> 0.0030	–	–	–
<b>1000.000</b> 39.3701	<b>1250.000</b> 49.2126	<b>-0.125</b> -0.0050	–	–	–	–	<b>0.160</b> 0.0063	–	–	–	–

<sup>(1)</sup>Symbol definitions are found on pages 32-33 of the Timken Engineering Manual (order number 10424).

<sup>(2)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

## SPHERICAL ROLLER BEARING MOUNTING, FITTING, SETTING AND INSTALLATION

### MOUNTING

Spherical roller bearings can be mounted individually, but most often are mounted in combination with another spherical roller bearing or a cylindrical roller bearing.

With spherical roller bearings, typically one bearing is fixed axially and the other is mounted with loose fits and axial space. This allows movement or float for environmental conditions such as uneven thermal growth between shaft and housing. In SAF housings, a stabilizing ring, sometimes called a locating ring, is provided. When this ring is installed in the assembly, it creates a fixed bearing. When it is removed, and the bearing is properly located in the housing, the bearing can float freely.

Fig. D-1 shows a fixed SAF housing with a stabilizing ring installed and a float bearing without the stabilizing ring.

### FITTING PRACTICE

Tables D-6 through D-8 on pages D-15 through D-21 list the recommended fitting practice for spherical roller bearing inner rings on shafts. The tables assume:

- The bearing is of normal precision.
- The shaft is solid and made from steel.
- The bearing seats are ground or accurately turned to less than approximately 1.6 Ra finish.

The suggested fit symbols are in accordance with ISO 286. For help with recommended fitting practice, contact your Timken engineer.

As a general guideline, rotating inner rings should be applied with an interference fit. Loose fits may permit the inner rings to creep or turn, and wear the shaft and the backing shoulder. This wear may result in excessive bearing looseness and possible bearing and shaft damage. Additionally, abrasive metal particles resulting from creep or turning may enter into the bearing and cause damage and vibration.

The load conditions and bearing envelope dimensions should be used to select the suggested shaft fit from the tables.

Timken SAF housings are supplied with a predetermined loose fit practice for the bearing O.D. Contact your Timken engineer if you require the specific fit practice used for a given SAF housing.

#### WARNING

**Failure to observe the following warnings could create a risk of death or serious injury.**

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such as from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.

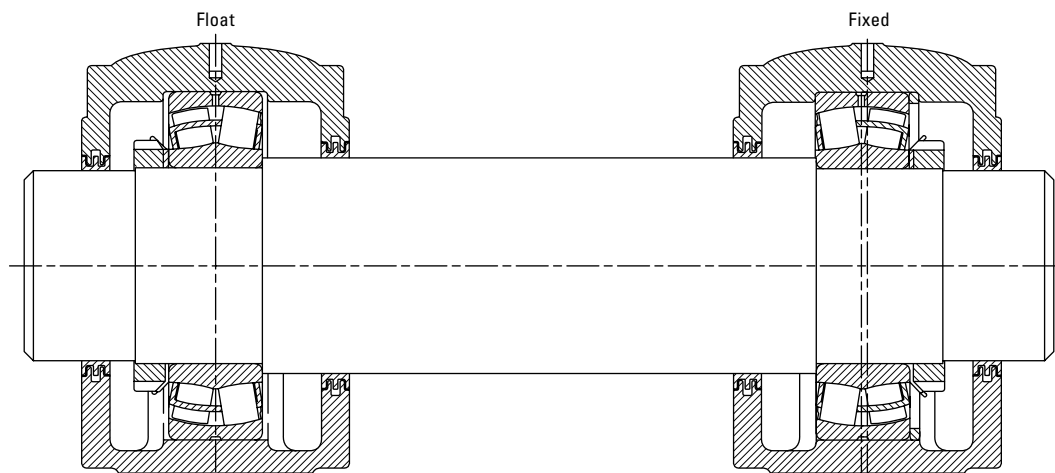
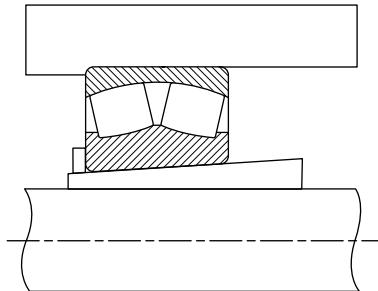


Fig. D-1. Spherical roller bearing direct mounting.

## TAPERED BORE DESIGNS

Typically, tapered bore bearings are selected to simplify shaft mounting and dismounting. Since the spherical roller bearing is not separable, mounting can be simplified by use of an adapter sleeve with a cylindrical bore and tapered O.D. A tapered bore roller bearing also can be mounted directly onto a tapered shaft.



**Fig. D-2. Spherical roller bearing mounted with an adapter sleeve.**

Bearings with a tapered bore typically require a tighter fit on the shaft than bearings with a cylindrical bore. A locknut is typically used to drive the inner ring up a tapered shaft sleeve. The locknut position is then secured by use of a lockwasher or lockplate. Timken offers a wide range of accessories to ease the assembly of spherical roller bearings with a tapered bore (see [page D-11](#)). For approximating the clearance loss for axial drive-up, an 85 percent radial loss approximation can be used. That is, the radial clearance loss per axial drive-up can roughly be approximated as  $71 \mu\text{m}/\text{mm}$  for a 1:12 tapered. Table D-5 on [page D-10](#) provides a direct relation between suggested RIC (radial internal clearance) reduction due to installation and the corresponding axial displacement of the inner ring.

## SETTING

To achieve appropriate operating clearance, attention must be paid to the effects that fitting practice and thermal gradients have within the bearing.

### FITTING PRACTICE

- An interference fit between the inner ring and a solid steel shaft will reduce the radial clearance within the bearing by approximately 80 percent of the fit.
- Spherical roller bearings with a tapered bore require a slightly greater interference fit on the shaft than a cylindrical bore bearing.

### NOTE

*It is critical to select the RIC that allows for this reduction.*

### THERMAL GRADIENTS

- Thermal gradients within the bearing are primarily a function of the bearing rotational speed. As speed increases, thermal gradients increase, thermal growth occurs and the radial clearance is reduced.
- As a rule of thumb, radial clearance should be increased for speeds in excess of 70 percent of the speed rating.

For help selecting the correct radial internal clearance for your application, consult with your Timken engineer.

Radial internal clearance tolerances are listed in tables D-4 and D-5 for spherical roller bearings.

Spherical roller bearings are ordered with a specified standard or non-standard radial internal clearance value. The standard radial internal clearances are designated as C2, C0 (normal), C3, C4 or C5 and are in accordance with ISO 5753. C2 represents the minimum clearance and C5 represents the maximum clearance. Non-standardized values also are available by special request.

The clearance required for a given application depends on the desired operating precision, the rotational speed of the bearing, and the fitting practice used. SAF housings are supplied with a C3 clearance bearing, though other clearances may be ordered for specific applications, such as a C4 clearance for a paper machine dryer. Typically, larger clearance reduces the operating load zone of the bearing, increases the maximum roller load, and reduces the bearing's expected life. However, a spherical roller bearing that has been put into a preload condition can experience premature bearing damage caused by excessive heat generation and/or material fatigue. As a general guideline, spherical roller bearings should not operate in a preloaded condition.

**TABLE D-4. RADIAL INTERNAL CLEARANCE LIMITS – SPHERICAL ROLLER BEARINGS – CYLINDRICAL BORE**

Bore (Nominal)		Cylindrical Bore						Typical Reduction of RIC Due to Installation		Typical RIC After Installation
		Normal CO		C4		C5				
		Min.	Max.	Min.	Max.	Min.	Max.			
Over	Incl.	C2		C3		C5		Min.	Max.	Min.
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
20 0.9449	30 1.1811	0.015 0.0006	0.025 0.001	0.04 0.0016	0.055 0.0022	0.075 0.003	0.095 0.0037	0.015 0.0006	0.02 0.0008	0.015 0.0006
30 1.1811	40 1.5748	0.015 0.0006	0.03 0.0012	0.045 0.0018	0.06 0.0024	0.08 0.0031	1 0.0039	0.02 0.0008	0.025 0.001	0.015 0.0006
40 1.5748	50 1.9685	0.02 0.0008	0.035 0.0014	0.055 0.0022	0.075 0.003	0.1 0.0039	0.125 0.0049	0.025 0.001	0.03 0.0012	0.02 0.0008
50 1.9685	65 2.5591	0.02 0.0008	0.04 0.0016	0.065 0.0026	0.09 0.0035	0.12 0.0047	0.15 0.0059	0.03 0.0012	0.038 0.0015	0.025 0.001
65 2.5591	80 3.1496	0.03 0.0012	0.05 0.002	0.08 0.0031	0.11 0.0043	0.145 0.0057	0.18 0.0071	0.038 0.0015	0.051 0.002	0.025 0.001
80 3.1496	100 3.9370	0.035 0.0014	0.06 0.0024	0.1 0.0039	0.135 0.0053	0.18 0.0071	0.225 0.0089	0.046 0.0018	0.064 0.0025	0.036 0.0014
100 3.9370	120 4.7244	0.04 0.0016	0.075 0.003	0.12 0.0047	0.16 0.0063	0.21 0.0083	0.26 0.0102	0.051 0.002	0.071 0.0028	0.051 0.002
120 4.7244	140 5.5118	0.05 0.002	0.095 0.0037	0.145 0.0057	0.19 0.0075	0.24 0.0094	0.3 0.0118	0.064 0.0025	0.089 0.0035	0.056 0.0022
140 5.5118	160 6.2992	0.06 0.0024	0.11 0.0043	0.17 0.0067	0.22 0.0087	0.28 0.011	0.35 0.0138	0.076 0.003	0.102 0.004	0.056 0.0022
160 6.2992	180 7.0866	0.065 0.0026	0.12 0.0047	0.18 0.0071	0.24 0.0094	0.31 0.0122	0.39 0.0154	0.076 0.003	0.114 0.0045	0.061 0.0024
180 7.0866	200 7.8740	0.07 0.0028	0.13 0.0051	0.2 0.0079	0.26 0.0102	0.34 0.0134	0.43 0.0169	0.089 0.0035	0.127 0.005	0.071 0.0028
200 7.8740	225 8.8582	0.08 0.0031	0.14 0.0055	0.22 0.0087	0.29 0.0114	0.38 0.015	0.47 0.0185	0.102 0.004	0.14 0.0055	0.076 0.003
225 8.8582	250 9.8425	0.09 0.0035	0.15 0.0059	0.24 0.0094	0.32 0.0126	0.42 0.0165	0.52 0.0205	0.114 0.0045	0.152 0.006	0.089 0.0035
250 9.8425	280 11.0236	0.1 0.0039	0.17 0.0067	0.26 0.0102	0.35 0.0138	0.46 0.0181	0.57 0.0224	0.114 0.0045	0.165 0.0065	0.102 0.004
280 11.0236	315 12.4016	0.11 0.0043	0.19 0.0075	0.28 0.011	0.37 0.0146	0.5 0.0197	0.63 0.0248	0.127 0.005	0.178 0.007	0.102 0.004
315 12.4016	355 13.9764	0.12 0.0047	0.2 0.0079	0.31 0.0122	0.41 0.0161	0.55 0.0217	0.69 0.0272	0.14 0.0055	0.19 0.0075	0.114 0.0045
355 13.9764	400 15.7480	0.13 0.0051	0.22 0.0087	0.34 0.0134	0.45 0.0177	0.6 0.0236	0.75 0.0295	0.152 0.006	0.203 0.008	0.127 0.005
400 15.7480	450 17.7165	0.14 0.0055	0.24 0.0094	0.37 0.0146	0.5 0.0197	0.66 0.026	0.82 0.0323	0.165 0.0065	0.216 0.0085	0.152 0.006
450 17.7165	500 19.6850	0.14 0.0055	0.26 0.0102	0.41 0.0161	0.55 0.0217	0.72 0.0283	0.9 0.0354	0.178 0.007	0.229 0.009	0.165 0.0065
500 19.6850	560 22.0472	0.15 0.0059	0.28 0.011	0.44 0.0173	0.6 0.0236	0.78 0.0307	1 0.0394	0.203 0.008	0.254 0.01	0.178 0.007
560 22.0472	630 24.8031	0.17 0.0067	0.31 0.0122	0.48 0.0189	0.65 0.0256	0.85 0.0335	1.1 0.0433	0.229 0.009	0.279 0.011	0.203 0.008
630 24.8031	710 27.9528	0.19 0.0075	0.35 0.0138	0.53 0.0209	0.7 0.0276	0.92 0.0362	1.19 0.0469	0.254 0.01	0.305 0.012	0.203 0.008
710 27.9528	800 31.4961	0.21 0.0083	0.39 0.0154	0.58 0.0228	0.77 0.0303	1.01 0.0398	1.3 0.0512	0.279 0.011	0.356 0.014	0.229 0.009
800 31.4961	900 35.4331	0.23 0.0091	0.43 0.0169	0.65 0.0256	0.86 0.0339	1.12 0.0441	1.44 0.0567	0.305 0.012	0.381 0.015	0.252 0.01
900 35.4331	1000 39.3701	0.26 0.0102	0.48 0.0189	0.71 0.028	0.93 0.0366	1.22 0.048	1.57 0.0618	0.356 0.014	0.432 0.017	0.279 0.011

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

**TABLE D-5. RADIAL INTERNAL CLEARANCE LIMITS – SPHERICAL ROLLER BEARINGS – TAPERED BORE**

Bore (Nominal)		Tapered Bore						Suggested Reduction of RIC Due to Installation		Axial Displacement of Inner Ring for RIC Reduction – Tapered Shaft <sup>(1)(2)</sup>				Suggested RIC After Installation <sup>(1)</sup>
		Normal CO		C4		C5				Taper 1:12		Taper 1:30		
		Min.	Max.	Min.	Max.	Min.	Max.			Min.	Max.	Min.	Max.	
Over	Incl.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
20	30	0.02	0.03	0.04	0.055	0.075	0.095	0.015	0.02	0.23	0.30	-	-	0.015
0.9449	1.1811	0.0008	0.0012	0.0016	0.0022	0.003	0.0037	0.0006	0.0008	0.0091	0.0118	-	-	0.0006
30	40	0.025	0.035	0.05	0.065	0.085	0.105	0.02	0.025	0.30	0.38	-	-	0.015
1.1811	1.5748	0.001	0.0014	0.002	0.0026	0.0033	0.0041	0.0008	0.001	0.0118	0.0150	-	-	0.0006
40	50	0.03	0.045	0.06	0.08	0.1	0.13	0.025	0.03	0.38	0.46	-	-	0.02
1.5748	1.9685	0.0012	0.0018	0.0024	0.0031	0.0039	0.0051	0.001	0.0012	0.0150	0.0181	-	-	0.0008
50	65	0.04	0.055	0.075	0.095	0.12	0.16	0.03	0.038	0.46	0.56	-	-	0.025
1.9685	2.5591	0.0016	0.0022	0.003	0.0037	0.0047	0.0063	0.0012	0.0015	0.0181	0.0220	-	-	0.001
65	80	0.05	0.07	0.095	0.12	0.15	0.2	0.038	0.051	0.56	0.76	-	-	0.025
2.5591	3.1496	0.002	0.0028	0.0037	0.0047	0.0059	0.0079	0.0015	0.002	0.0220	0.0299	-	-	0.001
80	100	0.055	0.08	0.11	0.14	0.18	0.23	0.046	0.064	0.68	0.97	-	-	0.036
3.1496	3.9370	0.0022	0.003	0.0043	0.0055	0.0071	0.0091	0.0018	0.0025	0.0268	0.0382	-	-	0.0014
100	120	0.065	0.1	0.135	0.17	0.22	0.28	0.051	0.071	0.76	1.07	1.90	2.54	0.051
3.9370	4.7244	0.0026	0.0039	0.0053	0.0067	0.0087	0.011	0.002	0.0028	0.0299	0.0421	0.0748	0.1000	0.002
120	140	0.08	0.12	0.16	0.2	0.26	0.33	0.064	0.089	0.89	1.27	2.29	3.05	0.056
4.7244	5.5118	0.0031	0.0047	0.0063	0.0079	0.0102	0.013	0.0025	0.0035	0.0350	0.0500	0.0902	0.1201	0.0022
140	160	0.09	0.13	0.18	0.23	0.3	0.38	0.076	0.102	1.14	1.52	2.67	3.43	0.056
5.5118	6.2992	0.0035	0.0051	0.0071	0.0091	0.0118	0.015	0.003	0.004	0.0449	0.0598	0.1051	0.1350	0.0022
160	180	0.1	0.14	0.2	0.26	0.34	0.43	0.076	0.114	1.14	1.65	2.67	4.06	0.061
6.2992	7.0866	0.0039	0.0055	0.0079	0.0102	0.0134	0.0169	0.003	0.0045	0.0449	0.0650	0.1051	0.1598	0.0024
180	200	0.11	0.16	0.22	0.29	0.37	0.47	0.089	0.127	1.40	1.90	3.05	4.45	0.071
7.0866	7.8740	0.0043	0.0063	0.0087	0.0114	0.0146	0.0185	0.0035	0.005	0.0551	0.0748	0.1201	0.1752	0.0028
200	225	0.12	0.18	0.25	0.32	0.41	0.52	0.102	0.14	1.52	2.03	3.56	4.83	0.076
7.8740	8.8582	0.0047	0.0071	0.0098	0.0126	0.0161	0.0205	0.004	0.0055	0.0598	0.0799	0.1402	0.1902	0.003
225	250	0.14	0.2	0.27	0.35	0.45	0.57	0.114	0.152	1.78	2.29	4.06	5.33	0.089
8.8582	9.8425	0.0055	0.0079	0.0106	0.0138	0.0177	0.0224	0.0045	0.006	0.0701	0.0902	0.1598	0.2098	0.0035
250	280	0.15	0.22	0.3	0.39	0.49	0.62	0.114	0.165	1.78	2.54	4.06	5.84	0.102
9.8425	11.0236	0.0059	0.0087	0.0118	0.0154	0.0193	0.0244	0.0045	0.0065	0.0701	0.1000	0.1598	0.2299	0.004
280	315	0.17	0.24	0.33	0.43	0.54	0.68	0.127	0.178	1.90	2.67	4.45	6.22	0.102
11.0236	12.4016	0.0067	0.0094	0.013	0.0169	0.0213	0.0268	0.005	0.007	0.0748	0.1051	0.1752	0.2449	0.004
315	355	0.19	0.27	0.36	0.47	0.59	0.74	0.14	0.19	2.03	2.79	4.83	6.60	0.114
12.4016	13.9764	0.0075	0.0106	0.0142	0.0185	0.0232	0.0291	0.0055	0.0075	0.0799	0.1098	0.1902	0.2598	0.0045
355	400	0.21	0.3	0.4	0.52	0.65	0.82	0.152	0.203	2.29	3.05	5.33	7.11	0.127
13.9764	15.7480	0.0083	0.0118	0.0157	0.0205	0.0256	0.0323	0.006	0.008	0.0902	0.1201	0.2098	0.2799	0.005
400	450	0.23	0.33	0.44	0.57	0.72	0.91	0.165	0.216	2.54	3.3	5.84	7.62	0.152
15.7480	17.7165	0.0091	0.013	0.0173	0.0224	0.0283	0.0358	0.0065	0.0085	0.1000	0.1299	0.2299	0.3000	0.006
450	500	0.26	0.37	0.49	0.63	0.79	1	0.178	0.229	2.67	3.43	6.22	8.00	0.165
17.7165	19.6850	0.0102	0.0146	0.0193	0.0248	0.0311	0.0394	0.007	0.009	0.1051	0.1350	0.2449	0.3150	0.0065
500	560	0.29	0.41	0.54	0.68	0.87	1.1	0.203	0.254	3.05	3.81	7.11	8.89	0.178
19.6850	22.0472	0.0114	0.0161	0.0213	0.0268	0.0343	0.0433	0.008	0.01	0.1201	0.1500	0.2799	0.3500	0.007
560	630	0.32	0.46	0.6	0.76	0.98	1.23	0.229	0.279	3.43	4.19	8.00	9.78	0.203
22.0472	24.8031	0.0126	0.0181	0.0236	0.0299	0.0386	0.0484	0.009	0.011	0.1350	0.1650	0.3150	0.3850	0.008
630	710	0.35	0.51	0.67	0.85	1.09	1.36	0.254	0.305	3.81	4.57	8.89	10.67	0.203
24.8031	27.9528	0.0138	0.0201	0.0264	0.0335	0.0429	0.0535	0.01	0.012	0.1500	0.1799	0.3500	0.4201	0.008
710	800	0.39	0.57	0.75	0.96	1.22	1.5	0.279	0.356	4.19	5.33	9.78	12.45	0.229
27.9528	31.4961	0.0154	0.0224	0.0295	0.0378	0.048	0.0591	0.011	0.014	0.1650	0.2098	0.3850	0.4902	0.009
800	900	0.44	0.64	0.84	1.07	1.37	1.69	0.305	0.381	4.57	5.72	10.67	13.33	0.252
31.4961	35.4331	0.0173	0.0252	0.0331	0.0421	0.0539	0.0665	0.012	0.015	0.1799	0.2252	0.4201	0.5248	0.01
900	1000	0.49	0.71	0.93	1.19	1.52	1.86	0.356	0.432	5.33	6.48	12.45	15.11	0.279
35.4331	39.3701	0.0193	0.028	0.0366	0.0469	0.0598	0.0732	0.014	0.017	0.2100	0.2551	0.4902	0.5949	0.011

<sup>(1)</sup>This displacement is valid for assembly of tapered bore bearings and is measured starting from a line-to-line fit of the bearing bore to the tapered shaft.  
<sup>(2)</sup>1:12 Taper used for 222, 223, 230, 231, 232, 233, 239 series. 1:30 Taper used for 240, 241, 242 series. For sleeve mounting, multiply axial displacement values by 1.1 for 1:12 Taper or by 1.05 for 1:30 Taper. For questions on tapered shaft data, consult your Timken engineer.  
 NOTE: Axial displacement values apply to solid steel shafts or hollow shafts with bore diameter less than half the shaft diameter. For shaft materials other than steel, or for thin-walled shafts, please consult your Timken engineer.  
 NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

**EXAMPLE #1 –**

**Calculating RIC Reduction Using a Spherical Roller Bearing with Tapered Bore**

Given bearing number 22328K C3 (140 mm bore with C3 clearance) is to be mounted on a tapered shaft. Using a set of feeler gages, RIC is measured at (see fig. D-3):

$$RIC = 0.178 \text{ mm (0.007 in.)}$$

Suggested reduction of RIC due to installation = 0.064 mm – 0.089 mm (0.0025 in. – 0.0035 in.), found in table D-5 on page D-10.

Calculate the clearance after mounting (see fig. D-4):

$$0.178 \text{ mm} - 0.076 \text{ mm} = 0.102 \text{ mm } \textit{or}$$

$$(0.007 \text{ in.} - 0.003 \text{ in.} = 0.004 \text{ in.})$$

For this example, the value of 0.076 mm (0.003 in.) was obtained by taking the mid-range value of the upper and lower limits found in the tables on pages D-9 and D-10.

Therefore, the locknut should be tightened until RIC reaches 0.102 mm (0.004 in.).



**Fig. D-3. Measure RIC before installation.**



**Fig. D-4. During mounting, the RIC should be checked at the unloaded roller.**

It also should be noted that the value obtained by reading the suggested RIC after installation directly from the table is 0.056 mm (0.0022 in.). This differs from the value calculated in the example. The value taken directly from the table is provided as a minimum value. It is not suggested to use a calculated value that falls below this minimum.

**EXAMPLE #2 –**

**Calculating RIC Reduction Using a Spherical Roller Bearing with Cylindrical Bore**

**Observations:**

- Bearing 22230EM, nominal 150 mm (5.0955 in.) bore and 270 mm (10.6299 in.) O.D., standard class, operating at 1200 RPM.
- Float bearing position so the stationary O.D. should be free to move in SAF housing, with the stabilizing ring removed.
- With shaft/inner ring rotation and the moderate loading 0.09C, the bore should be tight fit.

We can use the nominal fit charts on page D-15 (shaft fit) to help guide our ISO fit selection.

**Shaft Fit at 150 mm Bore: ISO p6**

From the shaft fit chart at 150 mm nominal bore at p6 (page D-20), the shaft tolerance is nominal +0.043 to +0.068 mm (+0.0017 to +0.0027 in.). Therefore we have the following bore range:

$$\text{max. shaft} = 150.068 \text{ mm (5.0955 in.)}$$

$$\text{min. shaft} = 150.043 \text{ mm (5.0945 in.)}$$

**This yields a shaft fit:**

$$\begin{aligned} \text{max. fit} &= \text{max. shaft} - \text{min. bore} \\ &= 150.068 - 149.075 \\ &= 0.093 \text{ mm (0.0037 in.) tight} \end{aligned}$$

$$\begin{aligned} \text{min. fit} &= \text{min. shaft} - \text{max. bore} \\ &= 150.043 - 150.000 \\ &= 0.043 \text{ mm (0.0017 in.) tight} \end{aligned}$$

For the primary selection of RIC, the major parameters are the bearing speed and the fits. For our example, we know that the shaft fit is 0.043 mm (0.0017 in.) tight to 0.093 mm (0.0037 in.) tight.

We know the housing fit is loose. We also know that the bearing speed is 1200 RPM or 60 percent of the speed rating.

As a general rule of thumb, we increase the clearance for operating speeds that exceed 70 percent of the speed rating, due to concerns over internal heat generation and thermal growth. In this case, we are at 60 percent of the speed rating, so normal clearance, ISO CO or the SAF standard C3, can be selected.

Observing the RIC chart on page D-9, we find for 150 mm nominal bore at CO, the RIC will be 0.110 mm to 0.170 mm (0.0043 in. to 0.0067 in.). We also note that the minimum recommended RIC (installed) is 0.056 mm (0.0022 in.).

Also from page D-9, we note that we get an approximate reduction of RIC that is 80 percent of interference fit on a solid housing. Since we have a loose housing fit, there will be no RIC reduction from that fit.

**Shaft fit RIC reductions and clearance:**

For a 150 mm nominal bore at C3, the RIC will be 0.115 to 0.165 mm (0.0045 to 0.0065 in.). Recalculating shaft fit RIC reduction and clearance:

$$\begin{aligned} \text{max. clearance} &= \text{max. RIC} - \text{min. fit reduction} \\ &= 0.165 - 0.034 = 0.131 \text{ mm (0.0052 in.)} \end{aligned}$$

$$\begin{aligned} \text{min. clearance} &= \text{min. RIC} - \text{max. fit reduction} \\ &= 0.115 - 0.074 = 0.041 \text{ mm (0.0016 in.)} \end{aligned}$$

Since the minimum mounted clearance is less than the minimum suggested RIC of 0.056 mm (0.0022 in.), the C3 RIC clearance limit needs to be reevaluated.

## INSTALLATION

When using a tight fit inner ring, the method of assembly will depend on whether the bearing has a cylindrical or tapered bore.

### CLEANLINESS

- Choose a clean environment, free from dust and moisture.
- The installer should make every effort to ensure cleanliness by use of protective screens and clean cloths.

### PLAN THE WORK

- Know your plans in advance and have the necessary tools at hand. This reduces the amount of time for the job and decreases the chance for dirt to get into the bearing.

### INSPECTION AND PREPARATION

- All component parts of the machine should be on hand and thoroughly cleaned before proceeding.
- Housings should be cleaned, including blowing out the oil holes.
- Do not use air hose on bearings.
- If blind holes are used, insert a magnetic rod to remove metal chips that might be lodged there during fabrication.
- Shaft shoulders and spacer rings contacting the bearing should be square with the shaft axis.
- The shaft fillet must be small enough to clear the radius of the bearing.
- On original installations, all component parts should be checked against the detail specification prints for dimensional accuracy. Shaft and housing should be carefully checked for size and form (roundness, etc.).



#### WARNING

**Failure to observe the following warnings could create a risk of death or serious injury.**

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.



#### CAUTION

**Failure to follow these cautions could create a risk of injury.**

Remove oil or rust inhibitor from parts before heating, to avoid fire and fumes.

### SHAFT AND HOUSING FINISH

- Shaft surfaces on which the bearing will be mounted must be clean and free from nicks and burrs.
- For applications with stationary housing and rotating shaft, it is suggested that the bearing seat on the shaft be ground to 1.6  $\mu\text{m}$  (65  $\mu\text{in.}$ ) Ra maximum.
- If it is impractical to use a ground finish, a machined finish of 3.2  $\mu\text{m}$  (125  $\mu\text{in.}$ ) Ra is acceptable in many cases, but the amount of interference fit should be slightly increased.

### INSTALLING CYLINDRICAL BORE BEARINGS

#### Heat expansion method

- Most applications require a tight interference fit on the shaft.
- Mounting is simplified by heating the bearing to expand it sufficiently to slide easily onto the shaft.
- Two methods of heating are commonly used:
  1. Tank of heated oil.
    - Accomplished by heating the bearing in a tank of oil that has a high flash point (see fig. D-5).
    - The oil temperature should not be allowed to exceed 121° C (250° F). A temperature of 93° C (200° F) is sufficient for most applications.
    - The bearing should be heated for 20 or 30 minutes, or until it is expanded sufficiently to slide onto the shaft easily.
    - The oil bath is shown in fig. D-5. The bearing should not be in direct contact with the heat source.
    - The usual arrangement is to have a screen several inches from the bottom of the tank. Small support blocks separate the bearing from the screen.
    - It is important to keep the bearing away from any localized high-heat source that may raise its temperature excessively, resulting in ring hardness reduction.
    - Flame-type burners are commonly used. An automatic device for temperature control is desirable.
    - If safety regulations prevent the use of an open heated oil bath, a mixture of 15 percent soluble-oil water may be used. This mixture may be heated to a maximum of 93° C (200° F) without being flammable.



**2. Induction heating.**

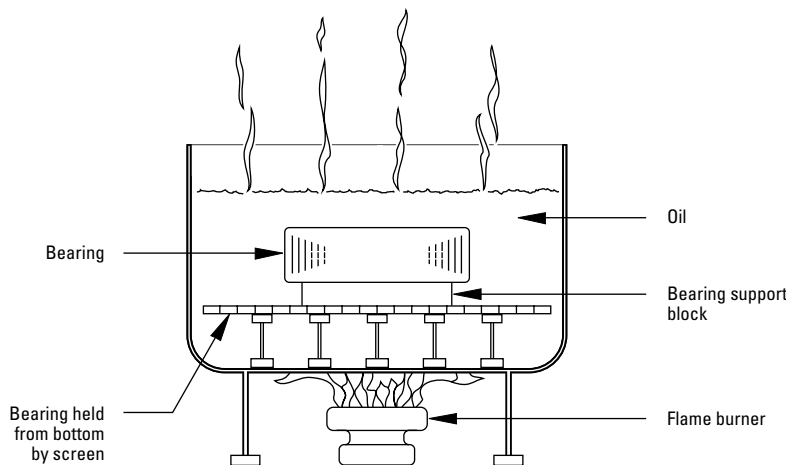
- The induction heating process can be used for mounting bearings.
- Induction heating is rapid. Care must be taken to prevent bearing temperature from exceeding 93° C (200° F).
- Trial runs with the unit and bearing are usually necessary to obtain proper timing.
- Thermal crayons melted at predetermined temperatures or thermal gun can be used to check the bearing temperature.
- While the bearing is hot, it should be positioned squarely against the shoulder.
- Lockwashers and locknuts or clamping plates are then installed to hold the bearing against the shoulder of the shaft.
- As the bearing cools, the locknut or clamping plate should be tightened.
- For more information see the Timken Spherical Roller Bearing Catalog (order no. 10446), found on [www.timken.com](http://www.timken.com).

**NOTE**

*Never use steam or hot water when cleaning the bearings because these methods can create rust or corrosion.*

*Never expose any surface of a bearing to the flame of a torch.*

*Do not heat bearing beyond 149° C (300° F).*



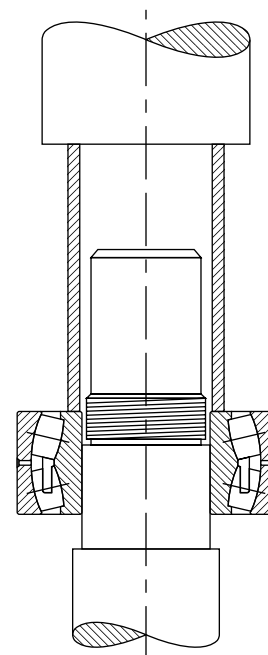
**Fig. D-5. Heat expansion method.**

**Arbor press method**

- An alternate method of mounting, generally used only on smaller size bearings, is to press the bearing onto the shaft or into the housing. This can be done by using an arbor press and a mounting tube as shown in fig. D-6.
- The tube should be made from soft steel with an inside diameter slightly larger than the shaft.
- The O.D. of the tube should not exceed the shaft backing diameter given in the Timken Spherical Roller Bearing Catalog (order no. 10446), found on [www.timken.com](http://www.timken.com).
- The tube should be faced square at both ends. It should be thoroughly clean inside and out, and long enough to clear the end of the shaft after the bearing is mounted.
- If the outer ring is being pressed into the housing, the O.D. of the mounting tube should be slightly smaller than the housing bore. The I.D. should not be less than the suggested housing backing diameter in the table of dimensions available in the Timken Spherical Roller Bearing Catalog (order no. 10446), found on [www.timken.com](http://www.timken.com).
- Coat the shaft with a light machine oil to reduce the force needed for a press fit.
- Carefully place the bearing on the shaft, making sure it is square with the shaft axis.
- Apply steady pressure from the arbor ram to drive the bearing firmly against the shoulder.

**NOTE**

*Never attempt a press fit on a shaft by applying pressure to the outer ring or a press fit in a housing by applying pressure to the inner ring.*



**Fig. D-6. Arbor press method.**

**Mounting tapered bore spherical roller bearings**

- Use a feeler gage with the thinnest blade of 0.038 mm (0.0015 in.).
- Place the bearing in an upright position with the inner and outer ring faces parallel.
- Place thumbs on the inner ring bore and oscillate the inner ring the distance of two or three roller spacings.
- Position the individual roller assemblies so that a roller is at the top of the inner ring on both sides of the bearing.
- With the roller in the correct position, insert a thin blade of the feeler gage between the roller and the outer ring, as shown in fig. D-7.
- Move the feeler gage carefully along the top roller between the roller and outer ring raceway. Repeat this procedure using thicker feeler gage blades until one is found that will not go through.
- The blade thickness that preceded the no-go blade is a measure of RIC before installation.
- Start the mounting procedure by lubricating the tapered shaft with a light coat of machine oil.
- Slide the bearing onto the shaft as far as it will go by hand.
- As the locknut is tightened, the interference fit builds up, resulting in expansion of the inner ring.
- Periodically measure to keep track of the reduction in RIC.
- Continue the procedure until the proper amount of reduction is obtained. Do not exceed suggested amount of reduction.
- As a final check, make sure the remaining RIC equals or exceeds the minimum mounted clearance shown in table D-5 on page D-10.
- During mounting, the RIC should be checked at the unloaded roller. If this is at the bottom, make sure that the roller is raised to seat firmly at the inboard position of the inner ring.
- When the suggested amount of RIC reduction has been accomplished, the bearing is properly fitted.
- Complete the procedure by peening the lockwasher tang into the locknut slot or securing the lockplate.



**Fig. D-7. Measure RIC before installation.**

## SHAFT FITS FOR CYLINDRICAL BORE BEARINGS

This chart is a guideline for specifying shaft fits related to particular operating conditions. Please contact your Timken engineer for more information.

**TABLE D-6. RADIAL SPHERICAL ROLLER BEARING SHAFT FITS**

Conditions	Examples	Shaft Dia.		Tolerance Symbol <sup>(1)</sup>	Remarks	
		mm in.				
Stationary inner ring load	The inner ring not to be easily displaced on the shaft	Wheel on non-rotating shaft	All diameters		g6	
		Tension pulleys and rope sheaves			h6	
Rotating inner ring load or indeterminate load direction	Light and variable loads $P \leq 0.07C$	Electrical apparatus, machine tools, pumps, ventilators, industrial trucks	over	incl.	k6	In very accurate applications, k5 and m5 are used instead of k6 and m6 respectively.
			<b>18</b> 0.7087	<b>100</b> 3.9370		
			<b>100</b> 3.9370	<b>200</b> 7.8740	m6	
	Normal and heavy loads $P > 0.07C$ $\leq 0.25C$	Applications in general, electrical motors, turbines, pumps, combustion engines, gear transmissions, woodworking machines	<b>18</b> 0.7087	<b>65</b> 2.5590	m5	
			<b>65</b> 2.5590	<b>100</b> 3.9370	m6	
			<b>100</b> 3.9370	<b>140</b> 5.5118	n6	
			<b>140</b> 5.5118	<b>280</b> 11.0236	p6	
			<b>280</b> 11.0236	<b>500</b> 19.6850	r6	
	Very heavy loads and shock loads $P > 0.25C$	Journal boxes for locomotives and other heavy rail vehicles, traction motors	<b>500</b> 19.6850	<b>and up</b>	r7	
			<b>18</b> 0.7087	<b>65</b> 2.5590	m6	
			<b>65</b> 2.5590	<b>100</b> 3.9370	n6	
			<b>100</b> 3.9370	<b>140</b> 5.5118	p6	
			<b>140</b> 5.5118	<b>200</b> 7.8740	r6	
	<b>200</b> 7.8740	<b>500</b> 19.6850	r7			
	<b>BEARINGS WITH TAPERED BORE AND ADAPTER SLEEVE</b>					
All loads	Applications in general	All diameters			See tables for Reduction of RIC on pages D-9 and D-10.	

<sup>(1)</sup>For solid steel shaft. See tables on pages D-16 through D-21 for tolerance value.  
NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table D-6 on page D-15.

**FITTING PRACTICE TABLES**

**TABLE D-7. SPHERICAL ROLLER BEARINGS - SHAFT TOLERANCES (CLASSES g6, h5, h6, j5, j6, k5, k6, m5)**

Bearing Bore			g6			h6			h5			j5		
Nominal (Max.)		Tolerance <sup>(1)</sup>	Shaft Dia.			Shaft Dia.			Shaft Dia.			Shaft Dia.		
Over	Incl.		Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
30.000	50.000	-0.014	-0.009	-0.025	0.003T	0.000	-0.016	0.012T	-	-	-	+0.006	-0.005	0.018T
1.1811	1.9685	-0.0006	-0.0004	-0.0010	0.0010L	0.0000	-0.0006	0.0006L				+0.0002	-0.0002	0.0002L
					0.0001T			0.0005T						0.0007T
50.000	80.000	-0.015	-0.010	-0.029	0.005T	0.000	-0.019	0.015T	-	-	-	+0.006	-0.007	0.021T
1.9685	3.1496	-0.0006	-0.0004	-0.0011	0.0011L	0.0000	-0.0007	0.0007L				+0.0002	-0.0003	0.0003L
					0.0002T			0.0006T						0.0008T
80.000	120.000	-0.020	-0.012	-0.034	0.008T	0.000	-0.022	0.020T	-	-	-	+0.006	-0.009	0.026T
3.1496	4.7244	-0.0008	-0.0005	-0.0013	0.0013L	0.0000	-0.0009	0.0009L				+0.0002	-0.0004	0.0004L
					0.0003T			0.0008T						0.0010T
120.000	180.000	-0.025	-0.014	-0.039	0.011T	0.000	-0.025	0.025T	-	-	-	+0.007	-0.011	0.032T
4.7244	7.0866	-0.0010	-0.0006	-0.0015	0.0015L	0.0000	-0.0010	0.0010L				+0.0003	-0.0004	0.0004L
					0.0004T			0.0010T						0.0013T
180.000	200.000	-0.030	-0.015	-0.044	0.015T	0.000	-0.029	0.030T	-	-	-	+0.007	-0.013	0.037T
7.0866	7.8740	-0.0012	-0.0006	-0.0017	0.0017L	0.0000	-0.0011	0.0011L				+0.0003	-0.0005	0.0005L
					0.0006T			0.0012T						0.0015T
200.000	225.000	-0.030	-0.015	-0.044	0.015T	0.000	-0.029	0.030T	-	-	-	+0.007	-0.013	0.037T
7.8740	8.8583	-0.0012	-0.0006	-0.0017	0.0017L	0.0000	-0.0011	0.0011L				+0.0003	-0.0005	0.0005L
					0.0006T			0.0012T						0.0015T
225.000	250.000	-0.030	-0.015	-0.044	0.015T	0.000	-0.029	0.030T	-	-	-	+0.007	-0.013	0.037T
8.8583	9.8425	-0.0012	-0.0006	-0.0017	0.0017L	0.0000	-0.0011	0.0011L				+0.0003	-0.0005	0.0005L
					0.0006T			0.0012T						0.0015T
250.000	280.000	-0.035	-0.017	-0.049	0.018T	0.000	-0.032	0.035T	-	-	-	+0.007	-0.016	0.042T
9.8425	11.0236	-0.0014	-0.0007	-0.0019	0.0019L	0.0000	-0.0013	0.0013L				+0.0003	-0.0006	0.0006L
					0.0007T			0.0014T						0.0017T
280.000	315.000	-0.035	-0.017	-0.049	0.018T	0.000	-0.032	0.035T	-	-	-	+0.007	-0.016	0.042T
11.0236	12.4016	-0.0014	-0.0007	-0.0019	0.0019L	0.0000	-0.0013	0.0013L				+0.0003	-0.0006	0.0006L
					0.0007T			0.0014T						0.0017T
315.000	355.000	-0.040	-0.018	-0.054	0.022T	0.000	-0.036	0.040T	-	-	-	+0.007	-0.018	0.047T
12.4016	13.9764	-0.0016	-0.0007	-0.0021	0.0021L	0.0000	-0.0014	0.0014L				+0.0003	-0.0007	0.0007L
					0.0009T			0.0016T						0.0019T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table D-6 on page D-15.

j6			k5			k6			m5		
Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit
Max.	Min.	mm in.	Max.	Min.	mm in.	Max.	Min.	mm in.	Max.	Min.	mm in.
		<b>0.005L</b>			<b>0.002T</b>			<b>0.002T</b>			<b>0.009T</b>
<b>+0.011</b>	<b>-0.005</b>	<b>0.023T</b>	<b>+0.013</b>	<b>+0.002</b>	<b>0.025T</b>	<b>+0.018</b>	<b>+0.002</b>	<b>0.030T</b>	<b>+0.020</b>	<b>+0.009</b>	<b>0.032T</b>
+0.0004	-0.0002	0.0002L	+0.0005	+0.0001	0.0001T	+0.0007	+0.0001	0.0001T	+0.0008	+0.0004	0.0004T
		0.00085T			0.0010T			0.0012T			0.00125T
		<b>0.007L</b>			<b>0.002T</b>			<b>0.002T</b>			<b>0.011T</b>
<b>+0.012</b>	<b>-0.007</b>	<b>0.027T</b>	<b>+0.015</b>	<b>+0.002</b>	<b>0.030T</b>	<b>+0.021</b>	<b>+0.002</b>	<b>0.036T</b>	<b>+0.024</b>	<b>+0.011</b>	<b>0.039T</b>
+0.0005	-0.0003	0.0003L	+0.0006	+0.0001	0.0001T	+0.0008	+0.0001	0.0001T	+0.0009	+0.0004	0.0004T
		0.0011T			0.0012T			0.0014T			0.0015T
		<b>0.009L</b>			<b>0.003T</b>			<b>0.003T</b>			<b>0.013T</b>
<b>+0.013</b>	<b>-0.009</b>	<b>0.033T</b>	<b>+0.018</b>	<b>+0.003</b>	<b>0.038T</b>	<b>+0.025</b>	<b>+0.003</b>	<b>0.045T</b>	<b>+0.028</b>	<b>+0.013</b>	<b>0.048T</b>
+0.0005	-0.0004	0.0004L	+0.0007	+0.0001	0.0001T	+0.0010	+0.0001	0.0001T	+0.0011	+0.0005	0.0005T
		0.0013T			0.0015T			0.0018T			0.0019T
		<b>0.011L</b>			<b>0.003T</b>			<b>0.003T</b>			<b>0.015T</b>
<b>+0.014</b>	<b>-0.011</b>	<b>0.039T</b>	<b>+0.021</b>	<b>+0.003</b>	<b>0.046T</b>	<b>+0.028</b>	<b>+0.003</b>	<b>0.053T</b>	<b>+0.033</b>	<b>+0.015</b>	<b>0.058T</b>
+0.0006	-0.0004	0.0004L	+0.0008	+0.0001	0.0001T	+0.0011	+0.0001	0.0001T	+0.0013	+0.0006	0.0006T
		0.0016T			0.0018T			0.0021T			0.0023T
		<b>0.013L</b>			<b>0.004T</b>						<b>0.017T</b>
<b>+0.016</b>	<b>-0.013</b>	<b>0.046T</b>	<b>+0.024</b>	<b>+0.004</b>	<b>0.054T</b>	-	-	-	<b>+0.037</b>	<b>+0.017</b>	<b>0.067T</b>
+0.0006	-0.0005	0.0005L	+0.0009	+0.0002	0.0002T				+0.0015	+0.0007	0.0007T
		0.0018T			0.0021T						0.0027T
		<b>0.013L</b>			<b>0.004T</b>						<b>0.017T</b>
<b>+0.016</b>	<b>-0.013</b>	<b>0.046T</b>	<b>+0.024</b>	<b>+0.004</b>	<b>0.054T</b>	-	-	-	<b>+0.037</b>	<b>+0.017</b>	<b>0.067T</b>
+0.0006	-0.0005	0.0005L	+0.0009	+0.0002	0.0002T				+0.0015	+0.0007	0.0007T
		0.0018T			0.0021T						0.0027T
		<b>0.013L</b>			<b>0.004T</b>						<b>0.017T</b>
<b>+0.016</b>	<b>-0.013</b>	<b>0.046T</b>	<b>+0.024</b>	<b>+0.004</b>	<b>0.054T</b>	-	-	-	<b>+0.037</b>	<b>+0.017</b>	<b>0.067T</b>
+0.0006	-0.0005	0.0005L	+0.0009	+0.0002	0.0002T				+0.0015	+0.0007	0.0007T
		0.0018T			0.0021T						0.0027T
		<b>0.016L</b>			<b>0.004T</b>						<b>0.020T</b>
<b>+0.016</b>	<b>-0.016</b>	<b>0.051T</b>	<b>+0.027</b>	<b>+0.004</b>	<b>0.062T</b>	-	-	-	<b>+0.043</b>	<b>+0.020</b>	<b>0.078T</b>
+0.0006	-0.0006	0.0006L	+0.0011	+0.0002	0.0002T				+0.0017	+0.0008	0.0008T
		0.0020T			0.0025T						0.0031T
		<b>0.016L</b>			<b>0.004T</b>						<b>0.020T</b>
<b>+0.016</b>	<b>-0.016</b>	<b>0.051T</b>	<b>+0.027</b>	<b>+0.004</b>	<b>0.062T</b>	-	-	-	<b>+0.043</b>	<b>+0.020</b>	<b>0.078T</b>
+0.0006	-0.0006	0.0006L	+0.0011	+0.0002	0.0002T				+0.0017	+0.0008	0.0008T
		0.0020T			0.0025T						0.0031T
		<b>0.018L</b>			<b>0.004T</b>						<b>0.021T</b>
<b>+0.018</b>	<b>-0.018</b>	<b>0.058T</b>	<b>+0.029</b>	<b>+0.046</b>	<b>0.069T</b>	-	-	-	<b>+0.046</b>	<b>+0.021</b>	<b>0.086T</b>
+0.0007	-0.0007	0.0007L	+0.0011	+0.0002	0.0002T				+0.0018	+0.0008	0.0008T
		0.0023T			0.0027T						0.0034T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

*Continued on next page.*

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table D-6 on page D-15.

**TABLE D-7. SPHERICAL ROLLER BEARINGS - SHAFT TOLERANCES (CLASSES g6, h5, h6, j5, j6, k5, k6, m5) – continued**

Bearing Bore			g6			h6			h5			j5		
Nominal (Max.)		Tolerance <sup>(1)</sup>	Shaft Dia.			Shaft Dia.			Shaft Dia.			Shaft Dia.		
Over	Incl.		Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>355.000</b>	<b>400.000</b>	<b>-0.040</b>			<b>0.054L</b>			<b>0.036L</b>						<b>0.018L</b>
13.9764	15.7480	-0.0016	-0.018	-0.054	0.022T	0.000	-0.036	0.040T	-	-	-	+0.007	-0.018	0.047T
			-0.0007	-0.0021	0.0021L	0.0000	-0.0014	0.0014L				+0.0003	-0.0007	0.0007L
					0.0009T			0.0016T						0.0019T
					<b>0.060L</b>			<b>0.040L</b>						<b>0.020L</b>
<b>400.000</b>	<b>450.000</b>	<b>-0.045</b>	-0.020	-0.060	0.025T	0.000	-0.040	0.045T	-	-	-	+0.007	-0.020	0.052T
15.7480	17.7165	-0.0018	-0.0008	-0.0024	0.0024L	0.0000	-0.0016	0.0016L				+0.0003	-0.0008	0.0008L
					0.0010T			0.0018T						0.0021T
					<b>0.060L</b>			<b>0.040L</b>						<b>0.020L</b>
<b>450.000</b>	<b>500.000</b>	<b>-0.045</b>	-0.020	-0.060	0.025T	0.000	-0.040	0.045T	-	-	-	+0.007	-0.020	0.052T
17.7165	19.6850	-0.0018	-0.0008	-0.0024	0.0024L	0.0000	-0.0016	0.0016L				+0.0003	-0.0008	0.0008L
					0.0010T			0.0018T						0.0020T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table D-6 on page D-15.

j6			k5			k6			m5		
Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit
Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
		<b>0.018L</b>			<b>0.004T</b>						<b>0.021T</b>
<b>+0.018</b>	<b>-0.018</b>	<b>0.058T</b>	<b>+0.029</b>	<b>+0.004</b>	<b>0.069T</b>				<b>+0.046</b>	<b>+0.021</b>	<b>0.086T</b>
+0.0007	-0.0007	0.0007L	+0.0011	+0.0002	0.0002T	-	-	-	+0.0018	+0.0008	0.0008T
		0.0023T			0.0027T						0.0034T
		<b>0.020L</b>			<b>0.005T</b>						<b>0.023T</b>
<b>+0.020</b>	<b>-0.020</b>	<b>0.065T</b>	<b>+0.032</b>	<b>+0.005</b>	<b>0.077T</b>				<b>+0.050</b>	<b>+0.023</b>	<b>0.095T</b>
+0.0008	-0.0008	0.0008L	+0.0013	+0.0002	0.0002T	-	-	-	+0.0020	+0.0009	0.0009T
		0.0026T			0.0031T						0.0037T
		<b>0.020L</b>			<b>0.005T</b>						<b>0.023T</b>
<b>+0.020</b>	<b>-0.020</b>	<b>0.065T</b>	<b>+0.032</b>	<b>+0.005</b>	<b>0.077T</b>				<b>+0.050</b>	<b>+0.023</b>	<b>0.095T</b>
+0.0008	-0.0008	0.0008L	+0.0013	+0.0002	0.0002T	-	-	-	+0.0020	+0.0009	0.0009T
		0.0026T			0.0031T						0.0037T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

# TIMKEN® SAF SPLIT-BLOCK HOUSED UNITS

## ENGINEERING • FITTING PRACTICE TABLES

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table D-6 on page D-15.

**TABLE D-8. SPHERICAL ROLLER BEARINGS - SHAFT TOLERANCES (CLASSES m6, n6, p6, r6, r7)**

Bearing Bore			m6			n6			p6			r6			r7		
Nominal (Max.)		Tolerance <sup>(1)</sup>	Shaft Dia.			Shaft Dia.			Shaft Dia.			Shaft Dia.			Shaft Dia.		
Over	Incl.		Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
30.000	50.000	-0.014	+0.025	+0.009	0.037T												
1.1811	1.9685	-0.0006	+0.0010	+0.0004	0.0004T	-	-	-	-	-	-	-	-	-	-	-	-
					0.0145T												
50.000	80.000	-0.015	+0.030	+0.011	0.045T	+0.039	+0.020	0.054T									
1.9685	3.1496	-0.0006	+0.0012	+0.0004	0.0004T	+0.0015	+0.0008	0.0008T	-	-	-	-	-	-	-	-	-
					0.0018T			0.0021T									
80.000	120.000	-0.020	+0.035	+0.013	0.055T	+0.045	+0.023	0.065T	+0.059	+0.037	0.079T						
3.1496	4.7244	-0.0008	+0.0014	+0.0005	0.0005T	+0.0018	+0.0009	0.0009T	+0.0023	+0.0015	0.0015T	-	-	-	-	-	-
					0.0022T			0.0026T			0.0031T						
120.000	180.000	-0.025	+0.040	+0.015	0.065T	+0.052	+0.027	0.077T	+0.068	+0.043	0.093T	+0.090	+0.065	0.115T			
4.7244	7.0866	-0.0010	+0.0016	+0.0006	0.0006T	+0.0020	+0.0011	0.0011T	+0.0027	+0.0017	0.0017T	+0.0035	+0.0026	0.0026T	-	-	-
					0.0026T			0.0030T			0.0037T			0.0045T			
180.000	200.000	-0.030	+0.046	+0.017	0.076T	+0.060	+0.031	0.090T	+0.079	+0.050	0.109T	+0.106	+0.077	0.136T			
7.0866	7.8740	-0.0012	+0.0018	+0.0007	0.0007T	+0.0024	+0.0012	0.0012L	+0.0031	+0.0020	0.0020T	+0.0042	+0.0030	0.0030T	-	-	-
					0.0030T			0.0036T			0.0043T			0.0054T			
200.000	225.000	-0.030	+0.046	+0.017	0.076T	+0.060	+0.031	0.090T	+0.079	+0.050	0.109T	+0.109	+0.080	0.139T	+0.126	+0.080	0.156T
7.8740	8.8583	-0.0012	+0.0018	+0.0007	0.0007T	+0.0024	+0.0012	0.0012L	+0.0031	+0.0020	0.0020T	+0.0043	+0.0031	0.0031T	+0.0050	+0.0031	0.0031T
					0.0030T			0.0036T			0.0043T			0.0055T			0.0062T
225.000	250.000	-0.030	+0.046	+0.017	0.076T	+0.060	+0.031	0.090T	+0.079	+0.050	0.109T	+0.113	+0.084	0.143T	+0.130	+0.084	0.160T
8.8583	9.8425	-0.0012	+0.0018	+0.0007	0.0007T	+0.0024	+0.0012	0.0012L	+0.0031	+0.0020	0.0020T	+0.0044	+0.0033	0.0033T	+0.0051	+0.0033	0.0033T
					0.0030T			0.0036T			0.0043T			0.0056T			0.0063T
250.000	280.000	-0.035	+0.052	+0.020	0.087T	+0.066	+0.034	0.101T	+0.088	+0.056	0.123T	+0.126	+0.094	0.161T	+0.146	+0.094	0.181T
9.8425	11.0236	-0.0014	+0.0020	+0.0008	0.0008T	+0.0026	+0.0013	0.0013T	+0.0035	+0.0022	0.0022T	+0.0050	+0.0037	0.0037T	+0.0057	+0.0037	0.0037T
					0.0034T			0.0040T			0.0049T			0.0064T			0.0071T
280.000	315.000	-0.035	+0.052	+0.020	0.087T	+0.066	+0.034	0.101T	+0.088	+0.056	0.123T	+0.130	+0.098	0.165T	+0.150	+0.098	0.185T
11.0236	12.4016	-0.0014	+0.0020	+0.0008	0.0008T	+0.0026	+0.0013	0.0013T	+0.0035	+0.0022	0.0022T	+0.0051	+0.0039	0.0039T	+0.0059	+0.0039	0.0039T
					0.0034T			0.0040T			0.0049T			0.0065T			0.0073T
315.000	355.000	-0.040	+0.057	+0.021	0.097T	+0.073	+0.037	0.113T	+0.098	+0.062	0.138T	+0.144	+0.108	0.184T	+0.165	+0.108	0.205T
12.4016	13.9764	-0.0016	+0.0022	+0.0008	0.0008T	+0.0029	+0.0015	0.0015T	+0.0039	+0.0024	0.0024T	+0.0057	+0.0043	0.0043T	+0.0065	+0.0043	0.0043T
					0.0038T			0.0045T			0.0055T			0.0073T			0.0081T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

Continued on next page.







### **SAF LUBRICATION**

To help maintain a bearing's antifriction characteristics, lubrication is needed to:

- Minimize rolling resistance caused by deformation of the rolling elements and raceway under load by separating the mating surfaces.
- Minimize sliding friction occurring between rolling elements, raceways and cage.
- Transfer heat (with oil lubrication).
- Protect from corrosion and, with grease lubrication, from contaminant ingress.

SAF Lubrication ..... D-24  
 Grease Lubrications for Bearing/Housing Assemblies .... D-32  
 General-Purpose Industrial Grease ..... D-32



## SAF LUBRICATION

The wide range of bearing types and operating conditions precludes any simple, all-inclusive statement or guideline allowing the selection of the proper lubricant. At the design level, the first consideration is whether oil or grease is best for the particular operation. The advantages of oil and grease are outlined in the table below. When heat must be carried away from the bearing, oil must be used. It is almost always preferred for very high-speed applications. Timken SAF housings are designed to allow lubrication via grease, oil bath, or oil circulation.

**TABLE D-10. ADVANTAGES OF OIL AND GREASE**

Oil	Grease
Carries heat away from the bearings	Simplifies seal design and acts as a sealant
Carries away moisture and particulate matter	Permits prelubrication of sealed or shielded bearings
Easily controlled lubrication	Generally requires less frequent lubrication

### European REACH compliance

Timken-branded lubricants, greases and similar products sold in stand-alone containers or delivery systems are subject to the European REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) directive. For import into the European Union, Timken can sell and provide only those lubricants and greases that are registered with ECHA (European Chemical Agency). For further information, please contact your Timken engineer.

## OIL LUBRICATION

Oils used for bearing lubrication should be high-quality mineral oils or synthetic oils with similar properties. Selection of the proper type of oil depends on bearing speed, load, operating temperature and lubrication method. Some features and advantages of oil lubrication, in addition to the above are:

- Oil is a better lubricant for high speeds or high temperatures. It can be cooled to help reduce bearing temperature.
- It is easier to handle and control the amount of lubricant reaching the bearing. It is harder to retain in the bearing. Lubricant losses may be higher than with grease.
- Oil can be introduced to the bearing in many ways, such as drip-feed, wick-feed, pressurized circulating systems, oil bath or air-oil mist. Each is suited for certain types of applications.
- Oil is easier to keep clean for recirculating systems.

Oil may be introduced to the bearing housing in many ways.

The most common systems are:

- **Oil bath.** The SAF housing is designed to provide a sump through which the rolling elements of the bearing will pass. Generally, the oil level should be no higher than the center point of the lowest rolling element. If speed is high, lower oil levels should be used to reduce churning. Gages or controlled elevation drains are used to achieve and maintain the proper oil level.
- **Circulating system.** This system has the advantages of:
  - An adequate supply of oil for both cooling and lubrication.
  - Metered control of the quantity of oil delivered to each bearing.
  - Removal of contaminants and moisture from the bearing by flushing action.
  - Suitability for multiple bearing installations.
  - Large reservoir, which reduces deterioration. Increased lubricant life provides economical efficiency.
  - Incorporation of oil-filtering devices.
  - Positive control to deliver the lubricant where needed.
  - A typical circulating oil system consists of an oil reservoir, pump, piping and filter. A heat exchange may be required.
- **Oil-mist lubrication.** Oil-mist lubrication systems are used in high-speed, continuous-operation applications. This system permits close control of the amount of lubricant reaching the bearings. The oil may be metered, atomized by compressed air and mixed with air, or it may be picked up from a reservoir using a venturi effect. In either case, the air is filtered and supplied under sufficient pressure to assure adequate lubrication of the bearings. Control of this type of lubrication system is accomplished by monitoring the operating temperatures of the bearings being lubricated. The continuous passage of the pressurized air and oil through the labyrinth seals used in the system prevents the entrance of contaminants from the atmosphere to the system. The successful operation of this type of system is based upon the following factors:
  - Proper location of the lubricant entry ports in relation to the bearings being lubricated.
  - Avoidance of excessive pressure drops across void spaces within the system.
  - Proper air pressure and oil quantity ratio to suit the particular application.
  - Adequate exhaust of the air-oil mist after lubrication has been accomplished.

To ensure wetting of the bearings, and to prevent possible damage to the rolling elements and rings, it is imperative that the oil-mist system be turned on for several minutes before the equipment is started. The importance of wetting the bearing before starting cannot be overstated, and it also has particular significance for equipment that has been idled for extended periods of time.

Lubricating oils are commercially available in many forms for automotive, industrial, aircraft and other uses. Oils are classified as either petroleum types (refined from crude oil) or synthetic types (produced by chemical synthesis).

### PETROLEUM OILS

Petroleum oils are made from a petroleum hydrocarbon derived from crude oil, with additives to improve certain properties. Petroleum oils are used for nearly all oil-lubricated applications of bearings.

### SYNTHETIC OILS

Synthetic oils cover a broad range of categories and include polyalphaolefins, silicones, polyglycols and various esters. In general, synthetic oils are less prone to oxidation and can operate at extreme hot or cold temperatures. Physical properties, such as pressure-viscosity coefficients, tend to vary between oil types; use caution when making oil selections.

The polyalphaolefins (PAO) have a hydrocarbon chemistry that parallels petroleum oil both in chemical structures and pressure-viscosity coefficients. Therefore, PAO oil is mostly used in the oil-lubricated applications of bearings when severe temperature environments (hot and cold) are encountered or when extended lubricant life is required.

The silicone, ester and polyglycol oils have an oxygen-based chemistry that is structurally quite different from petroleum oils and PAO oils. This difference has a profound effect on its physical properties where pressure-viscosity coefficients can be lower compared to mineral and PAO oils. This means that these types of synthetic oils may actually generate a smaller elastohydrodynamic (EHD) film thickness than a mineral or PAO oil of equal viscosity at operating temperature. Reductions in bearing fatigue life and increases in bearing wear could result from this reduction of lubricant film thickness.

**WARNING**

Failure to observe the following warnings could create a risk of death or serious injury.

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

### VISCOSITY

The selection of oil viscosity for any bearing application requires consideration of several factors: load, speed, bearing setting, type of oil and environmental factors. Since oil viscosity varies inversely with temperature, a viscosity value must always be stated with the temperature at which it was determined. High-viscosity oil is used for low-speed or high-ambient-temperature applications. Low-viscosity oil is used for high-speed or low-ambient-temperature applications.

There are several classifications of oils based on viscosity grades. The most familiar are the Society of Automotive Engineers (SAE) classifications for automotive engine and gear oils. The American Society for Testing and Materials (ASTM) and the International Organization for Standardization (ISO) have adopted standard viscosity grades for industrial fluids. Fig. D-8 shows the viscosity comparisons of ISO/ASTM with SAE classification systems at 40° C (104° F).

#### VISCOSITY CLASSIFICATION COMPARISON

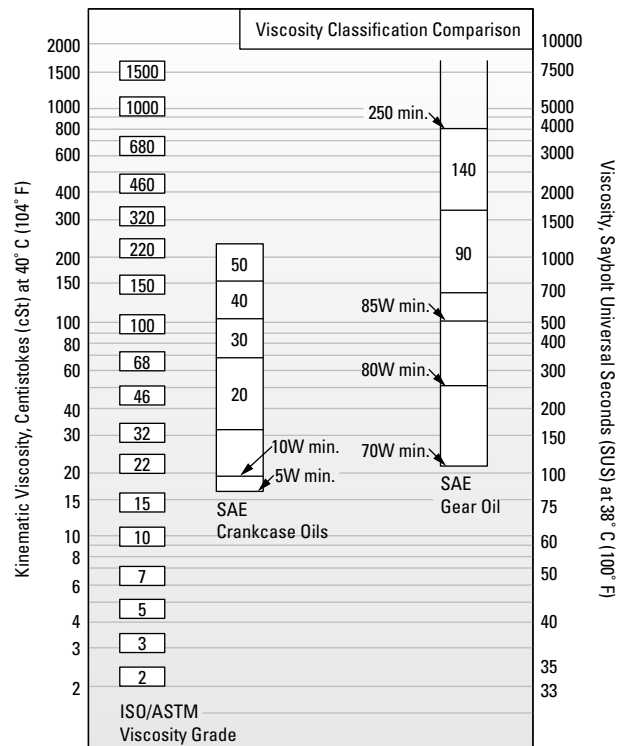


Fig. D-8. Comparison between ISO/ASTM grades (ISO 3448/ASTM D2442) and SAE grades (SAE J 300-80 for crankcase oils, SAE J 306-81 for axle and manual transmission oils).

The ASTM/ISO viscosity grade system for industrial oils is depicted in fig. D-9 below.

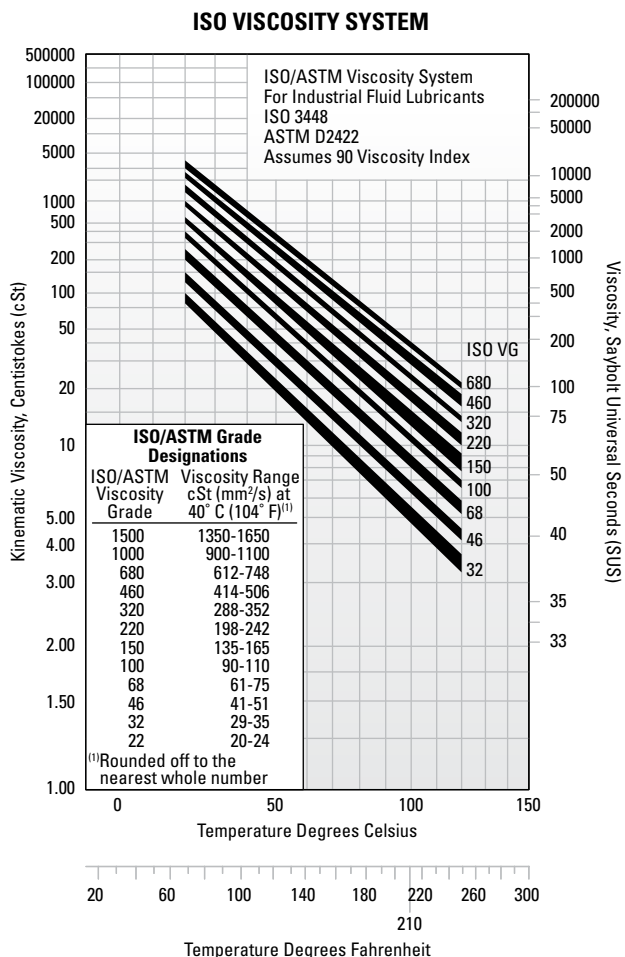


Fig. D-9. Viscosity grade system for industrial oils.

**TYPICAL BEARING LUBRICATION OILS**

In this section, the properties and characteristics of lubricants for typical roller bearing applications are listed. These general characteristics are derived from successful performance in applications across all industries.

**General-purpose rust and oxidation inhibited oil**

General-purpose rust and oxidation (R&O) inhibited oils are the most common type of industrial lubricant (see table D-11). They are used to lubricate Timken® bearings in all types of industrial applications where conditions requiring special considerations do not exist.

**TABLE D-11. SUGGESTED GENERAL-PURPOSE R&O INHIBITED OIL PROPERTIES**

Properties	
Base stock	Solvent-refined, high viscosity-index petroleum oil
Additives	Corrosion and oxidation inhibitors
Viscosity index	80 min.
Pour point	-10° C max. (14° F)
Viscosity grades	ISO/ASTM 32 through 220

Some low-speed and/or high-ambient-temperature applications require the higher viscosity grades. High-speed and/or low-temperature applications require the lower viscosity grades.

**Industrial extreme-pressure (EP) gear oil**

Extreme-pressure gear oils are used to lubricate Timken bearings in most types of heavily loaded industrial equipment (see table D-12). They should be capable of withstanding abnormal shock loads that are common in heavy-duty equipment.

**TABLE D-12. SUGGESTED INDUSTRIAL EP GEAR OIL PROPERTIES**

Properties	
Base stock	Solvent-refined, high viscosity-index petroleum oil
Additives	Corrosion and oxidation inhibitors Extreme-pressure (EP) additive <sup>(1)</sup> - 15.8 kg (35 lb.) min.
Viscosity index	80 min.
Pour point	-10° C max. (14° F)
Viscosity grades	ISO/ASTM 100, 150, 220, 320, 460

<sup>(1)</sup>ASTM D 2782

Industrial EP gear oils should be composed of a highly refined petroleum oil-based stock plus appropriate inhibitors and additives. They should not contain materials that are corrosive or abrasive to bearings. The inhibitors should provide long-term protection from oxidation and protect the bearing from corrosion in the presence of moisture. The oils should resist foaming in service and have good water-separation properties. An EP additive protects against scoring under boundary-lubrication conditions. The viscosity grades suggested represent a wide range. High-temperature and/or slow-speed applications generally require the higher viscosity grades. Low temperatures and/or high speeds require the use of lower viscosity grades.

## GREASE LUBRICATION

Grease lubrication is generally applicable to low-to-moderate speed applications that have operating temperatures within the limits of the grease. There is no universal antifriction bearing grease. Each grease has limiting properties and characteristics.

Greases consist of a base oil, a thickening agent and additives. Conventionally, bearing greases have consisted of petroleum base oils thickened to the desired consistency by some form of metallic soap. More recently synthetic base oils have been used with organic and inorganic thickeners. Table D-13 summarizes the composition of typical lubricating greases.

**TABLE D-13. COMPOSITION OF GREASES**

Base Oil	+	Thickening Agents	+	Additives	=	Lubricating Grease
Mineral oil		Soaps and complex soaps		Rust inhibitors		
Synthetic hydrocarbon		lithium, aluminum, barium, calcium		Dyes		
Esters		Non-Soap (inorganic)		Tactifiers		
Perfluorinated oil		microgel (clay), carbon black, silica-gel, PTFE		Metal deactivates		
Silicone		Non-Soap (organic)		Oxidation inhibitors		
		Urea compounds		Anti-wear EP		

Calcium- and aluminum-based greases have excellent water resistance and are used in industrial applications where water ingress is an issue. Lithium-based greases are multi-purpose and are used in industrial applications and wheel bearings.

Synthetic base oils such as esters, organic esters and silicones used with conventional thickeners and additives typically have higher maximum operating temperatures than petroleum-based greases. Synthetic greases can be designed to operate in temperatures from -73° C (-100° F) to 288° C (550° F).

In table D-14 are the general characteristics of common thickeners used with petroleum base oils.

Use of the thickeners in table D-14 with synthetic hydrocarbon or ester base oils increases the maximum operating temperature by approximately 10° C (50° F).

Using polyurea as a thickener for lubricating fluids is one of the most significant lubrication developments in more than 30 years. Polyurea grease performance is outstanding in a wide range of bearing applications.

## CONSISTENCY

Greases may vary in consistency from semi-fluids that are hardly thicker than a viscous oil to solid grades almost as hard as a soft wood.

Consistency is measured by a penetrometer in which a standard weighted cone is dropped into the grease. The distance the cone penetrates (measured in tenths of a millimeter in a specific time) is the penetration number.

The National Lubricating Grease Institute (NLGI) classification of grease consistency is shown in table D-15 below:

**TABLE D-14. GENERAL CHARACTERISTICS OF THICKENERS USED WITH PETROLEUM-BASED OILS**

Thickener	Typical Dropping Point		Maximum Temperature		Typical Water Resistance
	°C	°F	°C	°F	
Lithium soap	193	380	121	250	Good
Lithium complex	260+	500+	149	300	Good
Aluminum complex	249	480	149	300	Excellent
Calcium sulfonate	299	570	177	350	Excellent
Polyurea	260	500	149	300	Good

**TABLE D-15. NLGI CLASSIFICATIONS**

NLGI Grease Grades	Penetration No.
0	355-385
1	310-340
2	265-295
3	220-250
4	175-205
5	130-160
6	85-115

Grease consistency is not fixed; it normally becomes softer when sheared or worked. In the laboratory, this working is accomplished by forcing a perforated plate up and down through a closed container of grease. This working does not compare with the violent shearing action that takes place in a bearing and does not necessarily correlate with actual performance.

**LOW TEMPERATURES**

Starting torque in a grease-lubricated bearing at low temperatures can be critical. Some greases may function adequately as long as the bearing is operating, but resistance to initial movement may be excessive. In certain smaller machines, starting may be impossible when very cold. Under such operating circumstances, greases containing low-temperature characteristic oils are generally required.

If the operating temperature range is wide, synthetic greases offer advantages. Synthetic greases are available to provide very low starting and running torque at temperatures as low as -73° C (-100° F). In certain instances, these greases perform better in this respect than oil.

An important point concerning lubricating greases is that the starting torque is not necessarily a function of the consistency or the channel properties of the grease. Starting torque is more a function of the individual rheological properties of a particular grease and is best evaluated by application experience.

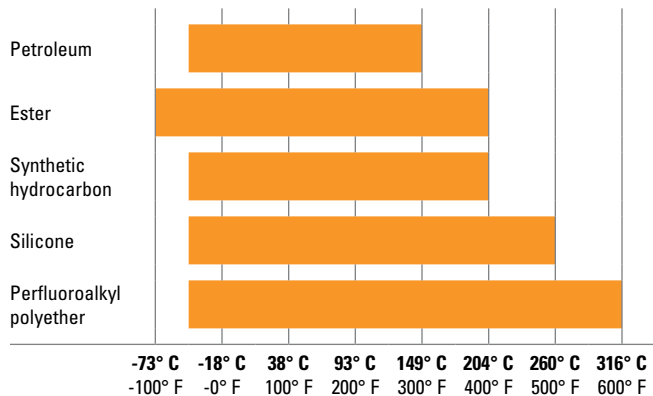
**HIGH TEMPERATURES**

The high temperature limit for lubricating greases is generally a function of the thermal and oxidation stability of the fluid and the effectiveness of the oxidation inhibitors. Grease temperature ranges are defined by both the dropping point of the grease thickener and composition of the base oil. Table D-16 shows the temperature ranges of various base oils used in grease formulations.

A rule of thumb, developed from years of testing grease-lubricated bearings, indicates that grease life is halved for every 10° C (50° F) increase in temperature. For example, if a particular grease provides 2000 hours of life at 90° C (194° F), by raising the temperature to 100° C (212° F), reduction in life to approximately 1000 hours would result. On the other hand, 4000 hours could be expected by lowering the temperature to 80° C (176° F).

Thermal stability, oxidation resistance and temperature limitations must be considered when selecting greases for high-temperature applications. In non-relubricatable applications, highly refined mineral oils or chemically stable synthetic fluids are required as the oil component of greases for operation at temperatures above 121° C (250° F).

**TABLE D-16. TEMPERATURE RANGES FOR BASE OILS USED IN LUBRICATING GREASES**





## CONTAMINATION

### Abrasive Particles

When roller bearings operate in a clean environment, the primary cause of damage is the eventual fatigue of the surfaces where rolling contact occurs. However, when particle contamination enters the bearing system, it is likely to cause damage such as bruising, which can shorten bearing life.

When dirt from the environment or metallic wear debris from some component in the application are allowed to contaminate the lubricant, wear can become the predominant cause of bearing damage. If bearing wear becomes significant, changes will occur to critical bearing dimensions that could adversely affect machine operation.

Bearings operating in a contaminated lubricant exhibit a higher initial rate of wear than those running in an uncontaminated lubricant. With no further contaminant ingress, this wear rate quickly diminishes. The contamination particles are reduced in size as they pass through the bearing contact area during normal operation.

### Water

Water and moisture can be particularly conducive to bearing damage. Lubricating greases may provide a measure of protection from this contamination. Certain greases, such as calcium and aluminum-complex, are highly water-resistant.

Sodium-soap greases are water-soluble and should not be used in applications involving water.

Either dissolved or suspended water in lubricating oils can exert a detrimental influence on bearing fatigue life. Water can cause bearing etching that also can reduce bearing fatigue life. The exact mechanism by which water lowers fatigue life is not fully understood. It has been suggested that water enters micro-cracks in the bearing rings that are caused by repeated stress cycles. This leads to corrosion and hydrogen embrittlement in the micro-cracks, reducing the time required for these cracks to propagate to an unacceptable-sized spall.

Water-based fluids, such as water glycol and invert emulsions, also have shown a reduction in bearing fatigue life. Although water from these sources is not the same as contamination, the results support the previous discussion concerning water-contaminated lubricants.

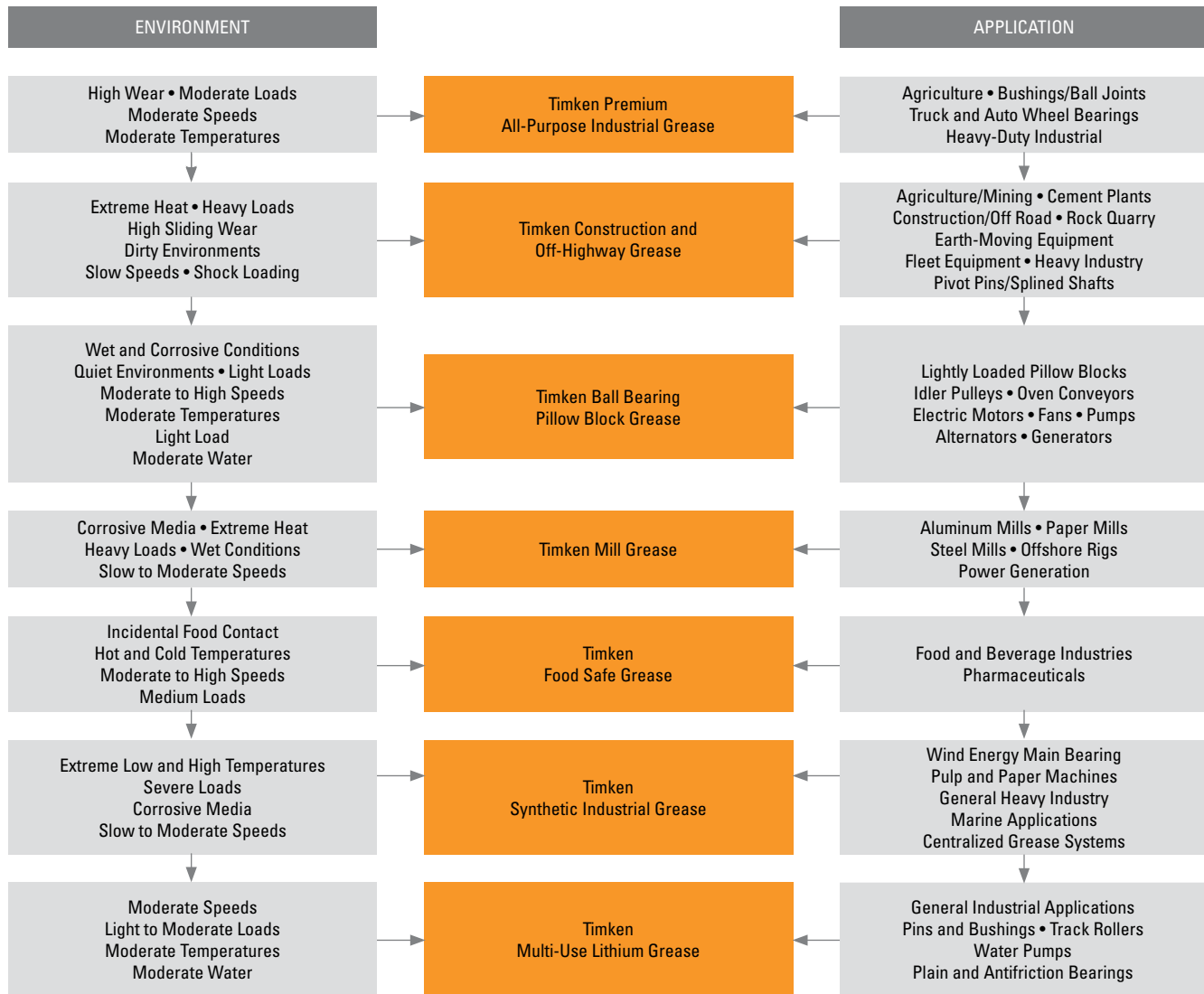
## GREASE SELECTION

The successful use of bearing grease depends on the physical and chemical properties of the lubricant as well as application and environmental conditions. Because the choice of grease for a particular bearing under certain service conditions is often difficult to make, you should consult with your lubricant supplier or equipment maker for specific questions about lubrication requirements for your application. You also can contact your Timken engineer for general lubrication guidelines for any application.

Grease must be carefully selected with regard to its consistency at operating temperature. It should not exhibit thickening, separation of oil, acid formation or hardening to any marked degree. It should be smooth, non-fibrous and entirely free from chemically active ingredients. Its dropping point should be considerably higher than the operating temperature.

Timken® application-specific lubricants were developed by leveraging our knowledge of tribology and antifriction bearings, and how these two elements affect overall system performance. Timken lubricants help bearings and related components operate effectively in demanding industrial operations. High-temperature, anti-wear and water-resistant additives offer superior protection in challenging environments. Table D-17 provides an overview of the Timken greases available for general applications. Contact your Timken engineer for a more detailed publication on Timken lubrication solutions.

**TABLE D-17. GREASE LUBRICATION SELECTION GUIDE**



This selection guide is not intended to replace the specifications by the equipment builder, who is responsible for its performance.

Many bearing applications require lubricants with special properties or lubricants formulated specifically for certain environments, such as:

- Friction oxidation (fretting corrosion).
- Chemical and solvent resistance.
- Food handling.

For assistance with these or other areas requiring special lubricants, consult your Timken engineer.

## GREASE USE GUIDELINES

It is important to use the proper amount of grease in the application. In typical industrial applications, the bearing cavity should be kept approximately one-third to one-half full. Less grease may result in the bearing being starved for lubrication. More grease may result in churning. Both conditions may result in excessive heat generation. As the grease temperature rises, viscosity decreases and the grease becomes thinner. This can reduce the lubricating effect and increase leakage of the grease from the bearing. It also may cause the grease components to separate, leading to a general breakdown of the lubricant properties. As the grease breaks down, bearing torque increases. In the case of excess grease resulting in churning, torque may also increase due to the resistance caused by the grease.

For best results, there should be ample space in the housing to allow room for excess grease to be thrown from the bearing. However, it is equally important that the grease be retained all around the bearing. If a large void exists between the bearings, grease closures should be used to prevent the grease from leaving the bearing area.

Only in low-speed applications may the housing be entirely filled with grease. This method of lubrication is a safeguard against the entry of foreign matter, where sealing provisions are inadequate for exclusion of contaminants or moisture.

During periods of non-operation, it is often wise to completely fill the housings with grease to protect the bearing surfaces. Prior to restarting operation, remove the excess grease and restore the proper level.

Applications utilizing grease lubrication should have a grease fitting and a vent at opposite ends of the housing near the top. A drain plug should be located near the bottom of the housing to allow the old grease to purge from the bearing.

Bearings should be relubricated at regular intervals to help prevent damage. Relubrication intervals are difficult to determine. If plant practice or experience with other applications is not available, consult your lubricant supplier.

Timken offers a range of lubricants to help bearings and related components operate effectively in demanding industrial operations. High-temperature, anti-wear and water-resistant additives offer greater protection in challenging environments. Timken also offers a line of single- and multi-point lubricators to simplify grease delivery.



**Fig. D-10. Grease can easily be packed by hand.**



**Fig. D-11. Mechanical grease packer.**

## Grease application methods

Grease, in general, is easier to use than oil in industrial bearing applications. Most bearings that are initially packed with grease require periodic relubrication to operate efficiently.

Grease should be packed into the bearing so that it gets between the rolling elements.

Grease can be easily packed into small- and medium-size bearings by hand (fig. D-10). In shops where bearings are frequently regreased, a mechanical grease packer that forces grease through the bearing under pressure may be appropriate (fig. D-11). Regardless of the method, after packing the internal areas of the bearing, a small amount of grease also should be smeared on the outside of the rollers.

The two primary considerations that determine the relubrication cycle are operating temperature and sealing efficiency. High-operating-temperature applications generally require more frequent regreasing. The less efficient the seals, the greater the grease loss and the more frequently grease must be added.

Grease should be added any time the amount in the bearing falls below the desired amount. The grease should be replaced when its lubrication properties have been reduced through contamination, high temperature, water, oxidation or any other factors. For additional information on appropriate regreasing cycles, consult with the equipment manufacturer or your Timken engineer.

## **GREASE LUBRICATIONS FOR BEARING/HOUSING ASSEMBLIES**

Polyurea and lithium-based greases are normally preferred for general-purpose bearing lubrication and are advantageous in high moisture applications. Both greases have good water-resistant characteristics. For temperature ranges of standard greases, see table D-16.

Frictional torque is influenced by the quantity and the quality of lubricant present. Excessive quantities of grease cause churning. The adverse effects of churn are accelerated with increases in operating speed. The churn results in excessive temperatures, separation of the grease components, and breakdown in lubrication values. In normal-speed applications, the housings should be kept approximately one-third to one-half full. Only in low-speed applications may the housing be entirely filled with grease. This method of lubrication is a safeguard against the entry of foreign matter, where sealing provisions are inadequate for exclusion of contaminants or moisture.

## **GENERAL-PURPOSE INDUSTRIAL GREASE**

Polyurea and and lithium-based greases are typical of greases that can be used to lubricate many Timken bearing applications in all types of standard equipment.

Special consideration should be given to applications where speed, load, temperature or environmental conditions are extreme.

Lithium greases, lithium complex greases, or calcium sulfonate thickened grease are suitable for most centralized, single-point, or manually lubricated product. They should be a smooth, homogeneous and uniform, premium-quality product composed of mineral or synthetic oil, a thickener and appropriate inhibitors (see table D-18).

**TABLE D-18. SUGGESTED LITHIUM SOAP, LITHIUM COMPLEX AND CALCIUM SULFONATE GREASE PROPERTIES**

Thickener type	Lithium Complex, or equivalent
Consistency	NLGI No.1 or No. 2
Additives	Anti-wear, corrosion and oxidation inhibitors
Base oil	Mineral oil or synthetic
Viscosity at 40° C	ISO VG 150-220
Viscosity index	80 min.
Pour point	-18° C (0° F) max.

They should not contain materials that are corrosive or abrasive to roller bearings. The grease should have excellent mechanical and chemical stability. The grease should contain inhibitors to provide long-term protection against oxidation in high-performance applications and protect the bearings from corrosion in the presence of moisture. The suggested base oil viscosity covers a fairly wide range. Lower viscosity products should be used in high-speed and/or lightly loaded applications to minimize heat generation and torque. Higher viscosity products should be used in moderate- to low-speed applications and under heavy loads to maximize lubricant film thickness. Speed ratings are listed for each size/class part number in the Spherical Roller Bearing Catalog (order no. 10446) on [pages 59-88](#). When application speeds exceed 70 percent of grease speed rating, consider increasing RIC by one ISO clearance range (CNormal to C3). Table D-19 is provided as a reference for typical grease thickener compatibilities. Consult your lubricant supplier for further information for your specific requirement. For general industrial applications, consider a grease that is NLGI No. 1 or No. 2, with a ISO 150 to 220 viscosity grade.

### **NOTE**

*Mixing greases can result in improper bearing lubrication. Always follow the specific lubrication instructions of your equipment supplier.*

TABLE D-19. GREASE COMPATIBILITY CHART

	Al Complex	Ba Complex	Ca Stearate	Ca 12 Hydroxy	Ca Complex	Ca Sulfonate	Non-Soap Clay	Li Stearate	Li 12 Hydroxy	Li Complex	Polyurea	Polyurea S S
Aluminum Complex	Best Choice	Incompatible	Incompatible	Compatible	Incompatible	Borderline	Incompatible	Incompatible	Incompatible	Compatible	Incompatible	Compatible
Timken Food Safe	Best Choice	Incompatible	Incompatible	Compatible	Incompatible	Borderline	Incompatible	Incompatible	Incompatible	Compatible	Incompatible	Compatible
Barium Complex	Incompatible	Best Choice	Incompatible	Compatible	Incompatible	Compatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Borderline
Calcium Stearate	Incompatible	Incompatible	Best Choice	Compatible	Incompatible	Compatible	Compatible	Compatible	Borderline	Compatible	Incompatible	Compatible
Calcium 12 Hydroxy	Compatible	Compatible	Compatible	Best Choice	Borderline	Borderline	Compatible	Compatible	Compatible	Compatible	Incompatible	Compatible
Calcium Complex	Incompatible	Incompatible	Incompatible	Borderline	Best Choice	Incompatible	Incompatible	Incompatible	Incompatible	Compatible	Compatible	Compatible
Calcium Sulfonate	Borderline	Compatible	Compatible	Borderline	Incompatible	Best Choice	Incompatible	Borderline	Borderline	Compatible	Incompatible	Compatible
Timken Premium Mill Timken Heavy-Duty Moly	Borderline	Compatible	Compatible	Borderline	Incompatible	Best Choice	Incompatible	Borderline	Borderline	Compatible	Compatible	Compatible
Clay Non-Soap	Incompatible	Incompatible	Compatible	Compatible	Incompatible	Incompatible	Best Choice	Incompatible	Incompatible	Incompatible	Incompatible	Borderline
Lithium Stearate	Incompatible	Incompatible	Compatible	Compatible	Incompatible	Borderline	Incompatible	Best Choice	Compatible	Compatible	Incompatible	Compatible
Lithium 12 Hydroxy	Incompatible	Incompatible	Borderline	Compatible	Incompatible	Borderline	Incompatible	Compatible	Best Choice	Compatible	Incompatible	Compatible
Lithium Complex	Compatible	Incompatible	Compatible	Compatible	Compatible	Compatible	Incompatible	Compatible	Compatible	Best Choice	Incompatible	Compatible
Polyurea Conventional	Incompatible	Incompatible	Incompatible	Incompatible	Compatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Best Choice	Compatible
Polyurea Shear Stable	Compatible	Borderline	Compatible	Compatible	Compatible	Compatible	Borderline	Compatible	Compatible	Compatible	Compatible	Best Choice
Timken Multi-Use	Incompatible	Incompatible	Borderline	Compatible	Incompatible	Borderline	Incompatible	Compatible	Best Choice	Compatible	Incompatible	Compatible
Timken All -Purpose Timken Synthetic	Compatible	Incompatible	Compatible	Compatible	Compatible	Compatible	Incompatible	Compatible	Compatible	Best Choice	Incompatible	Compatible
Timken Pillow Block	Compatible	Borderline	Compatible	Compatible	Compatible	Compatible	Borderline	Compatible	Compatible	Compatible	Compatible	Best Choice

## **APPLICATION CONSIDERATIONS**

For higher-speed applications (operating at 75 percent of the grease speed rating or more), a grease with a lighter base oil viscosity (ISO 100-150) can be considered. Conversely, for lower-speed applications, a grease with a heavier base oil viscosity (ISO 320-460) can be considered. For lower-speed applications operating at colder start-up temperatures ( $>-18^{\circ}\text{C}$  [ $0^{\circ}\text{F}$ ]), consider a softer grease (NLGI grade 1) with an approved EP additive. The lighter grade will allow more grease flow into the bearing contact area and the EP additive will reduce wear during start-up. An ISO 460 base oil viscosity also can be considered.

When lower-speed applications operate at higher temperatures ( $>149^{\circ}\text{C}$  [ $300^{\circ}\text{F}$ ]), consult a local Timken engineer.

## **GREASE FILL**

For normal industrial applications, fill the bearing void to 100 percent full and the housing void to 40–60 percent full. For high-speed applications, fill the bearing void to 100 percent full and the housing void to 30–40 percent full. The free volume of the bearing can be estimated by first calculating the solid ring volume of the bearing. Then, weigh the bearing and divide the weight by the density of steel. This actual volume can then be subtracted from the solid ring volume. The resultant value is an estimate of the free volume of the bearing available for grease fill. When the grease volume is determined for the application, multiplying this value by the density of the grease will yield the approximate weight of the grease fill. After weighing the grease required, apply approximately 75 percent of the amount into the cage and roller assembly. The remaining amount of grease should then be applied to both inner and outer rings in equal amounts. The preservatives applied to bearing components are compatible with nearly all industrial greases and should not be wiped or cleaned prior to packing the bearing. If in doubt, contact a local Timken engineer.

## ***SPHERICAL ROLLER BEARINGS***

Timken® spherical roller bearings feature all of the characteristics that have made Timken renowned – superior design, reliable performance and comprehensive technical support. Spherical roller bearings are designed to manage high radial loads and perform consistently, even when misalignment, marginal lubrication, contamination, extreme speeds and critical application stresses are present.

Nomenclature.....	D-36
Spherical Roller Bearing Product Data Tables .....	D-37



# SPHERICAL ROLLER BEARINGS NOMENCLATURE

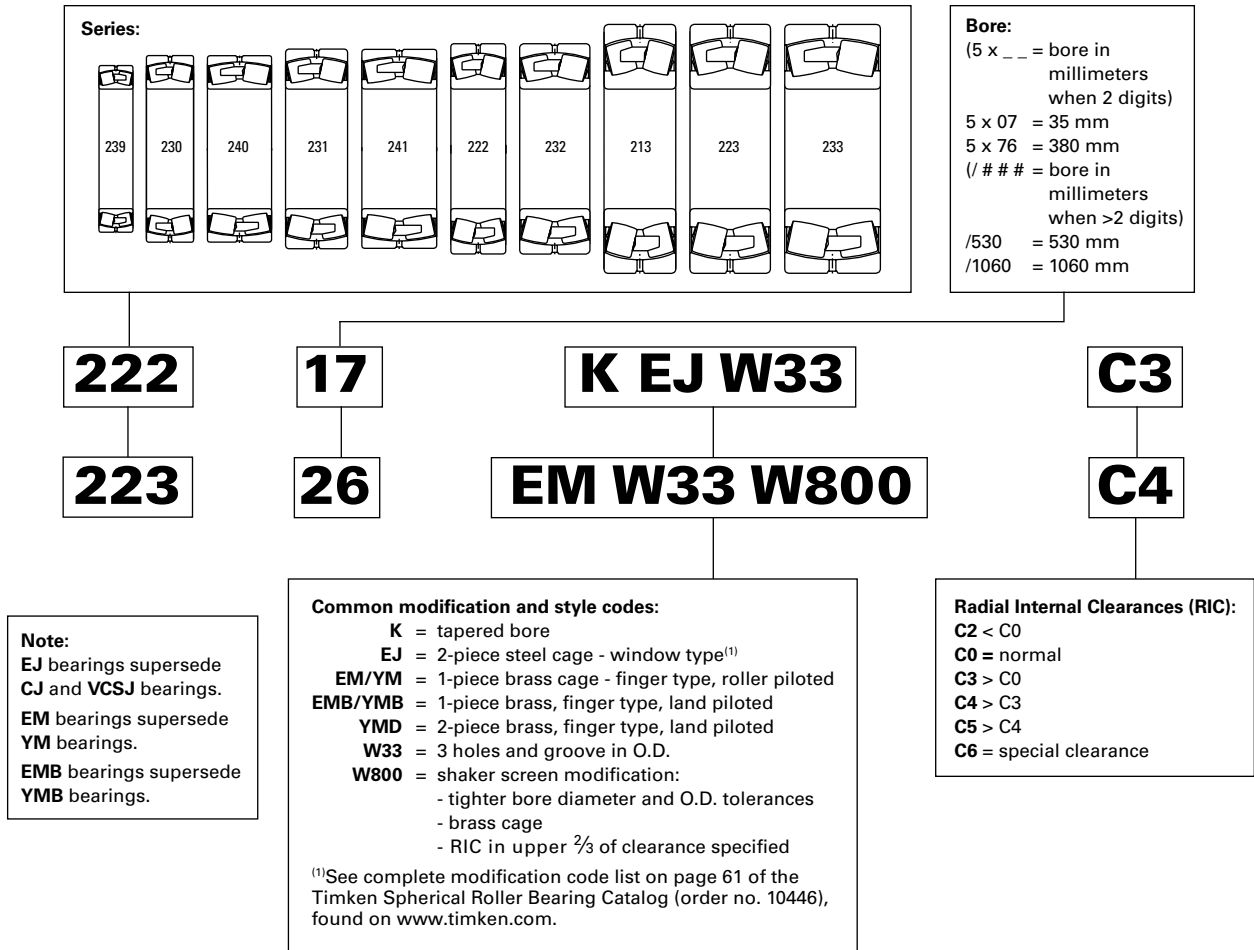


Fig. D-12. Timken® spherical roller bearing nomenclature.

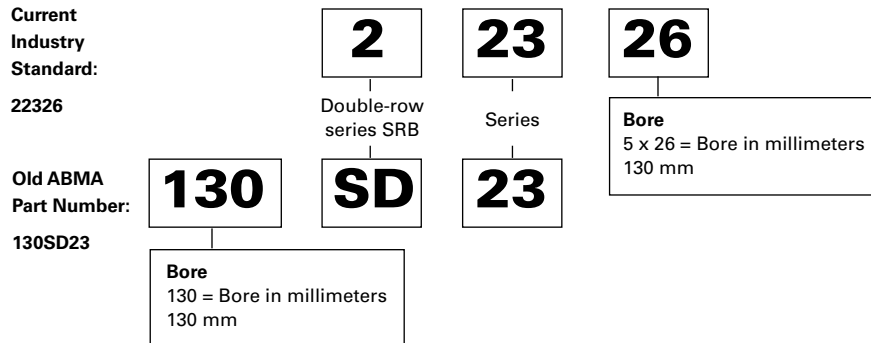
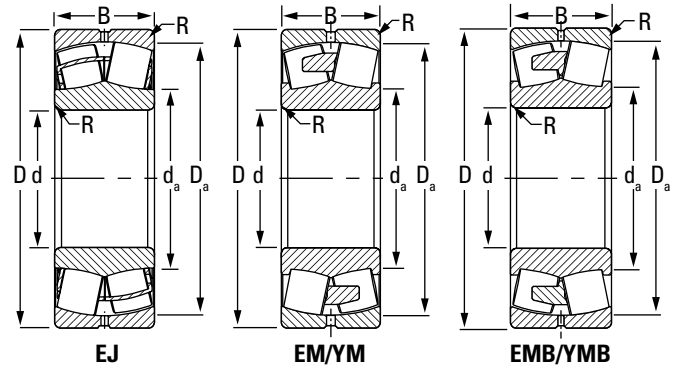


Fig. D-13. Equivalence between current ISO and old ABMA part numbering.



**222 SERIES**  
**(225, 222 SERIES SAF, SDAF)**

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		Dynamic		Static	Oil		Grease		
	R	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	$\frac{F_a}{F_r} \leq e$ X = 1	$\frac{F_a}{F_r} > e$ X = 0.67			In All Cases	RPM	RPM							
	mm in.	mm in.	mm in.	kN lbf.	kN lbf.		mm in.	mm in.	mm in.	e	Y	Y	Y <sub>0</sub>	C <sub>g</sub>			kg lbs.
22209	45 1.7717	85 3.3465	23 0.9055	104 23500	101 22800	EJ / EM	1 0.04	55 2.2	77 3	0.26	2.64	3.93	2.58	0.046	6800	5500	0.6 1.3
22210	50 1.9685	90 3.5433	23 0.9055	112 25200	112 25100	EJ / EM	1 0.04	59 2.3	82 3.2	0.24	2.84	4.23	2.78	0.049	6200	5000	0.6 1.3
22211	55 2.1654	100 3.937	25 0.9843	134 30100	134 30100	EJ / EM	1.5 0.06	66 2.6	91 3.6	0.23	2.95	4.4	2.89	0.052	5800	4700	0.9 2.0
22212	60 2.3622	110 4.3307	28 1.1024	163 36600	164 36900	EJ / EM	1.5 0.06	72 2.8	100 4	0.24	2.84	4.23	2.78	0.055	5500	4400	1.2 2.6
22213	65 2.5591	120 4.7244	31 1.2205	198 44600	204 45900	EJ / EM	1.5 0.06	78 3.1	109 4.3	0.24	2.79	4.15	2.73	0.058	5100	4200	1.6 3.5
22214	70 2.7559	125 4.9213	31 1.2205	205 46000	219 49200	EJ / EM	1.5 0.06	84 3.3	114 4.5	0.23	2.9	4.32	2.84	0.063	4800	3900	1.6 3.5
22215	75 2.9528	130 5.1181	31 1.2205	222 49900	240 54100	EJ	1.5 0.06	88 3.5	120 4.7	0.22	3.14	4.67	3.07	0.062	4600	3700	1.7 3.7
22216	80 3.1496	140 5.5118	33 1.2992	254 57200	278 62500	EJ / EM	2 0.08	95 3.7	129 5.1	0.22	3.14	4.67	3.07	0.065	4300	3500	2.2 4.8
22216	80 3.1496	140 5.5118	33 1.2992	245 55100	263 59200	EJ / EM	2 0.08	95 3.7	129 5.1	0.22	3.14	4.67	3.07	0.065	4400	3600	2.2 4.8
22217	85 3.3465	150 5.9055	36 1.4173	286 64200	302 67900	EJ / EM	2 0.08	101 4	139 5.5	0.22	3.07	4.57	3	0.068	4200	3400	2.7 5.9
22218	90 3.5433	160 6.2992	40 1.5748	355 79700	388 87200	EJ / EM	2 0.08	105 4.2	146 5.8	0.23	2.9	4.31	2.83	0.07	4000	3300	3.5 7.7
22219	95 3.7402	170 6.6929	43 1.6929	385 86600	441 99000	EJ / EM	2 0.08	114 4.5	155 6.1	0.23	2.88	4.29	2.82	0.076	3900	3200	4.2 9.2
22220	100 3.937	180 7.0866	46 1.811	435 97700	502 113000	EJ / EM	2 0.08	120 4.7	163 6.4	0.24	2.85	4.24	2.78	0.079	3800	3100	5.0 11.0
22222	110 4.3307	200 7.874	53 2.0866	555 125000	653 147000	EJ / EM	2 0.08	133 5.2	182 7.2	0.25	2.73	4.06	2.67	0.084	3500	2900	7.2 15.8

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See Timken Engineering Manual (order no. 10424) for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>31</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

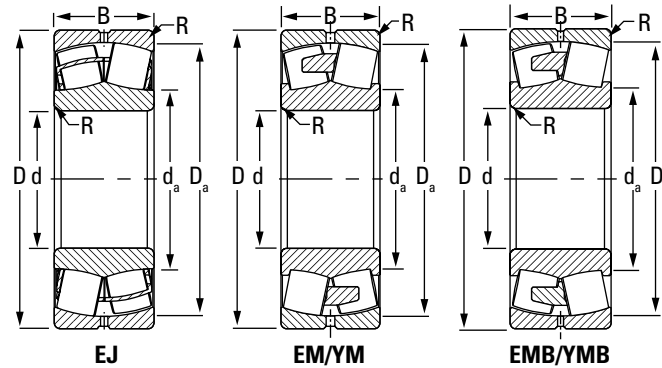
NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

NOTE: Tolerance and shaft diameters are shown in the tables D-2 and D-3 on pages D-5 and D-6 as variances from nominal bearing bore.

Continued on next page.

# TIMKEN® SAF SPLIT-BLOCK HOUSED UNITS

SPHERICAL ROLLER BEARINGS • 225 SERIES (225, 222 SERIES SAF, SDAF)



Continued from previous page.

Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup> C <sub>g</sub>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.) R	Backing Dia.		Dynamic		Static In All Cases Y <sub>0</sub>	Oil		Grease		
	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	$\frac{F_a}{F_r} \leq e$ X = 1 Y	$\frac{F_a}{F_r} > e$ X = 0.67 Y	Oil RPM			Grease RPM									
	mm in.	mm in.	mm in.	kN lbf.	kN lbf.		mm in.	mm in.	mm in.	e	Y	Y	Y <sub>0</sub>		C <sub>g</sub>	RPM	
22224	120 4.7244	215 8.4646	58 2.2835	647 145000	772 174000	EJ / EM	2 0.08	143 5.6	196 7.7	0.25	2.7	4.02	2.64	0.081	3200	2600	9.0 19.8
22226	130 5.1181	230 9.0551	64 2.5197	757 170000	945 212000	EJ / EM	2.5 0.1	155 6.1	210 8.3	0.26	2.62	3.9	2.56	0.079	2900	2400	11.3 24.9
22228	140 5.5118	250 9.8425	68 2.6772	863 194000	1060 237000	EJ / EM	2.5 0.1	167 6.6	228 9	0.25	2.67	3.98	2.61	0.082	2600	2200	14.2 31.2
22230	150 5.9055	270 10.6299	73 2.874	1000 225000	1230 276000	EJ / EM	2.5 0.1	179 7	246 9.7	0.25	2.69	4	2.63	0.087	2400	2000	17.8 39.2
22232	160 6.2992	290 11.4173	80 3.1496	1170 263000	1450 326000	EJ / EM	2.5 0.1	192 7.5	264 10.4	0.26	2.62	3.91	2.57	0.09	2200	1800	23.0 50.6
22234	170 6.6929	310 12.2047	86 3.3858	1340 301000	1680 379000	EJ / EM	3 0.12	204 8	281 11.1	0.26	2.61	3.89	2.55	0.094	2000	1700	28.5 62.7
22236	180 7.0866	320 12.5984	86 3.3858	1340 301000	1700 382000	EJ / EM	3 0.12	215 8.5	292 11.5	0.25	2.72	4.05	2.66	0.097	1900	1600	29.1 64.0
22238	190 7.4803	340 13.3858	92 3.622	1550 348000	1960 440000	EJ / EMB	3 0.12	226 8.9	310 12.2	0.25	2.67	3.98	2.62	0.1	1800	1500	36.1 79.4
22240	200 7.874	360 14.1732	98 3.8583	1580 356000	2010 452000	EJ / EMB	3 0.12	236 9.3	323 12.7	0.27	2.5	3.72	2.44	0.103	1700	1500	43.6 95.9
22244	220 8.6614	400 15.748	108 4.252	1850 415000	2310 520000	EJ / EMB	3 0.12	261 10.3	359 14.1	0.27	2.51	3.73	2.45	0.11	1500	1300	59.4 130.7

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>3</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

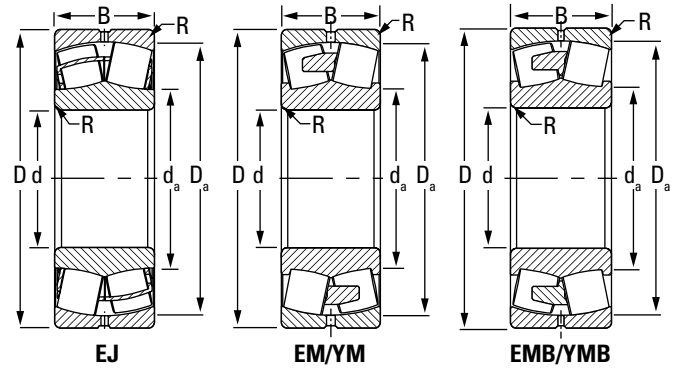
<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

NOTE: Tolerance and shaft diameters are shown in the tables D-2 and D-3 on pages D-5 and D-6 as variances from nominal bearing bore.

**223 SERIES**  
**(226, 223 SERIES SAF, SDAF)**

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		Dynamic		Static	Thermal Speed Ratings <sup>(4)</sup>				
	R	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	F <sub>a</sub> ≤ e F <sub>r</sub> X = 1	F <sub>a</sub> > e F <sub>r</sub> X = 0.67			In All Cases Y <sub>0</sub>	Oil	Grease							
mm in.	mm in.	mm in.	kN lbf.	kN lbf.	mm in.	mm in.	mm in.	e	Y	Y	Y <sub>0</sub>	C <sub>g</sub>	RPM	RPM	kg lbs.		
22315	75 2.9528	160 6.2992	55 2.1654	450 101000	478 107000	EJ / EM	2 0.08	97 3.8	144 5.7	0.33	2.04	3.04	2	0.071	3900	3300	5.4 11.9
22316	80 3.1496	170 6.6929	58 2.2835	499 112000	534 120000	EJ / EM	2 0.08	103 4.1	153 6	0.33	2.06	3.06	2.01	0.073	3700	3200	6.4 14.1
22317	85 3.3465	180 7.0866	60 2.3622	569 128000	623 140000	EJ / EM	2.5 0.1	110 4.3	162 6.4	0.32	2.11	3.14	2.06	0.076	3500	3000	7.5 16.5
22318	90 3.5433	190 7.4803	64 2.5197	634 143000	703 158000	EJ / EM	2.5 0.1	116 4.6	171 6.7	0.32	2.09	3.11	2.04	0.079	3300	2800	8.8 19.4
22319	95 3.7402	200 7.874	67 2.6378	694 156000	774 174000	EJ / EM	2.5 0.1	122 4.8	180 7.1	0.32	2.1	3.13	2.05	0.082	3000	2600	10.2 22.4
22320	100 3.937	215 8.4646	73 2.874	779 175000	856 193000	EJ / EM	2.5 0.1	130 5.1	193 7.6	0.33	2.06	3.07	2.02	0.072	2800	2400	12.8 28.2
22322	110 4.3307	240 9.4488	80 3.1496	949 213000	1050 236000	EJ / EM	2.5 0.1	144 5.7	215 8.5	0.32	2.08	3.1	2.04	0.076	2500	2100	17.8 39.2
22324	120 4.7244	260 10.2362	86 3.3858	1080 244000	1210 272000	EJ / EM	2.5 0.1	157 6.2	234 9.2	0.32	2.11	3.15	2.07	0.081	2100	1900	22.0 48.4
22326	130 5.1181	280 11.0236	93 3.6614	1250 281000	1410 318000	EJ / EM	3 0.12	169 6.7	252 9.9	0.32	2.11	3.14	2.06	0.085	1900	1700	27.4 60.3
22328	140 5.5118	300 11.811	102 4.0157	1450 326000	1670 375000	EJ / EM	3 0.12	182 7.1	270 10.6	0.33	2.06	3.06	2.01	0.089	1700	1500	34.5 75.9
22330	150 5.9055	320 12.5984	108 4.252	1700 382000	2010 452000	EJ / EMB	3 0.12	194 7.6	288 11.3	0.33	2.08	3.09	2.03	0.093	1600	1400	43.0 94.6
22332	160 6.2992	340 13.3858	114 4.4882	1890 424000	2250 507000	EJ / EMB	3 0.12	207 8.1	306 12	0.32	2.09	3.11	2.04	0.096	1500	1300	51.0 112.2
22334	170 6.6929	360 14.1732	120 4.7244	2100 471000	2510 565000	EJ / EMB	3 0.12	219 8.6	325 12.8	0.32	2.11	3.15	2.07	0.1	1300	1200	59.9 131.8
22336	180 7.0866	380 14.9606	126 4.9606	2290 514000	2770 623000	EJ / EMB	3 0.12	232 9.2	343 13.5	0.32	2.13	3.17	2.08	0.083	1200	1100	70.0 154.0
22338	190 7.4803	400 15.748	132 5.1969	2490 559000	3010 678000	EJ / EMB	4 0.16	245 9.6	361 14.2	0.32	2.12	3.15	2.07	0.086	1200	1000	80.9 178.0
22340	200 7.874	420 16.5354	138 5.4331	2260 507000	2910 655000	YMB	4 0.157	247 9.74	369 14.52	0.33	2.02	3.01	1.98	0.076	1100	970	93.0 204.6

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>31</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

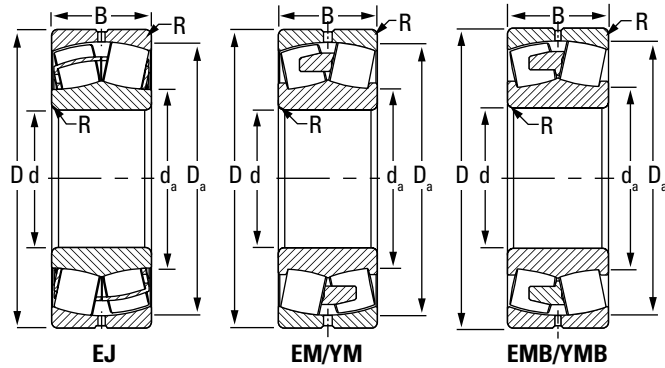
<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

NOTE: Tolerance and shaft diameters are shown in the tables D-2 and D-3 on pages D-5 and D-6 as variances from nominal bearing bore.

**230 SERIES  
(230K SERIES SAF, SDAF)**

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		e	Dynamic		Static		Oil	Grease	
	R	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	F <sub>a</sub> /F <sub>r</sub> ≤ e	F <sub>a</sub> /F <sub>r</sub> > e			In All Cases	RPM		RPM						
	Bore d	O.D. D	Width B	Dynamic C	Static C <sub>0</sub>		mm in.	mm in.	mm in.	Y	Y	Y <sub>0</sub>	kg lbs.				
23024	120 4.7244	180 7.0866	46 1.811	408 91700	574 129000	EJ	2 0.08	134 5.3	167 6.6	0.22	3.02	4.49	2.95	0.084	3300	2700	4.0 8.8
24024	120 4.7244	180 7.0866	60 2.3622	523 117000	762 171000	EJ	2 0.08	132 5.2	167 6.6	0.29	2.32	3.45	2.26	0.083	2700	2200	5.2 11.4
23026	130 5.1181	200 7.874	52 2.0472	518 116000	723 162000	EJ	2 0.08	146 5.8	185 7.3	0.23	2.94	4.37	2.87	0.089	3100	2500	5.9 13.0
23028	140 5.5118	210 8.2677	53 2.0866	551 124000	802 180000	EJ	2 0.08	158 6.2	196 7.7	0.22	3.1	4.61	3.03	0.085	2800	2300	6.2 13.6
23030	150 5.9055	225 8.8583	56 2.2047	621 140000	911 205000	EJ / EM	2 0.08	169 6.7	210 8.3	0.21	3.14	4.68	3.07	0.089	2600	2100	7.7 16.9
23032	160 6.2992	240 9.4488	60 2.3622	705 159000	1040 235000	EJ / EM	2 0.08	180 7.1	224 8.8	0.22	3.12	4.65	3.05	0.093	2400	2000	9.4 20.7
23034	170 6.6929	260 10.2362	67 2.6378	858 193000	1250 282000	EJ / EM	2 0.08	192 7.6	242 9.5	0.22	3.02	4.49	2.95	0.097	2200	1800	12.8 28.2
23036	180 7.0866	280 11.0236	74 2.9134	1020 229000	1480 332000	EJ / EM	2 0.08	204 8	260 10.2	0.23	2.91	4.34	2.85	0.093	2000	1700	16.8 37.0
23038	190 7.4803	290 11.4173	75 2.9528	1060 239000	1580 355000	EJ / EM	2 0.08	214 8.4	270 10.6	0.23	3	4.47	2.93	0.096	1900	1600	17.8 39.2
23040	200 7.874	310 12.2047	82 3.2283	1230 276000	1760 395000	EJ / EM	2 0.08	225 8.9	289 11.4	0.23	2.95	4.4	2.89	0.095	1800	1500	22.6 49.7
23044	220 8.6614	340 13.3858	90 3.5433	1340 300000	1970 443000	EJ / EM	2.5 0.1	247 9.7	313 12.3	0.24	2.77	4.13	2.71	0.105	1700	1400	29.8 65.6
23048	240 9.4488	360 14.1732	92 3.622	1400 315000	2140 480000	EJ / EM	2.5 0.1	267 10.5	334 13.1	0.23	2.91	4.34	2.85	0.111	1500	1300	31.9 70.2
23052	260 10.2362	400 15.748	104 4.0945	1820 409000	2740 617000	EJ / EMB	3 0.12	291 11.5	369 14.5	0.24	2.85	4.24	2.78	0.078	1300	1100	47.6 104.7
23056	280 11.024	420 16.535	106 4.173	1660 373000	2790 627000	YMB	3 0.12	312 12.3	389 15.3	0.23	2.92	4.35	2.86	0.088	1100	930	51.0 112.2

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

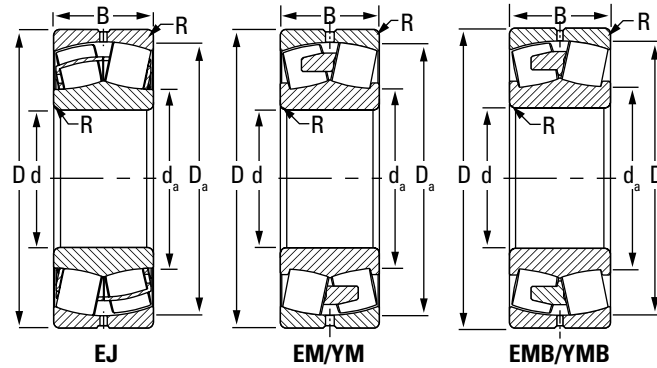
<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>31</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

NOTE: Tolerance and shaft diameters are shown in the tables D-2 and D-3 on pages D-5 and D-6 as variances from nominal bearing bore.

*Continued on next page.*



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Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup> C <sub>g</sub>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.) R	Backing Dia.		e	Dynamic		Static In All Cases Y <sub>0</sub>		Oil	Grease	
	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	F <sub>a</sub> ≤ e F <sub>r</sub> X = 1	F <sub>a</sub> > e F <sub>r</sub> X = 0.67	RPM			RPM									
	Bore d	O.D. D	Width B	Dynamic C	Static C <sub>0</sub>		mm in.	mm in.	mm in.		Y	Y			kg lbs.		
23060	300 11.811	460 18.11	118 4.646	2120 477000	3540 796000	YMB	3 0.12	336 13.2	425 16.8	0.24	2.87	4.27	2.8	0.093	980	830	71.0 156.2
23064	320 12.598	480 18.898	121 4.764	2200 494000	3850 867000	YMB	3 0.12	357 14.1	444 17.5	0.23	2.93	4.36	2.86	0.096	910	780	77.4 170.3
23068	340 13.386	520 20.472	133 5.236	2640 593000	4620 1040000	YMB	4 0.16	384 15.1	481 18.9	0.23	2.96	4.4	2.89	0.101	830	710	102.7 225.9
23072	360 14.173	540 21.26	134 5.276	2590 583000	4600 1030000	YMB	4 0.16	403 15.9	499 19.7	0.23	2.94	4.38	2.88	0.102	800	680	108.3 238.3
23076	380 14.961	560 22.047	135 5.315	2800 630000	5090 1140000	YMB	4 0.16	422 16.6	520 20.5	0.22	3.08	4.58	3.01	0.105	740	630	114.2 251.2
23080	400 15.748	600 23.622	148 5.827	3310 744000	5950 1340000	YMB	4 0.16	447 17.6	555 21.9	0.23	2.98	4.44	2.92	0.111	690	590	148.7 327.1
23084	420 16.535	620 24.409	150 5.906	3450 774000	6360 1430000	YMB	4 0.16	467 18.4	576 22.7	0.22	3.05	4.54	2.98	0.114	650	560	156.0 343.2
23088	440 17.323	650 25.591	157 6.181	3750 844000	6970 1570000	YMB	5 0.2	489 19.3	603 23.7	0.22	3.04	4.53	2.97	0.117	610	520	180.0 396.0
23092	460 18.11	680 26.772	163 6.417	4060 913000	7570 1700000	YMB	5 0.2	512 20.1	631 24.9	0.22	3.06	4.56	2.99	0.118	580	500	205.0 451.0
23096	480 18.898	700 27.559	165 6.496	4170 938000	7980 1790000	YMB	5 0.2	532 21	651 25.6	0.22	3.14	4.67	3.07	0.124	550	470	215.0 473.0
230/500	500 19.685	720 28.347	167 6.575	4290 965000	8160 1840000	YMB	5 0.2	550 21.7	673 26.5	0.21	3.26	4.85	3.18	0.126	530	460	220.0 488.4
230/530	530 20.866	780 30.709	185 7.284	5150 1160000	9720 2190000	YMB	5 0.2	588 23.2	725 28.6	0.21	3.14	4.68	3.07	0.132	480	420	302.6 665.7

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>3</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

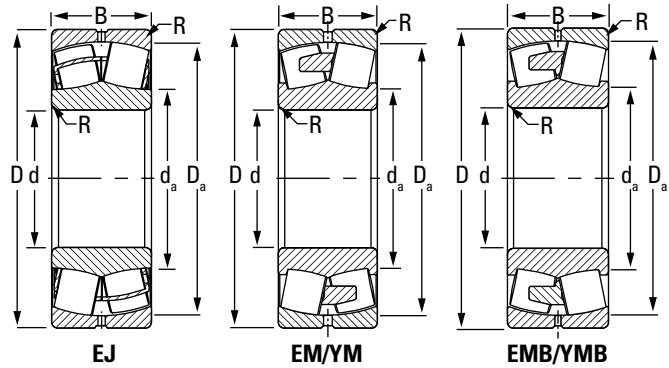
<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

NOTE: Tolerance and shaft diameters are shown in the tables D-2 and D-3 on pages D-5 and D-6 as variances from nominal bearing bore.

**231 SERIES  
(231, 231K SERIES SDAF)**

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		e	Dynamic		Static In All Cases		C <sub>g</sub>	Oil	
	R	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	F <sub>a</sub> ≤ e F <sub>r</sub>	F <sub>a</sub> > e F <sub>r</sub>			Y <sub>0</sub>	RPM		RPM						
	Bore d	O.D. D	Width B	Dynamic C	Static C <sub>0</sub>		mm in.	mm in.	mm in.		Y	Y			kg lbs.		
23152	260 10.236	440 17.323	144 5.669	2440 549000	3910 879000	YMB	3 0.12	302 11.9	400 15.7	0.30	2.23	3.31	2.18	0.086	870	760	90.0 198.0
23156	280 11.024	460 18.11	146 5.748	2530 570000	4140 930000	YMB	4 0.16	320 12.6	419 16.5	0.30	2.26	3.36	2.21	0.09	800	710	94.5 207.9
23160	300 11.811	500 19.685	160 6.299	3070 691000	5110 1150000	YMB	4 0.16	345 13.6	453 17.8	0.30	2.25	3.35	2.20	0.093	710	630	128.7 283.1
23164	320 12.598	540 21.26	176 6.929	3650 819000	5930 1330000	YMB	4 0.16	367 14.4	490 19.3	0.31	2.14	3.19	2.10	0.099	650	580	167.2 367.8
23168	340 13.386	580 22.835	190 7.48	4110 924000	6830 1540000	YMB	4 0.16	397 15.6	526 20.7	0.30	2.22	3.30	2.17	0.103	590	530	210.3 462.7
23172	360 14.173	600 23.622	192 7.559	4250 956000	7280 1640000	YMB	4 0.16	419 16.5	546 21.5	0.29	2.29	3.42	2.24	0.106	560	500	222.1 488.6
23176	380 14.961	620 24.409	194 7.638	4490 1010000	7580 1700000	YMB	4 0.16	431 17	566 22.3	0.30	2.28	3.39	2.23	0.109	530	470	232.6 511.7
23180	400 15.748	650 25.591	200 7.874	4770 1070000	8110 1820000	YMB	5 0.2	454 17.9	594 23.4	0.29	2.32	3.46	2.27	0.11	500	450	261.6 575.5
23184	420 16.535	700 27.559	224 8.819	5720 1290000	9640 2170000	YMB	5 0.2	480 18.9	636 25.1	0.31	2.21	3.20	2.16	0.117	450	410	350.8 771.8
23188	440 17.323	720 28.347	226 8.898	5970 1340000	10300 2310000	YMB	5 0.2	500 19.7	657 25.9	0.30	2.26	3.37	2.21	0.117	430	390	367.8 809.2
23192	460 18.11	760 29.921	240 9.449	6500 1460000	11100 2500000	YMB	6 0.24	524 20.6	692 27.2	0.30	2.24	3.33	2.19	0.123	410	370	436.9 961.2
23196	480 18.898	790 31.102	248 9.764	7110 1600000	12400 2790000	YMB	6 0.24	547 21.5	719 28.3	0.30	2.26	3.36	2.21	0.124	380	340	490.4 1078.9

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

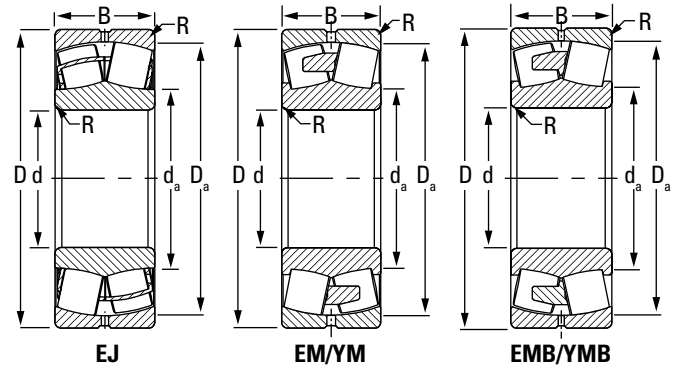
<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>3</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Tolerance and shaft diameters are shown in the tables D-2 and D-3 on pages D-5 and D-6 as variances from nominal bearing bore.

**232 SERIES**  
**(232, 232K SERIES SDAF)**

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		e	$\frac{F_a}{F_r} \leq e$ X = 1	$\frac{F_a}{F_r} > e$ X = 0.67	Static In All Cases Y <sub>0</sub>		C <sub>g</sub>	Oil	
	R	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	Y	Y			Y <sub>0</sub>									
	Bore d	O.D. D	Width B	Dynamic C	Static Co		mm in.	mm in.	mm in.						RPM	RPM	
23248	240 9.449	440 17.323	160 6.299	2780 625000	4150 932000	YMB	3 0.12	281 11.1	394 15.5	0.35	1.92	2.86	1.88	0.082	760	680	108.1 237.8
23252	260 10.236	480 18.898	174 6.85	3210 721000	4830 1090000	YMB	4 0.16	308 12.1	430 16.9	0.34	1.98	2.95	1.94	0.087	680	610	140.1 308.2
23256	280 11.024	500 19.685	176 6.929	3360 756000	5240 1180000	YMB	4 0.16	329 13	450 17.7	0.33	2.07	3.08	2.02	0.092	620	560	149.7 329.3
23260	300 11.811	540 21.26	192 7.559	3840 864000	6150 1380000	YMB	4 0.16	353 13.9	482 19	0.34	2.00	2.98	1.96	0.095	560	510	194.5 427.9
23264	320 12.598	580 22.835	208 8.189	4350 978000	7060 1590000	YMB	4 0.16	379 14.9	516 20.3	0.34	1.98	2.94	1.93	0.101	510	460	245.1 539.2
23268	340 13.386	620 24.409	224 8.819	5160 1160000	8200 1840000	YMB	5 0.2	399 15.7	554 21.8	0.35	1.91	2.84	1.86	0.103	460	420	301.5 663.3
23272	360 14.173	650 25.591	232 9.134	5530 1240000	8790 1980000	YMB	5 0.2	420 16.5	583 22.9	0.35	1.95	2.91	1.91	0.109	430	400	338.6 744.9
23276	380 14.961	680 26.772	240 9.449	5970 1340000	9520 2140000	YMB	5 0.2	442 17.4	611 24.1	0.34	1.98	2.95	1.94	0.11	410	370	379.4 834.7
23280	400 15.748	720 28.347	256 10.079	6720 1510000	10800 2430000	YMB	5 0.2	466 18.4	646 25.4	0.34	1.96	2.93	1.92	0.116	370	340	457.5 1006.5
23284	420 16.535	760 29.921	272 10.709	7360 1650000	11800 2660000	YMB	6 0.24	490 19.3	681 26.8	0.35	1.90	2.83	1.86	0.119	350	320	525.0 1155.0
23288	440 17.323	790 31.102	280 11.024	8090 1820000	13200 2970000	YMB	6 0.24	512 20.1	710 28	0.35	1.95	2.91	1.91	0.123	320	300	602.0 1324.4

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor  $a_{31}$  is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Tolerance and shaft diameters are shown in the tables D-2 and D-3 on pages D-5 and D-6 as variances from nominal bearing bore.

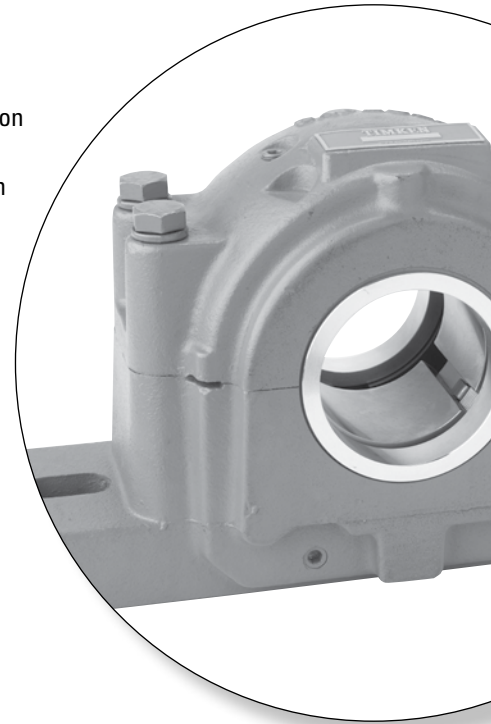




## **SAF SPHERICAL ROLLER BEARING PILLOW BLOCKS**

Spherical roller bearing pillow blocks combine rugged cast-iron or steel housings with high-capacity bearings to meet the toughest demands of industry. Each pillow block contains an advanced-design spherical roller bearing with improved geometry and raceway finish for maximized load capacity and service life. Integrated housing and bearing features enhance unit lubrication characteristics. Multiple sealing options protect against contamination.

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## SAF HOUSED UNIT NOMENCLATURE

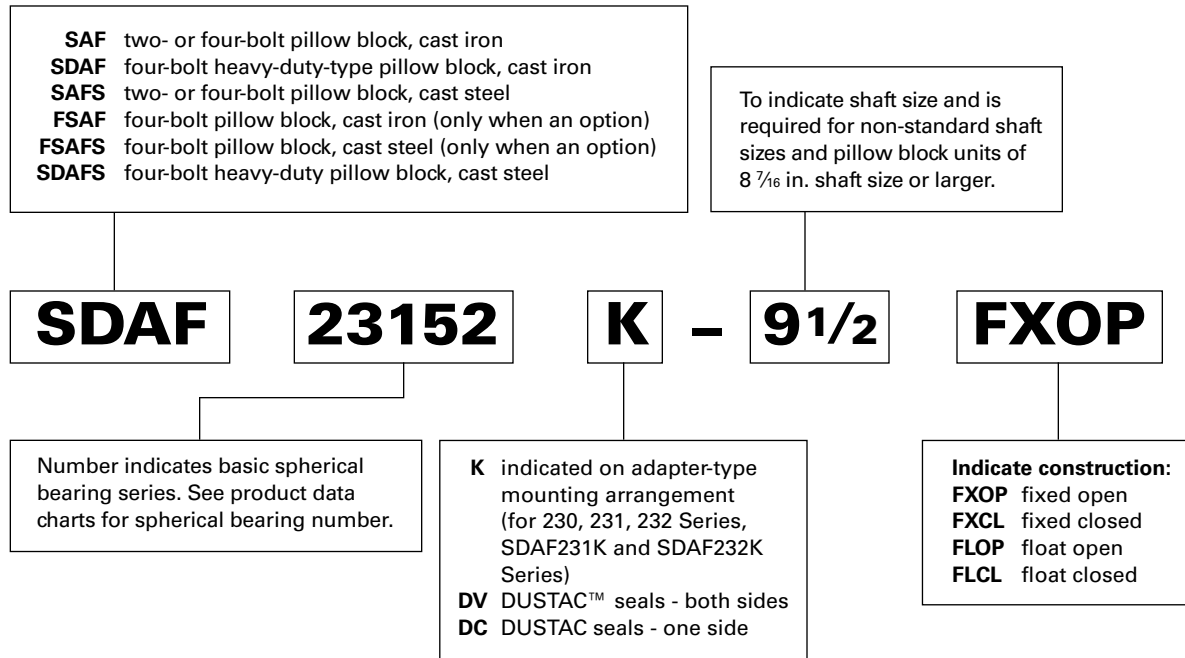


Fig. D-14. Pillow blocks.

## SAF HOUSED UNIT INTRODUCTION

Timken's capabilities in engineering and manufacturing heavy-duty pillow blocks provide important user benefits. In addition, Timken's worldwide sales organization is staffed with experienced engineers who are available for consultation on any pillow block or bearing application. Our expert engineering assistance also is available for applications involving shaft sizes 1016 mm (40 in.) and larger, such as BOF trunnions, bridge blocks and ball mills. If your design calls for shaft sizes or loads not listed in this catalog, contact your Timken engineer for information about availability of special units.

- **Sizes:** 35-300 mm shafts (1 3/8 up to 11 7/8 in.). Special shaft sizes up to 1000 mm (39 3/8 in.) and beyond.
- **Applications:** Conveyors, ball mills, casters, rolling mills, heavy movable structures.
- **Features:** Split construction for convenient assembly and disassembly. These units include pry tool slots and the exclusive Pry-Lug fulcrum, which simplifies bearing inspection, service and replacement.
- **Benefits:** Caps can be removed easily and quickly without damage to the bearing or housing.

## DESIGN AND CONSTRUCTION

Timken supplies pillow blocks equipped with either tapered bore bearings with adapters for mounting on straight shafts or cylindrical bore bearings for assembly on shouldered shafts.

Timken uses a system of doweling caps and bases together at an early stage of manufacturing, so that they remain a single unit during machining. They are not interchangeable as separate parts and become precisely mated components, helping to ensure a precise fit. Timken manufactures pillow blocks in two styles: SAF and SDAF. The larger SDAF block is suggested for extreme-duty applications.

Standard caps and bases are made from high-grade, stress-relieved cast iron. They also are available in cast steel.

All Timken® split pillow blocks are designed for four-bolt mounting. Certain smaller sizes are normally furnished for two-bolt mounting. These assemblies are indicated in the following tables and can be ordered with an optional four-bolt base.

Four cap bolts are used in most Timken pillow blocks in order to equalize the pressure between the cap and the base, helping to prevent lubricant loss.

The illustration below shows all parts of a pillow block assembly that are described throughout this section.



Fig. D-15.

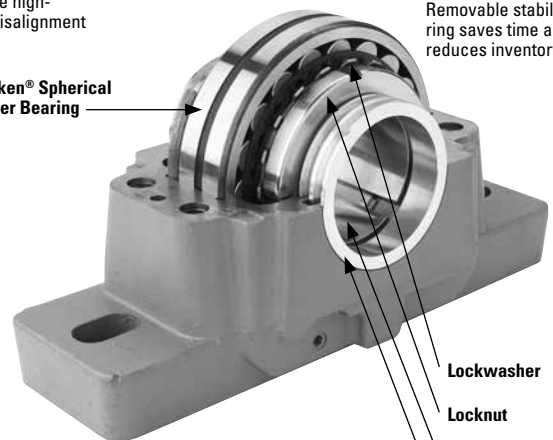
**Protects Bearing, Reduces Leaks**  
Precision triple-ring labyrinth seal and extra-large oil return holes in the housing protect the bearing



**Avoids Damage to Bearing and Housing During Inspections**  
Pry-tool slots allow quick and easy cap removal

**Runs Cooler for Longer Bearing Life**  
Timken® spherical roller bearings, available with either a steel or brass cage, feature optimized internal geometries and improved lubrication distribution. These high-performance bearings allow ±1.5 degree misalignment

Timken® Spherical Roller Bearing



**Speed Up Conversion from Fixed to Float Units**  
Removable stabilizing ring saves time and reduces inventory

Lockwasher  
Locknut  
Tapered Ring  
LER Seal Ring

**Shields Bearing**  
Matched cap and base protect bearing

Fig. D-16. SAF housed unit components and features.

## MOUNTING

### ADAPTER VERSUS STRAIGHT BORE

Usually a spherical roller bearing pillow block assembly is mounted on a straight shaft using a tapered bore bearing and adapter assembly. Standard commercial shafting can be used without additional machining. (Suggested inch shaft diameters are shown in table D-20 on page D-76.) Adapter mount also permits maximum flexibility in the axial positioning of the bearing on the shaft and will accommodate light locational thrust loads. Timken pillow blocks for tapered bore and adapter-mounted bearings are available in series 225, 226, 230, 231K and 232K.

Adapter-mounted spherical roller bearings require the correct removal of diametral clearance from the bearing to prevent relative rotation between inner race and sleeve or shaft. For proper shaft mounting of adapter-type spherical roller bearings, see page D-7.

When application conditions produce heavy thrust loads, or a need exists for exact axial location or a positive shaft interference fit, a direct straight bore mounting may be the best option. This requires a shouldered shaft, machined for proper fit, and a straight bore bearing. Timken pillow block assemblies for straight bore applications are available in series 222, 223, 231 and 232.

Suggested fits for shafts in cylindrical bore spherical roller bearings are shown in the engineering section of this catalog in table D-4 on page D-9. For applications involving heavy shock, vibration, unbalanced rotating loads or other non-standard conditions, consult your Timken engineer.

### FIXED AND FLOAT PILLOW BLOCKS

Any style of Timken split pillow blocks can be easily installed at either the float or fixed position on the shaft. For the fixed position, a stabilizing ring is added between the bearing outer-face ring and the housing shoulder to positively locate the shaft and prevent axial movement.

Some applications require centering of the bearing in its housing. To accomplish this, two special-width stabilizing rings can be ordered.

In the float position, the ring is not used, allowing the bearing to move axially (a maximum of  $\frac{3}{8}$  in.) to compensate for thermal expansion or contraction of the shaft.

Pillow blocks ordered by the numbers in the dimension tables are fixed units. To order float units, specify by adding suffix float or FL to the pillow block number.

### CLOSED-END INSTALLATIONS

In some applications, the shaft end is designed to terminate inside the pillow block. For this design, positive fitting end-cap inserts are available to help seal out contaminants and retain lubricant. Timken heavy-duty end plugs include O-rings for positive sealing.

Designers and installers need to make sure the shaft end does not contact the closure. A minimum of  $\frac{1}{8}$  in. clearance at maximum thermal expansion is suggested between the end of the shaft and the closure. Dimension Y in the tables defines the maximum permissible length of the shaft from the centerline of the pillow block housing. If end closure is desired, specify by adding CL (one end closed) to the pillow block assembly number.

#### NOTE

*Failure to employ proper mounting procedures can cause heating and reduced bearing performance.*

## **LUBRICATION**

Timken pillow block housings are designed for grease and oil-bath lubrication. They also can be modified easily to accommodate circulating oil- or oil/air-mist systems. Grease fittings or sight gages are available upon request.

A lubrication groove and oil holes are provided in the bearing outer ring. This feature, designated by adding suffix W33 to the bearing number, should be specified whenever re-ordering bearings for pillow blocks. In most cases, the fresh lubricant is fed directly to the center of the bearing between the rows of rollers and distributed to the rest of the bearing. This helps ensure the used lubricant is purged from the bearing.

## **SEALS**

Precision triple-ring labyrinth seals are supplied with all Timken split pillow blocks to help exclude foreign matter and retain lubricants. The pillow block base includes extra-large oil return holes at the bottom of the seal grooves to help prevent leakage past the seals.

For extremely contaminated or abrasive environments, the DUSTAC™ seal offers protection against concentrations of dust or abrasive material that a labyrinth seal cannot keep out. See page D-80 for further information on DUSTAC.

## **LOAD RATINGS AND LIFE**

Load ratings for the spherical roller bearings that are used in pillow blocks are found in the dimension tables on pages D-37 through D-43. Life calculation formulas are found in the Engineering Manual (order no. 10424) on page 48 available on [www.timken.com](http://www.timken.com).

In addition to individual bearing selection, the ability of the pillow block to carry the operating load should be considered.

It should be noted that the load rating figures supplied in this catalog are applicable only when the load direction is generally toward the base of the pillow block. If the pillow block must be mounted so the load can be applied in any other direction, consult your Timken engineer.

**INCH TAPERED BORE MOUNTING SAF225 AND SAF226 SERIES**

- The basic number for ordering complete pillow block assemblies is listed in the table below.
- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- If only the pillow block housing is desired, use the numbers listed in column headed Housing Only. These units include cap, base, cap bolts, triple-ring seals and stabilizing ring.
- Assemblies and pillow blocks described on this page constitute a fixed unit. To order float units, specify the part number plus the suffix float or FL.
- Assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SAFS 22515).
- Four-bolt bases are standard on all assemblies unless as noted.
- If one end closed assembly is required, specify CL in assembly number when ordering.

Pillow Block Assembly <sup>(1)</sup>	Shaft Dia. S-1 <sup>(2)</sup>	A	B	C	D	E		F	H
						Max.	Min.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>SERIES SAF225</b>									
<b>SAF22509</b>	<b>1 3/8</b> 1 7/16 1 1/2	<b>2 1/4</b>	<b>8 1/4</b>	<b>2 3/8</b>	<b>13/16</b>	<b>7</b>	<b>6 1/4</b>	–	<b>4 3/8</b>
<b>SAF22510</b>	<b>1 5/8</b> 1 11/16 1 3/4	<b>2 1/2</b>	<b>8 1/4</b>	<b>2 3/8</b>	<b>15/16</b>	<b>7</b>	<b>6 1/2</b>	–	<b>4 3/4</b>
<b>SAF22511</b>	<b>1 7/8</b> 1 15/16 2	<b>2 3/4</b>	<b>9 5/8</b>	<b>2 3/4</b>	<b>15/16</b>	<b>7 7/8</b>	<b>7 3/8</b>	–	<b>5 11/32</b>
<b>SAF22513</b>	<b>2 1/8</b> 2 3/16 2 1/4	<b>3</b>	<b>11</b>	<b>3 1/8</b>	<b>1</b>	<b>9 1/2</b>	<b>8 1/8</b>	–	<b>5 25/32</b>
<b>SAF22515</b>	<b>2 3/8</b> 2 7/16 2 1/2	<b>3 1/4</b>	<b>11 1/4</b>	<b>3 1/8</b>	<b>1 1/8</b>	<b>9 5/8</b>	<b>8 5/8</b>	–	<b>6 3/8</b>
<b>FSAF22515</b>	<b>2 3/8</b> 2 7/16 2 1/2	<b>3 1/4</b>	<b>11 1/4</b>	<b>3 1/8</b>	<b>1 1/8</b>	<b>9 5/8</b>	<b>8 5/8</b>	<b>1 7/8</b>	<b>6 3/8</b>
<b>SAF22516</b>	<b>2 5/8</b> 2 11/16 2 3/4	<b>3 1/2</b>	<b>13</b>	<b>3 1/2</b>	<b>1 3/16</b>	<b>11</b>	<b>9 5/8</b>	–	<b>6 7/8</b>
<b>FSAF22516</b>	<b>2 5/8</b> 2 11/16 2 3/4	<b>3 1/2</b>	<b>13</b>	<b>3 1/2</b>	<b>1 3/16</b>	<b>11</b>	<b>9 5/8</b>	<b>2 1/8</b>	<b>6 7/8</b>
<b>SAF22517</b>	<b>2 13/16</b> 2 7/8 2 15/16 3	<b>3 3/4</b>	<b>13</b>	<b>3 1/2</b>	<b>1 1/4</b>	<b>11</b>	<b>9 7/8</b>	–	<b>7 1/4</b>
<b>FSAF22517</b>	<b>2 13/16</b> 2 7/8 2 15/16 3	<b>3 3/4</b>	<b>13</b>	<b>3 1/2</b>	<b>1 1/4</b>	<b>11</b>	<b>9 7/8</b>	<b>2 1/8</b>	<b>7 1/4</b>

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies specify the shaft size.

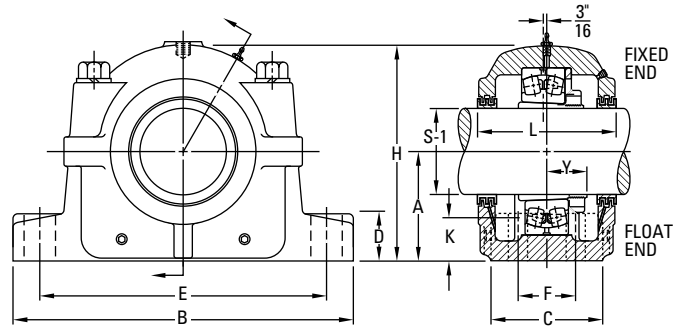
<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.



K Oil Level	L	Y	Base Bolts Required		Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.
			No.	Size						
in.	in.	in.		in.						lbs.
3 <sup>1</sup> / <sub>32</sub>	3 <sup>5</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>32</sub>	2	1/2	22209K	SNW-09 x 1 <sup>3</sup> / <sub>8</sub>	SAF509	SR-9-9	LER 16	12
						<b>SNW-09 x 1 <sup>7</sup>/<sub>16</sub></b>			<b>LER 17</b>	
						SNW-09 x 1 <sup>1</sup> / <sub>2</sub>			LER 18	
1 <sup>3</sup> / <sub>32</sub>	3 <sup>5</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>32</sub>	2	1/2	22210K	SNW-10 x 1 <sup>5</sup> / <sub>8</sub>	SAF510	SR-10-0	LER 19	13
						<b>SNW-10 x 1 <sup>11</sup>/<sub>16</sub></b>			<b>LER 20</b>	
						SNW-10 x 1 <sup>3</sup> / <sub>4</sub>			LER 21	
1 <sup>3</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>16</sub>	2	1/2	22211K	SNW-11 x 1 <sup>7</sup> / <sub>8</sub>	SAF 511	SR-11-0	LER 23	16
						<b>SNW-11 x 1 <sup>15</sup>/<sub>16</sub></b>			<b>LER 24</b>	
						SNW-11 x 2			LER 25	
1 <sup>1</sup> / <sub>8</sub>	4 <sup>5</sup> / <sub>16</sub>	1 <sup>7</sup> / <sub>32</sub>	2	1/2	22213K	SNW-13 x 2 <sup>1</sup> / <sub>8</sub>	SAF 513	SR-13-0	LER 28	19.5
						<b>SNW-13 x 2 <sup>3</sup>/<sub>16</sub></b>			<b>LER 29</b>	
						SNW-13 x 2 <sup>1</sup> / <sub>4</sub>			LER 30	
1 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	1 <sup>9</sup> / <sub>32</sub>	2	5/8	22215K	SNW-15 x 2 <sup>3</sup> / <sub>8</sub>	SAF515	SR-15-0	LER 35	30
						<b>SNW-15 x 2 <sup>7</sup>/<sub>16</sub></b>			<b>LER 37</b>	
						SNW-15 x 2 <sup>1</sup> / <sub>2</sub>			LER 39	
1 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	1 <sup>9</sup> / <sub>32</sub>	4	1/2	22215K	SNW-15 x 2 <sup>3</sup> / <sub>8</sub>	FSAF515	SR-15-0	LER 35	30
						<b>SNW-15 x 2 <sup>7</sup>/<sub>16</sub></b>			<b>LER 37</b>	
						SNW-15 x 2 <sup>1</sup> / <sub>2</sub>			LER 39	
1 <sup>11</sup> / <sub>32</sub>	4 <sup>7</sup> / <sub>8</sub>	1 <sup>21</sup> / <sub>64</sub>	2	3/4	22216K	SNW-16 x 2 <sup>5</sup> / <sub>8</sub>	SAF516	SR-16-13	LER 41	37
						<b>SNW-16 x 2 <sup>11</sup>/<sub>16</sub></b>			<b>LER 44</b>	
						SNW-16 x 2 <sup>3</sup> / <sub>4</sub>			LER 45	
1 <sup>11</sup> / <sub>32</sub>	4 <sup>7</sup> / <sub>8</sub>	1 <sup>21</sup> / <sub>64</sub>	4	5/8	22216K	SNW-16 x 2 <sup>5</sup> / <sub>8</sub>	FSAF516	SR-16-13	LER 41	37
						<b>SNW-16 x 2 <sup>11</sup>/<sub>16</sub></b>			<b>LER 44</b>	
						SNW-16 x 2 <sup>3</sup> / <sub>4</sub>			LER 45	
1 <sup>7</sup> / <sub>16</sub>	4 <sup>15</sup> / <sub>16</sub>	1 <sup>27</sup> / <sub>64</sub>	2	3/4	22217K	SNW-17 x 2 <sup>13</sup> / <sub>16</sub>	SAF517	SR-17-14	LER 51	40
						SNW-17 x 2 <sup>7</sup> / <sub>8</sub>			LER 52	
						<b>SNW-17 x 2 <sup>15</sup>/<sub>16</sub></b>			<b>LER 53</b>	
1 <sup>7</sup> / <sub>16</sub>	4 <sup>15</sup> / <sub>16</sub>	1 <sup>27</sup> / <sub>64</sub>	4	5/8	22217K	SNW-17 x 2 <sup>13</sup> / <sub>16</sub>	FSAF517	SR-17-14	LER 51	40
						SNW-17 x 2 <sup>7</sup> / <sub>8</sub>			LER 52	
						<b>SNW-17 x 2 <sup>15</sup>/<sub>16</sub></b>			<b>LER 53</b>	
						SNW-17 x 3			LER 54	

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies specify the shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

*Continued on next page.*

**INCH TAPERED BORE MOUNTING SAF225 AND SAF226 SERIES – continued**

- The basic number for ordering complete pillow block assemblies is listed in the table below.
- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- If only the pillow block housing is desired, use the numbers listed in column headed Housing Only. These units include cap, base, cap bolts, triple-ring seals and stabilizing ring.
- Assemblies and pillow blocks described on this page constitute a fixed unit. To order float units, specify the part number plus the suffix float or FL.
- Assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SAFS 22515).
- Four-bolt bases are standard on all assemblies unless as noted.
- If one end closed assembly is required, specify CL in assembly number when ordering.

Continued from previous page.

Pillow Block Assembly <sup>(1)</sup>	Shaft Dia. S-1 <sup>(2)</sup>	A	B	C	D	E		F	H
						Max.	Min.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>SAF22518</b>	3 1/16 3 1/8 <b>3 3/16</b> 3 1/4	<b>4</b>	<b>13 3/4</b>	<b>3 7/8</b>	<b>1 1/2</b>	<b>11 5/8</b>	<b>10 3/8</b>	–	<b>7 3/4</b>
<b>FSAF22518</b>	3 1/16 3 1/8 <b>3 3/16</b> 3 1/4	<b>4</b>	<b>13 3/4</b>	<b>3 7/8</b>	<b>1 1/2</b>	<b>11 5/8</b>	<b>10 3/8</b>	<b>2 1/8</b>	<b>7 3/4</b>
<b>SAF22520</b>	3 3/8 <b>3 7/16</b> 3 1/2	<b>4 1/2</b>	<b>15 1/4</b>	<b>4 3/8</b>	<b>1 3/4</b>	<b>13 1/8</b>	<b>11 5/8</b>	–	<b>8 11/16</b>
<b>FSAF22520</b>	3 3/8 <b>3 7/16</b> 3 1/2	<b>4 1/2</b>	<b>15 1/4</b>	<b>4 3/8</b>	<b>1 3/4</b>	<b>13 1/8</b>	<b>11 5/8</b>	<b>2 3/8</b>	<b>8 11/16</b>
<b>SAF22522</b>	3 13/16 3 7/8 <b>3 15/16</b> 4	<b>4 15/16</b>	<b>16 1/2</b>	<b>4 3/4</b>	<b>2</b>	<b>14 1/2</b>	<b>12 5/8</b>	<b>2 3/4</b>	<b>9 9/16</b>
<b>SAF22524</b>	4 1/16 4 1/8 <b>4 3/16</b> 4 1/4	<b>5 1/4</b>	<b>16 1/2</b>	<b>4 3/4</b>	<b>2 1/8</b>	<b>14 1/2</b>	<b>13 1/4</b>	<b>2 3/4</b>	<b>10 1/4</b>
<b>SAF22526</b>	4 5/16 4 3/8 <b>4 7/16</b> 4 1/2	<b>6</b>	<b>18 3/8</b>	<b>5 1/8</b>	<b>2 3/8</b>	<b>16</b>	<b>14 5/8</b>	<b>3 1/4</b>	<b>11 9/16</b>
<b>SAF22528</b>	4 13/16 4 7/8 <b>4 15/16</b> 5	<b>6</b>	<b>20 1/8</b>	<b>5 7/8</b>	<b>2 3/8</b>	<b>17 1/8</b>	<b>16</b>	<b>3 3/8</b>	<b>11 3/4</b>
<b>SAF22530</b>	5 1/8 <b>5 3/16</b> 5 1/4	<b>6 5/16</b>	<b>21 1/4</b>	<b>6 1/4</b>	<b>2 1/2</b>	<b>18 1/4</b>	<b>17</b>	<b>3 3/4</b>	<b>12 1/2</b>

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard pillow block assemblies specify the shaft size.

<sup>(2)</sup>See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

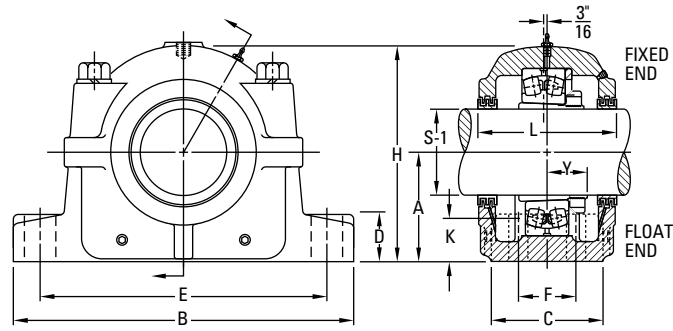
<sup>(3)</sup>Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.





K Oil Level	L	Y	Base Bolts Required		Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.
			No.	Size						
in.	in.	in.		in.						lbs.
1 17/32	6 1/4	1 37/64	2	3/4	22218K	SNW-18 x 3 1/16	SAF518	SR-18-15	LER 67	49
						SNW-18 x 3 1/8			LER 68	
						SNW-18 x 3 3/16			LER 69	
1 17/32	6 1/4	1 37/64	4	5/8	22218K	SNW-18 x 3 1/16	FSAF518	SR-18-15	LER 70	49
						SNW-18 x 3 1/8			LER 67	
						SNW-18 x 3 3/16			LER 68	
1 3/4	6	1 49/64	2	7/8	22220K	SNW-20 x 3 3/8	SAF520	SR-20-17	LER 101	65
						SNW-20 x 3 7/16			LER 102	
						SNW-20 x 3 1/2			LER 103	
1 3/4	6	1 49/64	4	3/4	22220K	SNW-20 x 3 3/8	FSAF520	SR-20-17	LER 101	65
						SNW-20 x 3 7/16			LER 102	
						SNW-20 x 3 1/2			LER 103	
1 7/8	6 3/8	1 61/64	4	3/4	22222K	SNW-22 x 3 13/16	SAF522	SR-22-19	LER 107	81
						SNW-22 x 3 7/8			LER 108	
						SNW-22 x 3 15/16			LER 109	
1 15/16	7 3/8	2 3/32	4	3/4	22224K	SNW-22 x 4	SAF524	SR-24-20	LER 110	94
						SNW-24 x 4 1/16			LER 111	
						SNW-24 x 4 1/8			LER 112	
2 7/16	8	2 17/64	4	7/8	22226K	SNW-24 x 4 3/16	SAF526	SR-26-0	LER 113	137
						SNW-24 x 4 1/4			LER 114	
						SNW-26 x 4 5/16			LER 115	
2 7/16	8	2 17/64	4	7/8	22226K	SNW-26 x 4 3/8	SAF526	SR-26-0	LER 115	137
						SNW-26 x 4 7/16			LER 117	
						SNW-26 x 4 1/2			LER 118	
2 1/8	7 3/4	2 13/32	4	1	22228K	SNW-28 x 4 13/16	SAF528	SR-28-0	LER 120	159
						SNW-28 x 4 7/8			LER 121	
						SNW-28 x 4 15/16			LER 122	
2 3/16	8 3/8	2 37/64	4	1	22230K	SNW-28 x 5	SAF530	SR-30-0	LER 123	189
						SNW-30 x 5 1/8			LER 124	
						SNW-30 x 5 3/16			LER 125	
						SNW-30 x 5 1/4			LER 126	

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies specify the shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

*Continued on next page.*

**INCH TAPERED BORE MOUNTING SAF225 AND SAF226 SERIES – continued**

- The basic number for ordering complete pillow block assemblies is listed in the table below.
- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- If only the pillow block housing is desired, use the numbers listed in column headed Housing Only. These units include cap, base, cap bolts, triple-ring seals and stabilizing ring.
- Assemblies and pillow blocks described on this page constitute a fixed unit. To order float units, specify the part number plus the suffix float or FL.
- Assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SAFS 22515).
- Four-bolt bases are standard on all assemblies unless as noted.
- If one end closed assembly is required, specify CL in assembly number when ordering.

Continued from previous page.

Pillow Block Assembly <sup>(1)</sup>	Shaft Dia. S-1 <sup>(2)</sup>	A	B	C	D	E		F	H
						Max.	Min.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>SAF22532</b>	5 3/8 5 7/16 5 1/2	6 11/16	22	6 1/4	2 5/8	19 1/4	17 3/8	3 3/4	13 5/16
<b>SAF22534</b>	5 13/16 5 7/8 5 15/16 6	7 1/16	24 3/4	6 3/4	2 3/4	21 5/8	19 3/8	4 1/4	14 9/16
<b>SAF22536</b>	6 5/16 6 3/8 6 7/16 6 1/2	7 1/2	26 3/4	7 1/8	3	23 5/8	20 7/8	4 5/8	15 1/2
<b>SAF22538</b>	6 13/16 6 7/8 6 15/16 7	7 7/8	28	7 1/2	3 1/8	24 3/8	21 5/8	4 1/2	15 11/16
<b>SAF22540</b>	7 1/8 7 3/16 7 1/4	8 1/4	29 1/2	8	3 3/8	25	22 1/2	5	17 3/16
<b>SAF22544</b>	7 13/16 7 7/8 7 15/16 8	9 1/2	32 3/4	8 3/4	3 3/4	27 7/8	24 3/4	5 1/4	19 5/8
<b>SERIES SAF226</b>									
<b>SAF22615</b>	2 3/8 2 7/16 2 1/2	4	13 3/4	3 7/8	1 5/8	11 5/8	10 3/8	2 1/8	7 9/16
<b>SAF22616</b>	2 5/8 2 11/16 2 3/4	4 1/4	14 1/4	3 7/8	1 3/4	12 5/8	10 5/8	2 1/8	8 1/4

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies specify the shaft size.

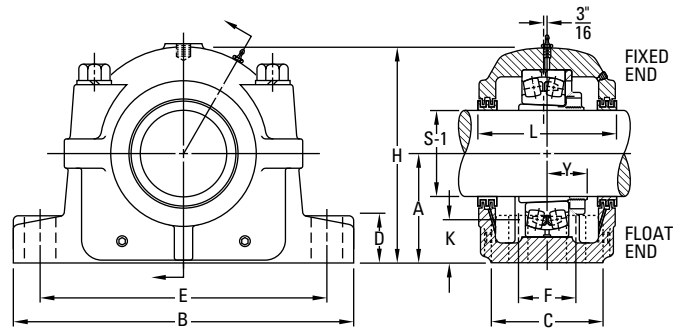
<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.



K Oil Level	L	Y	Base Bolts Required		Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.
			No.	Size						
in.	in.	in.		in.						lbs.
<b>2 3/16</b>	<b>8 3/4</b>	<b>2 49/64</b>	4	1	<b>22232K</b>	SNW-32 x 5 3/8	<b>SAF532</b>	<b>SR-32-0</b>	LER 129	<b>225</b>
						<b>SNW-32 x 5 7/16</b>			<b>LER 130</b>	
						SNW-32 x 5 1/2			LER 131	
<b>2 5/16</b>	<b>9 3/8</b>	<b>2 59/64</b>	4	1	<b>22234K</b>	SNW-34 x 5 13/16	<b>SAF534</b>	<b>SR-34-0</b>	LER 138	<b>300</b>
						SNW-34 x 5 7/8			LER 139	
						SNW-34 x 6			LER 141	
<b>2 9/16</b>	<b>9 11/16</b>	<b>2 61/64</b>	4	1	<b>22236K</b>	SNW-36 x 6 5/16	<b>SAF536</b>	<b>SR-36-30</b>	LER 146	<b>330</b>
						SNW-36 x 6 3/8			LER 147	
						<b>SNW-36 x 6 7/16</b>			<b>LER 148</b>	
<b>2 5/8</b>	<b>10 3/4</b>	<b>3 7/64</b>	4	1 1/4	<b>22238K</b>	SNW-38 x 6 13/16	<b>SAF538</b>	<b>SR-38-32</b>	LER 153	<b>375</b>
						SNW-38 x 6 7/8			LER 154	
						<b>SNW-38 x 6 15/16</b>			<b>LER 155</b>	
<b>2 11/16</b>	<b>10 13/16</b>	<b>3 9/32</b>	4	1 1/4	<b>22240K</b>	SNW-40 x 7 1/8	<b>SAF540</b>	<b>SR-40-34</b>	LER 158	<b>445</b>
						<b>SNW-40 x 7 3/16</b>			<b>LER 159</b>	
						SNW-40 x 7 1/4			LER 160	
<b>3 3/8</b>	<b>11 1/2</b>	<b>3 17/32</b>	4	1 1/2	<b>22244K</b>	SNW-44 x 7 13/16	<b>SAF544</b>	<b>SR-44-38</b>	LER 165	<b>615</b>
						SNW-44 x 7 7/8			LER 166	
						<b>SNW-44 x 7 15/16</b>			<b>LER 167</b>	
						SNW-44 x 8			LER 168	
<b>1 19/32</b>	<b>5 7/8</b>	<b>1 7/8</b>	2, 4	3/4, 5/8	<b>22315K</b>	SNW-115 x 2 3/8	<b>SAF 615</b>	<b>SR-18-15</b>	LER 36	<b>52</b>
						<b>SNW-115 x 2 7/16</b>			<b>LER 37</b>	
						SNW-115 x 2 1/2			LER 38	
<b>1 11/16</b>	<b>6 1/2</b>	<b>1 15/16</b>	2, 4	3/4, 5/8	<b>22316K</b>	SNW-116 x 2 5/8	<b>SAF 616</b>	<b>SR-19-16</b>	LER 43	<b>71</b>
						<b>SNW-116 x 2 11/16</b>			<b>LER 44</b>	
						SNW-116 x 2 3/4			LER 45	

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies specify the shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

*Continued on next page.*

**INCH TAPERED BORE MOUNTING SAF225 AND SAF226 SERIES – continued**

- The basic number for ordering complete pillow block assemblies is listed in the table below.
- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- If only the pillow block housing is desired, use the numbers listed in column headed Housing Only. These units include cap, base, cap bolts, triple-ring seals and stabilizing ring.
- Assemblies and pillow blocks described on this page constitute a fixed unit. To order float units, specify the part number plus the suffix float or FL.
- Assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SAFS 22515).
- Four-bolt bases are standard on all assemblies unless as noted.
- If one end closed assembly is required, specify CL in assembly number when ordering.

Continued from previous page.

Pillow Block Assembly <sup>(1)</sup>	Shaft Dia. S-1 <sup>(2)</sup>	A	B	C	D	E		F	H
						Max.	Min.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>SAF22617</b>	2 <sup>13</sup> / <sub>16</sub> 2 <sup>7</sup> / <sub>8</sub> 2 <sup>15</sup> / <sub>16</sub> 3	4 <sup>1</sup> / <sub>2</sub>	15 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	13 <sup>1</sup> / <sub>8</sub>	11 <sup>5</sup> / <sub>8</sub>	–	8 <sup>11</sup> / <sub>16</sub>
<b>FSAF22617</b>	2 <sup>13</sup> / <sub>16</sub> 2 <sup>7</sup> / <sub>8</sub> 2 <sup>15</sup> / <sub>16</sub> 3	4 <sup>1</sup> / <sub>2</sub>	15 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	13 <sup>1</sup> / <sub>8</sub>	11 <sup>5</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	8 <sup>11</sup> / <sub>16</sub>
<b>SAF22618</b>	3 <sup>1</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>8</sub> 3 <sup>3</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	15 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>8</sub>	2	13 <sup>1</sup> / <sub>2</sub>	12	2 <sup>1</sup> / <sub>4</sub>	9 <sup>3</sup> / <sub>16</sub>
<b>SAF22620</b>	3 <sup>5</sup> / <sub>16</sub> 3 <sup>3</sup> / <sub>8</sub> 3 <sup>7</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>2</sub>	4 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	10 <sup>1</sup> / <sub>4</sub>
<b>SAF22622</b>	3 <sup>13</sup> / <sub>16</sub> 3 <sup>7</sup> / <sub>8</sub> 3 <sup>15</sup> / <sub>16</sub> 4	6	18 <sup>3</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>8</sub>	16	14 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	11 <sup>9</sup> / <sub>16</sub>
<b>SAF22624</b>	4 <sup>1</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>8</sub> 4 <sup>3</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>4</sub>	6 <sup>5</sup> / <sub>16</sub>	21 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	18 <sup>1</sup> / <sub>4</sub>	17	3 <sup>3</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>2</sub>
<b>SAF22626</b>	4 <sup>5</sup> / <sub>16</sub> 4 <sup>3</sup> / <sub>8</sub> 4 <sup>7</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>2</sub>	6 <sup>11</sup> / <sub>16</sub>	22	6 <sup>1</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	19 <sup>1</sup> / <sub>4</sub>	17 <sup>3</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	13 <sup>5</sup> / <sub>16</sub>
<b>SAF22628</b>	4 <sup>13</sup> / <sub>16</sub> 4 <sup>7</sup> / <sub>8</sub> 4 <sup>15</sup> / <sub>16</sub> 5	7 <sup>1</sup> / <sub>16</sub>	24 <sup>3</sup> / <sub>4</sub>	6 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	21 <sup>5</sup> / <sub>8</sub>	19 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>4</sub>	14 <sup>9</sup> / <sub>16</sub>

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard pillow block assemblies specify the shaft size.

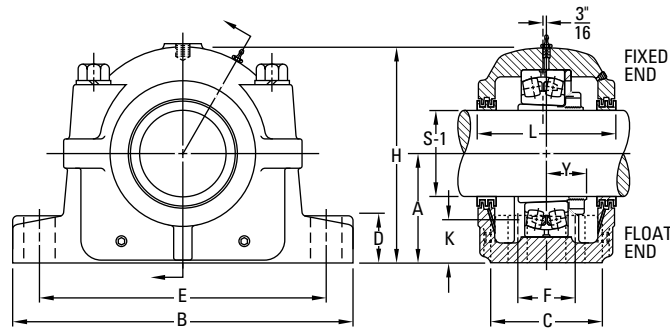
<sup>(2)</sup>See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup>Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.



K Oil Level	L	Y	Base Bolts Required		Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.
			No.	Size						
in.	in.	in.		in.						lbs.
<b>1 13/16</b>	<b>6 5/8</b>	<b>1 57/64</b>	2	7/8	<b>22317K</b>	SNW-117 x 2 13/16	<b>SAF617</b>	<b>SR-20-17</b>	LER 182	<b>81</b>
						SNW-117 x 2 7/8			LER 183	
						<b>SNW-117 x 2 15/16</b>			<b>LER 184</b>	
						SNW-117 x 3		LER 185		
<b>1 13/16</b>	<b>6 5/8</b>	<b>1 57/64</b>	4	3/4	<b>22317K</b>	SNW-117 x 2 13/16	<b>FSAF617</b>	<b>SR-20-17</b>	LER 182	<b>81</b>
						SNW-117 x 2 7/8			LER 183	
						<b>SNW-117 x 2 15/16</b>			<b>LER 184</b>	
						SNW-117 x 3		LER 185		
<b>2</b>	<b>7</b>	<b>2 3/64</b>	4	3/4	<b>22318K</b>	SNW-118 x 3 1/16	<b>SAF618</b>	<b>SR-21-18</b>	LER 186	<b>90</b>
						SNW-118 x 3 1/8			LER 187	
						<b>SNW-118 x 3 3/16</b>			<b>LER 188</b>	
						SNW-118 x 3 1/4		LER 189		
<b>2 1/8</b>	<b>7 3/8</b>	<b>2 19/64</b>	4	3/4	<b>22320K</b>	SNW-120 x 3 5/16	<b>SAF620</b>	<b>SR-24-20</b>	LER 100	<b>113</b>
						SNW-120 x 3 3/8			LER 101	
						<b>SNW-120 x 3 7/16</b>			<b>LER 102</b>	
						SNW-120 x 3 1/2		LER 103		
<b>2 1/2</b>	<b>8</b>	<b>2 31/64</b>	4	7/8	<b>22322K</b>	SNW-122 x 3 13/16	<b>SAF622</b>	<b>SR-0-22</b>	LER 107	<b>151</b>
						SNW-122 x 3 7/8			LER 108	
						<b>SNW-122 x 3 15/16</b>			<b>LER 109</b>	
						SNW-122 x 4		LER 110		
<b>2 3/16</b>	<b>8 3/8</b>	<b>2 41/64</b>	4	1	<b>22324K</b>	SNW-124 x 4 1/16	<b>SAF624</b>	<b>SR-0-24</b>	LER 111	<b>201</b>
						SNW-124 x 4 1/8			LER 112	
						<b>SNW-124 x 4 3/16</b>			<b>LER 113</b>	
						SNW-124 x 4 1/4		LER 114		
<b>2 5/8</b>	<b>8 3/4</b>	<b>2 27/32</b>	4	1	<b>22326K</b>	SNW-126 x 4 5/16	<b>SAF626</b>	<b>SR-0-26</b>	LER 115	<b>245</b>
						SNW-126 x 4 3/8			LER 116	
						<b>SNW-126 x 4 7/16</b>			<b>LER 117</b>	
						SNW-126 x 4 1/2		LER 118		
<b>2 11/16</b>	<b>9 3/8</b>	<b>3 5/64</b>	4	1	<b>22328K</b>	SNW-126 x 4 9/16	<b>SAF628</b>	<b>SR-0-28</b>	LER 120	<b>310</b>
						SNW-128 x 4 13/16			LER 121	
						<b>SNW-128 x 4 7/8</b>			<b>LER 122</b>	
						SNW-128 x 4 15/16		LER 123		

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies specify the shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

Continued on next page.

**INCH TAPERED BORE MOUNTING SAF225 AND SAF226 SERIES – continued**

- The basic number for ordering complete pillow block assemblies is listed in the table below.
- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- If only the pillow block housing is desired, use the numbers listed in column headed Housing Only. These units include cap, base, cap bolts, triple-ring seals and stabilizing ring.
- Assemblies and pillow blocks described on this page constitute a fixed unit. To order float units, specify the part number plus the suffix float or FL.
- Assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SAFS 22515).
- Four-bolt bases are standard on all assemblies unless as noted.
- If one end closed assembly is required, specify CL in assembly number when ordering.

Continued from previous page.

Pillow Block Assembly <sup>(1)</sup>	Shaft Dia. S-1 <sup>(2)</sup>	A	B	C	D	E		F	H
						Max.	Min.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>SAF22630</b>	5 1/8 5 3/16 5 1/4	7 1/2	26 3/4	7 1/8	3	23 5/8	20 7/8	4 5/8	15 1/2
<b>SAF22632</b>	5 3/8 5 7/16 5 1/2	7 7/8	28	7 1/2	3 1/8	24 3/8	21 5/8	4 1/2	15 11/16
<b>SAF22634</b>	5 13/16 5 7/8 5 15/16 6	8 1/4	29 1/2	8	3 3/8	25	22 1/2	5	17 3/16
<b>SAF22636</b>	6 7/16	8 7/8	31 1/4	8 1/4	3 1/2	26 5/8	24	5 1/4	18 1/2
<b>SAF22638</b>	6 13/16 6 7/8 6 15/16 7	9 1/2	32 3/4	8 3/4	3 3/4	27 7/8	24 3/4	5 1/4	19 5/8
<b>SAF22640</b>	7 1/8 7 3/16 7 1/4	9 7/8	34 1/4	9	4	29 1/2	26 1/4	5 1/2	20 3/16

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non standard pillow block assemblies specify the shaft size.

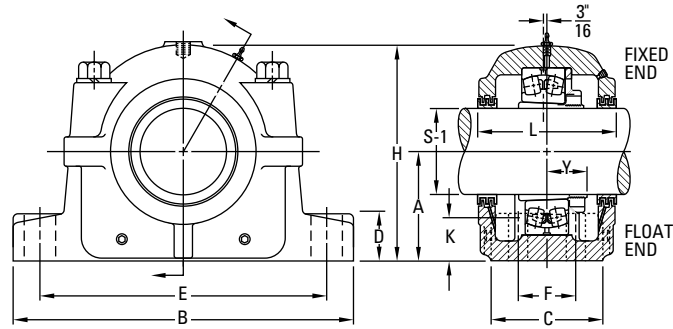
<sup>(2)</sup>See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup>Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.



K Oil Level	L	Y	Base Bolts Required		Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.
			No.	Size						
in.	in.	in.		in.						lbs.
<b>2 7/8</b>	<b>9 11/16</b>	<b>3 17/64</b>	4	1	<b>22330K</b>	SNW-130 x 5 1/8	<b>SAF630</b>	<b>SR-36-30</b>	LER 124	<b>350</b>
						<b>SNW-130 x 5 3/16</b>			<b>LER 125</b>	
						SNW-130 x 5 1/4			LER 126	
<b>2 15/16</b>	<b>10 3/4</b>	<b>3 7/16</b>	4	1 1/4	<b>22332K</b>	SNW-132 x 5 3/8	<b>SAF632</b>	<b>SR-38-32</b>	LER 129	<b>420</b>
						<b>SNW-132 x 5 7/16</b>			<b>LER 130</b>	
						SNW-132 x 5 1/2			LER 131	
<b>3 1/16</b>	<b>10 19/16</b>	<b>3 19/32</b>	4	1 1/4	<b>22334K</b>	SNW-134 x 5 13/16	<b>SAF634</b>	<b>SR-40-34</b>	LER 138	<b>485</b>
						SNW-134 x 5 7/8			LER 139	
						<b>SNW-134 x 5 15/16</b>			<b>LER 140</b>	
<b>3 3/8</b>	<b>11 1/4</b>	<b>3 47/64</b>	4	1 1/4	<b>22336K</b>	<b>SNW-136 x 6 7/16</b>	<b>SAF636</b>	<b>SR-0-36</b>	LER 141	<b>545</b>
<b>3 11/16</b>	<b>11 1/2</b>	<b>3 57/64</b>	4	1 1/2	<b>22338K</b>	SNW-138 x 6 13/16	<b>SAF638</b>	<b>SR-44-38</b>	LER 153	<b>655</b>
						SNW-138 x 6 7/8			LER 154	
						<b>SNW-138 x 6 15/16</b>			<b>LER 155</b>	
<b>3 3/4</b>	<b>12 1/4</b>	<b>4 5/64</b>	4	1 1/2	<b>22340K</b>	SNW-140 x 7 1/8	<b>SAF640</b>	<b>SR-0-40</b>	LER 156	<b>725</b>
						<b>SNW-140 x 7 3/16</b>			<b>LER 158</b>	
						SNW-140 x 7 1/4			<b>LER 159</b>	
									LER 160	

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard pillow block assemblies specify the shaft size.

<sup>(2)</sup>See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup>Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only, specify the shaft size.

<sup>(5)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

**INCH TAPERED BORE MOUNTING SDAF225 AND SDAF226 SERIES**

- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- To order pillow block housing only, use the number listed in the Housing Only column. These units include cap, base, cap bolts, triple-ring seals and stabilizing ring.
- Assemblies and pillow blocks described on this page constitute fixed units.
- To order float units, specify the part number plus the suffix float or FL.
- Assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SDAFS 22515).

Pillow Block Assembly <sup>(1)</sup>	Shaft Dia. S-1 <sup>(2)</sup>	A	B	C	D	E		F	H
						Max.	Min.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>SERIES SDAF225</b>									
<b>SDAF22520</b>	3 3/8 3 7/16 3 1/2	4 1/2	15 1/4	6	1 7/8	13 1/8	11 5/8	3 3/8	8 15/16
<b>SDAF22522</b>	3 13/16 3 7/8 3 15/16 4	4 15/16	16 1/2	6 3/4	2 1/8	14 1/2	12 5/8	4	9 7/8
<b>SDAF22524</b>	4 1/16 4 1/8 4 3/16 4 1/4	5 1/4	16 1/2	6 7/8	2 1/4	14 1/2	13 1/4	4 1/8	10 1/2
<b>SDAF22526</b>	4 5/16 4 3/8 4 7/16 4 1/2	6	18 3/8	7 1/2	2 3/8	16	14 5/8	4 1/2	11 7/8
<b>SDAF22528</b>	4 13/16 4 7/8 4 15/16 5	6	20 1/8	7 1/2	2 3/8	17 1/8	16	4 1/2	12 1/16
<b>SDAF22530</b>	5 1/8 5 3/16 5 1/4	6 5/16	21 1/4	7 7/8	2 1/2	18 1/4	17	4 3/4	12 13/16
<b>SDAF22532</b>	5 3/8 5 7/16 5 1/2	6 11/16	22	8 1/4	2 1/2	19 1/4	17 3/8	5	13 11/16
<b>SDAF22534</b>	5 15/16	7 1/16	24 3/4	9	2 1/2	21 5/8	19 3/8	5 1/2	14 1/4
<b>SDAF22536</b>	6 5/16 6 3/8 6 7/16 6 1/2	7 1/2	26 3/4	9 3/8	2 3/4	23 5/8	20 7/8	5 7/8	15 3/16
<b>SDAF22538</b>	6 15/16	7 7/8	27 5/8	10	3	23 1/2	21 1/2	6 1/4	16 1/4
<b>SDAF22540</b>	7 3/16	8 1/4	28 3/4	10 1/2	3 1/4	25	23	6 3/4	17 7/8
<b>SDAF22544</b>	7 15/16	9 1/2	32	11 1/4	3 1/2	27 7/8	25 5/8	7 1/4	19 1/4

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify the shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

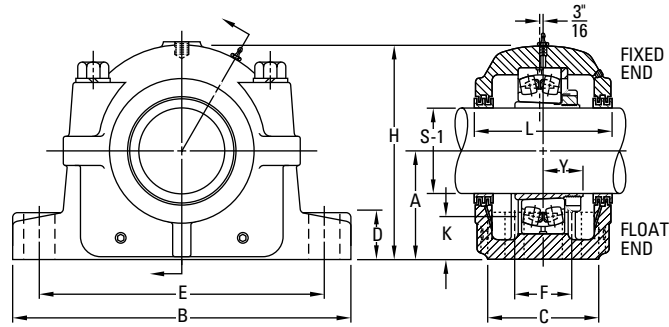
<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.



# TIMKEN® SAF SPLIT-BLOCK HOUSED UNITS

INCH TAPERED BORE MOUNTING • SDAF225 AND SDAF226 SERIES



K Oil Level	L	Y	Base Bolts Required		Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.											
			No.	Size																	
in.	in.	in.		in.						lbs.											
<b>1 3/4</b>	<b>6 3/4</b>	<b>1 49/64</b>	4	3/4	<b>22220K</b>	SNW-20 x 3 3/8 <b>SNW-20 x 3 7/16</b> SNW-20 x 3 1/2	<b>SDAF520</b>	<b>SR-20-17</b>	LER 74 <b>LER 75</b> LER 76	<b>81</b>											
											<b>1 7/8</b>	<b>7 1/4</b>	<b>1 61/64</b>	4	7/8	<b>22222K</b>	SNW-22 x 3 13/16 SNW-22 x 3 7/8 <b>SNW-22 x 3 15/16</b> SNW-22 x 4	<b>SDAF522</b>	<b>SR-22-19</b>	LER 91 LER 92 <b>LER 93</b> LER 94	<b>94</b>
<b>2 7/16</b>	<b>8</b>	<b>2 17/64</b>	4	1	<b>22226K</b>	SNW-26 x 4 5/16 SNW-26 x 4 3/8 <b>SNW-26 x 4 7/16</b> SNW-26 x 4 1/2	<b>SDAF526</b>	<b>SR-26-0</b>	LER 115 LER 116 <b>LER 117</b> LER 118	<b>159</b>											
											<b>2 1/8</b>	<b>7 13/16</b>	<b>2 13/32</b>	4	1 1/8	<b>22228K</b>	SNW-28 x 4 13/16 SNW-28 x 4 7/8 <b>SNW-28 x 4 15/16</b> SNW-28 x 5	<b>SDAF528</b>	<b>SR-28-0</b>	LER 120 LER 121 <b>LER 122</b> LER 123	<b>189</b>
<b>2 3/16</b>	<b>8 3/8</b>	<b>2 37/64</b>	4	1 1/8	<b>22230K</b>	SNW-30 x 5 1/8 <b>SNW-30 x 5 3/16</b> SNW-30 x 5 1/4	<b>SDAF530</b>	<b>SR-30-0</b>	LER 124 <b>LER 125</b> LER 126	<b>225</b>											
											<b>2 3/16</b>	<b>8 3/4</b>	<b>2 49/64</b>	4	1 1/8	<b>22232K</b>	SNW-32 x 5 3/8 <b>SNW-32 x 5 7/16</b> SNW-32 x 5 1/2	<b>SDAF532</b>	<b>SR-32-0</b>	LER 129 <b>LER 130</b> LER 131	<b>300</b>
<b>2 5/16</b>	<b>9 5/8</b>	<b>2 59/64</b>	4	1 1/4	<b>22234K</b>	<b>SNW-34 x 5 15/16</b> SNW-36 x 6 5/16 SNW-36 x 6 3/8	<b>SDAF534</b>	<b>SR-34-0</b>	LER 146 LER 147 <b>LER 148</b> LER 149	<b>310</b>											
											<b>2 9/16</b>	<b>10</b>	<b>2 61/64</b>	4	1 1/4	<b>22236K</b>	<b>SNW-36 x 6 7/16</b> SNW-36 x 6 1/2	<b>SDAF536</b>	<b>SR-36-30</b>	LER 146 LER 147 <b>LER 148</b> LER 149	<b>350</b>
<b>2 5/8</b>	<b>10 5/8</b>	<b>3 7/64</b>	4	1 3/8	<b>22238K</b>	<b>SNW-38 x 6 15/16</b> SNW-40 x 7 3/16	<b>SDAF538</b>	<b>SR-38-32</b>	LER 224 <b>LER 228</b>	<b>420</b>											
											<b>2 11/16</b>	<b>11 1/8</b>	<b>3 9/32</b>	4	1 3/8	<b>22240K</b>	<b>SNW-40 x 7 3/16</b> SNW-44 x 7 15/16	<b>SDAF540</b>	<b>SR-40-34</b>	LER 228 <b>LER 236</b>	<b>545</b>
<b>3 3/8</b>	<b>11 7/8</b>	<b>3 17/32</b>	4	1 1/2	<b>22244K</b>	<b>SNW-44 x 7 15/16</b>	<b>SDAF544</b>	<b>SR-44-38</b>	<b>LER 236</b>	<b>665</b>											

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify the shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

Continued on next page.

**INCH TAPERED BORE MOUNTING SDAF225 AND SDAF226 SERIES – continued**

- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- To order pillow block housing only, use the number listed in the Housing Only column. These units include cap, base, cap bolts, triple-ring seals and stabilizing ring.
- Assemblies and pillow blocks described on this page constitute fixed units.
- To order float units, specify the part number plus the suffix float or FL.
- Assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SAFS 22515).

Continued from previous page.

Pillow Block Assembly <sup>(1)</sup>	Shaft Dia. S-1 <sup>(2)</sup>	A	B	C	D	E		F	H
						Max.	Min.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>SERIES SDAF226</b>									
<b>SDAF22617</b>	2 7/8 2 15/16 3	4 1/2	15 1/4	6	1 7/8	13 1/8	11 5/8	3 3/8	8 15/16
<b>SDAF22618</b>	3 1/16 3 1/8 3 3/16 3 1/4	4 3/4	15 1/2	6 1/8	2	13 1/2	12	3 5/8	9 7/16
<b>SDAF22620</b>	3 5/16 3 3/8 3 7/16 3 1/2	5 1/4	16 1/2	6 7/8	2 1/4	14 1/2	13 1/4	4 1/8	10 1/2
<b>SDAF22622</b>	3 13/16 3 7/8 3 15/16 4	6	18 3/8	7 1/2	2 3/8	16	14 5/8	4 1/2	11 7/8
<b>SDAF22624</b>	4 1/16 4 1/8 4 3/16 4 1/4	6 5/16	21 1/4	7 7/8	2 1/2	18 1/4	17	4 3/4	12 13/16
<b>SDAF22626</b>	4 5/16 4 3/8 4 7/16 4 1/2 4 9/16	6 11/16	22	8 1/4	2 1/2	19 1/4	17 3/8	5	13 11/16
<b>SDAF22628</b>	4 15/16	7 1/16	24 3/4	9	2 1/2	21 5/8	19 3/8	5 1/2	14 1/4
<b>SDAF22630</b>	5 1/8 5 3/16 5 1/4 5 3/8 5 5/16	7 1/2	26 3/4	9 3/8	2 3/4	23 5/8	20 7/8	5 7/8	15 3/16
<b>SDAF22632</b>	5 7/16	7 7/8	27 5/8	10	3	23 1/2	21 1/2	6 1/4	16 1/4
<b>SDAF22634</b>	5 15/16	8 1/4	28 3/4	10 1/2	3 1/4	25	23	6 3/4	17 7/8
<b>SDAF22636</b>	6 7/16	8 7/8	30 1/2	10 3/4	3 1/4	26 3/8	24 1/8	6 7/8	17 15/16
<b>SDAF22638</b>	6 15/16	9 1/2	32	11 1/4	3 1/2	27 7/8	25 5/8	7 1/4	19 1/4
<b>SDAF22640</b>	7 3/16	9 7/8	33 1/2	11 3/4	3 1/2	29 1/4	26 5/8	7 5/8	19 15/16

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify the shaft size.

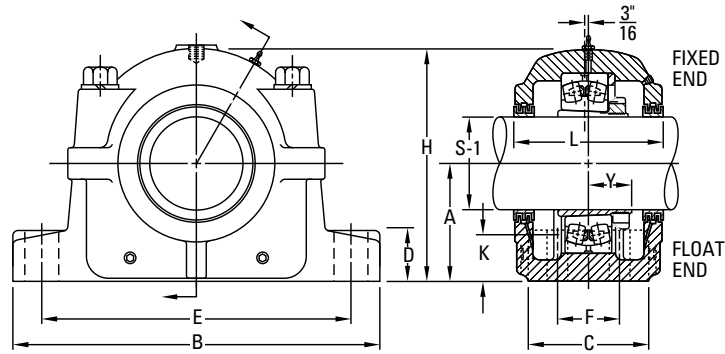
<sup>(2)</sup>See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup>Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

<sup>(5)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.



K Oil Level	L	Y	Base Bolts Required		Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.
			No.	Size						
in.	in.	in.		in.						lbs.
<b>1 13/16</b>	<b>6 3/4</b>	<b>1 57/64</b>	4	3/4	<b>22317K</b>	SNW-117 x 2 7/8	<b>SDAF617</b>	<b>SR-20-17</b>	LER 58	<b>94</b>
						<b>SNW-117 x 2 15/16</b>			<b>LER 59</b>	
						SNW-117 x 3			LER 60	
2	6 7/8	2 3/64	4	3/4	<b>22318K</b>	SNW-118 x 3 1/16	<b>SDAF618</b>	<b>SR-21-18</b>	LER 67	<b>137</b>
						SNW-118 x 3 1/8			LER 68	
						<b>SNW-118 x 3 3/16</b>			<b>LER 69</b>	
2 1/8	7 3/8	2 19/64	4	7/8	<b>22320K</b>	SNW-118 x 3 1/4	<b>SDAF620</b>	<b>SR-24-20</b>	LER 70	<b>159</b>
						SNW-120 x 3 3/16			LER 73	
						SNW-120 x 3 3/8			LER 74	
2 1/2	8	2 31/64	4	1	<b>22322K</b>	SNW-120 x 3 1/2	<b>SDAF622</b>	<b>SR-0-22</b>	LER 75	<b>189</b>
						SNW-122 x 3 13/16			LER 76	
						SNW-122 x 3 7/8			LER 91	
2 5/8	8 3/8	2 41/64	4	1 1/8	<b>22324K</b>	SNW-122 x 4	<b>SDAF624</b>	<b>SR-0-24</b>	LER 92	<b>225</b>
						SNW-124 x 4 1/16			LER 93	
						SNW-124 x 4 1/8			LER 94	
2 9/16	8 3/4	2 47/64	4	1 1/8	<b>22326K</b>	SNW-124 x 4 1/4	<b>SDAF626</b>	<b>SR-0-26</b>	LER 111	<b>300</b>
						SNW-126 x 4 5/16			LER 112	
						<b>SNW-126 x 4 3/8</b>			<b>LER 113</b>	
2 11/16	9 5/8	3 5/64	4	1 1/8	<b>22328K</b>	SNW-126 x 4 1/2	<b>SDAF628</b>	<b>SR-0-28</b>	LER 114	<b>310</b>
						SNW-126 x 4 9/16			LER 115	
						<b>SNW-126 x 4 7/8</b>			<b>LER 116</b>	
2 7/8	9 3/4	3 17/64	4	1 1/4	<b>22330K</b>	SNW-126 x 4 5/8	<b>SDAF630</b>	<b>SR-36-30</b>	LER 117	<b>395</b>
						SNW-130 x 5 1/16			LER 118	
						<b>SNW-130 x 5 3/16</b>			<b>LER 119</b>	
2 15/16	10 5/8	3 7/16	4	1 3/8	<b>22332K</b>	SNW-130 x 5 1/4	<b>SDAF632</b>	<b>SR-38-32</b>	LER 120	<b>420</b>
						SNW-130 x 5 5/16			LER 121	
						<b>SNW-130 x 5 3/8</b>			<b>LER 122</b>	
3 1/16	11 1/8	3 19/32	4	1 3/8	<b>22334K</b>	SNW-130 x 5 7/16	<b>SDAF634</b>	<b>SR-40-34</b>	LER 123	<b>525</b>
						<b>SNW-134 x 5 15/16</b>			<b>LER 124</b>	
						SNW-134 x 5 1/2			LER 125	
3 1/8	11 3/8	3 47/64	4	1 1/2	<b>22336K</b>	SNW-134 x 5 5/8	<b>SDAF636</b>	<b>SR-0-36</b>	LER 126	<b>645</b>
						<b>SNW-136 x 6 1/16</b>			<b>LER 127</b>	
						SNW-136 x 6 1/8			LER 128	
3 11/16	11 13/16	4 57/64	4	1 1/2	<b>22338K</b>	SNW-136 x 6 3/8	<b>SDAF638</b>	<b>SR-44-38</b>	LER 129	<b>705</b>
						<b>SNW-138 x 6 15/16</b>			<b>LER 130</b>	
						SNW-138 x 6 7/8			LER 131	
3 3/4	12 1/4	4 5/64	4	1 5/8	<b>22340K</b>	SNW-138 x 7 1/16	<b>SDAF640</b>	<b>SR-0-40</b>	LER 132	<b>825</b>
						<b>SNW-140 x 7 3/16</b>			<b>LER 133</b>	
						SNW-140 x 7 1/8			LER 134	

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify the shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

**INCH TAPERED BORE MOUNTING SAF230K, SDAF230K SERIES**

- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- If only the pillow block is desired, use the numbers listed in the Housing Only column. These units include cap and base, cap bolts, triple-ring seals and stabilizing ring.
- Assembly and pillow blocks described on this page constitute fixed units.
- To order float units, specify the part number plus the suffix float or FL.
- All assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SAFS 23024).
- Please note that for applications SAF23048 and larger, the shaft size must be included in the part description when ordering (e.g., SAF23048-8<sup>15/16</sup>).
- Two stabilizing rings are supplied with housings SAF048 through SAF056 and SDAF060K through SDAF076K. For fixed applications both rings must be used. Do not use stabilizing rings for float mounting.

Pillow Block Assembly <sup>(1)</sup>	Shaft Dia. S-1 <sup>(2)</sup>	A	B	C	D	E		F	H	K
						Max.	Min.			
	in.	in.	in.	in.	in.	in.	in.	in.	in.	Oil Level in.
<b>SERIES SAF230K</b>										
<b>SAF23024K</b>	4 1/16	<b>4 1/2</b>	<b>15 1/4</b>	<b>4 3/8</b>	<b>1 3/4</b>	<b>13 1/8</b>	<b>11 5/8</b>	<b>2 3/8</b>	<b>8 11/16</b>	<b>1 9/16</b>
	4 1/8									
	4 3/16									
<b>SAF23026K</b>	4 5/16	<b>4 15/16</b>	<b>16 1/2</b>	<b>4 3/4</b>	<b>2</b>	<b>14 1/2</b>	<b>12 5/8</b>	<b>2 3/4</b>	<b>9 9/16</b>	<b>1 11/16</b>
	4 3/8									
	4 7/16									
<b>SAF23028K</b>	4 13/16	<b>5 1/4</b>	<b>16 1/2</b>	<b>4 3/4</b>	<b>2 1/8</b>	<b>14 1/2</b>	<b>13 1/4</b>	<b>2 3/4</b>	<b>10 1/4</b>	<b>1 13/16</b>
	4 7/8									
	4 15/16									
<b>SAF23030K</b>	5 1/8	<b>6</b>	<b>18 3/8</b>	<b>5 1/8</b>	<b>2 3/8</b>	<b>16</b>	<b>14 5/8</b>	<b>3 1/4</b>	<b>11 9/16</b>	<b>2 5/16</b>
	5 3/16									
	5 1/4									
<b>SAF23032K</b>	5 3/8	<b>6</b>	<b>18 3/8</b>	<b>5 1/8</b>	<b>2 3/8</b>	<b>16</b>	<b>14 5/8</b>	<b>3 1/4</b>	<b>11 9/16</b>	<b>2 1/16</b>
	5 7/16									
	5 1/2									
<b>SAF23034K</b>	5 13/16	<b>6</b>	<b>20 1/8</b>	<b>5 7/8</b>	<b>2 3/8</b>	<b>17 1/8</b>	<b>16</b>	<b>3 3/8</b>	<b>11 3/4</b>	<b>1 3/4</b>
	5 7/8									
	5 15/16									
<b>SAF23036K</b>	6 5/16	<b>6 11/16</b>	<b>22</b>	<b>6 1/4</b>	<b>2 5/8</b>	<b>19 1/4</b>	<b>17 3/8</b>	<b>3 3/4</b>	<b>13 5/16</b>	<b>2 3/16</b>
	6 3/8									
	6 7/16									
<b>SAF23038K</b>	6 13/16	<b>6 11/16</b>	<b>22</b>	<b>6 1/4</b>	<b>2 5/8</b>	<b>19 1/4</b>	<b>17 3/8</b>	<b>3 3/4</b>	<b>13 5/16</b>	<b>1 15/16</b>
	6 7/8									
	6 15/16									
<b>SAF23040K</b>	7 1/8	<b>7 1/16</b>	<b>24 3/4</b>	<b>6 3/4</b>	<b>2 3/4</b>	<b>21 5/8</b>	<b>19 3/8</b>	<b>4 1/4</b>	<b>14 9/16</b>	<b>2 13/16</b>
	7 3/16									
	7 1/4									
<b>SAF23044K</b>	7 13/16	<b>7 7/8</b>	<b>28</b>	<b>7 1/2</b>	<b>3 1/8</b>	<b>24 3/8</b>	<b>21 5/8</b>	<b>4 1/2</b>	<b>15 11/16</b>	<b>2 3/8</b>
	7 7/8									
	7 15/16									
	8									

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify shaft size.

<sup>(2)</sup>See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup>Includes sleeve, locknut and lockwasher. Add shaft size to order.

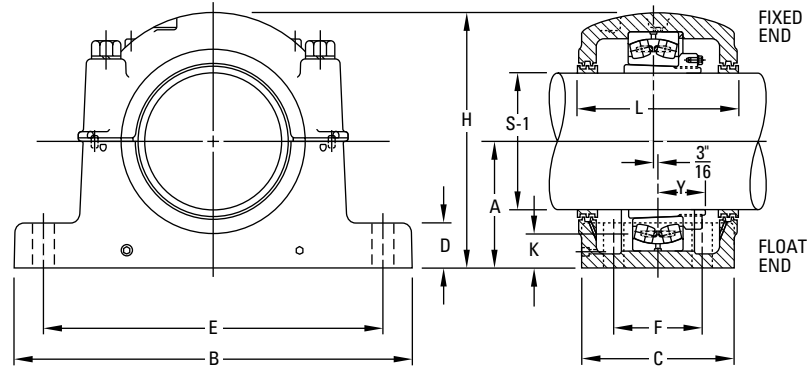
<sup>(4)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

<sup>(5)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

# TIMKEN® SAF SPLIT-BLOCK HOUSED UNITS

INCH TAPERED BORE MOUNTING • SAF230K, SDAF230K SERIES



L	Y	Base Bolts 4 Req'd	Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.
in.	in.	in.						lbs.
6	1 55/64	3/4	23024K	SNW-3024 x 4 1/16 SNW-3024 x 4 1/8 <b>SNW-3024 x 4 3/16</b> SNW-3024 x 4 1/4	SAF024K	SR-20-17	LER 111 LER 112 <b>LER 113</b> LER 114	60
6 3/8	2 1/32	3/4	23026K	SNW-3026 x 4 5/16 SNW-3026 x 4 3/8 <b>SNW-3026 x 4 7/16</b> SNW-3026 x 4 1/2	SAF026K	SR-22-19	LER 115 LER 116 <b>LER 117</b> LER 118	76
7 3/8	2 1/8	3/4	23028K	SNW-3028 x 4 13/16 SNW-3028 x 4 7/8 <b>SNW-3028 x 4 15/16</b> SNW-3028 x 5	SAF028K	SR- 0-20	LER 120 LER 121 <b>LER 122</b> LER 123	90
8	2 13/64	7/8	23030K	SNW-3030 x 5 1/8 <b>SNW-3030 x 5 3/16</b> SNW-3030 x 5 1/4	SAF030K	SR- 0-21	LER 124 <b>LER 125</b> LER 126	125
8	2 11/32	7/8	23032K	SNW-3032 x 5 3/8 <b>SNW-3032 x 5 7/16</b> SNW-3032 x 5 1/2	SAF032K	SR- 0-22	LER 129 <b>LER 130</b> LER 131	132
7 3/4	2 33/64	1	23034K	SNW-3034 x 5 13/16 SNW-3034 x 5 7/8 <b>SNW-3034 x 5 15/16</b> SNW-3034 x 6	SAF034K	SR- 0-24	LER 138 LER 139 <b>LER 140</b> LER 141	154
8 3/4	2 11/16	1	23036K	SNW-3036 x 6 5/16 SNW-3036 x 6 3/8 <b>SNW-3036 x 6 7/16</b> SNW-3036 x 6 1/2	SAF036K	SR- 0-26	LER 146 LER 147 <b>LER 148</b> LER 149	212
8 3/4	2 47/64	1	23038K	SNW-3038 x 6 13/16 SNW-3038 x 6 7/8 <b>SNW-3038 x 6 15/16</b> SNW-3038 x 7	SAF038K	SR-32- 0	LER 153 LER 154 <b>LER 155</b> LER 156	220
9 3/8	2 15/16	1	23040K	SNW-3040 x 7 1/8 <b>SNW-3040 x 7 3/16</b> SNW-3040 x 7 1/4	SAF040K	SR-34- 0	LER 158 <b>LER 159</b> LER 160	295
10 3/4	3 5/32	1 1/4	23044K	SNW-3044 x 7 13/16 SNW-3044 x 7 7/8 <b>SNW-3044 x 7 15/16</b> SNW-3044 x 8	SAF044K	SR-38-32	LER 165 LER 166 <b>LER 167</b> LER 168	370

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

Continued on next page.

**INCH TAPERED BORE MOUNTING SAF230K, SDAF230K SERIES – continued**

- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- If only the pillow block is desired, use the numbers listed in the Housing Only column. These units include cap and base, cap bolts, triple-ring seals and stabilizing ring.
- Assembly and pillow blocks described on this page constitute fixed units.
- To order float units, specify the part number plus the suffix float or FL.
- All assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SAFS 23024).
- Please note that for applications SAF23048 and larger, the shaft size must be included in the part description when ordering (e.g., SAF23048-8<sup>15/16</sup>).
- Two stabilizing rings are supplied with housings SAF048 through SAF056 and SDAF060K through SDAF076K. For fixed applications both rings must be used. Do not use stabilizing rings for float mounting.

Continued from previous page.

Pillow Block Assembly <sup>(1)</sup>	Shaft Dia. S-1 <sup>(2)</sup>	A	B	C	D	E		F	H	K
						Max.	Min.			
	in.	in.	in.	in.	in.	in.	in.	in.	in.	Oil Level
SAF23048K-8 <sup>7/16</sup>	8 <sup>7/16</sup>	8 <sup>1/4</sup>	29 <sup>1/2</sup>	8	3 <sup>3/8</sup>	25	22 <sup>1/2</sup>	5	17 <sup>3/16</sup>	2 <sup>1/4</sup>
SAF23048K-8 <sup>1/2</sup>	8 <sup>1/2</sup>	8 <sup>1/4</sup>	29 <sup>1/2</sup>	8	3 <sup>3/8</sup>	25	22 <sup>1/2</sup>	5	17 <sup>3/16</sup>	2 <sup>1/4</sup>
SAF23048K-8 <sup>15/16</sup>	8 <sup>15/16</sup>	8 <sup>1/4</sup>	29 <sup>1/2</sup>	8	3 <sup>3/8</sup>	25	22 <sup>1/2</sup>	5	17 <sup>3/16</sup>	2 <sup>1/4</sup>
SAF23048K-9	9	8 <sup>1/4</sup>	29 <sup>1/2</sup>	8	3 <sup>3/8</sup>	25	22 <sup>1/2</sup>	5	17 <sup>3/16</sup>	2 <sup>1/4</sup>
SAF23052K-9 <sup>7/16</sup>	9 <sup>7/16</sup>	9 <sup>1/2</sup>	32 <sup>3/4</sup>	8 <sup>3/4</sup>	3 <sup>3/4</sup>	27 <sup>7/8</sup>	24 <sup>3/4</sup>	5 <sup>1/4</sup>	19 <sup>7/16</sup>	2 <sup>15/16</sup>
SAF23052K-9 <sup>1/2</sup>	9 <sup>1/2</sup>	9 <sup>1/2</sup>	32 <sup>3/4</sup>	8 <sup>3/4</sup>	3 <sup>3/4</sup>	27 <sup>7/8</sup>	24 <sup>3/4</sup>	5 <sup>1/4</sup>	19 <sup>7/16</sup>	2 <sup>15/16</sup>
SAF23056K-9 <sup>15/16</sup>	9 <sup>15/16</sup>	9 <sup>7/8</sup>	34 <sup>1/4</sup>	9	4	29 <sup>1/2</sup>	26 <sup>1/4</sup>	5 <sup>1/2</sup>	20 <sup>3/16</sup>	2 <sup>15/16</sup>
SAF23056K-10	10	9 <sup>7/8</sup>	34 <sup>1/4</sup>	9	4	29 <sup>1/2</sup>	26 <sup>1/4</sup>	5 <sup>1/2</sup>	20 <sup>3/16</sup>	2 <sup>15/16</sup>
SAF23056K-10 <sup>7/16</sup>	10 <sup>7/16</sup>	9 <sup>7/8</sup>	34 <sup>1/4</sup>	9	4	29 <sup>1/2</sup>	26 <sup>1/4</sup>	5 <sup>1/2</sup>	20 <sup>3/16</sup>	2 <sup>15/16</sup>
SAF23056K-10 <sup>1/2</sup>	10 <sup>1/2</sup>	9 <sup>7/8</sup>	34 <sup>1/4</sup>	9	4	29 <sup>1/2</sup>	26 <sup>1/4</sup>	5 <sup>1/2</sup>	20 <sup>3/16</sup>	2 <sup>15/16</sup>
<b>SERIES SDAF230K</b>										
SDAF23060K-10 <sup>15/16</sup>	10 <sup>15/16</sup>	12	38 <sup>1/4</sup>	14 <sup>3/4</sup>	3 <sup>1/2</sup>	33 <sup>1/2</sup>	32 <sup>3/4</sup>	9	23 <sup>7/16</sup>	4 <sup>7/16</sup>
SDAF23060K-11	11	12	38 <sup>1/4</sup>	14 <sup>3/4</sup>	3 <sup>1/2</sup>	33 <sup>1/2</sup>	32 <sup>3/4</sup>	9	23 <sup>7/16</sup>	4 <sup>7/16</sup>
SDAF23064K-11 <sup>7/16</sup>	11 <sup>7/16</sup>	12	38 <sup>1/4</sup>	14 <sup>3/4</sup>	3 <sup>1/2</sup>	33 <sup>1/2</sup>	32 <sup>3/4</sup>	9	23 <sup>7/16</sup>	4 <sup>1/16</sup>
SDAF23064K-11 <sup>1/2</sup>	11 <sup>1/2</sup>	12	38 <sup>1/4</sup>	14 <sup>3/4</sup>	3 <sup>1/2</sup>	33 <sup>1/2</sup>	32 <sup>3/4</sup>	9	23 <sup>7/16</sup>	4 <sup>1/16</sup>
SDAF23064K-11 <sup>15/16</sup>	11 <sup>15/16</sup>	12	38 <sup>1/4</sup>	14 <sup>3/4</sup>	3 <sup>1/2</sup>	33 <sup>1/2</sup>	32 <sup>3/4</sup>	9	23 <sup>7/16</sup>	4 <sup>1/16</sup>
SDAF23064K-12	12	12	38 <sup>1/4</sup>	14 <sup>3/4</sup>	3 <sup>1/2</sup>	33 <sup>1/2</sup>	32 <sup>3/4</sup>	9	23 <sup>7/16</sup>	4 <sup>1/16</sup>
SDAF23068K-12 <sup>7/16</sup>	12 <sup>7/16</sup>	12	39	15 <sup>1/4</sup>	4 <sup>3/16</sup>	33 <sup>1/2</sup>	32	10	24	3 <sup>7/16</sup>
SDAF23068K-12 <sup>1/2</sup>	12 <sup>1/2</sup>	12	39	15 <sup>1/4</sup>	4 <sup>3/16</sup>	33 <sup>1/2</sup>	32	10	24	3 <sup>7/16</sup>
SDAF23072K-12 <sup>15/16</sup>	12 <sup>15/16</sup>	12 <sup>13/16</sup>	41 <sup>3/4</sup>	15 <sup>3/4</sup>	4 <sup>1/2</sup>	36 <sup>1/2</sup>	35	10 <sup>1/2</sup>	26	3 <sup>7/8</sup>
SDAF23072K-13	13	12 <sup>13/16</sup>	41 <sup>3/4</sup>	15 <sup>3/4</sup>	4 <sup>1/2</sup>	36 <sup>1/2</sup>	35	10 <sup>1/2</sup>	26	3 <sup>7/8</sup>
SDAF23072K-13 <sup>7/16</sup>	13 <sup>7/16</sup>	12 <sup>13/16</sup>	41 <sup>3/4</sup>	15 <sup>3/4</sup>	4 <sup>1/2</sup>	36 <sup>1/2</sup>	35	10 <sup>1/2</sup>	26	3 <sup>7/8</sup>
SDAF23072K-13 <sup>1/2</sup>	13 <sup>1/2</sup>	12 <sup>13/16</sup>	41 <sup>3/4</sup>	15 <sup>3/4</sup>	4 <sup>1/2</sup>	36 <sup>1/2</sup>	35	10 <sup>1/2</sup>	26	3 <sup>7/8</sup>
SDAF23076K-13 <sup>15/16</sup>	13 <sup>15/16</sup>	12 <sup>13/16</sup>	41 <sup>3/4</sup>	15 <sup>3/4</sup>	4 <sup>1/2</sup>	36 <sup>1/2</sup>	35	10 <sup>1/2</sup>	26	3 <sup>7/16</sup>
SDAF23076K-14	14	12 <sup>13/16</sup>	41 <sup>3/4</sup>	15 <sup>3/4</sup>	4 <sup>1/2</sup>	36 <sup>1/2</sup>	35	10 <sup>1/2</sup>	26	3 <sup>7/16</sup>
SDAF23080K-15	15	14 <sup>1/2</sup>	46	17 <sup>1/8</sup>	5 <sup>1/4</sup>	40 <sup>3/4</sup>	39 <sup>1/4</sup>	11	29	4 <sup>7/16</sup>
SDAF23084K-15 <sup>3/4</sup>	15 <sup>3/4</sup>	14 <sup>1/2</sup>	46	17 <sup>1/8</sup>	5 <sup>1/4</sup>	40 <sup>3/4</sup>	39 <sup>1/4</sup>	11	29	4 <sup>1/16</sup>
SDAF23088K-16 <sup>1/2</sup>	16 <sup>1/2</sup>	15 <sup>1/2</sup>	48 <sup>3/4</sup>	18 <sup>3/4</sup>	5 <sup>1/2</sup>	43 <sup>1/2</sup>	41 <sup>3/4</sup>	12 <sup>1/4</sup>	30 <sup>1/2</sup>	4 <sup>1/2</sup>
SDAF23092K-17	17	15 <sup>1/2</sup>	48 <sup>3/4</sup>	18 <sup>3/4</sup>	5 <sup>1/2</sup>	43 <sup>1/2</sup>	41 <sup>3/4</sup>	12 <sup>1/4</sup>	30 <sup>1/2</sup>	4
SDAF23096K-18	18	17	53	21	5 <sup>1/2</sup>	46 <sup>1/8</sup>	44 <sup>3/8</sup>	14 <sup>1/2</sup>	33 <sup>3/4</sup>	5 <sup>1/8</sup>
SDAF230/530K-18 <sup>1/2</sup>	18 <sup>1/2</sup>	17	53	21	5 <sup>1/2</sup>	46 <sup>1/8</sup>	44 <sup>3/8</sup>	14 <sup>1/2</sup>	33 <sup>3/4</sup>	4 <sup>3/4</sup>
SDAF230/530K-19 <sup>1/2</sup>	19 <sup>1/2</sup>	18	54 <sup>1/4</sup>	21 <sup>5/8</sup>	5 <sup>3/4</sup>	48 <sup>7/8</sup>	47 <sup>1/8</sup>	15	35 <sup>3/4</sup>	4 <sup>13/16</sup>

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

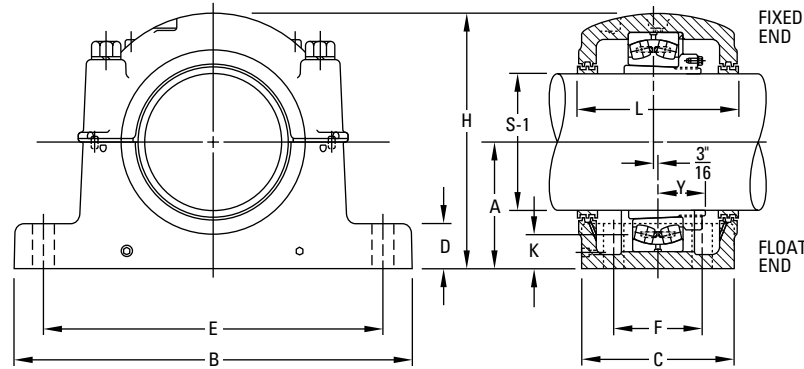
<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

# TIMKEN® SAF SPLIT-BLOCK HOUSED UNITS

INCH TAPERED BORE MOUNTING • SAF230K, SDAF230K SERIES



L	Y	Base Bolts 4 Req'd	Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.
in.	in.	in.						lbs.
11 1/8	3 1/32	1 1/4	23048K	SNP-3048 x 8 7/16	SAF048K-8 7/16	A8897	LER 526	430
11 1/8	3 1/32	1 1/4	23048K	SNP-3048 x 8 1/2	SAF048K-8 1/2	A8897	LER 527	428
11 1/8	3 1/32	1 1/4	23048K	SNP-3048 x 8 15/16	SAF048K-8 15/16	A8897	LER 529	422
11 1/8	3 1/32	1 1/4	23048K	SNP-3048 x 9	SAF048K-9	A8897	LER 530	420
11 7/8	3 5/64	1 1/2	23052K	SNP-3052 x 9 7/16	SAF052K-9 7/16	A8898	LER 178-1	587
11 7/8	3 5/64	1 1/2	23052K	SNP-3052 x 9 1/2	SAF052K-9 1/2	A8898	LER 178	585
12 1/16	3 9/64	1 1/2	23056K	SNP-3056 x 10	SAF056K-9 15/16	A8819	ER 751	640
12 1/16	3 9/64	1 1/2	23056K	SNP-3056 x 10 7/16	SAF056K-10	A8819	ER705	635
12 1/16	3 9/64	1 1/2	23056K	SNP-3056 x 10 1/2	SAF056K-10 7/16	A8819	ER 745	625
12 1/16	3 9/64	1 1/2	23056K	SNP-3056 x 9 15/16	SAF056K-10 1/2	A8819	ER 710	620
15 1/2	4 3/32	1 5/8	23060K	SNP-3060 x 10 15/16	SDAF060K-10 15/16	A8967	ER 858	1175
15 1/2	4 3/32	1 5/8	23060K	SNP-3060 x 11	SDAF060K-11	A8967	ER 825	1174
15 1/2	4 7/16	1 5/8	23064K	SNP-3064 x 11 7/16	SDAF064K-11 7/16	A8968	ER 861	1275
15 1/2	4 7/16	1 5/8	23064K	SNP-3064 x 11 1/2	SDAF064K-11 1/2	A8968	ER 832	1274
15 1/2	4 7/16	1 5/8	23064K	SNP-3064 x 11 15/16	SDAF064K-11 15/16	A8968	ER 859	1269
15 1/2	4 7/16	1 5/8	23064K	SNP-3064 x 12	SDAF064K-12	A8968	ER 818	1268
15 3/4	4 13/16	1 7/8	23068K	SNP-3068 x 12 7/16	SDAF068K-12 7/16	A8969	ER 865	1553
15 3/4	4 13/16	1 7/8	23068K	SNP-3068 x 12 1/2	SDAF068K-12 1/2	A8969	ER 866	1552
16 1/4	4 53/64	1 7/8	23072K	SNP-3072 x 12 15/16	SDAF072K-12 15/16	A8970	ER 869	1632
16 1/4	4 53/64	1 7/8	23072K	SNP-3072 x 13	SDAF072K-13	A8970	ER 846	1630
16 1/4	4 53/64	1 7/8	23072K	SNP-3072 x 13 7/16	SDAF072K-13 7/16	A8970	ER 872	1614
16 1/4	4 53/64	1 7/8	23072K	SNP-3072 x 13 1/2	SDAF072K-13 1/2	A8970	ER 823	1610
16 1/4	5 1/16	1 7/8	23076K	SNP-3076 x 13 15/16	SDAF076K-13 15/16	A8971	ER 875	1687
16 1/4	5 1/16	1 7/8	23076K	SNP-3076 x 14	SDAF076K-14	A8971	ER 876	1685
17 5/8	5 17/32	4, 2	23080K	SNP-3080 x 15	SDAF080K-15	A8974	ER 847	2300
17 5/8	5 3/16	4, 2	23087K	SNP-3084 x 15 3/4	SDAF084K-15 3/4	A8978	ER 885	2300
19 1/4	5 3/4	4, 2 1/4	230994K	SNP-3088 x 16 1/2	SDAF3088K-16 1/2	A8979	ER 958	2550
19 1/4	5 7/8	4, 2 1/4	23082K	SNP-3092 x 17	SDAF3092K-17	A8980	ER 838	2850
21 3/4	5 29/32	4, 2 1/4	23096K	SNP-3096 x 18	SDAF3096K-18	A8984	ER 888	4250
21 3/4	6 1/2	4, 2 1/4	230/500K	SNP-30-500 x 18 1/2	SDAF30-500K-18 1/2	A8976	ER 978	4350
22 1/4	6 7/32	4, 2 1/2	230/530/K	SNP-30-530 x 19 1/2	SDAF 30-530K-19 1/2		ER 926	5200

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

## INCH TAPERED BORE MOUNTING SDAF231K AND SDAF232K SERIES

- Each assembly includes the housing cap and base, cap bolts, bearing, bearing adapter, locknut and lockwasher, stabilizing ring and triple-ring seals.
- To order pillow block housing only, use the numbers listed in the Housing Only column. These units include cap and base, cap bolts, triple-ring seals and stabilizing ring.
- Assembly and pillow blocks described on this page constitute fixed units.
- To order float units, specify part number plus suffix float or FL.
- All assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SDAFS 23152K).

Pillow Block Assembly	Shaft Dia. S-1 <sup>(1)</sup>	A	B	C	D	E		F	H
						Max.	Min.		
	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>SERIES SDAF231K</b>									
SDAF23152K	9 <sup>7</sup> / <sub>16</sub> 9 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>4</sub>	35	13 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	30 <sup>1</sup> / <sub>2</sub>	29	8 <sup>3</sup> / <sub>4</sub>	20 <sup>7</sup> / <sub>8</sub>
SDAF23156K	9 <sup>15</sup> / <sub>16</sub> 10 10 <sup>7</sup> / <sub>16</sub> 10 <sup>1</sup> / <sub>2</sub>	12	38 <sup>1</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	33 <sup>1</sup> / <sub>2</sub>	32 <sup>3</sup> / <sub>4</sub>	9	23 <sup>7</sup> / <sub>16</sub>
SDAF23160K	10 <sup>15</sup> / <sub>16</sub> 11	12	38 <sup>1</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	33 <sup>1</sup> / <sub>2</sub>	32 <sup>3</sup> / <sub>4</sub>	9	23 <sup>7</sup> / <sub>16</sub>
SDAF23164K	11 <sup>15</sup> / <sub>16</sub>	12 <sup>13</sup> / <sub>16</sub>	41 <sup>3</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>2</sub>	36 <sup>1</sup> / <sub>2</sub>	35	10 <sup>1</sup> / <sub>2</sub>	25 <sup>3</sup> / <sub>4</sub>
SDAF23168K	12 <sup>7</sup> / <sub>16</sub>	14	43 <sup>3</sup> / <sub>4</sub>	17 <sup>3</sup> / <sub>4</sub>	5	38 <sup>1</sup> / <sub>4</sub>	36 <sup>3</sup> / <sub>4</sub>	10 <sup>3</sup> / <sub>4</sub>	27 <sup>7</sup> / <sub>8</sub>
SDAF23172K	13 <sup>7</sup> / <sub>16</sub> 13 <sup>1</sup> / <sub>2</sub>	14 <sup>1</sup> / <sub>2</sub>	46	17 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>4</sub>	40 <sup>3</sup> / <sub>4</sub>	39 <sup>1</sup> / <sub>4</sub>	11	28 <sup>7</sup> / <sub>8</sub>
SDAF23176K	13 <sup>15</sup> / <sub>16</sub> 14 14 <sup>15</sup> / <sub>16</sub>	14 <sup>1</sup> / <sub>2</sub>	46	17 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>4</sub>	40 <sup>3</sup> / <sub>4</sub>	39 <sup>1</sup> / <sub>4</sub>	11	28 <sup>7</sup> / <sub>8</sub>
SDAF23180K	15	15 <sup>1</sup> / <sub>2</sub>	48 <sup>3</sup> / <sub>4</sub>	18 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	43 <sup>1</sup> / <sub>2</sub>	41 <sup>3</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>4</sub>	30 <sup>1</sup> / <sub>2</sub>
SDAF23184K	15 <sup>3</sup> / <sub>4</sub>	17	52	21	5 <sup>1</sup> / <sub>2</sub>	46 <sup>1</sup> / <sub>8</sub>	44 <sup>3</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	33 <sup>3</sup> / <sub>4</sub>
SDAF23188K	16 <sup>1</sup> / <sub>2</sub>	17	52	21	5 <sup>1</sup> / <sub>2</sub>	46 <sup>1</sup> / <sub>8</sub>	44 <sup>3</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	33 <sup>3</sup> / <sub>4</sub>
SDAF23192K	17	18	54 <sup>1</sup> / <sub>4</sub>	21 <sup>5</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>4</sub>	48 <sup>7</sup> / <sub>8</sub>	47 <sup>1</sup> / <sub>8</sub>	15	35 <sup>3</sup> / <sub>4</sub>
SDAF23196K	18	18	54 <sup>1</sup> / <sub>4</sub>	21 <sup>5</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>4</sub>	48 <sup>7</sup> / <sub>8</sub>	47 <sup>1</sup> / <sub>8</sub>	15	35 <sup>3</sup> / <sub>4</sub>
<b>SERIES SDAF232K</b>									
SDAF23248K	8 <sup>15</sup> / <sub>16</sub> 9	10 <sup>1</sup> / <sub>4</sub>	35	13 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	30 <sup>1</sup> / <sub>2</sub>	29	8 <sup>3</sup> / <sub>4</sub>	20 <sup>7</sup> / <sub>8</sub>
SDAF23252K	9 <sup>7</sup> / <sub>16</sub> 9 <sup>1</sup> / <sub>2</sub>	12	38 <sup>1</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	33 <sup>1</sup> / <sub>2</sub>	32 <sup>3</sup> / <sub>4</sub>	9	23 <sup>7</sup> / <sub>16</sub>
SDAF23256K	10 <sup>7</sup> / <sub>16</sub> 10 <sup>1</sup> / <sub>2</sub>	12	38 <sup>1</sup> / <sub>4</sub>	14 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	33 <sup>1</sup> / <sub>2</sub>	32 <sup>3</sup> / <sub>4</sub>	9	23 <sup>7</sup> / <sub>16</sub>
SDAF23260K	10 <sup>15</sup> / <sub>16</sub> 11	12 <sup>13</sup> / <sub>16</sub>	41 <sup>3</sup> / <sub>4</sub>	15 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>2</sub>	36 <sup>1</sup> / <sub>2</sub>	35	10 <sup>1</sup> / <sub>2</sub>	25 <sup>3</sup> / <sub>4</sub>
SDAF23264K	11 <sup>15</sup> / <sub>16</sub>	14	43 <sup>3</sup> / <sub>4</sub>	17 <sup>3</sup> / <sub>4</sub>	5	38 <sup>1</sup> / <sub>4</sub>	36 <sup>3</sup> / <sub>4</sub>	10 <sup>3</sup> / <sub>4</sub>	27 <sup>7</sup> / <sub>8</sub>
SDAF23268K	12 <sup>7</sup> / <sub>16</sub>	14 <sup>1</sup> / <sub>2</sub>	46	17 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>4</sub>	40 <sup>3</sup> / <sub>4</sub>	39 <sup>1</sup> / <sub>4</sub>	11	28 <sup>7</sup> / <sub>8</sub>
SDAF23272K	13 <sup>7</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>2</sub>	48 <sup>3</sup> / <sub>4</sub>	18 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	43 <sup>1</sup> / <sub>2</sub>	41 <sup>3</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>4</sub>	30 <sup>1</sup> / <sub>2</sub>
SDAF23276K	13 <sup>15</sup> / <sub>16</sub>	15 <sup>1</sup> / <sub>2</sub>	48 <sup>3</sup> / <sub>4</sub>	18 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	43 <sup>1</sup> / <sub>2</sub>	41 <sup>3</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>4</sub>	30 <sup>1</sup> / <sub>2</sub>
SDAF23280K	14 <sup>15</sup> / <sub>16</sub>	17	52	21	5 <sup>1</sup> / <sub>2</sub>	46 <sup>1</sup> / <sub>8</sub>	44 <sup>3</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>2</sub>	33 <sup>3</sup> / <sub>4</sub>
SDAF23284K	15 <sup>3</sup> / <sub>4</sub>	18	54 <sup>1</sup> / <sub>4</sub>	21 <sup>5</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>4</sub>	48 <sup>7</sup> / <sub>8</sub>	47 <sup>1</sup> / <sub>8</sub>	15	35 <sup>3</sup> / <sub>4</sub>
SDAF23288K	16 <sup>1</sup> / <sub>2</sub>	18	54 <sup>1</sup> / <sub>4</sub>	21 <sup>5</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>4</sub>	48 <sup>7</sup> / <sub>8</sub>	47 <sup>1</sup> / <sub>8</sub>	15	35 <sup>3</sup> / <sub>4</sub>

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify shaft size.

<sup>(2)</sup>See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

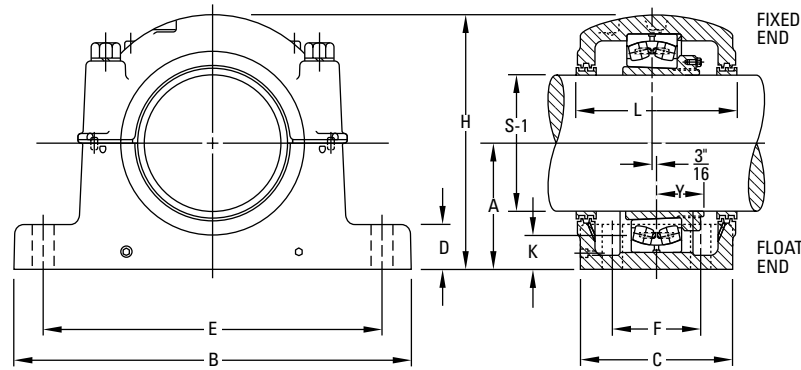
<sup>(3)</sup>Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

<sup>(5)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.





K Oil Level	L	Base Bolts 4 Req'd	Bearing No.	Adapter Assembly No. <sup>(3)</sup>	Housing Only <sup>(4)</sup>	Stabilizing Ring 1 Req'd <sup>(5)</sup>	Triple Seal 2 Req'd	Assembly Wt.
in.	in.	in.						lbs.
<b>3 3/8</b>	<b>13 3/4</b>	<b>1 5/8</b>	<b>23152K</b>	<b>SNP-3152 x 9 7/16</b> SNP-3152 x 9 1/2	<b>SDAF3152K</b>	<b>A5679</b>	<b>ER 891</b> ER 842	<b>1050</b>
<b>4 3/4</b>	<b>15 3/8</b>	<b>1 5/8</b>	<b>23156K</b>	SNP-3156 x 10 SNP-3156 x 10 7/16 <b>SNP-3156 x 10 1/2</b> SNP-3156 x 9 15/16	<b>SDAF3156K</b>	<b>A8967</b>	ER 845 ER 820 <b>ER 973</b> ER 840	<b>1300</b>
<b>4 1/8</b>	<b>15 3/8</b>	<b>1 5/8</b>	<b>23160K</b>	<b>SNP-3160 x 10 15/16</b> SNP-3160 x 11	<b>SDAF3160K</b>	<b>A8975</b>	<b>ER 858</b> ER 825	<b>1350</b>
<b>4 3/8</b>	<b>16 1/4</b>	<b>1 7/8</b>	<b>23164K</b>	<b>SNP-3164 x 11 15/16</b>	<b>SDAF3164K</b>	<b>A8970</b>	<b>ER 900</b>	<b>1900</b>
<b>4 15/16</b>	<b>18 1/4</b>	<b>2</b>	<b>23168K</b>	<b>SNP-3168 x 12 7/16</b>	<b>SDAF3168K</b>	<b>A8977</b>	<b>ER 975</b>	<b>2550</b>
<b>5</b>	<b>17 3/4</b>	<b>2</b>	<b>23172K</b>	<b>SNP-3172 x 13 7/16</b> SNP-3172 x 13 1/2	<b>SDAF3172K</b>	<b>A8974</b>	<b>ER 872</b> ER 823	<b>2600</b>
<b>4 5/8</b>	<b>17 3/4</b>	<b>2</b>	<b>23176K</b>	<b>SNP-3176 x 13 15/16</b> SNP-3176 x 14 SNP-3180 x 14 15/16	<b>SDAF3176K</b>	<b>A8978</b>	<b>ER 875</b> ER 876 ER 976	<b>2600</b>
<b>5 1/8</b>	<b>19 1/4</b>	<b>2 1/4</b>	<b>23180K</b>	<b>SNP-3180 x 15</b>	<b>SDAF3180K</b>	<b>A8979</b>	<b>ER 847</b>	<b>3000</b>
<b>6</b>	<b>21 3/4</b>	<b>2 1/4</b>	<b>23184K</b>	<b>SNP-3184 x 15 3/4</b>	<b>SDAF3184K</b>	<b>A8984</b>	<b>ER 907</b>	<b>4400</b>
<b>5 9/16</b>	<b>21 3/4</b>	<b>2 1/4</b>	<b>23188K</b>	<b>SNP-3188 x 16 1/2</b>	<b>SDAF3188K</b>	<b>A8976</b>	<b>ER 958</b>	<b>4600</b>
<b>6</b>	<b>22 1/4</b>	<b>2 1/2</b>	<b>23192K</b>	<b>SNP-3192 x 17</b>	<b>SDAF3192K</b>	<b>A8990</b>	<b>ER 838</b>	<b>5100</b>
<b>5 1/2</b>	<b>22 1/4</b>	<b>2 1/2</b>	<b>23196K</b>	<b>SNP-3196 x 18</b>	<b>SDAF3196K</b>	<b>A8998</b>	<b>ER 888</b>	<b>5200</b>
<b>3 9/16</b>	<b>13 3/4</b>	<b>1 5/8</b>	<b>23248K</b>	<b>SNP-148 x 8 15/16</b> SNP-148 x 9	<b>SDAF3248K</b>	<b>A5679</b>	<b>ER 914</b> ER 828	<b>1100</b>
<b>4 3/4</b>	<b>15 3/8</b>	<b>1 5/8</b>	<b>23252K</b>	<b>SNP-152 x 9 7/16</b> SNP-152 x 9 1/2	<b>SDAF3252K</b>	<b>A8968</b>	<b>ER 891</b> ER 842	<b>1400</b>
<b>4 3/8</b>	<b>15 3/8</b>	<b>1 5/8</b>	<b>23256K</b>	<b>SNP-3256 x 10 7/16</b> SNP-3256 x 10 1/2	<b>SDAF3256K</b>	<b>A8975</b>	<b>ER 973</b> ER 840	<b>1400</b>
<b>4 1/2</b>	<b>16 1/4</b>	<b>1 7/8</b>	<b>23260K</b>	<b>SNP-3260 x 10 15/16</b> SNP-3260 x 11	<b>SDAF3260K</b>	<b>A8970</b>	<b>ER 974</b> ER 974-1	<b>1900</b>
<b>5 1/8</b>	<b>18 1/4</b>	<b>2</b>	<b>23264K</b>	<b>SNP-3264 x 11 15/16</b>	<b>SDAF3264K</b>	<b>A8977</b>	<b>ER 900</b>	<b>2600</b>
<b>5</b>	<b>17 3/4</b>	<b>2</b>	<b>23268K</b>	<b>SNP-3268 x 12 7/16</b>	<b>SDAF3268K</b>	<b>A8978</b>	<b>ER 975</b>	<b>2700</b>
<b>5 1/2</b>	<b>19 1/4</b>	<b>2 1/4</b>	<b>23272K</b>	<b>SNP-3272 x 13 7/16</b>	<b>SDAF3272K</b>	<b>A8979</b>	<b>ER 979</b>	<b>3050</b>
<b>4 3/8</b>	<b>19 1/4</b>	<b>2 1/4</b>	<b>23276K</b>	<b>SNP-3276 x 13 15/16</b>	<b>SDAF3276K</b>	<b>A8980</b>	<b>ER 875</b>	<b>3000</b>
<b>6</b>	<b>21 3/4</b>	<b>2 1/4</b>	<b>23280K</b>	<b>SNP-3280 x 14 15/16</b>	<b>SDAF3280K</b>	<b>A8976</b>	<b>ER976</b>	<b>4650</b>
<b>6 3/8</b>	<b>22 1/4</b>	<b>2 1/2</b>	<b>23284K</b>	<b>SNP-3284 x 15 3/4</b>	<b>SDAF3284K</b>	<b>A8990</b>	<b>ER 907</b>	<b>4900</b>
<b>5 7/8</b>	<b>22 1/4</b>	<b>2 1/2</b>	<b>23288K</b>	<b>SNP-3288 x 16 1/2</b>	<b>SDAF3288K</b>	<b>A8988</b>	<b>ER 907</b>	<b>5200</b>

<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard pillow block assemblies, specify shaft size.

<sup>(2)</sup> See page D-76, table D-20 for suggested shaft diameter S-1 tolerances.

<sup>(3)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(4)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing ring as required. When ordering non-standard housing only specify the shaft size.

<sup>(5)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

**INCH STRAIGHT BORE MOUNTING SAF222 AND SAF223 SERIES**

- Each assembly includes the housing cap and base, cap bolts, bearing, locknut and lockwasher, stabilizing ring and triple-ring seals.
- To order pillow block housing only, use the numbers listed in Housing Only column. These units include cap and base, cap bolts, triple-ring seals and stabilizing ring.
- Assembly and pillow blocks described on this page constitute fixed units.
- To order float units, specify part number plus suffix float or FL.
- All assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SAFS 22217).
- Four-bolt bases are standard on all assemblies, unless noted.

Pillow Block Assembly	Shaft Dia. <sup>(1)</sup>		A	B	C	D	E		F	H	K	L	Y	Base Bolts Required		
	S-2	S-3					Max.	Min.						Oil Level	No.	Size
	in.	in.														
<b>SERIES SAF222</b>																
SAF22217	3 15/16	3 3/16	3 3/4	13	3 1/2	1 1/4	11	9 7/8	—	7 1/4	1 7/16	4 15/16	1 27/64	2	3/4	
FSAF22217	3 15/16	3 3/16	3 3/4	13	3 1/2	1 1/4	11	9 7/8	2 1/8	7 1/4	1 7/16	4 15/16	1 27/64	4	5/8	
SAF22218	4 1/8	3 3/8	4	13 3/4	3 7/8	1 1/2	11 5/8	10 3/8	—	7 3/4	1 17/32	6 1/4	1 37/64	2	3/4	
FSAF22218	4 1/8	3 3/8	4	13 3/4	3 7/8	1 1/2	11 5/8	10 3/8	2 1/8	7 3/4	1 17/32	6 1/4	1 37/64	4	5/8	
SAF22220	4 1/2	3 13/16	4 1/2	15 1/4	4 3/8	1 3/4	13 1/8	11 5/8	—	8 11/16	1 3/4	6	1 49/64	2	7/8	
FSAF22220	4 1/2	3 13/16	4 1/2	15 1/4	4 3/8	1 3/4	13 1/8	11 5/8	2 3/8	8 11/16	1 3/4	6	1 49/64	4	3/4	
SAF22222	4 7/8	4 3/16	4 15/16	16 1/2	4 3/4	2	14 1/2	12 5/8	2 3/4	9 9/16	1 7/8	6 3/8	1 61/64	4	3/4	
SAF22224	5 5/16	4 9/16	5 1/4	16 1/2	4 3/4	2 1/8	14 1/2	13 1/4	2 3/4	10 1/4	1 15/16	7 3/8	2 3/32	4	3/4	
SAF22226	5 7/8	4 15/16	6	18 3/8	5 1/8	2 3/8	16	14 3/8	3 1/4	11 1/16	2 7/16	8	2 17/64	4	7/8	
SAF22228	6 1/4	5 5/16	6	20 1/8	5 7/8	2 3/8	17 1/8	16	3 3/8	11 3/4	2 1/8	7 3/4	2 13/32	4	1	
SAF22230	6 5/8	5 3/4	6 5/16	21 1/4	6 1/4	2 1/2	18 1/4	17	3 3/4	12 1/2	2 3/16	8 3/8	2 37/64	4	1	
SAF22232	7	6 1/16	6 11/16	22	6 1/4	2 5/8	19 1/4	17 3/8	3 3/4	13 5/16	2 3/16	8 3/4	2 49/64	4	1	
SAF22234	7 7/16	6 7/16	7 1/16	24 3/4	6 3/4	2 3/4	21 5/8	19 3/8	4 1/4	14 9/16	2 5/16	9 3/8	2 59/64	4	1	
SAF22236	7 13/16	6 7/8	7 1/2	26 3/4	7 1/8	3	23 5/8	20 7/8	4 5/8	15 1/2	2 9/16	9 11/16	2 61/64	4	1	
SAF22238	8 3/8	7 1/4	7 7/8	28	7 1/2	3 1/8	24 3/8	21 5/8	4 1/2	15 11/16	2 5/8	10 3/4	3 7/64	4	1 1/4	
SAF22240	8 3/4	7 5/8	8 1/4	29 1/2	8	3 3/8	25	22 1/2	5	17 3/16	2 11/16	10 13/16	3 3/32	4	1 1/4	
SAF22244	9 9/16	8 5/16	9 1/2	32 3/4	8 3/4	3 3/4	27 7/8	24 3/4	5 1/4	19 5/8	3 3/8	11 1/2	3 17/32	4	1 1/2	
<b>SERIES SAF223</b>																
SAF22317	3 15/16	3 3/16	4 1/2	15 1/4	4 3/8	1 3/4	13 1/8	11 5/8	—	8 11/16	1 13/16	6	1 57/64	2	7/8	
FSAF22317	3 15/16	3 3/16	4 1/2	15 1/4	4 3/8	1 3/4	13 1/8	11 5/8	2 3/8	8 11/16	1 13/16	6	1 57/64	4	3/4	
SAF22318	4 1/8	3 3/8	4 3/4	15 1/2	4 3/8	2	13 1/2	12	2 1/4	9 3/16	2	7	2 3/64	4	3/4	
SAF22320	4 1/2	3 13/16	5 1/4	16 1/2	4 3/4	2 1/8	14 1/2	13 1/4	2 3/4	10 1/4	2 1/8	7 3/8	2 19/64	4	3/4	
SAF22322	4 7/8	4 3/16	6	18 3/8	5 1/8	2 3/8	16	14 5/8	3 1/4	11 9/16	2 1/2	8	2 31/64	4	7/8	
SAF22324	5 5/16	4 9/16	6 5/16	21 1/4	6 1/4	2 1/2	18 1/4	17	3 3/4	12 1/2	2 9/16	8 3/8	2 41/64	4	1	
SAF22326	5 7/8	4 15/16	6 11/16	22	6 1/4	2 5/8	19 1/4	17 3/8	3 3/4	13 15/16	2 5/8	8 3/4	2 27/32	4	1	
SAF22328	6 1/4	5 5/16	7 1/16	24 3/4	6 3/4	2 3/4	21 5/8	19 3/8	4 1/4	14 9/16	2 11/16	9 3/8	3 5/64	4	1	
SAF22330	6 5/8	5 3/4	7 1/2	26 3/4	7 1/8	3	23 5/8	20 7/8	4 5/8	15 1/2	2 7/8	9 11/16	3 17/64	4	1	
SAF22332	7	6 1/16	7 7/8	28	7 1/2	3 1/8	24 3/8	21 5/8	4 1/2	15 11/16	2 15/16	10 3/4	3 7/16	4	1 1/4	
SAF22334	7 7/16	6 7/16	8 1/4	29 1/2	8	3 3/8	25	22 1/2	5	17 3/16	3 1/16	10 13/16	3 19/32	4	1 1/4	
SAF22336	7 13/16	6 7/8	8 3/8	31 1/4	8 1/4	3 1/2	26 5/8	24	5 1/4	18 1/2	3 3/8	11 1/4	3 47/64	4	1 1/4	
SAF22338	8 3/8	7 1/4	9 1/2	32 3/4	8 3/4	3 3/4	27 7/8	24 3/4	5 1/4	19 5/8	3 11/16	11 1/2	3 57/64	4	1 1/2	
SAF22340	8 3/4	7 5/8	9 7/8	34 1/4	9	4	29 1/2	26 1/4	5 1/2	20 3/16	3 3/4	12 1/4	4 5/64	4	1 1/2	

<sup>(1)</sup>See page D-76, table D-20 for suggested shaft diameter S-2, S-3 tolerances.

<sup>(2)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing rings as required.

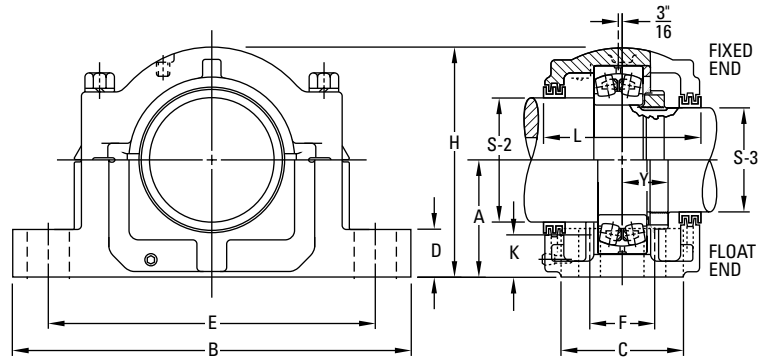
<sup>(3)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

<sup>(4)</sup>Triple-ring seals for other shaft diameters are available upon special order.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

# TIMKEN® SAF SPLIT-BLOCK HOUSED UNITS

## INCH STRAIGHT BORE MOUNTING • SAF222 AND SAF232 SERIES



Bearing No.	Locknut	Lockwasher	Housing Only <sup>(2)</sup>	Stabilizing Ring 1 Req'd <sup>(3)</sup>	Triple Seal 1 Req'd <sup>(4)</sup>		Assembly Wt.
					S-2	S-3	
							lbs.
22217	AN17	W17	SAF217	SR-17-14	LER89	LER63	43
22217	AN17	W17	FSAF217	SR-17-14	LER89	LER63	43
22218	AN18	W18	SAF218	SR-18-15	LER96	LER72	50
22218	AN18	W18	FSAF218	SR-18-15	LER96	LER72	50
22220	AN20	W20	SAF220	SR-20-17	LER118	LER106	71
22220	AN20	W20	FSAF220	SR-20-17	LER118	LER106	71
22222	AN22	W22	SAF222	SR-22-19	LER121	LER113	81
22224	AN24	W24	SAF224	SR-24-20	LER127	LER119	90
22226	AN26	W26	SAF226	SR-26-0	LER136	LER122	127
22228	AN28	W28	SAF228	SR-28-0	LER144	LER127	149
22230	AN30	W30	SAF230	SR-30-0	LER151	LER134	175
22232	AN32	W32	SAF232	SR-32-0	LER156	LER142	210
22234	AN34	W34	SAF234	SR-34-0	LER161	LER148	280
22236	AN36	W36	SAF236	SR-36-30	LER165	LER154	305
22238	AN38	W38	SAF238	SR-38-32	LER171	LER160	350
22240	AN40	W40	SAF240	SR-40-34	LER175	LER164	420
22244	N44	W44	SAF244	SR-44-38	LER179	LER170	590
22317	AN17	W17	SAF317	SR-20-17	LER109	LER188	80
22317	AN17	W17	FSAF317	SR-20-17	LER109	LER188	80
22318	AN18	W18	SAF318	SR-21-18	LER112	LER191	92
22320	AN20	W20	SAF320	SR-24-20	LER118	LER106	109
22322	AN22	W22	SAF322	SR-0-22	LER121	LER113	145
22324	AN24	W24	SAF324	SR-0-24	LER127	LER119	195
22326	AN26	W26	SAF326	SR-0-26	LER136	LER122	235
22328	AN28	W28	SAF328	SR-0-28	LER144	LER127	300
22330	AN30	W30	SAF330	SR-36-30	LER151	LER134	335
22332	AN32	W32	SAF332	SR-38-32	LER156	LER142	405
22334	AN34	W34	SAF334	SR-40-34	LER161	LER148	465
22336	AN36	W36	SAF336	SR-0-36	LER165	LER154	525
22338	AN38	W38	SAF338	SR-44-38	LER171	LER160	635
22340	AN40	W40	SAF340	SR-0-40	LER175	LER164	700

<sup>(1)</sup>See page D-76, table D-20 for suggested shaft diameter S-2, S-3 tolerances.

<sup>(2)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing rings as required.

<sup>(3)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

<sup>(4)</sup>Triple-ring seals for other shaft diameters are available upon special order.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

**INCH STRAIGHT BORE MOUNTING SDAF222 AND SDAF223 SERIES**

- Each assembly includes the housing cap and base, cap bolts, bearing, locknut and washer, stabilizing ring, and triple-ring seals.
- To order pillow block housing only, use the numbers listed in the Housing Only column. These units include cap and base, cap bolts, triple-ring seals and stabilizing ring.
- Assembly and pillow blocks described on this page constitute fixed units.
- To order float units, specify part number plus suffix float or FL.
- All assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SDAS 22220).

Pillow Block Assembly	Shaft Dia. <sup>(1)</sup>		A	B	C	D	E		F	H	K	L	Y	Base Bolts Required	
	S-2	S-3					Max.	Min.						No.	Size
	in.	in.													
<b>SERIES SDAF222</b>															
SDAF22220	4 1/2	3 13/16	4 1/2	15 1/4	6	1 7/8	13 1/8	11 5/8	3 3/8	8 15/16	1 3/4	6 3/4	1 49/64	4	3/4
SDAF22222	4 7/8	4 3/16	4 15/16	16 1/2	6 3/4	2 1/8	14 1/2	12 5/8	4	9 7/8	1 7/8	7 1/4	1 61/64	4	7/8
SDAF22224	5 5/16	4 9/16	5 1/4	16 1/2	6 7/8	2 1/4	14 1/2	13 1/4	4 1/8	10 1/2	1 15/16	7 3/8	2 3/32	4	7/8
SDAF22226	5 7/8	4 15/16	6	18 3/8	7 1/2	2 3/8	16	14 3/8	4 1/2	11 7/8	2 7/16	8	2 17/64	4	1
SDAF22228	6 1/4	5 5/16	6	20 1/8	7 1/2	2 3/8	17 1/8	16	4 1/2	12 1/16	2 1/8	7 13/16	2 13/32	4	1
SDAF22230	6 5/8	5 3/4	6 5/16	21 1/4	7 7/8	2 1/2	18 1/4	17	4 3/4	12 13/16	2 3/16	8 3/8	2 37/64	4	1 1/8
SDAF22232	7	6 1/16	6 11/16	22	8 1/4	2 1/2	19 1/4	17 3/8	5	13 11/16	2 3/16	8 3/4	2 49/64	4	1 1/8
SDAF22234	7 7/16	6 7/16	7 1/16	24 3/4	9	2 1/2	21 5/8	19 3/8	5 1/2	14 1/4	2 5/16	9 3/8	2 59/64	4	1 1/4
SDAF22236	7 13/16	6 7/8	7 1/2	26 3/4	9 3/8	2 3/4	23 3/8	20 7/8	5 7/8	15 3/16	2 9/16	10	2 61/64	4	1 1/4
SDAF22238	8 3/8	7 1/4	7 7/8	27 5/8	10	3	23 1/2	21 1/2	6 1/4	16 1/4	2 5/8	10 5/8	3 7/64	4	1 3/8
SDAF22240	8 3/4	7 5/8	8 1/4	28 3/4	10 1/2	3 1/4	25	23	6 3/4	17 7/8	2 11/16	11 1/8	3 3/32	4	1 3/8
SDAF22244	9 9/16	8 5/16	9 1/2	32	11 1/4	3 1/2	27 7/8	25 5/8	7 1/4	19 1/4	3 3/8	11 7/8	3 17/32	4	1 1/2
<b>SERIES SDAF223</b>															
SDAF22317	3 15/16	3 3/16	4 1/2	15 1/4	6	1 7/8	13 1/8	11 5/8	3 3/8	8 15/16	1 3/16	6 3/4	1 57/64	4	3/4
SDAF22318	4 1/8	3 3/8	4 3/4	15 1/2	6 1/8	2	13 1/2	12	3 5/8	9 7/16	2	6 7/8	2 3/64	4	3/4
SDAF22320	4 1/2	3 13/16	5 1/4	16 1/2	6 7/8	2 1/4	14 1/2	13 1/4	4 1/8	10 1/2	2 1/8	7 3/8	2 19/64	4	7/8
SDAF22322	4 7/8	4 3/16	6	18 3/8	7 1/2	2 3/8	16	14 3/8	4 1/2	11 7/8	2 1/2	8	2 31/64	4	1
SDAF22324	5 5/16	4 9/16	6 5/16	21 1/4	7 7/8	2 1/2	18 1/4	17	4 3/4	12 13/16	2 9/16	8 3/8	2 41/64	4	1 1/8
SDAF22326	5 7/8	4 15/16	6 11/16	22	8 1/4	2 1/2	19 1/4	17 3/8	5	13 11/16	2 5/8	8 3/4	2 27/64	4	1 1/8
SDAF22328	6 1/4	5 5/16	7 1/16	24 3/4	9	2 1/2	21 5/8	19 3/8	5 1/2	14 1/4	2 11/16	9 5/8	3 5/64	4	1 1/4
SDAF22330	6 5/8	5 3/4	7 1/2	26 3/4	9 3/8	2 3/4	23 3/8	20 7/8	5 7/8	15 3/16	2 7/8	9 3/4	3 17/64	4	1 1/4
SDAF22332	7	6 1/16	7 7/8	27 5/8	10	3	23 1/2	21 1/2	6 1/4	16 1/4	2 15/16	10 5/8	3 7/16	4	1 3/8
SDAF22334	7 7/16	6 7/16	8 1/4	28 3/4	10 1/2	3 1/4	25	23	6 3/4	17 7/8	3 1/16	11 1/8	3 19/32	4	1 3/8
SDAF22336	7 13/16	6 7/8	8 3/8	30 1/2	10 3/4	3 1/4	26 3/8	24 1/8	6 7/8	17 15/16	3 3/8	11 3/8	3 47/64	4	1 1/2
SDAF22338	8 3/8	7 1/4	9 1/2	32	11 1/4	3 1/2	27 7/8	25 5/8	7 1/4	19 1/4	3 11/16	11 13/16	3 57/64	4	1 1/2
SDAF22340	8 3/4	7 5/8	9 5/8	33 1/2	11 3/4	3 1/2	29 1/4	26 5/8	7 5/8	19 15/16	3 3/4	12 1/4	4 5/64	4	1 5/8

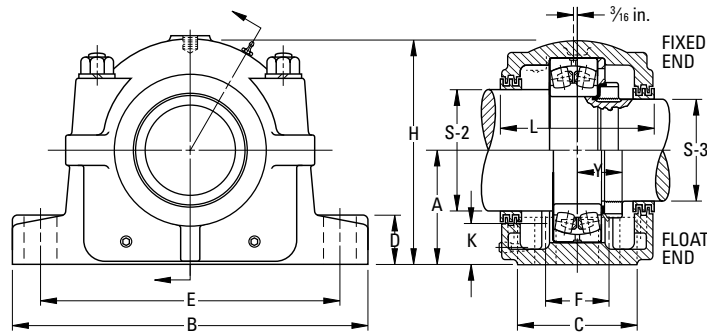
<sup>(1)</sup>See page D-76, table D-20 for suggested shaft diameter S-2, S-3 tolerances.

<sup>(2)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing rings as required.

<sup>(3)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

<sup>(4)</sup>Triple-ring seals for other shaft diameters are available upon special order.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.



Bearing No.	Locknut	Lockwasher	Housing Only <sup>(2)</sup>	Stabilizing Ring 1 Req'd <sup>(3)</sup>	Triple Seal 1 Req'd <sup>(4)</sup>		Assembly Wt. lbs.
					S-2	S-3	
22220	AN20	W20	SDAF220	SR-20-17	LER118	LER106	81
22222	AN22	W22	SDAF222	SR-22-19	LER121	LER113	109
22224	AN24	W24	SDAF224	SR-24-20	LER127	LER119	113
22226	AN26	W26	SDAF226	SR-26-0	LER136	LER122	151
22228	AN28	W28	SDAF228	SR-28-0	LER144	LER127	175
22230	AN30	W30	SDAF230	SR-30-0	LER151	LER134	201
22232	AN32	W32	SDAF232	SR-32-0	LER156	LER142	245
22234	AN34	W34	SDAF234	SR-34-0	LER161	LER148	300
22236	AN36	W36	SDAF236	SR-36-30	LER165	LER154	335
22238	AN38	W38	SDAF238	SR-38-32	LER240	LER229	405
22240	AN40	W40	SDAF240	SR-40-34	LER244	LER233	465
22244	N44	W44	SDAF240	SR-44-38	LER248	LER239	650
22317	AN17	W17	SDAF317	SR-20-17	LER109	LER188	80
22318	AN18	W18	SDAF318	SR-21-18	LER112	LER191	92
22320	AN20	W20	SDAF320	SR-24-20	LER118	LER106	109
22322	AN22	W22	SDAF322	SR-0-22	LER121	LER113	145
22324	AN24	W24	SDAF324	SR-0-24	LER127	LER119	195
22326	AN26	W26	SDAF326	SR-0-26	LER136	LER122	280
22328	AN28	W28	SDAF328	SR-0-28	LER144	LER127	305
22330	AN30	W30	SDAF330	SR-36-30	LER151	LER134	375
22332	AN32	W32	SDAF332	SR-38-32	LER225	LER217	445
22334	AN34	W34	SDAF334	SR-40-34	LER230	LER220	525
22336	AN36	W36	SDAF336	SR-0-36	LER234	LER223	635
22338	AN38	W38	SDAF338	SR-44-38	LER240	LER229	700
22340	AN40	W40	SDAF340	SR-0-40	LER244	LER233	725

<sup>(1)</sup>See page D-76, table D-20 for suggested shaft diameter S-2, S-3 tolerances.  
<sup>(2)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing rings as required.  
<sup>(3)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.  
<sup>(4)</sup>Triple-ring seals for other shaft diameters are available upon special order.  
 NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

**INCH STRAIGHT BORE MOUNTING SDAF231 AND SDAF232 SERIES**

- Each assembly includes the housing cap and base, cap bolts, bearing, locknut and washer, stabilizing ring and triple-ring seals.
- To order pillow block housing only, use the numbers listed in the Housing Only column. These units include cap and base, cap bolts, triple-ring seals and stabilizing ring.
- Assembly and pillow blocks described on this page constitute fixed units.
- To order float units, specify part number plus suffix float or FL.
- All assemblies shown are furnished in cast iron. If cast steel is desired, add the letter S to the alpha prefix (e.g., SDAFS 23152).
- For fixed applications, both stabilizing rings must be used. Do not use stabilizing rings for float mounting.

Pillow Block Assembly	Shaft Dia. <sup>(1)</sup>		A	B	C	D	E		F	H	K	L
	S-2	S-3					Max.	Min.				
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	Oil Level	in.
<b>SERIES SDAF231</b>												
SDAF23152	11 ½	9 15/16	10 ¼	35	13 1/8	3 ¾	30 ½	29	8 ¾	20 7/8	3 ¾	14 ¼
SDAF23156	12 ½	10 ¾	12	38 ¼	14 ¾	3 ¾	33 ½	32 ¾	9	23 7/16	4 ¾	15 7/8
SDAF23160	13	11 ½	12	38 ¼	14 ¾	3 ¾	33 ½	32 ¾	9	23 7/16	4 1/8	15 7/8
SDAF23164	14	12 ¼	12 13/16	41 ¾	15 ¾	4 ½	36 ½	35	10 ½	25 ¾	4 ¾	16 ¾
SDAF23168	15	13	14	43 ¾	17 ¾	5	38 ¼	36 ¾	10 ¾	27 7/8	4 15/16	18 ¾
SDAF23172	16	13 ¾	14 ½	46	17 1/8	5 ¼	40 ¾	39 ¼	11	28 7/8	5	18
SDAF23176	17	14 ½	14 ½	46	17 1/8	5 ¼	40 ¾	39 ¼	11	28 7/8	4 ¾	18
SDAF23180	17 ½	15 ¼	15 ½	48 ¾	18 ¾	5 ½	43 ½	41 ¾	12 ¼	30 ½	5 1/8	19 ¾
SDAF23184	18 ½	15 ¾	17	52	21	5 ½	46 1/8	44 ¾	14 ½	33 ¾	6	22 ¼
SDAF23188	19 ½	17	17	52	21	5 ½	46 1/8	44 ¾	14 ½	33 ¾	5 5/16	22 ¼
SDAF23192	20	17 ¾	18	54 ¼	21 5/8	5 ¾	48 7/8	47 1/8	15	35 ¾	6	22 ¾
<b>SERIES SDAF232</b>												
SDAF23248	10 ½	9 3/16	10 ¼	35	13 1/8	3 ¾	30 ½	29	8 ¾	20 7/8	3 3/16	14 ¼
SDAF23252	11 ½	9 15/16	12	38 ¼	14 ¾	3 ¾	33 ½	32 ¾	9	23 7/16	4 ¾	15 7/8
SDAF23256	12 ½	10 ¾	12	38 ¼	14 ¾	3 ¾	33 ½	32 ¾	9	23 7/16	4 ¾	15 7/8
SDAF23260	13	11 ½	12 13/16	41 ¾	15 ¾	4 ½	36 ½	35	10 ½	25 ¾	4 ½	16 ¾
SDAF23264	14	12 ¼	14	43 ¾	17 ¾	5	38 ¼	36 ¾	10 ¾	27 7/8	5 1/8	18 ¾
SDAF23268	15	13	14 ½	46	17 1/8	5 ¼	40 ¾	39 ¼	11	28 7/8	5	18
SDAF23272	16	13 ¾	15 ½	48 ¾	18 ¾	5 ½	43 ½	41 ¾	12 ¼	30 ½	5 1/2	19 ¾
SDAF23276	17	14 ½	15 ½	48 ¾	18 ¾	5 ½	43 ½	41 ¾	12 ¼	30 ½	4 ¾	19 ¾
SDAF23280	17 ½	15 ¼	17	52	21	5 ½	46 1/8	44 ¾	14 ½	33 ¾	6	22 ¼
SDAF23284	18 ½	15 ¾	18	54 ¼	21 5/8	5 ¾	48 7/8	47 1/8	15	35 ¾	6 ¾	22 ¾
SDAF23288	19 ½	17	18	54 ¼	21 5/8	5 ¾	48 7/8	47 1/8	15	35 ¾	5 7/8	22 ¾

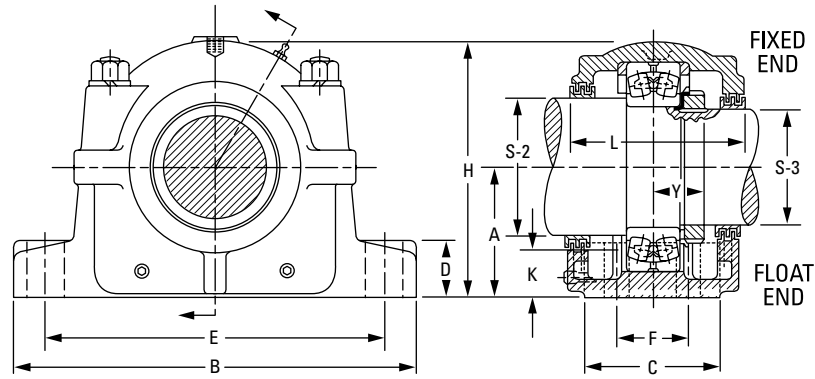
<sup>(1)</sup>See page D-76, table D-20 for suggested shaft diameter S-2, S-3 tolerances.

<sup>(2)</sup>Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing rings as required.

<sup>(3)</sup>Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.

<sup>(4)</sup>Triple-ring seals for other shaft diameters are available upon special order.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.



4 Base Bolts Req'd	Bearing No.	Locknut	Lockwasher	Housing Only <sup>(2)</sup>	Stabilizing Ring 1 Req'd <sup>(3)</sup>	Triple Seal 1 Req'd <sup>(4)</sup>		Assembly Wt.
						S-2	S-3	
in.								lbs.
1 5/8	23152	N052	P52	SDAF3152	A5679	ER832	ER845	1050
1 5/8	23156	N056	P56	SDAF3156	A8967	ER866	ER826	1250
1 5/8	23160	N060	P60	SDAF3160	A8975	ER824	ER832	1350
1 7/8	23164	N064	P64	SDAF3164	A8970	ER876	ER983	1850
2	23168	N068	P68	SDAF3168	A8977	ER847	ER846	2450
2	23172	N072	P72	SDAF3172	A8974	ER809	ER874	2500
2	23176	N076	P76	SDAF3176	A8978	ER811	ER950	2500
2 1/4	23180	N080	P80	SDAF3180	A8979	ER967	ER895	2800
2 1/4	23184	N084	P84	SDAF3184	A8984	ER978	ER907	4300
2 1/4	23188	N088	P88	SDAF3188	A8976	ER926	ER838	4300
2 1/2	23192	N092	P92	SDAF3192	A8990	ER808	ER906	5000
1 5/8	23248	N048	P48	SDAF3248	A5679	ER840	ER923	1100
1 5/8	23252	N052	P52	SDAF3252	A8968	ER832	ER845	1350
1 5/8	23256	N056	P56	SDAF3256	A8975	ER866	ER826	1400
1 7/8	23260	N060	P60	SDAF3260	A8970	ER846	ER856	1900
2	23264	N064	P64	SDAF3264	A8977	ER876	ER983	2500
2	23268	N068	P68	SDAF3268	A8978	ER847	ER846	2650
2 1/4	23272	N072	P72	SDAF3272	A8979	ER965	ER981	2950
2 1/4	23276	N076	P76	SDAF3276	A8980	ER838	ER984	3050
2 1/4	23280	N080	P80	SDAF3280	A8976	ER967	ER895	4500
2 1/2	23284	N084	P84	SDAF3284	A8990	ER978	ER907	5000
2 1/2	23288	N088	P88	SDAF3288	A8988	ER926	ER838	5050

<sup>(1)</sup> See page D-76, table D-20 for suggested shaft diameter S-2, S-3 tolerances.  
<sup>(2)</sup> Housing Only includes cap, base, cap bolts, triple-ring seals and stabilizing rings as required.  
<sup>(3)</sup> Stabilizing ring used for fixed (FX) block; do not use for float (FL) mounting.  
<sup>(4)</sup> Triple-ring seals for other shaft diameters are available upon special order.

NOTE: Speed ratings are found in the dimension tables on pages D-37 through D-43.

**INCH SHAFT DIAMETERS**

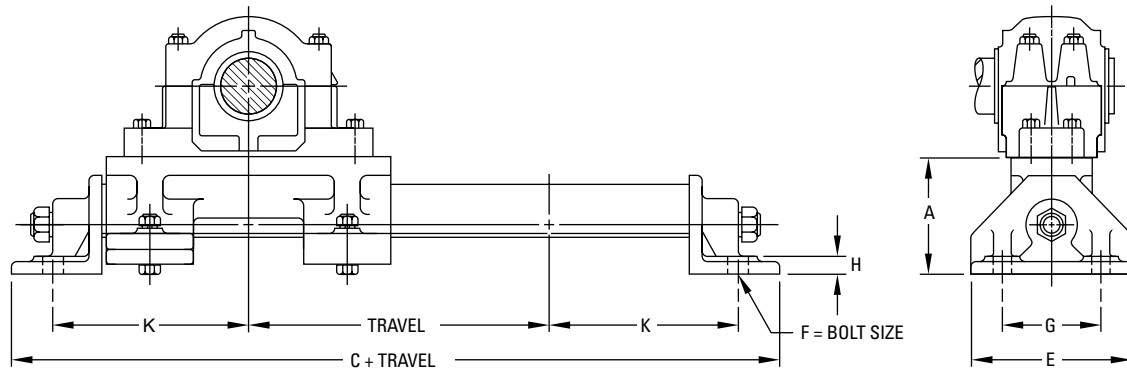
**TABLE D-20. SUGGESTED S-1, S-2, S-3 INCH SHAFT DIAMETERS**

Diameter	Max.	Min.	Diameter	Max.	Min.
1 1/16	1.4375	1.4345	7 1/4	7.2500	7.2450
1 11/16	1.6875	1.6845	7 7/16	7.4375	7.4325
1 1/8	1.8750	1.8720	7 5/8	7.6250	7.6200
1 15/16	1.9375	1.9345	7 13/16	7.8125	7.8075
2 1/16	2.0625	2.0585	7 15/16	7.9375	7.9325
2 1/8	2.1250	2.1210	8 1/16	8.3125	8.3065
2 3/16	2.1875	2.1835	8 3/8	8.3750	8.3690
2 1/4	2.2500	2.2460	8 7/16	8.4375	8.4315
2 3/8	2.3750	2.3710	8 1/2	8.5000	8.4940
2 7/16	2.4375	2.4335	8 3/4	8.7500	8.7440
2 9/16	2.5625	2.5585	8 15/16	8.9375	8.9315
2 5/8	2.6250	2.6210	9	9.0000	8.9940
2 11/16	2.6875	2.6835	9 1/16	9.4375	9.4315
2 13/16	2.8125	2.8085	9 1/2	9.5000	9.4940
2 7/8	2.8750	2.8710	9 9/16	9.5625	9.5565
2 15/16	2.9375	2.9335	9 15/16	9.9375	9.9315
3	3.0000	2.9960	10	10.0000	9.9940
3 1/16	3.0625	3.0585	10 7/16	10.4375	10.4305
3 3/16	3.1875	3.1835	10 1/2	10.5000	10.4930
3 1/4	3.2500	3.2460	10 15/16	10.9375	10.9305
3 5/8	3.3750	3.3710	11	11.0000	10.9930
3 7/16	3.4375	3.4335	11 1/16	11.4375	11.4305
3 5/8	3.6250	3.6210	11 1/2	11.5000	11.4930
3 15/16	3.9375	3.9335	11 15/16	11.9375	11.9305
4 1/8	4.1250	4.1200	12	12.0000	11.9930
4 3/16	4.1875	4.1825	12 7/16	12.4375	12.4295
4 7/16	4.4375	4.4325	12 1/2	12.5000	12.4920
4 1/2	4.5000	4.4950	12 15/16	12.9375	12.9295
4 9/16	4.5625	4.5575	13	13.0000	12.9920
4 7/8	4.8750	4.8700	13 7/16	13.4375	13.4295
4 15/16	4.9375	4.9325	13 1/2	13.5000	13.4920
5 3/16	5.1875	5.1825	13 15/16	13.9375	13.9295
5 1/8	5.3125	5.3075	14	14.0000	13.9920
5 1/16	5.4375	5.4325	15	15.0000	14.9920
5 3/4	5.7500	5.7450	16	16.0000	15.9920
5 7/8	5.8750	5.8700	17	17.0000	16.9920
5 15/16	5.9375	5.9325	17 1/2	17.5000	17.4920
6 1/16	6.0625	6.0575	18 1/2	18.5000	18.4920
6 1/4	6.2500	6.2450	19 1/2	19.5000	19.4920
6 7/16	6.4375	6.4325	20	20.0000	19.9920
6 5/8	6.6250	6.6200			
6 7/8	6.8750	6.8700			
6 15/16	6.9375	6.9325			
7	7.0000	6.9950			
7 1/16	7.1875	7.1825			



## INCH TU TAKE-UP UNITS

- The same care taken in the selection of stationary pillow blocks also must be applied to selecting the proper take-up unit.
- Load requirements should be carefully evaluated before specifying a particular Timken take-up assembly.
- The pedestal is made of stress-relieved cast iron. End bases are made of ductile iron. The guide rail and screw are steel.
- Units are available with travel lengths from 12 to 36 in., in 6-in. increments.
- Catalog numbers shown here are for the TU take-up unit only; pillow block assemblies must be ordered separately.
- Both two- and four-bolt pedestals are available and must be specified.



TU Take-Up Unit Catalog No. <sup>(1)</sup>	Pillow Block Housing No. (SAF or SDAF)			A	C	E	Bolt Size F	G	H	K
				in.	in.	in.	in.	in.	in.	in.
TU-3x	515L	—	—	4 $\frac{7}{8}$	20	6 $\frac{1}{2}$	$\frac{5}{8}$	4	$\frac{3}{4}$	8 $\frac{1}{4}$
TU-4x	516L	—	517L	5	21 $\frac{3}{4}$	6 $\frac{1}{2}$	$\frac{3}{4}$	4	$\frac{3}{4}$	9 $\frac{1}{8}$
TU-5x	518L	—	615L	5 $\frac{1}{4}$	23	7 $\frac{1}{2}$	$\frac{3}{4}$	5	$\frac{3}{4}$	9 $\frac{3}{4}$
TU-6x	520L	—	617L	5 $\frac{1}{2}$	24 $\frac{3}{4}$	7 $\frac{1}{2}$	$\frac{3}{4}$	5	$\frac{7}{8}$	10 $\frac{3}{4}$
TU-7x	522L	524L	620L	6	26	9	$\frac{3}{4}$	6 $\frac{1}{2}$	1	11 $\frac{1}{2}$
TU-8x	526L	—	622L	6	28	9	$\frac{3}{4}$	6 $\frac{1}{2}$	1	12 $\frac{1}{2}$
TU-8-1x	528L	—	—	6	29 $\frac{1}{2}$	9	$\frac{3}{4}$	6 $\frac{1}{2}$	1	13 $\frac{1}{4}$

<sup>(1)</sup>Enter 12, 18, 24, 30 or 36 to indicate travel in inches.

**INCH TTU TAKE-UP UNITS**

- The same care taken in the selection of stationary pillow blocks also must be applied to selecting the proper take-up unit.
- Load requirements should be carefully evaluated before specifying a particular take-up assembly.
- The frame assembly and adjusting screw of TTU units are made of steel.
- The bearing housing is cast iron. Steel or ductile iron housings are additional options.
- Units include housing for adapter-mounted bearings only, for either fixed or float position (be sure to specify).
- One stabilizing ring is included for fixed-position assemblies.
- Sealing is triple-ring labyrinth or end closures.
- For extremely contaminated environments, the DUSTAC seal is suggested. See page D-80 for more information.

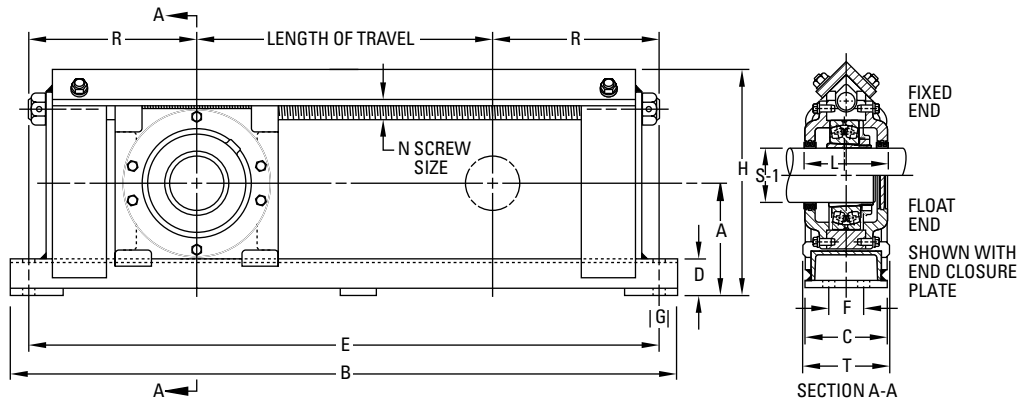
Take-Up Unit and Frame No. (Travel in Bold)	Shaft Dia. S-1 <sup>(1)</sup>	Bolt Size											
		A	B	C	D	E	F	G	H	L	N	R	T
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
TTU-55-12	1 15/16	4 5/8	28 1/2	3 1/2	1 3/4	26 1/2	—	5/8	9	4	3/4	7 1/4	4
TTU-55-18		4 5/8	34 1/2	3 1/2	1 3/4	32 1/2	—	5/8	9	4	3/4	7 1/4	4
TTU-55-24		4 5/8	40 1/2	3 1/2	1 3/4	38 1/2	—	5/8	9	4	3/4	7 1/4	4
TTU-65-12	2 3/16	5	29 1/2	3 1/2	1 3/4	27 1/2	—	5/8	10	4 1/2	3/4	7 3/4	4
TTU-65-18		5	35 1/2	3 1/2	1 3/4	33 1/2	—	5/8	10	4 1/2	3/4	7 3/4	4
TTU-65-24		5	41 1/2	3 1/2	1 3/4	39 1/2	—	5/8	10	4 1/2	3/4	7 3/4	4
TTU-75-6	2 7/16	5 3/16	24 1/2	3 1/2	1 3/4	22 1/2	—	3/4	10 1/2	4 1/2	7/8	8 1/4	4
TTU-75-12		5 3/16	30 1/2	3 1/2	1 3/4	28 1/2	—	3/4	10 1/2	4 1/2	7/8	8 1/4	4
TTU-75-18		5 3/16	36 1/2	3 1/2	1 3/4	34 1/2	—	3/4	10 1/2	4 1/2	7/8	8 1/4	4
TTU-75-24		5 3/16	42 1/2	3 1/2	1 3/4	40 1/2	—	3/4	10 1/2	4 1/2	7/8	8 1/4	4
TTU-75-30		5 3/16	48 1/2	3 1/2	1 3/4	46 1/2	—	3/4	10 1/2	4 1/2	7/8	8 1/4	4
TTU-85-6	2 15/16	6	26 1/2	4 5/8	2	24 1/2	2	5/8	12 1/4	4 3/4	1	9 1/4	5
TTU-85-12		6	32 1/2	4 5/8	2	30 1/2	2	5/8	12 1/4	4 3/4	1	9 1/4	5
TTU-85-18		6	38 1/2	4 5/8	2	36 1/2	2	5/8	12 1/4	4 3/4	1	9 1/4	5
TTU-85-24		6	44 1/2	4 5/8	2	42 1/2	2	5/8	12 1/4	4 3/4	1	9 1/4	5
TTU-85-30		6	50 1/2	4 5/8	2	48 1/2	2	5/8	12 1/4	4 3/4	1	9 1/4	5
TTU-100-12	3 7/16	6 5/8	34 1/4	4 5/8	2	32	2	3/4	13 7/8	6	1 1/8	10	5 1/2
TTU-100-18		6 5/8	40 1/4	4 5/8	2	38	2	3/4	13 7/8	6	1 1/8	10	5 1/2
TTU-100-24		6 5/8	46 1/4	4 5/8	2	44	2	3/4	13 7/8	6	1 1/8	10	5 1/2
TTU-100-30		6 5/8	52 1/4	4 5/8	2	50	2	3/4	13 7/8	6	1 1/8	10	5 1/2
TTU-110-12	3 15/16	7 3/4	38 1/2	5 5/8	2 1/4	36	2 1/2	3/4	16 1/4	6 1/2	1 1/4	12	7
TTU-110-18		7 3/4	44 1/2	5 5/8	2 1/4	42	2 1/2	3/4	16 1/4	6 1/2	1 1/4	12	7
TTU-110-24		7 3/4	50 1/2	5 5/8	2 1/4	48	2 1/2	3/4	16 1/4	6 1/2	1 1/4	12	7
TTU-110-30		7 3/4	56 1/2	5 5/8	2 1/4	54	2 1/2	3/4	16 1/4	6 1/2	1 1/4	12	7
TTU-110-36		7 3/4	62 1/2	5 5/8	2 1/4	60	2 1/2	3/4	16 1/4	6 1/2	1 1/4	12	7
TTU-130-12	4 7/16	8 5/8	45 3/4	8 3/4	2 3/4	40 3/4	5	1 1/8	18 7/8	7 1/4	2	14 3/8	10
TTU-130-18		8 5/8	51 3/4	8 3/4	2 3/4	46 3/4	5	1 1/8	18 7/8	7 1/4	2	14 3/8	10
TTU-130-24		8 5/8	57 3/4	8 3/4	2 3/4	52 3/4	5	1 1/8	18 7/8	7 1/4	2	14 3/8	10
TTU-130-30		8 5/8	63 3/4	8 3/4	2 3/4	58 3/4	5	1 1/8	18 7/8	7 1/4	2	14 3/8	10
TTU-140-12	4 15/16	9 1/2	49 1/2	9 3/4	3	44 1/2	5 1/2	1 1/4	20 3/8	7 1/2	2 1/4	16 1/4	11
TTU-140-18		9 1/2	55 1/2	9 3/4	3	50 1/2	5 1/2	1 1/4	20 3/8	7 1/2	2 1/4	16 1/4	11
TTU-140-24		9 1/2	61 1/2	9 3/4	3	56 1/2	5 1/2	1 1/4	20 3/8	7 1/2	2 1/4	16 1/4	11
TTU-140-30		9 1/2	67 1/2	9 3/4	3	62 1/2	5 1/2	1 1/4	20 3/8	7 1/2	2 1/4	16 1/4	11

<sup>(1)</sup>See page D-76, table D-20 for suggested shaft diameter S-2, S-3 tolerances.

<sup>(2)</sup>Includes sleeve, locknut and lockwasher. Add shaft size to order.

<sup>(3)</sup>Stabilizing ring is used for fixed (FX) block; do not use for float (FL) mounting.

NOTE: Speed ratings are found in dimension tables on pages D-37 through D-43.



Bearing No.	Adapter Assembly No. <sup>(2)</sup>	Stabilizing Ring 1 Req'd <sup>(3)</sup>	Triple Seal 2 Req'd	Approx. Wt.
				lbs.
22211K	SNW-11	SR-11-0	LER24	55
22211K	SNW-11	SR-11-0	LER24	60
22211K	SNW-11	SR-11-0	LER24	65
22213K	SNW-13	SR-13-0	LER29	60
22213K	SNW-13	SR-13-0	LER29	65
22213K	SNW-13	SR-13-0	LER29	70
22215K	SNW-15	SR-15-0	LER37	65
22215K	SNW-15	SR-15-0	LER37	70
22215K	SNW-15	SR-15-0	LER37	75
22215K	SNW-15	SR-15-0	LER37	80
22215K	SNW-15	SR-15-0	LER37	85
22217K	SNW-17	SR-17-14	LER53	95
22217K	SNW-17	SR-17-14	LER53	100
22217K	SNW-17	SR-17-14	LER53	105
22217K	SNW-17	SR-17-14	LER53	110
22217K	SNW-17	SR-17-14	LER53	115
22220K	SNW-20	SR-20-17	LER102	140
22220K	SNW-20	SR-20-17	LER102	145
22220K	SNW-20	SR-20-17	LER102	150
22220K	SNW-20	SR-20-17	LER102	155
22222K	SNW-22	SR-22-19	LER109	200
22222K	SNW-22	SR-22-19	LER109	210
22222K	SNW-22	SR-22-19	LER109	220
22222K	SNW-22	SR-22-19	LER109	230
22222K	SNW-22	SR-22-19	LER109	240
22226K	SNW-26	SR-26-0	LER117	360
22226K	SNW-26	SR-26-0	LER117	380
22226K	SNW-26	SR-26-0	LER117	400
22226K	SNW-26	SR-26-0	LER117	420
22228K	SNW-28	SR-28-0	LER122	460
22228K	SNW-28	SR-28-0	LER122	480
22228K	SNW-28	SR-28-0	LER122	510
22228K	SNW-28	SR-28-0	LER122	530

<sup>(1)</sup> See page D-76, table D-20 for suggested shaft diameter S-2, S-3 tolerances.  
<sup>(2)</sup> Includes sleeve, locknut and lockwasher. Add shaft size to order.  
<sup>(3)</sup> Stabilizing ring is used for fixed (FX) block; do not use for float (FL) mounting.  
 NOTE: Speed ratings are found in dimension tables on pages D-37 through D-43.

## INCH DUSTAC™ SHAFT SEAL

- Suggested for pillow blocks used in extremely contaminated environments, such as taconite mines.
- Provides protection against residual and airborne contaminants better than the triple-labyrinth shaft seal.

- Contributes significantly to extending service bearing life; reduces costs by helping prevent premature bearing damage.
- Because of its unique design, no special finish is required on the shaft. DUSTAC utilizes a V-shaped nitrile ring that rotates with the shaft and applies pressure to the cartridge face to help exclude contaminants.

TABLE D-21.

Pillow Block Housing No.		Shaft Dia. S-1	Assembly Standout B	DUSTAC™ Seal Assembly	V-Ring Seal	O-Ring	End Plug
500	600						
515	615	2 7/16	59/64	DV-37	V-60-A	2-228	EPS-4
516	616	2 11/16	59/64	DV-44	V-65-A	2-231	EPS-5
517	—	2 15/16	1	DV-53	V-75-A	2-230	EPS-6
518	—	3 3/16	1	DV-69	V-80-A	2-235	EPS-9
520	620	3 7/16	1	DV-102	V-85-A	2-234	EPS-11
522	622	3 15/16	1	DV-109	V-100-A	2-239	EPS-13
524	624	4 3/16	1 1/16	DV-113	V-110-A	2-238	EPS-14
526	626	4 7/16	1 1/16	DV-117	V-110-A	2-242	EPS-15
528	628	4 15/16	1 1/16	DV-122	V-130-A	2-244	EPS-16
530	630	5 3/16	1 1/16	DV-125	V-130-A	2-247	EPS-17
532	632	5 7/16	1 1/16	DV-130	V-140-A	2-249	EPS-18
534	634	5 15/16	1 1/16	DV-140	V-150-A	2-253	EPS-20
536	636	6 7/16	1 3/64	DV-148	V-160-A	2-259	EPS-21
538	638	6 15/16	1 3/64	DV-155	V-180-A	2-259	EPS-22
540	640	7 3/16	1 3/64	DV-159	V-180-A	2-259	EPS-23
544	—	7 15/16	1 15/32	DV-167	V-200-A	2-262	EPS-25

## ORDER INSTRUCTIONS

- Shaft seal may be ordered in place of the standard LER triple-ring seals supplied with the pillow blocks listed. They also are available to retrofit existing installations.
- To order any pillow block housings with DUSTAC shaft seal on both sides, add the suffix DV to the number (e.g., SAF2522DV).
- To order pillow block housings with DUSTAC shaft seal and one end closed, add the suffix DC to the number (e.g., SAF22522DC).
- Standard sizes of DUSTAC shaft seals are shown in the table. Other sizes are available upon request.

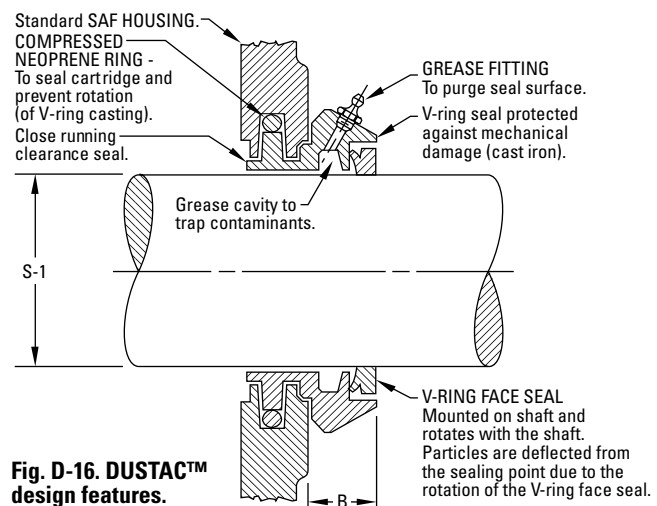
## INSTALLATION PROCEDURE

1. Check shaft diameters to print specification. Remove any burrs or sharp edges. Be sure that the shaft surface is clean and dry beyond the area of seal location.
2. Expand the V-ring seal over the shaft to the approximate inboard position (reference dimension B in the tables). *Make sure the lip of the seal faces the bearing.*
3. Slide the seal cartridge onto the shaft until the V-ring fits into its cavity.
4. Mount the bearing, sleeve, lockwasher and locknut in a normal manner and adjust for internal clearance.
5. If both ends have seals, repeat steps 2 and 3 with the V-ring going on last with its lip facing the bearing.
6. Thoroughly clean the housing base and remove any paint or burrs from the mating surfaces of the housing cap.
7. Lower shaft, bearing and seals into the housing base, taking care to guide the seals into the seal grooves.

8. On each shaft, there must be only one fixed bearing. If the bearing is to be fixed, the stabilizing ring can be inserted between the bearing outer ring and the housing shoulder on the locknut side of the bearing. All other bearings on this shaft should be centered in the housing.
9. The upper half of the housing or cap should be thoroughly cleaned and checked for burrs. Place it over the bearing and seals. The dowel pins will align the cap to the base.
10. After the cap bolts are tightened, it is most important to position the V-ring seal to its proper fitted width. This is accomplished by moving the seal until it is flush with the outside face of the cavity. This provides proper compression of the lip against the cartridge face.

### NOTE

*Housing caps and bases are not interchangeable.*



## INCH SINE BAR GAGES

- Tapered-bore, antifriction bearings are mounted either on adapter sleeves or on tapered shaft seats.
- In cases where tapered bore bearings are mounted directly on the shaft, the shaft must conform to the tapered bore of the bearing to ensure a proper fit. If a proper fit is not achieved, the results could be:
  - Turning of the bearing inner race on the shaft.
  - Uneven loading of the bearing.
  - Severe inner race hoop stress.
  - Insufficient support (back-up) of the inner race on the shaft.
- All of these conditions could lead to premature bearing wear. Therefore, the manufacture, maintenance and measurement of accurate shaft tapers is important.
- There are two accepted ways of measuring tapered shafts: ring gages and sine bar gages.
- Precision measurement of tapered shafts is difficult with ring gages and may be impossible in the case of large shafts where gages are large, cumbersome and heavy.
- Sine bar gages provide an accurate and easy method of measurement.
- Lightweight, and easy to handle and use, sine bar gages achieve precise gaging of the shaft size and taper.
- A complete set for measurement of 1:12 shaft tapers consists of 3 in., 4 in., 5½ in., 7 in., 10 in. and 14 in. sine bar

TABLE D-22.

Part No.	Size in.	For Bearings
T-3071-C	3.0000	22232K to 22240K
	3.0000	22322K to 22328K
	3.0000	23040K to 23048K
	3.0000	23130K to 23136K
	3.0000	23226K to 23230K
T-3072-C	4.0000	22248K to 22256K
	4.0000	22330K to 22340K
	4.0000	23052K to 23076K
	4.0000	23138K to 23148K
	4.0000	23232K to 23240K
T-3073-C	5.5000	22260K to 22264K
	5.5000	23080K to 230/500K
	5.5000	23152K to 23164K
	5.5000	23244K to 23256K
		239/600K to 239/710K

NOTE: All sine bars require a sine bar saddle, T-5491-C, and a web clamp, T-5489-A.

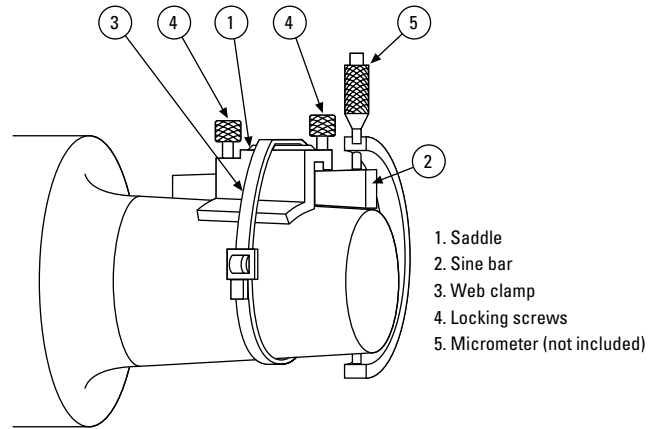


Fig. D-17. Parts of a sine gage.

gages, sine bar saddle no. T-5491-C, web clamp no. T-5489-A and a wooden box no. T-5224-C. A complete set for 1:30 shaft tapers consists of 4 in., 6 in., 8 in. and 12 in. sine bar gages.

- Sine bars can be purchased individually or in any combination of sizes to meet your individual needs. Use tables D-22 and D-23 to select appropriate sine bar part number.
- All sine bars require a sine bar saddle and web clamp. A wooden box is optional.
- For information on the use of sine bars, prices and delivery, consult your Timken engineer.

TABLE D-23.

Part No.	Size in.	For Bearings
T-3074-C	7.0000	230/530K to 230/750K
	7.0000	23168K to 23196K
	7.0000	23260K to 23276K
T-3075-C	10.0000	239/750K to 239/1120K
	10.0000	230/800K to 230/1180
	10.0000	231/500K to 231/710K
T-3076-C	14.0000	23280K to 232/530K
	14.0000	230/1250 and up
	14.0000	231/750K and up
T-5476-C	4.0000	232/560K and up
	4.0000	239/118K and up
T-5477-C	4.0000	24040K to 24056K
	6.0000	24132K to 24144K
T-5478-C	6.0000	24060K to 24084K
	8.0000	24148K to 24160K
T-5479-C	8.0000	24089K to 240/630K
	12.0000	24164K to 24192K
	12.0000	240/670K and up
	12.0000	24196K and up

NOTE: The table above represents the sine bar sizes developed for a full range of tapered bore bearings with a 1:12 and a 1:30 taper. Additional sizes are available to fit a variety of width-and-taper combinations. Consult your local Timken engineer for availability.

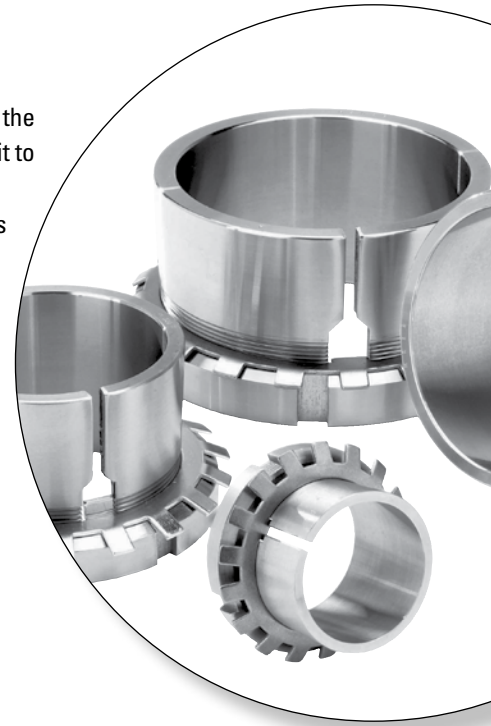


## **SAF SPHERICAL ROLLER BEARING INCH ACCESSORIES**

Spherical roller bearing accessories are manufactured to the same quality standards as our bearings, ensuring a secure fit to straight and stepped shafts.

- **Sizes:** Standard accessories for use with SAF assemblies are available in inch shaft sizes up to 1000 mm (40 in.). Accessories for metric shaft sizes also are available upon request.
- **Features:** Extensive product range, including hydraulic assist, for integration into a full range of industrial applications.
- **Benefits:** Supports full range of installation and removal needs, minimizing the chance for damage to the bearing.

Nomenclature.....	D-84
Accessories Prefixes and Suffixes.....	D-85
Inch Accessories – Pull-Type Sleeves.....	D-86
Inch Accessories – Push-Type Sleeves.....	D-96
Inch Accessories – Locknuts and Lockwashers.....	D-100
Inch Accessories – Locknuts and Lockplates.....	D-104
Inch HMVC Hydraulic Nuts.....	D-108



## **NOMENCLATURE**

Timken provides accessories for your every need. To complement our line of Timken® spherical roller bearings, we offer bearing sleeves and locking devices in a wide range of sizes. These accessories are manufactured to the same quality standards as our bearings, ensuring a secure fit to straight and stepped shafts. Available in sizes up to 1000 mm (39.3701 in.), bearing sleeves are available in two distinct designs: assembled adapter sleeves and withdrawal sleeves.

### **ADAPTER SLEEVES**

Timken adapter sleeves are used in conjunction with a nut and locking device to mount a tapered bore bearing onto a straight shaft using a pull-type fit. Smaller size assemblies (20 mm [0.78 in.] - 200 mm [12 in.] shaft) commonly use simple nuts, whereas larger assemblies (sizes >200 mm [12 in.]) may use HMV hydraulic nuts to assist in mounting. Table D-24 outlines our part number nomenclature, which is consistent with world standards for adapter sleeves.

**TABLE D-24. INCH ADAPTER SLEEVES (SNW, SNP) FOR INCH SHAFT SIZES ARE SUPPLIED WITH CORRESPONDING LOCKNUT AND LOCKING DEVICE**

Assembly	Sleeve	Locknut	Locking Device
SNW	S	N, AN	W
SNP	S	N	P

NOTE: SNW assembly consists of a sleeve, locknut and lockwasher.

NOTE: SNP assembly consists of a sleeve, locknut and lockplate.

NOTE: Metric accessories are available. Please reference the Timken Spherical Roller Bearing Catalog (order no. 10446).

### **WITHDRAWAL SLEEVES**

Withdrawal sleeves feature a push-type mounting arrangement and a locking device (i.e., locknut or lockplate) to secure a bearing to a shaft. This design is not as widely used as the adapter sleeve assembly, and it does require the use of a specially designed dismantling nut. Timken’s part number nomenclature for withdrawal sleeves also conforms to industry-accepted standards. Nuts are not supplied with the withdrawal sleeve and must be ordered separately. The dismantling of large assemblies can be eased by using a hydraulic nut (HMV).

**TABLE D-25. INCH WITHDRAWAL SLEEVE FOR INCH SHAFT SIZES**

Sleeve	Locknut	Lockwasher/Plate	Dismounting Nut
SK	N, AN	W, P	AN, ARN, RN, N



## LOCKING DEVICE

Timken offers a wide range of locknuts to locate bearing assemblies on application shafts. Sometimes referred to as shaft or withdrawal nuts, they are used to secure the assembly onto, and sometimes aid with the removal from the shaft.

## LOCKWASHERS (W)

Locking washers are designed to secure the relative movement of a properly positioned locknut, so that a bearing and adapter sleeve remain tightly fitted to a shaft or a bearing remains secure against a shaft shoulder. The tab in the bore of the washer engages a keyway in the shaft or slot in the adapter sleeve. There are tabs on the O.D. of the washer that can be bent over into slots on the circumference of the locknut. Locking washers are used with locknuts with inch dimensions in the N and AN series.

## LOCKPLATES (P)

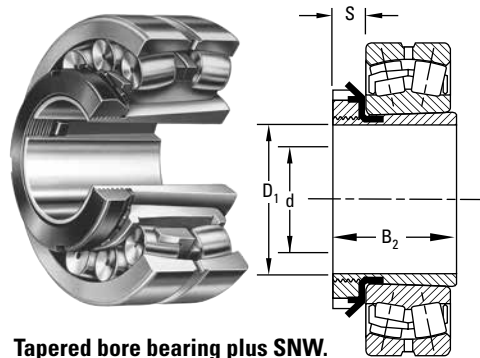
Lockplates are bolted onto the outboard face of the locknut and fit into a keyway machined in the shaft or a slot in the adapter sleeve.

- P series are mounted on inch shafts sizes with N locknuts.

To learn more about our spherical roller bearing accessories, contact your Timken engineer. Standard suffixes and prefixes are found on page D-85.

**INCH ACCESSORIES – PULL-TYPE SLEEVES**  
**SNW/SNP – PULL-TYPE SLEEVE, LOCKNUT, LOCKWASHER/LOCKPLATE ASSEMBLIES**

- The table below shows dimensions for adapter assemblies and components used in the mounting of tapered bore bearings on shafts.
- SNW assembly consists of a sleeve, locknut and lockwasher.
- SNP assembly consists of a sleeve, locknut and lockplate.



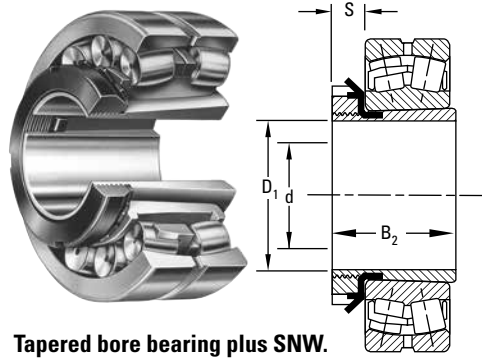
**Tapered bore bearing plus SNW.**

Bearing No. <sup>(1)</sup>	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt. lbs.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>	
					in.	in.	in.	in.	in.	
<b>SERIES 222K</b>										
<b>22207K</b>	<b>SNW-07 x 1 3/16</b>	<b>S-07</b>	<b>N-07</b>	<b>W-07</b>	<b>1 3/16</b>	<b>-0.003</b>	<b>1 29/64</b>	<b>29/64</b>	<b>2 1/16</b>	<b>0.32</b>
<b>22208K</b>	<b>SNW-08 x 1 5/16</b>	<b>S-08</b>	<b>N-08</b>	<b>W-08</b>	<b>1 5/16</b>	<b>-0.003</b>	<b>1 21/32</b>	<b>29/64</b>	<b>2 1/4</b>	<b>0.42</b>
	SNW-09 x 1 3/8	S-09 x 1 3/8			1 3/8					
<b>22209K</b>	<b>SNW-09 x 1 7/16</b>	<b>S-09</b>	<b>N-09</b>	<b>W-09</b>	<b>1 7/16</b>	<b>-0.003</b>	<b>1 37/64</b>	<b>1/2</b>	<b>2 17/32</b>	<b>0.6</b>
	SNW-09 x 1 1/2	S-09 x 1 1/2			1 1/2					
<b>22210K</b>	<b>SNW-10 x 1 5/8</b>	<b>S-10</b>	<b>N-10</b>	<b>W-10</b>	<b>1 5/8</b>	<b>-0.003</b>	<b>1 49/64</b>	<b>9/16</b>	<b>2 11/16</b>	<b>0.7</b>
	SNW-10 x 1 3/4	S-10 x 1 3/4			1 3/4					
<b>22211K</b>	<b>SNW-11 x 1 7/8</b>	<b>S-11</b>	<b>N-11</b>	<b>W-11</b>	<b>1 7/8</b>	<b>-0.003</b>	<b>1 27/32</b>	<b>9/16</b>	<b>2 31/32</b>	<b>0.8</b>
	SNW-11 x 2	S-11 x 2			2					
<b>22212K</b>	<b>SNW-12 x 2 1/16</b>	<b>S-12</b>	<b>N-12</b>	<b>W-12</b>	<b>2 1/16</b>	<b>-0.004</b>	<b>1 63/64</b>	<b>19/32</b>	<b>3 5/32</b>	<b>1.1</b>
	SNW-13 x 2 1/8	S-13 x 2 1/8			2 1/8					
<b>22213K</b>	<b>SNW-13 x 2 3/16</b>	<b>S-13</b>	<b>N-13</b>	<b>W-13</b>	<b>2 3/16</b>	<b>-0.004</b>	<b>2 3/32</b>	<b>5/8</b>	<b>3 3/8</b>	<b>1.4</b>
	SNW-13 x 2 1/4	S-13 x 2 1/4			2 1/4					
<b>22214K</b>	<b>SNW-14 x 2 5/16</b>	<b>S-14</b>	<b>N-14</b>	<b>W-14</b>	<b>2 5/16</b>	<b>-0.004</b>	<b>2 11/64</b>	<b>5/8</b>	<b>3 5/8</b>	<b>1.8</b>
	SNW-15 x 2 3/8	S-15 x 2 3/8			2 3/8					
<b>22215K</b>	<b>SNW-15 x 2 7/16</b>	<b>S-15</b>	<b>AN-15</b>	<b>W-15</b>	<b>2 7/16</b>	<b>-0.004</b>	<b>2 19/64</b>	<b>43/64</b>	<b>3 7/8</b>	<b>2.0</b>
	SNW-15 x 2 1/2	S-15 x 2 1/2			2 1/2					
<b>22216K</b>	<b>SNW-16 x 2 5/8</b>	<b>S-16</b>	<b>AN-16</b>	<b>W-16</b>	<b>2 5/8</b>	<b>-0.004</b>	<b>2 3/8</b>	<b>43/64</b>	<b>4 5/32</b>	<b>2.4</b>
	SNW-16 x 2 3/4	S-16 x 2 3/4			2 3/4					
<b>22217K</b>	<b>SNW-17 x 2 13/16</b>	<b>S-17</b>	<b>AN-17</b>	<b>W-17</b>	<b>2 13/16</b>	<b>-0.004</b>	<b>2 31/64</b>	<b>45/64</b>	<b>4 13/32</b>	<b>3.0</b>
	SNW-17 x 2 7/8	S-17 x 2 7/8			2 7/8					
	SNW-17 x 3	S-17 x 3			3					
<b>22218K</b>	<b>SNW-18 x 3 1/16</b>	<b>S-18</b>	<b>AN-18</b>	<b>W-18</b>	<b>3 1/16</b>	<b>-0.004</b>	<b>2 41/64</b>	<b>25/32</b>	<b>4 21/32</b>	<b>3.0</b>
	SNW-18 x 3 1/8	S-18 x 3 1/8			3 1/8					
	SNW-18 x 3 3/16	S-18 x 3 3/16			3 3/16					
	SNW-18 x 3 1/4	S-18 x 3 1/4			3 1/4					
<b>22219K</b>	<b>SNW-19 x 3 5/16</b>	<b>S-19</b>	<b>AN-19</b>	<b>W-19</b>	<b>3 5/16</b>	<b>-0.004</b>	<b>2 49/64</b>	<b>13/16</b>	<b>4 15/16</b>	<b>3.3</b>
	SNW-20 x 3 3/8	S-20 x 3 3/8			3 3/8					

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup>Tolerance range is from +0 to value listed.

*Continued on next page.*



Tapered bore bearing plus SNW.

Continued from previous page.

Bearing No. <sup>(1)</sup>	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>	
					in.	in.	in.	in.	in.	lbs.
<b>22220K</b>	<b>SNW-20 x 3 7/16</b>	<b>S-20</b>	<b>AN-20</b>	<b>W-20</b>	<b>3 7/16</b>	<b>-0.004</b>	<b>2 7/8</b>	<b>27/32</b>	<b>5 3/16</b>	<b>4.4</b>
	SNW-20 x 3 1/2	S-20 x 3 1/2			3 1/2					
<b>22222K</b>	SNW-22 x 3 13/16	S-22 x 3 13/16			3 13/16					
	SNW-22 x 3 7/8	S-22 x 3 7/8			3 7/8					
	<b>SNW-22 x 3 15/16</b>	<b>S-22</b>	<b>AN-22</b>	<b>W-22</b>	<b>3 15/16</b>	<b>-0.004</b>	<b>3 13/64</b>	<b>29/32</b>	<b>5 23/32</b>	<b>5.0</b>
	SNW-22 x 4	S-22 x 4			4					
<b>22224K</b>	SNW-24 x 4 1/16	S-22 x 4 1/16			4 1/16					
	SNW-24 x 4 1/8	S-22 x 4 1/8			4 1/8					
	<b>SNW-24 x 4 3/16</b>	<b>S-24</b>	<b>AN-24</b>	<b>W-24</b>	<b>4 3/16</b>	<b>-0.005</b>	<b>3 15/32</b>	<b>15/16</b>	<b>6 1/8</b>	<b>6.7</b>
	SNW-24 x 4 1/4	S-24 x 4 1/4			4 1/4					
<b>22226K</b>	SNW-26 x 4 5/16	S-26 x 4 5/16			4 5/16					
	SNW-26 x 4 3/8	S-26 x 4 3/8			4 3/8					
	<b>SNW-26 x 4 7/16</b>	<b>S-26</b>	<b>AN-26</b>	<b>W-26</b>	<b>4 7/16</b>	<b>-0.005</b>	<b>3 49/64</b>	<b>1</b>	<b>6 3/4</b>	<b>8.6</b>
	SNW-26 x 4 1/2	S-26 x 4 1/2			4 1/2					
<b>22228K</b>	SNW-28 x 4 13/16	S-28 x 4 13/16			4 13/16					
	SNW-28 x 4 7/8	S-28 x 4 7/8			4 7/8					
	<b>SNW-28 x 4 15/16</b>	<b>S-28</b>	<b>AN-28</b>	<b>W-28</b>	<b>4 15/16</b>	<b>-0.005</b>	<b>3 63/64</b>	<b>1 1/16</b>	<b>7 3/32</b>	<b>10.3</b>
	SNW-28 x 5	S-28 x 5			5					
<b>22230K</b>	SNW-30 x 5 1/8	S-30 x 5 1/8			5 1/8					
	<b>SNW-30 x 5 3/16</b>	<b>S-30</b>	<b>AN-30</b>	<b>W-30</b>	<b>5 3/16</b>	<b>-0.005</b>	<b>4 15/64</b>	<b>1 1/8</b>	<b>7 11/16</b>	<b>13.5</b>
	SNW-30 x 5 1/4	S-30 x 5 1/4			5 1/4					
<b>22232K</b>	SNW-32 x 5 3/8	S-30 x 5 3/8			5 3/8					
	<b>SNW-32 x 5 7/16</b>	<b>S-32</b>	<b>AN-32</b>	<b>W-32</b>	<b>5 7/16</b>	<b>-0.005</b>	<b>4 37/64</b>	<b>1 3/16</b>	<b>8 1/16</b>	<b>15.6</b>
	SNW-32 x 5 1/2	S-32 x 5 1/2			5 1/2					
<b>22234K</b>	SNW-34 x 5 13/16	S-34 x 5 13/16			5 13/16					
	SNW-34 x 5 7/8	S-34 x 5 7/8			5 7/8					
	<b>SNW-34 x 5 15/16</b>	<b>S-34</b>	<b>AN-34</b>	<b>W-34</b>	<b>5 15/16</b>	<b>-0.005</b>	<b>4 27/32</b>	<b>1 7/32</b>	<b>8 21/32</b>	<b>19.4</b>
	SNW-34 x 6	S-34 x 6			6					
<b>22236K</b>	SNW-36 x 6 15/16	S-36 x 6 15/16			6 15/16					
	SNW-36 x 6 3/8	S-36 x 6 3/8			6 3/8					
	<b>SNW-36 x 6 7/16</b>	<b>S-36</b>	<b>AN-36</b>	<b>W-36</b>	<b>6 7/16</b>	<b>-0.005</b>	<b>5 1/32</b>	<b>1 1/4</b>	<b>9 1/16</b>	<b>20.5</b>
	SNW-36 x 6 1/2	S-36 x 6 1/2			6 1/2					

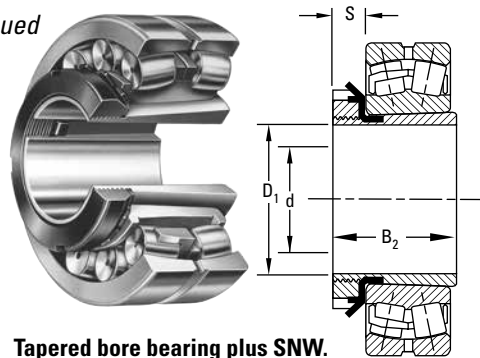
<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup> Tolerance range is from +0 to value listed.

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**INCH ACCESSORIES – PULL-TYPE SLEEVES – continued**  
**SNW/SNP – PULL-TYPE SLEEVE, LOCKNUT, LOCKWASHER/LOCKPLATE ASSEMBLIES**

- The table below shows dimensions for adapter assemblies and components used in the mounting of tapered bore bearings on shafts.
- SNW assembly consists of a sleeve, locknut and lockwasher.
- SNP assembly consists of a sleeve, locknut and lockplate.



**Tapered bore bearing plus SNW.**

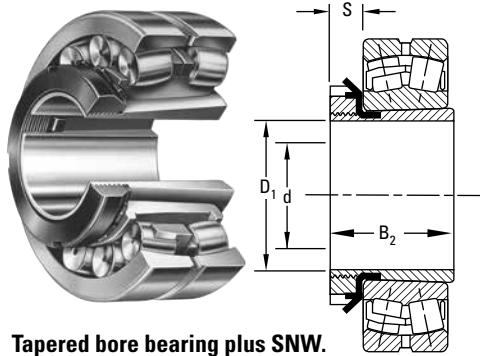
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Bearing No. <sup>(1)</sup>	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt. lbs.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>	
					in.	in.	in.	in.	in.	
<b>22238K</b>	SNW-38 x 6 13/16	S-38 x 6 13/16			6 13/16					
	SNW-38 x 6 7/8	S-38 x 6 7/8			6 7/8					
	<b>SNW-38 x 6 15/16</b>	<b>S-38</b>	<b>AN-38</b>	<b>W-38</b>	<b>6 15/16</b>	<b>-0.005</b>	<b>5 17/64</b>	<b>1 9/32</b>	<b>9 15/32</b>	<b>23.4</b>
	SNW-38 x 7	S-38 x 7			7					
<b>22240K</b>	SNW-40 x 7 1/8	S-40 x 7 1/8			7 1/8					
	<b>SNW-40 x 7 3/16</b>	<b>S-40</b>	<b>AN-40</b>	<b>W-40</b>	<b>7 3/16</b>	<b>-0.005</b>	<b>5 31/64</b>	<b>1 11/32</b>	<b>9 27/32</b>	<b>30.5</b>
	SNW-40 x 7 1/4	S-40 x 7 1/4			7 1/4					
<b>22244K</b>	SNW-44 x 7 13/16	S-44 x 7 13/16			7 13/16					
	SNW-44 x 7 7/8	S-44 x 7 7/8			7 7/8					
	<b>SNW-44 x 7 15/16</b>	<b>S-44</b>	<b>N-044</b>	<b>W-44</b>	<b>7 15/16</b>	<b>-0.005</b>	<b>5 29/32</b>	<b>1 3/8</b>	<b>11</b>	<b>33.0</b>
<b>22248K</b>	SNW-44 x 8	S-44 x 8			8					
	<b>SNP-48 x 8 7/16</b>	<b>S-48</b>	<b>N-048</b>	<b>P-48</b>	<b>8 7/16</b>	<b>-0.006</b>	<b>6 5/8</b>	<b>1 23/64</b>	<b>11 7/16</b>	<b>37.5</b>
<b>22252K</b>	SNP-48 x 8 15/16	S-48 x 8 15/16			8 15/16					
	<b>SNP-52 x 9 7/16</b>	<b>S-52</b>	<b>N-052</b>	<b>P-52</b>	<b>9 7/16</b>	<b>-0.006</b>	<b>7 37/64</b>	<b>1 27/64</b>	<b>12 3/16</b>	<b>44.0</b>
<b>SERIES 230K</b>										
<b>23024K</b>	SNW-3024 x 4 1/16	S-3024 x 4 1/16			4 1/16					
	SNW-3024 x 4 1/8	S-3024 x 4 1/8			4 1/8					
	<b>SNW-3024 x 4 3/16</b>	<b>S-3024</b>	<b>N-024</b>	<b>W-024</b>	<b>4 3/16</b>	<b>-0.005</b>	<b>2 61/64</b>	<b>13/16</b>	<b>5 11/16</b>	<b>6.1</b>
	SNW-3024 x 4 1/4	S-3024 x 4 1/4			4 1/4					
<b>23026K</b>	SNW-3026 x 4 5/16	S-3024 x 4 5/16			4 5/16					
	SNW-3026 x 4 3/8	S-3024 x 4 3/8			4 3/8					
	<b>SNW-3026 x 4 7/16</b>	<b>S-3026</b>	<b>N-026</b>	<b>W-026</b>	<b>4 7/16</b>	<b>-0.005</b>	<b>3 15/64</b>	<b>7/8</b>	<b>6 1/8</b>	<b>7.5</b>
<b>23028K</b>	SNW-3026 x 4 1/2	S-3026 x 4 1/2			4 1/2					
	SNW-3028 x 4 13/16	S-3028 x 4 13/16			4 13/16					
	SNW-3028 x 4 7/8	S-3028 x 4 7/8			4 7/8					
<b>23030K</b>	<b>SNW-3028 x 4 15/16</b>	<b>S-3028</b>	<b>N-028</b>	<b>W-028</b>	<b>4 15/16</b>	<b>-0.005</b>	<b>3 11/32</b>	<b>15/16</b>	<b>6 1/2</b>	<b>8.4</b>
	SNW-3030 x 5 1/8	S-3030 x 5 1/8			5 1/8					
<b>23032K</b>	<b>SNW-3030 x 5 3/16</b>	<b>S-3030</b>	<b>N-030</b>	<b>W-030</b>	<b>5 3/16</b>	<b>-0.005</b>	<b>3 31/64</b>	<b>31/32</b>	<b>7 1/8</b>	<b>9.8</b>
	SNW-3030 x 5 1/4	S-3030 x 5 1/4			5 1/4					
<b>23032K</b>	SNW-3032 x 5 3/8	S-3032 x 5 3/8			5 3/8					
	<b>SNW-3032 x 5 7/16</b>	<b>S-3032</b>	<b>N-032</b>	<b>W-032</b>	<b>5 7/16</b>	<b>-0.005</b>	<b>3 23/32</b>	<b>1 1/32</b>	<b>7 1/2</b>	<b>11.8</b>
	SNW-3032 x 5 1/2	S-3032 x 5 1/2			5 1/2					

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup>Tolerance range is from +0 to value listed.

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Tapered bore bearing plus SNW.

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Bearing No. <sup>(1)</sup>	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt. lbs.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>	
					in.	in.	in.	in.	in.	
23034K	SNW-3034 x 5 13/16	S-3034 x 5 13/16			5 13/16					
	SNW-3034 x 5 7/8	S-3034 x 5 7/8			5 7/8					
	<b>SNW-3034 x 5 15/16</b>	<b>S-3034</b>	<b>N-034</b>	<b>W-034</b>	<b>5 15/16</b>	<b>-0.005</b>	<b>4 1/64</b>	<b>1 1/16</b>	<b>7 7/8</b>	<b>13.3</b>
	SNW-3034 x 6	S-3034 x 6			6					
23036K	SNW-3036 x 6 5/16	S-3036 x 6 5/16			6 5/16					
	SNW-3036 x 6 3/8	S-3036 x 6 3/8			6 3/8					
	<b>SNW-3036 x 6 7/16</b>	<b>S-3036</b>	<b>N-036</b>	<b>W-036</b>	<b>6 7/16</b>	<b>-0.005</b>	<b>4 11/32</b>	<b>1 3/32</b>	<b>8 1/4</b>	<b>15.2</b>
	SNW-3036 x 6 1/2	S-3036 x 6 1/2			6 1/2					
23038K	SNW-3038 x 6 13/16	S-3038 x 6 13/16			6 13/16					
	SNW-3038 x 6 7/8	S-3038 x 6 7/8			6 7/8					
	<b>SNW-3038 x 6 15/16</b>	<b>S-3038</b>	<b>N-038</b>	<b>W-038</b>	<b>6 15/16</b>	<b>-0.005</b>	<b>4 13/32</b>	<b>1 1/8</b>	<b>8 11/16</b>	<b>16.7</b>
	SNW-3038 x 7	S-3038 x 7			7					
23040K	SNW-3040 x 7 1/8	S-3040 x 7 1/8			7 1/8					
	<b>SNW-3040 x 7 3/16</b>	<b>S-3040</b>	<b>N-040</b>	<b>W-040</b>	<b>7 3/16</b>	<b>-0.005</b>	<b>4 3/4</b>	<b>1 3/16</b>	<b>9 7/16</b>	<b>19.7</b>
	SNW-3040 x 7 1/4	S-3040 x 7 1/4			7 1/4					
23044K	SNW-3044 x 7 13/16	S-3044 x 7 13/16			7 13/16					
	SNW-3044 x 7 7/8	S-3044 x 7 7/8			7 7/8					
	<b>SNW-3044 x 7 15/16</b>	<b>S-3044</b>	<b>N-044</b>	<b>W-044</b>	<b>7 15/16</b>	<b>-0.005</b>	<b>5 1/8</b>	<b>1 1/4</b>	<b>10 1/4</b>	<b>24.4</b>
	SNW-3044 x 8	S-3044 x 8			8					
23048K	SNP-3048 x 8 7/16	S-3048 x 8 7/16			8 7/16					
	SNP-3048 x 8 1/2	S-3048 x 8 1/2			8 1/2					
	<b>SNP-3048 x 8 15/16</b>	<b>S-3048</b>	<b>N-048</b>	<b>P-48</b>	<b>8 15/16</b>	<b>-0.006</b>	<b>5 7/16</b>	<b>1 11/32</b>	<b>11 7/16</b>	<b>32.2</b>
	SNP-3048 x 9	S-3048 x 9			9					
23052K	<b>SNP-3052 x 9 7/16</b>	<b>S-3052</b>	<b>N-052</b>	<b>P-52</b>	<b>9 7/16</b>	<b>-0.006</b>	<b>6 1/64</b>	<b>1 13/32</b>	<b>12 3/16</b>	<b>41.1</b>
	SNP-3052 x 9 1/2	S-3052 x 9 1/2			9 1/2					
23056K	SNP-3056 x 9 15/16	S-3056 x 9 15/16			9 15/16					
	SNP-3056 x 10	S-3056 x 10			10					
	<b>SNP-3056 x 10 7/16</b>	<b>S-3056</b>	<b>N-056</b>	<b>P-56</b>	<b>10 7/16</b>	<b>-0.007</b>	<b>6 3/16</b>	<b>1 1/2</b>	<b>13</b>	<b>45.4</b>
	SNP-3056 x 10 1/2	S-3056 x 10 1/2			10 1/2					
23060K	<b>SNP-3060 x 10 15/16</b>	<b>S-3060</b>	<b>N-060</b>	<b>P-60</b>	<b>10 15/16</b>	<b>-0.007</b>	<b>6 47/64</b>	<b>1 9/16</b>	<b>14 3/16</b>	<b>58.9</b>
	SNP-3060 x 11	S-3060 x 11			11					
23064K	SNP-3064 x 11 7/16	S-3060 x 11 7/16			11 7/16					
	SNP-3064 x 11 1/2	S-3060 x 11 1/2			11 1/2					
	<b>SNP-3064 x 11 15/16</b>	<b>S-3064</b>	<b>N-064</b>	<b>P-64</b>	<b>11 15/16</b>	<b>-0.007</b>	<b>6 61/64</b>	<b>1 21/32</b>	<b>15</b>	<b>65.7</b>
	SNP-3064 x 12	S-3064 x 12			12					

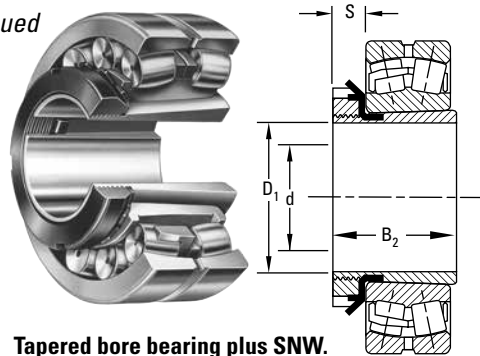
<sup>(1)</sup> Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup> Tolerance range is from +0 to value listed.

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**INCH ACCESSORIES – PULL-TYPE SLEEVES – continued**  
**SNW/SNP – PULL-TYPE SLEEVE, LOCKNUT, LOCKWASHER/LOCKPLATE ASSEMBLIES**

- The table below shows dimensions for adapter assemblies and components used in the mounting of tapered bore bearings on shafts.
- SNW assembly consists of a sleeve, locknut and lockwasher.
- SNP assembly consists of a sleeve, locknut and lockplate.



**Tapered bore bearing plus SNW.**

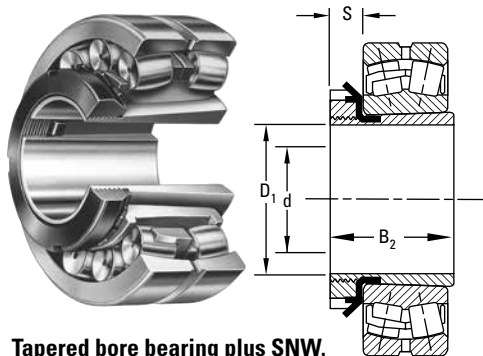
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Bearing No. <sup>(1)</sup>	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>	
					in.	in.	in.	in.	in.	lbs.
<b>23068K</b>	<b>SNP-3068 X 12 7/16</b>	<b>S-3068</b>	<b>N-068</b>	<b>P-68</b>	<b>12 7/16</b>	<b>-0.008</b>	<b>7 39/64</b>	<b>1 25/32</b>	<b>15 3/4</b>	<b>77.8</b>
	SNP-3068 X 12 1/2	S-3068 x 12 1/2			12 1/2					
	SNP-3072 X 12 15/16	S-3072 x 12 15/16			12 15/16					
	SNP-3072 X 13	S-3072 x 13			13					
<b>23072K</b>	<b>SNP-3072 X 13 7/16</b>	<b>S-3072</b>	<b>N-072</b>	<b>P-72</b>	<b>13 7/16</b>	<b>-0.008</b>	<b>7 37/64</b>	<b>1 25/32</b>	<b>16 1/2</b>	<b>86.2</b>
	SNP-3072 X 13 1/2	S-3072 x 13 1/2			13 1/2					
<b>23076K</b>	<b>SNP-3076 X 13 15/16</b>	<b>S-3076</b>	<b>N-076</b>	<b>P-76</b>	<b>13 15/16</b>	<b>-0.008</b>	<b>7 3/4</b>	<b>1 57/64</b>	<b>17 3/4</b>	<b>94.3</b>
	SNP-3076 X 14	S-3076 x 14			14					
<b>23080K</b>	<b>SNP-3080 x 15</b>	<b>S-3080</b>	<b>N-080</b>	<b>P-80</b>	<b>15</b>	<b>-0.008</b>	<b>8 13/32</b>	<b>2 1/16</b>	<b>18 1/2</b>	<b>100.0</b>
<b>23084K</b>	<b>SNP-3084 x 15 3/4</b>	<b>S-3084</b>	<b>N-084</b>	<b>P-84</b>	<b>15 3/4</b>	<b>-0.008</b>	<b>8 31/64</b>	<b>2 1/16</b>	<b>19 5/16</b>	<b>110.0</b>
<b>23088K</b>	<b>SNP-3088 x 16 1/2</b>	<b>S-3088</b>	<b>N-088</b>	<b>P-88</b>	<b>16 1/2</b>	<b>-0.008</b>	<b>9 7/64</b>	<b>2 3/8</b>	<b>20 1/2</b>	<b>144.0</b>
<b>23092K</b>	<b>SNP-3092 x 17</b>	<b>S-3092</b>	<b>N-092</b>	<b>P-92</b>	<b>17</b>	<b>-0.008</b>	<b>9 11/32</b>	<b>2 3/8</b>	<b>21 1/4</b>	<b>153.0</b>
<b>23096K</b>	<b>SNP-3096 x 18</b>	<b>S-3096</b>	<b>N-096</b>	<b>P-96</b>	<b>18</b>	<b>-0.008</b>	<b>9 29/64</b>	<b>2 3/8</b>	<b>22 1/16</b>	<b>162.0</b>
<b>230/500K</b>	<b>SNP-30/500 x 18 1/2</b>	<b>S-30/500</b>	<b>N-500</b>	<b>P-500</b>	<b>18 1/2</b>	<b>-0.008</b>	<b>9 27/32</b>	<b>2 45/64</b>	<b>22 13/16</b>	<b>180.0</b>
<b>230/530K</b>	<b>SNP-30/530 x 19 1/2</b>	<b>S-30/530</b>	<b>N-530</b>	<b>P-530</b>	<b>19 1/2</b>	<b>-0.008</b>	<b>10 37/64</b>	<b>2 45/64</b>	<b>24 13/16</b>	<b>221.0</b>
<b>230/560K</b>	<b>SNP-30/560 x 20 15/16</b>	<b>S-30/560</b>	<b>N-560</b>	<b>P-560</b>	<b>20 15/16</b>	<b>-0.008</b>	<b>11 7/32</b>	<b>2 61/64</b>	<b>25 9/16</b>	<b>243.0</b>
<b>230/600K</b>	<b>SNP-30/600 x 21 15/16</b>	<b>S-30/600</b>	<b>N-600</b>	<b>P-600</b>	<b>21 15/16</b>	<b>-0.008</b>	<b>11 29/64</b>	<b>2 61/64</b>	<b>27 9/16</b>	<b>322.0</b>
<b>230/630K</b>	<b>SNP-30/630 x 23 15/16</b>	<b>S-30/630</b>	<b>N-630</b>	<b>P-630</b>	<b>23 15/16</b>	<b>-0.008</b>	<b>11 59/64</b>	<b>2 61/64</b>	<b>28 3/4</b>	<b>350.0</b>
<b>230/670K</b>	<b>SNP-30/670 x 24 15/16</b>	<b>S-30/670</b>	<b>N-670</b>	<b>P-670</b>	<b>24 15/16</b>	<b>-0.008</b>	<b>12 27/32</b>	<b>3 9/64</b>	<b>30 11/16</b>	<b>421.0</b>
<b>230/710K</b>	<b>SNP-30/710 x 26 7/16</b>	<b>S-30/710</b>	<b>N-710</b>	<b>P-710</b>	<b>26 7/16</b>	<b>-0.008</b>	<b>13 1/2</b>	<b>3 37/64</b>	<b>32 11/16</b>	<b>492.0</b>
<b>230/750K</b>	<b>SNP-30/750 x 27 15/16</b>	<b>S-30/750</b>	<b>N-750</b>	<b>P-750</b>	<b>27 15/16</b>	<b>-0.008</b>	<b>14 3/32</b>	<b>3 37/64</b>	<b>34 1/4</b>	<b>536.0</b>
<b>230/800K</b>	<b>SNP-30/800 x 29 7/16</b>	<b>S-30/800</b>	<b>N-800</b>	<b>P-800</b>	<b>29 7/16</b>	<b>-0.008</b>	<b>14 13/32</b>	<b>3 37/64</b>	<b>36 1/4</b>	<b>662.0</b>
<b>230/850K</b>	<b>SNP-30/850 x 31 7/16</b>	<b>S-30/850</b>	<b>N-850</b>	<b>P-850</b>	<b>31 7/16</b>	<b>-0.008</b>	<b>15</b>	<b>3 37/64</b>	<b>38 9/16</b>	<b>747.0</b>
<b>230/900K</b>	<b>SNP-30/900 x 33 7/16</b>	<b>S-30/900</b>	<b>N-900</b>	<b>P-900</b>	<b>33 7/16</b>	<b>-0.008</b>	<b>15 11/16</b>	<b>3 61/64</b>	<b>40 9/16</b>	<b>853.0</b>
<b>230/950K</b>	<b>SNP-30/950 x 34 7/16</b>	<b>S-30/950</b>	<b>N-950</b>	<b>P-950</b>	<b>35 7/16</b>	<b>-0.008</b>	<b>16 1/2</b>	<b>3 61/64</b>	<b>43</b>	<b>935.0</b>

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup>Tolerance range is from +0 to value listed.

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Tapered bore bearing plus SNW.

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Bearing No. <sup>(1)</sup>	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>	
					in.	in.	in.	in.	in.	lbs.
<b>SERIES 223K AND 232K</b>										
<b>22308K</b>	<b>SNW-108 x 1 5/16</b>	<b>S-108</b>	<b>N-08</b>	<b>W-08</b>	<b>1 5/16</b>	<b>-0.003</b>	<b>2 1/64</b>	<b>1/2</b>	<b>2 1/4</b>	<b>0.8</b>
<b>22309K</b>	<b>SNW-109 x 1 7/16</b>	<b>S-109</b>	<b>N-09</b>	<b>W-09</b>	<b>1 7/16</b>	<b>-0.003</b>	<b>2 9/64</b>	<b>1/2</b>	<b>2 17/32</b>	<b>0.8</b>
<b>22310K</b>	<b>SNW-110 x 1 11/16</b>	<b>S-110</b>	<b>N-10</b>	<b>W-10</b>	<b>1 11/16</b>	<b>-0.003</b>	<b>2 25/64</b>	<b>9/16</b>	<b>2 11/16</b>	<b>0.9</b>
<b>22311K</b>	<b>SNW-111 x 1 15/16</b>	<b>S-111</b>	<b>N-11</b>	<b>W-11</b>	<b>1 15/16</b>	<b>-0.003</b>	<b>2 33/64</b>	<b>9/16</b>	<b>2 31/32</b>	<b>0.9</b>
<b>22312K</b>	<b>SNW-112 x 2 1/16</b>	<b>S-112</b>	<b>N-12</b>	<b>W-12</b>	<b>2 1/16</b>	<b>-0.004</b>	<b>2 21/32</b>	<b>19/32</b>	<b>3 5/32</b>	<b>1.2</b>
<b>22313K</b>	<b>SNW-113 x 2 3/16</b>	<b>S-113</b>	<b>N-13</b>	<b>W-13</b>	<b>2 3/16</b>	<b>-0.004</b>	<b>2 49/64</b>	<b>5/8</b>	<b>3 3/8</b>	<b>1.7</b>
<b>22314K</b>	<b>SNW-114 x 2 5/16</b>	<b>S-114</b>	<b>N-14</b>	<b>W-14</b>	<b>2 5/16</b>	<b>-0.004</b>	<b>2 61/64</b>	<b>5/8</b>	<b>3 5/8</b>	<b>2.3</b>
	SNW-115 x 2 3/8	S-115 x 2 3/8			2 3/8					
<b>22315K</b>	<b>SNW-115 x 2 7/16</b>	<b>S-115</b>	<b>AN-15</b>	<b>W-15</b>	<b>2 7/16</b>	<b>-0.004</b>	<b>3 5/64</b>	<b>43/64</b>	<b>3 7/8</b>	<b>3.0</b>
	SNW-115 x 2 1/2	S-115 x 2 1/2			2 1/2					
	SNW-116 x 2 5/8	S-116 x 2 5/8			2 5/8					
<b>22316K</b>	<b>SNW-116 x 2 11/16</b>	<b>S-116</b>	<b>AN-16</b>	<b>W-16</b>	<b>2 11/16</b>	<b>-0.004</b>	<b>3 13/64</b>	<b>43/64</b>	<b>4 5/32</b>	<b>3.2</b>
	SNW-116 x 2 3/4	S-116 x 3/4			2 3/4					
	SNW-117 x 2 13/16	S-117 x 2 13/16			2 13/16					
	SNW-117 x 2 7/8	S-117 x 2 7/8			2 7/8					
<b>22317K</b>	<b>SNW-117 x 2 15/16</b>	<b>S-117</b>	<b>AN-17</b>	<b>W-17</b>	<b>2 15/16</b>	<b>-0.004</b>	<b>3 5/16</b>	<b>45/64</b>	<b>4 13/32</b>	<b>3.5</b>
	SNW-117 x 3	S-117 x 3			3					
	SNW-118 x 3 1/16	S-118 x 3 1/16			3 1/16					
	SNW-118 x 3 1/8	S-118 x 3 1/8			3 1/8					
<b>22318K</b>	<b>SNW-118 x 3 3/16</b>	<b>S-118</b>	<b>AN-18</b>	<b>W-18</b>	<b>3 3/16</b>	<b>-0.004</b>	<b>3 35/64</b>	<b>25/32</b>	<b>4 21/32</b>	<b>4.0</b>
	SNW-118 x 3 1/4	S-118 x 3 1/4			3 1/4					
<b>22319K</b>	<b>SNW-119 x 3 5/16</b>	<b>S-119</b>	<b>AN-19</b>	<b>W-19</b>	<b>3 5/16</b>	<b>-0.004</b>	<b>3 45/64</b>	<b>13/16</b>	<b>4 15/16</b>	<b>5.0</b>
	SNW-120 x 3 5/16	S-120 x 3 5/16			3 5/16					
	SNW-120 x 3 3/8	S-120 x 3 3/8			3 3/8					
<b>22320K 23220K</b>	<b>SNW-120 x 3 7/16</b>	<b>S-120</b>	<b>AN-20</b>	<b>W-20</b>	<b>3 7/16</b>	<b>-0.004</b>	<b>3 31/32</b>	<b>27/32</b>	<b>5 3/16</b>	<b>6.2</b>
	SNW-120 x 3 1/2	S-120 x 3 1/2			3 1/2					
	SNW-122 x 3 13/16	S-122 x 3 13/16			3 13/16					
	SNW-122 x 3 3/8	S-122 x 3 3/8			3 3/8					
<b>22322K 23222K</b>	<b>SNW-122 x 3 15/16</b>	<b>S-122</b>	<b>AN-22</b>	<b>W-22</b>	<b>3 15/16</b>	<b>-0.004</b>	<b>4 11/32</b>	<b>29/32</b>	<b>5 23/32</b>	<b>6.5</b>
	SNW-122 x 4	S-122 x 4			4					

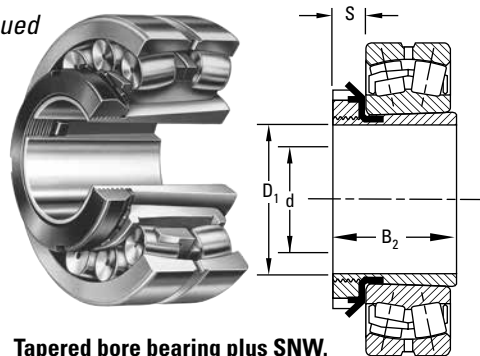
<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup>Tolerance range is from +0 to value listed.

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**INCH ACCESSORIES – PULL-TYPE SLEEVES – continued**  
**SNW/SNP – PULL-TYPE SLEEVE, LOCKNUT, LOCKWASHER/LOCKPLATE ASSEMBLIES**

- The table below shows dimensions for adapter assemblies and components used in the mounting of tapered bore bearings on shafts.
- SNW assembly consists of a sleeve, locknut and lockwasher.
- SNP assembly consists of a sleeve, locknut and lockplate.



**Tapered bore bearing plus SNW.**

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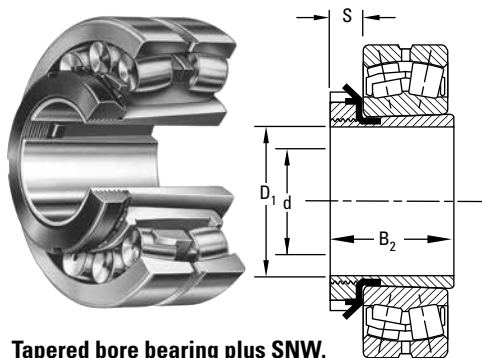
Bearing No. <sup>(1)</sup>	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>	
					in.	in.	in.	in.	in.	lbs.
<b>22324K 23224K</b>	SNW-124 x 4 1/16	S-124 x 4 1/16			4 1/16					
	SNW-124 x 4 1/8	S-124 x 4 1/8			4 1/8					
	<b>SNW-124 x 4 3/16</b>	<b>S-124</b>	<b>AN-24</b>	<b>W-24</b>	<b>4 3/16</b>	<b>-0.005</b>	<b>4 41/64</b>	<b>15/16</b>	<b>6 1/8</b>	<b>8.0</b>
	SNW-124 x 4 1/4	S-124 x 4 1/4			4 1/4					
<b>22326K 23226K</b>	SNW-126 x 4 9/16	S-126 x 4 9/16			4 9/16					
	SNW-126 x 4 3/8	S-126 4 3/8			4 3/8					
	<b>SNW-126 x 4 7/16</b>	<b>S-126</b>	<b>AN-26</b>	<b>W-26</b>	<b>4 7/16</b>	<b>-0.005</b>	<b>4 63/64</b>	<b>1</b>	<b>6 3/4</b>	<b>12.4</b>
	SNW-126 x 4 1/2	S-126 x 4 1/2			4 1/2					
<b>22328K 23228K</b>	SNW-128 x 4 13/16	S-128 x 4 13/16			4 13/16					
	SNW-128 x 4 7/8	S-128 x 4 7/8			4 7/8					
	<b>SNW-128 x 4 15/16</b>	<b>S-128</b>	<b>AN-28</b>	<b>W-28</b>	<b>4 15/16</b>	<b>-0.005</b>	<b>5 21/64</b>	<b>1 1/16</b>	<b>7 3/32</b>	<b>13.0</b>
	SNW-128 x 5	S-128 x 5			5					
<b>22330K 23230K</b>	SNW-130 x 5 1/8	S-130 x 5 1/8			5 1/8					
	<b>SNW-130 x 5 3/16</b>	<b>S-130</b>	<b>AN-30</b>	<b>W-30</b>	<b>5 3/16</b>	<b>-0.005</b>	<b>5 5/8</b>	<b>1 1/8</b>	<b>7 11/16</b>	<b>17.6</b>
	SNW-130 x 5 1/4	S-130 x 5 1/4			5 1/4					
	SNW-130 x 5 5/16	S-130 x 5 5/16			5 5/16					
<b>22332K 23232K</b>	SNW-132 x 5 3/8	S-132 x 5 3/8			5 3/8					
	<b>SNW-132 x 5 7/16</b>	<b>S-132</b>	<b>AN-32</b>	<b>W-32</b>	<b>5 7/16</b>	<b>-0.005</b>	<b>5 59/64</b>	<b>1 3/16</b>	<b>8 1/16</b>	<b>18.5</b>
	SNW-132 x 5 1/2	S-132 x 5 1/2			5 1/2					
<b>22334K 23234K</b>	SNW-134 x 5 13/16	S-134 x 5 13/16			5 13/16					
	SNW-134 x 5 7/8	S-134 x 5 7/8			5 7/8					
	<b>SNW-134 x 5 15/16</b>	<b>S-134</b>	<b>AN-34</b>	<b>W-34</b>	<b>5 15/16</b>	<b>-0.005</b>	<b>6 3/16</b>	<b>1 7/32</b>	<b>8 21/32</b>	<b>21.0</b>
	SNW-134 x 6	S-134 x 6			6					
<b>22336K 23236K</b>	<b>SNW-136 x 6 7/16</b>	<b>S-136</b>	<b>AN-36</b>	<b>W-36</b>	<b>6 7/16</b>	<b>-0.005</b>	<b>6 29/64</b>	<b>1 1/4</b>	<b>9 1/16</b>	<b>22.5</b>
<b>22338K 23238K</b>	SNW-138 x 6 13/16	S-138 x 6 13/16			6 13/16					
	SNW-138 x 6 7/8	S-138 x 6 7/8			6 7/8					
	<b>SNW-138 x 6 15/16</b>	<b>S-138</b>	<b>AN-38</b>	<b>W-38</b>	<b>6 15/16</b>	<b>-0.005</b>	<b>6 3/4</b>	<b>1 9/32</b>	<b>9 15/32</b>	<b>28.0</b>
	SNW-138 x 7	S-138 x 7			7					
<b>22340K 23240K</b>	SNW-140 x 7 1/8	S-140 x 7 1/8			7 1/8					
	<b>SNW-140 x 7 3/16</b>	<b>S-140</b>	<b>AN-40</b>	<b>W-40</b>	<b>7 3/16</b>	<b>-0.005</b>	<b>7 3/32</b>	<b>1 11/32</b>	<b>9 27/32</b>	<b>36.0</b>
	SNW-140 x 7 1/4	S-140 x 7 1/4			7 1/4					

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup>Tolerance range is from +0 to value listed.

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Tapered bore bearing plus SNW.

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Bearing No. <sup>(1)</sup>	Accessory Numbers					Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt. lbs.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>		
					in.	in.	in.	in.	in.		
<b>22344K</b> 23244K	<b>SNW-144 x 7 <sup>15</sup>/<sub>16</sub></b>	<b>S-144</b>	<b>N-044</b>	<b>W-44</b>	<b>7 <sup>15</sup>/<sub>16</sub></b>	<b>-0.005</b>	<b>7 <sup>9</sup>/<sub>32</sub></b>	<b>1 <sup>3</sup>/<sub>8</sub></b>	<b>11</b>	<b>47.0</b>	
<b>22348K</b> 23248K	<b>SNP-148 x 8 <sup>15</sup>/<sub>16</sub></b>	<b>S-148</b>	<b>N-048</b>	<b>P-48</b>	<b>8 <sup>15</sup>/<sub>16</sub></b>	<b>-0.006</b>	<b>8 <sup>7</sup>/<sub>64</sub></b>	<b>1 <sup>11</sup>/<sub>32</sub></b>	<b>11 <sup>7</sup>/<sub>16</sub></b>	<b>38.3</b>	
	SNP-148 x 9	S-148 x 9			9						
<b>22352K</b> 23252K	<b>SNP-152 x 9 <sup>7</sup>/<sub>16</sub></b>	<b>S-152</b>	<b>N-052</b>	<b>P-52</b>	<b>9 <sup>7</sup>/<sub>16</sub></b>	<b>-0.006</b>	<b>8 <sup>49</sup>/<sub>64</sub></b>	<b>1 <sup>13</sup>/<sub>32</sub></b>	<b>12 <sup>13</sup>/<sub>16</sub></b>	<b>53.4</b>	
	SNP-152 x 9 1/2	S-152 x 9 1/2			9 1/2						
<b>22356K</b> 23256K	<b>SNP-3256 x 10 <sup>7</sup>/<sub>16</sub></b>	<b>S-3256</b>	<b>N-056</b>	<b>P-56</b>	<b>10 <sup>7</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>8 <sup>15</sup>/<sub>16</sub></b>	<b>1 1/2</b>	<b>13</b>	<b>61.3</b>	
	SNP-3256 x 10 1/2	S-3256 x 10 1/2			10 1/2	-0.007					
<b>23260K</b>	<b>SNP-3260 x 10 <sup>15</sup>/<sub>16</sub></b>	<b>S-3260</b>	<b>N-060</b>	<b>P-60</b>	<b>10 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>9 <sup>5</sup>/<sub>8</sub></b>	<b>1 <sup>9</sup>/<sub>16</sub></b>	<b>14 <sup>3</sup>/<sub>32</sub></b>	<b>68.5</b>	
	SNP-3260 x 11	S-3260 x 11			11	-0.007					
<b>23264K</b>	<b>SNP-3264 x 11 <sup>15</sup>/<sub>16</sub></b>	<b>S-3264</b>	<b>N-064</b>	<b>P-64</b>	<b>11 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>10 <sup>23</sup>/<sub>64</sub></b>	<b>1 <sup>21</sup>/<sub>32</sub></b>	<b>15</b>	<b>98.0</b>	
	SNP-3264 x 12	S-3264 x 12			12	-0.007					
	SNP-3268 x 12 1/2	S-3268 x 12 1/2			12 1/2	-0.007					
<b>23268K</b>	<b>SNP-3268 x 12 <sup>7</sup>/<sub>8</sub></b>	<b>S-3268</b>	<b>N-068</b>	<b>P-68</b>	<b>12 <sup>7</sup>/<sub>8</sub></b>	<b>-0.007</b>	<b>11 <sup>1</sup>/<sub>8</sub></b>	<b>1 <sup>25</sup>/<sub>32</sub></b>	<b>15 <sup>3</sup>/<sub>4</sub></b>	<b>105.0</b>	
<b>23272K</b>	<b>SNP-3272 x 13 <sup>7</sup>/<sub>16</sub></b>	<b>S-3272</b>	<b>N-072</b>	<b>P-72</b>	<b>13 <sup>7</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>11 <sup>27</sup>/<sub>64</sub></b>	<b>1 <sup>25</sup>/<sub>32</sub></b>	<b>16 <sup>1</sup>/<sub>2</sub></b>	<b>135.0</b>	
	SNP-3272 x 13 1/2	S-3272 x 13 1/2			13 1/2	-0.007					
<b>23276K</b>	<b>SNP-3276 x 13 <sup>15</sup>/<sub>16</sub></b>	<b>S-3276</b>	<b>N-076</b>	<b>P-76</b>	<b>13 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>11 <sup>7</sup>/<sub>8</sub></b>	<b>1 <sup>29</sup>/<sub>32</sub></b>	<b>17 <sup>3</sup>/<sub>4</sub></b>	<b>145.0</b>	
	SNP-3276 x 14	S-3276 x 14			14	-0.007					
<b>23280K</b>	<b>SNP-3280 x 15</b>	<b>S-3280</b>	<b>N-080</b>	<b>P-80</b>	<b>15</b>	<b>-0.007</b>	<b>12 <sup>21</sup>/<sub>32</sub></b>	<b>2 <sup>1</sup>/<sub>16</sub></b>	<b>18 <sup>1</sup>/<sub>2</sub></b>	<b>165.0</b>	
<b>23284K</b>	<b>SNP-3284 x 15 <sup>3</sup>/<sub>4</sub></b>	<b>S-3284</b>	<b>N-084</b>	<b>P-84</b>	<b>15 <sup>3</sup>/<sub>4</sub></b>	<b>-0.007</b>	<b>13 <sup>19</sup>/<sub>64</sub></b>	<b>2 <sup>1</sup>/<sub>16</sub></b>	<b>19 <sup>5</sup>/<sub>16</sub></b>	<b>170.0</b>	
<b>23288K</b>	<b>SNP-3288 x 16 <sup>1</sup>/<sub>2</sub></b>	<b>S-3288</b>	<b>N-088</b>	<b>P-88</b>	<b>16 <sup>1</sup>/<sub>2</sub></b>	<b>-0.007</b>	<b>13 <sup>61</sup>/<sub>64</sub></b>	<b>2 <sup>3</sup>/<sub>8</sub></b>	<b>20 <sup>1</sup>/<sub>2</sub></b>	<b>260.0</b>	
<b>23292K</b>	<b>SNP-3292 x 16 <sup>15</sup>/<sub>16</sub></b>	<b>S-3292</b>	<b>N-092</b>	<b>P-92</b>	<b>16 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>18 <sup>1</sup>/<sub>16</sub></b>	<b>2 <sup>3</sup>/<sub>8</sub></b>	<b>21 <sup>1</sup>/<sub>4</sub></b>	<b>291.0</b>	
<b>23296K</b>	<b>SNP-3296 x 17 <sup>15</sup>/<sub>16</sub></b>	<b>S-3296</b>	<b>N-096</b>	<b>P-96</b>	<b>17 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>15 <sup>5</sup>/<sub>32</sub></b>	<b>2 <sup>3</sup>/<sub>8</sub></b>	<b>22 <sup>1</sup>/<sub>16</sub></b>	<b>335.0</b>	
<b>232500K</b>	<b>SNP-32/500 x 18 <sup>7</sup>/<sub>16</sub></b>	<b>S-32/500</b>	<b>N-500</b>	<b>P-500</b>	<b>18 <sup>7</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>16 <sup>1</sup>/<sub>2</sub></b>	<b>2 <sup>45</sup>/<sub>64</sub></b>	<b>22 <sup>13</sup>/<sub>16</sub></b>	<b>366.0</b>	
<b>232530K</b>	<b>SNP-32/530 x 18 <sup>15</sup>/<sub>16</sub></b>	<b>S-32/530 x 18 <sup>15</sup>/<sub>16</sub></b>	<b>N-530</b>	<b>P-530</b>	<b>18 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>17 <sup>17</sup>/<sub>64</sub></b>	<b>2 <sup>45</sup>/<sub>64</sub></b>	<b>24 <sup>13</sup>/<sub>16</sub></b>	<b>421.0</b>	
	SNP-32/530 x 19 7/16	S-32/530 x 19 7/16			19 7/16	-0.007					
<b>232560K</b>	<b>SNP-32/560 x 20 <sup>15</sup>/<sub>16</sub></b>	<b>S-32/560</b>	<b>N-560</b>	<b>P-560</b>	<b>20 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>17 <sup>59</sup>/<sub>64</sub></b>	<b>2 <sup>61</sup>/<sub>64</sub></b>	<b>25 <sup>9</sup>/<sub>16</sub></b>	<b>478.0</b>	
<b>232600K</b>	<b>SNP-32/600 x 21 <sup>15</sup>/<sub>16</sub></b>	<b>S-32/600</b>	<b>N-600</b>	<b>P-600</b>	<b>21 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>18 <sup>55</sup>/<sub>64</sub></b>	<b>2 <sup>61</sup>/<sub>64</sub></b>	<b>27 <sup>9</sup>/<sub>16</sub></b>	<b>613.0</b>	
<b>232630K</b>	<b>SNP-32/630 x 23 <sup>15</sup>/<sub>16</sub></b>	<b>S-32/630</b>	<b>N-630</b>	<b>P-630</b>	<b>23 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>19 <sup>51</sup>/<sub>64</sub></b>	<b>2 <sup>61</sup>/<sub>64</sub></b>	<b>28 <sup>3</sup>/<sub>4</sub></b>	<b>657.0</b>	
<b>232670K</b>	<b>SNP-32/670 x 24 <sup>15</sup>/<sub>16</sub></b>	<b>S-32/670</b>	<b>N-670</b>	<b>P-670</b>	<b>24 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>21 <sup>1</sup>/<sub>32</sub></b>	<b>3 <sup>9</sup>/<sub>64</sub></b>	<b>30 <sup>11</sup>/<sub>16</sub></b>	<b>891.0</b>	
<b>232710K</b>	<b>SNP-32/710 x 26 <sup>7</sup>/<sub>16</sub></b>	<b>S-32/710</b>	<b>N-710</b>	<b>P-710</b>	<b>26 <sup>7</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>21 <sup>15</sup>/<sub>16</sub></b>	<b>3 <sup>37</sup>/<sub>64</sub></b>	<b>32 <sup>11</sup>/<sub>16</sub></b>	<b>979.0</b>	
<b>232750K</b>	<b>SNP-32/750 x 27 <sup>15</sup>/<sub>16</sub></b>	<b>S-32/750</b>	<b>N-750</b>	<b>P-750</b>	<b>27 <sup>15</sup>/<sub>16</sub></b>	<b>-0.007</b>	<b>22 <sup>63</sup>/<sub>64</sub></b>	<b>3 <sup>37</sup>/<sub>64</sub></b>	<b>34 <sup>1</sup>/<sub>4</sub></b>	<b>1118.0</b>	

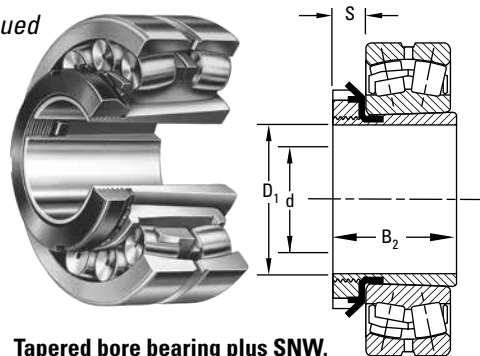
<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup>Tolerance range is from +0 to value listed.

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**INCH ACCESSORIES – PULL-TYPE SLEEVES – continued**  
**SNW/SNP – PULL-TYPE SLEEVE, LOCKNUT, LOCKWASHER/LOCKPLATE ASSEMBLIES**

- The table below shows dimensions for adapter assemblies and components used in the mounting of tapered bore bearings on shafts.
- SNW assembly consists of a sleeve, locknut and lockwasher.
- SNP assembly consists of a sleeve, locknut and lockplate.



**Tapered bore bearing plus SNW.**

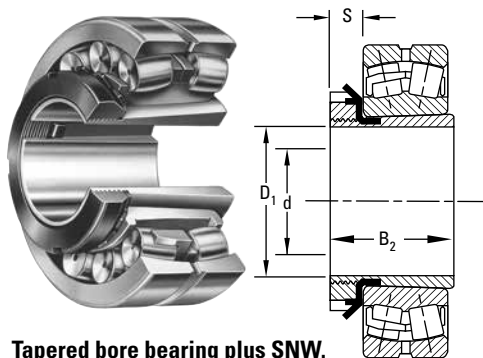
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Bearing No. <sup>(1)</sup>	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>	
					in.	in.	in.	in.	in.	lbs.
<b>SERIES 231K</b>										
<b>23122K</b>	<b>SNW-3122 x 3 15/16</b>	<b>S-22</b>	<b>N-022</b>	<b>W-022</b>	<b>3 15/16</b>	<b>-0.004</b>	<b>3 13/64</b>	<b>25/32</b>	<b>5 5/32</b>	<b>4.2</b>
<b>23124K</b>	<b>SNW-3124 x 4 3/16</b>	<b>S-24</b>	<b>N-024</b>	<b>W-024</b>	<b>4 3/16</b>	<b>-0.005</b>	<b>3 15/32</b>	<b>13/16</b>	<b>5 11/16</b>	<b>5.8</b>
<b>23126K</b>	<b>SNW-3126 x 4 7/16</b>	<b>S-26</b>	<b>N-026</b>	<b>W-026</b>	<b>4 7/16</b>	<b>-0.005</b>	<b>3 49/64</b>	<b>7/8</b>	<b>6 1/8</b>	<b>8.3</b>
<b>23128K</b>	<b>SNW-3128 x 4 15/16</b>	<b>S-28</b>	<b>N-028</b>	<b>W-028</b>	<b>4 15/16</b>	<b>-0.005</b>	<b>3 63/64</b>	<b>15/16</b>	<b>6 1/2</b>	<b>8.8</b>
<b>23130K</b>	<b>SNW-3130 x 5 3/16</b>	<b>S-30</b>	<b>N-030</b>	<b>W-030</b>	<b>5 3/16</b>	<b>-0.005</b>	<b>4 15/64</b>	<b>31/32</b>	<b>7 1/8</b>	<b>13.7</b>
<b>23132K</b>	<b>SNW-3132 x 5 7/16</b>	<b>S-32</b>	<b>N-032</b>	<b>W-032</b>	<b>5 7/16</b>	<b>-0.005</b>	<b>4 37/64</b>	<b>1 1/32</b>	<b>7 1/2</b>	<b>13.3</b>
<b>23134K</b>	<b>SNW-3134 x 5 15/16</b>	<b>S-34</b>	<b>N-034</b>	<b>W-034</b>	<b>5 15/16</b>	<b>-0.005</b>	<b>4 27/32</b>	<b>1 1/16</b>	<b>7 7/8</b>	<b>16.1</b>
<b>23136K</b>	<b>SNW-3136 x 6 7/16</b>	<b>S-36</b>	<b>N-036</b>	<b>W-036</b>	<b>6 7/16</b>	<b>-0.005</b>	<b>5 1/32</b>	<b>1 3/32</b>	<b>8 1/4</b>	<b>17.1</b>
<b>23138K</b>	<b>SNW-3138 x 6 15/16</b>	<b>S-38</b>	<b>N-038</b>	<b>W-038</b>	<b>6 15/16</b>	<b>-0.005</b>	<b>5 17/64</b>	<b>1 1/8</b>	<b>8 11/16</b>	<b>19.7</b>
<b>23140K</b>	<b>SNW-3140 x 7 3/16</b>	<b>S-40</b>	<b>N-040</b>	<b>W-040</b>	<b>7 3/16</b>	<b>-0.005</b>	<b>5 31/64</b>	<b>1 3/16</b>	<b>9 7/16</b>	<b>28.4</b>
<b>23144K</b>	<b>SNW-3144 x 7 15/16</b>	<b>S-44</b>	<b>N-044</b>	<b>W-044</b>	<b>7 15/16</b>	<b>-0.005</b>	<b>5 29/32</b>	<b>1 1/4</b>	<b>10 1/4</b>	<b>28.1</b>
<b>23148K</b>	<b>SNW-3144 x 8 15/16</b>	<b>S-48</b>	<b>N-048</b>	<b>P-48</b>	<b>8 15/16</b>	<b>-0.006</b>	<b>6 41/64</b>	<b>1 11/32</b>	<b>11 7/16</b>	<b>36.0</b>
<b>23152K</b>	<b>SNP-3152 x 9 7/16</b>	<b>S-52</b>	<b>N-052</b>	<b>P-52</b>	<b>9 7/16</b>	<b>-0.006</b>	<b>7 19/32</b>	<b>1 13/32</b>	<b>12 3/16</b>	<b>39.0</b>
	SNP-3152 x 9 1/2	S-52 x 9 1/2			9 1/2					
	SNP-3156 x 9 15/16	S-3156 x 9 15/16			9 15/16					
	SNP-3156 x 10	S-3156 x 10			10					
<b>23156K</b>	<b>SNP-3156 x 10 7/16</b>	<b>S-3156</b>	<b>N-056</b>	<b>P-56</b>	<b>10 7/16</b>	<b>-0.007</b>	<b>7 49/64</b>	<b>1 1/2</b>	<b>13</b>	<b>60.0</b>
	SNP-3156 x 10 1/2	S-3156 x 10 1/2			10 1/2					
<b>23160K</b>	<b>SNP-3160 x 10 15/16</b>	<b>S-3160</b>	<b>N-060</b>	<b>P-60</b>	<b>10 15/16</b>	<b>-0.007</b>	<b>8 3/8</b>	<b>1 9/16</b>	<b>14 3/16</b>	<b>65.0</b>
	SNP-3160 x 11	S-3160 x 11			11					
<b>23164K</b>	<b>SNP-3164 x 11 15/16</b>	<b>S-3164</b>	<b>N-064</b>	<b>P-64</b>	<b>11 15/16</b>	<b>-0.007</b>	<b>9 7/64</b>	<b>1 21/32</b>	<b>15</b>	<b>70.0</b>
	SNP-3164 x 12	S-3164 x 12			12					
	SNP-3168 x 12 1/2	S-3168 x 12 1/2			12 1/2					
<b>23168K</b>	<b>SNP-3168 x 12 7/8</b>	<b>S-3168</b>	<b>N-068</b>	<b>P-68</b>	<b>12 7/8</b>	<b>-0.007</b>	<b>9 25/32</b>	<b>1 25/32</b>	<b>15 3/4</b>	<b>93.5</b>
<b>23172K</b>	<b>SNP-3172 x 13 7/16</b>	<b>S-3172</b>	<b>N-072</b>	<b>P-72</b>	<b>13 7/16</b>	<b>-0.007</b>	<b>11 27/64</b>	<b>1 25/32</b>	<b>16 1/2</b>	<b>120.0</b>
	SNP-3172 x 13 1/2	S-3172 x 13 1/2			13 1/2					
<b>23176K</b>	<b>SNP-3176 x 13 15/16</b>	<b>S-3176</b>	<b>N-076</b>	<b>P-76</b>	<b>13 15/16</b>	<b>-0.007</b>	<b>11 7/8</b>	<b>1 29/32</b>	<b>17 3/4</b>	<b>125.0</b>
	SNP-3176 x 14	S-3176 x 14			14					
	SNP-3180 x 14 15/16	S-3180 x 14 15/16			14 15/16					
<b>23180K</b>	<b>SNP-3180 x 15</b>	<b>S-3180</b>	<b>N-080</b>	<b>P-80</b>	<b>15</b>	<b>-0.007</b>	<b>12 21/32</b>	<b>2 1/16</b>	<b>18 1/2</b>	<b>140.0</b>

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup>Tolerance range is from +0 to value listed.

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Tapered bore bearing plus SNW.

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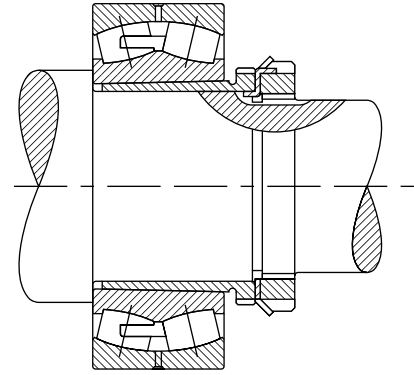
Bearing No. <sup>(1)</sup>	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			SNW/SNP Assembly Wt. lbs.
	Assembly	Sleeve	Locknut	Lockwasher Lockplate	Diameter d	Tolerance <sup>(2)</sup>	B <sub>2</sub>	S	D <sub>1</sub>	
					in.	in.	in.	in.	in.	
<b>23184K</b>	<b>SNP-3184 x 15 3/4</b>	<b>S-3184</b>	<b>N-084</b>	<b>P-84</b>	<b>15 3/4</b>	<b>-0.007</b>	<b>13 19/64</b>	<b>2 1/16</b>	<b>19 5/16</b>	<b>145.0</b>
<b>23188K</b>	<b>SNP-3188 x 16 1/2</b>	<b>S-3188</b>	<b>N-088</b>	<b>P-88</b>	<b>16 1/2</b>	<b>-0.007</b>	<b>13 61/64</b>	<b>2 3/8</b>	<b>20 1/2</b>	<b>229.0</b>
<b>23192K</b>	<b>SNP-3192 x 17</b>	<b>S-3192</b>	<b>N-092</b>	<b>P-92</b>	<b>17</b>	<b>-0.007</b>	<b>18 1/16</b>	<b>2 3/8</b>	<b>21 1/4</b>	<b>255.0</b>
<b>23196K</b>	<b>SNP-3196 x 18</b>	<b>S-3196</b>	<b>N-096</b>	<b>P-96</b>	<b>18</b>	<b>-0.007</b>	<b>15 5/32</b>	<b>2 3/8</b>	<b>22 1/16</b>	<b>293.0</b>
<b>231/500K</b>	<b>SNP-31/500 x 18 7/16</b>	<b>S-31/500</b>	<b>N-500</b>	<b>P-500</b>	<b>18 7/16</b>	<b>-0.007</b>	<b>16 1/2</b>	<b>2 45/64</b>	<b>22 13/16</b>	<b>315.0</b>
<b>231/530K</b>	<b>SNP-31/530 x 18 15/16</b> SNP-31/530 x 19 7/16	<b>S-31/500 x 18 15/16</b> S-31/530 x 19 7/16	<b>N-530</b>	<b>P-530</b>	<b>18 15/16</b> 19 7/16	<b>-0.007</b>	<b>17 17/64</b>	<b>2 45/64</b>	<b>24 13/16</b>	<b>355.0</b>
<b>231/560K</b>	<b>SNP-31/560 x 20 15/16</b>	<b>S-31/560</b>	<b>N-560</b>	<b>P-560</b>	<b>20 15/16</b>	<b>-0.007</b>	<b>17 59/64</b>	<b>2 61/64</b>	<b>25 9/16</b>	<b>408.0</b>
<b>231/600K</b>	<b>SNP-31/600 x 21 15/16</b>	<b>S-31/600</b>	<b>N-600</b>	<b>P-600</b>	<b>21 15/16</b>	<b>-0.007</b>	<b>18 55/64</b>	<b>2 61/64</b>	<b>27 9/16</b>	<b>516.0</b>
<b>231/630K</b>	<b>SNP-31/630 x 23 15/16</b>	<b>S-31/630</b>	<b>N-630</b>	<b>P-630</b>	<b>23 15/16</b>	<b>-0.007</b>	<b>19 51/64</b>	<b>2 61/64</b>	<b>28 3/4</b>	<b>556.0</b>
<b>231/670K</b>	<b>SNP-31/670 x 24 15/16</b>	<b>S-31/670</b>	<b>N-670</b>	<b>P-670</b>	<b>24 15/16</b>	<b>-0.007</b>	<b>21 1/32</b>	<b>3 3/64</b>	<b>30 11/16</b>	<b>759.0</b>
<b>231/710K</b>	<b>SNP-31/710 x 26 7/16</b>	<b>S-31/710</b>	<b>N-710</b>	<b>P-710</b>	<b>26 7/16</b>	<b>-0.007</b>	<b>21 15/16</b>	<b>3 37/64</b>	<b>32 11/16</b>	<b>833.0</b>
<b>231/750K</b>	<b>SNP-31/750 x 27 15/16</b>	<b>S-31/750</b>	<b>N-750</b>	<b>P-750</b>	<b>27 15/16</b>	<b>-0.007</b>	<b>22 63/64</b>	<b>3 37/64</b>	<b>34 1/4</b>	<b>997.0</b>
<b>231/800K</b>	<b>SNP-31/800 x 29 7/16</b>	<b>S-31/800</b>	<b>N-800</b>	<b>P-800</b>	<b>29 7/16</b>	<b>-0.007</b>	<b>19 1/64</b>	<b>3 37/64</b>	<b>36 1/4</b>	<b>1136.0</b>
<b>231/850K</b>	<b>SNP-31/850 x 31 7/16</b>	<b>S-31/850</b>	<b>N-850</b>	<b>P-850</b>	<b>31 7/16</b>	<b>-0.007</b>	<b>20 1/32</b>	<b>3 37/64</b>	<b>38 9/16</b>	<b>1303.0</b>

<sup>(1)</sup>Bold shaft sizes are standard. When ordering non-standard accessories, specify shaft size.

<sup>(2)</sup>Tolerance range is from +0 to value listed.

**INCH ACCESSORIES – PUSH-TYPE SLEEVES**  
**PUSH-TYPE REMOVABLE SLEEVE,  
 LOCKNUT AND LOCKWASHER**

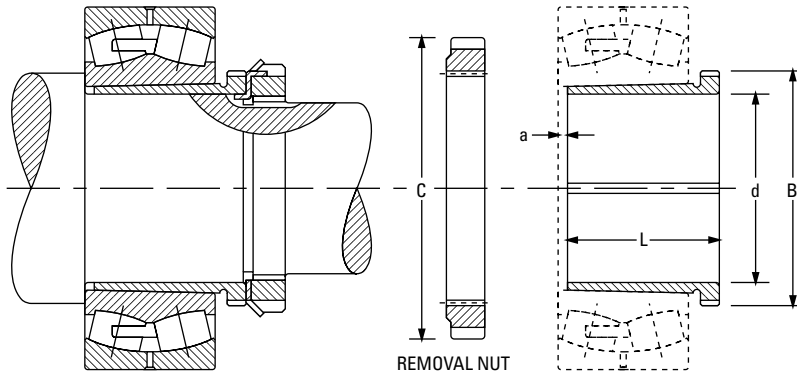
The chart below shows dimensions for adapter assemblies and components used in the mounting of tapered bore bearings on shafts.



Bearing No.	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			Removal Nut O.D. C	Sleeve Wt.
	Sleeve	Locknut	Lockwasher Lockplate	Removal Nut	Diameter d	Tolerance <sup>(1)</sup>	Pitch Dia. B	L	a		
					mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
<b>SERIES 222K</b>											
22216K	SK-8022	N-14	W-14	AN-18	70 2.7559	-0.10 -0.004	88.19 3.472	50 1.969	3.50 0.138	118.39 4.661	0.5 1.2
22217K	SK-8522	AN-15	W-15	AN-19	75 2.9528	-0.10 -0.004	93.35 3.675	52 2.047	3.50 0.138	125.55 4.943	0.6 1.4
22218K	SK-9022	AN-16	W-16	AN-20	80 3.1496	-0.10 -0.004	98.12 3.863	53 2.087	3.50 0.138	131.90 5.193	0.6 1.5
22219K	SK-9522	AN-17	W-17	AN-21	85 3.3465	-0.10 -0.004	103.28 4.066	57 2.244	4.00 0.157	138.25 5.443	0.8 1.8
22220K	SK-10022	AN-18	W-18	AN-22	90 3.5433	-0.10 -0.004	109.12 4.269	59 2.323	4.00 0.157	145.39 5.724	0.9 2.0
22222K	SK-11022	AN-20	W-20	ARN-22	100 3.9370	-0.10 -0.004	119.94 4.722	65 2.559	4.00 0.157	158.75 6.250	1.1 2.4
22224K	SK-12022	AN-22	W-22	ARN-24	110 4.3307	-0.13 -0.005	130.28 5.129	72 2.835	4.00 0.157	174.63 6.875	1.4 3.1
22226K	SK-13022	AN-22	W-22	ARN-26	115 4.5276	-0.13 -0.005	141.38 5.566	78 3.071	4.00 0.157	184.15 7.250	2.2 5.0
22228K	SK-14022	AN-24	W-24	RN-28	125 4.9213	-0.13 -0.005	152.73 6.013	82 3.228	5.00 0.197	200.03 7.875	2.6 5.8
22230K	SK-15022	AN-26	W-26	RN-30	135 5.3150	-0.13 -0.005	163.04 6.419	88 3.465	5.00 0.197	209.55 8.250	3.0 6.8
22232K	SK-16022	AN-28	W-28	RN-32	140 5.5118	-0.13 -0.005	173.76 6.841	96 3.780	5.00 0.197	225.43 8.875	4.5 9.9

<sup>(1)</sup>Tolerance range is from +0 to value listed.

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**Tapered bore bearing mounted with push-type removable sleeve.**

Continued from previous page.

Bearing No.	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			Removal Nut O.D. C	Sleeve Wt.
	Sleeve	Locknut	Lockwasher Lockplate	Removal Nut	Diameter d	Tolerance <sup>(1)</sup>	Pitch Dia. B	L	a		
					mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
22234K	SK-17022	AN-30	W-30	RN-34	150 5.9055	-0.13 -0.005	184.07 7.247	104 4.095	5.00 0.197	234.95 9.250	5.2 11.5
22236K	SK-18022	AN-32	W-32	RN-36	160 6.2992	-0.13 -0.005	194.79 7.669	104 4.095	5.00 0.197	247.65 9.750	5.6 12.5
22238K	SK-19022	AN-34	W-34	RN-38	170 6.6929	-0.13 -0.005	205.92 8.107	112 4.409	5.00 0.197	269.88 10.625	6.5 14.5
22240K	SK-20022	AN-36	W-36	N-044	180 7.0866	-0.13 -0.005	217.02 8.544	118 4.646	5.00 0.197	279.53 11.005	7.4 16.3
22244K	SK-22022	AN-40	W-40	N-048	200 7.8740	-0.13 -0.005	236.98 9.330	130 5.118	6.00 0.236	290.65 11.443	8.8 19.6
22248K	SK-24022	N-44	W-44	N-052	220 8.6614	-0.15 -0.006	256.03 10.080	144 5.669	6.00 0.236	309.70 12.193	11.0 24.3
22252K	SK-26022	N-048	P-48	N-056	240 9.4488	-0.15 -0.006	276.66 10.892	155 6.102	6.00 0.236	330.33 13.005	14.0 30.9
22256K	SK-28022	N-052	P-52	RN-56	260 10.2362	-0.15 -0.006	301.27 11.861	155 6.102	8.00 0.315	425.45 16.750	15.0 33.1
22260K	SK-30022	N-056	P-56	RN-60	280 11.0236	-0.15 -0.006	325.88 12.830	170 6.693	8.00 0.315	416.10 16.382	17.7 39.2
22264K	SK-32022	N-060	P-60	RN-64	300 11.8110	-0.15 -0.006	345.72 13.611	180 7.087	10.00 0.394	431.8 17.000	21.0 46.3

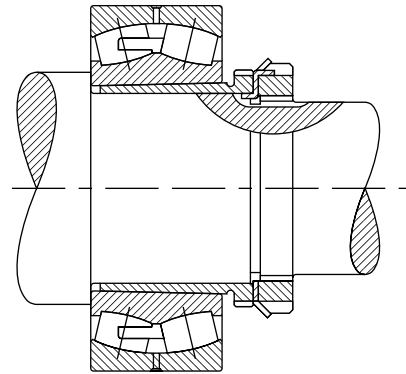
<sup>(1)</sup>Tolerance range is from +0 to value listed.

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**INCH ACCESSORIES – PUSH-TYPE SLEEVES** – *continued*

**PUSH-TYPE REMOVABLE SLEEVE,  
LOCKNUT AND LOCKWASHER**

The chart below shows dimensions for adapter assemblies and components used in the tapered bore bearings on shafts.

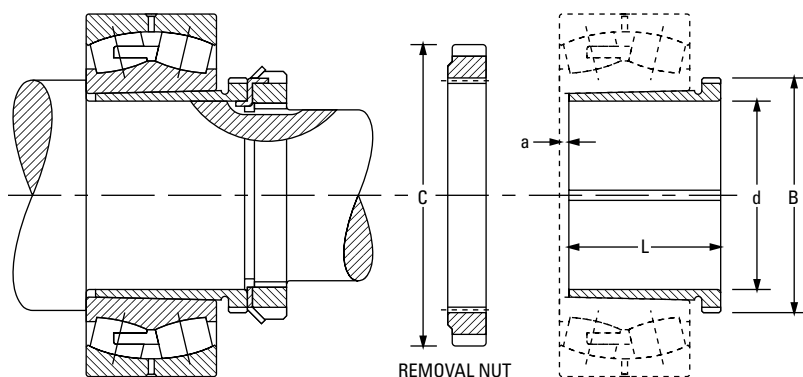


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Bearing No.	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			Removal Nut O.D. C	Sleeve Wt.
	Sleeve	Locknut	Lockwasher Lockplate	Removal Nut	Diameter d	Tolerance <sup>(1)</sup>	Pitch Dia. B	L	a		
					mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
<b>SERIES 223K</b>											
22308K	SK-4023	N-07	W-07	N-09	35 1.3780	-0.08 -0.003	43.94 1.730	40 1.575	3.00 0.118	64.41 2.536	0.1 0.2
22309K	SK-4523	N-08	W-08	N-10	40 1.5748	-0.08 -0.003	49.02 1.930	44 1.732	3.00 0.118	68.40 2.693	0.1 0.3
22310K	SK-5023	N-09	W-09	RN-10	45 1.7717	-0.08 -0.003	55.04 2.167	50 1.969	3.00 0.118	76.20 3.000	0.2 0.4
22311K	SK-5523	N-10	W-10	RN-11	50 1.9685	-0.08 -0.003	60.20 2.370	54 2.126	3.00 0.118	81.76 3.219	0.2 0.5
22312K	SK-6023	N-11	W-11	RN-12	55 2.1654	-0.10 -0.004	65.76 2.589	57 2.244	3.50 0.138	87.33 3.438	0.3 0.6
22313K	SK-6523	N-12	W-12	AN-15	60 2.3622	-0.10 -0.004	73.10 2.878	61 2.402	3.50 0.138	98.55 3.880	0.3 0.8
22314K	SK-7023	N-12	W-12	AN-16	60 2.3622	-0.10 -0.004	78.28 3.082	65 2.559	3.50 0.138	105.69 4.161	0.6 1.5
22315K	SK-7523	N-13	W-13	AN-17	65 2.5591	-0.10 -0.004	83.44 3.285	69 2.717	3.50 0.138	112.04 4.411	0.8 1.7
22316K	SK-8023	N-14	W-14	AN-18	70 2.7559	-0.10 -0.004	88.19 3.472	72 2.835	3.50 0.138	118.39 4.661	0.9 2.0
22317K	SK-8523	AN-15	W-15	AN-19	75 2.9528	-0.10 -0.004	93.35 3.675	75 2.953	3.50 0.138	125.55 4.943	1.0 2.2
22318K	SK-9023	AN-16	W-16	AN-20	80 3.1496	-0.10 -0.004	98.12 3.863	80 3.150	3.50 0.138	131.90 5.193	1.1 2.5
22319K	SK-9523	AN-17	W-17	AN-21	85 3.3465	-0.10 -0.004	103.28 4.066	85 3.346	4.00 0.157	138.25 5.443	1.3 2.9
22320K	SK-10023	AN-18	W-18	AN-22	90 3.5433	-0.10 -0.004	109.12 4.269	90 3.543	4.00 0.157	145.39 5.724	1.5 3.3

<sup>(1)</sup>Tolerance range is from +0 to value listed.

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**Tapered bore bearing mounted with push-type removable sleeve.**

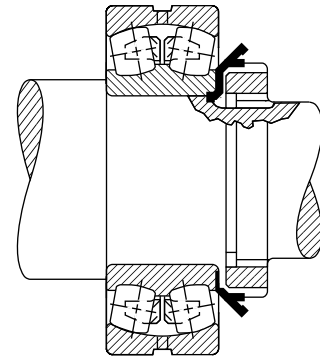
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Bearing No.	Accessory Numbers				Shaft Dimensions		Adapter Dimensions			Removal Nut O.D. C	Sleeve Wt.
	Sleeve	Locknut	Lockwasher Lockplate	Removal Nut	Diameter d	Tolerance <sup>(1)</sup>	Pitch Dia. B	L	a		
					mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	kg lbs.
22322K	SK-11023	AN-20	W-20	ARN-22	100 3.9370	-0.10 -0.004	119.94 4.722	98 3.858	4.00 0.157	158.75 6.250	1.9 4.2
22324K	SK-12023	AN-22	W-22	ARN-24	110 4.3307	-0.13 -0.005	130.28 5.129	105 4.134	4.00 0.157	174.63 6.875	2.2 5.0
22326K	SK-13023	AN-22	W-22	ARN-26	115 4.5276	-0.13 -0.005	141.38 5.566	115 4.528	4.00 0.157	184.15 7.250	3.6 8.0
22328K	SK-14023	AN-24	W-24	RN-28	125 4.9213	-0.13 -0.005	152.73 6.013	125 4.921	5.00 0.197	200.03 7.875	4.3 9.5
22330K	SK-15023	AN-26	W-26	RN-30	135 5.3150	-0.13 -0.005	163.04 6.419	135 5.315	5.00 0.197	209.55 8.250	5.1 11.4
22332K	SK-16023	AN-28	W-28	RN-32	140 5.5118	-0.13 -0.005	173.76 6.841	140 5.512	6.00 0.236	225.43 8.875	7.0 15.5
22334K	SK-17023	AN-30	W-30	RN-34	150 5.9055	-0.13 -0.005	184.07 7.247	146 5.748	6.00 0.236	234.95 9.250	7.8 17.2
22336K	SK-18023	AN-32	W-32	RN-36	160 6.2992	-0.13 -0.005	194.79 7.669	154 6.063	6.00 0.236	247.65 9.750	9.1 20.2
22338K	SK-19023	AN-34	W-34	RN-38	170 6.6929	-0.13 -0.005	205.92 8.107	160 6.299	7.00 0.276	269.88 10.625	10.0 22.1
22340K	SK-20023	AN-36	W-36	N-044	180 7.0866	-0.13 -0.005	217.02 8.544	170 6.693	7.00 0.276	279.53 11.005	11.4 25.2
22344K	SK-22023	AN-40	W-40	N-048	200 7.8740	-0.13 -0.005	236.98 9.330	181 7.126	8.00 0.315	290.65 11.443	13.3 29.5
22348K	SK-24023	N-44	W-44	N-052	220 8.6614	-0.15 -0.006	256.03 10.080	189 7.441	8.00 0.315	309.70 12.193	15.5 34.2
22352K	SK-26023	N-048	P-48	N-056	240 9.4488	-0.15 -0.006	276.66 10.892	200 7.874	8.00 0.315	330.33 13.005	18.2 40.2
22356K	SK-28023	N-052	P-52	RN-56	260 10.2362	-0.15 -0.006	301.27 11.861	210 8.268	10.00 0.394	425.45 16.75	22.0 48.5

<sup>(1)</sup>Tolerance range is from +0 to value listed.

**INCH ACCESSORIES –  
LOCKNUTS AND LOCKWASHERS**

- The chart below shows dimensions for locknuts and lockwashers used in the mounting of straight bore bearings on shafts.
- Other dimensions and tolerances related to shaft configurations are also shown.
- Dimensions are presented according to bearing bore size and are applicable to bearings in the various series (e.g., 222, 223, etc.).

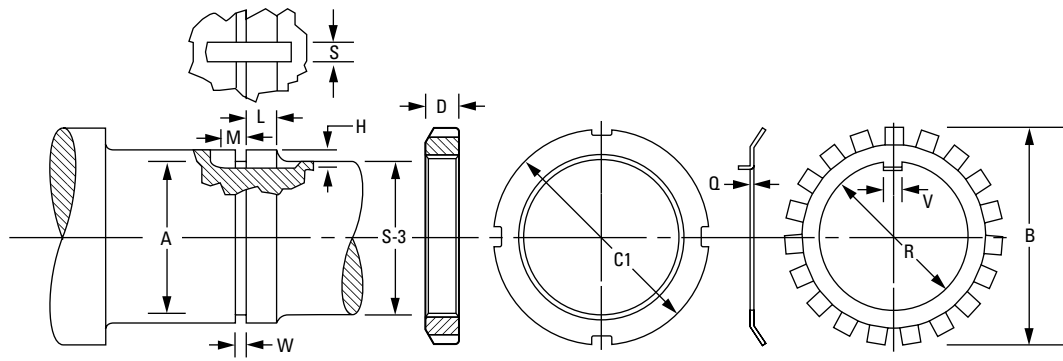


Bearing Bore	Locknut	Lockwasher	Threads Per Inch	Threads					
				Major Dia.		Pitch Dia.		Minor Dia.	Relief Dia. A
				Max.	Min.	Max.	Min.		
mm				mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
35	N 07	W 07	18	34.950 1.3760	34.740 1.3678	34.030 1.3399	33.930 1.3359	33.220 1.3078	32.820 1.2922
40	N 08	W 08	18	39.700 1.5630	39.490 1.5548	38.780 1.5269	38.670 1.5224	37.970 1.4948	37.570 1.4792
45	N 09	W 09	18	44.880 1.7670	44.670 1.7588	43.960 1.7309	43.850 1.7264	43.150 1.6988	42.750 1.6832
50	N 10	W 10	18	49.960 1.9670	49.750 1.9588	49.050 1.9309	48.930 1.9264	48.230 1.8988	47.830 1.8832
55	N 11	W 11	18	54.790 2.1570	54.580 2.1488	53.870 2.1209	53.740 2.1158	53.060 2.0888	52.660 2.0732
60	N 12	W 12	18	59.940 2.3600	59.740 2.3518	59.030 2.3239	58.900 2.3188	58.210 2.2918	57.820 2.2762
65	N 13	W 13	18	64.720 2.5480	64.510 2.5398	63.800 2.5119	63.670 2.5068	62.990 2.4798	62.590 2.4642
70	N 14	W 14	18	69.880 2.7510	69.670 2.7428	68.960 2.7149	68.830 2.7098	68.140 2.6828	67.750 2.6672
75	AN 15	W 15	12	74.500 2.9330	74.210 2.9218	73.120 2.8789	72.990 2.8735	71.900 2.8308	71.110 2.7995
80	AN 16	W 16	12	79.680 3.1370	79.400 3.1258	78.310 3.0829	78.160 3.0770	77.080 3.0348	76.290 3.0035
85	AN 17	W 17	12	84.840 3.3400	84.550 3.3288	83.460 3.2859	83.310 3.2800	82.240 3.2378	81.450 3.2065
90	AN 18	W 18	12	89.590 3.5270	89.300 3.5158	88.210 3.4729	88.020 3.4655	86.990 3.4248	86.200 3.3935
95	AN 19	W 19	12	94.740 3.7300	94.460 3.7188	93.370 3.6759	93.180 3.6685	92.150 3.6278	91.350 3.5965
100	AN 20	W 20	12	99.520 3.9180	99.230 3.9068	98.140 3.8639	97.960 3.8565	96.920 3.8158	96.130 3.7845
105	AN 21	W 21	12	104.700 4.1220	104.410 4.1108	103.320 4.0679	103.110 4.0596	102.100 4.0198	101.310 3.9885
110	AN 22	W 22	12	109.860 4.3250	109.570 4.3138	108.480 4.2709	108.270 4.2626	107.260 4.2228	106.460 4.1915
120	AN 24	W 24	12	119.790 4.7160	119.500 4.7048	118.410 4.6619	118.200 4.6536	117.190 4.6138	116.400 4.5825

<sup>(1)</sup>See page D-76, table D-20 for suggested S-3 shaft limits.

<sup>(2)</sup>For W, L, H, S and M, tolerance is -0 to +0.4 mm, -0 to +1/64 in.





Shaft						Locknut		Lockwasher			
S-3 <sup>(1)</sup>	W <sup>(2)</sup>	L <sup>(2)</sup>	H <sup>(2)</sup>	S <sup>(2)</sup>	M <sup>(2)</sup>	C1	D	Q	R	B	V
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
<b>31.750</b> 1 ¼	<b>2.4</b> ¾	<b>12.7</b> ½	<b>2.4</b> ¾	<b>4.8</b> ¾	<b>3.2</b> ⅛	<b>52.39</b> 2 ¼	<b>11.40</b> 0.448	<b>1.30</b> 0.050	<b>36.00</b> 1.416	<b>57.20</b> 2 ¼	<b>4.50</b> 0.176
<b>36.510</b> 1 ⅞	<b>3.2</b> ⅛	<b>13.5</b> ½	<b>2.4</b> ¾	<b>7.9</b> ⅝	<b>3.2</b> ⅛	<b>57.15</b> 2 ¼	<b>11.40</b> 0.448	<b>1.50</b> 0.058	<b>40.70</b> 1.603	<b>62.70</b> 2 ⅝	<b>7.40</b> 0.290
<b>42.860</b> 1 ⅞	<b>3.2</b> ⅛	<b>13.5</b> ½	<b>2.4</b> ¾	<b>7.9</b> ⅝	<b>4.0</b> ⅝	<b>64.30</b> 2 ⅞	<b>11.40</b> 0.448	<b>1.50</b> 0.058	<b>46.20</b> 1.817	<b>69.50</b> 2 ⅞	<b>7.40</b> 0.290
<b>47.630</b> 1 ⅞	<b>3.2</b> ⅛	<b>15.1</b> ⅝	<b>2.4</b> ¾	<b>7.9</b> ⅝	<b>4.0</b> ⅝	<b>68.30</b> 2 ⅞	<b>13.00</b> 0.510	<b>1.50</b> 0.058	<b>51.20</b> 2.017	<b>74.20</b> 2 ⅞	<b>7.40</b> 0.290
<b>52.390</b> 2 ⅞	<b>3.2</b> ⅛	<b>15.1</b> ⅝	<b>3.2</b> ⅛	<b>7.9</b> ⅝	<b>4.0</b> ⅝	<b>75.40</b> 2 ⅞	<b>13.00</b> 0.510	<b>1.60</b> 0.063	<b>56.10</b> 2.207	<b>79.00</b> 3 ⅞	<b>7.40</b> 0.290
<b>57.150</b> 2 ¼	<b>3.2</b> ⅛	<b>15.9</b> ⅝	<b>3.2</b> ⅛	<b>7.9</b> ⅝	<b>4.0</b> ⅝	<b>80.20</b> 3 ⅞	<b>13.70</b> 0.541	<b>1.60</b> 0.063	<b>61.60</b> 2.425	<b>85.00</b> 3 ⅞	<b>7.40</b> 0.290
<b>61.910</b> 2 ⅞	<b>3.2</b> ⅛	<b>16.7</b> ⅝	<b>3.2</b> ⅛	<b>7.9</b> ⅝	<b>4.0</b> ⅝	<b>85.70</b> 3 ⅞	<b>14.60</b> 0.573	<b>1.60</b> 0.063	<b>66.40</b> 2.613	<b>90.90</b> 3 ⅞	<b>7.40</b> 0.290
<b>66.680</b> 2 ⅞	<b>3.2</b> ⅛	<b>16.7</b> ⅝	<b>3.2</b> ⅛	<b>7.9</b> ⅝	<b>6.4</b> ¼	<b>92.10</b> 3 ⅞	<b>14.60</b> 0.573	<b>1.60</b> 0.063	<b>71.50</b> 2.816	<b>97.20</b> 3 ⅞	<b>7.40</b> 0.290
<b>71.440</b> 2 ⅞	<b>4.0</b> ⅝	<b>17.5</b> ⅝	<b>3.2</b> ⅛	<b>7.9</b> ⅝	<b>6.4</b> ¼	<b>98.40</b> 3 ⅞	<b>15.30</b> 0.604	<b>1.60</b> 0.072	<b>76.30</b> 3.003	<b>104.40</b> 4 ⅞	<b>7.40</b> 0.290
<b>76.200</b> 3	<b>4.0</b> ⅝	<b>17.5</b> ⅝	<b>3.2</b> ⅛	<b>9.5</b> ⅝	<b>6.4</b> ¼	<b>105.60</b> 4 ⅞	<b>15.30</b> 0.604	<b>1.80</b> 0.072	<b>81.50</b> 3.207	<b>111.10</b> 4 ⅞	<b>9.00</b> 0.353
<b>80.960</b> 3 ⅞	<b>4.0</b> ⅝	<b>16.7</b> ⅝	<b>3.2</b> ⅛	<b>9.5</b> ⅝	<b>6.4</b> ¼	<b>111.90</b> 4 ⅞	<b>16.10</b> 0.635	<b>1.80</b> 0.072	<b>87.00</b> 3.425	<b>117.50</b> 4 ⅞	<b>9.00</b> 0.353
<b>85.730</b> 3 ⅞	<b>4.0</b> ⅝	<b>20.6</b> ⅞	<b>4.0</b> ⅝	<b>9.5</b> ⅝	<b>6.4</b> ¼	<b>118.30</b> 4 ⅞	<b>17.70</b> 0.698	<b>2.40</b> 0.094	<b>91.70</b> 3.612	<b>125.40</b> 4 ⅞	<b>9.00</b> 0.353
<b>90.490</b> 3 ⅞	<b>4.0</b> ⅝	<b>21.4</b> ⅞	<b>4.0</b> ⅝	<b>9.5</b> ⅝	<b>6.4</b> ¼	<b>125.40</b> 4 ⅞	<b>18.50</b> 0.729	<b>2.40</b> 0.094	<b>97.30</b> 3.830	<b>132.60</b> 5 ⅞	<b>9.00</b> 0.353
<b>96.840</b> 3 ⅞	<b>4.0</b> ⅝	<b>22.2</b> ⅞	<b>4.0</b> ⅝	<b>9.5</b> ⅝	<b>7.9</b> ⅝	<b>131.80</b> 5 ⅞	<b>19.30</b> 0.760	<b>2.40</b> 0.094	<b>102.10</b> 4.018	<b>139.70</b> 5 ⅞	<b>9.00</b> 0.353
<b>100.010</b> 3 ⅞	<b>4.0</b> ⅝	<b>22.2</b> ⅞	<b>4.0</b> ⅝	<b>9.5</b> ⅝	<b>7.9</b> ⅝	<b>138.10</b> 5 ⅞	<b>19.30</b> 0.760	<b>2.40</b> 0.094	<b>107.20</b> 4.222	<b>144.90</b> 5 ⅞	<b>9.00</b> 0.353
<b>106.360</b> 4 ⅞	<b>4.0</b> ⅝	<b>23</b> ⅞	<b>4.8</b> ⅝	<b>9.5</b> ⅝	<b>7.9</b> ⅝	<b>145.30</b> 5 ⅞	<b>20.10</b> 0.791	<b>3.20</b> 0.125	<b>112.40</b> 4.425	<b>154.00</b> 6 ⅞	<b>9.00</b> 0.353
<b>115.890</b> 4 ⅞	<b>4.0</b> ⅝	<b>23.8</b> ⅞	<b>4.8</b> ⅝	<b>9.5</b> ⅝	<b>7.9</b> ⅝	<b>155.60</b> 6 ⅞	<b>20.90</b> 0.823	<b>3.20</b> 0.125	<b>122.70</b> 4.831	<b>164.30</b> 6 ⅞	<b>9.00</b> 0.353

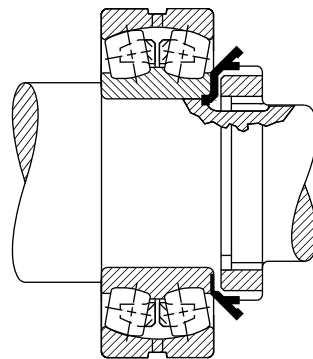
<sup>(1)</sup>See page D-76, table D-20 for suggested S-3 shaft limits.

<sup>(2)</sup>For W, L, H, S and M, tolerance is -0 to +0.4 mm, -0 to +1/64 in.

Continued on next page.

**INCH ACCESSORIES –  
LOCKNUTS AND LOCKWASHERS – continued**

- The chart below shows dimensions for locknuts and lockwashers used in the mounting of straight bore bearings on shafts.
- Other dimensions and tolerances related to shaft configurations are also shown.
- Dimensions are presented according to bearing bore size and are applicable to bearings in the various series (e.g., 222 and 223, etc.).

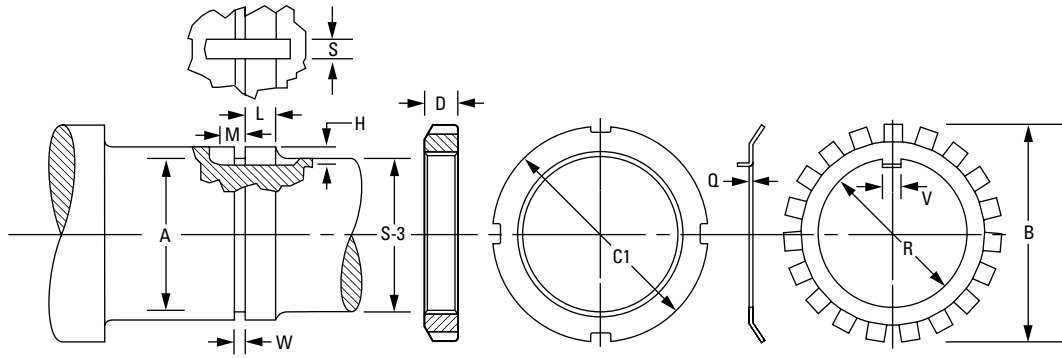


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Bearing Bore	Locknut	Lockwasher	Threads Per Inch	Threads					
				Major Dia.		Pitch Dia.		Minor Dia.	Relief Dia. A
				Max.	Min.	Max.	Min.		
mm				mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
130	AN 26	W 26	12	129.690 5.1060	129.410 5.0948	128.320 5.0519	128.110 5.0436	127.100 5.0038	126.300 4.9725
140	AN 28	W 28	12	139.620 5.4970	139.340 5.4858	138.250 5.4429	138.040 5.4346	137.030 5.3948	136.230 5.3635
150	AN 30	W 30	12	149.560 5.8880	149.270 5.8768	148.180 5.8339	147.970 5.8256	146.960 5.7858	146.160 5.7545
160	AN 32	W 32	8	159.610 6.2840	159.230 6.2688	157.550 6.2028	157.320 6.1937	155.720 6.1306	154.920 6.0993
170	AN 34	W 34	8	169.140 6.6590	168.750 6.6438	167.080 6.5778	166.850 6.5687	165.240 6.5056	164.450 6.4743
180	AN 36	W 36	8	179.480 7.0660	179.090 7.0508	177.410 6.9848	177.180 6.9757	175.580 6.9126	174.790 6.8813
190	AN 38	W 38	8	189.790 7.4720	189.400 7.4568	187.730 7.3908	187.500 7.3817	185.890 7.3186	185.100 7.2873
200	AN 40	W 40	8	199.310 7.8470	198.930 7.8318	197.250 7.7658	196.960 7.7544	195.420 7.6936	194.620 7.6623
220	N 044	W 44	8	219.150 8.6280	218.770 8.6128	217.090 8.5468	216.780 8.5347	215.250 8.4746	214.460 8.4433

<sup>(1)</sup>See page D-76, table D-20 for suggested S-3 shaft limits.

<sup>(2)</sup>For W, L, H, S and M, tolerance is -0 to +0.4 mm, -0 to +1/64 in.



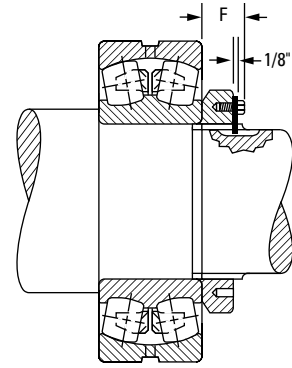
Shaft						Locknut		Lockwasher			
S-3 <sup>(1)</sup>	W <sup>(2)</sup>	L <sup>(2)</sup>	H <sup>(2)</sup>	S <sup>(2)</sup>	M <sup>(2)</sup>	C1	D	Q	R	B	V
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
<b>125.410</b> 4 15/16	<b>4.0</b> 5/32	<b>25.4</b> 1	<b>4.8</b> 3/16	<b>12.7</b> 1/2	<b>7.9</b> 5/16	<b>171.50</b> 6 3/4	<b>22.50</b> 0.885	<b>3.20</b> 0.125	<b>132.70</b> 5.226	<b>178.60</b> 7 1/32	<b>11.10</b> 0.435
<b>134.940</b> 5 5/16	<b>4.0</b> 5/32	<b>27</b> 1 1/16	<b>4.8</b> 3/16	<b>15.9</b> 5/8	<b>7.9</b> 5/16	<b>180.20</b> 7 3/32	<b>24.10</b> 0.948	<b>3.20</b> 0.125	<b>142.70</b> 5.617	<b>188.90</b> 7 7/16	<b>15.00</b> 0.590
<b>146.050</b> 5 3/4	<b>4.0</b> 5/32	<b>28.6</b> 1 1/8	<b>5.6</b> 7/32	<b>15.9</b> 5/8	<b>9.5</b> 3/8	<b>195.30</b> 7 11/16	<b>24.90</b> 0.979	<b>4.00</b> 0.156	<b>152.90</b> 6.018	<b>204.80</b> 8 1/16	<b>15.00</b> 0.590
<b>153.990</b> 6 1/16	<b>6.4</b> 1/4	<b>30.2</b> 1 3/16	<b>6.0</b> 15/64	<b>15.9</b> 5/8	<b>9.5</b> 3/8	<b>204.80</b> 8 1/16	<b>26.40</b> 1.041	<b>4.00</b> 0.156	<b>163.20</b> 6.424	<b>214.30</b> 8 7/16	<b>15.00</b> 0.590
<b>163.510</b> 6 7/16	<b>6.4</b> 1/4	<b>31</b> 1 1/32	<b>6.0</b> 15/64	<b>19.1</b> 3/4	<b>9.5</b> 3/8	<b>219.90</b> 8 27/32	<b>27.30</b> 1.073	<b>4.00</b> 0.156	<b>172.70</b> 6.799	<b>230.20</b> 9 1/16	<b>18.20</b> 0.715
<b>174.630</b> 6 5/8	<b>6.4</b> 1/4	<b>31.8</b> 1 1/4	<b>6.0</b> 15/64	<b>19.1</b> 3/4	<b>9.5</b> 3/8	<b>230.20</b> 9 1/16	<b>28.00</b> 1.104	<b>4.00</b> 0.156	<b>183.00</b> 7.206	<b>239.70</b> 9 5/16	<b>18.20</b> 0.715
<b>184.150</b> 7 1/4	<b>6.4</b> 1/4	<b>32.5</b> 1 3/32	<b>6.0</b> 15/64	<b>19.1</b> 3/4	<b>9.5</b> 3/8	<b>240.50</b> 9 15/32	<b>28.80</b> 1.135	<b>4.00</b> 0.156	<b>193.30</b> 7.612	<b>250.80</b> 9 3/8	<b>18.20</b> 0.715
<b>193.680</b> 7 5/8	<b>6.4</b> 1/4	<b>34.1</b> 1 11/32	<b>6.0</b> 15/64	<b>22.2</b> 7/8	<b>9.5</b> 3/8	<b>250.00</b> 9 27/32	<b>30.40</b> 1.198	<b>4.00</b> 0.156	<b>203.60</b> 8.017	<b>261.90</b> 10 5/16	<b>21.30</b> 0.840
<b>211.140</b> 8 5/16	<b>6.4</b> 1/4	<b>34.9</b> 1 3/8	<b>9.5</b> 3/8	<b>27.0</b> 1 1/16	<b>9.5</b> 3/8	<b>279.40</b> 11	<b>31.80</b> 1.250	<b>3.20</b> 0.125	<b>221.10</b> 8.703	<b>290.50</b> 11 7/16	<b>23.90</b> 0.940

<sup>(1)</sup>See page D-76, table D-20 for suggested S-3 shaft limits.

<sup>(2)</sup>For W, L, H, S and M, tolerance is -0 to +0.4 mm, -0 to +1/64 in.

**INCH ACCESSORIES –  
LOCKNUTS AND LOCKPLATES**

- The chart below shows dimensions for locknuts and lockplates used in the mounting of straight bore bearings on shafts.
- Other dimensions and tolerances related to shaft configurations are also shown.
- Dimensions are presented according to bearing bore size and are applicable to bearings in the various series (e.g., 222, 223, etc.).

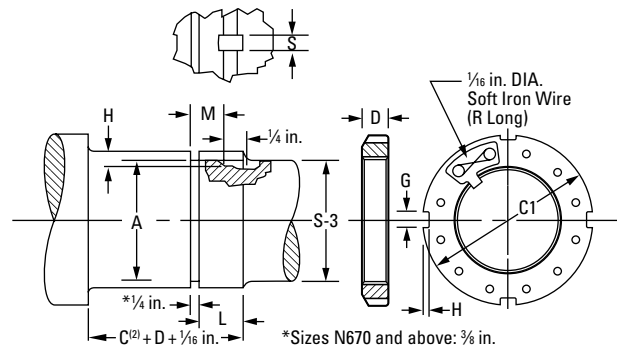


Bearing Bore	Locknut	Lockplate	Threads Per Inch	Threads					
				Major Dia.		Pitch Dia.		Minor Dia.	Relief Dia. A
				Max.	Min.	Max.	Min.		
mm				mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
240	N 048	P 48	6	239.83 9.442	239.31 9.4218	237.08 9.3337	236.76 9.3213	234.63 9.2374	233.44 9.1905
260	N 052	P 52	6	258.88 10.192	258.36 10.1718	256.13 10.0837	255.8 10.0707	253.68 9.9874	252.49 9.9405
280	N 056	P 56	6	279.50 11.004	278.99 10.9838	276.75 10.8957	276.42 10.8827	274.31 10.7994	273.11 10.7525
300	N 060	P 60	6	299.34 11.785	298.83 11.7648	296.59 11.6767	296.26 11.6637	294.14 11.5804	292.95 11.5335
320	N 064	P 64	6	319.08 12.562	318.56 12.5418	316.32 12.4537	315.98 12.4402	313.88 12.3574	312.69 12.3105
340	N 068	P 68	5	337.90 13.303	337.49 13.287	335.36 13.203	334.95 13.187	332.31 13.083	331.11 13.036
360	N 072	P 72	5	359.00 14.134	358.60 14.118	356.46 14.034	356.06 14.018	353.42 13.914	352.22 13.867
380	N 076	P 76	5	378.99 14.921	378.59 14.905	376.45 14.821	376.05 14.805	373.41 14.701	372.21 14.654
400	N 080	P 80	5	399.01 15.709	398.60 15.693	396.47 15.609	396.06 15.593	393.42 15.489	392.23 15.442
420	N 084	P 84	5	419.00 16.496	418.59 16.480	416.46 16.396	416.05 16.380	413.41 16.276	412.22 16.229
440	N 088	P 88	5	438.99 17.283	438.58 17.267	436.45 17.183	436.05 17.167	433.40 17.063	432.21 17.016
460	N 092	P 92	5	459.00 18.071	458.60 18.055	456.46 17.971	456.06 17.955	453.42 17.851	452.22 17.804
480	N 096	P 96	5	478.99 18.858	478.59 18.842	476.45 18.758	476.05 18.742	473.41 18.638	472.21 18.591

<sup>(1)</sup>See page D-76, table D-20 for suggested S-3 shaft limits.

<sup>(2)</sup>C is outer-ring width that may be obtained from bearing dimension tables.

<sup>(3)</sup>For L, H, S and M, tolerance is -0 to +1/64 in., -0 to + 0.4 mm.



Shaft					Locknut/Lockplate					
S-3 <sup>(1)</sup>	L <sup>(3)</sup>	H <sup>(3)</sup>	S <sup>(3)</sup>	M <sup>(3)</sup>	C1	D	G	H ±0.25 mm ±0.010 in.	R	F
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
<b>233.36</b> 9 3/16	<b>42.86</b> 1 11/16	<b>11.1</b> 7/16	<b>28.6</b> 1 1/8	<b>34.9</b> 1 3/8	<b>290.5</b> 11 7/16	<b>34.1</b> 1 1/2	<b>22.48</b> 0.885	<b>9.5</b> 3/8	<b>203.2</b> 8	<b>43.26</b> 1 45/64
<b>252.41</b> 9 15/16	<b>45.24</b> 1 25/32	<b>11.1</b> 7/16	<b>30.2</b> 1 3/16	<b>37.3</b> 1 15/32	<b>309.6</b> 12 3/16	<b>35.7</b> 1 13/32	<b>22.48</b> 0.885	<b>9.5</b> 3/8	<b>228.6</b> 9	<b>44.85</b> 1 49/64
<b>273.05</b> 10 3/4	<b>47.63</b> 1 7/8	<b>11.1</b> 7/16	<b>31.8</b> 1 1/4	<b>39.7</b> 1 9/16	<b>330.2</b> 13	<b>38.1</b> 1 1/2	<b>25.65</b> 1.010	<b>9.5</b> 3/8	<b>228.6</b> 9	<b>47.23</b> 1 55/64
<b>292.1</b> 11 1/2	<b>49.21</b> 1 15/16	<b>11.1</b> 7/16	<b>34.9</b> 1 3/8	<b>41.3</b> 1 5/8	<b>360.4</b> 14 3/16	<b>39.7</b> 1 7/16	<b>25.65</b> 1.010	<b>12.7</b> 1/2	<b>254.0</b> 10	<b>50.01</b> 1 31/32
<b>312.74</b> 12 3/16	<b>51.59</b> 2 1/32	<b>11.1</b> 7/16	<b>36.5</b> 1 7/16	<b>43.7</b> 1 23/32	<b>381.0</b> 15	<b>42.1</b> 1 21/32	<b>25.65</b> 1.010	<b>12.7</b> 1/2	<b>254.0</b> 10	<b>52.39</b> 2 1/16
<b>331.79</b> 13 1/16	<b>56.36</b> 2 3/32	<b>11.1</b> 7/16	<b>38.1</b> 1 1/2	<b>48.4</b> 1 29/32	<b>400.1</b> 15 3/4	<b>45.2</b> 1 25/32	<b>25.65</b> 1.010	<b>12.7</b> 1/2	<b>279.4</b> 11	<b>55.56</b> 2 3/16
<b>350.84</b> 13 13/16	<b>56.36</b> 2 3/32	<b>12.7</b> 1/2	<b>38.1</b> 1 1/2	<b>48.4</b> 1 29/32	<b>419.1</b> 16 1/2	<b>45.2</b> 1 25/32	<b>32.00</b> 1.260	<b>12.7</b> 1/2	<b>279.4</b> 11	<b>55.56</b> 2 3/16
<b>371.48</b> 14 5/8	<b>59.53</b> 2 11/32	<b>12.7</b> 1/2	<b>38.1</b> 1 1/2	<b>51.59</b> 2 1/32	<b>450.9</b> 17 3/4	<b>48.4</b> 1 29/32	<b>32.00</b> 1.260	<b>15.1</b> 19/32	<b>304.8</b> 12	<b>61.12</b> 2 19/32
<b>390.53</b> 15 3/8	<b>63.50</b> 2 1/2	<b>12.7</b> 1/2	<b>41.3</b> 1 5/8	<b>55.6</b> 2 3/16	<b>469.9</b> 18 1/2	<b>52.4</b> 2 1/16	<b>32.00</b> 1.260	<b>15.1</b> 19/32	<b>330.2</b> 13	<b>65.09</b> 2 9/16
<b>411.16</b> 16 3/16	<b>63.50</b> 2 1/2	<b>12.7</b> 1/2	<b>41.3</b> 1 5/8	<b>55.6</b> 2 3/16	<b>490.5</b> 19 5/16	<b>52.4</b> 2 1/16	<b>35.18</b> 1.385	<b>15.1</b> 19/32	<b>330.2</b> 13	<b>65.09</b> 2 9/16
<b>431.80</b> 17	<b>71.44</b> 2 13/16	<b>12.7</b> 1/2	<b>46.0</b> 1 13/16	<b>63.50</b> 2 1/2	<b>520.7</b> 20 1/2	<b>60.3</b> 2 3/8	<b>35.18</b> 1.385	<b>15.1</b> 19/32	<b>355.6</b> 14	<b>75.41</b> 2 31/32
<b>450.85</b> 17 3/4	<b>71.44</b> 2 13/16	<b>12.7</b> 1/2	<b>46.0</b> 1 13/16	<b>63.50</b> 2 1/2	<b>539.8</b> 21 1/4	<b>60.3</b> 2 3/8	<b>35.18</b> 1.385	<b>15.1</b> 19/32	<b>406.4</b> 16	<b>75.41</b> 2 31/32
<b>469.9</b> 18 1/2	<b>71.44</b> 2 13/16	<b>12.7</b> 1/2	<b>46.0</b> 1 13/16	<b>63.50</b> 2 1/2	<b>560.4</b> 22 1/16	<b>60.3</b> 2 3/8	<b>38.35</b> 1.510	<b>15.1</b> 19/32	<b>406.4</b> 16	<b>75.41</b> 2 31/32

<sup>(1)</sup>See page D-76, table D-20 for suggested S-3 shaft limits.

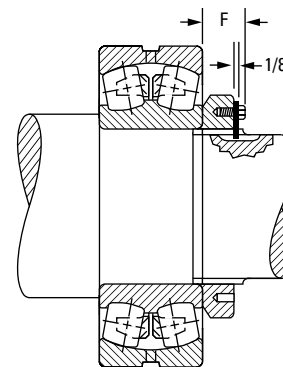
<sup>(2)</sup>C is outer-ring width that may be obtained from bearing dimension tables.

<sup>(3)</sup>For L, H, S and M, tolerance is -0 to +1/64 in., -0 to + 0.4 mm.

*Continued on next page.*

**INCH ACCESSORIES –  
LOCKNUTS AND LOCKPLATES** – *continued*

- The chart below shows dimensions for locknuts and lockplates used in the mounting of straight bore bearings on shafts.
- Other dimensions and tolerances related to shaft configurations are also shown.
- Dimensions are presented according to bearing bore size and are applicable to bearings in the various series (e.g., 222, 223, etc.).



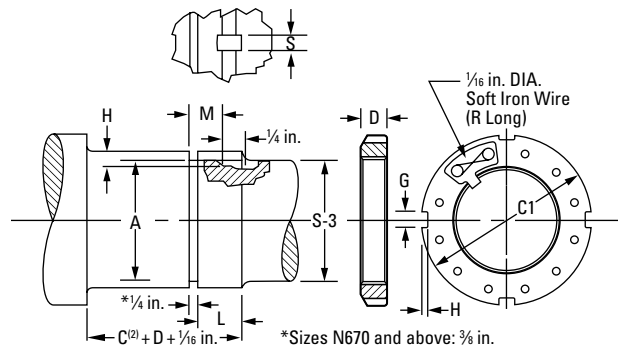
*Continued from previous page.*

Bearing Bore	Locknut	Lockplate	Threads Per Inch	Threads					
				Major Dia.		Pitch Dia.		Minor Dia.	Relief Dia. A
				Max.	Min.	Max.	Min.		
mm				mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
500	N 500	P 500	5	499.01 19.646	498.60 19.630	496.47 19.546	496.06 19.530	493.42 19.426	492.23 19.379
530	N 530	P 530	4	529.01 20.827	528.50 20.807	525.83 20.702	525.32 20.682	522.15 20.557	520.55 20.494
560	N 560	P 560	4	559.00 22.008	558.50 21.988	555.83 21.883	555.32 21.863	552.15 21.738	550.55 21.675
600	N 600	P 600	4	599.01 23.583	598.50 23.563	595.83 23.458	595.33 23.438	592.15 23.313	590.55 23.250
630	N 630	P 630	4	629.01 24.764	628.50 24.744	625.83 24.639	625.32 24.619	622.15 24.494	520.55 24.431
670	N 670	P 670	4	669.01 26.339	668.50 26.319	665.84 26.214	665.33 26.194	662.15 26.069	660.55 26.006
710	N 710	P 710	3	709.02 27.914	708.33 27.887	704.77 27.747	704.09 27.720	700.02 27.56	698.42 27.497
750	N 750	P 750	3	749.02 29.489	748.34 29.462	744.78 29.322	744.09 29.295	740.03 29.135	738.43 29.072
800	N 800	P 800	3	799.01 31.457	798.32 31.430	794.77 31.290	794.08 31.263	790.02 31.103	788.42 31.040
850	N 850	P 850	3	849.02 33.426	848.34 33.399	844.78 33.259	844.09 33.232	840.03 33.072	838.43 33.009
900	N 900	P 900	3	899.01 35.394	898.32 35.367	894.77 35.227	894.08 35.200	890.02 35.040	888.42 34.977
950	N 950	P 950	3	949.02 37.363	948.33 37.336	944.78 37.196	944.09 37.169	940.03 37.009	938.43 36.946

<sup>(1)</sup>See page D-76, table D-20 for suggested S-3 shaft limits.

<sup>(2)</sup>C is outer-ring width that may be obtained from bearing dimension tables.

<sup>(3)</sup>For L, H, S and M, tolerance is -0 to +1/4 in., -0 to + 0.4 mm.



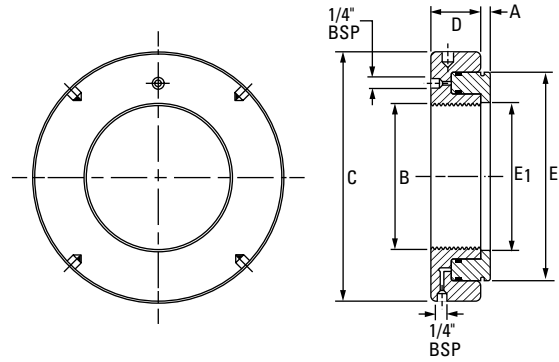
Shaft					Locknut/Lockplate					
S-3 <sup>(1)</sup>	L <sup>(3)</sup>	H <sup>(3)</sup>	S <sup>(3)</sup>	M <sup>(3)</sup>	C1	D	G	H ±0.25 mm ±0.010 in.	R	F
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
<b>489.0</b> 19 1/4	<b>79.4</b> 3 1/8	<b>12.7</b> 1/2	<b>46.0</b> 1 13/16	<b>71.4</b> 2 13/16	<b>579.4</b> 22 13/16	<b>68.3</b> 2 11/16	<b>38.35</b> 1.510	<b>15.1</b> 19/32	<b>406.4</b> 16	<b>83.3</b> 3 3/32
<b>517.5</b> 20 3/8	<b>79.4</b> 3 1/8	<b>12.7</b> 1/2	<b>46.0</b> 1 13/16	<b>71.4</b> 2 13/16	<b>630.2</b> 24 13/16	<b>68.3</b> 2 11/16	<b>41.53</b> 1.635	<b>20.6</b> 13/16	<b>425.5</b> 16 3/4	<b>83.3</b> 3 3/32
<b>549.3</b> 21 5/8	<b>85.7</b> 3 3/8	<b>12.7</b> 1/2	<b>46.0</b> 1 13/16	<b>77.8</b> 3 1/16	<b>649.3</b> 25 5/16	<b>74.6</b> 2 15/16	<b>41.53</b> 1.635	<b>20.6</b> 13/16	<b>476.3</b> 18 3/4	<b>89.7</b> 3 11/32
<b>587.4</b> 23 1/8	<b>85.7</b> 3 3/8	<b>12.7</b> 1/2	<b>46.0</b> 1 13/16	<b>77.8</b> 3 1/16	<b>700.1</b> 27 5/16	<b>74.6</b> 2 15/16	<b>41.53</b> 1.635	<b>20.6</b> 13/16	<b>508.0</b> 20	<b>89.7</b> 3 11/32
<b>619.1</b> 24 3/8	<b>85.7</b> 3 3/8	<b>12.7</b> 1/2	<b>50.8</b> 2	<b>77.8</b> 3 1/16	<b>730.3</b> 28 3/4	<b>74.6</b> 2 15/16	<b>47.88</b> 1.885	<b>20.6</b> 13/16	<b>520.7</b> 20 1/2	<b>92.1</b> 3 5/8
<b>657.2</b> 25 7/8	<b>90.5</b> 3 9/16	<b>12.7</b> 1/2	<b>50.8</b> 2	<b>82.6</b> 3 1/4	<b>779.5</b> 30 11/16	<b>79.4</b> 3 1/8	<b>47.88</b> 1.885	<b>20.6</b> 13/16	<b>546.1</b> 21 1/2	<b>96.8</b> 3 13/16
<b>695.3</b> 27 3/8	<b>101.6</b> 4	<b>15.9</b> 5/8	<b>50.8</b> 2	<b>93.7</b> 3 11/16	<b>830.3</b> 32 11/16	<b>90.5</b> 3 9/16	<b>51.30</b> 2.020	<b>25.4</b> 1	<b>571.5</b> 22 1/2	<b>108.0</b> 4 1/4
<b>736.6</b> 29	<b>101.6</b> 4	<b>15.9</b> 5/8	<b>50.8</b> 2	<b>93.7</b> 3 11/16	<b>870.0</b> 34 1/4	<b>90.5</b> 3 9/16	<b>57.66</b> 2.270	<b>25.4</b> 1	<b>584.2</b> 23	<b>108.0</b> 4 1/4
<b>787.4</b> 31	<b>101.6</b> 4	<b>15.9</b> 5/8	<b>50.8</b> 2	<b>93.7</b> 3 11/16	<b>920.8</b> 36 1/4	<b>90.5</b> 3 9/16	<b>57.66</b> 2.270	<b>25.4</b> 1	<b>616.0</b> 24 1/4	<b>108.0</b> 4 1/4
<b>835.0</b> 32 7/8	<b>101.6</b> 4	<b>15.9</b> 5/8	<b>50.8</b> 2	<b>93.7</b> 3 11/16	<b>979.5</b> 38 5/16	<b>90.5</b> 3 9/16	<b>64.01</b> 2.520	<b>25.4</b> 1	<b>647.7</b> 25 1/2	<b>108.0</b> 4 1/4
<b>885.8</b> 34 7/8	<b>111.1</b> 4 3/8	<b>15.9</b> 5/8	<b>50.8</b> 2	<b>103.2</b> 4 1/16	<b>1030.3</b> 40 9/16	<b>100.0</b> 3 15/16	<b>64.01</b> 2.520	<b>25.4</b> 1	<b>666.8</b> 26 1/4	<b>117.5</b> 4 5/8
<b>933.5</b> 36 3/4	<b>114.3</b> 4 1/2	<b>19.1</b> 3/4	<b>50.8</b> 2	<b>108</b> 4 1/4	<b>1092.2</b> 43	<b>100.0</b> 3 15/16	<b>64.01</b> 2.520	<b>25.4</b> 1	<b>692.2</b> 27 1/4	<b>117.5</b> 4 5/8

<sup>(1)</sup>See page D-76, table D-20 for suggested S-3 shaft limits.

<sup>(2)</sup>C is outer-ring width that may be obtained from bearing dimension tables.

<sup>(3)</sup>For L, H, S and M, tolerance is -0 to +1/64 in., -0 to + 0.4 mm.

**INCH HMVC HYDRAULIC NUTS**



Part No.	Major Dia. B	Threads Per Inch	Dimensions					Piston Length of Travel	Piston Area	Assembly Wt.
			C	D	E	E <sub>1</sub>	A			
	in.		in.	in.	in.	in.	in.	in.	in. <sup>2</sup>	lbs.
HMVC - 10	1.967	18	4.488	1.496	3.386	2.008	0.157	0.197	4.5	5.5
HMVC - 12	2.360	18	4.921	1.496	3.701	2.402	0.197	0.197	5.0	6.2
HMVC - 13	2.548	18	5.315	1.496	3.976	2.598	0.197	0.197	5.4	6.6
HMVC - 14	2.751	18	5.512	1.496	4.213	2.795	0.197	0.197	6.0	7.3
HMVC - 15	2.933	12	5.709	1.496	4.409	2.992	0.197	0.197	6.3	7.7
HMVC - 16	3.137	12	5.906	1.496	4.606	3.189	0.197	0.197	6.5	8.4
HMVC - 17	3.340	12	6.102	1.496	4.803	3.386	0.197	0.197	6.8	8.6
HMVC - 18	3.527	12	6.299	1.496	5.000	3.583	0.197	0.197	7.4	9.0
HMVC - 19	3.730	12	6.496	1.496	5.236	3.780	0.197	0.197	7.7	9.7
HMVC - 20	3.918	12	6.693	1.496	5.433	3.976	0.236	0.197	8.1	10.0
HMVC - 22	4.325	12	7.087	1.496	5.866	4.370	0.236	0.197	8.8	12.5
HMVC - 24	4.716	12	7.480	1.496	6.260	4.764	0.236	0.197	9.5	11.7
HMVC - 26	5.106	12	7.874	1.496	6.693	5.157	0.236	0.197	10.1	12.5
HMVC - 28	5.497	12	8.268	1.496	7.087	5.551	0.276	0.197	10.7	13.4
HMVC - 30	5.888	12	8.661	1.535	7.480	5.945	0.276	0.197	11.6	14.5
HMVC - 32	6.284	8	9.252	1.575	8.110	6.339	0.276	0.236	13.3	17.0
HMVC - 34	6.659	8	9.645	1.614	8.465	6.732	0.276	0.236	14.7	18.5
HMVC - 36	7.066	8	10.039	1.615	8.858	7.126	0.276	0.236	16.0	20.0
HMVC - 38	7.472	8	10.630	1.653	9.409	7.520	0.315	0.276	17.8	23.1
HMVC - 40	7.847	8	11.024	1.693	9.882	7.913	0.315	0.276	19.4	25.1
HMVC - 44	8.628	8	12.008	1.732	10.748	8.740	0.315	0.354	22.3	29.5
HMVC - 48	9.442	6	12.992	1.811	11.654	9.528	0.354	0.394	25.6	35.9
HMVC - 52	10.192	6	13.976	1.850	12.559	10.315	0.354	0.433	29.1	41.8
HMVC - 56	11.004	6	14.961	1.929	13.425	11.102	0.354	0.472	32.7	48.4
HMVC - 60	11.785	6	15.945	2.008	14.331	11.890	0.394	0.551	36.6	56.3
HMVC - 64	12.562	6	16.929	2.087	15.236	12.677	0.394	0.551	40.8	65.1
HMVC - 68	13.334	5	17.717	2.087	16.063	13.465	0.394	0.551	44.0	71.5
HMVC - 72	14.170	5	18.701	2.205	16.969	14.252	0.394	0.590	48.5	81.4
HMVC - 76	14.957	5	19.685	2.283	17.795	15.039	0.433	0.630	52.1	90.2
HMVC - 80	15.745	5	20.669	2.362	18.701	15.827	0.433	0.669	56.9	101.2
HMVC - 84	16.532	5	21.457	2.401	19.606	16.614	0.433	0.669	62.0	110.9
HMVC - 88	17.319	5	22.244	2.441	20.433	17.402	0.472	0.669	65.9	121.0
HMVC - 92	18.107	5	23.228	2.520	21.299	18.189	0.472	0.669	69.8	134.2
HMVC - 96	18.894	5	24.094	2.559	22.165	18.976	0.472	0.748	75.2	143.0
HMVC - 100	19.682	5	25.000	2.598	23.031	19.764	0.472	0.748	80.6	157.3
HMVC - 106	20.867	4	26.378	2.716	24.291	20.945	0.512	0.827	87.1	176.0
HMVC - 112	21.923	4	27.756	2.795	25.591	22.126	0.512	0.866	94.9	198.0
HMVC - 120	23.623	4	29.528	2.874	27.283	23.701	0.512	0.905	104.5	220.0
HMVC - 126	24.804	4	30.709	2.913	28.583	24.882	0.551	0.905	113.0	242.0
HMVC - 134	26.379	4	32.480	2.992	30.236	26.457	0.551	0.945	123.2	270.6
HMVC - 142	27.961	3	34.252	3.071	31.969	28.031	0.590	0.984	135.9	301.4
HMVC - 150	29.536	3	36.024	3.110	33.661	29.606	0.590	0.984	150.4	330.0
HMVC - 160	31.504	3	38.189	3.150	35.748	31.575	0.630	0.984	161.2	380.6
HMVC - 170	33.473	3	40.157	3.268	37.874	33.543	0.630	1.024	177.6	418.0
HMVC - 180	35.441	3	42.126	3.386	39.960	35.511	0.669	1.181	192.2	462.0
HMVC - 190	37.410	3	44.291	3.386	42.087	37.480	0.669	1.181	210.2	523.6

HMVC - 10 through HMVC - 64 have American National Threads Class 3.

HMVC - 68 through HMVC - 190 have Acme General-Purpose Threads Class 3G.



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**TIMKEN® SNT SPLIT PLUMMER BLOCKS**

The Timken® SNT plummer blocks metric product line is available with a variety of components and accessories that allow for customizable solutions. SNT split plummer blocks are available in rugged cast iron, ductile iron or cast steel to match a range of industrial environments and applications. Our Timken SNT plummer blocks have separate, matched caps and bases. These housings feature multiple design attributes to ease installation, including center marks for easier alignment and dimples for positioning pins and mounting bolt holes. Remove the cap using a pry-tool slot for bearing inspection, service and replacement.

Available in a variety of shaft sizes, Timken SNT plummer blocks offer the choice of tapered-bore design for easy mounting or a straight-bore design for better axial location. The block can be converted from fixed to float by adding or removing locating rings. Sealing options for the Timken SNT include double-lip, labyrinth, V-ring and taconite designs.

Updates are made periodically to this catalog. Visit [www.timken.com](http://www.timken.com) for the most recent version of the Timken® Housed Unit Catalog.

**TYPICAL INDUSTRIES AND APPLICATIONS**

Common uses include processing and material handling equipment found in many industries, including power generation (coal), mining, aggregate, cement, metal mills, pulp, paper and other forestry operations, water treatment and food processing. Applications include conveyors, bulk material handling, industrial fans and blowers.

Engineering . . . . . E-3  
 SNT Plummer Block Product Data Tables . . . . . E-35  
 Spherical Roller Bearing Product Data Tables . . . . . E-69  
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## **ENGINEERING**

The following topics are covered within this engineering section:

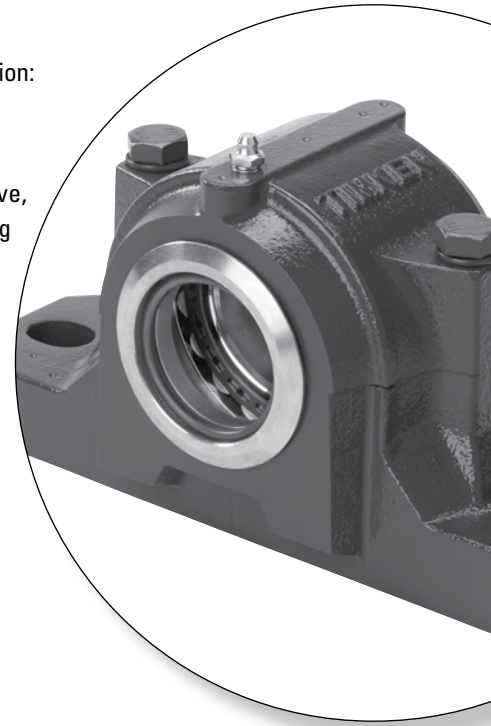
- Spherical roller bearing design types.
- Shaft fitting practice and mounting recommendations.

This engineering section is not intended to be comprehensive, but does serve as a useful guide in spherical roller bearing and SNT plummer block housing selection.

To view the complete engineering catalog, please visit [www.timken.com](http://www.timken.com). To order the catalog, please contact your Timken engineer and request a copy of the Timken Engineering Manual (order no. 10424).

The following topics are covered within this section:

Radial Spherical Roller Bearing Types and Cages . . . . .	E-4
Metric System Tolerances . . . . .	E-4
Spherical Roller Bearing Mounting, Fitting, Setting and Installation . . . . .	E-7
Shaft Fits for Cylindrical Bore Bearings . . . . .	E-15
Fitting Practice Tables . . . . .	E-16



## **RADIAL SPHERICAL ROLLER BEARING TYPES AND CAGES**

The principle styles of radial spherical roller bearings that Timken offers are:

- ≤600 mm O.D.: EJ, EM and EMB
- ≥600 mm O.D.: YMB

Above suffixes correspond to different types of designs depending on bearing size and geometry. The main difference is the cage design used in the assembly. Spherical roller bearings with an EJ cage suffix are fitted with a stamped-steel cage. YM/EM/YMB suffixes are used with brass cage designs.

The newly redesigned Timken® EJ, EM and EMB bearings offer higher load ratings, increased thermal speed ratings and reduced

operating temperatures compared to the previous offering.

In addition to these improvements, cage designs vary between the different styles as noted below.

<b>Style</b>	<b>Cage Design</b>
EJ	Land-riding steel cage; one per row
EM	Roller-riding one-piece brass cage
EMB/YMB	Land-riding one-piece brass cage

Most Timken® spherical roller bearings are available with a cylindrical bore as well as a tapered bore. Tapered bore bearing part numbers are designated with a K suffix.

## **METRIC SYSTEM TOLERANCES**

Spherical roller bearings are manufactured to a number of specifications, with each having classes that define tolerances on dimensions such as bore, O.D., width and runout. Metric bearings have been manufactured to corresponding standard negative tolerances.

The following table summarizes the different specifications and classes for spherical roller bearings and other available Timken

bearing lines. For the purposes of this catalog, ISO specifications are shown for spherical roller bearings.

Boundary dimension tolerances for spherical roller bearing usage are listed in the following tables. These tolerances are provided for use in selecting bearings for general applications, in conjunction with the bearing mounting and fitting practices offered in later sections.

**TABLE E-1. BEARING SPECIFICATIONS AND CLASSES**

System	Specification	Bearing Type	Standard Bearing Class		Precision Bearing Class			
			P0	P6	P5	P4	P2	–
Metric	ISO/DIN	All Bearing Types	P0	P6	P5	P4	P2	–
Imperial	ABMA	Spherical	RBEC 1	RBEC 3	RBEC 5	RBEC 7	RBEC 9	–

Standard Timken radial spherical roller bearings maintain normal tolerances according to ISO 492. Tables E-2 and E-3 list the critical tolerances for these bearing types. Timken SNT housings are used with bearings that conform to ISO P0, or standard tolerances.

The term deviation is defined as the difference between a single ring dimension and the nominal dimension. For metric tolerances, the nominal dimension is at a +0 mm tolerance. The deviation is the tolerance range for the listed parameter. Variation is defined as the difference between the largest and smallest measurements of a given parameter for an individual ring.

TABLE E-2. SPHERICAL ROLLER BEARING TOLERANCES – INNER RING (METRIC)<sup>(1)</sup>

Bearing Bore		Bore Deviation <sup>(2)</sup> $\Delta_{dmp}$			Width Variation $V_{BS}$			Radial Runout $K_{ia}$			Face Runout with Bore $S_d$	Axial Runout $S_{ia}$	Width Deviation Inner & Outer Rings <sup>(2)</sup> $\Delta_{Bs}$ and $\Delta_{Cs}$	
Over	Incl.	P0	P6	P5	P0	P6	P5	P0	P6	P5	P5	P5	P0, P6	P5
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
2.5000 0.0984	10.000 0.3937	-0.008 -0.0003	-0.007 -0.0003	-0.005 -0.0002	0.015 0.0006	0.015 0.0006	0.005 0.0002	0.010 0.0004	0.006 0.0002	0.004 0.0002	0.007 0.0003	0.007 0.0003	-0.120 -0.0047	-0.040 -0.0157
10.000 0.3937	18.000 0.7087	-0.008 -0.0003	-0.007 -0.0003	-0.005 -0.0002	0.020 0.0008	0.020 0.0008	0.005 0.0002	0.010 0.0004	0.007 0.0003	0.004 0.0002	0.007 0.0003	0.007 0.0003	-0.120 -0.0047	-0.080 -0.0031
18.000 0.7087	30.000 1.1811	-0.010 -0.0004	-0.008 -0.0003	-0.006 -0.0002	0.020 0.0008	0.020 0.0008	0.005 0.0002	0.013 0.0005	0.008 0.0003	0.004 0.0002	0.008 0.0003	0.008 0.0003	-0.120 -0.0047	-0.120 -0.0047
30.000 1.1811	50.000 1.9685	-0.012 -0.0005	-0.010 -0.0004	-0.008 -0.0003	0.020 0.0008	0.020 0.0008	0.005 0.0002	0.015 0.0006	0.010 0.0004	0.005 0.0002	0.008 0.0003	0.008 0.0003	-0.120 -0.0047	-0.120 -0.0047
50.000 1.9685	80.000 3.1496	-0.015 -0.0006	-0.012 -0.0005	-0.009 -0.0004	0.025 0.0010	0.025 0.0010	0.006 0.0002	0.020 0.0008	0.010 0.0004	0.005 0.0002	0.008 0.0003	0.008 0.0003	-0.150 -0.0059	-0.150 -0.0059
80.000 3.1496	120.000 4.7244	-0.020 -0.0008	-0.015 -0.0006	-0.010 -0.0004	0.025 0.0010	0.025 0.0010	0.007 0.0003	0.025 0.0010	0.013 0.0005	0.006 0.0002	0.009 0.0004	0.009 0.0004	-0.200 -0.0079	-0.200 -0.0079
120.000 4.7244	150.000 5.9055	-0.025 -0.0010	-0.018 -0.0007	-0.013 -0.0005	0.030 0.0012	0.030 0.0012	0.008 0.0003	0.030 0.0012	0.018 0.0007	0.008 0.0003	0.010 0.0004	0.010 0.0004	-0.250 -0.0098	-0.250 -0.0098
150.000 5.9055	180.000 7.0866	-0.025 -0.0010	-0.018 -0.0007	-0.013 -0.0005	0.030 0.0012	0.030 0.0012	0.008 0.0003	0.030 0.0012	0.018 0.0007	0.008 0.0003	0.010 0.0004	0.010 0.0004	-0.250 -0.0098	-0.250 -0.0098
180.000 7.0866	250.000 9.8425	-0.030 -0.0012	-0.022 -0.0009	-0.015 -0.0006	0.030 0.0012	0.030 0.0012	0.010 0.0004	0.040 0.0016	0.020 0.0008	0.010 0.0004	0.011 0.0004	0.013 0.0005	-0.300 -0.0018	-0.300 -0.0018
250.000 9.8425	315.000 12.4016	-0.035 -0.0014	-0.025 -0.0010	-0.018 -0.0007	0.035 0.0014	0.035 0.0014	0.013 0.0005	0.050 0.0020	0.025 0.0010	0.013 0.0005	0.013 0.0005	0.015 0.0006	-0.350 -0.0138	-0.350 -0.0138
315.000 12.4016	400.000 15.7480	-0.040 -0.0016	-0.030 -0.0012	-0.023 -0.0009	0.040 0.0016	0.040 0.0016	0.015 0.0006	0.060 0.0024	0.030 0.0012	0.015 0.0006	0.015 0.0006	0.020 0.0008	-0.400 -0.0157	-0.400 -0.0157
400.000 15.7480	500.000 19.6850	-0.045 -0.0018	-0.035 -0.0014	-	0.050 0.0020	0.045 0.0018	-	0.065 0.0026	0.035 0.0014	-	-	-	-0.450 -0.0177	-
500.000 19.6850	630.000 24.8031	-0.050 -0.0020	-0.040 -0.0016	-	0.060 0.0024	0.050 0.0020	-	0.070 0.0028	0.040 0.0016	-	-	-	-0.500 -0.0197	-
630.000 24.8031	800.000 31.4961	-0.075 -0.0030	-	-	0.070 0.0028	-	-	0.080 0.0031	-	-	-	-	-0.750 -0.0295	-

<sup>(1)</sup>Symbol definitions are found on pages 32–33 of the Timken Engineering Manual (order no. 10424).

<sup>(2)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

### TABLE E-3. SPHERICAL ROLLER BEARING TOLERANCES – OUTER RING (METRIC)<sup>(1)</sup>

Bearing O.D.		Outside Deviation <sup>(2)</sup>			Width Variation		Radial Runout			Axial Runout	Outside Diameter Runout With Face
Over	Incl.	$\Delta_{Dmp}$			$V_{CS}$		$K_{ea}$			$S_{ea}$	$S_D$
		P0	P6	P5	P0	P6	P0	P6	P5	P5	P5
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>0.000</b> 0.0000	<b>18.000</b> 0.7087	-0.008 -0.0003	-0.007 -0.0003	-0.005 -0.0002	0.015 0.0006	0.005 0.0002	0.015 0.0006	0.008 0.0003	0.005 0.0002	0.008 0.0003	0.008 0.0003
<b>18.000</b> 0.7087	<b>30.000</b> 1.1811	-0.009 -0.0004	-0.008 -0.0003	-0.006 -0.00024	0.020 0.0008	0.005 0.0002	0.015 0.0006	0.009 0.0004	0.006 0.00024	0.008 0.0003	0.008 0.0003
<b>30.000</b> 1.1811	<b>50.000</b> 1.9685	-0.011 -0.0004	-0.009 -0.0004	-0.007 -0.0003	0.020 0.0008	0.005 0.0002	0.020 0.0008	0.010 0.0004	0.007 0.0003	0.008 0.0003	0.008 0.0003
<b>50.000</b> 1.9685	<b>80.000</b> 3.1496	-0.013 -0.0005	-0.011 -0.0004	-0.009 -0.0004	0.025 0.0010	0.006 0.00024	0.025 0.0010	0.013 0.0005	0.008 0.0003	0.010 0.0004	0.008 0.0003
<b>80.000</b> 3.1496	<b>120.000</b> 4.7244	-0.015 -0.0006	-0.013 -0.0005	-0.010 -0.0004	0.025 0.0010	0.008 0.0003	0.035 0.0014	0.018 0.0007	0.010 0.0004	0.011 0.0004	0.009 0.0004
<b>120.000</b> 4.7244	<b>150.000</b> 5.9055	-0.018 -0.0007	-0.015 -0.0006	-0.011 -0.0004	0.030 0.0012	0.008 0.0003	0.040 0.0016	0.020 0.0008	0.011 0.0004	0.013 0.0005	0.010 0.0004
<b>150.000</b> 5.9055	<b>180.000</b> 7.0866	-0.025 -0.0010	-0.018 -0.0007	-0.013 -0.0005	0.030 0.0012	0.008 0.0003	0.045 0.0018	0.023 0.0009	0.013 0.0005	0.014 0.0006	0.010 0.0004
<b>180.000</b> 7.0866	<b>250.000</b> 9.8425	-0.030 -0.0012	-0.020 -0.0008	-0.015 -0.0006	0.030 0.0012	0.010 0.0004	0.050 0.0020	0.025 0.0010	0.015 0.0006	0.015 0.0006	0.011 0.0004
<b>250.000</b> 9.8425	<b>315.000</b> 12.4016	-0.035 -0.0014	-0.025 -0.0010	-0.018 -0.0007	0.035 0.0014	0.011 0.0004	0.060 0.0024	0.030 0.0012	0.018 0.0007	0.018 0.0007	0.013 0.0005
<b>315.000</b> 12.4016	<b>400.000</b> 15.7480	-0.040 -0.0016	-0.028 -0.0011	-0.020 -0.0008	0.040 0.0016	0.013 0.0005	0.070 0.0028	0.035 0.0014	0.020 0.0008	0.020 0.0008	0.013 0.0005
<b>400.000</b> 15.7480	<b>500.000</b> 19.6850	-0.045 -0.0018	-0.033 -0.0013	-0.023 -0.0009	0.045 0.0018	0.015 0.0006	0.080 0.0031	0.040 0.0016	0.023 0.0009	0.023 0.0009	0.015 0.0006
<b>500.000</b> 19.6850	<b>630.000</b> 24.8031	-0.050 -0.0020	-0.038 -0.0015	-0.028 -0.0011	0.050 0.0020	0.018 0.0007	0.100 0.0039	0.050 0.0020	0.025 0.0010	0.025 0.0010	0.018 0.0007
<b>630.000</b> 24.8031	<b>800.000</b> 31.4961	-0.075 -0.0030	-0.045 -0.0018	-0.035 -0.0014	–	0.020 0.0008	0.120 0.0047	0.060 0.0024	0.030 0.0012	0.030 0.0012	0.020 0.0008
<b>800.000</b> 31.4961	<b>1000.000</b> 39.3701	-0.100 -0.0040	-0.060 -0.0024	–	–	–	0.140 0.0055	0.075 0.0030	–	–	–
<b>1000.000</b> 39.3701	<b>1250.000</b> 49.2126	-0.125 -0.0050	–	–	–	–	0.160 0.0063	–	–	–	–

<sup>(1)</sup>Symbol definitions are found on pages 32–33 of the Timken Engineering Manual (order no. 10424).

<sup>(2)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.



## SPHERICAL ROLLER BEARING MOUNTING, FITTING, SETTING AND INSTALLATION

### MOUNTING

Typically, spherical roller bearings are mounted in combination with another spherical roller bearing or a cylindrical roller bearing.

With spherical roller bearings, typically one bearing is fixed axially and the other is mounted with loose fits and axial clearance. This allows axial movement or float for environmental conditions such as uneven thermal growth between shaft and housing. In SNT housings, two or more locating rings can be used. With these ring(s) installed, a fixed bearing is achieved. When the ring(s) are removed, and provided the bearing is properly located in the housing, the bearing can float freely.

Fig. E-1 shows a fixed split housing with a locating ring installed and a float bearing without the locating ring.

### FITTING PRACTICE

Tables E-6 through E-8 on pages E-15 through E-21 list the recommended fitting practice for spherical roller bearing inner rings on shafts. The tables assume:

- The bearing is of normal precision.
- The shaft is solid and made from steel.
- The bearing seats are ground or turned to less than approximately 1.6 Ra finish.

The suggested fit symbols are in accordance with ISO 286. For help with suggested fitting practice, contact your Timken engineer.

As a general guideline, rotating inner rings should be applied with an interference fit. Loose fits may permit the inner rings to creep or turn, and wear the shaft and the backing shoulder. This wear may result in excessive bearing looseness and possible bearing and shaft damage. Additionally, abrasive metal particles resulting from creep or turning may enter into the bearing and cause damage and vibration.

The load conditions and bearing envelope dimensions should be used to select the suggested shaft fit from the tables.

Contact your Timken engineer if you require the specific fit practice used for a given SNT housing.



#### WARNING

**Failure to observe the following warnings could create a risk of death or serious injury.**

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Overheated bearings can ignite explosive atmospheres. Special care must be taken to properly select, install, maintain, and lubricate housed unit bearings that are used in or near atmospheres that may contain explosive levels of combustible gases or accumulations of dust such as from grain, coal, or other combustible materials. Consult your equipment designer or supplier for installation and maintenance instructions.

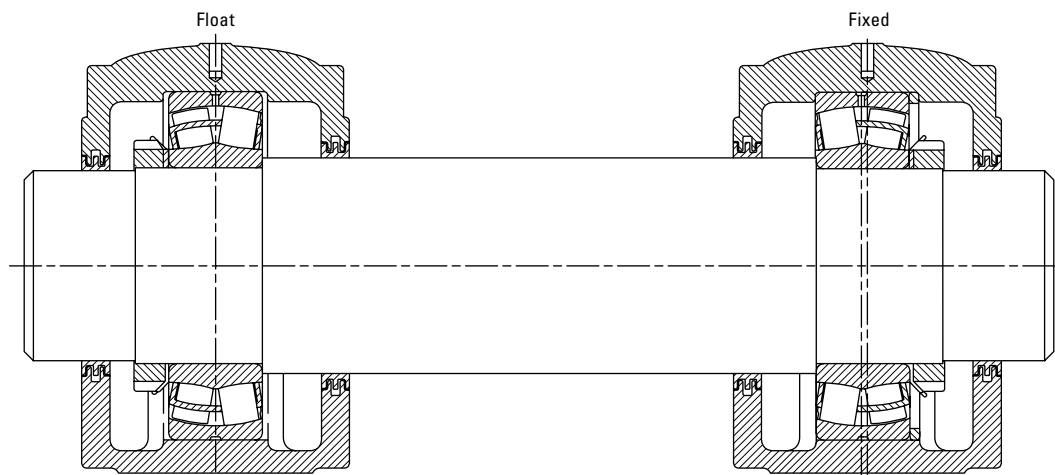
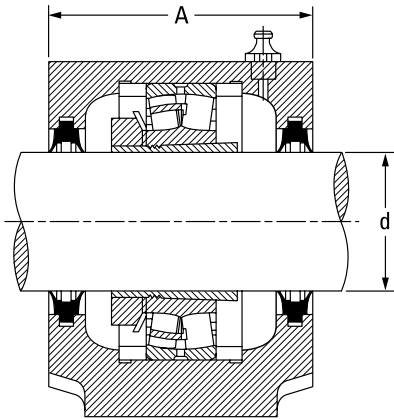


Fig. E-1. Split housing showing fixed and float mounting.

## TAPERED BORE DESIGNS

Typically, tapered bore bearings are selected to simplify shaft mounting and dismounting. Since the spherical roller bearing is not separable, mounting can be simplified by use of an adapter sleeve with a cylindrical bore and tapered O.D. A tapered bore roller bearing also can be mounted directly onto a tapered shaft.



**Fig. E-2. Spherical roller bearing mounted with an adapter sleeve.**

Bearings with a tapered bore typically require a tighter fit on the shaft than bearings with a cylindrical bore. A locknut is typically used to drive the inner ring up a tapered shaft sleeve. The locknut position is then secured by use of a lockwasher or lockplate. Timken offers a wide range of accessories to ease the assembly of spherical roller bearings with a tapered bore (see [page E-11](#)). For approximating the clearance loss for axial drive-up, an 85 percent radial loss approximation can be used. That is, the radial clearance loss per axial drive-up can roughly be approximated as  $71 \mu\text{m}/\text{mm}$  for a 1:12 tapered. Table E-5 on [page E-10](#) provides a direct relation between suggested RIC (radial internal clearance) reduction due to installation and the corresponding axial displacement of the inner ring.

## SETTING

To achieve appropriate operating clearance, attention must be paid to the effects that fitting practice and thermal gradients have within the bearing.

## FITTING PRACTICE

- An interference fit between the inner ring and a solid steel shaft will reduce the radial clearance within the bearing by approximately 80 percent of the fit.

### NOTE

*It is critical to select the RIC that allows for this reduction.*

- Spherical roller bearings with a tapered bore require a slightly greater interference fit on the shaft than a cylindrical bore bearing.

## THERMAL GRADIENTS

- Thermal gradients within the bearing are primarily a function of the bearing rotational speed. As speed increases, thermal gradients increase, thermal growth occurs and the radial clearance is reduced.
- As a rule of thumb, radial clearance should be increased for speeds in excess of 70 percent of the speed rating.

For help selecting the correct radial internal clearance for your application, consult with your Timken engineer.

Radial internal clearance tolerances are listed in tables E-4 and E-5 for spherical roller bearings.

Spherical roller bearings are ordered with a specified standard or non-standard radial internal clearance value. The standard radial internal clearances are designated as C2, C0 (normal), C3, C4 or C5 and are in accordance with ISO 5753. C2 represents the minimum clearance and C5 represents the maximum clearance. Non-standardized values also are available by special request.

The clearance required for a given application depends on the desired operating precision, the rotational speed of the bearing, and the fitting practice used. SNT housings are commonly used with C0 or C3 clearance bearing, though other clearances may be ordered for specific applications. Typically, larger clearance reduces the operating load zone of the bearing, increases the maximum roller load, and reduces the bearing's expected life. However, a spherical roller bearing that has been put into a preload condition can experience premature bearing damage caused by excessive heat generation and/or material fatigue. As a general guideline, spherical roller bearings should not operate in a preloaded condition.

TABLE E-4. RADIAL INTERNAL CLEARANCE LIMITS – SPHERICAL ROLLER BEARINGS – CYLINDRICAL BORE

Bore (Nominal)		Cylindrical Bore						Typical Reduction of RIC Due to Installation		Typical RIC After Installation	
		Normal CO		C4		C2	C3				C5
		Min.	Max.	Min.	Max.						
Over	Incl.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		
20 0.9449	30 1.1811	0.015 0.0006	0.025 0.001	0.04 0.0016	0.055 0.0022	0.075 0.003	0.095 0.0037	0.015 0.0006	0.02 0.0008	0.015 0.0006	
30 1.1811	40 1.5748	0.015 0.0006	0.03 0.0012	0.045 0.0018	0.06 0.0024	0.08 0.0031	1 0.0039	0.02 0.0008	0.025 0.001	0.015 0.0006	
40 1.5748	50 1.9685	0.02 0.0008	0.035 0.0014	0.055 0.0022	0.075 0.003	0.1 0.0039	0.125 0.0049	0.025 0.001	0.03 0.0012	0.02 0.0008	
50 1.9685	65 2.5591	0.02 0.0008	0.04 0.0016	0.065 0.0026	0.09 0.0035	0.12 0.0047	0.15 0.0059	0.03 0.0012	0.038 0.0015	0.025 0.001	
65 2.5591	80 3.1496	0.03 0.0012	0.05 0.002	0.08 0.0031	0.11 0.0043	0.145 0.0057	0.18 0.0071	0.038 0.0015	0.051 0.002	0.025 0.001	
80 3.1496	100 3.9370	0.035 0.0014	0.06 0.0024	0.1 0.0039	0.135 0.0053	0.18 0.0071	0.225 0.0089	0.046 0.0018	0.064 0.0025	0.036 0.0014	
100 3.9370	120 4.7244	0.04 0.0016	0.075 0.003	0.12 0.0047	0.16 0.0063	0.21 0.0083	0.26 0.0102	0.051 0.002	0.071 0.0028	0.051 0.002	
120 4.7244	140 5.5118	0.05 0.002	0.095 0.0037	0.145 0.0057	0.19 0.0075	0.24 0.0094	0.3 0.0118	0.064 0.0025	0.089 0.0035	0.056 0.0022	
140 5.5118	160 6.2992	0.06 0.0024	0.11 0.0043	0.17 0.0067	0.22 0.0087	0.28 0.011	0.35 0.0138	0.076 0.003	0.102 0.004	0.056 0.0022	
160 6.2992	180 7.0866	0.065 0.0026	0.12 0.0047	0.18 0.0071	0.24 0.0094	0.31 0.0122	0.39 0.0154	0.076 0.003	0.114 0.0045	0.061 0.0024	
180 7.0866	200 7.8740	0.07 0.0028	0.13 0.0051	0.2 0.0079	0.26 0.0102	0.34 0.0134	0.43 0.0169	0.089 0.0035	0.127 0.005	0.071 0.0028	
200 7.8740	225 8.8582	0.08 0.0031	0.14 0.0055	0.22 0.0087	0.29 0.0114	0.38 0.015	0.47 0.0185	0.102 0.004	0.14 0.0055	0.076 0.003	
225 8.8582	250 9.8425	0.09 0.0035	0.15 0.0059	0.24 0.0094	0.32 0.0126	0.42 0.0165	0.52 0.0205	0.114 0.0045	0.152 0.006	0.089 0.0035	
250 9.8425	280 11.0236	0.1 0.0039	0.17 0.0067	0.26 0.0102	0.35 0.0138	0.46 0.0181	0.57 0.0224	0.114 0.0045	0.165 0.0065	0.102 0.004	
280 11.0236	315 12.4016	0.11 0.0043	0.19 0.0075	0.28 0.011	0.37 0.0146	0.5 0.0197	0.63 0.0248	0.127 0.005	0.178 0.007	0.102 0.004	
315 12.4016	355 13.9764	0.12 0.0047	0.2 0.0079	0.31 0.0122	0.41 0.0161	0.55 0.0217	0.69 0.0272	0.14 0.0055	0.19 0.0075	0.114 0.0045	
355 13.9764	400 15.7480	0.13 0.0051	0.22 0.0087	0.34 0.0134	0.45 0.0177	0.6 0.0236	0.75 0.0295	0.152 0.006	0.203 0.008	0.127 0.005	
400 15.7480	450 17.7165	0.14 0.0055	0.24 0.0094	0.37 0.0146	0.5 0.0197	0.66 0.026	0.82 0.0323	0.165 0.0065	0.216 0.0085	0.152 0.006	
450 17.7165	500 19.6850	0.14 0.0055	0.26 0.0102	0.41 0.0161	0.55 0.0217	0.72 0.0283	0.9 0.0354	0.178 0.007	0.229 0.009	0.165 0.0065	
500 19.6850	560 22.0472	0.15 0.0059	0.28 0.011	0.44 0.0173	0.6 0.0236	0.78 0.0307	1 0.0394	0.203 0.008	0.254 0.01	0.178 0.007	
560 22.0472	630 24.8031	0.17 0.0067	0.31 0.0122	0.48 0.0189	0.65 0.0256	0.85 0.0335	1.1 0.0433	0.229 0.009	0.279 0.011	0.203 0.008	
630 24.8031	710 27.9528	0.19 0.0075	0.35 0.0138	0.53 0.0209	0.7 0.0276	0.92 0.0362	1.19 0.0469	0.254 0.01	0.305 0.012	0.203 0.008	
710 27.9528	800 31.4961	0.21 0.0083	0.39 0.0154	0.58 0.0228	0.77 0.0303	1.01 0.0398	1.3 0.0512	0.279 0.011	0.356 0.014	0.229 0.009	
800 31.4961	900 35.4331	0.23 0.0091	0.43 0.0169	0.65 0.0256	0.86 0.0339	1.12 0.0441	1.44 0.0567	0.305 0.012	0.381 0.015	0.252 0.01	
900 35.4331	1000 39.3701	0.26 0.0102	0.48 0.0189	0.71 0.028	0.93 0.0366	1.22 0.048	1.57 0.0618	0.356 0.014	0.432 0.017	0.279 0.011	

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

**TABLE E-5. RADIAL INTERNAL CLEARANCE LIMITS – SPHERICAL ROLLER BEARINGS – TAPERED BORE**

Bore (Nominal)		Tapered Bore						Suggested Reduction of RIC Due to Installation		Axial Displacement of Inner Ring for RIC Reduction – Tapered Shaft <sup>(1)(2)</sup>				Suggested RIC After Installation <sup>(1)</sup>
		Normal CO		C4		C5				Taper 1:12		Taper 1:30		
		Min.	Max.	Min.	Max.	Min.	Max.			Min.	Max.	Min.	Max.	
Over	Incl.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>20</b> 0.9449	<b>30</b> 1.1811	<b>0.02</b> 0.0008	<b>0.03</b> 0.0012	<b>0.04</b> 0.0016	<b>0.055</b> 0.0022	<b>0.075</b> 0.003	<b>0.095</b> 0.0037	<b>0.015</b> 0.0006	<b>0.02</b> 0.0008	<b>0.23</b> 0.0091	<b>0.30</b> 0.0118	–	–	<b>0.015</b> 0.0006
<b>30</b> 1.1811	<b>40</b> 1.5748	<b>0.025</b> 0.001	<b>0.035</b> 0.0014	<b>0.05</b> 0.002	<b>0.065</b> 0.0026	<b>0.085</b> 0.0033	<b>0.105</b> 0.0041	<b>0.02</b> 0.0008	<b>0.025</b> 0.001	<b>0.30</b> 0.0118	<b>0.38</b> 0.0150	–	–	<b>0.015</b> 0.0006
<b>40</b> 1.5748	<b>50</b> 1.9685	<b>0.03</b> 0.0012	<b>0.045</b> 0.0018	<b>0.06</b> 0.0024	<b>0.08</b> 0.0031	<b>0.1</b> 0.0039	<b>0.13</b> 0.0051	<b>0.025</b> 0.001	<b>0.03</b> 0.0012	<b>0.38</b> 0.0150	<b>0.46</b> 0.0181	–	–	<b>0.02</b> 0.0008
<b>50</b> 1.9685	<b>65</b> 2.5591	<b>0.04</b> 0.0016	<b>0.055</b> 0.0022	<b>0.075</b> 0.003	<b>0.095</b> 0.0037	<b>0.12</b> 0.0047	<b>0.16</b> 0.0063	<b>0.03</b> 0.0012	<b>0.038</b> 0.0015	<b>0.46</b> 0.0181	<b>0.56</b> 0.0220	–	–	<b>0.025</b> 0.001
<b>65</b> 2.5591	<b>80</b> 3.1496	<b>0.05</b> 0.002	<b>0.07</b> 0.0028	<b>0.095</b> 0.0037	<b>0.12</b> 0.0047	<b>0.15</b> 0.0059	<b>0.2</b> 0.0079	<b>0.038</b> 0.0015	<b>0.051</b> 0.002	<b>0.56</b> 0.0220	<b>0.76</b> 0.0299	–	–	<b>0.025</b> 0.001
<b>80</b> 3.1496	<b>100</b> 3.9370	<b>0.055</b> 0.0022	<b>0.08</b> 0.003	<b>0.11</b> 0.0043	<b>0.14</b> 0.0055	<b>0.18</b> 0.0071	<b>0.23</b> 0.0091	<b>0.046</b> 0.0018	<b>0.064</b> 0.0025	<b>0.68</b> 0.0268	<b>0.97</b> 0.0382	–	–	<b>0.036</b> 0.0014
<b>100</b> 3.9370	<b>120</b> 4.7244	<b>0.065</b> 0.0026	<b>0.1</b> 0.0039	<b>0.135</b> 0.0053	<b>0.17</b> 0.0067	<b>0.22</b> 0.0087	<b>0.28</b> 0.011	<b>0.051</b> 0.002	<b>0.071</b> 0.0028	<b>0.76</b> 0.0299	<b>1.07</b> 0.0421	<b>1.90</b> 0.0748	<b>2.54</b> 0.1000	<b>0.051</b> 0.002
<b>120</b> 4.7244	<b>140</b> 5.5118	<b>0.08</b> 0.0031	<b>0.12</b> 0.0047	<b>0.16</b> 0.0063	<b>0.2</b> 0.0079	<b>0.26</b> 0.0102	<b>0.33</b> 0.013	<b>0.064</b> 0.0025	<b>0.089</b> 0.0035	<b>0.89</b> 0.0350	<b>1.27</b> 0.0500	<b>2.29</b> 0.0902	<b>3.05</b> 0.1201	<b>0.056</b> 0.0022
<b>140</b> 5.5118	<b>160</b> 6.2992	<b>0.09</b> 0.0035	<b>0.13</b> 0.0051	<b>0.18</b> 0.0071	<b>0.23</b> 0.0091	<b>0.3</b> 0.0118	<b>0.38</b> 0.015	<b>0.076</b> 0.003	<b>0.102</b> 0.004	<b>1.14</b> 0.0449	<b>1.52</b> 0.0598	<b>2.67</b> 0.1051	<b>3.43</b> 0.1350	<b>0.056</b> 0.0022
<b>160</b> 6.2992	<b>180</b> 7.0866	<b>0.1</b> 0.0039	<b>0.14</b> 0.0055	<b>0.2</b> 0.0079	<b>0.26</b> 0.0102	<b>0.34</b> 0.0134	<b>0.43</b> 0.0169	<b>0.076</b> 0.003	<b>0.114</b> 0.0045	<b>1.14</b> 0.0449	<b>1.65</b> 0.0650	<b>2.67</b> 0.1051	<b>4.06</b> 0.1598	<b>0.061</b> 0.0024
<b>180</b> 7.0866	<b>200</b> 7.8740	<b>0.11</b> 0.0043	<b>0.16</b> 0.0063	<b>0.22</b> 0.0087	<b>0.29</b> 0.0114	<b>0.37</b> 0.0146	<b>0.47</b> 0.0185	<b>0.089</b> 0.0035	<b>0.127</b> 0.005	<b>1.40</b> 0.0551	<b>1.90</b> 0.0748	<b>3.05</b> 0.1201	<b>4.45</b> 0.1752	<b>0.071</b> 0.0028
<b>200</b> 7.8740	<b>225</b> 8.8582	<b>0.12</b> 0.0047	<b>0.18</b> 0.0071	<b>0.25</b> 0.0098	<b>0.32</b> 0.0126	<b>0.41</b> 0.0161	<b>0.52</b> 0.0205	<b>0.102</b> 0.004	<b>0.14</b> 0.0055	<b>1.52</b> 0.0598	<b>2.03</b> 0.0799	<b>3.56</b> 0.1402	<b>4.83</b> 0.1902	<b>0.076</b> 0.003
<b>225</b> 8.8582	<b>250</b> 9.8425	<b>0.14</b> 0.0055	<b>0.2</b> 0.0079	<b>0.27</b> 0.0106	<b>0.35</b> 0.0138	<b>0.45</b> 0.0177	<b>0.57</b> 0.0224	<b>0.114</b> 0.0045	<b>0.152</b> 0.006	<b>1.78</b> 0.0701	<b>2.29</b> 0.0902	<b>4.06</b> 0.1598	<b>5.33</b> 0.2098	<b>0.089</b> 0.0035
<b>250</b> 9.8425	<b>280</b> 11.0236	<b>0.15</b> 0.0059	<b>0.22</b> 0.0087	<b>0.3</b> 0.0118	<b>0.39</b> 0.0154	<b>0.49</b> 0.0193	<b>0.62</b> 0.0244	<b>0.114</b> 0.0045	<b>0.165</b> 0.0065	<b>1.78</b> 0.0701	<b>2.54</b> 0.1000	<b>4.06</b> 0.1598	<b>5.84</b> 0.2299	<b>0.102</b> 0.004
<b>280</b> 11.0236	<b>315</b> 12.4016	<b>0.17</b> 0.0067	<b>0.24</b> 0.0094	<b>0.33</b> 0.013	<b>0.43</b> 0.0169	<b>0.54</b> 0.0213	<b>0.68</b> 0.0268	<b>0.127</b> 0.005	<b>0.178</b> 0.007	<b>1.90</b> 0.0748	<b>2.67</b> 0.1051	<b>4.45</b> 0.1752	<b>6.22</b> 0.2449	<b>0.102</b> 0.004
<b>315</b> 12.4016	<b>355</b> 13.9764	<b>0.19</b> 0.0075	<b>0.27</b> 0.0106	<b>0.36</b> 0.0142	<b>0.47</b> 0.0185	<b>0.59</b> 0.0232	<b>0.74</b> 0.0291	<b>0.14</b> 0.0055	<b>0.19</b> 0.0075	<b>2.03</b> 0.0799	<b>2.79</b> 0.1098	<b>4.83</b> 0.1902	<b>6.60</b> 0.2598	<b>0.114</b> 0.0045
<b>355</b> 13.9764	<b>400</b> 15.7480	<b>0.21</b> 0.0083	<b>0.3</b> 0.0118	<b>0.4</b> 0.0157	<b>0.52</b> 0.0205	<b>0.65</b> 0.0256	<b>0.82</b> 0.0323	<b>0.152</b> 0.006	<b>0.203</b> 0.008	<b>2.29</b> 0.0902	<b>3.05</b> 0.1201	<b>5.33</b> 0.2098	<b>7.11</b> 0.2799	<b>0.127</b> 0.005
<b>400</b> 15.7480	<b>450</b> 17.7165	<b>0.23</b> 0.0091	<b>0.33</b> 0.013	<b>0.44</b> 0.0173	<b>0.57</b> 0.0224	<b>0.72</b> 0.0283	<b>0.91</b> 0.0358	<b>0.165</b> 0.0065	<b>0.216</b> 0.0085	<b>2.54</b> 0.1000	<b>3.3</b> 0.1299	<b>5.84</b> 0.2299	<b>7.62</b> 0.3000	<b>0.152</b> 0.006
<b>450</b> 17.7165	<b>500</b> 19.6850	<b>0.26</b> 0.0102	<b>0.37</b> 0.0146	<b>0.49</b> 0.0193	<b>0.63</b> 0.0248	<b>0.79</b> 0.0311	<b>1</b> 0.0394	<b>0.178</b> 0.007	<b>0.229</b> 0.009	<b>2.67</b> 0.1051	<b>3.43</b> 0.1350	<b>6.22</b> 0.2449	<b>8.00</b> 0.3150	<b>0.165</b> 0.0065
<b>500</b> 19.6850	<b>560</b> 22.0472	<b>0.29</b> 0.0114	<b>0.41</b> 0.0161	<b>0.54</b> 0.0213	<b>0.68</b> 0.0268	<b>0.87</b> 0.0343	<b>1.1</b> 0.0433	<b>0.203</b> 0.008	<b>0.254</b> 0.01	<b>3.05</b> 0.1201	<b>3.81</b> 0.1500	<b>7.11</b> 0.2799	<b>8.89</b> 0.3500	<b>0.178</b> 0.007
<b>560</b> 22.0472	<b>630</b> 24.8031	<b>0.32</b> 0.0126	<b>0.46</b> 0.0181	<b>0.6</b> 0.0236	<b>0.76</b> 0.0299	<b>0.98</b> 0.0386	<b>1.23</b> 0.0484	<b>0.229</b> 0.009	<b>0.279</b> 0.011	<b>3.43</b> 0.1350	<b>4.19</b> 0.1650	<b>8.00</b> 0.3150	<b>9.78</b> 0.3850	<b>0.203</b> 0.008
<b>630</b> 24.8031	<b>710</b> 27.9528	<b>0.35</b> 0.0138	<b>0.51</b> 0.0201	<b>0.67</b> 0.0264	<b>0.85</b> 0.0335	<b>1.09</b> 0.0429	<b>1.36</b> 0.0535	<b>0.254</b> 0.01	<b>0.305</b> 0.012	<b>3.81</b> 0.1500	<b>4.57</b> 0.1799	<b>8.89</b> 0.3500	<b>10.67</b> 0.4201	<b>0.203</b> 0.008
<b>710</b> 27.9528	<b>800</b> 31.4961	<b>0.39</b> 0.0154	<b>0.57</b> 0.0224	<b>0.75</b> 0.0295	<b>0.96</b> 0.0378	<b>1.22</b> 0.048	<b>1.5</b> 0.0591	<b>0.279</b> 0.011	<b>0.356</b> 0.014	<b>4.19</b> 0.1650	<b>5.33</b> 0.2098	<b>9.78</b> 0.3850	<b>12.45</b> 0.4902	<b>0.229</b> 0.009
<b>800</b> 31.4961	<b>900</b> 35.4331	<b>0.44</b> 0.0173	<b>0.64</b> 0.0252	<b>0.84</b> 0.0331	<b>1.07</b> 0.0421	<b>1.37</b> 0.0539	<b>1.69</b> 0.0665	<b>0.305</b> 0.012	<b>0.381</b> 0.015	<b>4.57</b> 0.1799	<b>5.72</b> 0.2252	<b>10.67</b> 0.4201	<b>13.33</b> 0.5248	<b>0.252</b> 0.01
<b>900</b> 35.4331	<b>1000</b> 39.3701	<b>0.49</b> 0.0193	<b>0.71</b> 0.028	<b>0.93</b> 0.0366	<b>1.19</b> 0.0469	<b>1.52</b> 0.0598	<b>1.86</b> 0.0732	<b>0.356</b> 0.014	<b>0.432</b> 0.017	<b>5.33</b> 0.2100	<b>6.48</b> 0.2551	<b>12.45</b> 0.4902	<b>15.11</b> 0.5949	<b>0.279</b> 0.011

<sup>(1)</sup>This displacement is valid for assembly of tapered bore bearings and is measured starting from a line-to-line fit of the bearing bore to the tapered shaft.

<sup>(2)</sup>1:12 Taper used for 222, 223, 230, 231, 232, 233, 239 series. 1:30 Taper used for 240, 241, 242 series. For sleeve mounting, multiply axial displacement values by 1.1 for 1:12 Taper or by 1.05 for 1:30 Taper. For questions on tapered shaft data, consult your Timken engineer.

NOTE: Axial displacement values apply to solid steel shafts or hollow shafts with bore diameter less than half the shaft diameter. For shaft materials other than steel, or for thin-walled shafts, please consult your Timken engineer.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

**EXAMPLE #1 –**

**Calculating RIC Reduction Using a Spherical Roller Bearing with Tapered Bore**

Given bearing number 22328K C3 (140 mm bore with C3 clearance) is to be mounted on a tapered shaft. Using a set of feeler gages, RIC is measured at (see fig. E-3):

$$RIC = 0.178 \text{ mm}$$

Suggested reduction of RIC due to installation = 0.064 mm – 0.089 mm, found in table E-5 on page E-10.

Calculate the clearance after mounting (see fig. E-4):

$$0.178 \text{ mm} - 0.076 \text{ mm} = 0.102 \text{ mm}$$

For this example, the value of 0.076 mm was obtained by taking the mid-range value of the upper and lower limits found in the tables on page E-10.

Therefore, the locknut should be tightened until RIC reaches 0.102 mm.

It also should be noted that the value obtained by reading the suggested RIC after installation directly from the table is 0.056 mm.



**Fig. E-3. Measure RIC before installation.**



**Fig. E-4. During mounting, the RIC should be checked at the unloaded roller.**

This differs from the value calculated in the example. The value taken directly from the table is provided as a minimum value. It is not suggested to use a calculated value that falls below this minimum.

**EXAMPLE #2 –**

**Calculating RIC Reduction Using a Spherical Roller Bearing with Cylindrical Bore**

**Observations:**

- Bearing 22230EM, nominal 150 mm bore and 270 mm O.D., standard class, operating at 1200 RPM.
- Float bearing position so the stationary O.D. should be free to move in SNT housing, with the locating ring removed.
- With shaft/inner ring rotation and the moderate loading 0.09C, the bore should be tight fit.

We can use the nominal fit charts in table E-6 on page E-15 (shaft fit) to help guide our ISO fit selection.

**Shaft Fit at 150 mm Bore: ISO p6**

From the shaft fit chart at 150 mm nominal bore at p6 (table E-8, page E-20), the shaft tolerance is nominal +0.043 to +0.068 mm. Therefore we have the following bore range:

$$\text{max. shaft} = 150.068 \text{ mm}$$

$$\text{min. shaft} = 150.043 \text{ mm}$$

**This yields a shaft fit:**

$$\begin{aligned} \text{max. fit} &= \text{max. shaft} - \text{min. bore} \\ &= 150.068 - 149.075 \\ &= 0.093 \text{ mm tight} \end{aligned}$$

$$\begin{aligned} \text{min. fit} &= \text{min. shaft} - \text{max. bore} \\ &= 150.043 - 150.000 \\ &= 0.043 \text{ mm tight} \end{aligned}$$

For the primary selection of RIC, the major parameters are the bearing speed and the fits. For our example, we know that the shaft fit is 0.043 mm tight to 0.093 mm tight. We know the housing

fit is loose. We also know that the bearing speed is 1200 RPM or 60 percent of the speed rating.

As a general rule of thumb, we increase the clearance for operating speeds that exceed 70 percent of the speed rating, due to concerns over internal heat generation and thermal growth. In this case, we are at 60 percent of the speed rating, so normal clearance, ISO CO or the SNT standard C3, can be selected.

Observing the RIC chart on page E-9, we find for 150 mm nominal bore at CO, the RIC will be 0.110 mm to 0.170 mm. We also note that the minimum recommended RIC (installed) is 0.056 mm.

Also from page E-9, we note that we get an approximate reduction of RIC that is 80 percent of interference fit on a solid housing. Since we have a loose housing fit, there will be no RIC reduction from that fit.

**Shaft fit RIC reductions and clearance:**

For a 150 mm nominal bore at C3, the RIC will be 0.115 mm to 0.165 mm. Recalculating shaft fit RIC reduction and clearance:

$$\begin{aligned} \text{max. clearance} &= \text{max. RIC} - \text{min. fit reduction} \\ &= 0.165 - 0.034 = 0.131 \text{ mm} \end{aligned}$$

$$\begin{aligned} \text{min. clearance} &= \text{min. RIC} - \text{max. fit reduction} \\ &= 0.115 - 0.074 = 0.041 \text{ mm} \end{aligned}$$

Since the minimum mounted clearance is less than the minimum suggested RIC of 0.056 mm, the C3 RIC clearance limit needs to be reevaluated.

## INSTALLATION

When using a tight fit inner ring, the method of assembly will depend on whether the bearing has a cylindrical or tapered bore.

### CLEANLINESS

- Choose a clean environment, free from dust and moisture.
- The installer should make every effort to ensure cleanliness by use of protective screens and clean cloths.

### PLAN THE WORK

- Know your plans in advance and have the necessary tools at hand. This reduces the amount of time for the job and decreases the chance for contamination to get into the bearing.

### INSPECTION AND PREPARATION

- All component parts of the machine should be on hand and thoroughly cleaned before proceeding.
- Housings should be cleaned, including blowing out the oil holes.
- Do not use an air hose on bearings.
- If blind holes are used, insert a magnetic rod to remove metal chips that might be lodged there during fabrication.
- Shaft shoulders and spacer rings contacting the bearing should be square with the shaft axis.
- The shaft fillet must be small enough to clear the radius of the bearing.
- On original installations, all component parts should be checked against the detail specification prints for dimensional accuracy. Shaft and housing should be carefully checked for size and form (roundness, etc.).



#### WARNING

***Failure to observe the following warnings could create a risk of death or serious injury.***

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

Never spin a bearing with compressed air. The components may be forcefully expelled.



#### CAUTION

***Failure to follow these cautions could create a risk of injury.***

Remove oil or rust inhibitor from parts before heating, to avoid fire and fumes.

### SHAFT AND HOUSING FINISH

- Shaft surfaces on which the bearing will be mounted must be clean and free from nicks and burrs.
- For applications with stationary housing and rotating shaft, it is suggested that the bearing seat on the shaft be ground to 1.6  $\mu\text{m}$  (65  $\mu\text{in.}$ ) Ra maximum.
- If it is impractical to use a ground finish, a machined finish of 3.2  $\mu\text{m}$  (125  $\mu\text{in.}$ ) Ra is acceptable in many cases, but the amount of interference fit should be slightly increased.

### INSTALLING CYLINDRICAL BORE BEARINGS

#### Heat expansion method

- Most applications require a tight interference fit on the shaft.
- Mounting is simplified by heating the bearing to expand it sufficiently to slide easily onto the shaft.
- Two methods of heating are commonly used:
  1. Tank of heated oil.
    - Accomplished by heating the bearing in a tank of oil that has a high flash point (see fig. E-5).
    - The oil temperature should not be allowed to exceed 121° C (250° F). A temperature of 93° C (200° F) is sufficient for most applications.
    - The bearing should be heated for 20 or 30 minutes, or until it is expanded sufficiently to slide onto the shaft easily.
    - The oil bath is shown in fig. E-5. The bearing should not be in direct contact with the heat source.
    - The usual arrangement is to have a screen several inches from the bottom of the tank. Small support blocks separate the bearing from the screen.
    - It is important to keep the bearing away from any localized high-heat source that may raise its temperature excessively, resulting in metallurgical property changes such as in ring hardness reduction.
    - Flame-type burners are commonly used. An automatic device for temperature control is desirable.
    - If safety regulations prevent the use of an open heated oil bath, a mixture of 15 percent soluble-oil water may be used. This mixture may be heated to a maximum of 93° C (200° F) without being flammable.

2. Induction heating.

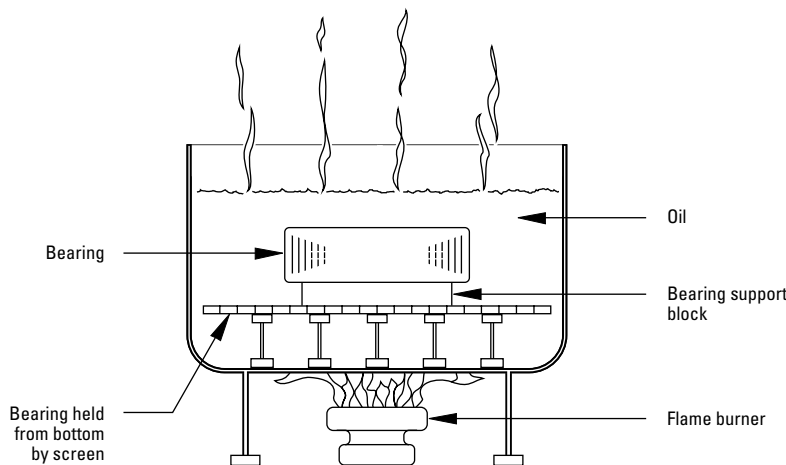
- The induction heating process can be used for mounting bearings.
- Induction heating is rapid. Care must be taken to prevent bearing temperature from exceeding 93° C (200° F).
- Trial runs with the unit and bearing are usually necessary to obtain proper timing.
- Thermal crayons melted at predetermined temperatures or thermal gun can be used to check the bearing temperature.
- While the bearing is hot, it should be positioned squarely against the shoulder.
- Lockwashers and locknuts or clamping plates are then installed to hold the bearing against the shoulder of the shaft.
- As the bearing cools, the locknut or clamping plate should be tightened.
- For more information see the Timken Spherical Roller Bearing Catalog (order no. 10446), found on [www.timken.com](http://www.timken.com).

**NOTE**

*Never use steam or hot water when cleaning the bearings because these methods can create rust or corrosion.*

*Never expose any surface of a bearing to the flame of a torch.*

*Do not heat bearing beyond 149° C (300° F).*



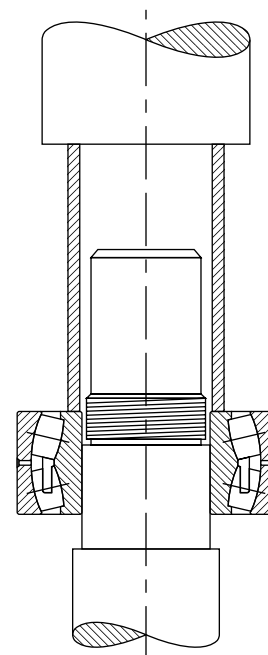
**Fig. E-5. Heat expansion method.**

**Arbor press method**

- An alternate method of mounting, generally used only on smaller size bearings, is to press the bearing onto the shaft or into the housing. This can be done by using an arbor press and a mounting tube as shown in fig. E-6.
- The tube should be made from soft steel with an inside diameter slightly larger than the shaft.
- The O.D. of the tube should not exceed the shaft backing diameter given in the Timken Spherical Roller Bearing Catalog (order no. 10446), found on [www.timken.com](http://www.timken.com).
- The tube should be faced square at both ends. It should be thoroughly clean inside and out, and long enough to clear the end of the shaft after the bearing is mounted.
- If the outer ring is being pressed into the housing, the O.D. of the mounting tube should be slightly smaller than the housing bore. The I.D. should not be less than the suggested housing backing diameter in the table of dimensions available in the Timken Spherical Roller Bearing Catalog (order no. 10446), found on [www.timken.com](http://www.timken.com).
- Coat the shaft with a light machine oil to reduce the force needed for a press fit.
- Carefully place the bearing on the shaft, making sure it is square with the shaft axis.
- Apply steady pressure from the arbor ram to drive the bearing firmly against the shoulder.

**NOTE**

*Never attempt a press fit on a shaft by applying pressure to the outer ring or a press fit in a housing by applying pressure to the inner ring.*



**Fig. E-6. Arbor press method.**

### Mounting tapered bore spherical roller bearings

- Use a feeler gage with the thinnest blade of 0.038 mm.
- Place the bearing in an upright position with the inner and outer ring faces parallel.
- Place thumbs on the inner ring bore and oscillate the inner ring the distance of two or three roller spacings.
- Position the individual roller assemblies so that a roller is at the top of the inner ring on both sides of the bearing.
- With the roller in the correct position, insert a thin blade of the feeler gage between the roller and the outer ring, as shown in fig. E-7.
- Move the feeler gage carefully along the top roller between the roller and outer ring raceway. Repeat this procedure using thicker feeler gage blades until one is found that will not go through.
- The blade thickness that preceded the no-go blade is a measure of RIC before installation.
- Start the mounting procedure by lubricating the tapered shaft with a light coat of machine oil.
- Slide the bearing onto the shaft as far as it will go by hand.
- As the locknut is tightened, the interference fit builds up, resulting in expansion of the inner ring.
- Periodically measure to monitor the reduction in RIC.
- Continue the procedure until the proper amount of reduction is obtained. Do not exceed calculated amount of reduction.
- As a final check, make sure the remaining RIC equals or exceeds the minimum mounted clearance shown in table E-5 on page E-10.
- During mounting, the RIC should be checked at the unloaded roller. If this is at the bottom, make sure that the roller is raised to seat firmly at the inboard position of the inner ring.
- When the suggested amount of RIC reduction has been accomplished, the bearing is properly fitted.
- Complete the procedure by peening the lockwasher tang into the locknut slot or securing the lockplate.



**Fig. E-7. Measure RIC before installation.**



## SHAFT FITS FOR CYLINDRICAL BORE BEARINGS

This chart is a guideline for specifying shaft fits related to particular operating conditions. Please contact your Timken engineer for more information.

**TABLE E-6. RADIAL SPHERICAL ROLLER BEARING SHAFT FITS**

Conditions	Examples	Shaft Dia.		Tolerance Symbol <sup>(1)</sup>	Remarks	
		mm in.				
Stationary inner ring load	The inner ring not to be easily displaced on the shaft	Wheel on non-rotating shaft	All diameters		g6	
		Tension pulleys and rope sheaves			h6	
Rotating inner ring load or indeterminate load direction	Light and variable loads $P \leq 0.07C$	Electrical apparatus, machine tools, pumps, ventilators, industrial trucks	over	incl.	k6	In very accurate applications, k5 and m5 are used instead of k6 and m6 respectively.
			<b>18</b> 0.7087	<b>100</b> 3.9370		
			<b>100</b> 3.9370	<b>200</b> 7.8740		
	<b>18</b> 0.7087	<b>65</b> 2.5590	m5			
	<b>65</b> 2.5590	<b>100</b> 3.9370	m6			
	<b>100</b> 3.9370	<b>140</b> 5.5118	n6			
	Normal and heavy loads $P > 0.07C$ $\leq 0.25C$	Applications in general, electrical motors, turbines, pumps, combustion engines, gear transmissions, woodworking machines	<b>140</b> 5.5118	<b>280</b> 11.0236	p6	
			<b>280</b> 11.0236	<b>500</b> 19.6850	r6	
			<b>500</b> 19.6850	<b>and up</b>	r7	
			<b>18</b> 0.7087	<b>65</b> 2.5590	m6	Bearings with greater clearance than normal must be used.
			<b>65</b> 2.5590	<b>100</b> 3.9370	n6	
			<b>100</b> 3.9370	<b>140</b> 5.5118	p6	
	<b>140</b> 5.5118	<b>200</b> 7.8740	r6			
	<b>200</b> 7.8740	<b>500</b> 19.6850	r7			
	Very heavy loads and shock loads $P > 0.25C$	Journal boxes for locomotives and other heavy rail vehicles, traction motors	<b>BEARINGS WITH TAPERED BORE AND ADAPTER SLEEVE</b>			
All loads			Applications in general	All diameters	See tables for Reduction of RIC on pages E-9 and E-10.	

<sup>(1)</sup>For solid steel shaft. See tables on pages E-16 through E-21 for tolerance value.  
NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table E-6 on page E-15.

### FITTING PRACTICE TABLES

**TABLE E-7. SPHERICAL ROLLER BEARINGS - SHAFT TOLERANCES (CLASSES g6, h5, h6, j5, j6, k5, k6, m5)**

Bearing Bore			g6			h6			h5			j5		
Nominal (Max.)		Tolerance <sup>(1)</sup>	Shaft Dia.			Shaft Dia.			Shaft Dia.			Shaft Dia.		
Over	Incl.		Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
30.000	50.000	-0.014	-0.009	-0.025	0.025L	0.000	-0.016	0.012T	-	-	-	+0.006	-0.005	0.005L
1.1811	1.9685	-0.0006	-0.0004	-0.0010	0.003T	0.0000	-0.0006	0.0006L				+0.0002	-0.0002	0.018T
					0.0010L			0.0006L						0.0002L
					0.0001T			0.0005T						0.0007T
50.000	80.000	-0.015	-0.010	-0.029	0.029L	0.000	-0.019	0.015T	-	-	-	+0.006	-0.007	0.007L
1.9685	3.1496	-0.0006	-0.0004	-0.0011	0.005T	0.0000	-0.0007	0.0007L				+0.0002	-0.0003	0.021T
					0.0011L			0.0007L						0.0003L
					0.0002T			0.0006T						0.0008T
80.000	120.000	-0.020	-0.012	-0.034	0.034L	0.000	-0.022	0.020T	-	-	-	+0.006	-0.009	0.009L
3.1496	4.7244	-0.0008	-0.0005	-0.0013	0.008T	0.0000	-0.0009	0.0009L				+0.0002	-0.0004	0.026T
					0.0013L			0.0009L						0.0004L
					0.0003T			0.0008T						0.0010T
120.000	180.000	-0.025	-0.014	-0.039	0.039L	0.000	-0.025	0.025T	-	-	-	+0.007	-0.011	0.011L
4.7244	7.0866	-0.0010	-0.0006	-0.0015	0.011T	0.0000	-0.0010	0.0010L				+0.0003	-0.0004	0.032T
					0.0015L			0.0010L						0.0004L
					0.0004T			0.0010T						0.0013T
180.000	200.000	-0.030	-0.015	-0.044	0.044T	0.000	-0.029	0.030T	-	-	-	+0.007	-0.013	0.013L
7.0866	7.8740	-0.0012	-0.0006	-0.0017	0.015T	0.0000	-0.0011	0.0011L				+0.0003	-0.0005	0.037T
					0.0017L			0.0011L						0.0005L
					0.0006T			0.0012T						0.0015T
200.000	225.000	-0.030	-0.015	-0.044	0.044T	0.000	-0.029	0.030T	-	-	-	+0.007	-0.013	0.013L
7.8740	8.8583	-0.0012	-0.0006	-0.0017	0.015T	0.0000	-0.0011	0.0011L				+0.0003	-0.0005	0.037T
					0.0017L			0.0011L						0.0005L
					0.0006T			0.0012T						0.0015T
225.000	250.000	-0.030	-0.015	-0.044	0.044T	0.000	-0.029	0.030T	-	-	-	+0.007	-0.013	0.013L
8.8583	9.8425	-0.0012	-0.0006	-0.0017	0.015T	0.0000	-0.0011	0.0011L				+0.0003	-0.0005	0.037T
					0.0017L			0.0011L						0.0005L
					0.0006T			0.0012T						0.0015T
250.000	280.000	-0.035	-0.017	-0.049	0.049L	0.000	-0.032	0.035T	-	-	-	+0.007	-0.016	0.016L
9.8425	11.0236	-0.0014	-0.0007	-0.0019	0.018T	0.0000	-0.0013	0.0013L				+0.0003	-0.0006	0.042T
					0.0019L			0.0013L						0.0006L
					0.0007T			0.0014T						0.0017T
280.000	315.000	-0.035	-0.017	-0.049	0.049L	0.000	-0.032	0.035T	-	-	-	+0.007	-0.016	0.016L
11.0236	12.4016	-0.0014	-0.0007	-0.0019	0.018T	0.0000	-0.0013	0.0013L				+0.0003	-0.0006	0.042T
					0.0019L			0.0013L						0.0006L
					0.0007T			0.0014T						0.0017T
315.000	355.000	-0.040	-0.018	-0.054	0.054L	0.000	-0.036	0.040T	-	-	-	+0.007	-0.018	0.018L
12.4016	13.9764	-0.0016	-0.0007	-0.0021	0.022T	0.0000	-0.0014	0.0014L				+0.0003	-0.0007	0.047T
					0.0021L			0.0014L						0.0007L
					0.0009T			0.0016T						0.0019T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table E-6 on page E-15.

j6			k5			k6			m5		
Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit
Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
		<b>0.005L</b>			<b>0.002T</b>			<b>0.002T</b>			<b>0.009T</b>
<b>+0.011</b>	<b>-0.005</b>	<b>0.023T</b>	<b>+0.013</b>	<b>+0.002</b>	<b>0.025T</b>	<b>+0.018</b>	<b>+0.002</b>	<b>0.030T</b>	<b>+0.020</b>	<b>+0.009</b>	<b>0.032T</b>
+0.0004	-0.0002	0.0002L	+0.0005	+0.0001	0.0001T	+0.0007	+0.0001	0.0001T	+0.0008	+0.0004	0.0004T
		0.00085T			0.0010T			0.0012T			0.00125T
		<b>0.007L</b>			<b>0.002T</b>			<b>0.002T</b>			<b>0.011T</b>
<b>+0.012</b>	<b>-0.007</b>	<b>0.027T</b>	<b>+0.015</b>	<b>+0.002</b>	<b>0.030T</b>	<b>+0.021</b>	<b>+0.002</b>	<b>0.036T</b>	<b>+0.024</b>	<b>+0.011</b>	<b>0.039T</b>
+0.0005	-0.0003	0.0003L	+0.0006	+0.0001	0.0001T	+0.0008	+0.0001	0.0001T	+0.0009	+0.0004	0.0004T
		0.0011T			0.0012T			0.0014T			0.0015T
		<b>0.009L</b>			<b>0.003T</b>			<b>0.003T</b>			<b>0.013T</b>
<b>+0.013</b>	<b>-0.009</b>	<b>0.033T</b>	<b>+0.018</b>	<b>+0.003</b>	<b>0.038T</b>	<b>+0.025</b>	<b>+0.003</b>	<b>0.045T</b>	<b>+0.028</b>	<b>+0.013</b>	<b>0.048T</b>
+0.0005	-0.0004	0.0004L	+0.0007	+0.0001	0.0001T	+0.0010	+0.0001	0.0001T	+0.0011	+0.0005	0.0005T
		0.0013T			0.0015T			0.0018T			0.0019T
		<b>0.011L</b>			<b>0.003T</b>			<b>0.003T</b>			<b>0.015T</b>
<b>+0.014</b>	<b>-0.011</b>	<b>0.039T</b>	<b>+0.021</b>	<b>+0.003</b>	<b>0.046T</b>	<b>+0.028</b>	<b>+0.003</b>	<b>0.053T</b>	<b>+0.033</b>	<b>+0.015</b>	<b>0.058T</b>
+0.0006	-0.0004	0.0004L	+0.0008	+0.0001	0.0001T	+0.0011	+0.0001	0.0001T	+0.0013	+0.0006	0.0006T
		0.0016T			0.0018T			0.0021T			0.0023T
		<b>0.013L</b>			<b>0.004T</b>						<b>0.017T</b>
<b>+0.016</b>	<b>-0.013</b>	<b>0.046T</b>	<b>+0.024</b>	<b>+0.004</b>	<b>0.054T</b>	-	-	-	<b>+0.037</b>	<b>+0.017</b>	<b>0.067T</b>
+0.0006	-0.0005	0.0005L	+0.0009	+0.0002	0.0002T				+0.0015	+0.0007	0.0007T
		0.0018T			0.0021T						0.0027T
		<b>0.013L</b>			<b>0.004T</b>						<b>0.017T</b>
<b>+0.016</b>	<b>-0.013</b>	<b>0.046T</b>	<b>+0.024</b>	<b>+0.004</b>	<b>0.054T</b>	-	-	-	<b>+0.037</b>	<b>+0.017</b>	<b>0.067T</b>
+0.0006	-0.0005	0.0005L	+0.0009	+0.0002	0.0002T				+0.0015	+0.0007	0.0007T
		0.0018T			0.0021T						0.0027T
		<b>0.013L</b>			<b>0.004T</b>						<b>0.017T</b>
<b>+0.016</b>	<b>-0.013</b>	<b>0.046T</b>	<b>+0.024</b>	<b>+0.004</b>	<b>0.054T</b>	-	-	-	<b>+0.037</b>	<b>+0.017</b>	<b>0.067T</b>
+0.0006	-0.0005	0.0005L	+0.0009	+0.0002	0.0002T				+0.0015	+0.0007	0.0007T
		0.0018T			0.0021T						0.0027T
		<b>0.016L</b>			<b>0.004T</b>						<b>0.020T</b>
<b>+0.016</b>	<b>-0.016</b>	<b>0.051T</b>	<b>+0.027</b>	<b>+0.004</b>	<b>0.062T</b>	-	-	-	<b>+0.043</b>	<b>+0.020</b>	<b>0.078T</b>
+0.0006	-0.0006	0.0006L	+0.0011	+0.0002	0.0002T				+0.0017	+0.0008	0.0008T
		0.0020T			0.0025T						0.0031T
		<b>0.016L</b>			<b>0.004T</b>						<b>0.020T</b>
<b>+0.016</b>	<b>-0.016</b>	<b>0.051T</b>	<b>+0.027</b>	<b>+0.004</b>	<b>0.062T</b>	-	-	-	<b>+0.043</b>	<b>+0.020</b>	<b>0.078T</b>
+0.0006	-0.0006	0.0006L	+0.0011	+0.0002	0.0002T				+0.0017	+0.0008	0.0008T
		0.0020T			0.0025T						0.0031T
		<b>0.018L</b>			<b>0.004T</b>						<b>0.021T</b>
<b>+0.018</b>	<b>-0.018</b>	<b>0.058T</b>	<b>+0.029</b>	<b>+0.046</b>	<b>0.069T</b>	-	-	-	<b>+0.046</b>	<b>+0.021</b>	<b>0.086T</b>
+0.0007	-0.0007	0.0007L	+0.0011	+0.0002	0.0002T				+0.0018	+0.0008	0.0008T
		0.0023T			0.0027T						0.0034T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

*Continued on next page.*

# SNT SPLIT PLUMMER BLOCKS

## ENGINEERING • FITTING PRACTICE TABLES

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table E-6 on page E-15.

**TABLE E-7. SPHERICAL ROLLER BEARINGS - SHAFT TOLERANCES (CLASSES g6, h5, h6, j5, k5, k6, m5) – continued**

Bearing Bore			g6			h6			h5			j5		
Nominal (Max.)		Tolerance <sup>(1)</sup>	Shaft Dia.			Shaft Dia.			Shaft Dia.			Shaft Dia.		
Over	Incl.		Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
<b>355.000</b>	<b>400.000</b>	<b>-0.040</b>			<b>0.054L</b>			<b>0.036L</b>						<b>0.018L</b>
13.9764	15.7480	-0.0016	-0.018	-0.054	0.022T	0.000	-0.036	0.040T	-	-	-	+0.007	-0.018	0.047T
			-0.0007	-0.0021	0.0021L	0.0000	-0.0014	0.0014L				+0.0003	-0.0007	0.0007L
					0.0009T			0.0016T						0.0019T
					<b>0.060L</b>			<b>0.040L</b>						<b>0.020L</b>
<b>400.000</b>	<b>450.000</b>	<b>-0.045</b>	-0.020	-0.060	0.025T	0.000	-0.040	0.045T	-	-	-	+0.007	-0.020	0.052T
15.7480	17.7165	-0.0018	-0.0008	-0.0024	0.0024L	0.0000	-0.0016	0.0016L				+0.0003	-0.0008	0.0008L
					0.0010T			0.0018T						0.0021T
					<b>0.060L</b>			<b>0.040L</b>						<b>0.020L</b>
<b>450.000</b>	<b>500.000</b>	<b>-0.045</b>	-0.020	-0.060	0.025T	0.000	-0.040	0.045T	-	-	-	+0.007	-0.020	0.052T
17.7165	19.6850	-0.0018	-0.0008	-0.0024	0.0024L	0.0000	-0.0016	0.0016L				+0.0003	-0.0008	0.0008L
					0.0010T			0.0018T						0.0020T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table E-6 on page E-15.

j6			k5			k6			m5		
Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit
Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
		<b>0.018L</b>			<b>0.004T</b>						<b>0.021T</b>
<b>+0.018</b>	<b>-0.018</b>	<b>0.058T</b>	<b>+0.029</b>	<b>+0.004</b>	<b>0.069T</b>	–	–	–	<b>+0.046</b>	<b>+0.021</b>	<b>0.086T</b>
+0.0007	-0.0007	0.0007L	+0.0011	+0.0002	0.0002T				+0.0018	+0.0008	0.0008T
		0.0023T			0.0027T						0.0034T
		<b>0.020L</b>			<b>0.005T</b>						<b>0.023T</b>
<b>+0.020</b>	<b>-0.020</b>	<b>0.065T</b>	<b>+0.032</b>	<b>+0.005</b>	<b>0.077T</b>	–	–	–	<b>+0.050</b>	<b>+0.023</b>	<b>0.095T</b>
+0.0008	-0.0008	0.0008L	+0.0013	+0.0002	0.0002T				+0.0020	+0.0009	0.0009T
		0.0026T			0.0031T						0.0037T
		<b>0.020L</b>			<b>0.005T</b>						<b>0.023T</b>
<b>+0.020</b>	<b>-0.020</b>	<b>0.065T</b>	<b>+0.032</b>	<b>+0.005</b>	<b>0.077T</b>	–	–	–	<b>+0.050</b>	<b>+0.023</b>	<b>0.095T</b>
+0.0008	-0.0008	0.0008L	+0.0013	+0.0002	0.0002T				+0.0020	+0.0009	0.0009T
		0.0026T			0.0031T						0.0037T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

# SNT SPLIT PLUMMER BLOCKS

## ENGINEERING • FITTING PRACTICE TABLES

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table E-6 on page E-15.

**TABLE E-8. SPHERICAL ROLLER BEARINGS - SHAFT TOLERANCES (CLASSES m6, n6, p6, r6, r7)**

Bearing Bore			m6			n6			p6			r6			r7		
Nominal (Max.)		Tolerance <sup>(1)</sup>	Shaft Dia.			Shaft Dia.			Shaft Dia.			Shaft Dia.			Shaft Dia.		
Over	Incl.		Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit	Max.	Min.	Fit
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
30.000	50.000	-0.014	+0.025	+0.009	0.037T												
1.1811	1.9685	-0.0006	+0.0010	+0.0004	0.0004T	-	-	-	-	-	-	-	-	-	-	-	-
					0.0145T												
50.000	80.000	-0.015	+0.030	+0.011	0.045T	+0.039	+0.020	0.054T									
1.9685	3.1496	-0.0006	+0.0012	+0.0004	0.0004T	+0.0015	+0.0008	0.0008T	-	-	-	-	-	-	-	-	-
					0.0018T			0.0021T									
80.000	120.000	-0.020	+0.035	+0.013	0.055T	+0.045	+0.023	0.065T	+0.059	+0.037	0.079T						
3.1496	4.7244	-0.0008	+0.0014	+0.0005	0.0005T	+0.0018	+0.0009	0.0009T	+0.0023	+0.0015	0.0015T	-	-	-	-	-	-
					0.0022T			0.0026T			0.0031T						
120.000	180.000	-0.025	+0.040	+0.015	0.065T	+0.052	+0.027	0.077T	+0.068	+0.043	0.093T	+0.090	+0.065	0.115T			
4.7244	7.0866	-0.0010	+0.0016	+0.0006	0.0006T	+0.0020	+0.0011	0.0011T	+0.0027	+0.0017	0.0017T	+0.0035	+0.0026	0.0026T	-	-	-
					0.0026T			0.0030T			0.0037T			0.0045T			
180.000	200.000	-0.030	+0.046	+0.017	0.076T	+0.060	+0.031	0.090T	+0.079	+0.050	0.109T	+0.106	+0.077	0.136T			
7.0866	7.8740	-0.0012	+0.0018	+0.0007	0.0007T	+0.0024	+0.0012	0.0012L	+0.0031	+0.0020	0.0020T	+0.0042	+0.0030	0.0030T	-	-	-
					0.0030T			0.0036T			0.0043T			0.0054T			
200.000	225.000	-0.030	+0.046	+0.017	0.076T	+0.060	+0.031	0.090T	+0.079	+0.050	0.109T	+0.109	+0.080	0.139T	+0.126	+0.080	0.156T
7.8740	8.8583	-0.0012	+0.0018	+0.0007	0.0007T	+0.0024	+0.0012	0.0012L	+0.0031	+0.0020	0.0020T	+0.0043	+0.0031	0.0031T	+0.0050	+0.0031	0.0031T
					0.0030T			0.0036T			0.0043T			0.0055T			0.0062T
225.000	250.000	-0.030	+0.046	+0.017	0.076T	+0.060	+0.031	0.090T	+0.079	+0.050	0.109T	+0.113	+0.084	0.143T	+0.130	+0.084	0.160T
8.8583	9.8425	-0.0012	+0.0018	+0.0007	0.0007T	+0.0024	+0.0012	0.0012L	+0.0031	+0.0020	0.0020T	+0.0044	+0.0033	0.0033T	+0.0051	+0.0033	0.0033T
					0.0030T			0.0036T			0.0043T			0.0056T			0.0063T
250.000	280.000	-0.035	+0.052	+0.020	0.087T	+0.066	+0.034	0.101T	+0.088	+0.056	0.123T	+0.126	+0.094	0.161T	+0.146	+0.094	0.181T
9.8425	11.0236	-0.0014	+0.0020	+0.0008	0.0008T	+0.0026	+0.0013	0.0013T	+0.0035	+0.0022	0.0022T	+0.0050	+0.0037	0.0037T	+0.0057	+0.0037	0.0037T
					0.0034T			0.0040T			0.0049T			0.0064T			0.0071T
280.000	315.000	-0.035	+0.052	+0.020	0.087T	+0.066	+0.034	0.101T	+0.088	+0.056	0.123T	+0.130	+0.098	0.165T	+0.150	+0.098	0.185T
11.0236	12.4016	-0.0014	+0.0020	+0.0008	0.0008T	+0.0026	+0.0013	0.0013T	+0.0035	+0.0022	0.0022T	+0.0051	+0.0039	0.0039T	+0.0059	+0.0039	0.0039T
					0.0034T			0.0040T			0.0049T			0.0065T			0.0073T
315.000	355.000	-0.040	+0.057	+0.021	0.097T	+0.073	+0.037	0.113T	+0.098	+0.062	0.138T	+0.144	+0.108	0.184T	+0.165	+0.108	0.205T
12.4016	13.9764	-0.0016	+0.0022	+0.0008	0.0008T	+0.0029	+0.0015	0.0015T	+0.0039	+0.0024	0.0024T	+0.0057	+0.0043	0.0043T	+0.0065	+0.0043	0.0043T
					0.0038T			0.0045T			0.0055T			0.0073T			0.0081T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.

Continued on next page.

These charts are guidelines for specifying shaft and housing fits related to particular operating conditions in table E-6 on page E-15.

Continued from *previous page*.

Bearing Bore			m6			n6			p6			r6			r7		
Nominal (Max.)		Tolerance <sup>(1)</sup>	Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit	Shaft Dia.		Fit
Over	Incl.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.	
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
355.000 13.9764	400.000 15.7480	-0.040	-	-	-	0.037T			0.062T			0.114T			0.114T		
		-0.0016				+0.073	+0.037	0.113T	+0.098	+0.062	0.138T	+0.150	+0.114	0.190T	+0.171	+0.114	0.211T
						+0.0029	+0.0015	0.0015T	+0.0039	+0.0024	0.0024T	+0.0059	+0.0045	0.0045T	+0.0067	+0.0045	0.0045T
								0.0045T			0.0055T			0.0075T			0.0083T
400.000 15.7480	450.000 17.7165	-0.045	-	-	-	0.040T			0.068T			0.126T			0.126T		
		-0.0018				+0.080	+0.040	0.125T	+0.108	+0.068	0.153T	+0.166	+0.126	0.211T	+0.189	+0.126	0.234T
						+0.0031	+0.0016	0.0016T	+0.0043	+0.0027	0.0027T	+0.0065	+0.0050	0.0050T	+0.0074	+0.0050	0.0050T
								0.0049T			0.0061T			0.0083T			0.0092T
450.000 17.7165	500.000 19.6850	-0.045	-	-	-	0.040T			0.068T			0.132T			0.132T		
		-0.0018				+0.080	+0.040	0.125T	+0.108	+0.068	0.153T	+0.172	+0.132	0.217T	+0.195	+0.132	0.240T
						+0.0031	+0.0016	0.0016T	+0.0043	+0.0027	0.0027T	+0.0068	+0.0052	0.0052T	+0.0077	+0.0052	0.0052T
								0.0049T			0.0061T			0.0086T			0.0095T

<sup>(1)</sup>Tolerance range is from +0 to value listed.

NOTE: Tolerance and shaft diameters are shown in the table as variances from nominal bearing bore.





## LUBRICATION

To help maintain a bearing's antifriction characteristics, lubrication is needed to:

- Minimize rolling resistance caused by deformation of the rolling elements and raceway under load by separating the mating surfaces.
- Minimize sliding friction occurring between rolling elements, raceways and cage.
- Transfer heat (with oil lubrication).
- Protect from corrosion and, with grease lubrication, from contaminant ingress.

Lubrication .....	E-24
General-Purpose Industrial Grease .....	E-31



## LUBRICATION

The wide range of bearing types and operating conditions precludes any simple, all-inclusive statement or guideline allowing the selection of the proper lubricant. At the design level, the first consideration is whether oil or grease is best for the particular operation. The advantages of oil and grease are outlined in the table below. When heat must be carried away from the bearing, oil must be used. It is typically preferred for very high-speed applications. **Timken® SNT housings and seal systems are specifically designed for grease lubrication. If an application requires oil lubrication, contact your Timken engineer for assistance.**

**TABLE E-9. ADVANTAGES OF OIL AND GREASE**

Oil	Grease
Carries heat away from the bearings	Simplifies seal design and acts as a sealant
Carries away moisture and particulate matter	Permits prelubrication of sealed or shielded bearings
Easily controlled lubrication	Generally requires less frequent lubrication

### European REACH compliance

Timken-branded lubricants, greases and similar products sold in stand-alone containers or delivery systems are subject to the European REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) directive. For import into the European Union, Timken can sell and provide only those lubricants and greases that are registered with ECHA (European Chemical Agency). For further information, please contact your Timken engineer.

## GREASE LUBRICATION

Grease lubrication is generally applicable to low-to-moderate speed applications that have operating temperatures within the limits of the grease. There is no universal antifriction bearing grease. Each grease has limiting properties and characteristics.

Greases consist of a base oil, a thickening agent and additives. Conventionally, bearing greases have consisted of petroleum base oils thickened to the desired consistency by some form of metallic soap. More recently synthetic base oils have been used with organic and inorganic thickeners. Table E-10 summarizes the composition of typical lubricating greases.

**TABLE E-10. COMPOSITION OF GREASES**

Base Oil	+	Thickening Agents	+	Additives	=	Lubricating Grease
Mineral oil		Soaps and complex soaps		Rust inhibitors		
Synthetic hydrocarbon		lithium, aluminum, barium, calcium		Dyes		
Esters		Non-Soap (inorganic)		Tactifiers		
Perfluorinated oil		microgel (clay), carbon black,		Metal deactivates		
Silicone		silica-gel, PTFE		Oxidation inhibitors		
		Non-Soap (organic)		Anti-wear EP		
		Urea compounds				

Calcium- and aluminum-based greases have excellent water resistance and are used in industrial applications where water ingress is an issue. Lithium-based greases are multi-purpose and are used in industrial applications and wheel bearings.

Synthetic base oils such as esters, organic esters and silicones used with conventional thickeners and additives typically have higher maximum operating temperatures than petroleum-based greases. Synthetic greases can be designed to operate in temperatures from -73° C (-100° F) to 288° C (550° F).

In table E-11 are the general characteristics of common thickeners used with petroleum base oils.

Use of the thickeners in table E-11 with synthetic hydrocarbon or ester base oils increases the maximum operating temperature by approximately 10° C (18° F).

**TABLE E-11. GENERAL CHARACTERISTICS OF THICKENERS USED WITH PETROLEUM-BASED OILS**

Thickener	Typical Dropping Point		Maximum Temperature		Typical Water Resistance
	°C	°F	°C	°F	
Lithium soap	193	380	121	250	Good
Lithium complex	260+	500+	149	300	Good
Aluminum complex	249	480	149	300	Excellent
Calcium sulfonate	299	570	177	350	Excellent
Polyurea	260	500	149	300	Good

Using polyurea as a thickener for lubricating fluids is one of the most significant lubrication developments in more than 30 years. Polyurea grease performance is outstanding in a wide range of bearing applications.

## BASE OILS

Base oils are classified as either petroleum types (refined from crude oil) or synthetic types (produced by chemical synthesis).

### Petroleum oils

Petroleum oils are made from a petroleum hydrocarbon derived from crude oil, with additives to improve certain properties. Greases with petroleum oils can be used in most general industrial bearing applications and many specialty applications with moderate operating temperatures.

### Synthetic oils

Synthetic oils cover a broad range or categories and include polyalphaolefins, silicones, polyglycols and various esters. In general, synthetic oils are less prone to oxidation and perform more efficiently than petroleum oils at extreme hot or cold temperatures. Physical properties, such as pressure-viscosity coefficients, tend to vary between oil types. Use caution when making oil selections.

The polyalphaolefins (PAO) have a hydrocarbon chemistry that parallels petroleum oil both in chemical structures and pressure-viscosity coefficients. Therefore, PAO oil is mostly used in the oil-lubricated applications of bearings when severe temperature environments (hot and cold) are encountered or when extended lubricant life is required.

The silicone, ester and polyglycol oils have an oxygen-based chemistry that is structurally quite different from petroleum oils and PAO oils. This difference has a profound effect on its physical properties where pressure-viscosity coefficients can be lower compared to mineral and PAO oils. This means that these types of synthetic oils may actually generate a smaller elastohydrodynamic (EHD) film thickness than a mineral or PAO oil of equal viscosity at operating temperature. Reductions in bearing fatigue life and increases in bearing wear could result from this reduction of lubricant film thickness.

## Viscosity

The selection of oil viscosity for any bearing application requires consideration of several factors: load, speed, bearing setting, type of oil and environmental factors. Since oil viscosity varies inversely with temperature, a viscosity value must always be stated with the temperature at which it was determined. High-viscosity oil is used for low-speed or high-ambient-temperature applications. Low-viscosity oil is used for high-speed or low-ambient-temperature applications.

There are several classifications of oils based on viscosity grades. The most familiar are the Society of Automotive Engineers (SAE) classifications for automotive engine and gear oils. The American Society for Testing and Materials (ASTM) and the International Organization for Standardization (ISO) have adopted standard viscosity grades for industrial fluids. Fig. E-8 shows the viscosity comparisons of ISO/ASTM with SAE classification systems at 40° C (104° F).

VISCOSITY CLASSIFICATION COMPARISON

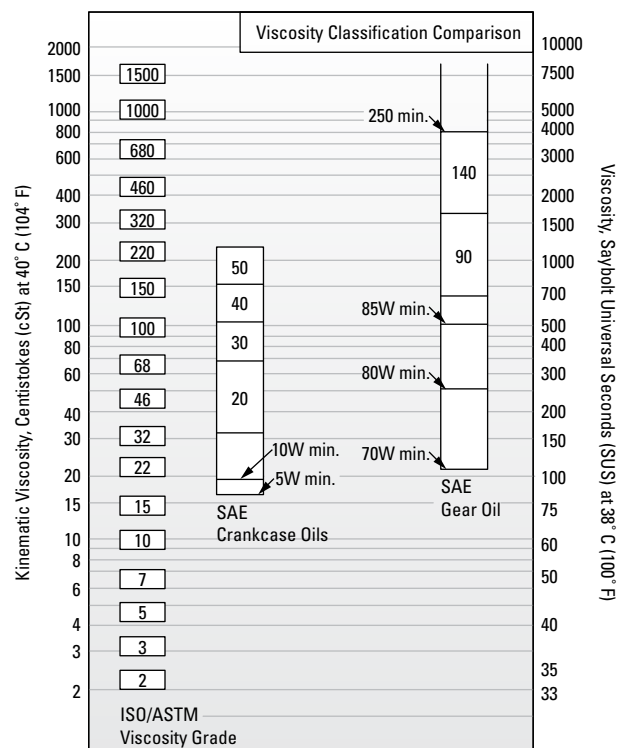


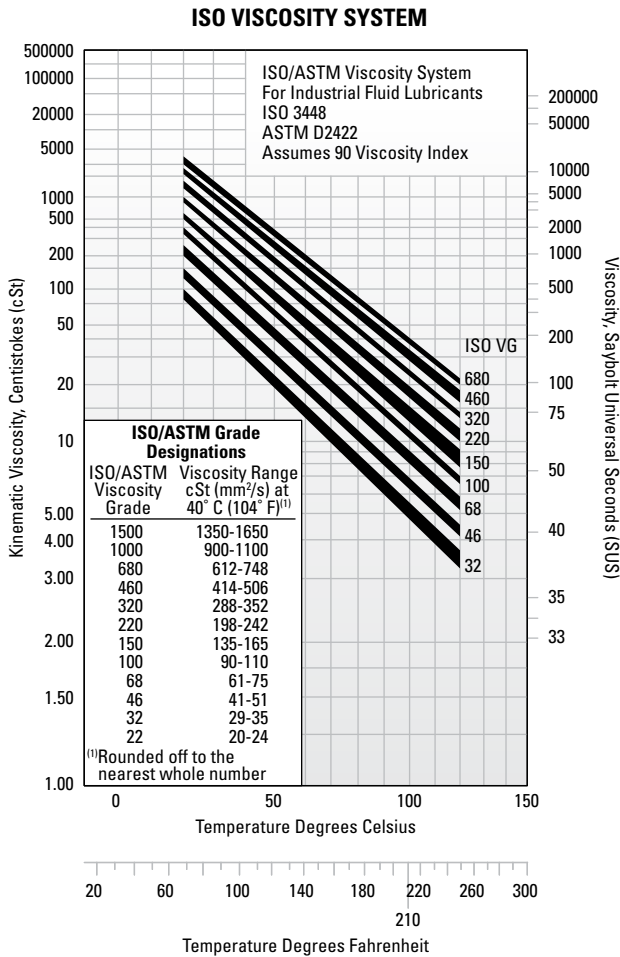
Fig. E-8. Comparison between ISO/ASTM grades (ISO 3448/ASTM D2442) and SAE grades (SAE J 300-80 for crankcase oils, SAE J 306-81 for axle and manual transmission oils).

**⚠ WARNING**

***Failure to observe the following warnings could create a risk of death or serious injury.***

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.

The ASTM/ISO viscosity grade system for industrial oils is depicted in fig. E-9 below.



**Fig. E-9. Viscosity grade system for industrial oils.**

## CONSISTENCY

Greases may vary in consistency from semi-fluids that are hardly thicker than a viscous oil to solid grades almost as hard as a soft wood.

Consistency is measured by a penetrometer in which a standard weighted cone is dropped into the grease. The distance the cone penetrates (measured in tenths of a millimeter in a specific time) is the penetration number.

The National Lubricating Grease Institute (NLGI) classification of grease consistency is shown in table E-12 below.

**TABLE E-12. NLGI CLASSIFICATIONS**

NLGI Grease Grades	Penetration No.
0	355-385
1	310-340
2	265-295
3	220-250
4	175-205
5	130-160
6	85-115

Grease consistency is not fixed, it normally becomes softer when sheared or worked. In the laboratory, this working is accomplished by forcing a perforated plate up and down through a closed container of grease. This working does not compare with the violent shearing action that takes place in a bearing and does not necessarily correlate with actual performance.

### LOW TEMPERATURES

Starting torque in a grease-lubricated bearing at low temperatures can be critical. Some greases may function adequately as long as the bearing is operating, but resistance to initial movement may be excessive. In certain smaller machines, starting may be impossible when very cold. Under such operating circumstances, greases containing low-temperature characteristic oils are generally required.

If the operating temperature range is wide, synthetic greases offer advantages. Synthetic greases are available to provide very low starting and running torque at temperatures as low as -73° C (-100° F). In certain instances, these greases perform better in this respect than oil.

An important point concerning lubricating greases is that the starting torque is not necessarily a function of the consistency or the channel properties of the grease. Starting torque is more a function of the individual rheological properties of a particular grease and is best evaluated by application experience.

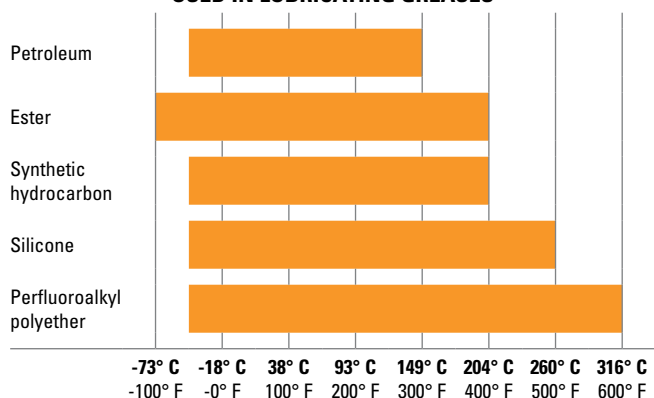
### HIGH TEMPERATURES

The high temperature limit for lubricating greases is generally a function of the thermal and oxidation stability of the fluid and the effectiveness of the oxidation inhibitors. Grease temperature ranges are defined by both the dropping point of the grease thickener and composition of the base oil. Table E-13 shows the temperature ranges of various base oils used in grease formulations.

A rule of thumb, developed from years of testing grease-lubricated bearings, indicates that grease life is halved for every 10° C (18° F) increase in temperature. For example, if a particular grease provides 2000 hours of life at 90° C (194° F), by raising the temperature to 100° C (212° F), reduction in life to approximately 1000 hours would result. On the other hand, 4000 hours could be expected by lowering the temperature to 80° C (176° F).

Thermal stability, oxidation resistance and temperature limitations must be considered when selecting greases for high-temperature applications. In non-relubricatable applications, highly refined mineral oils or chemically stable synthetic fluids are required as the oil component of greases for operation at temperatures above 121° C (250° F).

**TABLE E-13. TEMPERATURE RANGES FOR BASE OILS USED IN LUBRICATING GREASES**



## CONTAMINATION

### Abrasive Particles

When roller bearings operate in a clean environment, the primary cause of damage is the eventual fatigue of the surfaces where rolling contact occurs. However, when particle contamination enters the bearing system, it is likely to cause damage such as bruising, which can shorten bearing life.

When dirt from the environment or metallic wear debris from some component in the application are allowed to contaminate the lubricant, wear can become the predominant cause of bearing damage. If bearing wear becomes significant, changes will occur to critical bearing dimensions that could adversely affect machine operation.

Bearings operating in a contaminated lubricant exhibit a higher initial rate of wear than those running in an uncontaminated lubricant. With no further contaminant ingress, this wear rate quickly diminishes. The contamination particles are reduced in size as they pass through the bearing contact area during normal operation.

### Water

Water and moisture can be particularly conducive to bearing damage. Lubricating greases may provide a measure of protection from this contamination. Certain greases, such as calcium and aluminum-complex, are highly water-resistant.

Sodium-soap greases are water-soluble and should not be used in applications involving water.

Either dissolved or suspended water in lubricating oils can exert a detrimental influence on bearing fatigue life. Water can cause bearing etching that also can reduce bearing fatigue life. The exact mechanism by which water lowers fatigue life is not fully understood. It has been suggested that water enters micro-cracks in the bearing rings that are caused by repeated stress cycles. This leads to corrosion and hydrogen embrittlement in the micro-cracks, reducing the time required for these cracks to propagate to an unacceptable-sized spall.

Water-based fluids, such as water glycol and invert emulsions, also have shown a reduction in bearing fatigue life. Although water from these sources is not the same as contamination, the results support the previous discussion concerning water-contaminated lubricants.

## GREASE SELECTION

The successful use of bearing grease depends on the physical and chemical properties of the lubricant as well as application and environmental conditions. Because the choice of grease for a particular bearing under certain service conditions is often difficult to make, you should consult with your lubricant supplier or equipment maker for specific questions about lubrication requirements for your application. You also can contact your Timken engineer for general lubrication guidelines for any application.

Grease must be carefully selected with regard to its consistency at operating temperature. It should not exhibit thickening, separation of oil, acid formation or hardening to any marked degree. It should be smooth, non-fibrous and entirely free from chemically active ingredients. Its dropping point should be considerably higher than the operating temperature.

## PERFORMANCE ENHANCING GREASE ADDITIVES

Greases can be enhanced with a variety of base oil and soap additive packages that improve the performance of the grease and extend the life of the bearing the grease is lubricating. These additive packages can include agents which:

- inhibit oxidation, rust and corrosion
- resist water immersion and washout
- provide anti-wear protection
- allow extreme pressure from extraordinary loading

Timken® application-specific lubricants were developed by leveraging our knowledge of tribology and antifriction bearings, and how these two elements affect overall system performance. Timken lubricants help bearings and related components operate effectively in demanding industrial operations. High-temperature, anti-wear and water-resistant additives offer superior protection in challenging environments. Table E-14 provides an overview of the Timken greases available for general applications. Contact your Timken engineer for a more detailed publication on Timken lubrication solutions.

**TABLE E-14. GREASE LUBRICATION SELECTION GUIDE**

ENVIRONMENT		APPLICATION
High Wear • Moderate Loads Moderate Speeds Moderate Temperatures	→	←
	Timken Premium All-Purpose Industrial Grease Part No. GR217	Agriculture • Bushings/Ball Joints Truck and Auto Wheel Bearings Heavy-Duty Industrial
↓		↓
Extreme Heat • Heavy Loads High Sliding Wear Dirty Environments Slow Speeds • Shock Loading	→	←
	Timken Construction and Off-Highway Grease Part No. GR219	Agriculture/Mining • Cement Plants Construction/Off Road • Rock Quarry Earth-Moving Equipment Fleet Equipment • Heavy Industry Pivot Pins/Splined Shafts
↓		↓
Wet and Corrosive Conditions Quiet Environments • Light Loads Moderate to High Speeds Moderate Temperatures Light Load Moderate Water	→	←
	Timken Ball Bearing Pillow Block Grease Part No. GR220	Lightly Loaded Pillow Blocks Idler Pulleys • Oven Conveyors Electric Motors • Fans • Pumps Alternators • Generators
↓		↓
Corrosive Media • Extreme Heat Heavy Loads • Wet Conditions Slow to Moderate Speeds	→	←
	Timken Mill Grease Part Nos. GR180 - NLGI No. 1 GR182 - NLGI No. 2	Aluminum Mills • Paper Mills Steel Mills • Offshore Rigs Power Generation
↓		↓
Incidental Food Contact Hot and Cold Temperatures Moderate to High Speeds Medium Loads	→	←
	Timken Food Safe Grease Part No. GR231	Food and Beverage Industries Pharmaceuticals
↓		↓
Extreme Low and High Temperatures Severe Loads Corrosive Media Slow to Moderate Speeds	→	←
	Timken Synthetic Industrial Grease Part No. GR232	Wind Energy Main Bearing Pulp and Paper Machines General Heavy Industry Marine Applications Centralized Grease Systems
↓		↓
Moderate Speeds Light to Moderate Loads Moderate Temperatures Moderate Water	→	←
	Timken Multi-Use Lithium Grease Part Nos. GR236 - NLGI No. 1, EP1 GR237 - NLGI No. 2, EP2	General Industrial Applications Pins and Bushings • Track Rollers Water Pumps Plain and Antifriction Bearings

This selection guide is not intended to replace the specifications by the equipment builder, who is responsible for its performance.

Many bearing applications require lubricants with special properties or lubricants formulated specifically for certain environments, such as:

- Friction oxidation (fretting corrosion).
- Chemical and solvent resistance.
- Food handling.

For assistance with these or other areas requiring special lubricants, consult your Timken engineer.

## GREASE USE GUIDELINES

It is important to use the proper amount of grease in the application. In typical industrial applications, the bearing cavity should be kept approximately one-third to one-half full. Less grease may result in the bearing being starved for lubrication. More grease may result in churning. Both conditions may result in excessive heat generation. As the grease temperature rises, viscosity decreases and the grease becomes thinner. This can reduce the lubricating effect and increase leakage of the grease from the bearing. It also may cause the grease components to separate, leading to a general breakdown of the lubricant properties. As the grease breaks down, bearing torque increases. In the case of excess grease resulting in churning, torque may also increase due to the resistance caused by the grease.

For best results, there should be ample space in the housing to allow room for excess grease to be displaced. However, it is equally important that the grease be retained all around the bearing. If a large void exists between the bearings, grease closures should be used to prevent the grease from leaving the bearing area.

Frictional torque is influenced by the quantity and the quality of lubricant present. Excessive quantities of grease causes churning. The adverse effects of churn are accelerated with increases in operating speed. The churn results in excessive temperatures, separation of the grease components, and breakdown in lubrication values. In normal-speed applications, the housings should be kept approximately one-third to one-half full.

Only in low-speed applications may the housing be entirely filled with grease. This method of lubrication is a safeguard against the entry of foreign matter, where sealing provisions are inadequate for exclusion of contaminants or moisture.

During periods of non-operation, completely filling the housings with grease can provide additional protection to the bearing surfaces. Prior to restarting operation, remove the excess grease and restore the proper level.

Applications using grease lubrication should have a grease fitting and a vent at opposite ends of the housing near the top. A drain plug should be located near the bottom of the housing to allow the grease to purge as needed.

Bearings should be relubricated at regular intervals to help prevent damage. Relubrication intervals are difficult to determine. If plant practice or experience with other applications is not available, consult your lubricant supplier.



**Fig. E-10. Grease can easily be packed by hand.**



**Fig. E-11. Mechanical grease packer.**

Timken offers a range of lubricants to help bearings and related components operate effectively in demanding industrial operations. High-temperature, anti-wear and water-resistant additives offer greater protection in challenging environments. Timken also offers a line of single- and multi-point lubricators to simplify grease delivery.

### Grease application methods

Grease, in general, is easier to use than oil in industrial bearing applications. Most bearings that are initially packed with grease require periodic relubrication to operate efficiently.

Grease should be packed into the bearing so that it gets between the rolling elements and coats raceway surfaces.

Grease can be easily packed into small- and medium-size bearings by hand (fig. E-10). In shops where bearings are frequently regreased, a mechanical grease packer that forces grease through the bearing under pressure may be appropriate (fig. E-11). Regardless of the method, after packing the internal areas of the bearing, a small amount of grease also should be smeared on the outside of the rollers.

The two primary considerations that can effect the relubrication cycle are operating temperature and sealing efficiency. High-operating-temperature applications generally require more frequent regreasing. The less efficient the seals, the greater the grease loss and the more frequently grease must be added.

Grease should be added any time the amount in the bearing falls below the desired amount. The grease should be replaced when its lubrication properties have been reduced through contamination, high temperature, water, oxidation or any other factors. It is also important to follow suggested practice for seal lubrication. Mounting instructions shown starting on [page E-41](#) indicated appropriate methods based on seal and housing construction.



## GENERAL-PURPOSE INDUSTRIAL GREASE

Polyurea and lithium-based greases are typical of greases that can be used to lubricate many Timken bearing applications in all types of standard equipment. Polyurea and lithium-based greases are normally preferred for general-purpose bearing lubrication and are advantageous in high moisture applications. Both greases have good water-resistant characteristics.

Special consideration should be given to applications where speed, load, temperature or environmental conditions are extreme. For temperature ranges of standard greases see table E-13.

Lithium greases, lithium complex greases, or calcium sulfonate thickened grease are suitable for most centralized, single-point, or manually lubricated product. These greases should be smooth, homogeneous and uniform, premium-quality product composed of mineral or synthetic oil, a thickener and appropriate inhibitors (see table E-15).

**TABLE E-15. SUGGESTED LITHIUM SOAP, LITHIUM COMPLEX AND CALCIUM SULFONATE GREASE PROPERTIES**

Thickener type	Lithium Complex, or equivalent
Consistency	NLGI No.1 or No. 2
Additives	Anti-wear, corrosion and oxidation inhibitors
Base oil	Mineral oil or synthetic
Viscosity at 40° C	ISO VG 150-220
Viscosity index	80 min.
Pour point	-18° C (0° F) max.

They should not contain materials that are corrosive or abrasive to bearings or seals. The grease should have excellent mechanical and chemical stability. The grease should contain inhibitors to provide long-term protection against oxidation in high-performance applications and protect the bearings from corrosion in the presence of moisture. The suggested base oil viscosity covers a fairly wide range. Lower viscosity products should be used in high-speed and/or lightly loaded applications to minimize heat generation and torque. Higher viscosity products should be used in moderate- to low-speed applications and under heavy loads to maximize lubricant film thickness.

Speed ratings are listed for each size/class part number in the Timken Spherical Roller Bearing Catalog (order no. 10446) on pages 59–88. When application speeds exceed 70 percent of grease speed rating, consider increasing RIC by one ISO clearance range (CNormal to C3). Table E-16 is provided as a reference for typical grease thickener compatibilities. For general industrial applications, consider a grease that is NLGI No. 1 or No. 2, with a ISO 150 to 220 viscosity grade.

### NOTE

*Mixing greases can result in improper bearing lubrication. Always follow the specific lubrication instructions of your equipment supplier.*

Consult your lubricant supplier for further information for your specific requirement.

**TABLE E-16. GREASE COMPATIBILITY CHART**

	Al Complex	Ba Complex	Ca Stearate	Ca 12 Hydroxy	Ca Complex	Ca Sulfonate	Non-Soap Clay	Li Stearate	Li 12 Hydroxy	Li Complex	Polyurea	Polyurea S S
Aluminum Complex	Best Choice	Incompatible	Incompatible	Compatible	Incompatible	Borderline	Incompatible	Incompatible	Incompatible	Compatible	Incompatible	Compatible
Timken Food Safe	Best Choice	Incompatible	Incompatible	Compatible	Incompatible	Borderline	Incompatible	Incompatible	Incompatible	Compatible	Incompatible	Compatible
Barium Complex	Incompatible	Best Choice	Incompatible	Compatible	Incompatible	Compatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Borderline
Calcium Stearate	Incompatible	Incompatible	Best Choice	Compatible	Incompatible	Compatible	Compatible	Compatible	Borderline	Compatible	Incompatible	Compatible
Calcium 12 Hydroxy	Compatible	Compatible	Compatible	Best Choice	Borderline	Borderline	Compatible	Compatible	Compatible	Compatible	Incompatible	Compatible
Calcium Complex	Incompatible	Incompatible	Incompatible	Borderline	Best Choice	Incompatible	Incompatible	Incompatible	Incompatible	Compatible	Compatible	Compatible
Calcium Sulfonate	Borderline	Compatible	Compatible	Borderline	Incompatible	Best Choice	Incompatible	Borderline	Borderline	Compatible	Incompatible	Compatible
Timken Premium Mill Timken Heavy-Duty Moly	Borderline	Compatible	Compatible	Borderline	Incompatible	Best Choice	Incompatible	Borderline	Borderline	Compatible	Incompatible	Compatible
Clay Non-Soap	Incompatible	Incompatible	Compatible	Compatible	Incompatible	Incompatible	Best Choice	Incompatible	Incompatible	Incompatible	Incompatible	Borderline
Lithium Stearate	Incompatible	Incompatible	Compatible	Compatible	Incompatible	Borderline	Incompatible	Best Choice	Compatible	Compatible	Incompatible	Compatible
Lithium 12 Hydroxy	Incompatible	Incompatible	Borderline	Compatible	Incompatible	Borderline	Incompatible	Compatible	Best Choice	Compatible	Incompatible	Compatible
Lithium Complex	Compatible	Incompatible	Compatible	Compatible	Compatible	Compatible	Incompatible	Compatible	Compatible	Best Choice	Incompatible	Compatible
Polyurea Conventional	Incompatible	Incompatible	Incompatible	Incompatible	Compatible	Incompatible	Incompatible	Incompatible	Incompatible	Incompatible	Best Choice	Compatible
Polyurea Shear Stable	Compatible	Borderline	Compatible	Compatible	Compatible	Compatible	Borderline	Compatible	Compatible	Compatible	Compatible	Best Choice
Timken Multi-Use	Incompatible	Incompatible	Borderline	Compatible	Incompatible	Borderline	Incompatible	Compatible	Best Choice	Compatible	Incompatible	Compatible
Timken All -Purpose Timken Synthetic	Compatible	Incompatible	Compatible	Compatible	Compatible	Compatible	Incompatible	Compatible	Compatible	Best Choice	Incompatible	Compatible
Timken Pillow Block	Compatible	Borderline	Compatible	Compatible	Compatible	Compatible	Borderline	Compatible	Compatible	Compatible	Compatible	Best Choice

## APPLICATION CONSIDERATIONS

For higher speed applications (operating at 70 percent of the grease speed rating or more), a lighter base oil viscosity (ISO 100–150) can be considered. Conversely, for lower speed applications, a grease with a heavier base oil viscosity (ISO 320–460) can be considered. For lower speed applications operating at colder start-up temperatures (<-18° C [0° F]), consider a softer grease (NLGI grade 1) with an approved EP additive. The lighter grade will allow more grease flow into the bearing contact area and the EP additive will reduce wear during start-up. An ISO 460 base oil viscosity also can be considered.

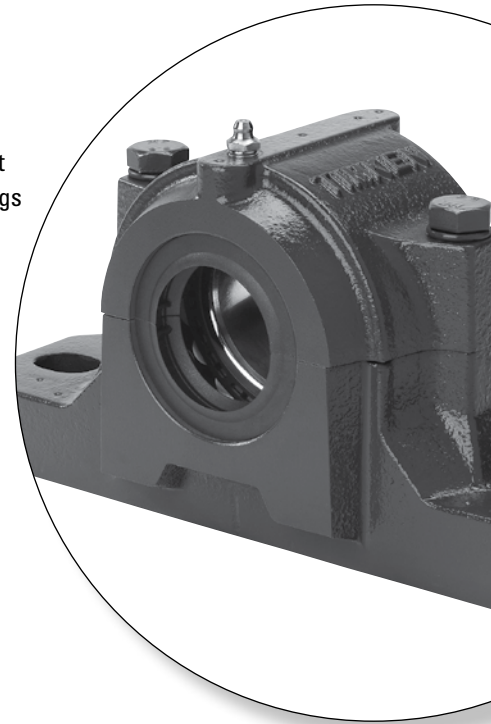
When lower speed applications operate at higher temperatures (>149° C [300° F]), consult your Timken engineer.



***SNT SPHERICAL ROLLER BEARING  
PLUMMER BLOCKS PRODUCT  
DATA TABLES***

Spherical roller bearing plummer blocks combine rugged cast iron, ductile iron or steel housings with high-capacity bearings to meet the toughest demands of industry. Each plummer block contains an advanced-design spherical roller bearing with improved geometry and raceway finish for maximized load capacity and service life. Integrated housing and bearing features enhance unit lubrication characteristics. Multiple sealing options protect against contamination.

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## ***MOUNTING***

### **ADAPTER VERSUS STRAIGHT BORE**

Typically, a spherical roller bearing plummer block assembly is mounted on a straight shaft using a tapered bore bearing and adapter assembly. Standard commercial shafting can be used without additional machining. (Suggested shaft diameters are shown in table E-20 on page E-68.) Adapter mount also permits maximum flexibility in the axial positioning of the bearing on the shaft and will accommodate light locational thrust loads. Timken plummer blocks for tapered bore and cylindrical bore are available.

Adapter-mounted spherical roller bearings require the correct removal of diametral clearance from the bearing to prevent relative rotation between inner race and sleeve or shaft. For proper shaft mounting of adapter-type spherical roller bearings, see page E-7.

When application conditions produce heavy thrust loads, or a need exists for exact axial location or a positive shaft interference fit, a direct straight bore mounting may be the best option. This requires a shouldered shaft, machined for proper fit, and a straight bore bearing. Timken plummer block housings for straight bore applications are available for use with series 213, 222, 223 and 232.

Suggested fits for shafts in cylindrical bore spherical roller bearings are shown in the engineering section of this catalog in table E-4 on page E-9. For applications involving heavy shock, vibration, unbalanced rotating loads or other non-standard conditions, consult your Timken engineer.

### **FIXED AND FLOAT PLUMMER BLOCKS**

SNT split plummer block components include two to six locating rings allowing for installation at either fixed or float positions on the shaft. For the fixed position, two or more locating rings are used on one or both sides of the bearing.

### **CLOSED-END INSTALLATIONS**

In some applications, the shaft end is designed to terminate inside the plummer block. For this design, positive fitting end-cap inserts are available to help seal out contaminants and retain lubricant. Timken heavy-duty end covers provide sealing for closed-end applications.

Designers and installers need to make sure the shaft end does not contact the closure. A minimum of 3 mm clearance at maximum thermal expansion is suggested between the end of the shaft and the closure. Dimension Y, in the spherical roller bearing tables (pages E-71–E-77), defines the maximum permissible length of the shaft from the centerline of the plummer block housing.

#### **NOTE**

*Failure to employ proper mounting procedures can cause reduced bearing performance.*

**TABLE E-18. SEAL SELECTION**

Seal Selection	Double-Lip (TSNG)	V-Ring (VR)	Labyrinth (LO)	Taconite (TA)
Material	NBR	NBR rubber + mild steel plate	Steel + NBR O-ring	Steel + NBR O-ring and V-ring
Temperature	-40° to 100° C (-40° to 212° F)	-40° to 100° C (-40° to 212° F)	-40° to 120° C (-40° to 248° F)	-40° to 100° C (-40° to 212° F)
Maximum speed	8 m/s	7 m/s	Same as bearing	7 m/s
Grease relubrication	Excellent	Excellent	Good	Good
Oil lubrication <sup>(1)</sup>	Poor	Poor	Poor	Poor
Low friction	Good	Good	Excellent	Good
Resists dust/fine particles	Excellent	Excellent	Good	Excellent
Resists coarse particles	Good	Poor	Excellent	Good
Resists water	Good	Good	Fair	Good
Misalignment Shaft dia. ≤ 100 mm	1°	1.5°	0.3°	0.3°
Misalignment Shaft dia. > 100 mm	0.5°	1°	0.3°	0.3°

<sup>(1)</sup>If an application requires oil lubrication, please contact your Timken engineer.

## LOAD RATINGS AND LIFE

Load ratings for the spherical roller bearings that are used in plummer blocks are found in the dimension tables on pages E-71 through E-77. Life calculation formulas are found in the Engineering Manual (order no. 10424) on page 48 available on [www.timken.com](http://www.timken.com).

In addition to individual bearing selection, the ability of the plummer block to carry the operating load should be considered.

It should be noted that the load rating figures supplied in this catalog are applicable only when the load direction is generally toward the base of the plummer block. If the plummer block must be mounted so the load can be applied in any other direction, consult your Timken engineer.

## INSTALLATION GUIDES

Following are installation guides for the SNT housings and the four seal types offered by Timken.

### MOUNTING HOUSINGS WITH DOUBLE-LIP SEALS

Prior to starting installation, please read the following instructions. Contact a Timken engineer with any questions.

1. Clean the work area. Check the dimensional and form accuracy of the shaft seat. Note: The shaft roundness specification should be half of the O.D. tolerance. Ensure the shaft is free from burrs, gouges or other imperfections.
2. Ensure the surface roughness of the support surface  $R_a \leq 12.5 \mu\text{m}$ . Ensure flatness is within 0.08 mm (base) and 0.125 mm aggregate (housing base and mounting surface).
3. Determine the position of the housing relative to the adapter sleeve on the shaft for bearings on adapter sleeves. For bearings that have to be relubricated from the side, the grease fitting in the housing cap should always face away from the locknut on the adapter sleeve. When housings are mounted on the end of a shaft, grease must be supplied at the end cover side. Make sure to position the base correctly because the cap only fits in one direction.
4. Position the housing on the support surface. Fit the attachment bolts but do not tighten them (fig. E-18a).
5. Insert one seal half in each of the grooves in the housing base. Fill the space between the two sealing lips with grease (fig. E-18b). If the housing is used on the end of a shaft, insert an end cover on one side instead of the seal half.
6. Mount the bearing on the shaft – either directly on a stepped shaft or using an adapter sleeve. Completely fill the bearing with grease. The remainder of the suggested grease quantity can be placed in the housing, equally distributed on each side of the bearing (See grease fill).
7. Install the shaft with bearing in the housing base (fig. E-19a).
8. Put one locating ring on each side of the bearing for locating bearing arrangements (fig. E-19b).
9. Carefully align the housing base. Use the vertical markings at the middle of the side faces and end faces of the housing base to help with this (fig. E-20a). Then lightly tighten the attachment bolts (fig. E-20b).
10. The remaining seal halves must be inserted in the seal grooves in the housing cap and the space between the sealing lips filled with grease.
11. Check the cap and base to see that they show the same identification. Install the cap onto the base (fig. E-21a) and tighten the cap bolts to the torque specified in the table.
12. Fully tighten the attachment bolts in the housing base (fig. E-21b). Suggested tightening torques are given in the table.

For torque table and grease fill information, please see page E-45.

Fig. E-18

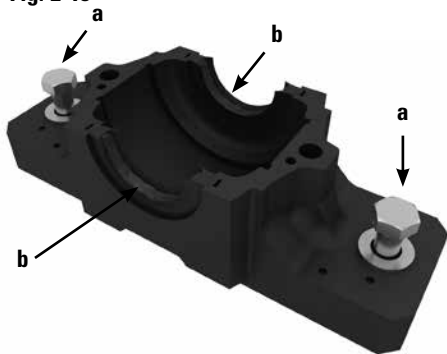


Fig. E-19

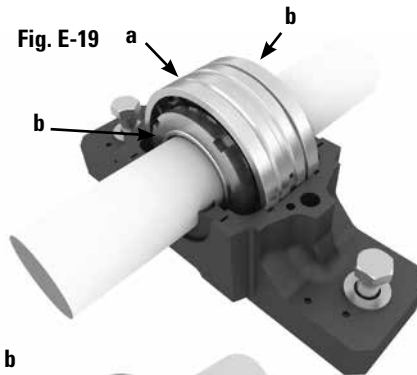


Fig. E-20

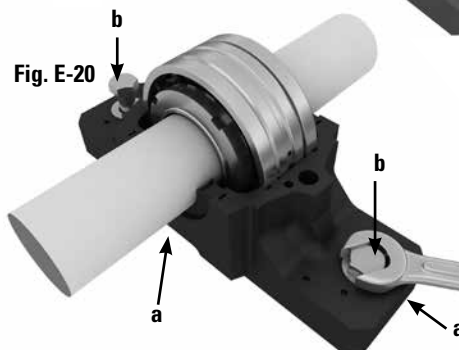
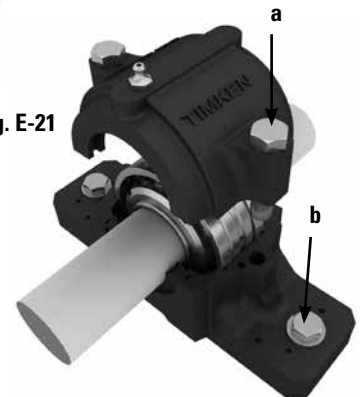


Fig. E-21





## MOUNTING HOUSINGS WITH LABYRINTH SEALS

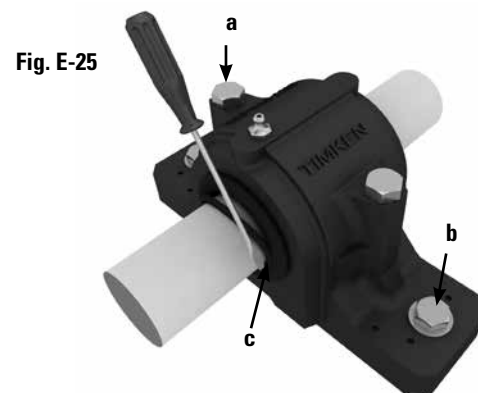
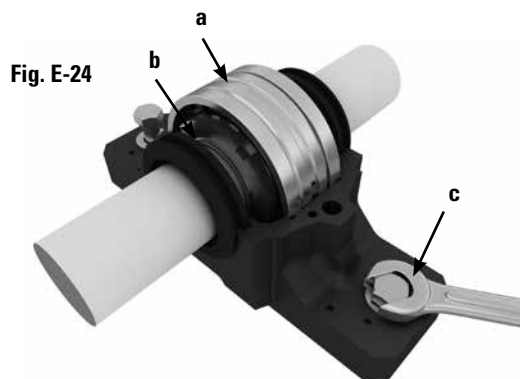
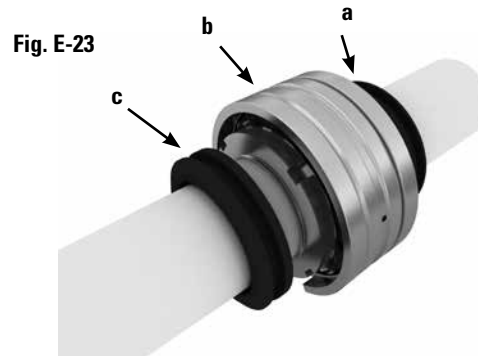
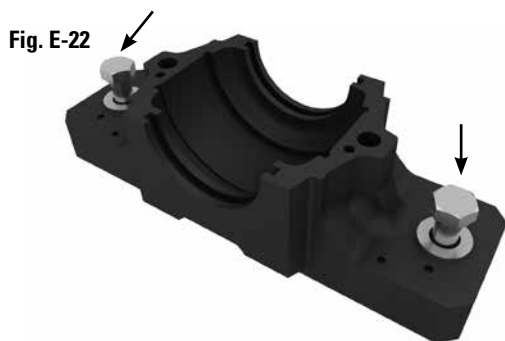
Prior to starting installation, please read the following instructions. Contact a Timken engineer with any questions.

1. Clean the work area. Check the dimensional and form accuracy of the shaft seat. Note: The shaft roundness specification should be half of the O.D. tolerance. Ensure the shaft is free from burrs, gouges or other imperfections.
2. Ensure the surface roughness of the support surface  $R_a \leq 12.5 \mu\text{m}$ . Ensure flatness is within 0.08 mm (base) and 0.125 mm aggregate (housing base and mounting surface).
3. For bearings on adapter sleeves, determine the position of the housing relative to the adapter sleeve on the shaft. For bearings that have to be relubricated from the side, the grease fitting in the housing cap should always face away from the locknut on the adapter sleeve. Grease should be supplied at the end cover side where housings are mounted on the end of a shaft. Be sure to position the base correctly since the cap only fits in one direction.
4. Position the housing on the support surface. Fit the attachment bolts but do not tighten them (fig. E-22).
5. Mount the labyrinth ring on the shaft (fig. E-23a).
6. Mount the bearing on the shaft – either directly on a stepped shaft or using an adapter sleeve (fig. E-23b). Completely fill the bearing with grease. The remainder of the suggested

grease quantity can be placed in the housing, equally distributed on each side of the bearing (See grease fill).

7. Mount the second labyrinth ring on the shaft in the correct position (fig. E-23c). If the housing is to be used on the end of a shaft, omit the second labyrinth ring and insert an end cover in the housing base instead.
8. Install the shaft with bearing and labyrinth ring(s) in the housing base (fig. E-24a).
9. Place one locating ring on each side of the bearing for locating bearing arrangements (fig. E-24b).
10. Align the housing base. Use the vertical markings at the middle of the side faces and end faces of the housing base to help with this. Tighten the attachment bolts (fig. E-24c).
11. Check the cap and base to see that they have the same identification. Install the cap onto the base (fig. E-25a) and tighten the cap bolts to the torque specified in the table.
12. Fully tighten the attachment bolts in the housing base (fig. E-25b). Suggested tightening torques are given in the table.
13. Insert the hollow O-ring cord of synthetic rubber in the grooves in the labyrinth rings. Use a screwdriver while turning the shaft, take care not to damage the seal (fig. E-25c).

For torque table and grease fill information, please see page E-45.



## MOUNTING HOUSINGS WITH V-RING SEALS

Prior to starting installation, please read the following instructions. Contact a Timken engineer with any questions.

1. Ensure the work area is clean. Check the dimensional and form accuracy of the shaft seat. Note: The shaft roundness specification should be half of the O.D. tolerance. Ensure the shaft is free from burrs, gouges or other imperfections.
2. Ensure the surface roughness of the support surface  $Ra \leq 12.5 \mu\text{m}$ . Ensure flatness is within 0.08 mm (base) and 0.125 mm aggregate (housing base and mounting surface).
3. Determine the position of the housing relative to the adapter sleeve on the shaft for bearings on adapter sleeves. For bearings that have to be relubricated from the side, the grease fitting in the housing cap should always face away from the locknut on the adapter sleeve. Grease should be supplied at the end cover side where housings are mounted on the end of a shaft. Make sure to position the base correctly since the cap only fits in one direction.
4. Position the housing on the support surface. Fit the attachment bolts but do not tighten them (fig. E-26).
5. Arrange the one V-ring with sealing washer on the shaft. The V-ring should be furthest away from the bearing and seal against the washer, i.e. the lip should point inward the washer (fig. E-27a).
6. Mount the bearing on the shaft – either directly on a stepped shaft or using an adapter sleeve (fig. E-27b). Completely fill the bearing with grease. The remainder of the suggested grease quantity can be placed in the housing, equally distributed on each side of the bearing (See grease fill).
7. Arrange the second sealing washer and V-ring on the shaft at the other side of the bearing (fig. E-27c). If the housing is to be used on the end of a shaft, mount an end cover instead.
8. Install the shaft with bearing and sealing washers in the housing base (fig. E-28a).
9. Put one locating ring on each side of the bearing for locating bearing arrangements.
10. Align the housing base. Use the vertical markings at the middle of the side faces and end faces of the housing base to help with this. Lightly tighten the attachment bolts (fig. E-28b).
11. Check the cap and base to see that they bear the same identification. Install the cap onto the base and tighten the cap bolts to the torque marked in the table (fig. E-29a).
12. Tighten the attachment bolts in the housing base (fig. E-29b). Check the table for suggested tightening torques.
13. Coat the V-ring counterfaces on the sealing washers with grease (fig. E-29c).
14. Finally, push the V-ring seals into their correct position. This can be done using a punch or screwdriver to push the seal as the shaft is turned, take care not to damage the seal (fig. E-30).

For torque table and grease fill information, please see page E-45.

Fig. E-26

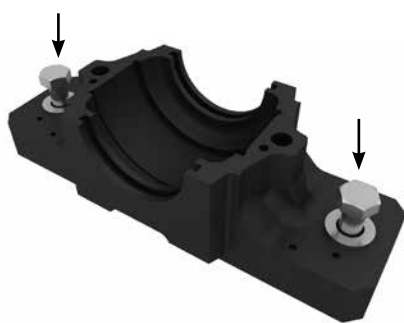


Fig. E-27

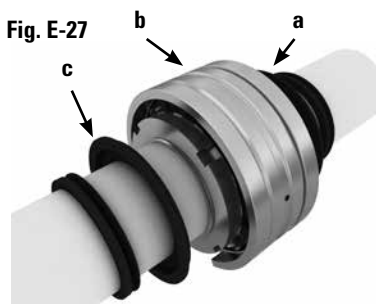


Fig. E-28

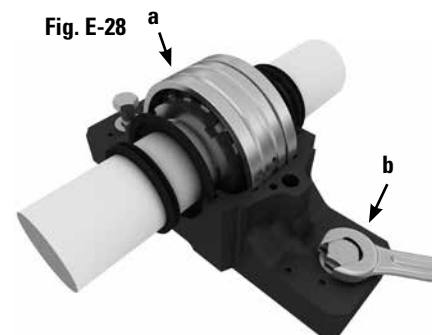


Fig. E-29



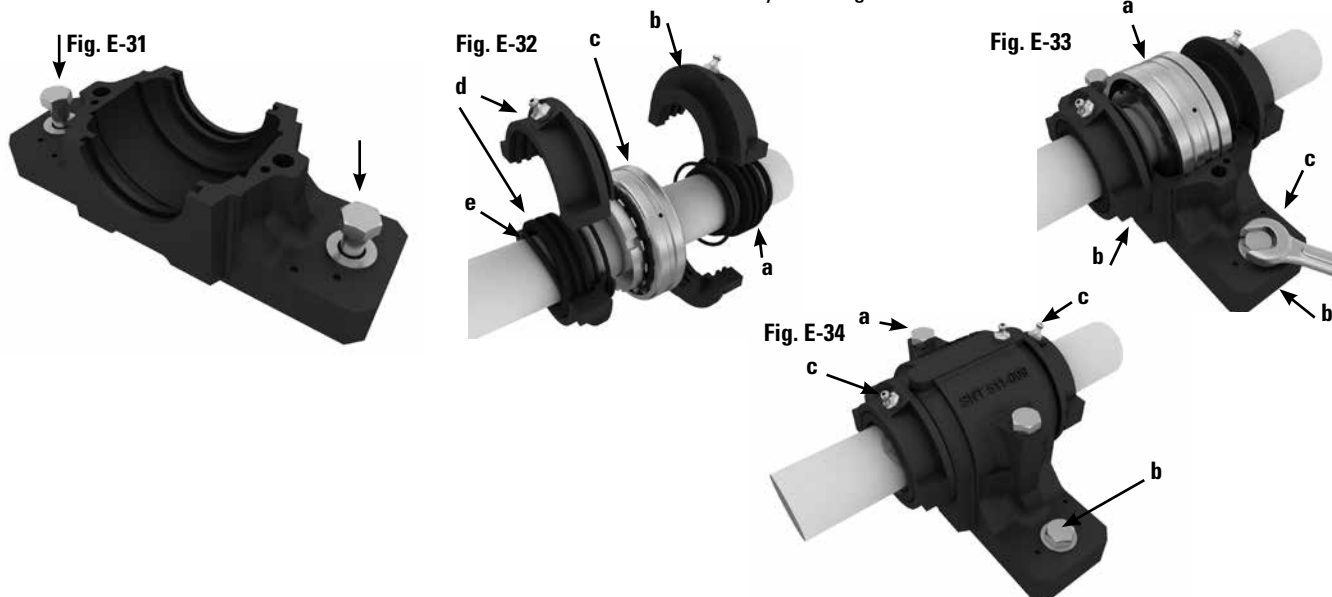
Fig. E-30



## MOUNTING HOUSINGS WITH TACONITE SEALS

Prior to starting installation, please read the following instructions. Contact a Timken engineer with any questions.

1. Ensure the work area is clean. Check the dimensional and form accuracy of the shaft seat. Note: The shaft roundness specification should be half of the O.D. tolerance. Ensure the shaft is free from burrs, gouges or other imperfections.
2. Ensure the surface roughness of the support surface  $Ra \leq 12.5 \mu\text{m}$  (500  $\mu\text{in}$ ). Ensure flatness is within 0.08 mm (base) and 0.125 mm aggregate (housing base and mounting surface).
3. For bearings on adapter sleeves, determine the position of the housing relative to the adapter sleeve on the shaft. For bearings that have to be relubricated from the side, the grease fitting in the housing cap should always face away from the locknut on the adapter sleeve. Where housings are mounted on the end of a shaft, grease should be supplied at the end cover side. Be sure to position the base correctly since the cap only fits in one direction.
4. Position the housing on the support surface. Fit the attachment bolts but do not tighten them (fig. E-31).
5. Mount the first V-ring together with one labyrinth ring on the shaft in the correct position (fig. E-32a). The lip of the V-ring should point towards the bearing. Place the split ring parts over the V-ring and labyrinth ring and screw them together (fig. E-32b). The two parts of this split ring are not interchangeable. Check to see that they carry the same identification.
6. Mount the bearing on the shaft (fig. E-32c) – either directly on a stepped shaft or using an adapter sleeve. Fill the bearing with grease. The remainder of the suggested grease quantity can be placed in the housing, equally distributed on each side of the bearing (See grease fill).
7. Mount the second seal according to step 5 (fig. E-32d). If the housing is to be used on the end of a shaft, omit the second seal and insert an end cover in the housing base instead.
8. Use the hollow O-section cord to fix the labyrinth ring in position on the shaft (fig. E-32c). Use a screwdriver to fit the cords while rotating the shaft, taking care not to damage the cords. Mount the O-rings on the seal outer diameter.
9. Install the shaft with bearing and seals in the housing base (fig. E-33a) taking care that the hollow O-section cords are not damaged.
10. For locating bearing arrangements put one locating ring on each side of the bearing.
11. Carefully align the housing base. Use the vertical markings at the middle of the side faces and end faces of the housing base to help facilitate this (fig. E-33b). Tighten the attachment bolts (fig. E-33c).
12. Check the cap and base to make sure they have the same identification. Install the cap onto the base (fig. E-34a) and tighten the cap bolts to the torque specified in the table.
13. Fully tighten the attachment bolts in the housing base (fig. E-34b). Suggested tightening torques are given in the table.
14. Finally, before the first test run, rotate the shaft and supply grease via the fitting until it purges from the labyrinth rings (fig. E-34c). Use the same grease for the bearing and the labyrinth rings.



***METRIC SHAFT DIAMETERS***

**TABLE E-20. SUGGESTED METRIC SHAFT DIAMETERS FOR USE WITH ADAPTER SLEEVES (MM)**

Shaft O.D.	Max.	Min.	Shaft O.D.	Max.	Min.
20	20.000	19.925	190	190.000	189.875
25	25.000	24.925	200	200.000	199.875
30	30.000	29.925	210	210.000	209.850
35	35.000	34.925	220	220.000	219.850
40	40.000	39.925	230	230.000	229.850
45	45.000	44.925	240	240.000	239.850
50	50.000	49.925	250	250.000	249.850
55	55.000	54.900	260	260.000	259.850
60	60.000	59.900	270	270.000	269.825
65	65.000	64.900	280	280.000	279.825
70	70.000	69.900	290	290.000	289.825
75	75.000	74.900	300	300.000	299.825
80	80.000	79.900	310	310.000	309.825
85	85.000	84.900	320	320.000	319.800
90	90.000	89.900	330	330.000	329.800
95	95.000	94.900	340	340.000	339.800
100	100.000	99.900	350	350.000	349.800
105	105.000	104.875	360	360.000	359.800
110	110.000	109.875	370	370.000	369.800
115	115.000	114.875	380	380.000	379.800
120	120.000	119.875	390	390.000	389.800
125	125.000	124.875	400	400.000	399.800
130	130.000	129.875	410	410.000	409.800
135	135.000	134.875	420	420.000	419.800
140	140.000	139.875	430	430.000	429.800
145	145.000	144.875	440	440.000	439.800
150	150.000	149.875	450	450.000	449.800
160	160.000	159.875	460	460.000	459.800
170	170.000	169.875	470	470.000	469.800
180	180.000	179.875	480	480.000	479.800

## ***SPHERICAL ROLLER BEARING PRODUCT DATA TABLES***

Timken® spherical roller bearings feature all of the characteristics that have made Timken renowned – superior design, reliable performance and comprehensive technical support. Spherical roller bearings are designed to manage high radial loads and perform consistently, even when misalignment, marginal lubrication, contamination, extreme speeds and critical application stresses are present.

Nomenclature.....	E-70
Spherical Roller Bearing Product Data Tables .....	E-71



# SPHERICAL ROLLER BEARING NOMENCLATURE

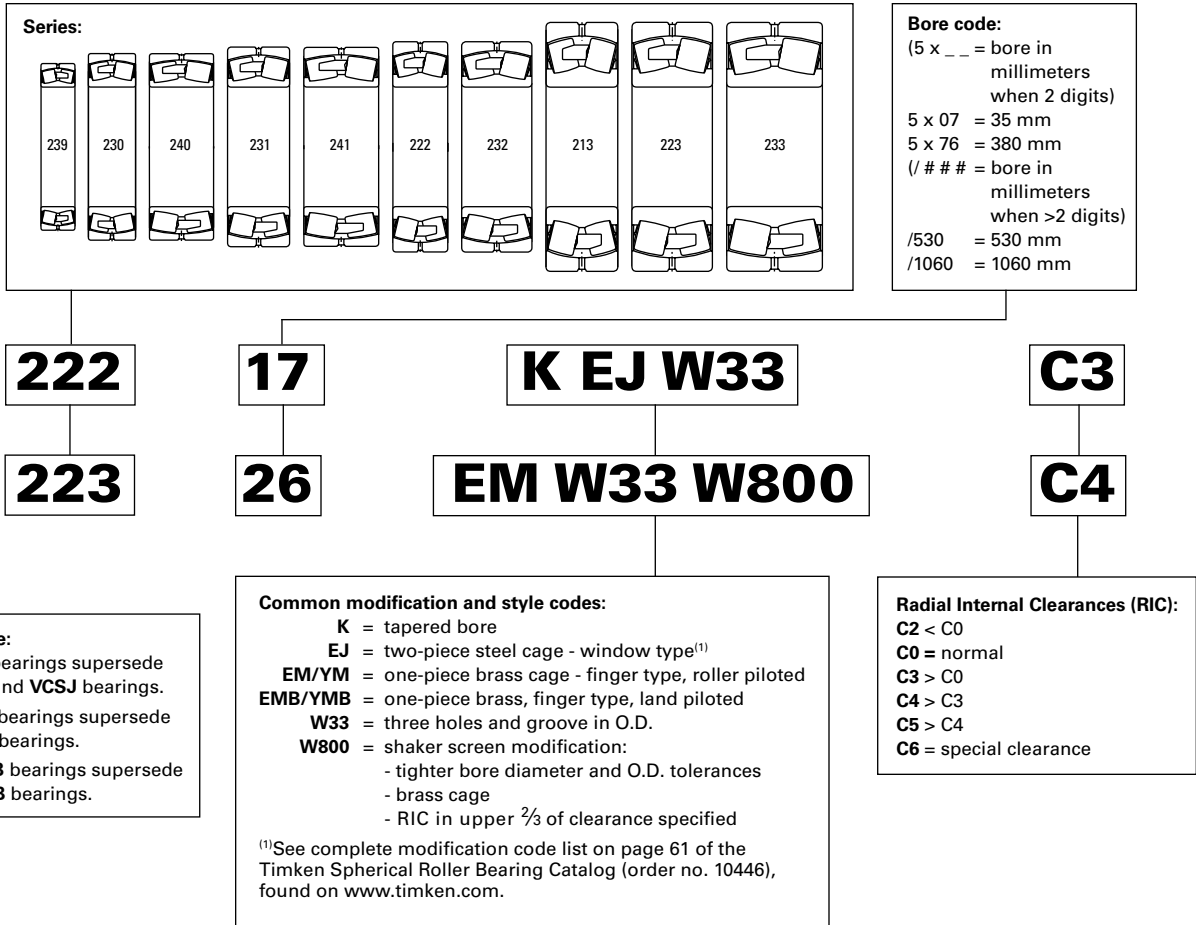
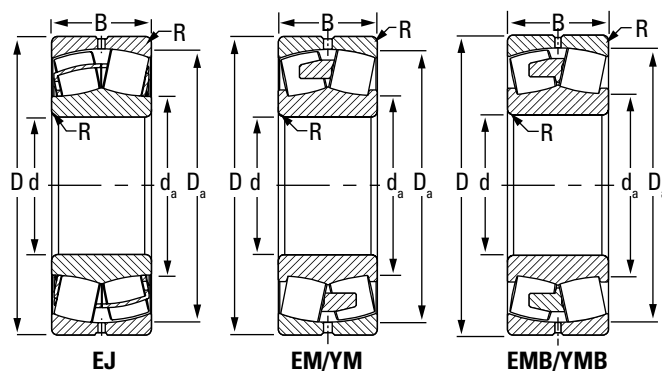


Fig. E-35. Timken® spherical roller bearing nomenclature.

## 213 SERIES (200, 300, 500, 600 SERIES SNT, FSNT)

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.
- This section lists spherical roller bearings pertinent to Timken SNT plummer blocks. For a wider selection, consult [www.timken.com](http://www.timken.com) or the Timken® Spherical Roller Bearing catalog (order no. 10446).



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		Dynamic		Static	Oil		Grease		
	R	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	F <sub>a</sub> ≤ e F <sub>r</sub>	F <sub>a</sub> > e F <sub>r</sub>			In All Cases	RPM	RPM							
	mm in.	mm in.	mm in.	kN lbf.	kN lbf.		mm in.	mm in.	mm in.	e	Y	Y	Y <sub>0</sub>		C <sub>g</sub>	RPM	
21305	25 0.9843	62 2.4409	17 0.6693	55.5 12500	44.3 9970	EJ	1 0.04	35 1.4	55 2.1	0.27	2.48	3.7	2.43	0.037	10000	8100	0.3 0.7
21306	30 1.1811	72 2.8346	19 0.748	70.3 15800	56.5 12700	EJ	1 0.04	41 1.6	64 2.5	0.26	2.6	3.87	2.54	0.041	8900	7200	0.4 0.9
21307	35 1.378	80 3.1496	21 0.8268	90.2 20300	77.8 17500	EJ	1.5 0.06	47 1.9	71 2.8	0.26	2.56	3.81	2.5	0.044	7900	6400	0.5 1.1
21308	40 1.5748	90 3.5433	23 0.9055	113 25400	102 22900	EJ	1.5 0.06	54 2.1	80 3.2	0.26	2.64	3.93	2.58	0.048	7100	5800	0.7 1.5
21309	45 1.7717	100 3.937	25 0.9843	138 31000	125 28200	EJ	1.5 0.06	60 2.4	90 3.5	0.25	2.75	4.09	2.69	0.052	6500	5300	1.0 2.2
21310	50 1.9685	110 4.3307	27 1.063	163 36700	151 33800	EJ	2 0.08	67 2.6	99 3.9	0.24	2.83	4.21	2.76	0.055	5900	4900	1.2 2.6
21311	55 2.1654	120 4.7244	29 1.1417	188 42400	176 39500	EJ	2 0.08	73 2.9	108 4.2	0.24	2.81	4.18	2.75	0.058	5500	4500	1.6 3.5
21312	60 2.3622	130 5.1181	31 1.2205	225 50500	219 49200	EJ	2 0.08	80 3.2	116 4.6	0.23	2.91	4.33	2.84	0.062	5100	4200	2.0 4.4
21313	65 2.5591	140 5.5118	33 1.2992	259 58200	254 57100	EJ	2 0.08	86 3.4	126 5	0.23	2.94	4.37	2.87	0.065	4800	3900	2.4 5.3
21314	70 2.7559	150 5.9055	35 1.378	292 65600	289 65000	EJ	2 0.08	93 3.7	135 5.3	0.23	2.97	4.42	2.9	0.068	4500	3700	3.0 6.6
21315	75 2.9528	160 6.2992	37 1.4567	322 72400	321 72200	EJ	2 0.08	99 3.9	144 5.7	0.23	2.98	4.43	2.91	0.071	4300	3600	3.5 7.7
21316	80 3.1496	170 6.6929	39 1.5354	363 81700	363 81700	EJ	2 0.08	105 4.1	153 6	0.22	3.01	4.47	2.94	0.073	4100	3400	4.2 9.2
21317	85 3.3465	180 7.0866	41 1.6142	403 90600	407 91500	EJ	2.5 0.1	112 4.4	162 6.4	0.22	3.04	4.53	2.97	0.076	3900	3200	4.9 10.8
21318	90 3.5433	190 7.4803	43 1.6929	442 99400	449 101000	EJ	2.5 0.1	118 4.7	171 6.7	0.22	3.05	4.55	2.99	0.079	3700	3100	5.8 12.8

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>3</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

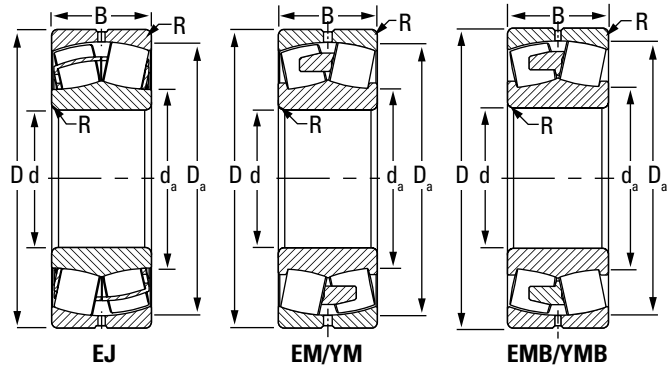
NOTE: Tolerance and shaft diameters are shown in tables E-2 and E-3 on pages E-5 and E-6 as variances from nominal bearing bore.

# SNT SPLIT PLUMMER BLOCKS

SPHERICAL ROLLER BEARING PRODUCT DATA TABLES • 222 SERIES (200, 500 SERIES SNT, FSNT)

## 222 SERIES (200, 500 SERIES SNT, FSNT)

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.
- This section lists spherical roller bearings pertinent to Timken SNT plummer blocks. For a wider selection, consult [www.timken.com](http://www.timken.com) or the Timken® Spherical Roller Bearing catalog (order no. 10446).



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup> C <sub>g</sub>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.) R	Backing Dia.		Dynamic		Static In All Cases Y <sub>0</sub>	Oil		Grease		
	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	$\frac{F_a}{F_r} \leq e$ X = 1 Y	$\frac{F_a}{F_r} > e$ X = 0.67 Y	RPM			RPM									
	mm in.	mm in.	mm in.	kN lbf.	kN lbf.		mm in.	mm in.	mm in.								
22205	25 0.9843	52 2.0472	18 0.7087	50.6 11400	43.1 9690	EJ	1 0.04	30 1.2	47 1.9	0.34	2	2.98	1.96	0.032	12000	9200	0.2 0.4
22206	30 1.1811	62 2.4409	20 0.7874	67.4 15200	60.8 13700	EJ	1 0.04	38 1.5	56 2.2	0.31	2.15	3.2	2.1	0.037	9700	7800	0.3 0.7
22207	35 1.378	72 2.8346	23 0.9055	90.5 20300	88 19700	EJ	1 0.04	45 1.8	65 2.6	0.31	2.21	3.29	2.16	0.041	8600	6900	0.5 1.1
22208	40 1.5748	80 3.1496	23 0.9055	104 23400	99.7 22400	EJ/EM	1 0.04	50 2	73 2.9	0.27	2.47	3.67	2.41	0.044	7500	6000	0.6 1.3
22209	45 1.7717	85 3.3465	23 0.9055	104 23500	101 22800	EJ/EM	1 0.04	55 2.2	77 3	0.26	2.64	3.93	2.58	0.046	6800	5500	0.6 1.3
22210	50 1.9685	90 3.5433	23 0.9055	112 25200	112 25100	EJ/EM	1 0.04	59 2.3	82 3.2	0.24	2.84	4.23	2.78	0.049	6200	5000	0.6 1.3
22211	55 2.1654	100 3.937	25 0.9843	134 30100	134 30100	EJ/EM	1.5 0.06	66 2.6	91 3.6	0.23	2.95	4.4	2.89	0.052	5800	4700	0.9 2.0
22212	60 2.3622	110 4.3307	28 1.1024	163 36600	164 36900	EJ/EM	1.5 0.06	72 2.8	100 4	0.24	2.84	4.23	2.78	0.055	5500	4400	1.2 2.6
22213	65 2.5591	120 4.7244	31 1.2205	198 44600	204 45900	EJ/EM	1.5 0.06	78 3.1	109 4.3	0.24	2.79	4.15	2.73	0.058	5100	4200	1.6 3.5
22214	70 2.7559	125 4.9213	31 1.2205	205 46000	219 49200	EJ/EM	1.5 0.06	84 3.3	114 4.5	0.23	2.9	4.32	2.84	0.063	4800	3900	1.6 3.5
22215	75 2.9528	130 5.1181	31 1.2205	222 49900	240 54100	EJ	1.5 0.06	88 3.5	120 4.7	0.22	3.14	4.67	3.07	0.062	4600	3700	1.7 3.7
22216	80 3.1496	140 5.5118	33 1.2992	254 57200	278 62500	EJ/EM	2 0.08	95 3.7	129 5.1	0.22	3.14	4.67	3.07	0.065	4300	3500	2.2 4.8

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See Timken Engineering Manual (order no. 10424) for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor  $a_{31}$  is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

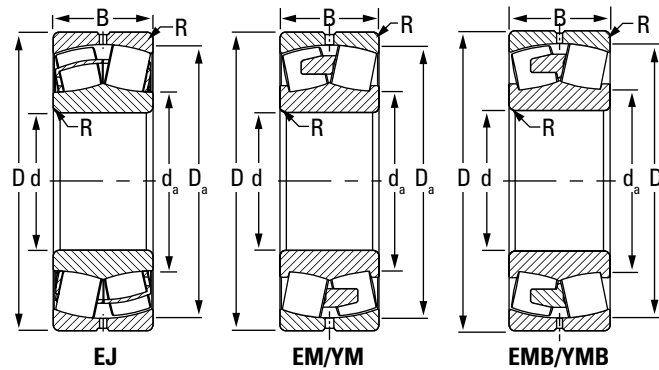
<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

NOTE: Tolerance and shaft diameters are shown in tables E-2 and E-3 on pages E-5 and E-6 as variances from nominal bearing bore.

Continued on next page.





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Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.	
										Dynamic		Static			Dynamic			Static
	Bore d	O.D. D	Width B	Dynamic C	Static C <sub>0</sub>		Fillet <sup>(1)</sup> (Max.) R	Backing Dia.		F <sub>a</sub> ≤ e F <sub>r</sub> X = 1	F <sub>a</sub> > e F <sub>r</sub> X = 0.67	In All Cases Y <sub>0</sub>	C <sub>g</sub>		RPM	RPM		kg lbs.
	mm in.	mm in.	mm in.	kN lbf.	kN lbf.		mm in.	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	e	Y	Y	Y <sub>0</sub>		C <sub>g</sub>	RPM		RPM
22217	85 3.3465	150 5.9055	36 1.4173	286 64200	302 67900	EJ/EM	2 0.08	101 4	139 5.5	0.22	3.07	4.57	3	0.068	4200	3400	2.7 5.9	
22218	90 3.5433	160 6.2992	40 1.5748	355 79700	388 87200	EJ/EM	2 0.08	105 4.2	146 5.8	0.23	2.9	4.31	2.83	0.07	4000	3300	3.5 7.7	
22219	95 3.7402	170 6.6929	43 1.6929	385 86600	441 99000	EJ/EM	2 0.08	114 4.5	155 6.1	0.23	2.88	4.29	2.82	0.076	3900	3200	4.2 9.2	
22220	100 3.937	180 7.0866	46 1.811	435 97700	502 113000	EJ/EM	2 0.08	120 4.7	163 6.4	0.24	2.85	4.24	2.78	0.079	3800	3100	5.0 11.0	
22222	110 4.3307	200 7.874	53 2.0866	555 125000	653 147000	EJ/EM	2 0.08	133 5.2	182 7.2	0.25	2.73	4.06	2.67	0.084	3500	2900	7.2 15.8	
22224	120 4.7244	215 8.4646	58 2.2835	647 145000	772 174000	EJ/EM	2 0.08	143 5.6	196 7.7	0.25	2.7	4.02	2.64	0.081	3200	2600	9.0 19.8	
22226	130 5.1181	230 9.0551	64 2.5197	757 170000	945 212000	EJ/EM	2.5 0.1	155 6.1	210 8.3	0.26	2.62	3.9	2.56	0.079	2900	2400	11.3 24.9	
22228	140 5.5118	250 9.8425	68 2.6772	863 194000	1060 237000	EJ/EM	2.5 0.1	167 6.6	228 9	0.25	2.67	3.98	2.61	0.082	2600	2200	14.2 31.2	
22230	150 5.9055	270 10.6299	73 2.874	1000 225000	1230 276000	EJ/EM	2.5 0.1	179 7	246 9.7	0.25	2.69	4	2.63	0.087	2400	2000	17.8 39.2	
22232	160 6.2992	290 11.4173	80 3.1496	1170 263000	1450 326000	EJ/EM	2.5 0.1	192 7.5	264 10.4	0.26	2.62	3.91	2.57	0.09	2200	1800	23.0 50.6	

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>3</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

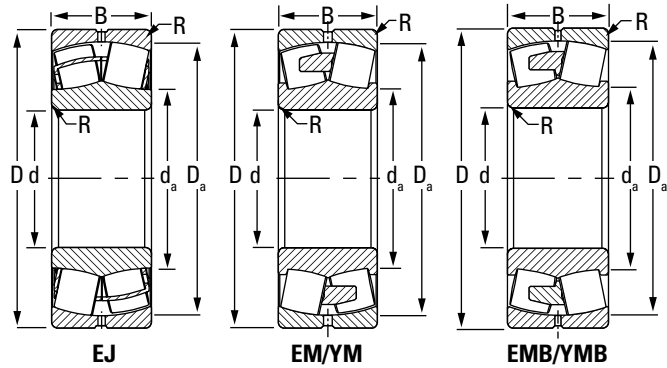
NOTE: Tolerance and shaft diameters are shown in tables E-2 and E-3 on pages E-5 and E-6 as variances from nominal bearing bore.

# SNT SPLIT PLUMMER BLOCKS

SPHERICAL ROLLER BEARING PRODUCT DATA TABLES • 223 SERIES (500, 600 SERIES SNT, FSNT)

## 223 SERIES (500, 600 SERIES SNT, FSNT)

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.
- This section lists spherical roller bearings pertinent to Timken SNT plummer blocks. For a wider selection, consult [www.timken.com](http://www.timken.com) or the Timken® Spherical Roller Bearing catalog (order no. 10446).



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		Dynamic		Static	Oil		Grease		
	R	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	F <sub>a</sub> ≤ e F <sub>r</sub> X = 1	F <sub>a</sub> > e F <sub>r</sub> X = 0.67			In All Cases Y <sub>0</sub>	RPM	RPM							
	Bore d	O.D. D	Width B	Dynamic C	Static C <sub>0</sub>		mm in.	mm in.	mm in.	e	Y	Y	Y <sub>0</sub>	C <sub>g</sub>			kg lbs.
22308	40 1.5748	90 3.5433	33 1.2992	155 34900	147 33100	EJ/EM	1.5 0.06	53 2.1	81 3.2	0.36	1.87	2.79	1.83	0.046	6700	5600	1.0 2.2
22309	45 1.7717	100 3.937	36 1.4173	190 42700	182 40800	EJ/EM	1.5 0.06	58 2.3	90 3.5	0.36	1.9	2.83	1.86	0.049	6100	5100	1.3 2.9
22310	50 1.9685	110 4.3307	40 1.5748	238 53500	241 54200	EJ/EM	2 0.08	65 2.6	98 3.9	0.36	1.89	2.81	1.85	0.055	5500	4600	1.9 4.2
22311	55 2.1654	120 4.7244	43 1.6929	279 62800	284 63800	EJ/EM	2 0.08	69 2.7	106 4.2	0.36	1.89	2.81	1.84	0.057	5100	4300	2.4 5.3
22312	60 2.3622	130 5.1181	46 1.811	321 72200	329 73900	EJ/EM	2 0.08	77 3	117 4.6	0.34	1.98	2.94	1.93	0.061	4700	4000	3.0 6.6
22313	65 2.5591	140 5.5118	48 1.8898	361 81300	371 83300	EJ/EM	2 0.08	84 3.3	127 5	0.33	2.05	3.05	2	0.064	4400	3800	3.6 7.9
22314	70 2.7559	150 5.9055	51 2.0079	395 88800	414 93100	EJ/EM	2 0.08	91 3.6	135 5.3	0.33	2.07	3.08	2.02	0.067	4200	3600	4.4 9.7
22315	75 2.9528	160 6.2992	55 2.1654	450 101000	478 107000	EJ/EM	2 0.08	97 3.8	144 5.7	0.33	2.04	3.04	2	0.071	3900	3300	5.4 11.9
22316	80 3.1496	170 6.6929	58 2.2835	499 112000	534 120000	EJ/EM	2 0.08	103 4.1	153 6	0.33	2.06	3.06	2.01	0.073	3700	3200	6.4 14.1
22317	85 3.3465	180 7.0866	60 2.3622	569 128000	623 140000	EJ/EM	2.5 0.1	110 4.3	162 6.4	0.32	2.11	3.14	2.06	0.076	3500	3000	7.5 16.5
22318	90 3.5433	190 7.4803	64 2.5197	634 143000	703 158000	EJ/EM	2.5 0.1	116 4.6	171 6.7	0.32	2.09	3.11	2.04	0.079	3300	2800	8.8 19.4
22319	95 3.7402	200 7.874	67 2.6378	694 156000	774 174000	EJ/EM	2.5 0.1	122 4.8	180 7.1	0.32	2.1	3.13	2.05	0.082	3000	2600	10.2 22.4
22320	100 3.937	215 8.4646	73 2.874	779 175000	856 193000	EJ/EM	2.5 0.1	130 5.1	193 7.6	0.33	2.06	3.07	2.02	0.072	2800	2400	12.8 28.2

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>3</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

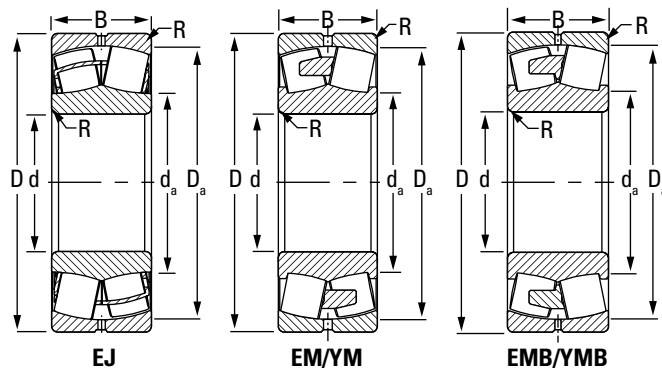
<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

NOTE: Tolerance and shaft diameters are shown in tables E-2 and E-3 on pages E-5 and E-6 as variances from nominal bearing bore.

## 230 SERIES (3000 SERIES SNT, FSNT)

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.
- This section lists spherical roller bearings pertinent to Timken SNT plummer blocks. For a wider selection, consult [www.timken.com](http://www.timken.com) or the Timken® Spherical Roller Bearing catalog (order no. 10446).



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		e	F <sub>a</sub> /F <sub>r</sub> ≤ e X = 1	F <sub>a</sub> /F <sub>r</sub> > e X = 0.67	Static In All Cases Y <sub>0</sub>		C <sub>9</sub>	Oil	
	R	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	Dynamic	Static			RPM	RPM								
	Bore d	O.D. D	Width B	Dynamic C	Static C <sub>0</sub>		mm in.	mm in.	mm in.								kg lbs.
23036	180 7.0866	280 11.0236	74 2.9134	1020 229000	1480 332000	EJ/EM	2 0.08	204 8	260 10.2	0.23	2.91	4.34	2.85	0.093	2000	1700	16.8 37.0
23038	190 7.4803	290 11.4173	75 2.9528	1060 239000	1580 355000	EJ/EM	2 0.08	214 8.4	270 10.6	0.23	3	4.47	2.93	0.096	1900	1600	17.8 39.2
23040	200 7.874	310 12.2047	82 3.2283	1230 276000	1760 395000	EJ/EM	2 0.08	225 8.9	289 11.4	0.23	2.95	4.4	2.89	0.095	1800	1500	22.6 49.7
23044	220 8.6614	340 13.3858	90 3.5433	1340 300000	1970 443000	EJ/EM	2.5 0.1	247 9.7	313 12.3	0.24	2.77	4.13	2.71	0.105	1700	1400	29.8 65.6
23048	240 9.4488	360 14.1732	92 3.622	1400 315000	2140 480000	EJ/EM	2.5 0.1	267 10.5	334 13.1	0.23	2.91	4.34	2.85	0.111	1500	1300	31.9 70.2
23052	260 10.2362	400 15.748	104 4.0945	1820 409000	2740 617000	EJ/EMB	3 0.12	291 11.5	369 14.5	0.24	2.85	4.24	2.78	0.078	1300	1100	47.6 104.7
23056	280 11.024	420 16.535	106 4.173	1660 373000	2790 627000	EMB	3 0.12	312 12.3	389 15.3	0.23	2.92	4.35	2.86	0.088	1100	930	51.0 112.2
23060	300 11.811	460 18.11	118 4.646	2120 477000	3540 796000	EMB	3 0.12	336 13.2	425 16.8	0.24	2.87	4.27	2.8	0.093	980	830	71.0 156.2
23064	320 12.598	480 18.898	121 4.764	2200 494000	3850 867000	EMB	3 0.12	357 14.1	444 17.5	0.23	2.93	4.36	2.86	0.096	910	780	77.4 170.3
23068	340 13.386	520 20.472	133 5.236	2640 593000	4620 1040000	EMB	4 0.16	384 15.1	481 18.9	0.23	2.96	4.4	2.89	0.101	830	710	102.7 225.9
23072	360 14.173	540 21.26	134 5.276	2590 583000	4600 1030000	EMB	4 0.16	403 15.9	499 19.7	0.23	2.94	4.38	2.88	0.102	800	680	108.3 238.3
23076	380 14.961	560 22.047	135 5.315	2800 630000	5090 1140000	EMB	4 0.16	422 16.6	520 20.5	0.22	3.08	4.58	3.01	0.105	740	630	114.2 251.2
23080	400 15.748	600 23.622	148 5.827	3310 744000	5950 1340000	EMB	4 0.16	447 17.6	555 21.9	0.23	2.98	4.44	2.92	0.111	690	590	148.7 327.1
23084	420 16.535	620 24.409	150 5.906	3450 774000	6360 1430000	YMB	4 0.16	467 18.4	576 22.7	0.22	3.05	4.54	2.98	0.114	650	560	156.0 343.2

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor  $a_{31}$  is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

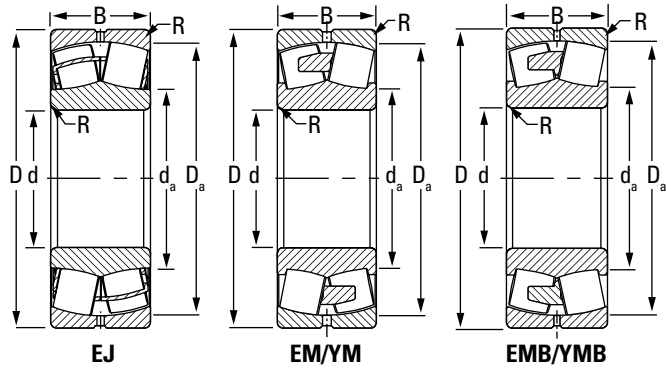
NOTE: Tolerance and shaft diameters are shown in tables E-2 and E-3 on pages E-5 and E-6 as variances from nominal bearing bore.

# SNT SPLIT PLUMMER BLOCKS

SPHERICAL ROLLER BEARING PRODUCT DATA TABLES • 231 SERIES (300, 3100 SERIES SNT, FSNT)

## 231 SERIES (300, 3100 SERIES SNT, FSNT)

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.
- This section lists spherical roller bearings pertinent to Timken SNT plummer blocks. For a wider selection, consult [www.timken.com](http://www.timken.com) or the Timken® Spherical Roller Bearing catalog (order no. 10446).



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		$\frac{F_a}{F_r} \leq e$ $X = 1$	$\frac{F_a}{F_r} > e$ $X = 0.67$	In All Cases	Oil		Grease		
	R	Shaft $d_a$	Housing $D_a$	e	Y			Y	$Y_0$							$C_g$	
	mm in.	mm in.	mm in.	kN lbf.	kN lbf.		mm in.	mm in.	mm in.								
23134	170 6.6929	280 11.0236	88 3.4646	1220 274000	1710 384000	EJ/EM	2 0.08	195 7.7	258 10.1	0.28	2.39	3.55	2.33	0.091	1600	1400	21.7 47.7
23136	180 7.0866	300 11.811	96 3.7795	1410 317000	2000 449000	EJ/EM	2.5 0.1	208 8.2	275 10.8	0.29	2.32	3.45	2.27	0.095	1500	1300	27.6 60.7
23138	190 7.4803	320 12.5984	104 4.0945	1630 365000	2340 525000	EJ/EM	2.5 0.1	221 8.7	293 11.5	0.3	2.26	3.36	2.21	0.099	1400	1200	34.7 76.3
23140	200 7.874	340 13.3858	112 4.4094	1720 386000	2400 540000	EM/EMB	2.5 0.1	230 9	308 12.1	0.31	2.15	3.2	2.1	0.101	1300	1200	41.1 90.4
23144	220 8.6614	370 14.5669	120 4.7244	1940 436000	2740 616000	EJ/EMB	3 0.12	252 9.9	336 13.2	0.31	2.17	3.24	2.12	0.107	1200	1000	52.8 116.2
23148	240 9.4488	400 15.748	128 5.0394	2280 512000	3330 748000	EM/EMB	3 0.12	276 10.9	364 14.3	0.3	2.28	3.4	2.23	0.073	1100	930	64.9 142.8
23152	260 10.236	440 17.323	144 5.669	2440 549000	3910 879000	EMB	3 0.12	302 11.9	400 15.7	0.30	2.23	3.31	2.18	0.086	870	760	90.0 198.0
23156	280 11.024	460 18.11	146 5.748	2530 570000	4140 930000	EMB	4 0.16	320 12.6	419 16.5	0.30	2.26	3.36	2.21	0.09	800	710	94.5 207.9
23160	300 11.811	500 19.685	160 6.299	3070 691000	5110 1150000	EMB	4 0.16	345 13.6	453 17.8	0.30	2.25	3.35	2.20	0.093	710	630	128.7 283.1
23164	320 12.598	540 21.26	176 6.929	3650 819000	5930 1330000	EMB	4 0.16	367 14.4	490 19.3	0.31	2.14	3.19	2.10	0.099	650	580	167.2 367.8
23168	340 13.386	580 22.835	190 7.48	4110 924000	6830 1540000	EMB	4 0.16	397 15.6	526 20.7	0.30	2.22	3.30	2.17	0.103	590	530	210.3 462.7
23172	360 14.173	600 23.622	192 7.559	4250 956000	7280 1640000	EMB	4 0.16	419 16.5	546 21.5	0.29	2.29	3.42	2.24	0.106	560	500	222.1 488.6
23176	380 14.961	620 24.409	194 7.638	4490 1010000	7580 1700000	EMB	4 0.16	431 17	566 22.3	0.30	2.28	3.39	2.23	0.109	530	470	232.6 511.7
23180	400 15.748	650 25.591	200 7.874	4770 1070000	8110 1820000	EMB	5 0.2	454 17.9	594 23.4	0.29	2.32	3.46	2.27	0.11	500	450	261.6 575.5

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor a31 is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

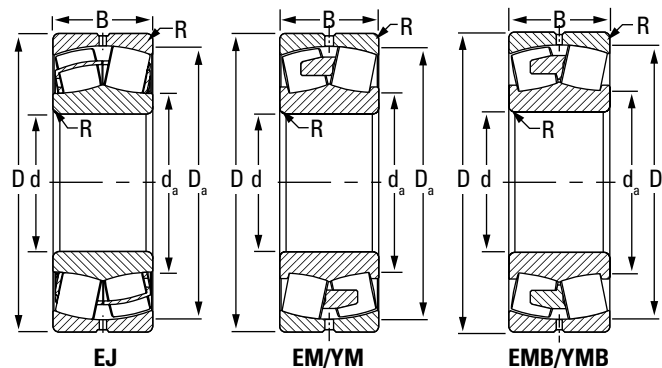
<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

NOTE: Tolerance and shaft diameters are shown in tables E-2 and E-3 on pages E-5 and E-6 as variances from nominal bearing bore.

## 232 SERIES (500, 600 SERIES SNT, FSNT)

- Bearings are available with a tapered bore for adapter-type mounting. To order, add the suffix K to bearing number (e.g., 23120K).
- Consult your Timken engineer and [www.timken.com](http://www.timken.com) for up-to-date information about the availability of the bearings you have selected.
- This section lists spherical roller bearings pertinent to Timken SNT plummer blocks. For a wider selection, consult [www.timken.com](http://www.timken.com) or the Timken® Spherical Roller Bearing catalog (order no. 10446).



Bearing Part No.	Bearing Dimensions			Load Ratings		Cage Type	Mounting Data			Equivalent Radial Load Factors <sup>(2)</sup>				Geometry Factor <sup>(3)</sup>	Thermal Speed Ratings <sup>(4)</sup>		Wt.
							Fillet <sup>(1)</sup> (Max.)	Backing Dia.		e	Dynamic		Static		Oil	Grease	
	R	Shaft d <sub>a</sub>	Housing D <sub>a</sub>	F <sub>a</sub> ≤ e F <sub>r</sub>	F <sub>a</sub> > e F <sub>r</sub>			In All Cases	RPM		RPM						
	mm in.	mm in.	mm in.	kN lbf.	kN lbf.		mm in.	mm in.	mm in.		Y	Y	Y <sub>0</sub>				
23218	90 3.5433	160 6.2992	52.4 2.063	436 98000	521 117000	EJ/EM	2 0.08	107 4.2	147 5.8	0.3	2.28	3.4	2.23	0.074	3000	2600	4.5 9.9
23220	100 3.937	180 7.0866	60.3 2.374	554 124000	678 152000	EJ/EM	2 0.08	119 4.7	164 6.5	0.3	2.22	3.3	2.17	0.079	2700	2300	6.6 14.5
23222	110 4.3307	200 7.874	69.8 2.748	710 160000	887 199000	EJ/EM	2 0.08	131 5.2	182 7.2	0.32	2.11	3.14	2.06	0.085	2300	2000	9.6 21.1
23224	120 4.7244	215 8.4646	76 2.9921	824 185000	1040 234000	EJ/EM	2 0.08	142 5.6	197 7.7	0.32	2.1	3.13	2.05	0.075	2100	1800	11.8 26.0
23226	130 5.1181	230 9.0551	80 3.1496	915 206000	1170 262000	EJ/EM	2.5 0.1	153 6	211 8.3	0.32	2.14	3.19	2.09	0.079	1900	1700	14.0 30.8
23228	140 5.5118	250 9.8425	88 3.4646	1090 246000	1410 317000	EJ/EM	2.5 0.1	165 6.5	229 9	0.32	2.11	3.13	2.06	0.083	1700	1500	18.5 40.7
23230	150 5.9055	270 10.6299	96 3.7795	1270 286000	1660 372000	EJ/EM	2.5 0.1	178 7	247 9.7	0.32	2.08	3.1	2.04	0.087	1500	1400	23.8 52.4
23232	160 6.2992	290 11.4173	104 4.0945	1470 330000	1940 435000	EJ/EM	2.5 0.1	190 7.5	264 10.4	0.33	2.06	3.06	2.01	0.091	1400	1200	30.0 66.0
23234	170 6.6929	310 12.2047	110 4.3307	1660 373000	2200 494000	EM	3 0.12	202 8	281 11.1	0.33	2.08	3.09	2.03	0.094	1200	1100	36.6 80.5

<sup>(1)</sup>Maximum shaft or housing fillet radius that bearing corners will clear.

<sup>(2)</sup>These factors apply for both inch and metric calculations. See engineering section for instructions on use.

<sup>(3)</sup>Geometry constant for Lubrication Life Factor a<sub>3</sub> is found in the Bearing Ratings section of the Engineering Manual (order no. 10424).

<sup>(4)</sup>See thermal speed ratings in the Engineering Manual (order no. 10424).

NOTE: Where EJ and EM/EMB have different load ratings, the more conservative one was taken to use for both assemblies.

NOTE: Tolerance and shaft diameters are shown in tables E-2 and E-3 on pages E-5 and E-6 as variances from nominal bearing bore.



## ***SNT SPHERICAL ROLLER BEARING METRIC ACCESSORIES***

Spherical roller bearing accessories are manufactured to the same quality standards as our bearings, ensuring a secure fit to both straight and stepped shafts.

- **Sizes:** Accessories are available for metric and inch shaft sizes from 20 mm to 400 mm.
- **Features:** Extensive product range, including hydraulic assist, for integration into a full range of industrial applications.
- **Benefits:** Supports full range of installation and removal needs, minimizing the chance for damage to the bearing.

Nomenclature .....	E-80
Accessories Prefixes and Suffixes .....	E-81
Metric Accessories Index .....	E-82
Metric H Adapter Sleeves .....	E-86
Metric OH Hydraulic Adapter Sleeves .....	E-90
Metric Locknuts .....	E-94
Metric Lockwashers .....	E-99
Metric Lockplates .....	E-101



## NOMENCLATURE

Timken provides accessories for your every need. To complement our line of Timken® spherical roller bearings, we offer bearing sleeves and locking devices in a wide range of sizes. These accessories are manufactured to the same quality standards as our bearings, ensuring a secure fit to straight and stepped shafts. Available in sizes up to 1000 mm, bearing sleeves are available in two distinct designs: assembled adapter sleeves and withdrawal sleeves. Reference the Timken Spherical Roller Bearing Catalog (order no. 10446) for the full listing of accessories.

### ADAPTER SLEEVES

Timken adapter sleeves are used in conjunction with a nut and locking device to mount a tapered bore bearing onto a straight shaft using a pull-type fit. Smaller size assemblies (20 mm–200 mm shaft) commonly use simple nuts, whereas larger assemblies (sizes >200 mm) may use HMV hydraulic nuts to assist in mounting. Tables E-21 and E-22 outline our part number nomenclature, which is consistent with world standards for adapter sleeves.

**TABLE E-21. METRIC ADAPTER SLEEVES (H, OH) FOR METRIC SHAFT SIZES ARE SUPPLIED WITH CORRESPONDING LOCKNUT AND LOCKING DEVICE**

Sleeve	Locknut	Locking Device
H standard metric/OH hydraulic assist	KM, KML, HM	MB, MBL, MS

**TABLE E-22. METRIC ADAPTER SLEEVES (HA, HE) FOR INCH SHAFT SIZES ARE SUPPLIED WITH CORRESPONDING LOCKNUT AND LOCKING DEVICE**

Sleeve	Locknut	Locking Device
HE standard inch (English Standard) HA standard inch (American Standard)	KM, KML	MB, MBL

### WITHDRAWAL SLEEVES

Withdrawal sleeves feature a push-type mounting arrangement and a locking device (i.e., locknut or lockplate) to secure a bearing to a shaft. This design is not as widely used as the adapter sleeve assembly, and it does require the use of a specially designed dismantling nut. The Timken part number nomenclature for withdrawal sleeves also conforms to industry-accepted standards. Nuts are not supplied with the withdrawal sleeve and must be ordered separately. The dismantling of large assemblies can be eased by using a hydraulic nut (HMV).

**TABLE E-23. METRIC WITHDRAWAL SLEEVE FOR METRIC SHAFT SIZES**

Sleeve	Dismounting Nut	Hydraulic Nut
AH standard metric/AOH hydraulic assist	KM, HM	HMV

### LOCKING DEVICE

Timken offers a wide range of locknuts to locate bearing assemblies on application shafts. Sometimes referred to as shaft or withdrawal nuts, they are used to secure the assembly onto, and sometimes aid with the removal from the shaft.

### LOCKWASHERS (MB, MBL AND W)

Locking washers are designed to secure the relative movement of a properly positioned locknut, so that a bearing and adapter sleeve remain tightly fitted to a shaft or a bearing remains secure against a shaft shoulder. The tab in the bore of the washer engages a keyway in the shaft or slot in the adapter sleeve. There are tabs on the O.D. of the washer that can be bent over into slots on the circumference of the locknut. Locking washers are used with locknuts in the KM and KML series.

### LOCKPLATES (MS)

Lockplates are bolted onto the outboard face of the locknut and fit into a keyway machined in the shaft or a slot in the adapter sleeve.

- MS series are mounted on metric shafts sizes with HM locknuts.

To learn more about our spherical roller bearing accessories, contact your Timken engineer. Standard suffixes and prefixes are found on page E-81.



***ACCESSORIES PREFIXES AND SUFFIXES***

Prefix	Suffix	Part Description	Full Description
AH		Withdrawal sleeve	Withdrawal sleeve
AHX		Withdrawal sleeve	Withdrawal sleeve – modified
AOH		Withdrawal sleeve – hydraulic	Withdrawal sleeve with oil hole on nut end
AOHX		Withdrawal sleeve – hydraulic	Withdrawal sleeve – modified with oil hole on nut end
H		Adapter sleeve – metric	Adapter sleeve
HA		Adapter sleeve metric – inch shaft	Metric adapter sleeves for shafts with inch dimensions (American Standards)
HE		Adapter sleeve metric – inch shaft	Metric adapter sleeves for shafts with inch dimensions (English Standards)
KM		Locknut	Locknut
KML		Locknut	Locknut – light; smaller outside diameter
HM		Locknut	Locknut/removal nut
HML		Locknut	Locknut/removal nut – light
HME		Locknut	Locknut/removal nut – with locking screw
HM...T		Locknut	Locknut/removal nut
HML...T		Locknut	Locknut/removal nut – light
HMLL...T		Locknut	Locknut/removal nut – super light
MB		Lockwasher	Lockwasher
MBL		Lockwasher	Lockwasher – light
MS		Lock clip	Locking clip
	G	Sleeve	Thread pitch diameter changed to ISO standard
	H	Locknut	Additional threaded holes on locknut for locking screws (no screws)
	HS	Locknut	Additional threaded holes on locknut for locking screws and screws
OH		Adapter sleeve – hydraulic	Adapter sleeve with oil hole on large end (opposite to the threaded end)
OH..	H	Adapter sleeve – hydraulic	Adapter sleeve with oil hole on nut end – standard design
OH..	HB	Adapter sleeve – hydraulic	Adapter sleeve with grooves and oil hole or two holes for bigger sizes on nut end
OH..	B	Adapter sleeve – hydraulic	Adapter sleeve with grooves and oil hole or two holes for bigger sizes on large end (opposite to the threaded end)
OH..	S	Adapter sleeve – hydraulic	Adapter sleeve with oil hole on large end (opposite to the threaded end) plus nut with eight threaded holes
OH..	BS	Adapter sleeve – hydraulic	Adapter sleeve with grooves and oil hole or two holes for bigger sizes on large end (opposite to the threaded end) plus nut with eight threaded holes

***METRIC ACCESSORIES INDEX***

Bearing Bore <b>mm</b>	Bearing Part No.	Adapter Sleeve		Withdrawal Sleeve	
		Metric Shaft	Hydraulic Metric Shaft	Metric Shaft	Hydraulic Metric Shaft
25	22205K	H305			
30	22206K	H306			
35	22207K	H307			
40	21308K	H308		AH308	
40	22208K	H308		AH308	
40	22308K	H2308		AH2308	
45	21309K	H309		AH309	
45	22209K	H309		AH309	
45	22309K	H2309		AH2309	
50	21310K	H310		AHX310	
50	22210K	H310		AHX310	
50	22310K	H2310		AHX2310	
55	21311K	H311		AHX311	
55	22211K	H311		AHX311	
55	22311K	H2311		AHX2311	
60	21312K	H312		AHX312	
60	22212K	H312		AHX312	
60	22312K	H2312		AHX2312	
65	21313K	H313		AH313G	
65	22213K	H313		AH313G	
65	22313K	H2313		AH2313G	
70	21314K	H314		AH314G	
70	22214K	H314		AH314G	
70	22314K	H2314		AHX2314G	
75	21315K	H315		AH315G	
75	22215K	H315		AH315G	
75	22315K	H2315		AHX2315G	
80	21316K	H316		AH316	
80	22216K	H316		AH316	
80	22316K	H2316		AHX2316	
85	21317K	H317		AHX317	
85	22217K	H317		AHX317	
85	22317K	H2317		AHX2317	
90	21318K	H318		AHX318	
90	22218K	H318		AHX318	
90	22318K	H2318		AHX2318	
90	23218K	H2318		AHX3218	
95	22219K	H319		AHX319	
95	22319K	H2319		AHX2319	
100	22220K	H320		AHX320	
100	22320K	H2320		AHX2320	
100	23120K	H3120		AHX3120	
100	23220K	H2320		AHX3220	
105	23221K	H2321			
110	22222K	H322		AHX3122	
110	22322K	H2322		AHX2322G	
110	23022K	H322		AHX322	
110	23122K	H3122		AHX3122	

*Continued on next page.*

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Bearing Bore mm	Bearing Part No.	Adapter Sleeve		Withdrawal Sleeve	
		Metric Shaft	Hydraulic Metric Shaft	Metric Shaft	Hydraulic Metric Shaft
110	23222K	H2322		AHX3222G	
110	24122K			AH24122	
120	22224K	H3124		AHX3124	
120	22324K	H2324		AHX2324G	
120	23024K	H3024		AHX3024	
120	23124K	H3124		AHX3124	
120	23224K	H2324		AHX3224G	
120	24024K			AH24024	
120	24124K			AH24124	
130	22226K	H3126		AHX3126	
130	22326K	H2326		AHX2326G	
130	23026K	H3026		AHX3026	
130	23126K	H3126		AHX3126	
130	23226K	H2326		AHX3226G	
130	23926K	H3926			
130	24026K			AH24026	
130	24126K			AH24126	
140	22228K	H3128		AHX3128	
140	22328K	H2328		AHX2328G	
140	23028K	H3028		AHX3028	
140	23128K	H3128		AHX3128	
140	23228K	H2328		AHX3228G	
140	23928K	H3928			
140	24028K			AH24028	
140	24128K			AH24128	
150	22230K	H3130		AHX3130G	
150	22330K	H2330		AHX2330G	
150	23030K	H3030		AHX3030	
150	23130K	H3130		AHX3130G	
150	23230K	H2330		AHX3230G	
150	23930K	H3930			
150	24030K			AH24030	
150	24130K			AH24130	
160	22232K	H3132	OH3132H	AH3132G	AOH3132G
160	22332K	H2332	OH2332H	AH2332G	AOH2332G
160	23032K	H3032	OH3032H	AH3032	
160	23132K	H3132	OH3132H	AH3132G	AOH3132G
160	23232K	H2332	OH2332H	AH3232G	AOH3232G
160	23932K	H3932	OH3932H		
160	24032K			AH24032	
160	24132K			AH24132	
170	22234K	H3134	OH3134H	AH3134G	AOH3134G
170	22334K	H2334	OH2334H	AH2334G	AOH2334G
170	23034K	H3034	OH3034H	AH3034	
170	23134K	H3134	OH3134H	AH3134G	AOH3134G
170	23234K	H2334	OH2334H	AH3234G	AOH3234G
170	23934K	H3934	OH3934H	AH3934	AOH3934
170	24034K			AH24034	

Continued on next page.

***METRIC ACCESSORIES INDEX – continued***

Bearing Bore <b>mm</b>	Bearing Part No.	Adapter Sleeve		Withdrawal Sleeve	
		Metric Shaft	Hydraulic Metric Shaft	Metric Shaft	Hydraulic Metric Shaft
170	24134K			AH24134	
180	22236K	H3136	OH3136H	AH2236G	AOH2236G
180	22336K	H2336	OH2336H	AH2336G	AOH2336G
180	23036K	H3036	OH3036H	AH3036	AOH3036
180	23136K	H3136	OH3136H	AH3136G	AOH3136G
180	23236K	H2336	OH2336H	AH3236G	AOH3236G
180	23936K	H3936	OH3936H	AH3936	AOH3936
180	24036K			AH24036	
180	24136K			AH24136	
190	22238K	H3138	OH3138H	AH2238G	AOH2238G
190	22338K	H2338	OH2338H	AH2338G	AOH2338G
190	23038K	H3038	OH3038H	AH3038G	AOH3038G
190	23138K	H3138	OH3138H	AH3138G	AOH3138G
190	23238K	H2338	OH2338H	AH3238G	AOH3238G
190	23938K	H3938	OH3938H	AH3938	AOH3938
190	24038K			AH24038	
190	24138K			AH24138	
200	22240K	H3140	OH3140H	AH2240	AOH2240
200	22340K	H2340	OH2340H	AH2340	AOH2340
200	23040K	H3040	OH3040H	AH3040G	AOH3040G
200	23140K	H3140	OH3140H	AH3140	AOH3140
200	23240K	H2340	OH2340H	AH3240	AOH3240
200	23940K	H3940	OH3940H	AH3940	AOH3940
200	24040K			AH24040	
200	24140K			AH24140	
220	22244K	H3144	OH3144H	AH2244	AOH2244
220	22344K	H2344	OH2344H	AH2344	AOH2344
220	23044K	H3044	OH3044H	AH3044G	AOH3044G
220	23144K	H3144	OH3144H	AH3144	AOH3144
220	23244K	H2344	OH2344H	AH2344	AOH2344
220	23944K	H3944	OH3944H	AH3944	AOH3944
220	24044K			AH24044	AOH24044
220	24144K			AH24144	AOH24144
240	22248K	H3148	OH3148H	AH2248	AOH2248
240	22348K	H2348	OH2348H	AH2348	AOH2348
240	23048K	H3048	OH3048H	AH3048	AOH3048
240	23148K	H3148	OH3148H	AH3148	AOH3148
240	23248K	H2348	OH2348H	AH2348	AOH2348
240	23948K	H3948	OH3948H	AH3948	AOH3948
240	24048K			AH24048	AOH24048
240	24148K			AH24148	AOH24148
260	22252K	H3152	OH3152H	AH2252G	AOH2252G
260	22352K	H2352	OH2352H	AH2352G	AOH2352G
260	23052K	H3052	OH3052H	AH3052	AOH3052
260	23152K	H3152	OH3152H	AH3152G	AOH3152G
260	23252K	H2352	OH2352H	AH2352G	AOH2352G
260	23952K	H3952	OH3952H	AH3952	AOH3952
260	24052K				AOH24052G

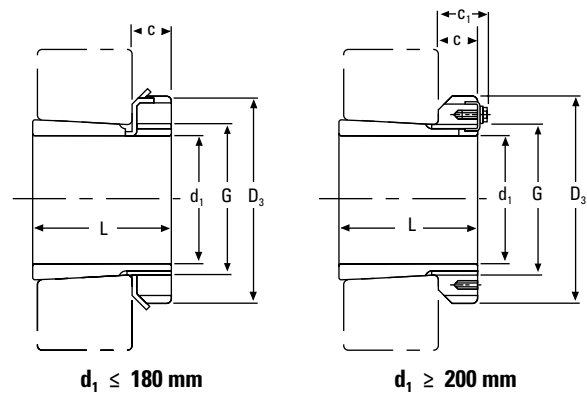
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Bearing Bore mm	Bearing Part No.	Adapter Sleeve		Withdrawal Sleeve	
		Metric Shaft	Hydraulic Metric Shaft	Metric Shaft	Hydraulic Metric Shaft
260	24152K			AH24152	AOH24152
280	22256K	H3156	OH3156H	AH2256G	AOH2256G
280	22356K	H2356	OH2356H	AH2356G	AOH2356G
280	23056K	H3056	OH3056H	AH3056	AOH3056
280	23156K	H3156	OH3156H	AH3156G	AOH3156G
280	23256K	H2356	OH2356H	AH2356G	AOH2356G
280	23956K	H3956	OH3956H	AH3956	AOH3956
280	24056K				AOH24056G
280	24156K			AH24156	AOH24156
300	22260K	H3160	OH3160H	AH2260G	AOH2260G
300	23060K	H3060	OH3060H	AH3060	AOH3060
300	23160K	H3160	OH3160H	AH3160G	AOH3160G
300	23260K	H3260	OH3260H	AH3260G	AOH3260G
300	23960K	H3960	OH3960H	AH3960	AOH3960
300	24060K				AOH24060G
300	24160K			AH24160	AOH24160
320	22264K	H3164	OH3164H	AH2264G	AOH2264G
320	23064K	H3064	OH3064H	AH3064G	AOH3064G
320	23164K	H3164	OH3164H	AH3164G	AOH3164G
320	23264K	H3264	OH3264H	AH3264G	AOH3264G
320	23964K	H3964	OH3964H	AH3964	AOH3964
320	24064K				AOH24064G
320	24164K			AH24164	AOH24164
340	23068K	H3068	OH3068H	AH3068G	AOH3068G
340	23168K	H3168	OH3168H	AH3168G	AOH3168G
340	23268K	H3268	OH3268H	AH3268G	AOH3268G
340	23968K	H3968	OH3968H	AH3968	AOH3968
340	24068K			AH24068	AOH24068
340	24168K			AH24168	AOH24168
360	23072K	H3072	OH3072H	AH3072G	AOH3072G
360	23172K	H3172	OH3172H	AH3172G	AOH3172G
360	23272K	H3272	OH3272H	AH3272G	AOH3272G
360	23972K	H3972	OH3972H	AH3972	AOH3972
360	24072K			AH24072	AOH24072
360	24172K			AH24172	AOH24172
380	23076K	H3076	OH3076H	AH3076G	AOH3076G
380	23176K	H3176	OH3176H	AH3176G	AOH3176G
380	23276K	H3276	OH3276H	AH3276G	AOH3276G
380	23976K	H3976	OH3976H	AH3976	AOH3976
380	24076K			AH24076	AOH24076
380	24176K			AH24176	AOH24176
400	22380K	H3280	OH3280H	AH3280G	AOH3280G
400	23080K	H3080	OH3080H	AH3080G	AOH3080G
400	23180K	H3180	OH3180H	AH3180G	AOH3180G
400	23280K	H3280	OH3280H	AH3280G	AOH3280G
400	23980K	H3980	OH3980H	AH3980	AOH3980
400	24080K			AH24080	AOH24080
400	24180K			AH24180	AOH24180

### METRIC H ADAPTER SLEEVES

- Effective tapered bore bearing assembly.
- Includes mounting sleeve, locknut and lockwasher or lockplate.
- Other dimensions may be available, consult your Timken engineer.



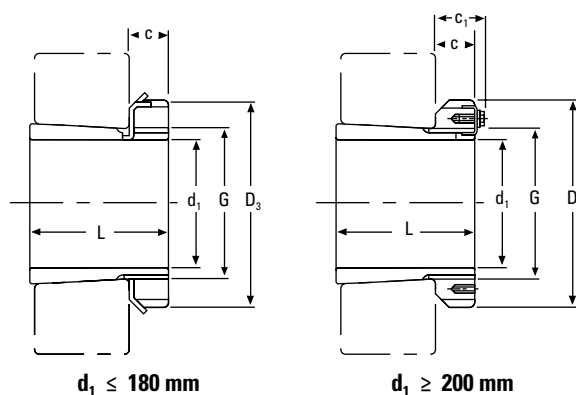
$d_1$	Sleeve Part No. <sup>(1)</sup>	L	C	Thread <sup>(2)</sup> G	$D_3$	$C_1$	Weight	Locknuts	Lockwasher and Lockplates	Appropriate Hydraulic Nut
mm		mm	mm	mm	mm	mm	kg			
20	H305	29	8	M 25x1.5	38	–	0.17	KM5	MB5	–
25	H306	31	8	M 30x1.5	45	–	0.24	KM6	MB6	–
30	H307	35	9	M 35x1.5	52	–	0.31	KM7	MB7	–
35	H308	36	10	M 40x1.5	58	–	0.42	KM8	MB8	–
35	H2308	46	10	M 40x1.5	58	–	0.22	KM8	MB8	–
40	H309	39	11	M 45x1.5	65	–	0.55	KM9	MB9	–
40	H2309	50	11	M 45x1.5	65	–	0.28	KM9	MB9	–
45	H310	42	12	M 50x1.5	70	–	0.67	KM10	MB10	HMV10
45	H2310	55	12	M 50x1.5	70	–	0.36	KM10	MB10	HMV10
50	H311	45	12	M 55x2	75	–	0.76	KM11	MB11	HMV11
50	H2311	59	12	M 55x2	75	–	0.42	KM11	MB11	HMV11
55	H312	47	13	M 60x2	80	–	0.87	KM12	MB12	HMV12
55	H2312	62	13	M 60x2	80	–	0.48	KM12	MB12	HMV12
60	H313	50	14	M 65x2	85	–	1.01	KM13	MB13	HMV13
60	H314	52	14	M 70x2	92	–	1.59	KM14	MB14	HMV14
60	H2313	65	14	M 65x2	85	–	0.56	KM13	MB13	HMV13
60	H2314	68	14	M 70x2	92	–	0.90	KM14	MB14	HMV14
65	H315	55	15	M 75x2	98	–	1.83	KM15	MB15	HMV15
65	H2315	73	15	M 75x2	98	–	1.05	KM15	MB15	HMV15
70	H316	59	17	M 80x2	105	–	2.27	KM16	MB16	HMV16
70	H2316	78	17	M 80x2	105	–	1.28	KM16	MB16	HMV16
75	H317	63	18	M 85x2	110	–	2.60	KM17	MB17	HMV17
75	H2317	82	18	M 85x2	110	–	1.45	KM17	MB17	HMV17
80	H318	65	18	M 90x2	120	–	3.02	KM18	MB18	HMV18
80	H2318	86	18	M 90x2	120	–	1.69	KM18	MB18	HMV18
85	H319	68	19	M 95x2	125	–	3.44	KM19	MB19	HMV19
85	H2319	90	19	M 95x2	125	–	1.92	KM19	MB19	HMV19
90	H320	71	20	M 100x2	130	–	3.73	KM20	MB20	HMV20
90	H3120	76	20	M 100x2	130	–	1.80	KM20	MB20	HMV20
90	H2320	97	20	M 100x2	130	–	2.15	KM20	MB20	HMV20

<sup>(1)</sup>Adapter sleeves are supplied complete with locknuts and lockwasher or lockplates.

<sup>(2)</sup>M means metric thread and the digits are major diameter of thread and pitch.

NOTE: Sleeves are not sold separately.

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$d_1$	Sleeve Part No. <sup>(1)</sup>	L	C	Thread <sup>(2)</sup> G	$D_3$	$C_1$	Weight	Locknuts	Lockwasher and Lockplates	Appropriate Hydraulic Nut
mm		mm	mm	mm	mm	mm	kg			
95	H321	74	20	M 105x2	140	–	4.30	KM 21	MB21	HMV21
95	H2321	101	20	M 105x2	140	–	2.46	KM21	MB21	HMV21
100	H322	77	21	M 110x2	145	–	4.81	KM22	MB22	HMV22
100	H3122	81	21	M 110x2	145	–	2.25	KM22	MB22	HMV22
100	H2322	105	21	M 110x2	145	–	2.74	KM22	MB22	HMV22
110	H3024	72	22	M 120x2	145	–	1.93	KML24	MBL24	HMV24
110	H3124	88	22	M 120x2	155	–	2.64	KM24	MB24	HMV24
110	H2324	112	22	M 120x2	155	–	3.19	KM24	MB24	HMV24
115	H3926	65	23	M 130x2	155	–	2.40	KML26	MBL26	HMV26
115	H3026	80	23	M 130x2	155	–	2.85	KML26	MBL26	HMV26
115	H3126	92	23	M 130x2	165	–	3.66	KM26	MB26	HMV26
115	H2326	121	23	M 130x2	165	–	4.60	KM26	MB26	HMV26
125	H3928	66	24	M 140x2	165	–	2.70	KML28	MBL28	HMV28
125	H3028	82	24	M 140x2	165	–	3.16	KML28	MBL28	HMV28
125	H3128	97	24	M 140x2	180	–	4.34	KM28	MB28	HMV28
125	H2328	131	24	M 140x2	180	–	5.55	KM28	MB28	HMV28
135	H3930	76	26	M 150x2	180	–	3.60	KML30	MBL30	HMV30
135	H3030	87	26	M 150x2	180	–	3.89	KML30	MBL30	HMV30
135	H3130	111	26	M 150x2	195	–	5.52	KM30	MB30	HMV30
135	H2330	139	26	M 150x2	195	–	6.63	KM30	MB30	HMV30
140	H3932	78	27.5	M 160x3	190	–	4.60	KML32	MBL32	HMV32
140	H3032	93	27.5	M 160x3	190	–	5.21	KML32	MBL32	HMV32
140	H3132	119	28	M 160x3	210	–	7.67	KM32	MB32	HMV32
140	H2332	147	28	M 160x3	210	–	9.14	KM32	MB32	HMV32
150	H3934	79	27.5	M 170x3	200	–	5.00	KML34	MBL34	HMV34
150	H3034	101	28.5	M 170x3	200	–	5.99	KML34	MBL34	HMV34
150	H3134	122	29	M 170x3	220	–	8.38	KM34	MB34	HMV34
150	H2334	154	29	M 170x3	220	–	10.20	KM34	MB34	HMV34

<sup>(1)</sup>Adapter sleeves are supplied complete with locknuts and lockwasher or lockplates.

<sup>(2)</sup>M means metric thread and the digits are major diameter of thread and pitch.

NOTE: Sleeves are not sold separately.

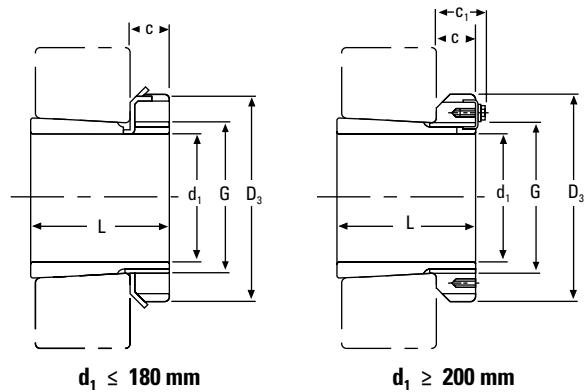
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# SNT SPHERICAL ROLLER BEARING METRIC ACCESSORIES

## METRIC H ADAPTER SLEEVES

### METRIC H ADAPTER SLEEVES – continued

- Effective tapered bore bearing assembly.
- Includes mounting sleeve, locknut and lockwasher or lockplate.
- Other dimensions may be available, consult your Timken engineer.



Continued from previous page.

$d_1$	Sleeve Part No. <sup>(1)</sup>	L	C	Thread <sup>(2)(3)</sup> G	$D_3$	$C_1$	Weight	Locknuts	Lockwasher and Lockplates	Appropriate Hydraulic Nut
mm		mm	mm	mm	mm	mm	kg			
160	H3936	87	29.5	M 180x3	210	–	5.70	KML36	MBL36	HMV36
160	H3036	109	29.5	M 180x3	210	–	6.83	KML36	MBL36	HMV36
160	H3136	131	30	M 180x3	230	–	9.50	KM36	MB36	HMV36
160	H2336	161	30	M 180x3	230	–	11.30	KM36	MB36	HMV36
170	H3938	89	30.5	M 190x3	220	–	6.19	KML38	MBL38	HMV38
170	H3038	112	30.5	M 190x3	220	–	7.45	KML38	MBL38	HMV38
170	H3138	141	31	M 190x3	240	–	10.80	KM38	MB38	HMV38
170	H2338	169	31	M 190x3	240	–	12.60	KM38	MB38	HMV38
180	H3940	98	31.5	M 200x3	240	–	7.89	KML40	MBL40	HMV40
180	H3040	120	31.5	M 200x3	240	–	9.19	KML40	MBL40	HMV40
180	H3140	150	32	M 200x3	250	–	12.10	KM40	MB40	HMV40
180	H2340	176	32	M 200x3	250	–	13.90	KM40	MB40	HMV40
200	H3944	96	30	Tr 220x4	260	41	8.16	HM3044	MS3044	HMV44
200	H3044	126	30	Tr 220x4	260	41	10.30	HM3044	MS3044	HMV44
200	H3144	161	35	Tr 220x4	280	–	15.10	HM44T	MB44	HMV44
200	H2344	186	35	Tr 220x4	280	–	17.00	HM44T	MB44	HMV44
220	H3948	101	34	Tr 240x4	290	46	11.00	HM3048	MS3048	HMV48
220	H3048	133	34	Tr 240x4	290	46	13.20	HM3048	MS3048	HMV48
220	H3148	172	37	Tr 240x4	300	–	17.60	HM48T	MS48	HMV48
220	H2348	199	37	Tr 240x4	300	–	20.00	HM48T	MS48	HMV48
240	H3952	116	34	Tr 260x4	310	46	12.80	HM3052	MS3052	HMV52
240	H3052	145	34	Tr 260x4	310	46	15.30	HM3052	MS3052	HMV52
240	H3152	190	39	Tr 260x4	330	–	22.30	HM52T	MB52	HMV52
240	H2352	211	39	Tr 260x4	330	–	24.50	HM52T	MB52	HMV52
260	H3956	121	38	Tr 280x4	330	50	15.30	HM3056	MS3056	HMV56
260	H3056	152	38	Tr 280x4	330	50	17.70	HM3056	MS3056	HMV56
260	H3156	195	41	Tr 280x4	350	–	25.10	HM56T	MB56	HMV56
260	H2356	224	41	Tr 280x4	350	–	28.40	HM56T	MB56	HMV56
280	H3960	140	42	Tr 300x4	360	54	20.00	HM3060	MS3060	HMV60
280	H3060	168	42	Tr 300x4	360	54	22.80	HM3060	MS3060	HMV60
280	H3160	208	40	Tr 300x4	380	53	30.20	HM3160	MS3160	HMV60
280	H3260	240	40	Tr 300x4	380	53	34.10	HM3160	MS3160	HMV60
300	H3964	140	42	Tr 320x5	380	55	21.50	HM3064	MS3064	HMV64
300	H3064	171	42	Tr 320x5	380	55	24.60	HM3064	MS3064	HMV64
300	H3164	226	42	Tr 320x5	400	56	34.90	HM3164	MS3164	HMV64
300	H3264	258	42	Tr 320x5	400	56	39.30	HM3164	MS3164	HMV64

<sup>(1)</sup>Adapter sleeves are supplied complete with locknuts and lockwasher or lockplates.

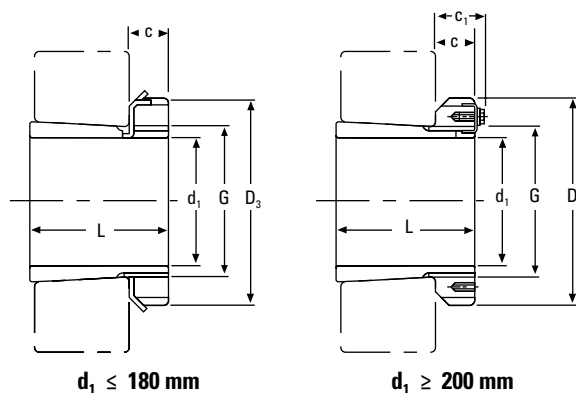
<sup>(2)</sup>M means metric thread and the digits are major diameter of thread and pitch.

<sup>(3)</sup>Tr means 30°. Trapezoid thread and the digits are outside diameter of thread and pitch.

NOTE: Sleeves are not sold separately.

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$d_1$	Sleeve Part No. <sup>(1)</sup>	L	C	Thread <sup>(2)</sup> G	$D_3$	$C_1$	Weight	Locknuts	Lockwasher and Lockplates	Appropriate Hydraulic Nut
mm		mm	mm	mm	mm	mm	kg			
320	H3968	144	45	Tr 340x5	400	58	24.50	HM3068	MS3068	HMV68
320	H3068	187	45	Tr 340x5	400	58	28.70	HM3068	MS3068	HMV68
320	H3168	254	55	Tr 340x5	440	72	50.00	HM3168	MS3168	HMV68
320	H3268	288	55	Tr 340x5	440	72	54.60	HM3168	MS3168	HMV68
340	H3972	144	45	Tr 360x5	420	58	25.20	HM3072	MS3072	HMV72
340	H3072	188	45	Tr 360x5	420	58	30.50	HM3072	MS3072	HMV72
340	H3172	259	58	Tr 360x5	460	75	56.00	HM3172	MS3172	HMV72
340	H3272	299	58	Tr 360x5	460	75	60.60	HM3172	MS3172	HMV72
360	H3976	164	48	Tr 380x5	450	62	31.50	HM3076	MS3076	HMV76
360	H3076	193	48	Tr 380x5	450	62	35.80	HM3076	MS3076	HMV76
360	H3176	264	60	Tr 380x5	490	77	61.70	HM3176	MS3176	HMV76
360	H3276	310	60	Tr 380x5	490	77	69.60	HM3176	MS3176	HMV76
380	H3980	168	52	Tr 400x5	470	66	35.00	HM3080	MS3080	HMV80
380	H3080	210	52	Tr 400x5	470	66	41.30	HM3080	MS3080	HMV80
380	H3180	272	62	Tr 400x5	520	82	73.00	HM3180	MS3180	HMV80
380	H3280	328	62	Tr 400x5	520	82	81.00	HM3180	MS3180	HMV80
400	H3984	168	52	Tr 420x5	490	66	36.60	HM3084	MS3084	HMV84
400	H3084	212	52	Tr 420x5	490	66	43.70	HM3084	MS3084	HMV84
400	H3184	304	70	Tr 420x5	540	90	84.20	HM3184	MS3184	HMV84
400	H3284	352	70	Tr 420x5	540	90	96.00	HM3184	MS3184	HMV84
410	H3988	189	60	Tr 440x5	520	77	58.00	HM3088	MS3088	HMV88
410	H3088	228	60	Tr 440x5	520	77	65.20	HM3088	MS3088	HMV88
410	H3188	307	70	Tr 440x5	560	90	104.00	HM3188	MS3188	HMV88
410	H3288	361	70	Tr 440x5	560	90	118.00	HM3188	MS3188	HMV88
430	H3992	189	60	Tr 460x5	540	77	60.00	HM3092	MS3092	HMV92
430	H3192	326	75	Tr 460x5	580	95	116.00	HM3192	MS3192	HMV92
430	H3292	382	75	Tr 460x5	580	95	134.00	HM3192	MS3192	HMC92
450	H3996	200	60	Tr 480x5	560	77	66.00	HM3096	MS3096	HMV96
450	H3296	397	75	Tr 480x5	620	95	153.00	HM3196	MS3196	HMV96

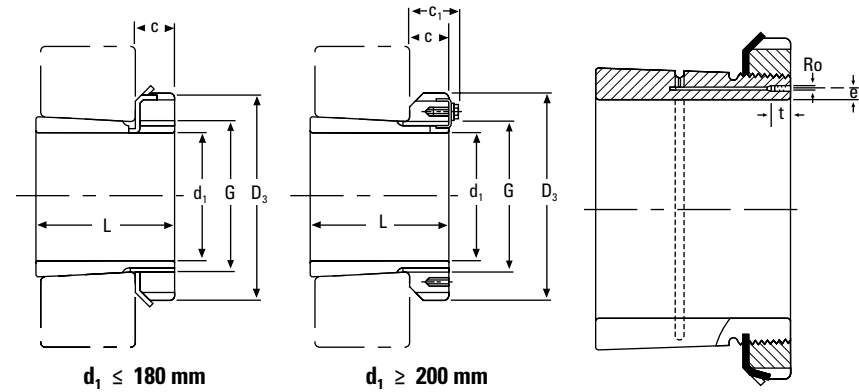
<sup>(1)</sup>Adapter sleeves are supplied complete with locknuts and lockwasher or lockplates.

<sup>(2)</sup>Tr means 30°. Trapezoid thread and the digits are outside diameter of thread and pitch.

NOTE: Sleeves are not sold separately.

### METRIC OH HYDRAULIC ADAPTER SLEEVES

- Includes sleeve, nut and lockwasher or lockplate.
- Hydraulic assistance facilitates mounting of large bearing. Oil pump required to inject pressurized oil.
- Other dimensions may be available, consult your Timken engineer.



$d_1$	Sleeve Part No. <sup>(1)</sup>	L	C	Thread <sup>(2)(3)</sup> G	$D_3$	$C_1$ <sup>(4)</sup>	$R_o$	e	t	Weight	Locknuts	Lockwasher and Lockplate	Appropriate Hydraulic Nut
mm		mm	mm	mm	mm	mm		mm	mm	kg			
140	OH3032H	93	27.5	M 160x3	190	–		4	7	5.21	KML32	MBL32	HMV32
140	OH3132H	119	28	M 160x3	210	–		4	7	7.67	KM32	MB32	HMV32
150	OH3034H	101	28.5	M 170x3	200	–		4	7	5.99	KML34	MBL34	HMV34
150	OH3134H	122	29	M 170x3	220	–		4	7	8.38	KM34	MB34	HMV34
160	OH3936H	87	29.5	M 180x3	210	–		4	7	5.70	KML36	MBL36	HMV36
160	OH3036H	109	29.5	M 180x3	210	–		4	7	6.83	KML36	MBL36	HMV36
160	OH3136H	131	30	M 180x3	230	–		4	7	9.50	KM36	MB36	HMV36
170	OH3938H	89	30.5	M 190x3	220	–		4	7	6.19	KML38	MBL38	HMV38
170	OH3038H	112	30.5	M 190x3	220	–		4	7	7.45	KML38	MBL38	HMV38
170	OH3138H	141	31	M 190x3	240	–		4	7	10.80	KM38	MB38	HMV38
170	OH2338H	169	31	M 190x3	240	–		4	7	12.60	KM38	MB38	HMV38
180	OH3940H	98	31.5	M 200x3	240	–		4	7	7.89	KML40	MBL40	HMV40
180	OH3040H	120	31.5	M 200x3	240	–		4	7	9.19	KML40	MBL40	HMV40
180	OH3140H	150	32	M 200x3	250	–		4	7	12.10	KM40	MB40	HMV40
180	OH2340H	176	32	M 200x3	250	–		4	7	13.90	KM40	MB40	HMV40
200	OH3944H	96	30	Tr 220x4	260	41	M6	4	7	8.16	HM3044	MS3044	HMV44
200	OH3044H	126	30	Tr 220x4	260	41	M6	4	7	10.30	HM3044	MS3044	HMV44
200	OH3144H	161	35	Tr 220x4	280	–	M6	4	7	15.10	HM44T	MB44	HMV44
200	OH2344H	186	35	Tr 220x4	280	–	M6	4	7	17.00	HM44T	MB44	HMV44
220	OH3948H	101	34	Tr 240x4	290	46	M6	4	7	11.00	HM3048	MS3048	HMV48
220	OH3048H	133	34	Tr 240x4	290	46	M6	4	7	13.20	HM3048	MS3048	HMV48
220	OH3148H	172	37	Tr 240x4	300	–	M6	4	7	17.60	HM48T	MB48	HMV48
220	OH2348H	199	37	Tr 240x4	300	–	M6	4	7	20.00	HM48T	MB48	HMV48
240	OH3952H	116	34	Tr 260x4	310	46	M6	4	7	12.80	HM3052	MS3052	HMV52
240	OH3052H	145	34	Tr 260x4	310	46	M6	4	7	15.30	HM3052	MS3052	HMV52
240	OH3152H	190	39	Tr 260x4	330	–	M6	4	7	22.30	HM52T	MB52	HMV52
240	OH2352H	211	39	Tr 260x4	330	–	M6	4	7	24.50	HM52T	MB52	HMV52

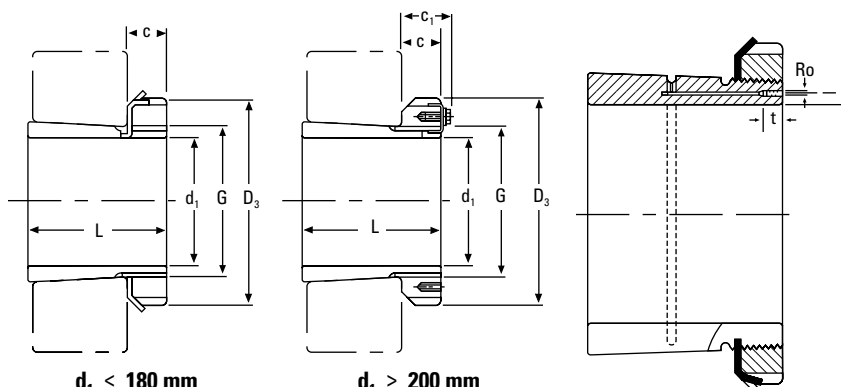
<sup>(1)</sup>Hydraulic adapter sleeves are supplied complete with locknuts and lockwasher or lockplates.

<sup>(2)</sup>M means metric thread and the digits are major diameter of thread and pitch.

<sup>(3)</sup>Tr means 30°. Trapezoid thread and the digits are outside diameter of thread and pitch.

<sup>(4)</sup>Adapters with dimensions  $C_1$  have a locking device as shown in the illustration.

Continued on next page.



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$d_1 \leq 180 \text{ mm}$

$d_1 \geq 200 \text{ mm}$

$d_1$ mm	Sleeve Part No. <sup>(1)</sup>	L mm	C mm	Thread <sup>(2)</sup> G	$D_3$ mm	$C_1$ <sup>(3)</sup> mm	$R_o$	e mm	t mm	Weight kg	Locknuts	Lockwasher and Lockplate	Appropriate Hydraulic Nut
260	OH3956H	121	38	Tr 280x4	330	50	M6	4	7	15.30	HM3056	MS3056	HMV56
260	OH3056H	152	38	Tr 280x4	330	50	M6	4	7	17.70	HM3056	MS3056	HMV56
260	OH3156H	195	41	Tr 280x4	350	—	M6	4	7	25.10	HM56T	MB56	HMV56
260	OH2356H	224	41	Tr 280x4	350	—	M6	4	7	28.40	HM56T	MB56	HMV56
280	OH3960H	140	42	Tr 300x4	360	54	M6	4	7	20.00	HM3060	MS3060	HMV60
280	OH3060H	168	42	Tr 300x4	360	54	M6	4	7	22.80	HM3060	MS3060	HMV60
280	OH3160H	208	40	Tr 300x4	380	53	M6	4	7	30.20	HM3160	MS3160	HMV60
280	OH3260H	240	40	Tr 300x4	380	53	M6	4	7	34.10	HM3160	MS3160	HMV60
300	OH3964H	140	42	Tr 320x5	380	55	M6	3.5	7	21.50	HM3064	MS3064	HMV64
300	OH3064H	171	42	Tr 320x5	380	55	M6	3.5	7	24.60	HM3064	MS3064	HMV64
300	OH3164H	226	42	Tr 320x5	400	56	M6	3.5	7	34.90	HM3164	MS3164	HMV64
300	OH3264H	258	42	Tr 320x54	400	56	M6	3.5	7	39.30	HM3164	MS3164	HMV64
320	OH3968H	144	45	Tr 340x5	400	58	M6	3.5	7	24.50	HM3068	MS3068	HMV68
320	OH3068H	187	45	Tr 340x5	400	58	M6	3.5	7	28.70	HM3068	MS3068	HMV68
320	OH3168H	254	55	Tr 340x5	440	72	M6	3.5	7	50.00	HM3168	MS3168	HMV68
320	OH3268H	288	55	Tr 340x5	440	72	M6	3.5	7	54.60	HM3168	MS3168	HMV68
340	OH3972H	144	45	Tr 360x5	420	58	M6	3.5	7	25.20	HM3072	MS3072	HMV72
340	OH3072H	188	45	Tr 360x5	420	58	M6	3.5	7	30.50	HM3072	MS3072	HMV72
340	OH3172H	259	58	Tr 360x5	460	75	M6	3.5	7	56.00	HM3172	MS3172	HMV72
340	OH3272H	299	58	Tr 360x5	460	75	M6	3.5	7	60.60	HM3172	MS3172	HMV72
360	OH3976H	164	48	Tr 380x5	450	62	M6	3.5	7	31.50	HM3076	MS3076	HMV76
360	OH3076H	193	48	Tr 380x5	450	62	M6	3.5	7	35.80	HM3076	MS3076	HMV76
360	OH3176H	264	60	Tr 380x5	490	77	M6	3.5	7	61.70	HM3176	MS3176	HMV76
360	OH3276H	310	60	Tr 380x5	490	77	M6	3.5	7	69.60	HM3176	MS3176	HMV76
380	OH3980H	168	52	Tr 400x5	470	66	M6	3.5	7	35.00	HM3080	MS3080	HMV80
380	OH3080H	210	52	Tr 400x5	470	66	M6	3.5	7	41.30	HM3080	MS3080	HMV80
380	OH3180H	272	62	Tr 400x5	520	82	M6	3.5	7	73.00	HM3180	MS3180	HMV80
380	OH3280H	328	62	Tr 400x5	520	82	M6	3.5	7	81.00	HM3180	MS3180	HMV80

<sup>(1)</sup>Hydraulic adapter sleeves are supplied complete with locknuts and lockwasher or lockplates.

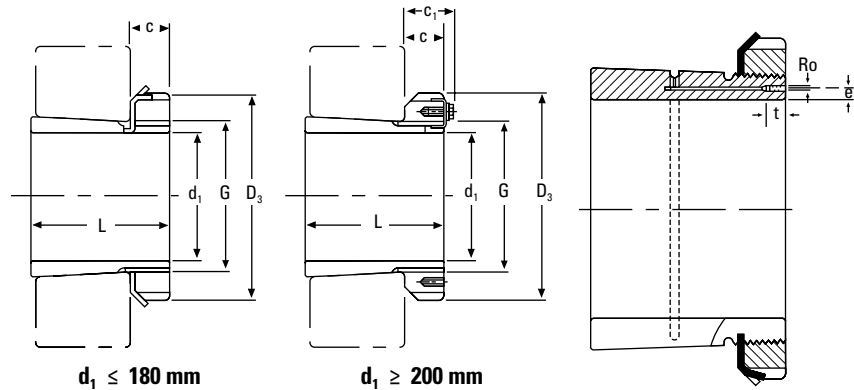
<sup>(2)</sup>Tr means 30°. Trapezoid thread and the digits are outside diameter of thread and pitch.

<sup>(3)</sup>Adapters with dimensions  $C_1$  have a locking device as shown in the illustration.

Continued on next page.

### METRIC OH HYDRAULIC ADAPTER SLEEVES – continued

- Includes sleeve, nut and lockwasher or lockplate.
- Hydraulic assistance facilitates mounting of large bearing. Oil pump required to inject pressurized oil.
- Other dimensions may be available, consult your Timken engineer.



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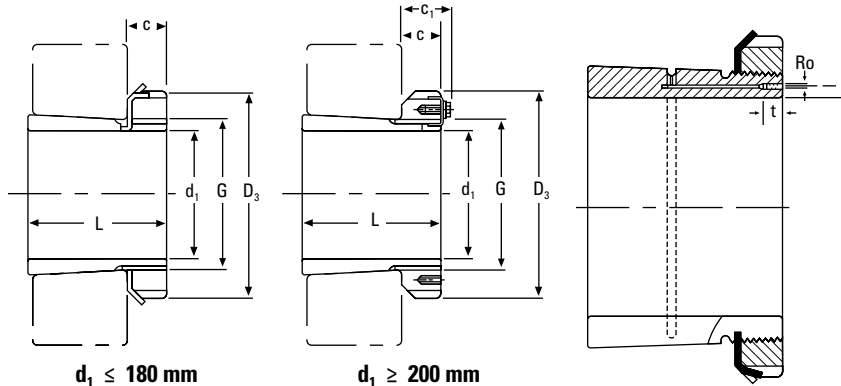
$d_1$	Sleeve Part No. <sup>(1)</sup>	L	C	Thread <sup>(2)</sup> G	$D_3$	$C_1$ <sup>(3)</sup>	$R_o$	e	t	Weight	Locknuts	Lockwasher and Lockplate	Appropriate Hydraulic Nut
mm		mm	mm	mm	mm	mm		mm	mm	kg			
400	OH3984H	168	52	Tr 420x5	490	66	M6	3.5	7	36.60	HM3084	MS3084	HMV84
400	OH3084H	212	52	Tr 420x5	490	66	M6	3.5	7	43.70	HM3084	MS3084	HMV84
400	OH3184H	304	70	Tr 420x5	540	90	M6	3.5	7	84.20	HM3184	MS3184	HMV84
400	OH3284H	352	70	Tr 420x5	540	90	M6	3.5	7	96.00	HM3184	MS3184	HMV84
410	OH3988H	189	60	Tr 440x5	520	77	M8	6.5	12	58.00	HM3088	MS3088	HMV88
410	OH3088H	228	60	Tr 440x5	520	77	M8	6.5	12	65.20	HM3088	MS3088	HMV88
410	OH3188H	307	70	Tr 440x5	560	90	M8	6.5	12	104.00	HM3188	MS3188	HMV88
410	OH3288H	361	70	Tr 440x5	560	90	M8	6.5	12	118.00	HM3188	MS3188	HMV88
430	OH3992H	189	60	Tr 460x5	540	77	M8	6.5	12	60.00	HM3092	MS3092	HMV92
430	OH3092H	234	60	Tr 460x5	540	77	M8	6.5	12	71.00	HM3092	MS3092	HMV92
430	OH3192H	326	75	Tr 460x5	580	95	M8	6.5	12	116.00	HM3192	MS3192	HMV92
430	OH3292H	382	75	Tr 460x5	580	95	M8	6.5	12	134.00	HM3192	MS3192	HMV92
450	OH3996H	200	60	Tr 480x5	560	77	M8	6.5	12	66.00	HM3096	MS30/96	HMV96
450	OH3096H	237	60	Tr 480x5	560	77	M8	6.5	12	75.00	HM3096	MS30/96	HMV96
450	OH3196H	335	75	Tr 480x5	620	95	M8	6.5	12	135.00	HM3196	MS3196	HMV96
450	OH3296H	397	75	Tr 480x5	620	95	M8	6.5	12	153.00	HM3196	MS3196	HMV96
470	OH39/500H	208	68	Tr 500x5	580	85	M8	6.5	12	74.30	HM30/500	MS30/500	HMV100
470	OH31/500H	356	80	Tr 500x5	630	100	M8	6.5	12	145.00	HM31/500	MS31/500	HMV100
470	OH32/500H	428	80	Tr 500x5	630	100	M8	6.5	12	166.00	HM31/500	MS31/500	HMV100
500	OH39/530H	216	68	Tr 530x6	630	90	M8	6	12	87.90	HM30/530	MS30/530	HMV106
500	OH31/530H	364	80	Tr 530x6	670	105	M8	6	12	161.00	HM31/530	MS31/530	HMV106
500	OH32/530H	447	80	Tr 530x6	670	105	M8	6	12	192.00	HM31/530	MS31/530	HMV106
530	OH39/560H	227	75	Tr 560x6	650	97	M8	6	12	95.00	HM30/560	MS30/560	HMV112
530	OH31/560H	377	85	Tr 560x6	710	110	M8	6	12	185.00	HM31/560	MS31/560	HMV112
530	OH32/560H	462	85	Tr 560x6	710	110	M8	6	12	219.00	HM31/560	MS31/560	HMV112
560	OH39/600H	239	75	Tr 600x6	700	97	G1/8	8	13	127.00	HM30/600	MS30/600	HMV120
560	OH30/600H	289	75	Tr 600x6	700	97	G1/8	8	13	147.00	HM30/600	MS30/600	HMV120
560	OH31/600H	399	85	Tr 600x6	750	110	G1/8	8	13	234.00	HM31/600	MS31/600	HMV120
560	OH32/600H	487	85	Tr 600x6	750	110	G1/8	8	13	278.00	HM31/600	MS31/600	HMV120
600	OH39/630H	254	75	Tr 630x6	730	97	M8	6	12	124.00	HM30/630	MS30/630	HMV126
600	OH30/630H	301	75	Tr 630x6	730	97	M8	6	12	138.00	HM30/630	MS30/630	HMV126
600	OH31/630H	424	95	Tr 630x6	800	120	M8	6	12	254.00	HM31/630	MS31/630	HMV126
600	OH32/630H	521	95	Tr 630x6	800	120	M8	6	12	300.00	HM 31/630	MS31/630	HMV126

<sup>(1)</sup>Hydraulic adapter sleeves are supplied complete with locknuts and lockwasher or lockplates.

<sup>(2)</sup>Tr means 30°. Trapezoid thread and the digits are outside diameter of thread and pitch.

<sup>(3)</sup>Adapters with dimensions  $C_1$  have a locking device as shown in the illustration.

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$d_1 \leq 180 \text{ mm}$

$d_1 \geq 200 \text{ mm}$

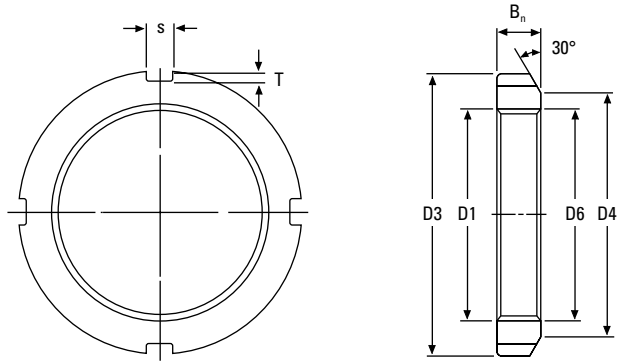
$d_1$	Sleeve Part No. <sup>(1)</sup>	L	C	Thread <sup>(2)</sup> G	$D_3$	$C_1$ <sup>(3)</sup>	$R_o$	e	t	Weight	Locknuts	Lockwasher and Lockplate	Appropriate Hydraulic Nut
mm		mm	mm	mm	mm	mm		mm	mm	kg			
630	OH39/670H	264	80	Tr 670x6	780	102	G1/8	8	13	162.00	HM30/670	MS30/670	HMV134
630	OH30/670H	324	80	Tr 670x6	780	102	G1/8	8	13	190.00	HM30/670	MS30/670	HMV134
630	OH31/670H	456	106	Tr 670x6	850	131	G1/8	8	13	340.00	HM31/670	MS31/670	HMV134
630	OH32/670H	558	106	Tr 670x6	850	131	G1/8	8	13	401.00	HM31/670	MS31/670	HMV134
670	OH39/710H	286	90	Tr 710x7	830	112	G1/8	8	13	183.00	HM30/710	MS30/710	HMV142
670	OH30/710H	342	90	Tr 710x7	830	112	G1/8	8	13	228.00	HM30/710	MS30/710	HMV142
670	OH31/710H	467	106	Tr 710x7	900	135	G1/8	8	13	392.00	HM31/710	MS31/710	HMV142
670	OH32/710H	572	106	Tr 710x7	900	135	G1/8	8	13	459.00	HM31/710	MS31/710	HMV142
710	OH39/750H	291	90	Tr 750x7	870	112	G1/8	8	13	211.00	HM30/750	MS30/750	HMV150
710	OH30/750H	356	90	Tr 750x7	870	112	G1/8	8	13	246.00	HM30/750	MS30/750	HMV150
710	OH31/750H	493	112	Tr 750x7	950	141	G1/8	8	13	451.00	HM31/750	MS31/750	HMV150
710	OH32/750H	603	112	Tr 750x7	950	141	G1/8	8	13	526.00	HM31/750	MS31/750	HMV150
750	OH39/800H	303	90	Tr 800x7	920	112	G1/8	10	13	259.00	HM30/800	MS30/800	HMV160
750	OH31/800H	505	112	Tr 800x7	1000	141	G1/8	10	13	535.00	HM31/800	MS31/800	HMV160
750	OH32/800H	618	112	Tr 800x7	1000	141	G1/8	10	13	629.00	HM31/800	MS31/800	HMV160
800	OH39/850H	308	90	Tr 850x7	980	115	G1/8	10	13	288.00	HM30/850	MS30/850	HMV170
800	OH31/850H	536	118	Tr 850x7	1060	147	G1/8	10	13	616.00	HM31/850	MS31/850	HMV170
800	OH32/850H	651	118	Tr 850x7	1060	147	G1/8	10	13	722.00	HM31/850	MS31/850	HMV170
850	OH39/900H	326	100	Tr 900x7	1030	125	G1/8	10	13	330.00	HM30/900	MS30/900	HMV180
850	OH31/900H	557	125	Tr 900x7	1120	154	G1/8	10	13	677.00	HM31/900	MS31/900	HMV180
850	OH32/900H	660	125	Tr 900x7	1120	154	G1/8	10	13	776.00	HM31/900	MS31/900	HMV180
900	OH39/950H	344	100	Tr 950x8	1080	125	G1/8	10	13	362.00	HM30/950	MS30/950	HMV190
900	OH31/950H	583	125	Tr 950x8	1170	154	G1/8	10	13	738.00	HM31/950	MS31/950	HMV190
900	OH32/950H	675	125	Tr 950x8	1170	154	G1/8	10	13	834.00	HM31/950	MS31/950	HMV190
950	OH39/1000H	358	100	Tr 1000x8	1140	125	G1/8	10	13	407.00	HM30/1000	MS30/1000	HMV200
950	OH31/1000H	609	125	Tr 1000x8	1240	154	G1/8	10	13	842.00	HM31/1000	MS31/1000	HMV200
950	OH32/1000H	707	125	Tr 1000x8	1240	154	G1/8	10	13	952.00	HM31/1000	MS31/1000	HMV200
1000	OH39/1060H	372	100	Tr 1060x8	1200	125	G1/8	12	15	490.00	HM30/1060	MS30/1060	HMV212
1000	OH30/1060H	447	100	Tr 1060x8	1200	125	G1/8	12	15	571.00	HM30/1060	MS30/1060	HMV212
1000	OH31/1060H	622	125	Tr 1060x8	1300	154	G1/8	12	15	984.00	HM31/1060	MS31/1000	HMV212

<sup>(1)</sup>Hydraulic adapter sleeves are supplied complete with locknuts and lockwasher or lockplates.

<sup>(2)</sup>Tr means 30°. Trapezoid thread and the digits are outside diameter of thread and pitch.

<sup>(3)</sup>Adapters with dimensions  $C_1$  have a locking device as shown in the illustration.

### METRIC LOCKNUTS

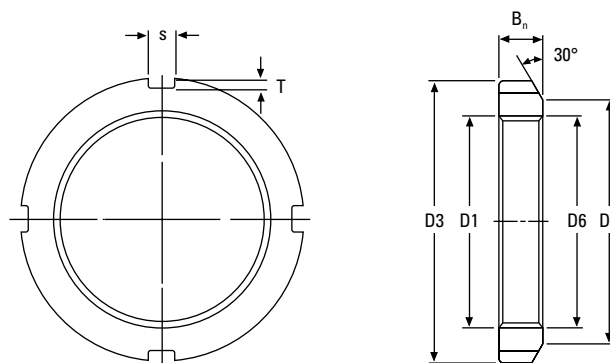


Locknut No. <sup>(1)</sup>	Thread <sup>(2)</sup> D <sub>1</sub>	D <sub>3</sub>	D <sub>4</sub>	B <sub>n</sub>	s	T	D <sub>6</sub>	Weight	Lockwasher No.
	mm	mm	mm	mm	mm	mm	mm	kg	
KM0	M 10 X 0.75	18	13	4	3	2	10.5	0.01	MB00
KM1	M 12 X 1.0	22	17	4	3	2	12.5	0.01	MB01
KM2	M 15 X 1.0	25	21	5	4	2	15.5	0.01	MB02
KM3	M 17 X 1.0	28	24	5	4	2	17.5	0.01	MB03
KM4	M 20 X 1.0	32	26	6	4	2	20.5	0.02	MB04
KM5	M 25 X 1.5	38	32	7	5	2	25.8	0.03	MB05
KM6	M 30 X 1.5	45	38	7	5	2	30.8	0.04	MB06
KM7	M 35 X 1.5	52	44	8	5	2	35.8	0.05	MB07
KM8	M 40 X 1.5	58	50	9	6	2.5	40.8	0.09	MB08
KM9	M 45 X 1.5	65	56	10	6	2.5	45.8	0.12	MB09
KM10	M 50 X 1.5	70	61	11	6	2.5	50.8	0.15	MB10
KM11	M 55 X 2.0	75	67	11	7	3	56.0	0.16	MB11
KM12	M 60 X 2.0	80	73	11	7	3	61.0	0.17	MB12
KM13	M 65 X 2.0	85	79	12	7	3	66.0	0.20	MB13
KM14	M 70 X 2.0	92	85	12	8	3.5	71.0	0.24	MB14
KM15	M 75 X 2.0	98	90	13	8	3.5	76.0	0.29	MB15
KM16	M 80 X 2.0	105	95	15	8	3.5	81.0	0.40	MB16
KM17	M 85 X 2.0	110	102	16	8	3.5	86.0	0.45	MB17
KM18	M 90 X 2.0	120	108	16	10	4	91.0	0.56	MB18
KM19	M 95 X 2.0	125	113	17	10	4	96.0	0.66	MB19
KM20	M 100 X 2.0	130	120	18	10	4	101.0	0.70	MB20
KM21	M 105 X 2.0	140	126	18	12	5	106.0	0.85	MB21
KM22	M 110 X 2.0	145	133	19	12	5	111.0	0.97	MB22
KM23	M 115 X 2.0	150	137	19	12	5	116.0	1.01	MB23
KM24	M 120 X 2.0	160	148	21	12	5	126.0	1.80	MB24
KM25	M 125 X 2.0	160	148	21	12	5	126.0	1.19	MB25
KM26	M 130 X 2.0	165	149	21	12	5	131.0	1.25	MB26
KM27	M 135 X 2.0	175	160	22	14	6	136.0	1.55	MB27
KM28	M 140 X 2.0	180	160	22	14	6	141.0	1.56	MB28
KM29	M145 X 2.0	190	172	24	14	6	146.0	2.00	MB29

<sup>(1)</sup>No. KM0-KM40 also available in 304 stainless steel.

<sup>(2)</sup>M means metric thread and the digits are major diameter of thread and pitch.

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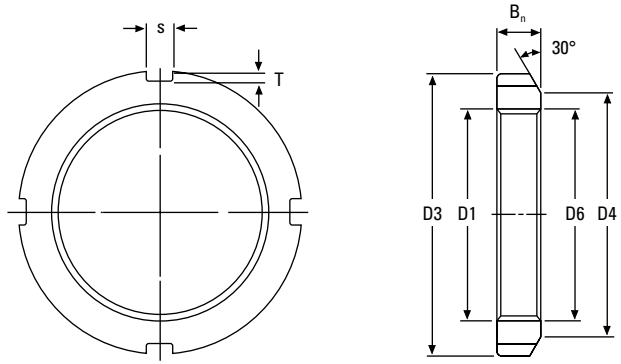
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Locknut No. <sup>(1)</sup>	Thread <sup>(2)</sup> D <sub>1</sub>	D <sub>3</sub>	D <sub>4</sub>	B <sub>n</sub>	s	T	D <sub>6</sub>	Weight	Lockwasher No.
	mm	mm	mm	mm	mm	mm	mm	kg	
KM30	<b>M150 X 2.0</b>	195	171	24	14	6	151.0	2.03	MB30
KM31	<b>M155 X 3.0</b>	200	182	25	16	7	156.5	2.21	MB31
KM32	<b>M160 X 3.0</b>	210	182	25	16	7	161.5	2.59	MB32
KM33	<b>M165 X 3.0</b>	210	193	26	16	7	166.5	2.43	MB33
KM34	<b>M170 X 3.0</b>	220	193	26	16	7	171.5	2.80	MB34
KM36	<b>M180 X 3.0</b>	230	203	27	18	8	181.5	3.07	MB36
KM38	<b>M190 X 3.0</b>	240	214	28	18	8	191.5	3.39	MB38
KM40	<b>M200 X 3.0</b>	250	226	29	18	8	201.5	3.69	MB40

<sup>(1)</sup>No. KM0 - KM40 also available in 304 stainless steel.

<sup>(2)</sup>M means metric thread and the digits are major diameter of thread and pitch.

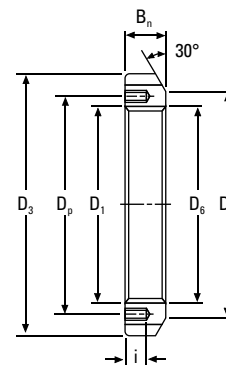
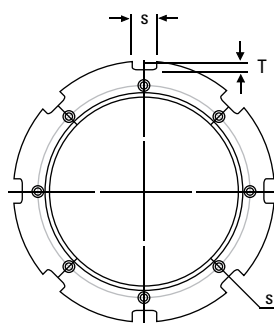
### METRIC LOCKNUTS – continued



Locknut No.	Thread <sup>(1)</sup> D <sub>1</sub>	D <sub>3</sub>	D <sub>4</sub>	B <sub>n</sub>	s	T	D <sub>6</sub>	Weight
	mm	mm	mm	mm	mm	mm	mm	kg
HM42	Tr 210 x 4	270	238	30	20	10	212	4.75
HM44	Tr 220 x 4	280	250	32	20	10	222	5.35
HM46	Tr 230 x 4	290	260	34	20	10	232	5.80
HM48	Tr 240 x 4	300	270	34	20	10	242	6.20
HM50	Tr 250 x 4	320	290	36	20	10	252	7.00
HM52	Tr 260 x 4	330	300	36	24	12	262	8.55
HM54	Tr 270 x 4	340	310	38	24	12	272	9.20
HM56	Tr 280 x 4	350	320	38	24	12	282	10.00
HM58	Tr 290 x 4	370	330	40	24	12	292	11.80
HM60	Tr 300 x 4	380	340	40	24	12	302	12.00
HM62	Tr 310 x 5	390	350	42	24	12	312.5	13.40
HM64	Tr 320 x 5	400	360	42	24	12	322.5	13.50
HM66	Tr 330 x 5	420	380	52	28	15	332.5	20.40
HM68	Tr 340 x 5	440	400	55	28	15	342.5	24.50
HM70	Tr 350 x 5	450	410	55	28	15	352.5	25.20
HM72	Tr 360 x 5	460	420	58	28	15	362.5	27.50
HM74	Tr 370 x 5	470	430	58	28	15	372.5	28.20
HM76	Tr 380 x 5	490	450	60	32	18	382.5	33.50
HM80	Tr 400 x 5	520	470	62	32	18	402.5	40.00

<sup>(1)</sup>Tr means 30°; trapezoid thread and the digits are major diameter of thread and pitch.

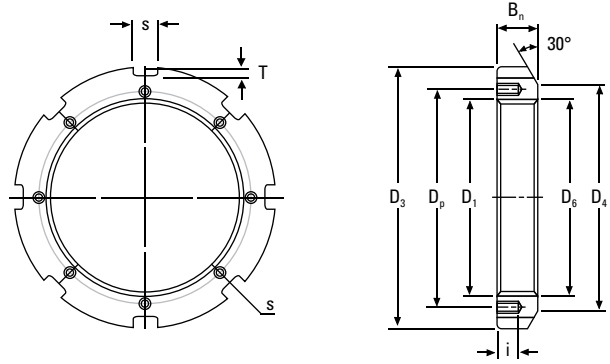




Locknut No.	Thread <sup>(1)</sup> D <sub>1</sub>	D <sub>3</sub>	D <sub>4</sub>	s	T	D <sub>6</sub>	B <sub>n</sub>	i	Tapped Hole Threads	D <sub>p</sub>	Appropriate Lockplate No.	Weight
	mm	mm	mm	mm	mm	mm	mm	mm		mm		kg
HM3044	Tr 220 x 4	260	242	20	9	222	30	12	M 6 x 1	229	MS3044	3.09
HM3048	Tr 240 x 4	290	270	20	10	242	34	15	M 8 x 1.25	253	MS3048	5.16
HM3052	Tr 260 x 4	310	290	20	10	262	34	15	M 8 x 1.25	273	MS3052	5.67
HM3056	Tr 280 x 4	330	310	24	10	282	38	15	M 8 x 1.25	293	MS3056	6.78
HM3060	Tr 300 x 4	360	336	24	12	302	42	15	M 8 x 1.25	316	MS3060	9.62
HM3064	Tr 320 x 5	380	356	24	12	322.5	42	15	M 8 x 1.25	335	MS3064	9.94
HM3068	Tr 340 x 5	400	376	24	12	342.5	45	15	M 8 x 1.25	355	MS3068	11.70
HM3072	Tr 360 x 5	420	394	28	13	362.5	45	15	M 8 x 1.25	374	MS3072	12.00
HM3076	Tr 380 x 5	450	422	28	14	382.5	48	18	M 10 x 1.5	398	MS3076	14.90
HM3080	Tr 400 x 5	470	442	28	14	402.5	52	18	M 10 x 1.5	418	MS3080	16.90
HM3084	Tr 420 x 5	490	462	32	14	422.5	52	18	M 10 x 1.5	438	MS3084	17.40
HM3088	Tr 440 x 5	520	490	32	15	442.5	60	21	M 12 x 1.75	462	MS3088	26.20
HM3092	Tr 460 x 5	540	510	32	15	462.5	60	21	M 12 x 1.75	482	MS3092	29.60
HM3096	Tr 480 x 5	560	530	36	15	482.5	60	21	M 12 x 1.75	502	MS3096	28.30
HM30/500	Tr 500 x 5	580	550	36	15	502.5	68	21	M 12 x 1.75	522	MS30/500	33.60

<sup>(1)</sup>Tr means 30°; trapezoid thread and the digits are major diameter of thread and pitch.

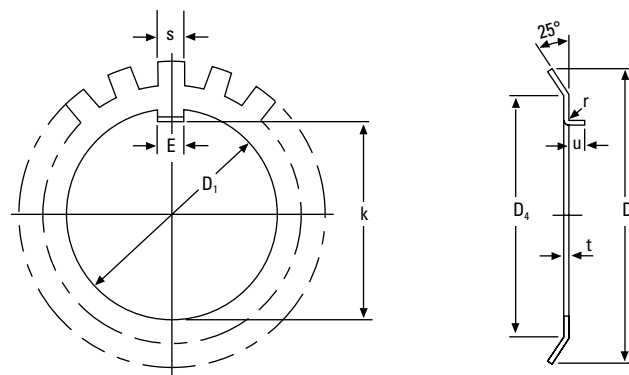
### METRIC LOCKNUTS – continued



Locknut No.	Thread <sup>(1)</sup> D <sub>1</sub>	D <sub>3</sub>	D <sub>4</sub>	s	T	D <sub>6</sub>	B <sub>n</sub>	i	Tapped Hole Threads	D <sub>p</sub>	Appropriate Lockplate No.	Weight
	mm	mm	mm	mm	mm	mm	mm	mm		mm		kg
HM3144	Tr 220 x 4	280	250	20	10	222	32	15	M 8 x 1.25	238	MS3144	5.20
HM3148	Tr 240 x 4	300	270	20	10	242	34	15	M 8 x 1.25	258	MS3148	5.95
HM3152	Tr 260 x 4	330	300	24	12	262	36	18	M 10 x 1.5	281	MS3152	8.05
HM3156	Tr 280 x 4	350	320	24	12	282	38	18	M 10 x 1.5	301	MS3156	9.05
HM3160	Tr 300 x 4	380	340	24	12	302	40	18	M 10 x 1.5	326	MS3160	11.80
HM3164	Tr 320 x 5	400	360	24	12	322.5	42	18	M 10 x 1.5	345	MS3164	13.10
HM3168	Tr 340 x 5	440	400	28	15	342.5	55	21	M 12 x 1.75	372	MS3168	23.10
HM3172	Tr 360 x 5	460	420	28	15	362.5	58	21	M 12 x 1.75	392	MS3172	25.10
HM3176	Tr 380 x 5	490	450	32	18	382.5	60	21	M 12 x 1.75	414	MS3176	30.90
HM3180	Tr 400 x 5	520	470	32	18	402.5	62	27	M 16 x 2	439	MS3180	36.90
HM3184	Tr 420 x 5	540	490	32	18	422.5	70	27	M 16 x 2	459	MS3184	43.50
HM3188	Tr 440 x 5	560	510	36	20	442.5	70	27	M 16 x 2	477	MS3188	45.30
HM3192	Tr 460 x 5	580	540	36	20	462.5	75	27	M 16 x 2	497	MS3192	50.40
HM3196	Tr 480 x 5	620	560	36	20	482.5	75	27	M 16 x 2	527	MS3196	62.20
HM31/500	Tr 500 x 5	630	580	40	23	502.5	80	27	M 16 x 2	539	MS31/500	63.30

<sup>(1)</sup>Tr means 30°; trapezoid thread and the digits are major diameter of thread and pitch.

# METRIC LOCKWASHERS



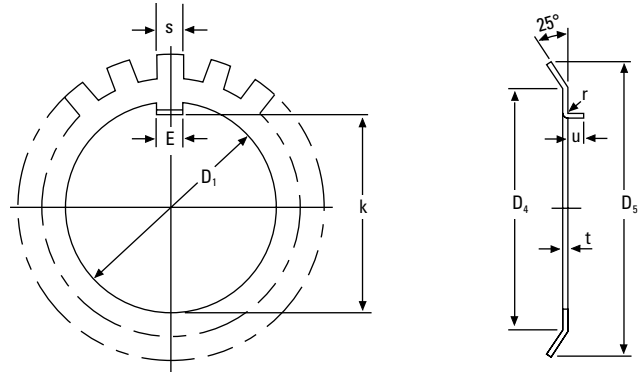
Lockwasher <sup>(1)</sup> No.	Thread D <sub>1</sub>	k	E	t	S	D <sub>4</sub>	D <sub>5</sub>	r <sup>(2)</sup>	u <sup>(2)</sup>	No. of Tangs	Weight per 100 pieces	Locknut No.
	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg	
MB0	10	8.5	3	1	3	13	21	0.5	2	9	0.13	KM00
MB1	12	10.5	3	1	3	17	25	0.5	2	9	0.19	KM01
MB2	15	13.5	4	1	4	21	28	1	2.5	13	0.25	KM02
MB3	17	15.5	4	1	4	24	32	1	2.5	13	0.31	KM03
MB4	20	18.5	4	1	4	26	36	1	2.5	13	0.35	KM04
MB5	25	23	5	1.2	5	32	42	1	2.5	13	0.64	KM05
MB6	30	27.5	5	1.2	5	38	49	1	2.5	13	0.78	KM06
MB7	35	32.5	6	1.2	5	44	57	1	2.5	15	1.04	KM07
MB8	40	37.5	6	1.2	6	50	62	1	2.5	15	1.23	KM08
MB9	45	42.5	6	1.2	6	56	69	1	2.5	17	1.52	KM09
MB10	50	47.5	6	1.2	6	61	74	1	2.5	17	1.60	KM10
MB11	55	52.5	8	1.2	7	67	81	1	4	17	1.96	KM11
MB12	60	57.5	8	1.5	7	73	86	1.2	4	17	2.53	KM12
MB13	65	62.5	8	1.5	7	79	92	1.2	4	19	2.90	KM13
MB14	70	66.5	8	1.5	8	85	98	1.2	4	19	3.34	KM14
MB15	75	71.5	8	1.5	8	90	104	1.2	4	19	3.56	KM15
MB16	80	76.5	10	1.8	8	95	112	1.2	4	19	4.64	KM16
MB17	85	81.5	10	1.8	8	102	119	1.2	4	19	5.24	KM17
MB18	90	86.5	10	1.8	10	108	126	1.2	4	19	6.23	KM18
MB19	95	91.5	10	1.8	10	113	133	1.2	4	19	6.70	KM19
MB20	100	96.5	12	1.8	10	120	142	1.2	6	19	7.65	KM20
MB21	105	100.5	12	1.8	12	126	145	1.2	6	19	8.26	KM21
MB22	110	105.5	12	1.8	12	133	154	1.2	6	19	9.40	KM22
MB23	115	110.5	12	2	12	137	159	1.5	6	19	10.80	KM23
MB24	120	115	14	2	12	138	164	1.5	6	19	10.50	KM24
MB25	125	120	14	2	12	148	170	1.5	6	19	11.80	KM25
MB26	130	125	14	2	12	149	175	1.5	6	19	11.30	KM26
MB27	135	130	14	2	14	160	185	1.5	6	19	14.40	KM27
MB28	140	135	16	2	14	160	192	1.5	8	19	14.20	KM28
MB29	145	140	16	2	14	171	202	1.5	8	19	16.80	KM29

<sup>(1)</sup>No. MB0-MB40 also available in 304 stainless steel.

<sup>(2)</sup>Straight tangs when t ≥ 3 mm.

Continued on next page.

### METRIC LOCKWASHERS – continued



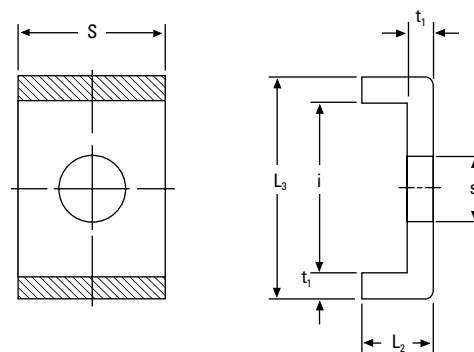
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Lockwasher <sup>(1)</sup> No.	Thread D <sub>1</sub>	k	E	t	S	D <sub>4</sub>	D <sub>5</sub>	r <sup>(2)</sup>	u <sup>(2)</sup>	No. of Tangs	Weight per 100 pieces	Locknut No.
	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg	
MB30	150	145	16	2	14	171	205	1.5	8	19	15.50	KM30
MB31	155	147.5	16	2.5	16	182	212	1.5	8	19	20.90	KM31
MB32	160	154	18	2.5	18	182	217	1.5	8	19	22.20	KM32
MB33	165	157.5	18	2.5	16	193	222	1.5	8	19	24.10	KM33
MB34	170	164	18	2.5	16	193	232	1.5	8	19	24.70	KM34
MB36	180	174	20	2.5	18	203	242	1.5	8	19	26.80	KM36
MB38	190	184	20	2.5	18	214	252	1.5	8	19	27.80	KM38
MB40	200	194	20	2.5	18	226	262	1.5	8	19	29.30	KM40
MB44	220	213	24	3.0	20	250	292	–	–	19	48.30	HM3144
MB48	240	233	24	3.0	20	270	312	–	–	19	50.20	HM3148
MB52	260	253	28	3.0	24	300	342	–	–	23	72.90	HM3152
MB56	280	273	28	3.0	24	320	362	–	–	23	75.90	HM3156

<sup>(1)</sup>No. MB0-MB40 also available in 304 stainless steel.

<sup>(2)</sup>Straight tangs when t ≥ 3 mm.

**METRIC LOCKPLATES**



Lockplate No.	t <sub>1</sub>	S	L <sub>2</sub>	S <sub>1</sub>	i	L <sub>3</sub>	Appropriate Locknut No.	Weight per 100 pieces
	mm	mm	mm	mm	mm	mm		kg
MS3144	4	20	12	9	22.5	30.5	HM3144	2.60
MS3148	4	20	12	9	22.5	30.5	HM3148	2.60
MS3152	4	24	12	12	25.5	33.5	HM3152	3.39
MS3156	4	24	12	12	25.5	33.5	HM3156	3.39
MS3160	4	24	12	12	30.5	38.5	HM3160	3.79
MS3164	5	24	15	12	31	41	HM3164	5.35
MS3168	5	28	15	14	38	48	HM3168	6.65
MS3172	5	28	15	14	38	48	HM3172	6.65
MS3176	5	32	15	14	40	50	HM3176	7.96
MS3180	5	32	15	18	45	55	HM3180	8.20
MS3184	5	32	15	18	45	55	HM3184	8.20
MS3188	5	36	15	18	43	53	HM3188	9.00
MS3192	5	36	15	18	43	53	HM3192	9.00
MS3196	5	36	15	18	53	63	HM3196	10.40
MS31/500	5	40	15	18	45	55	HM31/500	10.50
MS3044	4	20	12	7	13.5	21.5	HM3044	2.12
MS3048	4	20	12	9	17.5	25.5	HM3048	2.29
MS3052	4	20	12	9	17.5	25.5	HM3052	2.29
MS3056	4	24	12	9	17.5	25.5	HM3056	2.92
MS3060	4	24	12	9	20.5	28.5	HM3060	3.16
MS3064	5	24	15	9	21	31	HM3064	4.56
MS3068	5	24	15	9	21	31	HM3068	4.56
MS3072	5	28	15	9	20	30	HM3072	5.03
MS3076	5	28	15	12	24	34	HM3076	5.28
MS3080	5	28	15	12	24	34	HM3080	5.28
MS3084	5	32	15	12	24	34	HM3084	6.11
MS3088	5	32	15	14	28	38	HM3088	6.45
MS3092	5	32	15	14	28	38	HM3092	6.45
MS3096	5	36	15	14	28	38	HM3096	7.29
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