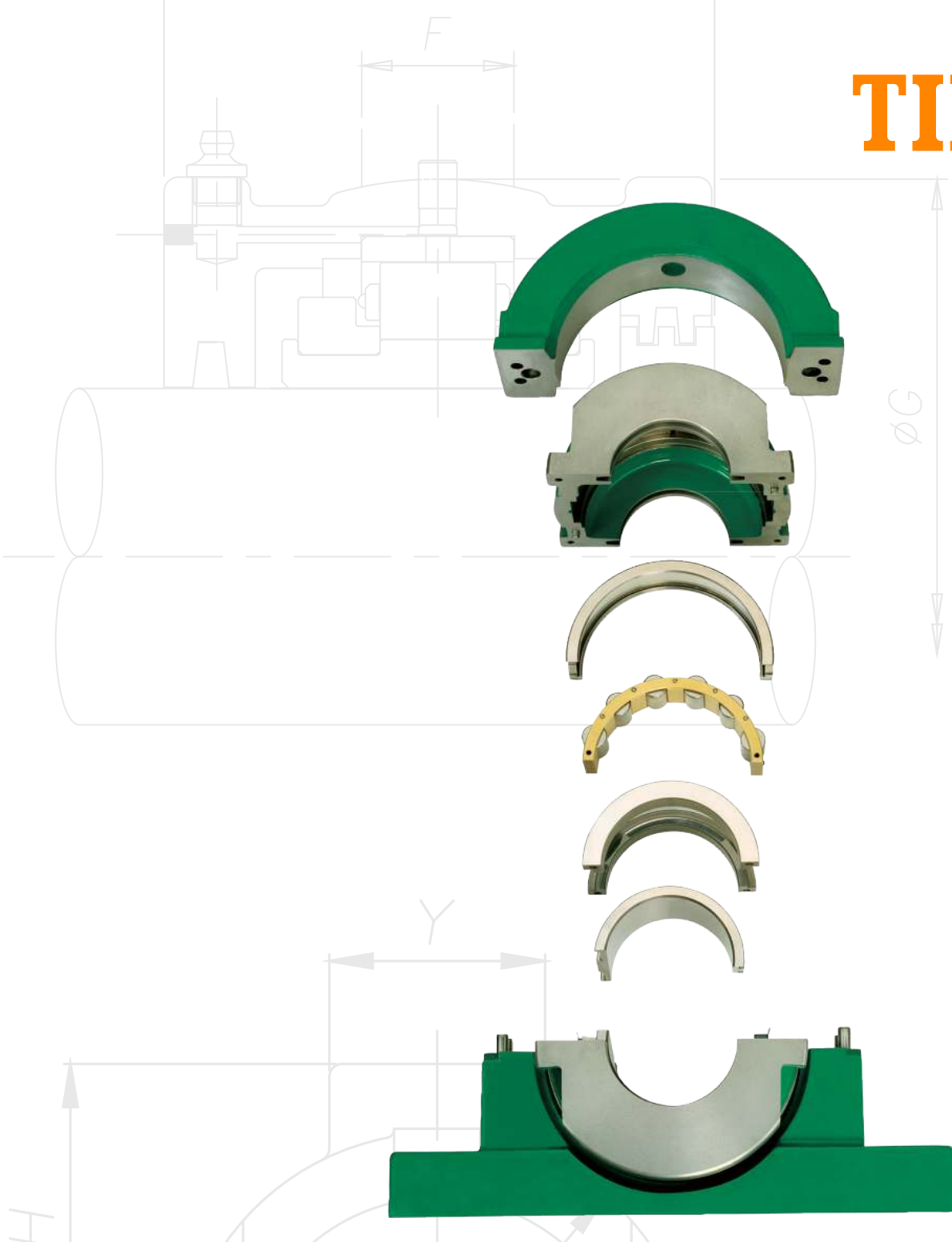


TIMKEN



TIMKEN® SPLIT CYLINDRICAL ROLLER BEARING HOUSED UNIT CATALOG



ABOUT THE TIMKEN COMPANY

As a global leader in bearings and power transmission systems, Timken focuses on precise solution design, materials and craftsmanship to deliver reliable and efficient performance that improves productivity and uptime. Timken offers a full range of bearings, belts, chains, couplings, gears and lubricants, along with rebuild and repair services. Timken (NYSE; TKR; www.timken.com) applies its proven expertise in metallurgy, tribology and mechanical power transmission to create innovative approaches to customers' complex needs. Global availability of products and engineering talent, combined with exceptional service delivery across markets, makes Timken a preferred choice worldwide.

To view more Timken catalogs, go to www.timken.com/catalogs for interactive versions, or to download our catalog app to your smartphone or mobile device.



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TAKING THE INITIATIVE

In today's demanding industrial environment, specialist technology is, more than ever, key to improved efficiency, productivity and ultimately profitability. Timken is increasingly seen as a product brand, that routinely challenges technological boundaries.

Rapid response and flexibility result from a production facility manufacturing not only split cylindrical roller bearing assemblies but also cutting edge products for aerospace and railway. The unique relationship between manufacturer and distributors combined with innovative cellular manufacturing and modular stocking offer unparalleled availability.

From concept to design, design to production, and then throughout the life cycle of the unit, no other split bearing manufacturer works so hard to exceed your expectations.

PERFORMANCE

Timken products are designed and developed to maximize service life and minimize maintenance effort.

Timken bearings have machined brass cages with unique single-piece clips as standard; rolling elements are profiled to minimize damaging edge stresses and provide optimum rolling contact.

All supports and housings incorporate pry slots and doweled machined joints for easy separation. Supports are manufactured from high-strength cast iron and feature double webs and thick sections. Product life is thus enhanced due to high rigidity and inherent strength.

INNOVATION IN SERVICE

Producing products that push the boundaries of performance is only the beginning. Timken recognizes that users and specifiers of split cylindrical roller bearings demand logistical, technical and after-sales support.

Experienced application engineering support assists customers with concepts through consultation, commissioning, training, supply and post installation support.

Regional inventory provides excellent availability of product in the right place at the right time.



INNOVATION IN APPLICATION

The benefits of totally split-to-the-shaft bearing assemblies are long-established; subsequent savings in production and maintenance are well documented.

However, split cylindrical roller bearings are today being selected for an even wider range of applications. Additional sealing options allow our bearings to run at higher speeds and temperatures in increasingly more hostile environments.

Optimization of plant efficiency is the goal of today's maintenance engineer. The application of reliable products offering real savings is derived from increased mean time between failures. This widens periods between planned shutdowns and also eliminates unplanned downtime when utilizing advanced components accommodating split options.

ADVANTAGES OF SPLIT CYLINDRICAL ROLLER BEARING HOUSED UNITS

Split cylindrical roller bearings are essential in applications involving limited access and are highly cost effective by reducing down time and production losses during change-outs.

Split cylindrical roller bearings are completely split to the shaft. Installation and inspection times are therefore dramatically less than for solid bearings. Additionally, the time saved and costs eliminated by not having to remove ancillary equipment results in even higher potential savings.

INSPECTION SIMPLIFIED

No matter what the size or type of split cylindrical roller bearing, inspection is straightforward. Simply remove the support cap and the top half of the housing and all bearing parts become visible and accessible.

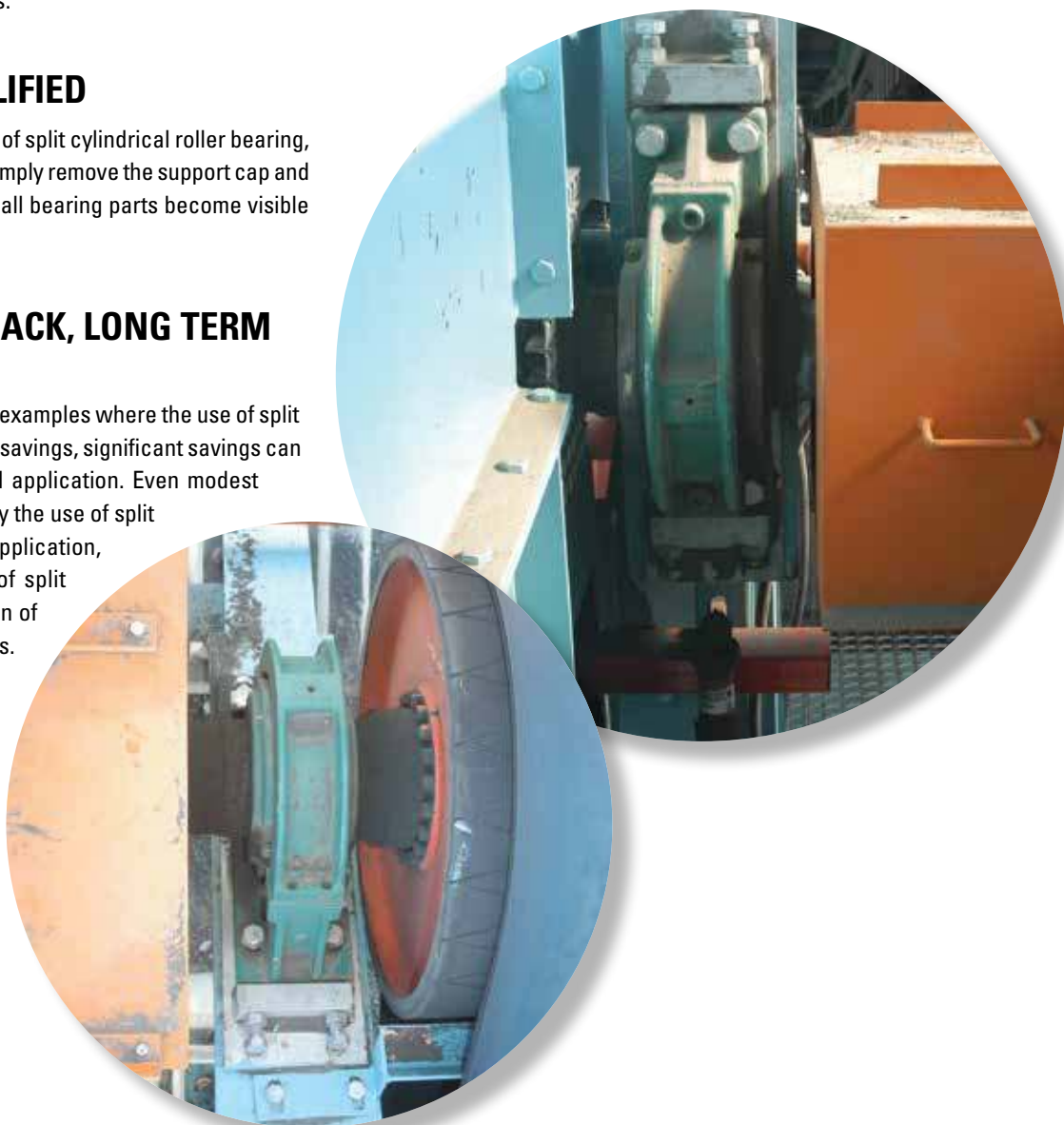
SHORT TERM PAYBACK, LONG TERM BENEFITS

Though it would be easy to cite examples where the use of split bearings results in spectacular savings, significant savings can be seen in almost any trapped application. Even modest savings can be enough to justify the use of split bearings. Depending on the application, down times for replacement of split bearings can be a small fraction of those required for solid bearings. This yields savings in both maintenance work-hours and lost production.

When such cost savings are taken into account at the bearing selection stage, it's easy to make the case for choosing Timken split cylindrical roller bearings.

FURTHER SAVINGS

Anywhere Timken bearings are used to replace other split bearing brands, the potential for savings exists. Through the use of machined brass cages as standard, inclusion of profiled rolling elements and the incorporation of high-grade materials for housings and supports, Timken bearings have the capability to extend service life leading to a reduction in bearing consumption.



FEATURES AND BENEFITS

TABLE 1. SPLIT CYLINDRICAL ROLLER BEARING HOUSED UNIT FEATURES AND BENEFITS

Features	Benefits
All components are totally split to the shaft	Quick and easy installation. Substantial reduction in downtime compared to replacement of solid bearings
Support caps and housing halves are quickly removed	Easy visual inspection to assess the condition of the bearing (during planned maintenance)
Replacement bearing interchangeability with existing housing	Simple and economic bearing replacement
Unit accommodates initial misalignment	Simplifies installation of associated equipment
Machined brass cage as standard	Enhanced ability to accommodate higher speeds and temperatures
Innovative cage clip design	Clips retained on one cage half during assembly and disassembly
ASTM 48A – Grade 35 Cast Iron	Strength and durability
Profiled rolling elements	Minimizes damaging edge stresses



HOW TO USE THIS CATALOG

We designed this catalog to help you find the Timken bearings best suited to your equipment needs and specifications.

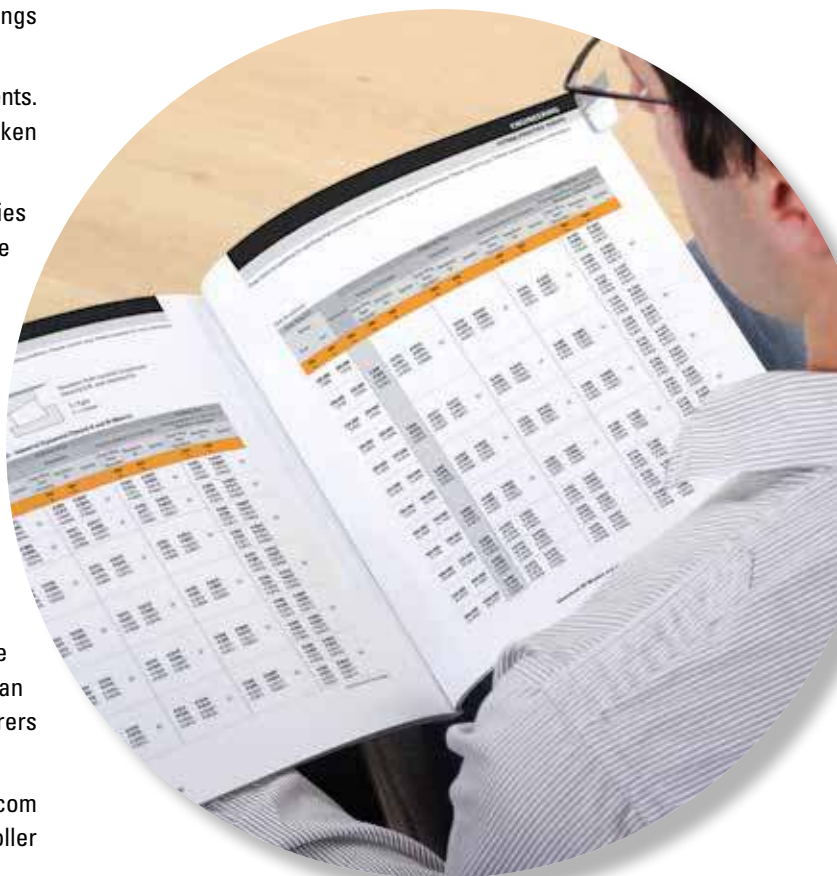
The product tables list split bearing housed units and components. For other bearing types, please refer to the respective Timken product catalog reference.

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 mounting and 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 for the most recent version of the Timken Split Cylindrical Roller Bearing Housed Unit Catalog.



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. Deviation 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.

SPLIT CYLINDRICAL ROLLER BEARING HOUSED UNITS ARE NOT SHIPPED PRE-GREASED.

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 Chemicals Agency). 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.

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.

WARNINGS



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 grain, coal, or other combustible materials.

Never spin a bearing with compressed air. The components may be forcefully expelled.



CAUTION

Failure to follow these cautions may result in property damage.

Do not use damaged housed units.

When fitting the inner ring there should be an equal gap at each joint. If there are no gaps do not proceed.

Warnings for this product line are in this catalog and posted on <http://www.timken.com/legal-notice/>

NOTE

Do not use excessive force when mounting or dismounting the unit.

Follow all tolerance, fit, and torque recommendations.

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).

Never interchange components between completed bearing assemblies.

Never use a hammer and steel bar on a bearing for installation or removal. Use only a brass bar or a soft-headed mallet.

Consult your equipment designer or supplier for installation and maintenance instructions.

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).

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.

Timken products are sold subject to the Timken terms and Conditions of Sale, which include our limited warranty and remedy. You can find these at <https://www.timken.com/legal-notice/termsandconditionsofsale/>.

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.



ENGINEERING

The following topics are covered within this section:

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STANDARD UNIT ANATOMY

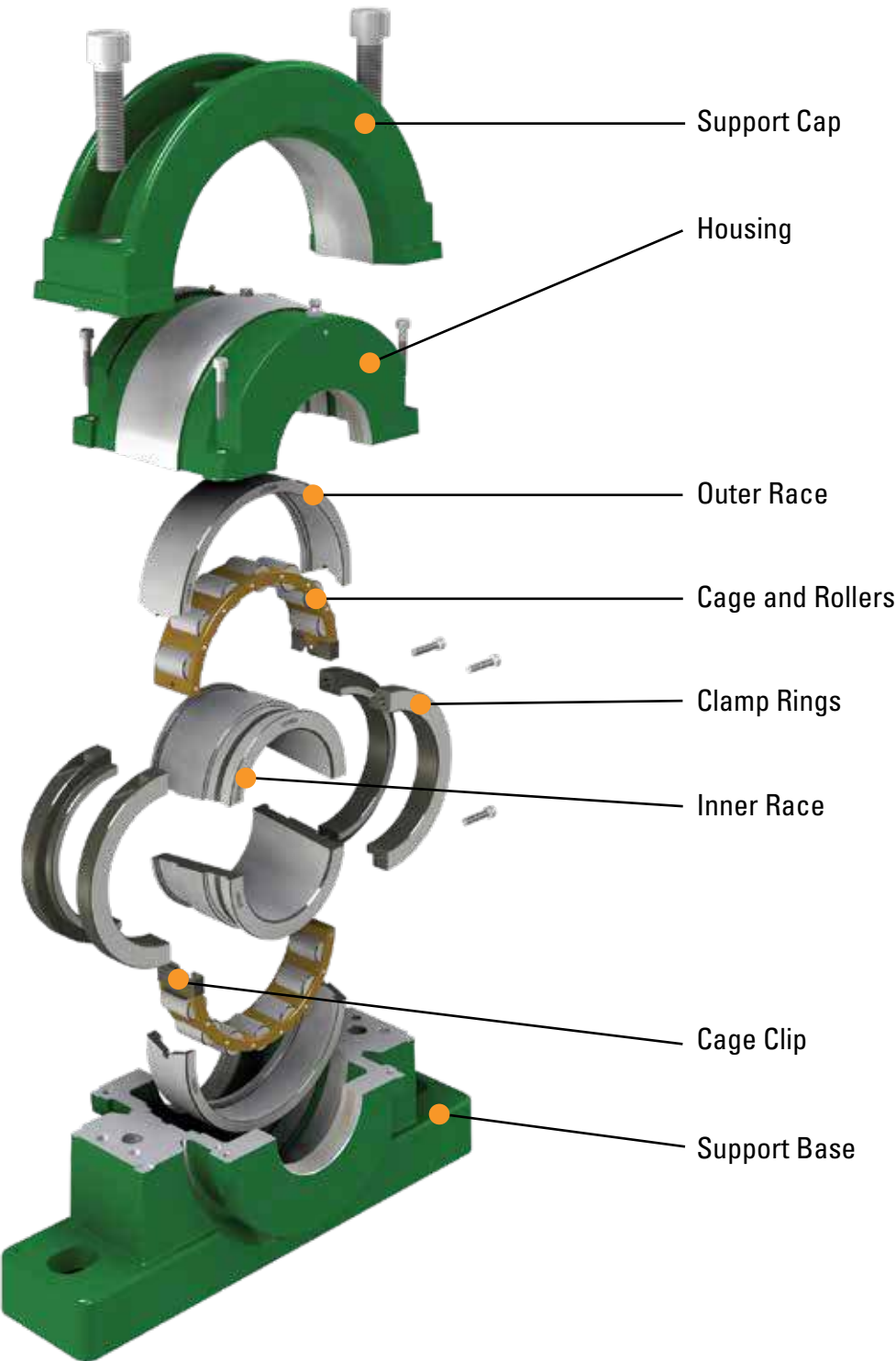


Fig. 1. Standard unit anatomy.

TECHNICAL FEATURES

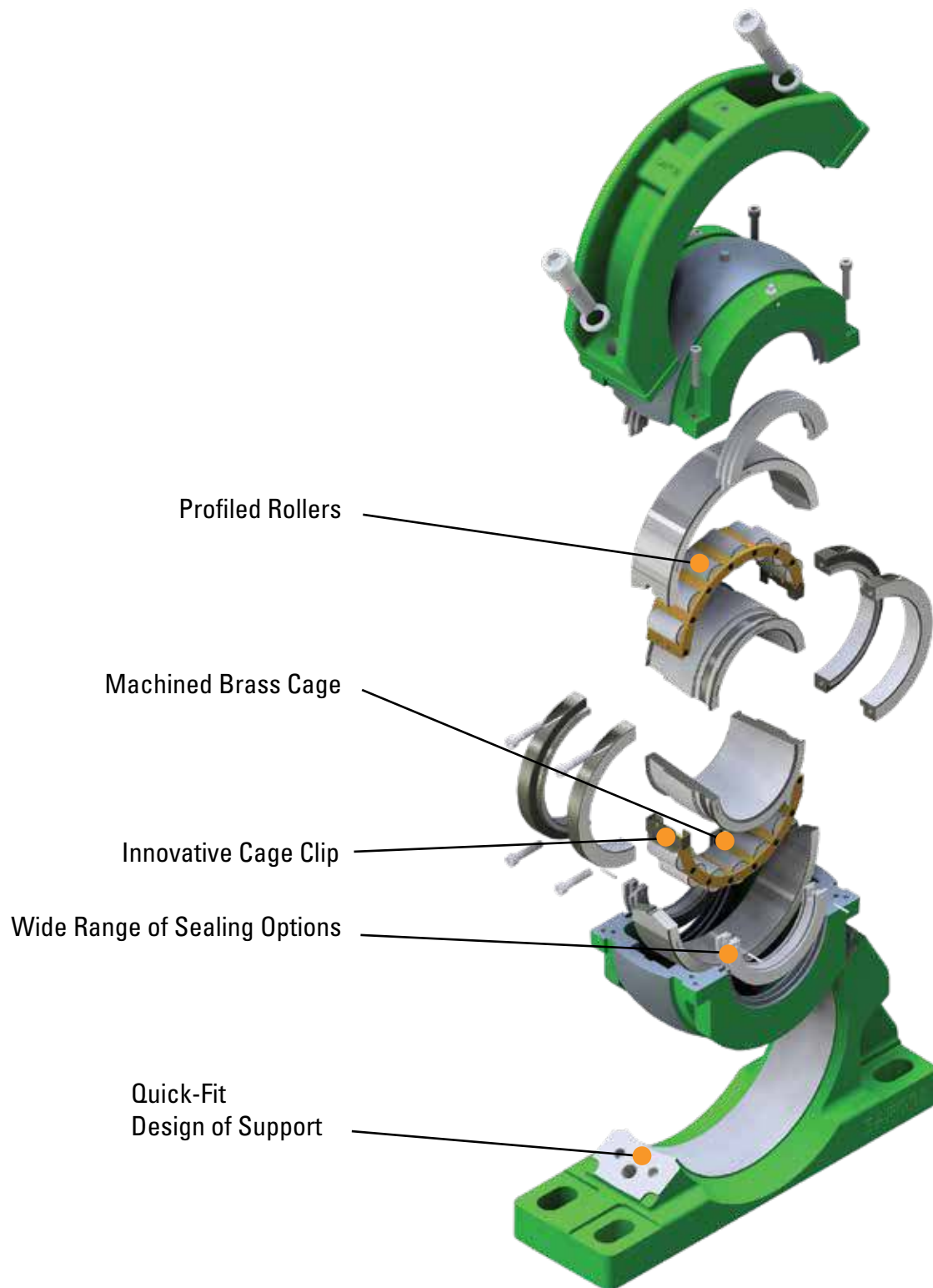


Fig. 2. Technical features.

INDUSTRY APPLICATIONS

TABLE 2. APPLICATIONS

Application	Target Markets													
	Bulk Terminals	Cement & Aggregate	Construction Materials	Food & Beverage	Forest Products & Timber	Grains & Malts	Metals	Marine	Mining & Quarrying	Power Generation	Pulp & Paper	Refining & Petrochem	Sugar	Water Treatment
Ancillary Equipment														
Crankshafts		X					X		X					
Fans & Blowers		X	X	X	X	X	X		X	X	X		X	
Gearboxes & Transmissions	X	X		X	X	X	X		X	X	X		X	
Heat Exchangers										X				
Motors		X					X		X	X	X			
Pumps & Pump Drives		X						X	X	X				X
Mechanical Handling														
Continuous Casters							X							
Conveyors	X	X	X	X	X	X	X		X	X	X		X	
Cooling Beds							X							
Elevators	X	X	X			X							X	
Line Shafting			X				X				X			
Lumber Tables & Stackers					X						X			
Overhead Cranes			X				X				X			
Screw Conveyors		X	X			X				X	X	X		X
Bucket Wheels	X						X		X	X				
Stacker Reclaimers	X						X		X	X				
Process Equipment														
Ball Mill Drives		X	X				X		X	X				
Ball Mill Trunnions		X	X				X		X	X				
Cane Knives & Slicers													X	
Crushers		X	X				X		X	X				
Drum Drier Trunnions		X										X	X	
Dryer Rolls											X			
Kiln & Mill Carrier Rollers		X							X				X	
Kiln & Mill Drives		X										X	X	
Mixer Drives		X	X	X		X					X	X		
Press Rolls			X								X			
Rotary Screens											X			X
Shredders										X	X		X	
Sugar Diffuser Drives													X	
Sugar Diffuser Under Rolls													X	
Washers		X		X					X		X		X	
Other Applications														
Hydro Electric Turbines										X				
Rotary Biological Contactors														X
Mine Winders										X				
Marine Propulsion Shafts								X						
Water Treatment Screens											X			X
Water Treatment Aerators														X

NOMENCLATURE

In order to provide our customers with clear and concise labeling, Timken has endeavored to keep things simple when creating references. The following should cover the majority of ordering

situations however, as always, your local Timken engineer will be pleased to provide further assistance if required.

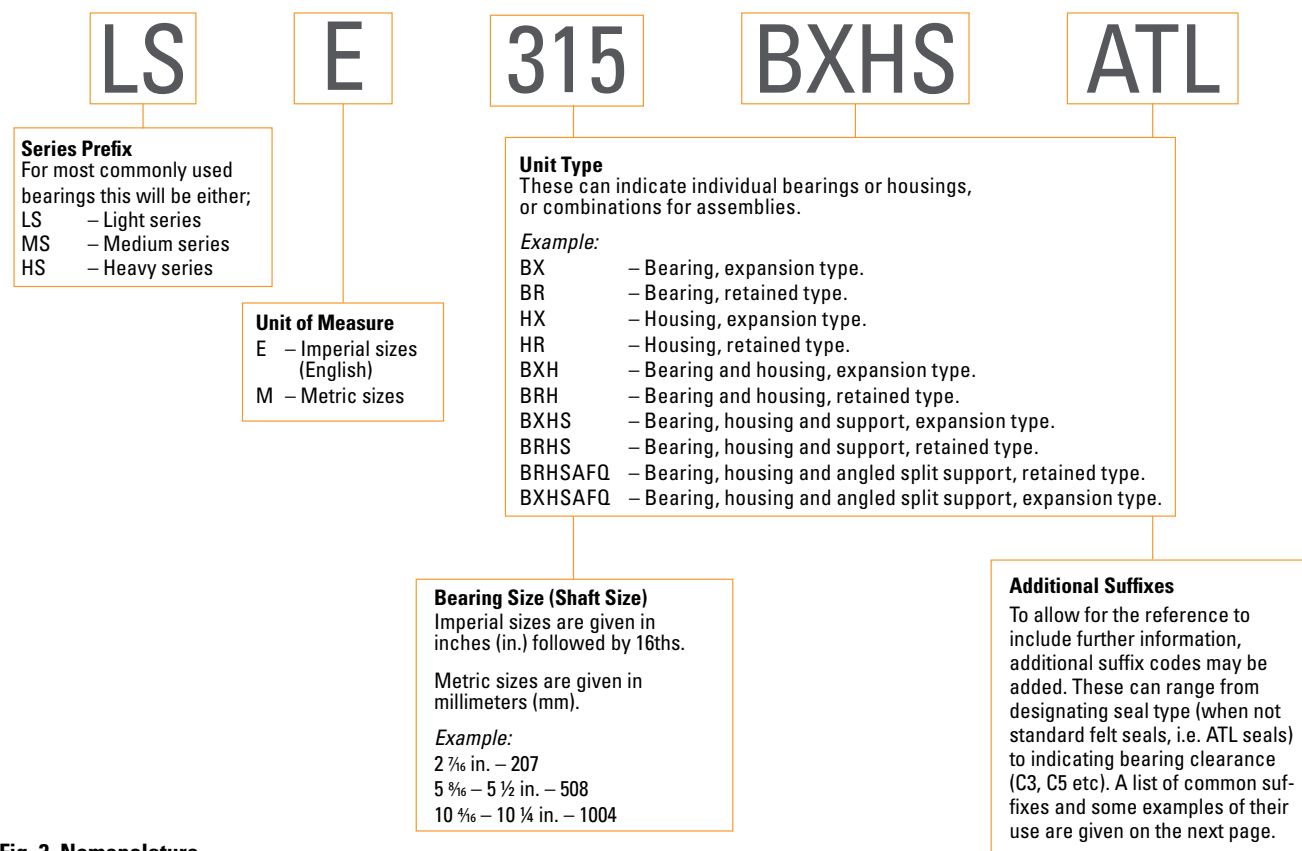


Fig. 3. Nomenclature.

For Triple Labyrinth (ATL) style housings and seals see pages 32-34.

Typical Examples

LSE108BXHATL

Light series 1 ¹/₂ in. bearing with housing and ATL seals.

LSE407BR

Light series 4 ⁷/₁₆ in. bearing retained.

MSE200BXHSATL

Medium series 2 in. expansion bearing with housing and with ATL seals.

LSE700BXHSAFQATL

Light series 7 in. bearing, housing and angled split support retained type with ATL seals.

MSE815BRHSPS

Medium series 8 ¹⁵/₁₆ in. bearing, housing and support, retained type with Kevlar® seals.

LSE315BXHSATL

Light series 3 ¹⁵/₁₆ in. bearing, housing and support, expansion type with ATL seals.

QUICK REFERENCE TABLES

TABLE 3. SERIES PREFIXES

Series Prefixes	
LSE	Light series imperial
LSM	Light series metric
MSE	Medium series imperial
MSM	Medium series metric
HSE	Heavy series imperial
HSM	Heavy series metric
XSE	Tubular strander series imperial
XSM	Tubular strander series metric
CCE	Water cooled series imperial
CCM	Water cooled series metric

TABLE 4. UNIT TYPE REFERENCES

Unit Type References	
BX	Expansion bearing
BR	Retained bearing
HX	Expansion housing
HR	Retained housing
HG	Hanger support
BXH	Expansion bearing with housing
BRH	Retained bearing with housing
BXHG	Expansion bearing with hanger
BXHS	Expansion bearing with housing and support
BRHS	Retained bearing with housing and support
BXHF	Expansion bearing with housing and flange
BRHF	Retained bearing with housing and flange
BXHTT	Expansion bearing with housing and tension type take up
BRHTT	Retained bearing with housing and tension type take up
BXHTP	Expansion bearing with housing and pull type take up
BRHTP	Retained bearing with housing and pull type take up

TABLE 5. ADDITIONAL SUFFIXES

Examples of Additional Suffixes	
F	Axial float
AP	Air purge
ATL	Aluminium triple labyrinth
BEM	Base ends machined
BL	Brass label
BOEC	Bolt-on end cover
C2, C3, C5	Bearing clearance (ISO)
CH	Inner race bore chamfer with size e.g. CH6mm, CH11mm
E0302	Specifications for marine applications
EC	End cover
ECTL	End cover for triple labyrinth bore
ES	Electrical specification
FC	Full compliment of rollers
GE	Grease escape
HTPS	High temperature packing seal
LSR	Laminar seal rings
OB	Overbored with size e.g. OB160mm
OTL	Overbored triple labyrinth seal
RSS	Nitrile single lip seal
S1, S2, S3	Designation for tempered bearings (ISO)
SF0	Swivel fit, zero clearance
SLO	Single lipped outer
SLUB	Spherical lubrication
SNQ	SN angled split
TE	Temperature probe hole
WSRP	Single lip seal with garter spring and retaining plate
XAR	Extended antirotation pin

TABLE 6.

Light Series					
in.	mm	Support	Flange	Take Ups	
1 $\frac{3}{16}$ to 1 $\frac{1}{2}$	35 to 40	S01	F01	TT01	TP01
1 $\frac{1}{16}$ to 2	45 to 50	S02	F02	TT02	TP02
2 $\frac{3}{16}$ to 2 $\frac{1}{2}$	60 to 65	S03	F03	TT03	TP03
2 $\frac{1}{16}$ to 3	70 to 75	S04	F04	TT04	TP04
3 $\frac{3}{16}$ to 3 $\frac{1}{2}$	80 to 90	S05	F05	TT05	TP05
3 $\frac{1}{16}$ to 4	100 to 105	S06	F06	TT06	TP06
4 $\frac{3}{16}$ to 4 $\frac{1}{2}$	110 to 115	S07	F07	TT07	TP07
4 $\frac{1}{16}$ to 5	120 to 130	S08	F08	TT08	TP08
5 $\frac{3}{16}$ to 5 $\frac{1}{2}$	135 to 140	S09	F09	TT09	TP09
5 $\frac{1}{16}$ to 6	150 to 155	S10	F10	TT10	TP10
6 $\frac{7}{16}$ to 6 $\frac{1}{2}$	160	S11	F11	—	—
6 $\frac{1}{16}$ to 7	170 to 180	S12	F12	—	—
7 $\frac{1}{4}$ to 8	190 to 200	S13	F13	—	—
8 $\frac{1}{2}$ to 9	220 to 230	S14	F14	—	—
9 $\frac{1}{2}$ to 10	240 to 250	S15	F15	—	—
10 $\frac{1}{2}$ to 11	260 to 280	S16	F16	—	—
11 $\frac{1}{2}$ to 12	300	S17	—	—	—
12 $\frac{1}{2}$ to 13	320 to 330	S18	—	—	—
14	340 to 350	S19	—	—	—
15	360 to 380	S20	—	—	—
16	400	S21	—	—	—
17	420	S22	—	—	—
18	440 to 460	S23	—	—	—
19	480	S24	—	—	—
20	500	S25	—	—	—
21	530	S26	—	—	—
22	560	S27	—	—	—
23	580	S28	—	—	—
24	600	S29	—	—	—

TABLE 7.

Medium Series					
in.	mm	Support	Flange	Take Ups	
—	—	—	—	—	—
1 $\frac{1}{16}$ to 2	45 to 50	S03	F03	TT03	TP03
2 $\frac{3}{16}$ to 2 $\frac{1}{2}$	60 to 65	S04	F04	TT04	TP04
2 $\frac{1}{16}$ to 3	70 to 75	S05	F05	TT05	TP05
3 $\frac{3}{16}$ to 3 $\frac{1}{2}$	80 to 90	S06	F06	TT06	TP06
3 $\frac{1}{16}$ to 4	100 to 105	S07	F07	TT07	TP07
4 $\frac{3}{16}$ to 4 $\frac{1}{2}$	110 to 115	S08	F08	TT08	TP08
4 $\frac{1}{16}$ to 5	120 to 130	S10	F10	TT09	TP09
5 $\frac{3}{16}$ to 5 $\frac{1}{2}$	135 to 140	S30	F30	TT30	TP30
5 $\frac{1}{16}$ to 6	150 to 155	S31	F31	TT31	TP31
6 $\frac{7}{16}$ to 6 $\frac{1}{2}$	160 to 170	S32	F32	—	—
6 $\frac{1}{16}$ to 7	180	S33	F33	—	—
7 $\frac{1}{4}$ to 8	190 to 200	S34	F34	—	—
8 $\frac{1}{2}$ to 9	220 to 230	S35	F35	—	—
9 $\frac{1}{2}$ to 10	240 to 260	S36	F36	—	—
10 $\frac{1}{2}$ to 11	280	S37	F37	—	—
11 $\frac{1}{2}$ to 12	300	S38	F38	—	—
12 $\frac{1}{2}$ to 13	320 to 330	S39	—	—	—
14	340 to 360	S40	—	—	—
15	380	S41	—	—	—
16	400	S42	—	—	—
17	420	S43	—	—	—
18	440 to 460	S44	—	—	—
19	480	S45	—	—	—
20	500	S46	—	—	—
21	530	S47	—	—	—
22	560	S48	—	—	—
23	580	S49	—	—	—
24	600	S50	—	—	—

TABLE 8.

Heavy Series			
in.	mm	Support	Flange
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
3 $\frac{1}{16}$ to 4	100 to 105	S54	F54
4 $\frac{3}{16}$ to 4 $\frac{1}{2}$	110 to 120	S55	F55
4 $\frac{1}{16}$ to 5	125 to 130	S56	F56
5 $\frac{3}{16}$ to 5 $\frac{1}{2}$	135 to 140	S57	F57
5 $\frac{1}{16}$ to 6	150 to 155	S58	F58
6 $\frac{7}{16}$ to 6 $\frac{1}{2}$	160 to 170	S59	F59
6 $\frac{1}{16}$ to 7	180	S60	F60
7 $\frac{1}{4}$ to 8	190 to 200	S61	F61
8 $\frac{1}{2}$ to 9	220 to 230	S62	F62
9 $\frac{1}{2}$ to 10	240 to 260	S63	F63
11	280	S83	F64
12	300	S65	F65
13	320 to 330	S66	—
14	340 to 360	S86	—
15 to 16	380 to 400	S68	—
—	—	—	—
17	420 to 440	S89	—
18	460	S90	—
19	480	S94	—
20	500	S94	—
21	530	S94	—
22	560	S94	—
23	580	S95	—
24	600	S95	—

BEARING TYPES

RETAINED-TYPE BEARINGS (BR)

This bearing has integral flanges on the outer race to provide a surface for axial load. This axial load is accommodated on the inner race via the hardened clamp rings, which both align the inner race halves and provide roller guidance. In larger bearings the inner race is manufactured with integral ribs for roller guidance and axial load.



Fig. 4. Retained-type bearings (BR).

This type of bearing will locate the shaft axially as well as provide a means for taking axial load. The retained outer race must be fixed sideways against one of the housing groove shoulders using the pins and screws provided. Only one retained unit should be mounted on any particular shaft. Additional care should be taken when mounting split cylindrical roller bearing unit on shafts using other, non-split types of bearings (ball, cylindrical and spherical roller, etc.) to ensure there are no other locating bearings used.

EXPANSION-TYPE BEARINGS (BX)

This bearing is designed for radial loads only. As in the retained type bearing, the rollers are guided on the inner race by the hardened shoulders of the clamping rings.



Fig. 5. Expansion-type bearings (BX).

During expansion or contraction of the shaft, rollers are free to move across the outer race offering virtually no resistance to axial movement. Limits for the amount of axial movement are given in the assembly and maintenance section (pages 36-39).

SUPPORT TYPES

Timken bearings and housings may be mounted in a variety of support units according to the application and loading constraints. A number of variants are available as standard types with other unit types available on request. Timken offers a design and manufacturing facility to produce custom units to cover more specialized applications.

PILLOW BLOCK (SUPPORT) TYPE

This is by far the most popular method for mounting Timken units. These supports are manufactured from high strength, ASTM 48A grade 35 cast iron. This, combined with the robust design, provides a stable, rigid base, allowing the split bearing fitted to give optimum performance.



Fig. 6. Pillow block support type.

FLANGE UNITS

In applications where bearings need to be mounted against horizontal or vertical faces, Timken flange units provide a simple means of achieving this goal. Again, the use of ASTM 48A Grade 35 cast iron ensures a durable unit.



Fig. 7. Flange units.

HANGER UNITS

A compact unit commonly used for supporting screw conveyors or similar equipment.



Fig. 8. Hanger units.

TAKE-UP UNITS

These sliding units can be used to effectively tension conveyor and elevator systems. Both pull and push types are available.



Fig. 9. Take-up units.

SERIES COMPARISON

Timken offers a range of bearing series, providing solutions for a wide range of operating conditions. Light Series, Medium Series and Heavy Series offer an increasing ability to accommodate higher loads. As the series increases the speed capability reduces.

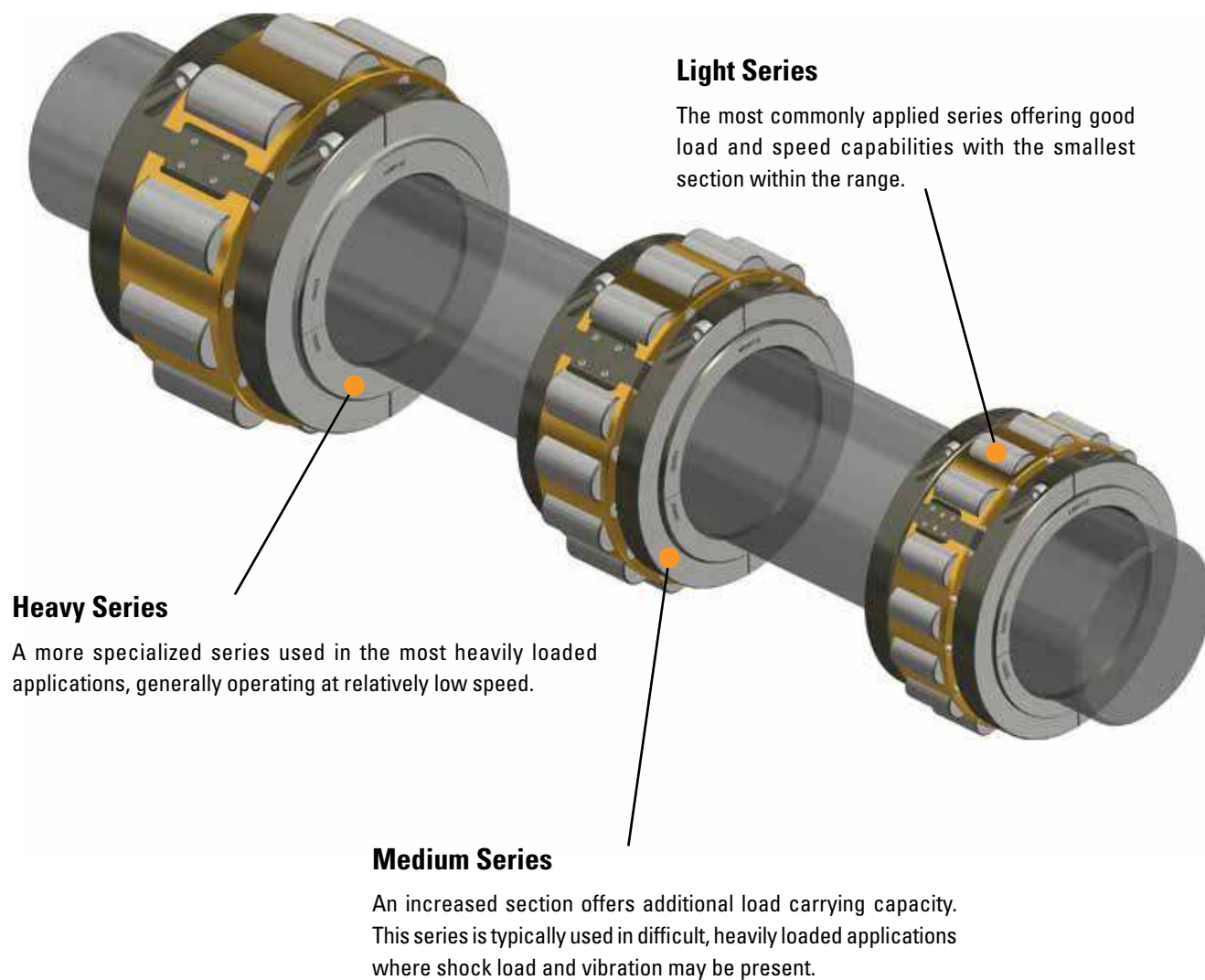


Fig. 10. Series comparison.

BEARING SELECTION

DYNAMIC LOADING

Selection of Timken split cylindrical roller bearings must take into account the effects of both radial and axial loads. These loads must be considered independently of each other.

RADIAL LOAD CONSIDERATIONS

The basic rating life of a bearing can be derived from the formula laid down in ISO 281:2007.

$$L_{10} = (C/P)^{10/3} \text{ (Millions of Revolutions)} \quad - (i)$$

In the majority of cases where the speed remains constant then the life can be expressed in hours from the formula.

$$L_{10}h = \frac{(10^6) \times L_{10}}{60 \times n} \quad - (ii)$$

Substituting – (i)

$$L_{10}h = \frac{(10^6) \times \left(\frac{C}{P} \right)^{10/3}}{60 \times n} \quad - (iii)$$

L_{10} = Basic rating life (90 percent reliability),
10⁶ revolutions

$L_{10}h$ = Basic rating life (90 percent reliability), hours

C = Bearing dynamic capacity, kN

N = Speed, min⁻¹

P = Equivalent bearing load

This calculation assumes for the load components considered for an individual bearing, that the shaft system is a beam resting on rigid, movement free supports. Elastic deformations in the bearing, housing or machine structure are not taken into account.

EQUIVALENT LOAD “P”

As previously stated radial and axial loads must be considered separately for split cylindrical roller bearings. For the calculation of theoretical life only radial loads are considered.

F_r = RADIAL LOADS

The value of F_r is that calculated from standard mechanical formula, the impact of additional forces resulting from external influences must also be considered.

TABLE 9.

Load Condition	Factor F_z
Steady	1.0 to 1.3
Light shock or out of balance	1.3 to 2.0
Heavy shock or vibration	2.0 to 3.0

F_z = FACTOR

Under the influence of the above conditions.

$P = F_r \times F_z$

The required theoretical bearing life is based upon a number of factors, including reliability, accessibility and service considerations. Generally life values should be as follows:

TABLE 10.

Guide to Life Values	
Machine used intermittently	500 to 2,000 hours
Occasional use	5,000 to 10,000 hours
Normal operation	20,000 to 50,000 hours
Continuous operation	75,000 to 100,000 hours
High reliability	> 100,000

ADJUSTED LIFE CALCULATION

The L_{10} fatigue life calculation is based upon the rating life of a large number of identical bearings expressed as a number of revolutions operating at a constant speed. This rating life is reached or exceeded by 90 percent of these before the first evidence of fatigue appears.

The above definition applies to bearings operating under optimum conditions. Variations in operating conditions will lead to changes in the life of these bearings.

ISO 281 allows for an adjusted life calculation:

$$L_{hna} = a_1 \times a_2 \times a_3 \times L_{10}h$$

Where

L_{hna} = Adjusted life

$L_{10}h$ = Rating life in hours

a_1 = Life adjustment factor, failure probability other than 10 percent

a_2 = Life adjustment factor, material properties

a_3 = Life adjustment factor, operating conditions

a_1 FACTOR

In cases where a failure rate other than 10 percent is required, then an a_1 factor as in the table below should be applied.

TABLE 11.

Adjustment Factor						
Failure Probability %	10	5	4	3	2	1
Factor a_1	1.00	0.62	0.53	0.44	0.33	0.21

a_2 FACTOR

This factor takes into account the material properties.

a_3 FACTOR

The a_3 factor considers all operational parameters that influence fatigue life. The most obvious of these is lubrication. The highest life values are achieved where a state of hydrodynamic lubrication exists, in this state no metal-to-metal contact occurs.

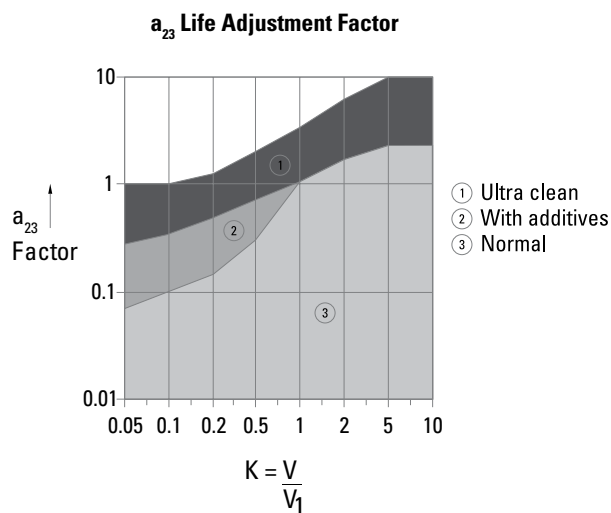
Decreasing effectiveness of lubricant due to decreasing film thickness or effects of contamination will reduce the a_3 factor.

Due to the interrelationships between materials adjustment factor a_2 and operating adjustment factor a_3 , a common factor a_{23} is frequently used.

a_{23} FACTOR

$$a_{23} = a_2 \times a_3$$

The a_{23} factor can be taken from Fig. 11.



V_1 = Rated viscosity (depends on bearing size and operating speed)

V = Operating viscosity (depends on original viscosity and operating temperature)

Fig. 11. Life adjustment factor.

Values for V and V_1 are obtained from the following graphs:

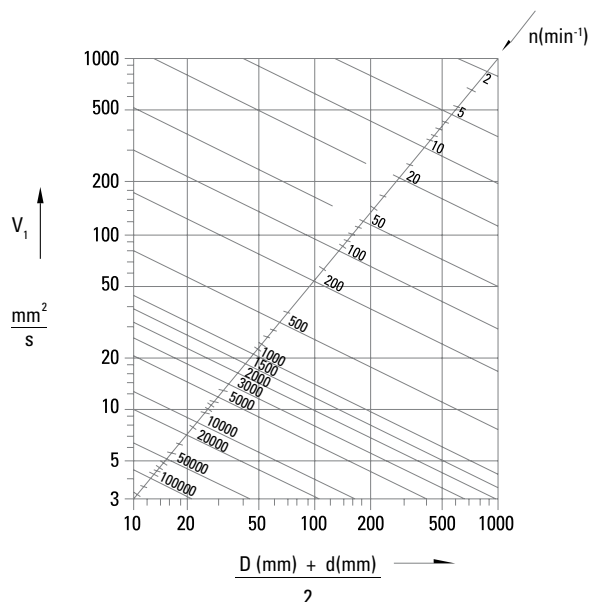


Fig. 12. V and V_1 values.

Where

D = Bearing outside diameter

d = Bearing bore

n = Shaft speed (RPM)

V_1 is then read off the vertical axis.

Using the operating temperature and nominal lubricant viscosity, the value for operating viscosity, V , is read from the horizontal axis.

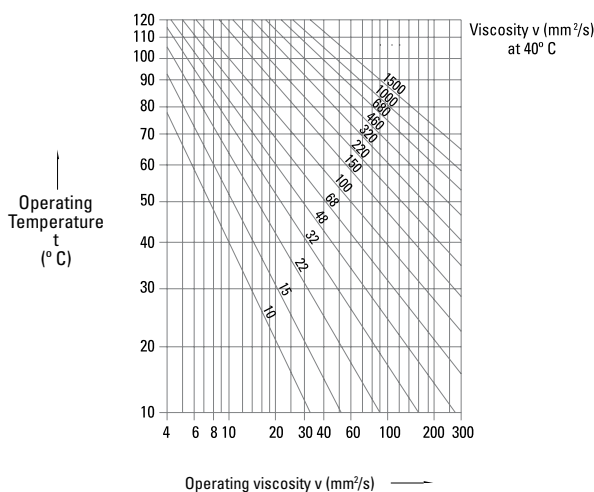


Fig. 13. Operating viscosity.

STATIC LOADING

In situations where bearings rotate slowly (<10 RPM), oscillate slowly, are stationary for prolonged periods or subject to high shock loads, it is important to check that no permanent deformations occur between rolling elements and raceways at peak load.

The basic static load rating is defined in ISO 76:1987 and refers to the contact stress at the centre of the most heavily loaded rolling element/raceway contact area. For roller bearings this value is 4000 Mpa. This will result in a permanent deformation of 0.0001 of the roller diameter.

The required static load rating can be determined from:

$$C_0 = F_s \times P_0$$

C_0 = Basic static load rating

P_0 = Equivalent static load

F_s = Static safety factor

Guidelines for the static safety factor F_s can be found in the table below:

TABLE 12.

Nature of Duty	Requirements for Duty		
	Low	Medium	High
Smooth, no vibration	1.0	1.5	3.0
Normal	1.0	1.5	3.5
Heavy	>2.5	>3.0	>4.0

BEARING RATINGS**TABLE 13. LIGHT SERIES**

Shaft (d)		Bearing Ratings			
		Dynamic C _r	Static C _{or}	Axial C _a	Max
mm	in.	kN lb.	kN lb.	kN lb.	RPM
35	1 3/16	65	68	3.20	5400
40	1 1/2	14613	15287	719.38	
45	1 1/16	83	87	3.60	4630
50	2	18659	19558	809.30	
55	2 3/16	103	115	5.40	3940
65	2 1/2	23155	25853	1213.95	
70	2 1/16	138	161	7.60	3310
75	3	31024	36194	1708.53	
80	3 3/16	187	231	12.40	2790
90	3 1/2	42039	51931	2787.59	
100	3 1/16	288	366	16.00	2340
105	4	64745	82280	3596.90	
110	4 3/16	316	427	18.60	1970
115	4 1/2	71040	95993	4181.39	
120	4 1/16	363	496	22.20	1740
130	5	81606	111505	4990.69	
135	5 3/16	422	585	25.80	1570
140	5 1/2	94869	131513	5799.99	
150	5 1/16	459	664	29.40	1450
155	6	103187	149273	6609.30	
160	6 3/16	538	792	33.00	1320
	6 1/2	120947	178049	7419	
170	6 1/16	524	828	36.40	1220
180	7	117800	186142	8183	
190	7 1/4	614	990	41.00	1070
200	8	138033	222561	9217	
220	8 1/2	708	1168	49.00	930
230	9	159165	262577	11016	
240	9 1/2	744	1289	57.80	820
250	10	167258	289779	12994	
260	10 1/2	848	1502	66.80	730
280	11	190638	337663	15017	
300	11 1/2	929	1665	78.20	650
305	12	208848	374307	17580	
320	12 1/2	920	1674	89.00	590
330	13	206824	376330	20008	
340	14	1022	1965	99.60	540
350		229755	441745	22391	
360	15	1224	2431	110.40	500
380		275166	546511	24819	
400	16	1107	2266	115.60	460
		248864	509417	25988	
420	17	1146	2418	121.00	430
		257631	543588	27202	
440	18	1185	2469	127.20	410
460		266399	555053	28596	
480	19	1348	2965	132.60	380
		303042	666559	29810	
500	20	1392	3139	137.80	360
		312934	705675	30979	
530	21	1431	3316	140.60	340
		321702	745466	31608	
560	22	1472	3490	142.40	330
		330919	784583	32013	
580	23	1616	3841	144.00	310
		363291	863491	32372	
600	24	1660	4033	146.80	300
		373183	906654	33002	

TABLE 14. MEDIUM SERIES

Shaft (d)		Bearing Ratings			
		Dynamic C _r	Static C _{or}	Axial C _a	Max
mm	in.	kN lb.	kN lb.	kN lb.	RPM
—	—	—	—	—	—
45	1 1/16	121	127	6.20	4350
50	2	27202	28551	1394	
55	2 3/16	168	190	8.80	3680
65	2 1/2	37768	42714	1978	
70	2 1/16	258	300	10.60	3080
75	3	58001	67443	2383	
80	3 3/16	297	353	17.80	2520
90	3 1/2	66768	79358	4002	
100	3 1/16	388	491	25.00	2130
105	4	87226	110381	5620	
110	4 3/16	454	592	31.20	1820
115	4 1/2	102063	133087	7014	
120	4 1/16	525	700	38.20	1600
130	5	102063	133087	7014	
135	5 3/16	600	817	45.40	1450
140	5 1/2	134885	183669	10206	
150	5 1/16	730	1034	52.40	1320
155	6	164111	232453	11780	
160	6 3/16	842	1175	61.40	1200
170	6 1/2	189289	264151	13803	
180	6 1/16	927	1357	71.20	1120
	7	208398	305066	16006	
190	7 1/4	1013	1516	80.00	960
200	8	227732	340810	17985	
220	8 1/2	1138	1668	89.80	850
230	9	255833	374981	20188	
240	9 1/2	1354	2117	98.80	750
260	10	304391	475921	22211	
270	10 1/2	1476	2357	113.80	670
280	11	331818	529875	25583	
300	11 1/2	1587	2644	129.00	610
305	12	356772	594395	29000	
320	12 1/2	1723	2922	144.20	550
330	13	387346	656892	32417	
340	14	2029	3403	159.20	500
360		456137	765025	35790	
380	15	1931	3522	174.40	460
		434106	791777	39207	
400	16	2105	3793	188.40	430
		473223	852701	42354	
420	17	2324	4164	202.00	400
		522456	936105	45411	
440	18	2215	4183	216.00	380
460		497952	940376	48559	
480	19	2445	4594	230.00	360
		549658	1032773	51706	
500	20	2453	4923	244.00	340
		551456	1106734	54853	
530	21	2702	5415	258.00	330
		607434	1217340	58001	
560	22	2851	5740	272.00	310
		640930	1290403	61148	
580	23	2982	6173	286.00	300
		670380	1387746	64295	
600	24	2972	6185	300.00	290
		668132	1390443	67443	

Axial load ratings (C_a) assume the use of EP additives or oil lubrication, otherwise use 50 percent of values.
Higher loads and speeds may be permissible. Please contact a Timken engineer for more information.

TABLE 15. HEAVY SERIES

Shaft (d)		Bearing Ratings			
		Dynamic C _r	Static C _{or}	Axial C _a	Max
mm	in.	kN lb.	kN lb.	kN lb.	RPM
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
100	3 1/16	653	783	31.20	1820
105	4	146800	176025	7014	
110	4 3/16	656	801	39.10	1640
120	4 1/2	147475	180072	8790	
125	4 11/16	753	974	49.00	1500
130	5	169281	218964	11016	
135	5 3/16	928	1265	58.80	1340
140	5 1/2	208623	284383	13219	
150	5 11/16	1037	1325	69.40	1220
155	6	233127	297872	15602	
160	6 7/16	1196	1576	79.20	1110
170	6 1/2	268871	354299	17805	
175	6 11/16	1330	1867	89.00	1030
180	7	298996	419718	20008	
190	7 1/4	1597	2285	99.60	880
200	8	359020	513688	22391	
220	8 1/2	1665	2455	109.40	760
230	9	374307	551906	24594	
240	9 1/2	1896	2789	130.80	700
260	10	426238	626992	29405	
280	11	2202	3507	153.00	620
		495029	788405	34396	
300	12	2337	3650	174.40	560
		525379	820553	39207	
320	13	2718	4093	198.80	500
		611031	920143	44692	
340	14	2935	4973	213.60	460
360		659814	1117975	48019	
380	15	3195	5238	250.80	420
400	16	718265	1177550	56382	
—	—	—	—	—	—
420	17	3582	6377	275.80	360
440		805266	1433607	62002	
460	18	3807	6611	302.40	340
		855848	1486212	67982	
—	—	—	—	—	—
500	20	4660	8183	347.00	310
530	21	1047610	1839612	78009	
—	—	—	—	—	—
560	22	4795	9412	382.60	280
		1077959	2115902	86012	
580	23	4951	9451	400	270
600	24	1113029	2124669	89924	

Axial load ratings (C_a) assume the use of EP additives or oil lubrication, otherwise use 50 percent of values.
Higher loads and speeds may be permissible. Please contact a Timken engineer for more information.

AXIAL CONSIDERATIONS

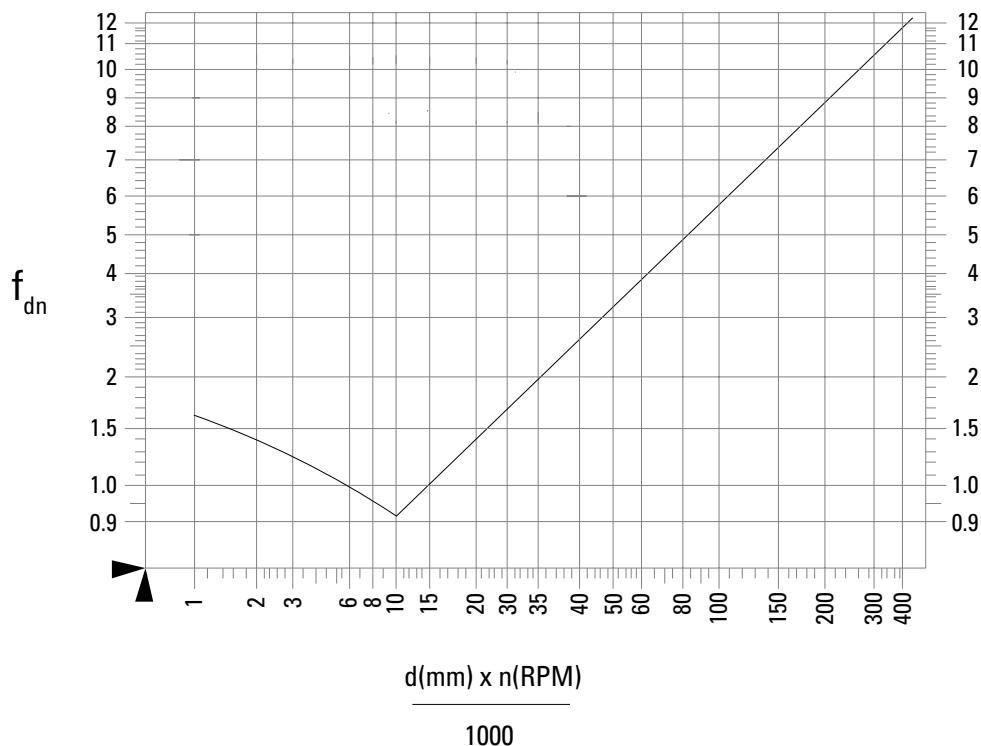
AXIAL LOAD

Bearing selection, on an axial load basis, must be considered independently from the radial load.

1. Calculate the axial loads acting on the bearing.
2. Multiply each load by the appropriate dynamic factor f_z .
3. Combine these loads to determine the effective axial load P_a .
4. Select a bearing having a C_a value greater than the product of $P_a \times f_{dn}$, $d \cdot n$ is the product of the shaft size in millimeter and the speed in RPM. To determine f_{dn} use the velocity graph below.

AXIAL RATINGS C_a

These ratings are for constant loads with oil or extra pressure greases. If greases without extra pressure additives are applied then the catalog rating must be decreased by 50 percent. In instances where bearings operate at over 50 percent of their catalog speed rating and over 50 percent of their axial load ratings (C_a) then recessed shafts should be considered. Please contact a Timken engineer for assistance.



VELOCITY

Applies only to axial loads on br retained bearings.

Bearing bore = d

Bearing RPM = n

Fig. 14. Velocity graph.

BEARING CLEARANCE AND TEMPERATURE CONSIDERATIONS

Timken bearings are manufactured to give an ISO CN clearance as standard. At specific customer request, bearings may be produced with any clearance to suit a particular application. When assessing the requirement for special clearances, it is particularly important to consider the differential temperature between shaft and housing. It also should be noted that an increase in bearing clearance will lead to a small reduction in bearing capacity. For example, typically a C_3 clearance will reduce capacity by 5 percent and C_5 clearance by 10 percent.

Timken bearings also can be produced as C_2 . This clearance is smaller than CN and is typically used in applications involving shock or reciprocating loads.

Cleanliness of component parts when fitting will have a direct impact on the running clearance of the bearing. This is of particular importance when fitting new bearings into existing cast iron or refitting bearings after maintenance. Special care must be taken to remove build-ups of aged grease and other contaminants in order to avoid reducing the bearing clearance when fitted.

When selecting bearings for use at elevated temperatures, consideration also should be given to the bearings' dimensional stability. Timken bearings are tempered to give stability up to 140° C (284° F). In order to operate at higher temperatures, bearings must be specially heat-treated. This process will lead to a reduction in capacity as a result of the reduced hardness.

The designations for specially heat-treated bearings are in line with those quoted in ISO standards. The effects of temperature stabilization are detailed in the table shown.

TABLE 16.

Operating Temperature	200° C	250° C	300° C
	392° F	482° F	572° F
Designation	S1	S2	S3
Reduction in Capacity	10%	25%	40%

SUPPORT LOADS AND BEARING FREQUENCIES

Throughout the Timken range, the split cylindrical roller bearing supports have been designed to provide a rigid and stable base to enable the associated bearing to operate to its full potential. With this in mind, all types of Timken split cylindrical roller bearing housings and supports are manufactured from ASTM 48A – Grade 35 cast iron as a minimum and include strengthening webs and ribs to provide a highly robust unit. In order to complement the inherent strength, we recommend that careful consideration be given to the siting and mounting of the support unit.

To determine a support's suitability, one should consider the resultant effective load derived in the bearing selection process and the direction of that load. The diagram shown indicates the area in which the full C_{or} rating of the bearing may be applied. Should the direction of the applied load be outside this area it may be necessary to consider alternative designs or materials. Timken has a proven track record of innovative solutions and would be happy to provide assistance.

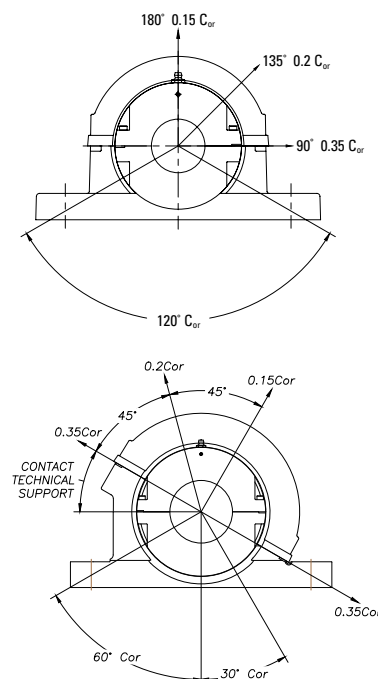


Fig. 15. C_{or} rating application.

Condition monitoring is the collection, storage, comparison and evaluation of data taken to establish the running condition of a machine. The data can be made up of several parameters, for example, electric current, pressure, brush wear, vibration and temperature, to name a few. Vibration analysis is the area of condition monitoring concerned with evaluating and identifying the source of vibration within a system and assessing its severity and hence proposing the required maintenance action.

The individual components of any bearing will exhibit frequency characteristics which will identify it within a system subject to vibration analysis. For Timken bearings these characteristic frequencies are detailed in the tables opposite. The values given are for a nominal speed of 1 RPM. To obtain the correct frequency required for vibration analysis software, multiply by the speed of rotation in RPM.

For further information on condition monitoring services Please contact a Timken engineer.

BEARING FREQUENCY TABLES (HZ)**TABLE 17. LIGHT SERIES**

		Inner Race	Outer Race	Roller	Cage
mm	in.	hz	hz	hz	hz
35 40	1 ³ / ₁₆ 1 ¹ / ₂	5.878	4.122	2.760	0.412
45 50	1 ¹¹ / ₁₆ 2	5.852	4.148	2.847	0.415
60 65	2 ³ / ₁₆ 2 ¹ / ₂	6.932	5.068	3.140	0.422
70 75	2 ¹¹ / ₁₆ 3	6.902	5.098	3.252	0.425
80 90	3 ³ / ₁₆ 3 ¹ / ₂	8.017	5.983	3.370	0.427
100 105	3 ¹¹ / ₁₆ 4	8.089	5.911	3.137	0.422
110 115	4 ³ / ₁₆ 4 ¹ / ₂	9.109	6.891	3.538	0.431
120 130	4 ¹¹ / ₁₆ 5	9.100	6.900	3.569	0.431
135 140	5 ³ / ₁₆ 5 ¹ / ₂	9.087	6.913	3.612	0.432
150 155	5 ¹¹ / ₁₆ 6	10.159	7.841	3.819	0.436
160	6 ⁷ / ₁₆ 6 ¹ / ₂	10.162	7.838	3.809	0.435
170 180	6 ¹¹ / ₁₆ 7	12.223	9.777	4.442	0.444
190 200	7 ¹ / ₄ 8	12.204	9.796	4.515	0.445
220 230	8 ¹ / ₂ 9	12.171	9.829	4.645	0.447
240 250	9 ¹ / ₂ 10	13.154	10.846	5.152	0.452
260 280	10 ¹ / ₂ 11	13.118	10.882	5.319	0.453
300 305	11 ¹ / ₂ 12	13.087	10.913	5.472	0.455
320 330	12 ¹ / ₂ 13	13.028	10.972	5.795	0.457
340 350	14	15.125	12.875	6.182	0.460
360 380	15	16.133	13.867	6.580	0.462
400	16	17.150	14.850	6.92	0.464
420	17	18.156	15.844	7.319	0.466
440 460	18	19.165	16.835	7.694	0.468
480	19	19.166	16.834	7.684	0.468
500	20	20.177	17.823	8.038	0.469
530	21	21.175	18.825	8.479	0.471
560	22	22.184	19.816	8.841	0.472
580	23	23.254	20.746	8.744	0.472
600	24	23.208	20.792	9.078	0.473

TABLE 18. MEDIUM SERIES

		Inner Race	Outer Race	Roller	Cage
mm	in.	hz	hz	hz	hz
—	—	—	—	—	—
45 50	1 ¹¹ / ₁₆ 2	5.988	4.012	2.432	0.401
60 65	2 ³ / ₁₆ 2 ¹ / ₂	7.091	4.909	2.659	0.409
70 75	2 ¹¹ / ₁₆ 3	7.153	4.847	2.506	0.404
80 90	3 ³ / ₁₆ 3 ¹ / ₂	7.091	4.909	2.659	0.409
100 105	3 ¹¹ / ₁₆ 4	8.205	5.795	2.818	0.414
110 115	4 ³ / ₁₆ 4 ¹ / ₂	8.143	5.857	2.981	0.418
120 130	4 ¹¹ / ₁₆ 5	8.105	5.895	3.088	0.421
135 140	5 ³ / ₁₆ 5 ¹ / ₂	8.082	5.918	3.157	0.423
150 155	5 ¹¹ / ₁₆ 6	9.225	6.775	3.188	0.423
160 170	6 ⁷ / ₁₆ 6 ¹ / ₂	8.107	5.893	3.083	0.421
180	6 ¹¹ / ₁₆ 7	9.192	6.808	3.281	0.425
190 200	7 ¹ / ₄ 8	9.119	6.881	3.505	0.430
220 230	8 ¹ / ₂ 9	9.161	6.839	3.372	0.427
240 260	9 ¹ / ₂ 10	10.218	7.782	3.628	0.432
270 280	10 ¹ / ₂ 11	10.162	7.838	3.808	0.435
300 305	11 ¹ / ₂ 12	11.207	8.793	4.082	0.440
320 330	12 ¹ / ₂ 13	12.287	9.713	4.217	0.442
340 360	14	11.202	8.798	4.100	0.440
380	15	12.141	9.859	4.769	0.448
400	16	12.169	9.831	4.651	0.447
420	17	12.195	9.805	4.548	0.446
440 460	18	14.257	11.743	5.122	0.452
480	19	14.273	11.727	5.057	0.451
500	20	15.265	12.735	5.489	0.455
530	21	15.249	12.751	5.559	0.455
560	22	15.241	12.759	5.597	0.456
580	23	16.277	13.723	5.831	0.457
600	24	16.252	13.748	5.951	0.458

The above figures are unitary values. For the appropriate frequency, multiply by application RPM.

TABLE 19. HEAVY SERIES

		Inner Race	Outer Race	Roller	Cage
mm	in.	hz	hz	hz	hz
–	–	–	–	–	–
–	–	–	–	–	–
–	–	–	–	–	–
–	–	–	–	–	–
–	–	–	–	–	–
100 105	3 $\frac{11}{16}$ 4	6.073	3.927	2.222	0.393
110 120	4 $\frac{3}{16}$ 4 $\frac{1}{2}$	5.983	4.017	2.446	0.402
125 130	4 $\frac{11}{16}$ 5	7.114	4.886	2.601	0.407
135 140	5 $\frac{3}{16}$ 5 $\frac{1}{2}$	8.259	5.741	2.690	0.410
150 155	5 $\frac{11}{16}$ 6	7.190	4.810	2.422	0.401
160 170	6 $\frac{7}{16}$ 6 $\frac{1}{2}$	7.159	4.841	2.491	0.403
175 180	6 $\frac{11}{16}$ 7	8.243	5.757	2.727	0.411
190 200	7 $\frac{1}{4}$ 8	8.221	5.779	2.779	0.413
220 230	8 $\frac{1}{2}$ 9	8.102	5.898	3.097	0.421
240 260	9 $\frac{1}{2}$ 10	8.131	5.869	3.013	0.419
280	11	9.197	6.803	3.267	0.425
300	12	9.192	6.808	3.280	0.425
320	13	9.246	6.754	3.132	0.422
340 360	14	10.224	7.776	3.609	0.432
380 400	15 16	10.250	7.750	3.530	0.431
420 440	17	11.263	8.737	3.895	0.437
460	18	10.170	7.830	3.781	0.435
–	–	–	–	–	–
500 530	20 21	10.172	7.828	3.773	0.435
560	22	12.174	9.826	4.630	0.447
580 600	23 24	12.240	9.760	4.378	0.444

The above figures are unitary values. For the appropriate frequency, multiply by application RPM.

SHAFT CONSIDERATIONS

It is essential that the shaft on to which the bearing is to be mounted has been produced to the correct size and tolerance for the operating conditions. If replacing a bearing in an existing system, the shaft must be checked to establish if any wear or

damage has taken place. The table below may be followed for both the manufacture of new shafts and the inspection of existing shafts.

TABLE 20. SHAFT CONSIDERATIONS

Shaft Dia.	dn<50000 & C/P>10	50000<dn<150000 & C/P>10	50000<dn<150000 & C/P<10	dn>150000	Cylindricity of Shaft
Over - Incl.	h9	h8	h7	h6	IT6
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
0 - 50 0 - 2	-62 -2.5	-39 -1.5	-25 -1	-16 -0.6	-16 -0.6
50 - 80 2 - 3	-74 -3	-46 -1.8	-30 -1.2	-19 -0.7	-19 -0.7
80 - 120 3 - 5	-87 -3.5	-54 -2.1	-35 -1.4	-22 -0.9	-22 -0.9
120 - 180 5 - 7	-100 -3.9	-63 -2.5	-40 -1.6	-25 -1	-25 -1
180 - 250 7 - 10	-115 -4.5	-72 -2.8	-46 -1.8	-29 -1.2	-29 -1.2
250 - 315 10 - 12 ½	-130 -5.1	-81 -3.2	-52 -2	-32 -1.3	-32 -1.3
315 - 400 12 ½ - 15 ½	-140 -5.5	-89 -3.5	-57 -2.2	-36 -1.4	-36 -1.4
400 - 500 15 ½ - 19 ½	-155 -6.1	-97 -3.8	-63 -2.5	-40 -1.6	-40 -1.6
19 ½ - 24" 500 - 600 mm	-175 -6.9	-110 -4.3	-70 -2.8	-44 -1.7	-44 -1.7

dn value = shaft size (mm) x RPM
C = Bearing dynamic capacity (kN)
P = Equivalent bearing load

RECESS MOUNTING

In applications where the resultant axial load exceeds 50 percent of the C_a rating for the bearing, the shaft design should include either a recess for bearing seating or grooves to accommodate retaining rings. Such an arrangement should also be considered if the unit is subjected to shock loads, fluctuations in temperature over 100° C (212° F) or the shaft is vertical.

The dimensions for producing an appropriate recess or for governing the position and size of the retaining rings if used are derived from table 21.

TABLE 21. RECESS MOUNTING

Journal Diameter d	Shoulder Diameter D	Fillet Radii	Shoulder Height B	Recess Width R	Squareness of Abutment Faces
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
40 - 90 1 ½ - 3 ½	d + 5 d + ¼	1.2 ⅜	2.5 ⅝	C + 0.1 C + 0.3 C + 0.004 C + 0.012	0.1 0.004
Over 90 - 150 Over 3 ½ - 6	d + 10 d + ⅜	2.0 ⅝	5.0 ⅝	C + 0.15 C + 0.40 C + 0.006 C + 0.016	0.1 0.004
Over 155 Over 6	d + 10 d + ⅜	2.3 ⅜	5.0 ⅝	C + 0.2 C + 0.5 C + 0.008 C + 0.02	0.1 0.004

N.B. Width of recesses for standard bearings may be different from that used for existing products. Please consult a Timken engineer for bearings suitable for other recess sizes.

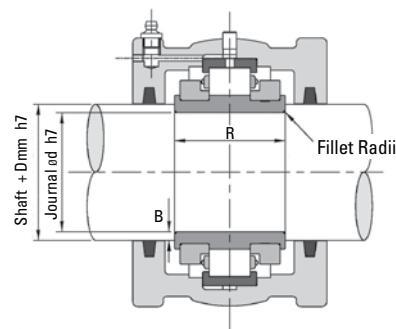


Fig. 16. Recess Mounting.

SEALING ARRANGEMENTS

Any bearing, housing and support unit that is not suitably sealed against its surrounding environment is unlikely to achieve its full potential, either in terms of performance or life span. The prevention of ingress of foreign materials and contaminants is paramount and should be considered as early in the selection process as possible.

A wide variety of sealing solutions are available to users of Timken products as off-the-shelf arrangements. This range will cover the vast majority of operating environments found throughout all industries. To cover those situations where a proprietary arrangement is not suitable, Timken is able to work closely with designers and end users to develop and manufacture custom solutions tailored to specific applications.

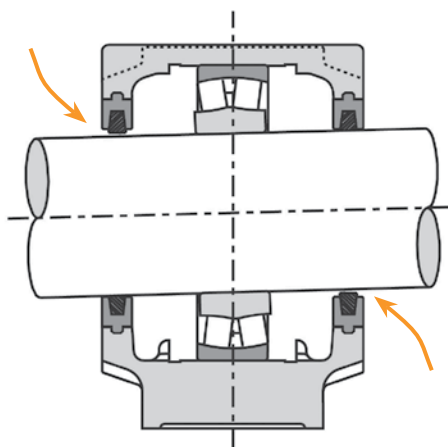


Fig. 17. Seal ineffective.



Fig. 18. Steel industry applications are ideal for Timken Split Cylindrical Roller Bearing Housed Unit.

Timken units have inherent advantages over traditional solid bearing arrangements when considering sealing. The spherical location between housing and support ensures that whichever type of seal is used, it will always remain concentric to the shaft.

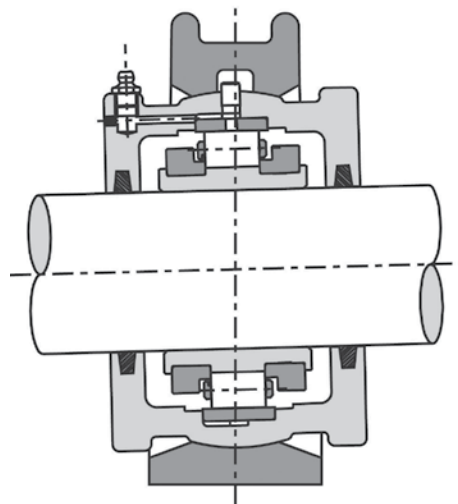


Fig. 19. Seal remains concentric.



Fig. 20. Timken Split Cylindrical Roller Bearing Housed Unit is shown here in a steel industry application.

ALUMINIUM TRIPLE LABYRINTH

A precision machined, non-contacting seal suitable for both high speed and general applications. Once fitted the seal revolves with the shaft. The seal grips the shaft via two split O-rings fitted to the bore of the seal. Timken triple labyrinth seals are fitted with high-temperature Viton cord as standard.

Max. Speed	As Bearing
Temp. Range	-20° C to +175° C (-4° F to + 347° F)
Shaft Finish	3.2µm Ra
Suffix Letters	ATL



Fig. 21. Aluminium Triple Labyrinth.

KEVLAR® PACKING SEAL

This recent addition to the sealing range has proved highly effective in areas having the potential for fine particle contaminants such as cement or ash. Please consult a Timken engineer for more information.

Max. Speed	As bearing
Temp. Range	-100° C to +280° C (-148° F to + 536° F)
Shaft Finish	1.6µm Ra
Suffix Letters	KPS

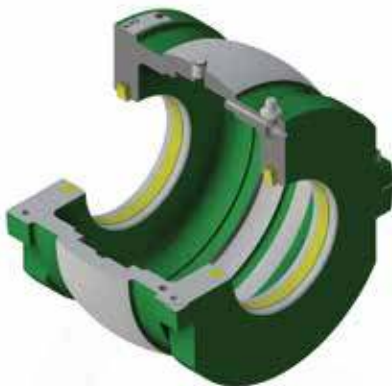


Fig. 22. Kevlar Packing Seal.

VITON SINGLE LIP

For environments involving moderate liquid splashing but not submersion. Should be avoided where abrasive particles are also present as this can lead to shaft wear in the seal area.

Max. Speed	dN(mm)<150000
Temp. Range	-34° C to +204° C (-30° F to + 400° F)
Shaft Finish	3.2µm Ra
Suffix Letters	RSS

Note: d = shaft diameter, N = RPM

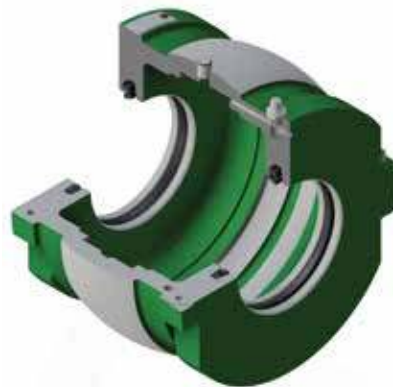


Fig. 23. Viton Single Lip.

HIGH-TEMPERATURE PACKING

A self-lubricating high temperature packing seal based around PTFE and graphite.

Max. Speed	dN(mm)<150000
Temp. Range	-60° C to + 300° C (-76° F to + 572° F)
Shaft Finish	1.2µm Ra
Suffix Letters	HTPS

Note: d = shaft diameter, N = RPM

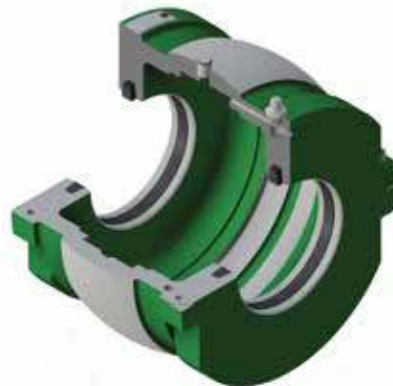


Fig. 24. High-Temperature Packing.

FELT SEAL

This type of seal is supplied as standard with all Timken housings up to a bore size of 12 inch. Consisting of felt strips made from blended fibers. Seals are supplied dry and need to be soaked in oil prior to fitting.

Max. Speed	$dN(\text{mm}) < 150000$
Temp. Range	-60°C to $+100^{\circ}\text{C}$ (-76°F to $+212^{\circ}\text{F}$)
Shaft Finish	$1.6\mu\text{m Ra}$

Note: d = shaft diameter, N = RPM

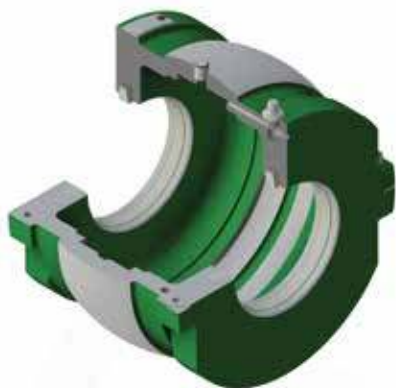


Fig. 25. Felt Seal.

SINGLE-LIP WITH GARTER SPRING AND RETAINING PLATE

A more specialized seal for very wet environments with heavy splash. This type of seal is not suitable for continuous submersion without due consideration being given to sealing of the housing joint and any other possible points of liquid entry. Please consult a Timken engineer for more information.

Max. Speed	$dN(\text{mm}) < 150000$
Temp. Range	-20°C to $+100^{\circ}\text{C}$ (-4°F to $+212^{\circ}\text{F}$)
Shaft Finish	$0.8\mu\text{m Ra}$
Suffix Letters	WSRP

Note: d = shaft diameter, N = RPM



Fig. 26. Single-Lip with Garter Spring and Retaining Plate.

LABYRINTH GREASE GROOVE

For shaft sizes over 12 in., housings are supplied with a close-fitting labyrinth groove machined into the housing. No additional seal is added. For harsh environments, alternative sealing arrangements are available.

Max. Speed	As Bearing
Temp. Range	As Bearing
Shaft Finish	$3.2\mu\text{m Ra}$
Suffix Letters	LAB

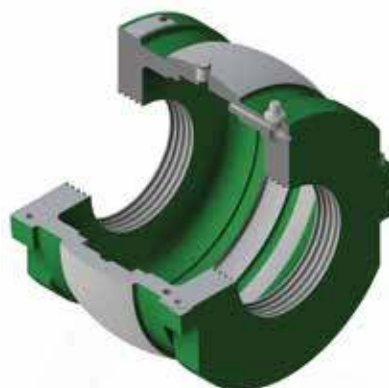


Fig. 27. Labyrinth Grease Groove.

COMBINATION SEAL

This seal combines a labyrinth grease seal with grease purge and the strip seal of your choice (felt, RSS, HTPS or KPS). This combination is ideal for harsh environments with high levels of contamination. Only available for shaft sizes above 12 inches.

Max. Speed	As per the chosen strip seal type.
Temp. Range	As per the chosen strip seal type.
Shaft Finish	$1.6\mu\text{m Ra}$
Suffix Letters	LABLUB

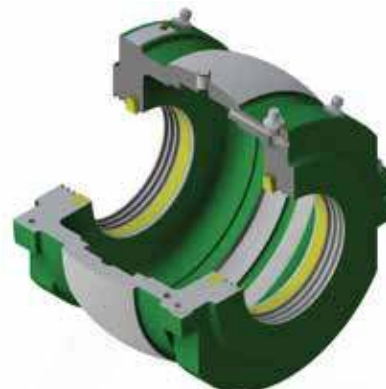


Fig. 28. Combination Seal.

TRIPLE LABYRINTH HOUSING AND SEAL REFERENCES

TABLE 22. LIGHT SERIES

Shaft (d)		Triple Labyrinth Seal Reference		Housing Reference
				Retained Expansion
mm	in.	mm	in.	
35	1 3/16	35MMATL	103ATL	LS1HRTL LS1HXTL
40	1 1/4	40MMATL	104ATL	
	1 7/16		107ATL	
	1 1/2		108ATL	
45	1 11/16	45MMATL	111ATL	LS2HRTL LS2HXTL
50	1 3/4	50MMATL	112ATL	
	1 5/8		115ATL	
	2		200ATL	
55	2 3/16	55MMATL	203ATL	LS3HRTL LS3HXTL
60	2 1/4	60MMATL	204ATL	
65	2 7/16	65MMATL	207ATL	
	2 1/2		208ATL	
70	2 11/16	70MMATL	211ATL	LS4HRTL LS4HXTL
75	2 3/4	75MMATL	212ATL	
	2 5/8		215ATL	
	3		300ATL	
80	3 3/16	80MMATL	303ATL	LS5HRTL LS5HXTL
85	3 1/4	85MMATL	304ATL	
90	3 7/16	90MMATL	307ATL	
	3 1/2		308ATL	
100	3 11/16	100MMATL	311ATL	LS6HRTL LS6HXTL
105	3 3/4	105MMATL	312ATL	
	3 5/8		315ATL	
	4		400ATL	
110	4 3/16	110MMATL	403ATL	LS7HRTL LS7HXTL
115	4 1/4	115MMATL	404ATL	
	4 5/8		407ATL	
	4 1/2		408ATL	
120	4 11/16	120MMATL	411ATL	LS8HRTL LS8HXTL
125	4 3/4	125MMATL	412ATL	
130	4 5/8	130MMATL	415ATL	
	5		500ATL	
135	5 3/16	135MMATL	503ATL	LS9HRTL LS9HXTL
140	5 1/4	140MMATL	504ATL	
	5 7/16		507ATL	
	5 1/2		508ATL	
150	5 11/16	150MMATL	511ATL	LS10HRTL LS10HXTL
155	5 3/4	155MMATL	512ATL	
	5 5/8		515ATL	
	6		600ATL	
160A	6	160MMATL	—	LS10HRTLE0548 LS10HXRTLE0548
160	6 7/16	160MMATL	607ATL	LS11HRTL LS11HXTL
	6 1/2		608ATL	
170	6 11/16	170MMATL	611ATL	LS12HRTL LS12HXTL
175	6 3/4	175MMATL	612ATL	
180	6 5/8	180MMATL	615ATL	
	7		700ATL	
190	7 1/4	190MMATL	704ATL	LS13HRTL LS13HXTL
200	7 1/2	200MMATL	708ATL	
	7 5/8		715ATL	
	8		800ATL	
220	8 1/2	220MMATL	808ATL	LS14HRTL LS14HXTL
230	8 3/8	230MMATL	814ATL	
	9		900ATL	

Shaft (d)		Triple Labyrinth Seal Reference		Housing Reference
				Retained Expansion
mm	in.	mm	in.	
240	9 1/2	240MMATL	908ATL	LS15HRTL LS15HXTL
250	9 3/4	250MMATL	912ATL	
	10		1000ATL	
260	10 1/2 10 3/4 11	260MMATL	1008ATL	LS16HRTL LS16HXTL
270		270MMATL	1012ATL	
280		280MMATL	1100ATL	
300	11 1/2	300MMATL	1108ATL	LS17HRTL LS17HXTL
305	12	305MMATL	1200ATL	
320	12 1/2	320MMATL	1208ATL	LS18HRTL LS18HXTL
330	13	330MMATL	1300ATL	
340	14	340MMATL	1400ATL	LS19HRTL LS19HXTL
350		350MMATL		
360	15	360MMATL	1500ATL	LS20HRTL LS20HXTL
380		380MMATL		
400	16	400MMATL	1600ATL	LS21HRTL LS21HXTL
420	17	420MMATL	1700ATL	LS22HRTL LS22HXTL
440	18	440MMATL	1800ATL	LS23HRTL LS23HXTL
460		460MMATL		
480	19	480MMATL	1900ATL	LS24HRTL LS24HXTL
500	20	500MMATL	2000ATL	LS25HRTL LS25HXTL
530	21	530MMATL	2100ATL	LS26HRTL LS26HXTL
560	22	560MMATL	2200ATL	LS27HRTL LS27HXTL
580	23	580MMATL	2300ATL	LS28HRTL LS28HXTL
600	24	600MMATL	2400ATL	LS29HRTL LS29HXTL

TABLE 23. MEDIUM SERIES

Shaft (d)		Triple Labyrinth Seal Reference		Housing Reference
				Retained Expansion
mm	in.	mm	in.	
—	—	—	—	—
45	1 1/16	45MMATL	111ATL	MS3HRTL MS3HXTL
50	1 3/4	50MMATL	112ATL	
	1 5/16		115ATL	
	2		200ATL	
55	2 3/16	55MMATL	203ATL	MS4HRTL MS4HXTL
60	2 1/4	60MMATL	204ATL	
65	2 7/16	65MMATL	207ATL	
	2 1/2		208ATL	
70	2 1/16	70MMATL	211ATL	MS5HRTL MS5HXTL
75	2 3/4	75MMATL	212ATL	
	2 5/16		215ATL	
	3		300ATL	
80	3 3/16	80MMATL	303ATL	MS6HRTL MS6HXTL
85	3 1/4	85MMATL	304ATL	
90	3 7/16	90MMATL	307ATL	
	3 1/2		308ATL	
100	3 1/16	100MMATL	311ATL	MS7HRTL MS7HXTL
105	3 3/4	105MMATL	312ATL	
	3 5/16		315ATL	
	4		400ATL	
110	4 3/16	110MMATL	403ATL	MS8HRTL MS8HXTL
115	4 1/4	115MMATL	404ATL	
	4 7/16		407ATL	
	4 1/2		408ATL	
120	4 1/16	120MMATL	411ATL	MS10HRTL MS10HXTL
125	4 3/4	125MMATL	412ATL	
130	4 5/16	130MMATL	415ATL	
	5		500ATL	
135	5 3/16	135MMATL	503ATL	MS30HRTL MS30HXTL
140	5 1/4	140MMATL	504ATL	
	5 7/16		507ATL	
	5 1/2		508ATL	
150	5 1/16	150MMATL	511ATL	MS31HRTL MS31HXTL
155	5 3/4	155MMATL	512ATL	
	5 5/16		515ATL	
			600ATL	
160A	6	160MMATL	—	MS31HRTLE0548 MS31HXTLE0548
160	6 7/16	160MMATL	607ATL	MS32HRTL MS32HXTL
170	6 1/2	170MMATLE0547	608ATL	
	6 1/16		611ATLE0547	
	6 3/4		612ATLE0547	
175	6 1/16	175MMATL	615ATL	MS33HRTL MS33HXTL
180	7	180MMATL	700ATL	
190	7 1/4	190MMATL	704ATL	MS34HRTL MS34HXTL
200	7 1/2	200MMATL	708ATL	
	7 5/16		715ATL	
	8		800ATL	
220	8 1/2	220MMATL	808ATL	MS35HRTL MS35HXTL
230	8 7/8	230MMATL	814ATL	
	9		900ATL	

Shaft (d)		Triple Labyrinth Seal Reference		Housing Reference
				Retained Expansion
mm	in.	mm	in.	
240	9 1/2	240MMATL	908ATL	MS36HRTL MS36HXTL
	9 3/4		912ATL	
	10		1000ATL	
260	10 1/2	260MMATL	1008ATL	MS36HRTLE0548 MS36HXTLE0548
270	10 3/4	270MMATL	1012ATL	
280	11	280MMATL	1100ATL	
300	11 1/2	300MMATL	1108ATL	MS38HRTL MS38HXTL
305	12	305MMATL	1200ATL	
320	12 1/2	320MMATL	1208ATL	MS39HRTL MS39HXTL
330	13	330MMATL	1300ATL	
340	14	340MMATL 360MMATLE0547	1400ATL	MS40HRTL MS40HXTL
360				
380	15	380MMATL	1500ATL	MS41HRTL MS41HXTL
400	16	400MMATL	1600ATL	MS42HRTL MS42HXTL
420	17	420MMATL	1700ATL	MS43HRTL MS43HXTL
440	18	440MMATL 460MMATL	1800ATL	MS44HRTL MS44HXTL
460				
480	19	480MMATL	1900ATL	MS45HRTL MS45HXTL
500	20	500MMATL	2000ATL	MS46HRTL MS46HXTL
530	21	530MMATL	2100ATL	MS47HRTL MS47HXTL
560	22	560MMATL	2200ATL	MS48HRTL MS48HXTL
580	23	580MMATL	2300ATL	MS49HRTL MS49HXTL
600	24	600MMATL	2400ATL	MS50HRTL MS50HXTL

TRIPLE LABYRINTH HOUSING AND SEAL REFERENCES

TABLE 24. HEAVY SERIES

Shaft (d)		Triple Labyrinth Seal Reference		Housing Reference
				Retained Expansion
mm	in.	mm	in.	
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
100	3 11/16	100MMATL	311ATL	HS54HRTL HS54HXTL
105	3 3/4	105MMATL	312ATL	
	3 15/16		315ATL	
	4		400ATL	
110	4 3/16	110MMATL	403ATL	HS55HRTL HS55HXTL
115	4 1/4	115MMATL	404ATL	
120	4 7/16	120MMATLE0547	407ATL	
	4 1/2		408ATL	
125	4 11/16	125MMATL	411ATL	HS56HRTL HS56HXTL
130	4 3/4	130MMATL	412ATL	
	4 15/16		415ATL	
	5		500ATL	
135	5 3/16	135MMATL	503ATL	HS57HRTL HS57HXTL
140	5 1/4	140MMATL	504ATL	
	5 7/16		507ATL	
	5 1/2		508ATL	
150	5 11/16	150MMATL	511ATL	HS58HRTL HS58HXTL
155	5 3/4	155MMATL	512ATL	
	5 15/16		515ATL	
	6		600ATL	
160A	6	160MMATL	–	HS58HRTLE0548 HS58HXTLE0548
160	6 7/16	160MMATL	607ATL	HS59HRTL HS59HXTL
170	6 1/2	170MMATLE0547	608ATL	
	6 11/16		611ATLE0547	
	6 3/4		612ATLE0547	
175	6 15/16	175MMATL	615ATL	HS60HRTL HS60HXTL
180	7	180MMATL	700ATL	
190	7 1/4	190MMATL	704ATL	HS61HRTL HS61HXTL
200	7 1/2	200MMATL	708ATL	
	7 15/16		715ATL	
	8		800ATL	
220	8 1/2	220MMATL	808ATL	HS62HRTL HS62HXTL
230	8 7/8	230MMATL	814ATL	
	9		900ATL	

Shaft (d)		Triple Labyrinth Seal Reference		Housing Reference
				Retained Expansion
mm	in.	mm	in.	
240	9 1/2 9 3/4 10	240MMATL	908ATL 912ATL 1000ATL	HS63HRTL HS63HXTL
260	–	260MMATL	–	HS63HRTLE0548 HS63HXTLE0548
270 280	10 1/2 10 3/4 11	270MMATL 280MMATL	1008ATL 1012ATL 1100ATL	HS83HRTL HS83HXTL
300 305	11 1/2 12	300MMATL 305MMATL	1108ATL 1200ATL	HS65HRTL HS65HXTL
320	13	320MMATL	1300ATL	HS66HRTL HS66HXTL
340 360	14	340MMATL 360MMATLE0547	1400ATL	HS86HRTL HS86HXTL
380	15	380MMATL	1500ATL	HS68HRTL HS68HXTL
400	–	400MMATL	–	HS68HRTLE0548 HS68HXTLE0548
420 440	17	420MMATL 440MMATLE0547	1700ATL	HS89HRTL HS89HXTL
460	18	460MMATL	1800ATL	HS90HRTL HS90HXTL
500	20	500MMATL	2000ATL	HS94HRTL HS94HXTL
530	–	530MMATL	–	HS94HRTLE0548 HS94HXTLE0548
560	22	560MMATL	2200ATL	HS94HRTLE0548 HS94HXTLE0548
580 600	23	580MMATL 600MMATLE0547	2300ATL	HS95HRTL HS95HXTL
–	–	–	–	–

BEARING LUBRICATION

The function of a lubricant in a rolling element bearing is to prevent metal-to-metal contact between components, prevent wear and protect against corrosion. Two methods of lubrication are normal grease and oil. In the case of Timken split bearings, grease lubrication is most often employed.

GREASE LUBRICATION

Greases can be used to lubricate Timken split cylindrical roller bearings under most normal conditions. Grease is the preferred method of lubrication because it can be more easily retained within the bearing enclosure and housing, the latter simplifying sealing arrangements. Greases are a semi-solid lubricant generally consisting of a soap emulsified with mineral or synthetic oils. Other ingredients include rust inhibitors or extra pressure additives. The oils employed may be mineral or synthetic depending upon the application.

Timken bearings are heat treated to retain dimensional stability up to 140° C (284° F). At temperatures up to 100° C (212° F), standard high-quality greases may be used. We suggest good quality lithium soap or complex-based greases having extra pressure additives and a penetration number of 3. It is important to note that all values given in this catalog for axial capacity assume the use of grease with extra pressure (EP) additives. If EP additives are not present then axial capacity is reduced by 50 percent.

At temperatures exceeding 100° C (212° F) care must be taken to ensure that the correct thickener and viscosity of base oil are selected. The performance of grease at such temperatures is dependent on a stable thickener and the temperature/viscosity ratio of the base oil. A stable base oil and soap thickener are important, as is the ability of the oil to offer adequate viscosity at an elevated temperature.

In cases of water splash, calcium soap based greases may be used. These are particularly resistant to water wash out.

Care should be taken when mixing greases with different soap thickeners and base oil types. Please contact a Timken engineer for further advice.

For initial lubrication the bearing should always be well filled with grease. The remaining housing space should be filled as follows:

- At low speeds, not exceeding 25 percent of catalog speed rating, we suggest that the remaining housing space be fully filled with grease.
- At medium speeds, between 25 and 50 percent of catalog speed rating, the remaining housing space may be $\frac{1}{3}$ to $\frac{1}{2}$ filled with grease.
- At high speeds, exceeding 50 percent of catalog speed rating, the remaining housing space should be left empty.

RE-LUBRICATION

The re-lubrication intervals will be dependent on the prevailing operating conditions.

Greases age and oxidize due to a number of considerations. These include load, speed, temperature, cleanliness, presence of water and even airflow through the bearing.

For retained-type bearings, initial re-lubrication intervals for guidance purposes would be 2-4 weeks with 0.1-0.2 ounces (3-6 mls) added. For expansion type bearings, initial re-lubrication intervals would be 3-4 months with 0.1-0.2 ounces (3-6 mls) added. More accurate intervals and quantities should be established from observations taken during bearing operation. If re-lubrication can be carried out while the bearing is in operation, this will allow for even distribution of the grease. This means of re-lubrication should only be undertaken if it is safe to do so.

OIL LUBRICATION

Timken split cylindrical roller bearings are rarely lubricated with oil. In cases where oil is selected as a means of lubrication, then special consideration must be given to the bearing housing design and sealing.

There are three principal methods of oil lubrication:

OIL SUMP

The oil sits in the bearing housing at a level approximately halfway up the bottom dead center rolling element. Oil circulation around the bearing is then provided via the bearing rotation agitating the oil sump. It is very important to provide a sufficiently dimensioned oil sump as too small a volume will result in increased frequency of oil change and elevated operating temperatures.

OIL MIST

An oil/air mist is injected into the bearing via nozzles, normally a total oil loss system; this provides extremely high speed capability at high cost.

For further advice on oil selection and oil lubrication systems please consult a Timken engineer.

OIL CIRCULATION

Oil is circulated into the bearing housing assembly from an external oil sump. This allows the oil to be cooled and filtered, additionally an external oil sump normally allows for a higher volume of oil. While being a more optimum solution, specialist housing designs must be provided. There are also cost and space considerations with such systems.

ASSEMBLY AND MAINTENANCE

SHAFT CHECK

When fitting bearings on both new and existing installations, the shaft need only be raised $\frac{1}{16}$ to $\frac{1}{4}$ inch. This should provide sufficient clearance to allow for easy fitting. Prior to the assembly of any bearing components the shaft must be checked for size, roundness and parallelism.

- Check a minimum of three positions along the journal length.
- Check a minimum of three positions around the shaft to establish roundness
- Shaft tolerances and shaft surface finish are given in the table on page 28.



FITTING THE INNER RING

- Carefully unpack and clean the bearing removing all preservatives.
- Inner race locating clamping rings cannot be removed before the cage has been dismantled.
- Care must be taken that no damage occurs when cage halves are separated.



NOTE

Spring clips should always be retained on one cage half.

- Clean the shaft and lightly oil the bore of the inner race.
- Place the two inner race halves in approximately the correct position with the joints at the top and bottom. With the joints in that position it will allow easy access to the clamp ring screws later when they are tightened
- Ensure that the match marks (black band) in the clamp ring groove on one side of the race coincide.



There should be an equal gap at each joint. If there are no gaps do not proceed and contact a Timken engineer.

- Fit the inner race locating clamping rings. Ensure that the correct clamp ring is fitted in the corresponding groove. To assist in this the clamping rings are intentionally manufactured to different widths on the more popular sizes. In addition, the match-marking groove found on the inner race is repeated on the corresponding clamping ring.
- Make sure that the thrust faces are not damaged when the rings enter the grooves.
- The joints should be at 90 degrees to the inner race joints and the screws should be tightened in such a way that there are four equal gaps.
- Screws should only be finger tight so that the race can be adjusted axially into its final position.



ASSEMBLY OF THE OUTER RACE INTO THE SEATING GROOVE IN THE HOUSING

- The housing must be cleaned thoroughly removing all preservatives. If reusing an existing housing it is essential that the outer race seating groove is clean and free of any hardened grease deposits or corrosion.
- Lightly oil the seating groove and the outside diameter of the outer race halves.
- Place the race halves of the expansion or retained type into the seating groove and ensure that:
 - The match marking numbers on the edge of each race half coincide.
 - The lubrication hole in the outer race is in the upper housing half.
 - The outer race joints should protrude equally above the housing joint faces.



Larger bearings (both retained and expansion) may require outer race retaining screws. If these are required, please ensure that the flat washers are not omitted. Once fitted, ensure that the end of the screw does not protrude above the race track surface.

- Separate the housing halves. These are now ready for final assembly.
- Fit the appropriate seals. The seal grooves in the standard housing are suitable for felt and synthetic rubber. If the bearing is inspected or replaced on an existing installation and the housing is re-used, we advise fitting new seals.



PRE-FITTING THE LOWER HOUSING HALF

On existing installations it is often unnecessary to change the support if a bearing, or bearing and housing, has to be replaced. In such cases the support base bolts should not be touched to ensure that the replacement bearing and the old or new housing will be in the same position as previously. In new installations the support base should be positioned with the bolts finger tight. This will allow additional freedom of movement when aligning the inner and outer races.



If a retained bearing is being fitted:

- Pre-assemble the housing halves and fully tighten the joint socket head cap screws.
- Ensure that the joints are closed.
- Fit the pins and screws provided and tighten up evenly to ensure that the outer race is fixed square against the opposite shoulder of the seating groove.

RETAINED BEARING

- Slide the pre-assembled bottom half into the support base.
- Line up the inner and outer race roller track by adjusting the inner ring sideways into the final position. The final position should be confirmed by passing one half of the cage and roller assembly between the inner and outer races. The cage half should pass freely round the lower half of the bearing without becoming jammed or trapped.
- Remove the bottom housing half and tighten the clamp ring socket head cap screws and fit the cage as explained below.

EXPANSION BEARING

- As in the case of the retained bearing, slide in the pre-assembled bottom housing half.
- Line up the inner ring by adjusting it sideways until it is central with the outer race.
- The clearance between the inner race end faces and inside housing walls should be equal. If cage and rollers are assembled in this position the shaft can expand either side of the centre line by the amount shown in column 2 in table 25.
- When the position of the inner ring is satisfactory, remove the bottom half housing and tighten the clamp ring socket head cap screws and fit the cage as explained below.

A greater degree of expansion allowance can be obtained, but only in one direction. This is achieved by offsetting the inner race with respect to the housing. In this case the total amount of linear movement in service is given in column 3 of table 25.

TABLE 25. EXPANSION BEARING – ALLOWABLE LIMITS

Group	Maximum Expansion if Cage and Rollers are Assembled Central	Maximum Expansion
mm in.	mm in.	mm in.
40 1 ½	3.0 ⅛	6 ¼
50 2	3.0 ⅛	6 ¼
60 2 ½	3.5 9/64	7 9/32
70 3	4.0 5/32	8 5/16
80 3 ½	6.0 ¼	12 ½
100 4	5.5 7/32	11 7/16
110 4 ½	5.5 7/32	11 7/16
120 5	5.5 7/32	11 7/16
140 5 ½	8.0 5/16	16 5/8
150 6	8.0 5/16	16 5/8

TIGHTENING OF THE LOCATING CLAMPING RING SCREWS

- When the inner race is in its final position, tighten all four clamping ring screws equally.
- Use the correct hexagon key and a torque wrench.
- Tap down the locating thrust rings with a nylon mallet to ensure that they are seating down correctly within the grooves.
- Re-tighten and repeat the tapping down until the screws are fully tight.
- Torque values for the various screw sizes are given in the tables at the end of this section. If a screw is lost it must be replaced using a high tensile socket head cap screw grade, 12.9.



FITTING THE CAGE

- Grease the inner race roller track and cage.
- Place the cage halves around the inner race ensuring that the match mark numbers on the edge of each cage half are the same and coincide at one joint.
- Press the cage halves into the clip ensuring that the roll pins are fully located.
- Check that the cage assembly runs freely on the inner race.
- Fully pack the cage and roller assembly with the correct type of grease.



- Fit the upper housing half then tighten the housing joint screws. Torque values for housing screws are given in the tables on pages 40-42. Check that there is no gap at the joints.

FITTING THE SUPPORT CAP

- Place the support cap over the upper housing half and engage the locating dowels at the joint.
- Using a nylon mallet, gently tap the support cap down to close the gap at the joints.
- Fit the bolts and tighten just enough to hold the support joints closed.



FINAL FITTING OF THE HOUSING

- Charge the bottom and upper housing halves with the correct amount of grease. Refer to page 35 for correct types and quantities of grease depending on the application and the speed.
- Lightly oil the spherical diameter of both housing and support and slide the bottom housing half into the support base.
- Lower the shaft with the assembled inner races and cages, until the rollers touch the tracks in the bottom half housing. Make sure that when the rollers in the retained bearing enter the outer race groove they do not damage the lips.
- Turning the shaft by hand, the rollers should move freely between the thrust shoulders of the inner race and the lips of the retained outer race.



- At this point, and only if it is safe to do so, the shaft should be run at low speed and if possible, with low loading. This will allow the spherical locating surfaces to correctly align. If running the shaft under power is not an option, the shaft should be rotated by hand to achieve this goal.
- Tighten the cap bolts fully using a torque wrench. At this point the support base bolts should also be checked and tightened as required. Torque values for support screws are given in the tables on pages 40-42.

SCREW SIZES, KEY SIZES AND TORQUE VALUES LIGHT SERIES

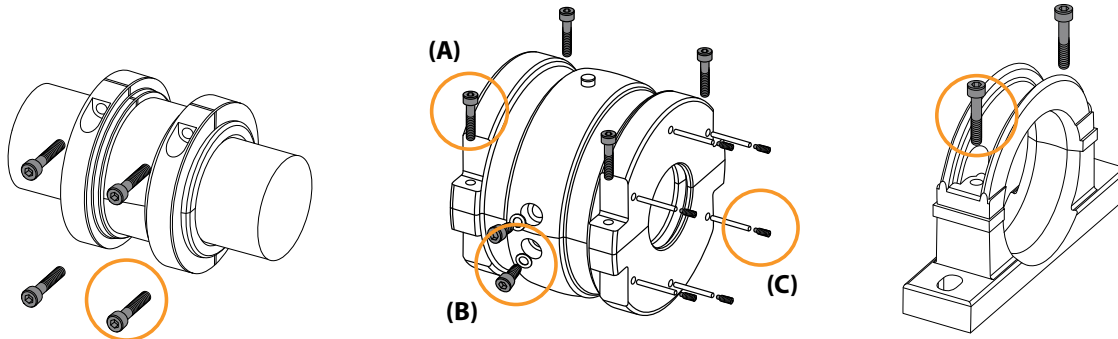


TABLE 26. LIGHT SERIES

Shaft (d)		Clamping Ring ⁽¹⁾				Housing												Support			
						Joint (A)				Radial Retainer (B)				(HR only) (C)							
		Screw	Key	Torque		Screw	Key	Torque		Screw	Key	Torque		Screw	Key	Torque		Screw	Key	Torque	
Nm	lb.ft			Nm	lb.ft			Nm	lb.ft			Nm	lb.ft			Nm	lb.ft			Nm	lb.ft
mm	in.	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft
35 - 40	1 3⁄16 - 1 1⁄2	M4	3	4.5	3.3	M4	3	3.5	2.6	—	—	—	—	M4	2	2	1.5	M8	6	26	19.2
45 - 50	1 11⁄16 - 2	M4	3	4.5	3.3	M4	3	3.5	2.6	—	—	—	—	M4	2	2	1.5	M8	6	26	19.2
60 - 65	2 3⁄16 - 2 1⁄2	M4	3	4.5	3.3	M4	3	3.5	2.6	—	—	—	—	M4	2	2	1.5	M10	8	52.5	38.7
70 - 75	2 11⁄16 - 3	M4	3	4.5	3.3	M4	3	3.5	2.6	—	—	—	—	M4	2	2	1.5	M12	10	90	66.4
80 - 90	3 3⁄16 - 3 1⁄2	M5	4	8.5	6.3	M5	4	6.5	4.8	—	—	—	—	M4	2	2	1.5	M16	14	225	166.0
100 - 105	3 11⁄16 - 4	M6	5	15	11.1	M6	5	11	8.1	—	—	—	—	M4	2	2	1.5	M16	14	225	166.0
110 - 115	4 3⁄16 - 4 1⁄2	M6	5	15	11.1	M6	5	11	8.1	—	—	—	—	M6	3	7.8	5.8	M20	17	420	309.8
120 - 130	4 11⁄16 - 5	M6	5	15	11.1	M6	5	11	8.1	—	—	—	—	M6	3	7.8	5.8	M20	17	420	309.8
135 - 140	5 3⁄16 - 5 1⁄2	M8	6	35	25.8	M8	6	26	19.2	—	—	—	—	M6	3	7.8	5.8	M20	17	420	309.8
150 - 155	5 11⁄16 - 6	M8	6	35	25.8	M8	6	26	19.2	—	—	—	—	M6	3	7.8	5.8	M20	17	420	309.8
160	6 7⁄16 - 6 1⁄2	M8	6	35	25.8	M8	6	26	19.2	—	—	—	—	M6	3	7.8	5.8	M20	17	420	309.8
170 - 180	6 11⁄16 - 7	M8	6	35	25.8	M8	6	26	19.2	—	—	—	—	M6	3	7.8	5.8	M16	14	225	166.0
190 - 200	7 1⁄4 - 8	M8	6	35	25.8	M8	6	26	19.2	M10	8	35	25.8	M6	3	7.8	5.8	M16	14	225	166.0
220 - 230	8 1⁄2 - 9	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M6	3	7.8	5.8	M16	14	225	166.0
240 - 250	9 1⁄2 - 10	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8
260 - 280	10 1⁄2 - 11	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8
300 - 305	11 1⁄2 - 12	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8
320 - 330	12 1⁄2 - 13	M12	10	120	88.5	M12	10	90	66.4	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8
340 - 350	14	M12	10	120	88.5	M12	10	90	66.4	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8
360 - 380	15	M12	10	120	88.5	M12	10	90	66.4	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8
400	16	M12	10	120	88.5	M12	10	90	66.4	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8
420	17	M12	10	120	88.5	M12	10	90	66.4	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
440 - 460	18	M12	10	120	88.5	M12	10	90	66.4	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
480	19	M12	10	120	88.5	M12	10	90	66.4	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
500	20	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
530	21	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
560	22	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
580	23	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
600	24	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8

⁽¹⁾ May be increased by up to 20 percent for high axial load applications.

MEDIUM SERIES

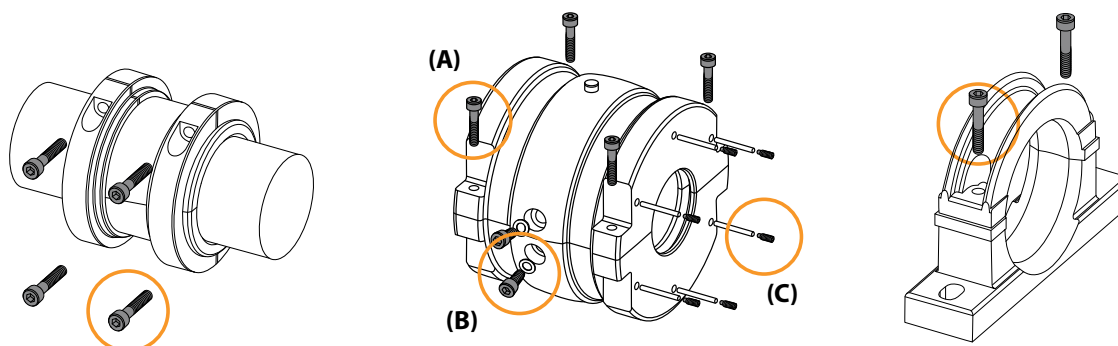


TABLE 27. MEDIUM SERIES

Shaft (d)		Clamping Ring ⁽¹⁾				Housing														Support			
						Joint (A)				Radial Retainer (B)				(HR only) (C)									
				Torque				Torque				Torque				Torque				Torque			
mm	in.	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft		
45 - 50	1 ⅞ - 2	M5	4	8.5	6.3	M5	4	6.5	4.8	—	—	—	—	M4	2	2	1.5	M10	8	52.5	38.7		
60 - 65	2 ¾ - 2 ½	M5	4	8.5	6.3	M5	4	6.5	4.8	—	—	—	—	M4	2	2	1.5	M12	10	90	66.4		
70 - 75	2 ⅞ - 3	M6	5	15	11.1	M6	5	11	8.1	—	—	—	—	M4	2	2	1.5	M16	14	225	166.0		
80 - 90	3 ¾ - 3 ½	M6	5	15	11.1	M6	5	11	8.1	—	—	—	—	M4	2	2	1.5	M16	14	225	166.0		
100 - 105	3 ⅞ - 4	M6	5	15	11.1	M6	5	11	8.1	—	—	—	—	M4	2	2	1.5	M20	17	420	309.8		
110 - 115	4 ¾ - 4 ½	M8	6	35	25.8	M8	6	26	19.2	—	—	—	—	M6	3	7.8	5.8	M20	17	420	309.8		
120 - 130	4 ⅞ - 5	M8	6	35	25.8	M8	6	26	19.2	—	—	—	—	M6	3	7.8	5.8	M20	17	420	309.8		
135 - 140	5 ¾ - 5 ½	M8	6	35	25.8	M8	6	26	19.2	—	—	—	—	M6	3	7.8	5.8	M24	19	712	525.1		
150 - 155	5 ⅞ - 6	M8	6	35	25.8	M8	6	26	19.2	—	—	—	—	M6	3	7.8	5.8	M24	19	712	525.1		
160 - 170	6 ⅞ - 6 ½	M10	8	70	51.6	M10	8	52.5	38.7	—	—	—	—	M6	3	7.8	5.8	M20	17	420	309.8		
180	6 ⅞ - 7	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M6	3	7.8	5.8	M20	17	420	309.8		
190 - 200	7 ¼ - 8	M12	10	120	88.5	M12	10	90	66.4	M10	8	35	25.8	M6	3	7.8	5.8	M20	17	420	309.8		
220 - 230	8 ½ - 9	M12	10	120	88.5	M12	10	90	66.4	M10	8	35	25.8	M6	3	7.8	5.8	M20	17	420	309.8		
240 - 260	9 ½ - 10	M12	10	120	88.5	M12	10	90	66.4	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8		
270 - 280	10 ½ - 11	M16	14	300	221.3	M16	14	225	166.0	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8		
300 - 305	11 ½ - 12	M16	14	300	221.3	M16	14	225	166.0	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8		
320 - 330	12 ½ - 13	M16	14	300	221.3	M16	14	225	166.0	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8		
340 - 360	14	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8		
380	15	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8		
400	16	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1		
420	17	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8		
440 - 460	18	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8		
480	19	M20	17	560	413.0	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1		
500	20	M20	17	560	413.0	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1		
530	21	M20	17	560	413.0	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1		
560	22	M20	17	560	413.0	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1		
580	23	M20	17	560	413.0	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1		
600	24	M20	17	560	413.0	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1		

⁽¹⁾ May be increased by up to 20 percent for high axial load applications.

SCREW SIZES, KEY SIZES AND TORQUE VALUES - CONT'D

HEAVY SERIES

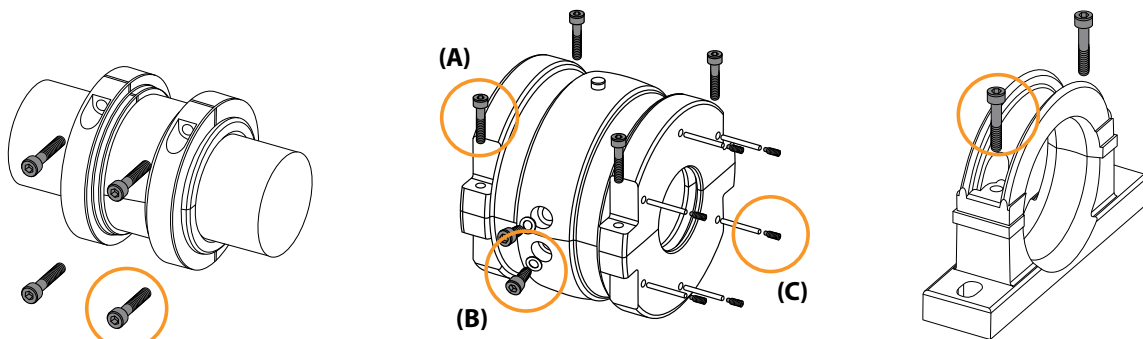


TABLE 28. HEAVY SERIES

Shaft (d)		Clamping Ring ⁽¹⁾				Housing												Support			
						Joint (A)				Radial Retainer (B)				(HR only) (C)							
				Torque				Torque				Torque				Torque				Torque	
mm	in.	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft	Screw	Key	Nm	lb.ft
100 - 105	3 11⁄16 - 4	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M6	3	7.8	5.8	M16	14	225	166.0
110 - 120	4 3⁄16 - 4 1⁄2	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M6	3	7.8	5.8	M16	14	225	166.0
125 - 130	4 15⁄16 - 5	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M10	5	30	22.1	M16	14	225	166.0
135 - 140	5 3⁄16 - 5 1⁄2	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8
150 - 155	5 11⁄16 - 6	M10	8	70	51.6	M10	8	52.5	38.7	M10	8	35	25.8	M10	5	30	22.1	M20	17	420	309.8
160 - 170	6 7⁄16 - 6 11⁄16	M12	10	120	88.5	M12	10	90	66.4	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
175 - 180	6 3⁄4 - 7	M12	10	120	88.5	M12	10	90	66.4	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
190 - 200	7 1⁄4 - 8	M12	10	120	88.5	M12	10	90	66.4	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1
220 - 230	8 1⁄2 - 9	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
240 - 260	9 1⁄2 - 10	M16	14	300	221.3	M16	14	225	166.0	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
280	11	M20	17	560	413.0	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
300	12	M20	17	560	413.0	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M20	17	420	309.8
320 - 330	13	M20	17	560	413.0	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1
340 - 360	14	M24	19	950	700.7	M20	17	420	309.8	M12	10	60	44.3	M16	14	125	92.2	M24	19	712	525.1
380 - 400	15 - 16	M24	19	950	700.7	M20	17	420	309.8	M12	10	60	44.3	M10	5	30	22.1	M24	19	712	525.1
420 - 440	17	M24	19	950	700.7	M20	17	420	309.8	M12	10	60	44.3	M16	14	125	92.2	M24	19	712	525.1
460	18	M24	19	950	700.7	M20	17	420	309.8	M12	10	60	44.3	M16	14	125	92.2	M24	19	712	525.1
500 - 530	20 - 21	M24	19	950	700.7	M20	17	420	309.8	M16	14	60	44.3	M16	14	125	92.2	M24	19	712	525.1
560	22	M24	19	950	700.7	M20	17	420	309.8	M12	10	60	44.3	M16	14	125	92.2	M24	19	712	525.1
580 - 600	23 - 24	M24	19	950	700.7	M20	17	420	309.8	M12	10	60	44.3	M16	14	125	92.2	M24	19	712	525.1

⁽¹⁾ May be increased by up to 20 percent for high axial load applications.

SHIPPING WEIGHTS

TABLE 29. LIGHT SERIES

		Bearing	Housing	Support	Comp. Unit
mm	in.	Kg lb.	Kg lb.	Kg lb.	Kg lb.
35 40	1 3/16 1 1/2	1.3 3	2.5 6	3 7	6.8 16
45 50	1 11/16 2	1.8 4	3.5 8	5 11	10.3 23
60 65	2 3/16 2 1/2	2.3 5	4.4 10	5.9 13	12.6 28
70 75	2 11/16 3	3.3 7	6.5 14	9.5 21	19.3 42
80 90	3 3/16 3 1/2	5 11	9 20	15 33	29 64
100 105	3 11/16 4	7 15	11 24	16 35	34 74
110 115	4 3/16 4 1/2	10.5 23	16 35	24 53	50.5 111
120 130	4 11/16 5	14 31	24 53	41 90	79 174
135 140	5 3/16 5 1/2	17 37	27 59	49 108	93 204
150 155	5 11/16 6	18 40	31 68	49 108	98 216
160	6 3/16 6 1/2	19 42	35 77	65 143	119 262
170 180	6 11/16 7	23 51	36 79	73 161	132 291
190 200	7 1/4 8	26 57	45 99	92 202	163 358
220 230	8 1/2 9	33 73	48 106	117 257	198 436
240 250	9 1/2 10	42 92	60 132	147 323	249 547
260 280	10 1/2 11	53 117	73 161	171 376	297 654
300 305	11 1/2 12	60 132	89 196	199 438	348 766
320 330	12 1/2 13	72 158	109 240	214 471	395 869
340 350	14	79 174	121 266	241 530	441 970
360 380	15	90 198	130 286	294 647	514 1131
400	16	96 211	145 319	315 693	556 1223
420	17	105 231	155 341	323 711	583 1283
440 460	18	119 262	156 343	377 829	652 1434
480	19	123 271	167 367	467 1027	757 1665
500	20	139 306	198 436	449 988	786 1730
530	21	180 396	220 484	502 1104	902 1984
560	22	185 407	258 568	578 1272	1021 2247
580	23	190 418	280 616	690 1518	1160 2552
600	24	240 528	296 651	730 1606	1266 2785

TABLE 30. MEDIUM SERIES

		Bearing	Housing	Support	Comp. Unit
mm	in.	Kg lb.	Kg lb.	Kg lb.	Kg lb.
45 50	1 11/16 2	2.5 6	5 11	5.9 13	13.4 30
60 65	2 3/16 2 1/2	3.7 8	8 18	9.5 21	21.2 47
70 75	2 11/16 3	5.6 12	10 22	15 33	30.6 67
80 90	3 3/16 3 1/2	7 15	12 26	16 35	35 76
100 105	3 11/16 4	11 24	13 29	24 53	48 106
110 115	4 3/16 4 1/2	15.5 34	20 44	41 90	76.5 168
120 130	4 11/16 5	21 46	28 62	49 108	98 216
135 140	5 3/16 5 1/2	25 55	36 79	72 158	133 292
150 155	5 11/16 6	31 68	42 92	80 176	153 336
160 170	6 3/16 6 1/2	40 88	58 128	118 260	216 476
180	6 11/16 7	47 103	68 150	138 304	253 557
190 200	7 1/4 8	59 130	86 189	192 422	337 741
220 230	8 1/2 9	69 152	101 222	229 504	399 878
240 260	9 1/2 10	79 174	108 238	277 609	464 1021
270 280	10 1/2 11	87 191	134 295	320 704	541 1190
300 305	11 1/2 12	125 275	132 290	372 818	629 1383
320 330	12 1/2 13	150 330	176 387	385 847	711 1564
340 360	14	184 405	190 418	477 1049	851 1872
380	15	187 411	213 469	490 1078	890 1958
400	16	210 462	258 568	540 1188	1008 2218
420	17	245 539	269 592	586 1289	1100 2420
440 460	18	255 561	270 594	623 1371	1148 2526
480	19	268 590	277 609	690 1518	1235 2717
500	20	276 607	328 722	745 1639	1349 2968
530	21	314 691	357 785	899 1978	1570 3454
560	22	341 750	385 847	960 2112	1686 3709
580	23	375 825	405 891	1001 2202	1781 3918
600	24	390 858	460 1012	1056 2323	1906 4193

TABLE 31. HEAVY SERIES

		Bearing	Housing	Support	Comp. Unit
mm	in.	Kg lb.	Kg lb.	Kg lb.	Kg lb.
100 105	3 11/16 4	35 77	40 88	121 266	196 431
110 120	4 3/16 4 1/2	41 90	45 90	141 310	227 499
125 130	4 11/16 5	42 92	46 101	156 343	244 536
135 140	5 3/16 5 1/2	50 110	51 112	197 433	298 655
150 155	5 11/16 6	59 130	75 165	261 574	395 869
160 170	6 3/16 6 1/2	74 163	87 191	291 640	452 994
175 180	6 11/16 7	83 183	91 200	338 744	512 1127
190 200	7 1/4 8	105 231	120 264	454 999	679 1494
220 230	8 1/2 9	151 332	164 361	408 1395	949 2088
240 260	9 1/2 10	153 337	174 383	540 1621	1064 2341
280	11	203 447	201 442	459 1010	863 1899
300	12	242 532	249 548	1019 2242	1510 3322
320	13	327 719	300 660	1116 2455	1743 3834
340 360	14	375 825	361 794	1620 3564	2356 5183
380 400	15 16	436 959	433 953	1538 3384	2407 5296
420 440	17	400 880	443 975	1014 2231	1857 4086
460	18	636 1399	274 603	1513 3329	2423 5331
500 530	20 21	700 1540	880 1936	1863 4099	3443 7575
560	22	675 1485	694 1527	1847 4063	3216 7075
580 600	23 24	700 1540	770 1694	1794 3947	3264 7181

HOUSED UNIT CONVERSION WORKSHEET

Option #1: To help us understand your application needs, please fill out the information below. This data will enable us to select the appropriate split cylindrical bearing housed unit that will perform best for your application.

Option #2: Please fill out the following information to help us select the appropriate split cylindrical bearing housed unit for your application.

Option #3: When converting to a different style of housed unit, use this worksheet to provide the application data specific to your project needs. This information is critical to ensuring the appropriate split cylindrical bearing unit is selected.

Date: _____

Customer Contact: _____ Timken Contact: _____

Application Details: _____

Drive Details

Motor Power: _____ No. Belts: _____

Direct Drive: ____ YES ____ NO Drive Pulley Dia. (mm): _____

Belt Drive: ____ YES ____ NO Driven Pulley Dia. (mm): _____

Gear Drive: ____ YES ____ NO Current DE Bearing: _____

Gear Ratio: ____ YES ____ NO Current NDE Bearing: _____

Environment

Wet: ____ YES ____ NO Bearing Temp. (° C or ° F): _____

Dry: ____ YES ____ NO Shaft Diameter (mm): _____

Dust: ____ YES ____ NO

Severe: ____ YES ____ NO Shaft Speed (RPM): _____

Submerged: ____ YES ____ NO

Load**Lubrication****Specification****Amount**

Radial (kN or lbs): _____ Oil: ____ YES ____ NO _____

Axial (kN or lbs): _____ Grease: ____ YES ____ NO _____

Duty

Intermittent: ____ YES ____ NO

Continuous: ____ YES ____ NO

Current Sealing Arrangement: _____



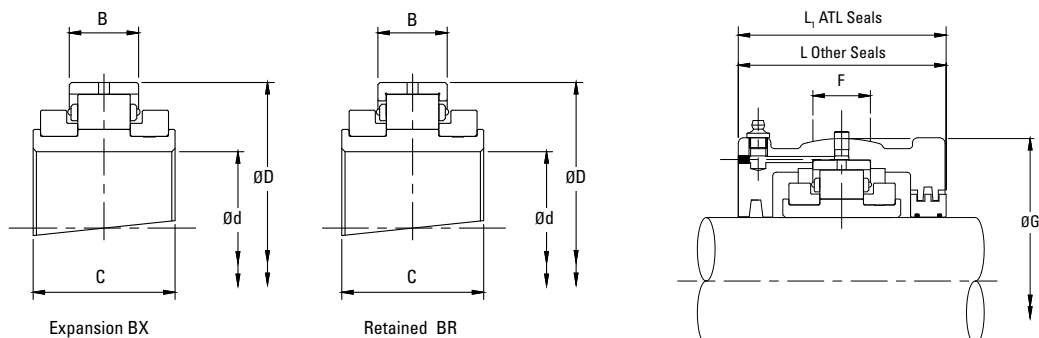
LIGHT SERIES

Light series bearing products are by far the most commonly utilized range within the split bearing family. With a wide variety of mounting and sealing solutions available, light series bearing units can readily be matched to an ever-increasing range of applications. If a standard catalog product does not meet your requirements, a Timken engineer will be happy to provide help and advice on your application.

The following topics are covered within this section:

Light Series Bearing and Housing	
35 mm to 155 mm (1 $\frac{3}{16}$ in. to 6 in.)	46
Light Series Support S01 - S10	47
Light Series Bearing and Housing	
160 mm to 350 mm (6 $\frac{7}{16}$ in. to 14 in.)	48
Light Series Support S11 - S19	49
Light Series Bearing and Housing	
360 mm to 600 mm (15 in. to 24 in.)	50
Light Series Support S20 - S29	51
Light Series Flange Units	
35 mm - 305 mm (1 $\frac{3}{16}$ in. to 12 in.)	52
Light Series Take-Up Units TT/TP	
35 mm to 155 mm (1 $\frac{3}{16}$ in. to 6 in.)	54
Light Series Support Hanger Units	56

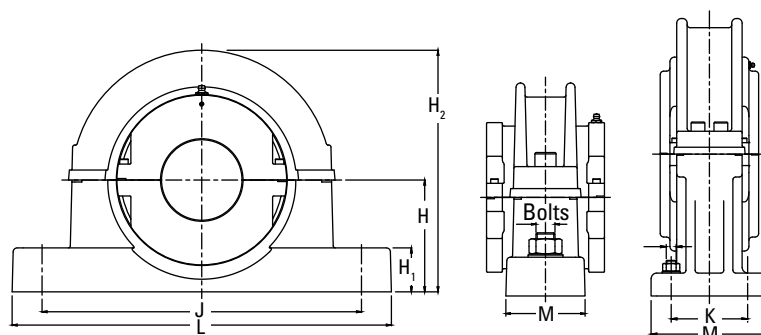
LIGHT SERIES BEARING AND HOUSING **35 MM TO 155 MM (1 3/16 IN. TO 6 IN.)**



Shaft (d)		Reference		Bearings Ratings							Housing Reference						
				Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B	C	ATL Seals	Other Seal Types	G	F	L	L ₁	
		Add BR for Retained Add BX for Expansion e.g. LSE215BR	Add HRTL for Retained Add HXTL for Expansion e.g. LS4HRTL								Add HR for Retained Add HX for Expansion e.g. LSE215HR						
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.			mm in.	mm in.	mm in.	mm in.	
35 40	1 3⁄16	LSM35 LSM40	LSE103	65 14613	68 15287	3.20 719.38	5400	3.313 84.14	0.937 23.80	2.165 55.00	LS1	LSM35 LSM40	LSE103	100.00 3.937	25 1.0	84 3.3	91 3.6
	LSE104																
	LSE107																
	LSE108																
45 50	1 1⁄4	LSM45 LSM50	LSE111	83 18659	87 19558	3.60 809.30	4630	3.875 98.42	1.000 25.40	2.362 60.00	LS2	LSM45 LSM50	LSE111	117.48 4.625	25 1.0	96 3.8	98 3.9
	LSE112																
	LSE115																
	LSE200																
55 60 65	2 3⁄16	LSM55 LSM60 LSM65	LSE203	103 23155	115 25853	5.40 1213.95	3940	4.500 114.30	1.063 27.00	2.362 60.00	LS3	LSM55 LSM60 LSM65	LSE203	134.94 5.313	32 1.3	102 4.0	104 4.1
	LSE204																
	LSE207																
	LSE208																
70 75	2 1⁄16	LSM70 LSM75	LSE211	138 31024	161 36194	7.60 1708.53	3310	5.250 133.35	1.252 31.80	2.559 65.00	LS4	LSM70 LSM75	LSE211	157.16 6.187	38 1.5	112 4.4	114 4.5
	LSE212																
	LSE215																
	LSE300																
80 85 90	3 3⁄16	LSM80 LSM85 LSM90	LSE303	187 42039	231 51931	12.40 2787.59	2790	6.000 152.4	1.531 38.90	2.953 75.00	LS5	LSM80 LSM85 LSM90	LSE303	177.80 7.000	50 2.0	134 5.3	136 5.4
	LSE304																
	LSE307																
	LSE308																
100 105	3 1⁄16	LSM100 LSM105	LSE311	288 64745	366 82280	16.00 3596.90	2340	6.875 174.62	1.783 45.30	3.346 85.00	LS6	LSM100 LSM105	LSE311	203.20 8.000	50 2.0	132 5.2	134 5.3
	LSE312																
	LSE315																
	LSE400																
110 115	4 3⁄16	LSM110 LSM115	LSE403	316 71040	427 95993	18.60 4181.39	1970	8.000 203.20	1.846 46.90	3.543 90.00	LS7	LSM110 LSM115	LSE403	231.78 9.125	64 2.5	140 5.5	142 5.6
	LSE404																
	LSE407																
	LSE408																
120 125 130	4 1⁄16	LSM120 LSM125 LSM130	LSE411	363 81606	496 111505	22.20 4990.69	1740	8.750 222.25	2.126 54.00	3.740 95.00	LS8	LSM120 LSM125 LSM130	LSE411	266.70 10.500	76 3.0	154 6.1	156 6.1
	LSE412																
	LSE415																
	LSE500																
135 140	5 3⁄16	LSM135 LSM140	LSE503	422 94869	585 131513	25.80 5799.99	1570	9.500 241.30	2.189 55.60	3.874 98.40	LS9	LSM135 LSM140	LSE503	279.40 11.000	76 3.0	166 6.5	168 6.6
	LSE504																
	LSE507																
	LSE508																
150 155 160	5 1⁄4	LSM150 LSM155 LSM160A	LSE511	459 103187	664 149273	29.40 6609.30	1450	10.000 254.00	2.189 55.60	3.874 98.40	LS10 LS10E0548	LSM150 LSM155 LSM160A	LSE511	295.28 11.625	82 3.2	172 6.8	174 6.9
	LSE512																
	LSE515																
	LSE600																

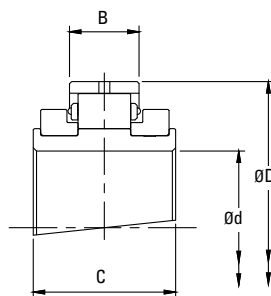
LIGHT SERIES SUPPORT

S01 - S10

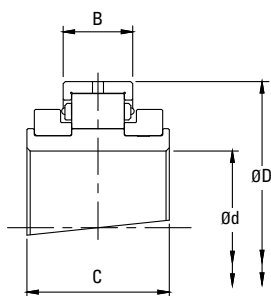


Shaft (d)		Support Reference	H	H ₁	H ₂	J x K	L x M	Bolts
mm	in.		mm in.	mm in.	mm in.	mm in.	mm in.	
35 40	1 3/16 1 1/4 1 7/16 1 1/2	S01	60 2.362	22 0.9	138 5.4	180 7.1	228 x 60 9 x 2.4	2 x M12
45 50	1 11/16 1 3/4 1 15/16 2	S02	70 2.756	25 1.0	158 6.2	214 8.4	270 x 60 10.6 x 2.4	2 x M16
55 60 65	2 3/16 2 1/4 2 7/16 2 1/2	S03	80 3.150	32 1.3	180 7.1	234 9.2	280 x 70 11 x 2.8	2 x M16
70 75	2 11/16 2 3/4 2 15/16 3	S04	95 3.740	38 1.5	208 8.2	270 10.6	330 x 76 13 x 3	2 x M20
80 85 90	3 3/16 3 1/4 3 7/16 3 1/2	S05 S05-4B	112 4.409 112 4.409	44 1.7 44 1.7	242 9.53 242 9.53	320 12.6 328 x 88.9 12.9 x 3.5	380 x 90 15 x 3.5 380 x 140 15 x 5.51	2 x M24 4 x M20
100 105	3 11/16 3 3/4 3 15/16 4	S06 S06-4B	125 4.921 125 4.921	55 2.17 55 2.17	265 10.43 265 10.43	354 13.9 368 x 102 14.5 x 4	420 x 102 16.5 x 4 426 x 152 16.8 x 6	2 x M24 4 x M20
110 115	4 3/16 4 1/4 4 7/16 4 1/2	S07 S07-4B	143 5.630 143 5.630	60 2.4 60 2.4	303 11.93 303 11.93	392 15.4 412 x 114.3 16.2 x 4.5	466 x 120 18.3 x 4.7 476 x 172 17.74 x 6.77	2 x M24 4 x M20
120 125 130	4 11/16 4 3/4 4 15/16 5	S08	162 6.378	38 1.5	372 14.6	450 x 120 17.7 x 4.7	508 x 178 20 x 7	4 x M24
135 140	5 3/16 5 1/4 5 7/16 5 1/2	S09	181 7.126	40 1.6	405 15.9	482 x 120 19 x 4.7	558 x 178 22 x 7	4 x M24
150 155 160	5 11/16 5 3/4 5 15/16 6	S10	181 7.126	40 1.6	415 16.3	496 x 120 19.5 x 4.7	558 x 178 22 x 7	4 x M24

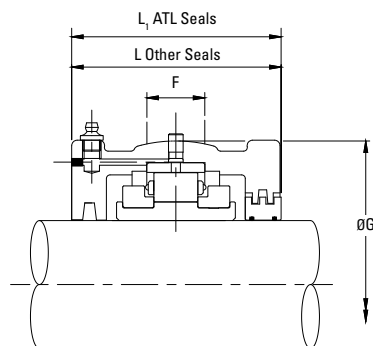
LIGHT SERIES BEARING AND HOUSING **160 MM TO 350 MM (6 7/16 IN. TO 14 IN.)**



Expansion BX



Retained BR

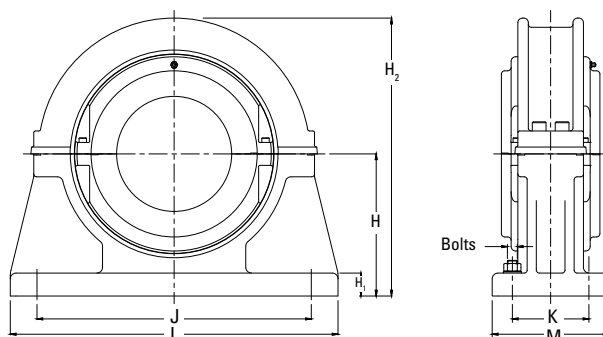


Shaft (d)		Reference		Bearings Ratings							Housing Reference						
				Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B	C	ATL Seals	Other Seal Types		G	F	L	L ₁
		Add BR for Retained Add BX for Expansion e.g. LSE715BR	Add HRTL for Retained Add HXTL for Expansion e.g. LS13HRTL								Add HR for Retained Add HX for Expansion e.g. LS715HR						
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.				mm in.	mm in.	mm in.	mm in.
160 170A	6 7/16 6 1/2	LSM160 LSM170A	LSE607 LSE608	583 131064	792 178049	33.00 7419	1320	273.05 10.750	60.30 2.374	109.00 4.291	LS11	LSM160 LSM170A	LSE607 LSE608	311.15 12.250	76 3.0	172 6.8	192 7.6
170 175 180	6 11/16 6 3/4 6 15/16 7	LSM170 LSM175 LSM180	LSE611 LSE612 LSE615 LSE700	524 117800	828 186142	36.40 8183	1220	285.75 11.250	55.50 2.185	109.00 4.291	LS12	LSM170 LSM175 LSM180	LSE611 LSE612 LSE615 LSE700	323.85 12.750	70 2.8	172 6.8	200 7.9
190 200	7 1/4 7 1/2 7 15/16 8	LSM190 LSM200	LSE704 LSE708 LSE715 LSE800	614 138033	990 222561	41.00 9217	1070	311.15 12.250	60.30 2.374	109.00 4.291	LS13	LSM190 LSM200	LSE704 LSE708 LSE715 LSE800	358.78 14.125	86 3.4	172 6.8	200 7.9
220 230	8 1/2 8 7/8 9	LSM220 LSM230	LSE808 LSE814 LSE900	708 159165	1168 262577	49.00 11016	930	342.90 13.500	63.50 2.500	115.00 4.528	LS14	LSM220 LSM230	LSE808 LSE814 LSE900	387.35 15.250	82 3.2	178 7.0	216 8.5
240 250	9 1/2 9 3/4 10	LSM240 LSM250	LSE908 LSE912 LSE1000	744 167258	1289 289779	57.80 12994	820	374.65 14.750	66.70 2.626	122.00 4.803	LS15	LSM240 LSM250	LSE908 LSE912 LSE1000	419.10 16.500	90 3.5	188 7.4	222 8.7
260 270 280	10 1/2 10 3/4 11	LSM260 LSM270 LSM280	LSE1008 LSE1012 LSE1100	848 190638	1502 337663	66.80 15017	730	406.40 16.000	69.00 2.717	128.00 5.039	LS16	LSM260 LSM270 LSM280	LSE1008 LSE1012 LSE1100	454.00 17.874	95 3.7	204 8.0	232 9.1
300 305	11 1/2 12	LSM300 LSM305	LSE1108 LSE1200	929 208848	1665 374307	78.20 17580	650	438.15 17.250	74.60 2.937	143.00 5.630	LS17	LSM300 LSM305	LSE1108 LSE1200	489.00 19.252	98 3.9	216 8.5	248 9.8
320 330	12 1/2 13	LSM320 LSM330	LSE1208 LSE1300	920 206824	1674 376330	89.00 20008	590	463.55 18.250	74.60 2.937	136.00 5.354	LS18	LSM320 LSM330	LSE1208 LSE1300	520.70 20.500	95 3.7	260 10.2	—
340 350	14	LSM340 LSM350	LSE1400	1022 229755	1965 441745	99.60 22391	540	488.95 19.250	74.60 2.937	136.00 5.354	LS19	LSM340 LSM350	LSE1400	546.10 21.500	98 3.9	260 10.2	—

For triple labyrinth seal designations, please refer to page 32-34.

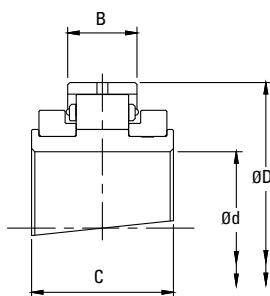
LIGHT SERIES SUPPORT

S11 - S19

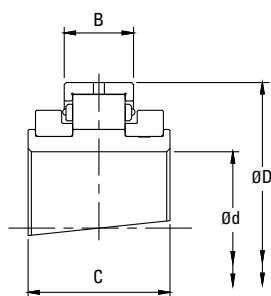


Shaft (d)		Support Reference	H	H ₁	H ₂	J x K	L x M	Bolts
mm	in.		mm in.	mm in.	mm in.	mm in.	mm in.	
160 170A	6 7/16 6 1/2	S11	213 8.386	32 1.3	430 16.9	368 x 114 14.5 x 4.5	508 x 178 20 x 7	4 x M24
170 175 180	6 11/16 6 3/4 6 15/16 7	S12	235 9.252	35 1.4	470 18.5	388 x 128 15.3 x 5	534 x 190 21 x 7.5	4 x M24
190 200	7 1/4 7 1/2 7 15/16 8	S13	248 9.764	38 1.5	495 19.5	422 x 140 16.6 x 5.5	572 x 204 22.5 x 8	4 x M24
220 230	8 1/2 8 7/8 9	S14	270 10.630	40 1.6	540 21.3	460 x 140 18.1 x 5.5	636 x 216 25 x 8.5	4 x M30
240 250	9 1/2 9 3/4 10	S15	292 11.496	44 1.7	585 23.0	502 x 140 19.8 x 5.5	686 x 228 27 x 9	4 x M30
260 270 280	10 1/2 10 3/4 11	S16	311 12.244	48 1.9	620 24.4	534 x 140 21 x 5.5	724 x 228 28.5 x 9	4 x M30
300 305	11 1/2 12	S17	343 13.504	50 2.0	685 27.0	584 x 178 23 x 7	762 x 254 32 x 10	4 x M30
320 330	12 1/2 13	S18	368 14.488	54 2.1	735 28.9	622 x 178 24.5 x 7	812 x 254 32 x 10	4 x M36
340 350	14	S19	387 15.236	57 2.2	775 30.5	654 x 166 25.7 x 6.5	850 x 254 33.5 x 10	4 x M36

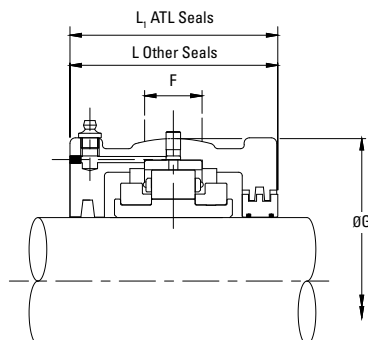
LIGHT SERIES BEARING AND HOUSING **360 MM TO 600 MM (15 IN. TO 24 IN.)**



Expansion BX



Retained BR

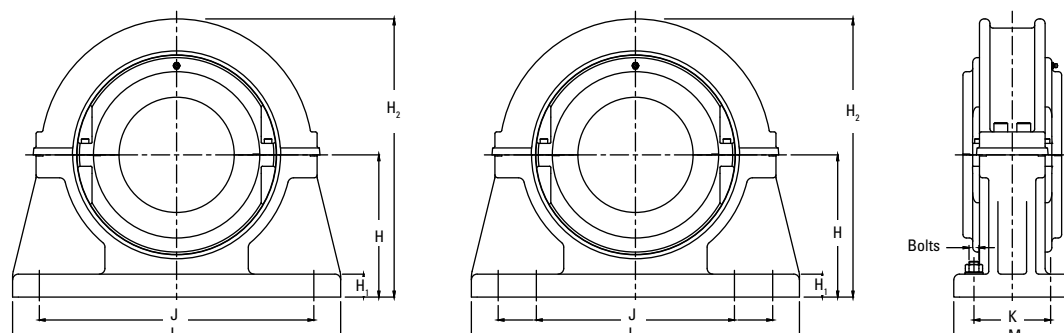


Shaft (d)		Reference		Bearings Ratings							Housing Reference						
				Dynamic C _r	Static C _{0r}	Axial C _a	Max	D	B	C	ATL Seals	Other Seal Types		G	F	L	L ₁
		Add HRTL for Retained Add HXTL for Expansion e.g. LS11HRTL	Add HR for Retained Add HX for Expansion e.g. LSM35HR														
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.				mm in.	mm in.	mm in.	mm in.
360 380	15	LSM360 LSM380	LSE1500	1224 275166	2431 546511	110.40 24819	500	520.70 20.500	76.20 3.000	140.00 5.512	LS20	LSM360 LSM380	LSE1500	571.50 22.500	98 3.9	260 10.2	—
400	16	LSM400	LSE1600	1107 248864	2266 509417	115.60 25988	460	546.10 21.500	76.20 3.000	140.00 5.512	LS21	LSM400	LSE1600	603.30 23.752	102 4.0	280 11.0	—
420	17	LSM420	LSE1700	1146 257631	2418 543588	121.00 27202	430	571.50 22.500	76.20 3.000	140.00 5.512	LS22	LSM420	LSE1700	628.70 24.752	102 4.0	292 11.5	—
440 460	18	LSM440 LSM460	LSE1800	1185 266399	2469 555053	127.20 28596	410	596.90 23.500	76.20 3.000	140.00 5.512	LS23	LSM440 LSM460	LSE1800	650.90 25.626	4.3 108	304 12.0	—
480	19	LSM480	LSE1900	1348 303042	2965 666559	132.60 29810	380	628.65 24.750	81.00 3.189	144.00 5.669	LS24	LSM480	LSE1900	682.60 26.874	4.3 108	304 12.0	—
500	20	LSM500	LSE2000	1392 312934	3139 705675	137.80 30979	360	654.05 25.750	80.20 3.157	168.00 6.614	LS25	LSM500	LSE2000	717.60 28.252	114 4.5	304 12.0	—
530	21	LSM530	LSE2100	1431 321702	3316 745466	140.60 31608	340	692.15 27.250	81.00 3.189	168.00 6.614	LS26	LSM530	LSE2100	755.70 29.752	114 4.5	330 13.0	—
560	22	LSM560	LSE2200	1472 330919	3490 784583	142.40 32013	330	717.55 28.250	81.00 3.189	168.00 6.614	LS27	LSM560	LSE2200	781.10 30.752	114 4.5	336 13.2	—
580	23	LSM580	LSE2300	1616 363291	3841 863491	144.00 32372	310	749.00 29.488	84.10 3.311	172.00 6.772	LS28	LSM580	LSE2300	816.00 32.126	120 4.7	342 13.5	—
600	24	LSM600	LSE2400	1660 373183	4033 906654	146.80 33002	300	774.70 30.500	84.10 3.311	172.00 6.772	LS29	LSM600	LSE2400	841.40 33.126	120 4.7	342 13.5	—

For triple labyrinth seal designations, please refer to page 32-34.

LIGHT SERIES SUPPORT

S20 - S29



Shaft (d)		Support Reference	H	H ₁	H ₂	J x K	L x M	Bolts
mm	in.		mm in.	mm in.	mm in.	mm in.	mm in.	
360 380	15	S20	397 15.630	60 2.4	795 31.3	676 x 166 26.6 x 6.5	902 x 254 35.5 x 10	4 x M36
400	16	S21	432 17.008	67 2.6	865 34.1	724 x 166 28.5 x 6.5	940 x 254 37 x 10	4 x M36
420	17	S22	445 17.520	67 2.6	890 35.0	756 x 166 29.8 x 6.5	966 x 254 38 x 10	4 x M36
440 460	18	S23	464 18.268	70 2.8	925 36.4	788 x 190 31 x 7.5	1042 x 280 41 x 11	4 x M42
480	19	S24	483 19.016	73 2.9	965 38.0	816 x 188 32.1 x 7.4	1092 x 304 43 x 12	4 x M42
500	20	S25	489 19.252	76 3.0	980 38.6	844 x 216 33.2 x 8.5	1092 x 304 43 x 12	4 x M42
530	21	S26	533 20.984	80 3.1	1065 41.9	904 x 206 35.6 x 8.1	1194 x 304 47 x 12	4 x M42
560	22	S27	552 21.732	83 3.3	1110 43.7	936 x 206 36.9 x 8.1	1220 x 304 48 x 12	4 x M42
580	23	S28	578 22.756	83 3.3	1156 45.5	1080 & 877 x 220 42.5 & 34.5 x 8.7	1372 x 304 54 x 12	8 x M36
600	24	S29	597 23.504	90 3.5	1200 47.2	1118 & 908 x 200 44 & 35.7 x 7.9	1372 x 304 54 x 12	8 x M36

LIGHT SERIES SUPPORT

FLANGE UNITS 35 MM - 305 MM (1 3/16 IN. TO 12 IN.)

When faced with flat horizontal or vertical faces, flange units offer a simple mounting solution. As with pillow block supports, flange units are produced with spherical location to accommodate standard bearing housings and provide easy initial alignment of shaft and equipment.

To facilitate positive location of the flange to the surface, the rear face is recessed (dimensions N and V). This allows for a spigot (tolerance f8) to be located into the flange.

Bearing inspection is simply a matter of removing the top half of the flange and housing. Bearing replacement may also be achieved in the same manner if required.

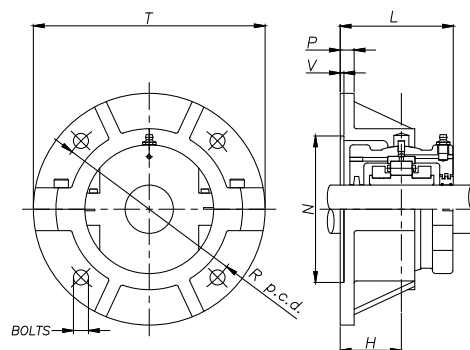
When integrating flange units into new applications, it should be noted that a maximum radial load equivalent to 0.26 C_{or} is permissible. A maximum axial load of 0.25 C_a must also be taken into account for applications with thrust loading. Units for vertically oriented shafts may also need special consideration given to sealing arrangements.

As always, Timken will be happy to advise on any application issues.

Shaft (d)		Flange Reference	T	Bolts	R	P	H	N	V	L
mm	in.		mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
35 40	1 3/16 1 1/4 1 7/16 1 1/2	F01	204 8.0	4 x M12	164 6.5	13 0.5	51 2.0	119.06 4.687	3 0.1	94 3.7
45 50	1 11/16 1 3/4 1 15/16 2	F02	216 8.5	4 x M12	180 7.1	13 0.5	57 2.2	136.52 5.375	3 0.1	106 4.2
55 60 65	2 3/16 2 1/4 2 7/16 2 1/2	F03	260 10.2	4 x M12	218 8.6	16 0.6	67 2.6	166.96 571	3 0.1	120 4.7
70 75	2 11/16 2 3/4 2 15/16 3	F04	286 11.3	4 x M12	242 9.5	16 0.6	73 2.9	192.09 7.563	3 0.1	130 5.1
80 85 90	3 3/16 3 1/4 3 7/16 3 1/2	F05	330 13.0	4 x M16	274 10.8	19 0.7	79 3.1	215.98 500	3 0.1	148 5.8
100 105	3 11/16 3 3/4 3 15/16 4	F06	356 14.0	4 x M16	302 11.9	19 0.7	86 3.4	244.47 9.625	3 0.1	154 6.1
110 115	4 3/16 4 1/4 4 7/16 4 1/2	F07	382 15.0	4 x M16	334 13.1	22 0.9	92 3.6	276.22 10.875	3 0.1	164 6.5
120 125 130	4 11/16 4 3/4 4 15/16 5	F08	432 17.0	4 x M24	374 14.7	22 0.9	98 3.9	314.32 12.375	3 0.1	176 6.9

For bearings and housings see pages 46-49.

continued on next page



continued from previous page

Shaft (d)		Flange Reference	T	Bolts	R	P	H	N	V	L
mm	in.		mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
135 140	5 3/16 5 1/4 5 7/16 5 1/2	F09	444 17.5	4 x M24	384 15.1	25 1.0	98 3.9	317.51 2.500	3 0.1	182 7.2
150 155 160A	5 11/16 5 3/4 5 15/16 6	F10	470 18.5	4 x M24	412 16.2	25 1.0	114 4.5	346.07 13.625	3 0.1	202 8.0
160 170A	6 7/16 6 1/2	F11	496 19.5	4 x M24	426 16.8	25 1.0	105 4.1	352.42 13.875	3 0.1	202 8.0
170 175 180	6 11/16 6 3/4 6 15/16 7	F12	508 20.0	4 x M24	438 17.2	29 1.1	108 4.3	365.12 14.375	3 0.1	208 8.2
190 200	7 1/4 7 1/2 7 15/16 8	F13	534 21.0	4 x M24	474 18.7	32 1.3	108 4.3	400.05 15.750	3 0.1	208 8.2
220 230	8 1/2 8 7/8 9	F14	584 23.0	4 x M30	512 20.2	35 1.4	117 4.6	431.81 7.000	3 0.1	226 8.9
240 250	9 1/2 9 3/4 10	F15	610 24.0	4 x M30	542 21.3	35 1.4	117 4.6	463.55 18.250	3 0.1	228 9.0
260 270 280	10 1/2 10 3/4 11	F16	660 26.0	4 x M30	584 23.0	38 1.5	124 4.9	504.82 19.875	3 0.1	240 9.4
300 305	11 1/2 12	F17	712 28.0	4 x M30	626 24.6	38 1.5	133 5.2	539.75 21.250	3 0.1	258 10.2

For bearings and housings see pages 46-49.

LIGHT SERIES SUPPORT

TAKE-UP UNITS TT/TP 35 MM TO 155 MM (1 3/16 IN. TO 6 IN.)

This type of split unit can be found in use on materials handling equipment in many industries. Take-up units provide an efficient and readily accessible means of tensioning conveyor systems and large scale drives.

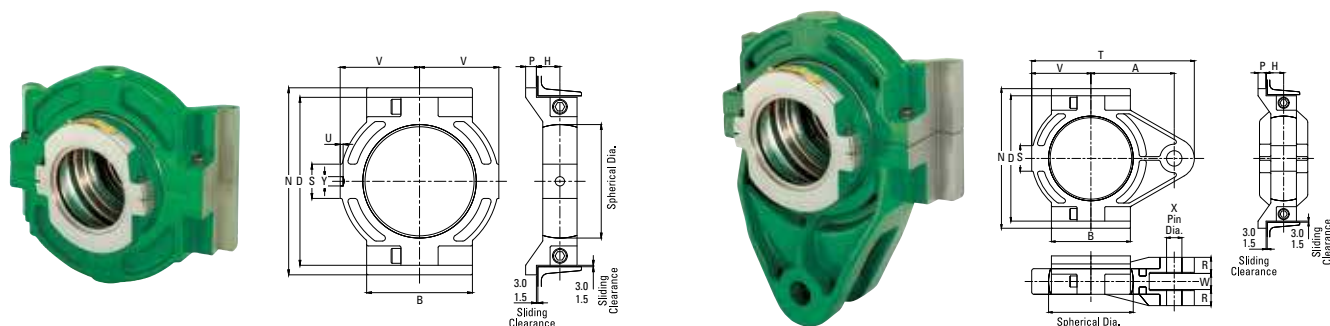
The units consist of either push-type or pull-type sliding supports into which standard housings and bearings may be

mounted. When integrating take-up units into new applications, it should be noted that a maximum radial load equivalent to 0.3 C_{or} is permissible. As with all Timken units, a wide variety of sealing solutions may be applied dependant on the environment and application. Please contact a Timken engineer for assistance.

Shaft (d)		Support Reference		B	N	D	V	P	H	S	A	T	X	W	R	U	Y
		Tension-Type	Push-Type														
mm	in.			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
35 40	1 3/16 1 1/4 1 7/16 1 1/2	TT01	TP01	102 4.0	172 6.8	153 6.0	76 3.0	14 0.6	29 1.1	25 1.0	32 1.3	216 8.5	20 0.8	25 1.0	24 0.9	5 0.2	13 0.5
45 50	1 11/16 1 3/4 1 15/16 2	TT02	TP02	114 4.5	204 8.0	178 7.0	88 3.5	16 0.6	29 1.1	29 1.1	128 5.0	242 9.5	24 0.9	25 1.0	25 1.0	5 0.2	13 0.5
55 60 65	2 3/16 2 1/4 2 7/16 2 1/2	TT03	TP03	128 5.0	235 9.3	203 8.0	102 4.0	20 0.8	32 1.3	38 1.5	146 5.7	280 11.0	24 0.9	30 1.2	29 1.1	6 0.2	16 0.6
70 75	2 11/16 2 3/4 2 15/16 3	TT04	TP04	152 6.0	266 10.5	229 9.0	114 4.5	22 0.9	40 1.6	41 1.6	158 6.2	305 12.0	24 0.9	30 1.2	32 1.3	6 0.2	16 0.5
80 85 90	3 3/16 3 1/4 3 7/16 3 1/2	TT05	TP05	190 7.5	318 12.5	280 11.0	140 5.5	22 0.9	40 1.6	51 2.0	190 7.5	368 14.5	30 1.2	38 1.5	35 1.4	6 0.2	16 0.5

For bearings and housings see pages 46-49.

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continued from previous page

Shaft (d)		Support Reference		B	N	D	V	P	H	S	A	T	X	W	R	U	Y
		Tension-Type	Push-Type														
mm	in.			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
100 105	3 11/16 3 3/4 3 15/16 4	TT06	TP06	204 8.0	342 13.5	305 12.0	152 6.0	22 0.9	43 1.7	51 2.0	210 8.3	414 16.3	36 1.4	44 1.7	35 1.4	6 0.2	19 0.7
110 115	4 3/16 4 1/4 4 7/16 4 1/2	TT07	TP07	216 8.5	382 15.0	343 13.5	162 6.4	22 0.9	48 1.9	70 2.8	228 9.0	445 17.5	42 1.7	44 1.7	41 1.6	6 0.2	19 0.7
120 125 130	4 11/16 4 3/4 4 15/16 5	TT08	TP08	254 10.0	420 16.5	381 15.0	190 7.5	25 1.0	51 2.0	76 3.0	260 10.2	508 20.0	42 1.7	44 1.7	44 1.7	6 0.2	19 0.7
135 140	5 3/16 5 1/4 5 7/16 5 1/2	TT09	TP09	266 10.5	438 17.2	400 15.7	196 7.7	25 1.0	54 2.1	76 3.0	266 10.5	514 20.2	42 1.7	44 1.7	48 1.9	8 0.3	23 0.9
150 155 160	5 11/16 5 3/4 5 15/16 6	TT10	TP10	266 10.5	464 18.3	426 16.8	204 8.0	25 1.0	57 2.2	86 3.4	280 11.0	546 21.5	48 1.9	50 2.0	51 2.0	8 0.3	23 0.9

For bearings and housings see pages 46-49.

LIGHT SERIES SUPPORT HANGER UNITS

Timken hanger units are the optimum solution for the support of screw conveyor shafts. The unit is comprised of a cast iron split housing into which expansion-type split cylindrical roller bearings are fitted. Provision of a drilled and tapped boss in one half of the housing allows for the unit to be mounted from the conveyor cross bracing or any other suitable surface. It is recommended that some form of swivel fixing be incorporated into the mounting arrangement to allow for static alignment.

Due to the arduous conditions often found in screw conveyor applications, correct seal selection is critical. Timken hanger units are available with many sealing variants, all of which can

also be tailored to suit specific applications. When integrating hanging units into new applications, it should be noted that a maximum radial load equivalent to 0.3 C_{or} is permissible. Only suitable for an expansion (BX) type bearings. Please contact a Timken engineer for further information.

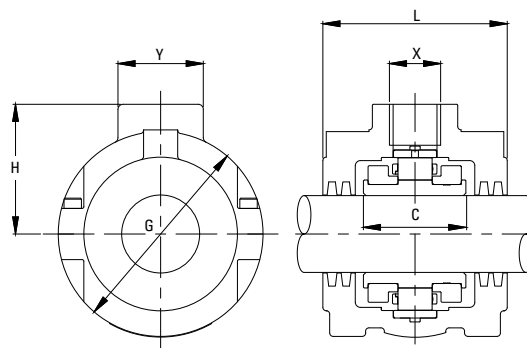
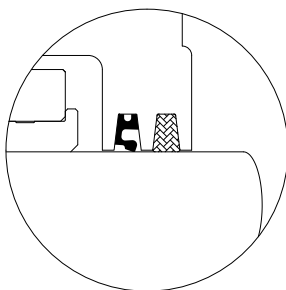
Hanger units have two seal grooves per side. They are supplied with double felt seals as standard. However, the standard seal groove will accept any combination of strip seal.

A further option is to have a tapped hole between the seal grooves at each end of the housing to incorporate a grease or air supply to purge the seals.

Shaft (d)		Support Reference		C	G	L	H	X ⁽¹⁾	Y
mm	in.	mm	in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
35 40	1 ³ / ₁₆ 1 ¹ / ₄ 1 ⁷ / ₁₆ 1 ¹ / ₂	LSM35HG LSM40HG	LSE103HG LSE104HG LSE107HG LSE108HG	55.0 2.165	106 4.2	108 4.3	66 2.6	M30 1 - 8 UNC	50 2.0
45 50	1 ¹¹ / ₁₆ 1 ³ / ₄ 1 ¹⁵ / ₁₆ 2	LSM45HG LSM50HG	LSE111HG LSE112HG LSE115HG LSE200HG	60.0 2.362	121 4.8	108 4.3	76 3.0	M30 1 - 8 UNC	50 2.0
55 60 65	2 ³ / ₁₆ 2 ¹ / ₄ 2 ⁷ / ₁₆ 2 ¹ / ₂	LSM55HG LSM60HG LSM65HG	LSE203HG LSE204HG LSE207HG LSE208HG	60.0 2.362	140 5.5	108 4.3	82 3.2	M30 1 - 8 UNC	50 2.0
70 75	2 ¹¹ / ₁₆ 2 ³ / ₄ 2 ¹⁵ / ₁₆ 3	LSM70HG LSM75HG	LSE211HG LSE212HG LSE215HG LSE300HG	65.0 2.559	162 6.4	130 5.1	92 3.6	M30 1 - 8 UNC	50 2.0
80 85 90	3 ³ / ₁₆ 3 ¹ / ₄ 3 ⁷ / ₁₆ 3 ¹ / ₂	LSM80HG LSM85HG LSM90HG	LSE303HG LSE304HG LSE307HG LSE308HG	75.0 2.953	187 7.4	146 5.7	114 4.5	M36 1 ¹ / ₂ - 6 UNC	76 3.0

⁽¹⁾ Hanger units with inch bore sizes have UNC mounting threads as standard. Hanger units with metric bore sizes have metric mounting threads as standard

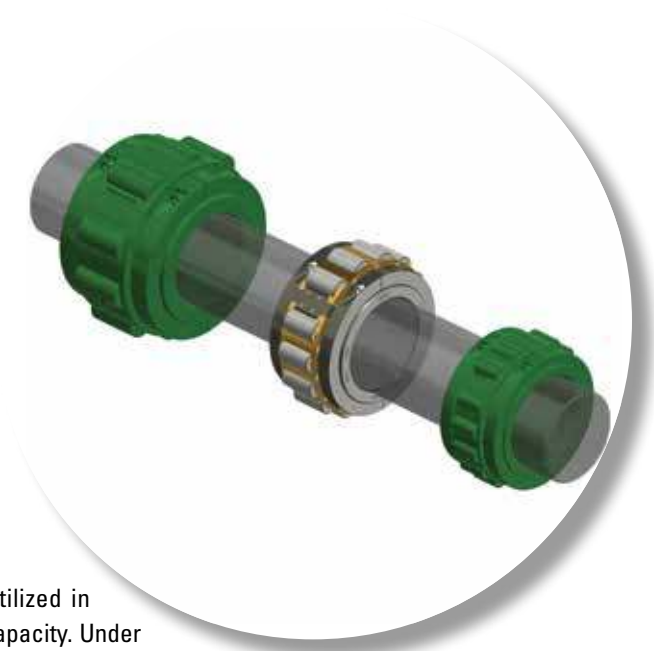
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Shaft (d)		Support Reference		C	G	L	H	X ⁽¹⁾	Y
mm	in.			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
100	3 1/16	LSM100HG LSM105HG	LSE311HG	85.0 3.346	210 8.3	152 6.0	128 5.0	M36 1 1/2 - 6 UNC	76 3.0
105	3 3/8		LSE312HG						
	3 15/16		LSE315HG						
	4		LSE400HG						
110	4 3/16	LSM110HG LSM115HG	LSE403HG	90.0 3.543	232 9.1	156 6.1	140 5.5	M36 1 1/2 - 6 UNC	76 3.0
115	4 1/4		LSE404HG						
	4 7/8		LSE407HG						
	4 1/2		LSE408HG						
120	4 11/16	LSM120 LSM125 LSM130	LSE411	95 3.740	276 10.866	162 6.378	156 6.142	M36 1 1/2 - 6 UNC	76 2.992
125	4 3/4		LSE412						
130	4 15/16		LSE415						
	5		LSE500						
135	5 3/16	LSM135 LSM140	LSE503	98.4 3.874	280 11.024	158 6.220	160 6.299	M36 1 1/2 - 6 UNC	75 2.953
140	5 1/4		LSE504						
	5 7/8		LSE507						
	5 1/2		LSE508						

⁽¹⁾ Hanger units with inch bore sizes have UNC mounting threads as standard. Hanger units with metric bore sizes have metric mounting threads as standard



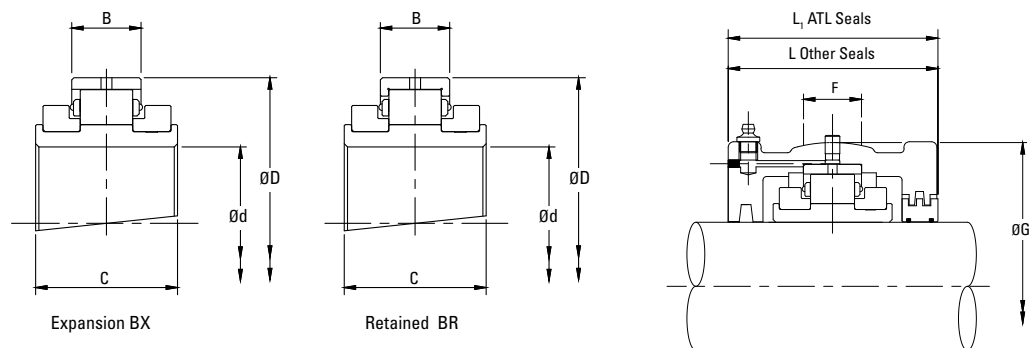
MEDIUM SERIES

Medium series bearing products can be utilized in applications requiring higher load-carrying capacity. Under normal conditions, medium series also may be selected to provide an extended bearing life when compared to light series. Medium series offers the same range of mounting and sealing solutions as light series, with the exception of hanger units. If a standard catalog product does not meet your requirements, a Timken engineer will be happy to provide help and advice on your application.

The following topics are covered within this section:

Medium Series Bearing and Housing	
45 mm to 155 mm (1 ¹¹ / ₁₆ in. to 6 in.)	60
Medium Series Support S03 - S31	61
Medium Series Bearing and Housing	
160 mm to 360 mm (6 ⁷ / ₁₆ in. to 14 in.)	62
Medium Series Support S32 - S40	63
Medium Series Bearing and Housing	
380 mm to 600 mm (15 in. to 24 in.)	64
Medium Series Support S41 - S50	65
Medium Series Support Flange Units	
45 mm to 305 mm (1 ¹¹ / ₁₆ in. to 12 in.)	66
Medium Series Support Take-Up Units TT/TP	
45 mm to 155 mm (1 ¹¹ / ₁₆ in. to 6 in.)	68

MEDIUM SERIES BEARING AND HOUSING **45 MM TO 155 MM (1 1/16 IN. TO 6 IN.)**

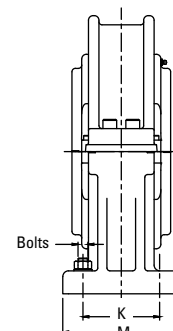
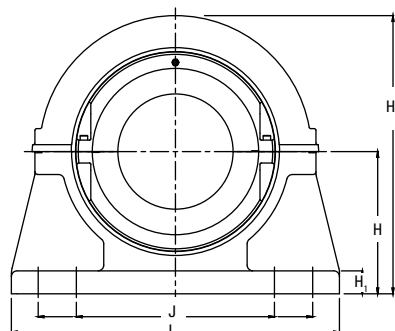
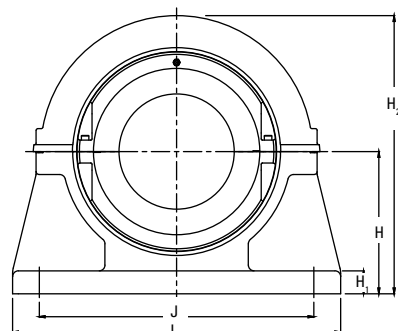


Shaft (d)		Reference		Bearings Ratings							Housing Reference						
		Add BR for Retained Add BX for Expansion e.g. MSM55BR		Dynamic C _r	Static C _{0r}	Axial C _a	Max	D	B	C	ATL Seals Add HRTL for Retained Add HXTL for Expansion e.g. MS3HRTL	Other Seal Types Add HR for Retained Add HX for Expansion e.g. MSM55HR		G	F	L	L ₁
		mm	in.	kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.				mm in.	mm in.	mm in.	mm in.
45 50	1 1/16 1 3/4	MSM45 MSM50	MSE111 MSE112	121 27202	127 28551	6.20 1394	4350	107.95 4.250	35.00 1.378	67.50 2.657	MS3	MSM45 MSM50	MSE111 MSE112	134.94 5.313	32 1.3	112 4.4	114 4.5
	1 1/16 2		MSE115 MSE200										MSE115 MSE200				
55 60 65	2 3/16 2 1/4	MSM55 MSM60 MSM65	MSE203 MSE204	168 37768	190 42714	8.80 1978	3680	127.00 5.000	38.90 1.531	72.30 2.846	MS4	MSM55 MSM60 MSM65	MSE203 MSE204	157.16 6.187	38 1.5	124 4.9	126 5.0
	2 1/4 2 1/2		MSE207 MSE208										MSE207 MSE208				
70 75	2 11/16 2 3/4	MSM70 MSM75	MSE211 MSE212	258 58001	300 67443	10.60 2383	3080	149.22 5.875	46.10 1.815	82.60 3.252	MS5	MSM70 MSM75	MSE211 MSE212	177.80 7.000	50 2.0	138 5.4	140 5.5
	2 11/16 3		MSE215 MSE300										MSE215 MSE300				
80 85 90	3 3/16 3 1/4	MSM80 MSM85 MSM90	MSE303 MSE304	297 66768	353 79358	17.80 4002	2520	169.86 6.687	48.40 1.906	89.70 3.531	MS6	MSM80 MSM85 MSM90	MSE303 MSE304	203.20 8.000	50 2.0	152 6.0	154 6.1
	3 1/4 3 1/2		MSE307 MSE308										MSE307 MSE308				
100 105	3 11/16 3 3/4	MSM100 MSM105	MSE311 MSE312	388 87226	491 110381	25.00 5620	2130	193.68 7.625	51.60 2.031	92.10 3.626	MS7	MSM100 MSM105	MSE311 MSE312	231.78 9.125	64 2.5	144 5.7	146 5.7
	3 11/16 4		MSE315 MSE400										MSE315 MSE400				
110 115	4 3/16 4 1/4	MSM110 MSM115	MSE403 MSE404	454 102063	592 133087	31.20 7014	1820	228.60 9.000	57.20 2.252	100.00 3.937	MS8	MSM110 MSM115	MSE403 MSE404	266.70 10.500	76 3.0	160 6.3	162 6.4
	4 1/4 4 1/2		MSE407 MSE408										MSE407 MSE408				
120 125 130	4 11/16 4 3/4	MSM120 MSM125 MSM130	MSE411 MSE412	525 118025	700 157366	38.20 8588	1600	254.00 10.000	63.50 2.500	114.30 4.500	MS10	MSM120 MSM125 MSM130	MSE411 MSE412	295.28 11.625	82 3.2	182 7.2	184 7.2
	4 11/16 5		MSE415 MSE500										MSE415 MSE500				
135 140	5 3/16 5 1/4	MSM135 MSM140	MSE503 MSE504	600 134885	817 183669	45.40 10206	1450	273.05 10.750	66.70 2.626	117.50 4.626	MS30	MSM135 MSM140	MSE503 MSE504	323.85 12.750	90 3.5	186 7.3	188 7.4
	5 1/4 5 1/2		MSE507 MSE508										MSE507 MSE508				
150 155 160	5 11/16 5 3/4	MSM150 MSM155 MSM160A	MSE511 MSE512	730 164111	1034 232453	52.40 11780	1320	292.10 11.500	68.30 2.689	123.80 4.874	MS31 MS32E0548	MSM150 MSM155 MSM160A	MSE511 MSE512	336.55 13.250	95 3.7	202 8.0	204 8.0
	5 11/16 6		MSE515 MSE600										MSE515 MSE600				

For triple labyrinth seal designations, please refer to page 32-34.

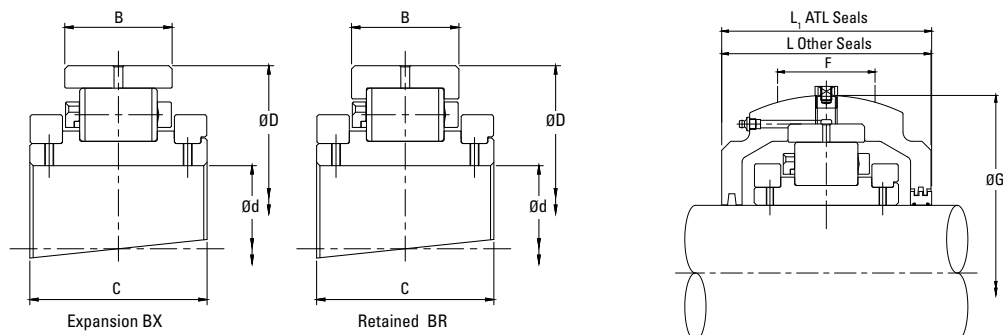
MEDIUM SERIES SUPPORT

S03 - S31



Shaft (d)		Support Reference	H	H ₁	H ₂	J x K	L x M	Bolts
mm	in.		mm in.	mm in.	mm in.	mm in.	mm in.	
45 50	1 11/16 1 3/4 1 15/16 2	S03	80 3.150	32 1.3	180 7.1	234 9.2	280 x 70 11 x 2.8	2 x M16
55 60 65	2 3/16 2 1/4 2 7/16 2 1/2	S04	95 3.740	38 1.5	208 8.2	270 10.6	330 x 76 13 x 3	2 x M20
70 75	2 11/16 2 3/4 2 15/16 3	S05 S05-4B	112 4.409 112 4.409	44 1.7 44 1.7	242 9.53 242 9.53	320 12.6 328 x 88.9 12.9 x 3.5	380 x 90 15 x 3.5 380 x 140 15 x 5.51	2 x M20 4 x M20
80 85 90	3 3/16 3 1/4 3 7/16 3 1/2	S06 S06-4B	125 4.921 125 4.921	55 2.17 55 2.17	265 10.43 265 10.43	354 13.9 368 x 102 14.5 x 4	420 x 102 16.5 x 4 426 x 152 16.8 x 6	2 x M24 4 x M20
100 105	3 11/16 3 3/4 3 15/16 4	S07 S07-4B	143 5.630 143 5.630	60 2.4 60 2.4	303 11.93 303 11.93	392 15.4 412 x 114.3 16.2 x 4.5	466 x 120 18.3 x 4.7 476 x 172 17.74 x 6.77	2 x M24 4 x M20
110 115	4 3/16 4 1/4 4 7/16 4 1/2	S08	162 6.378	38 1.5	372 14.6	450 x 120 17.7 x 4.7	508 x 178 20 x 7	4 x M24
120 125 130	4 11/16 4 3/4 4 15/16 5	S10	181 7.126	40 1.6	415 16.3	496 x 120 19.5 x 4.7	558 x 178 22 x 7	4 x M24
135 140	5 3/16 5 1/4 5 7/16 5 1/2	S30	203 7.992	50 2.0	460 18.1	546 x 120 21.5 x 4.7	610 x 178 24 x 7	4 x M24
150 155 160	5 11/16 5 3/4 5 15/16 6	S31	210 8.268	50 2.0	470 18.5	558 x 128 22 x 5	636 x 204 25 x 8	4 x M24

MEDIUM SERIES BEARING AND HOUSING **160 MM TO 360 MM (6 7/16 IN. TO 14 IN.)**

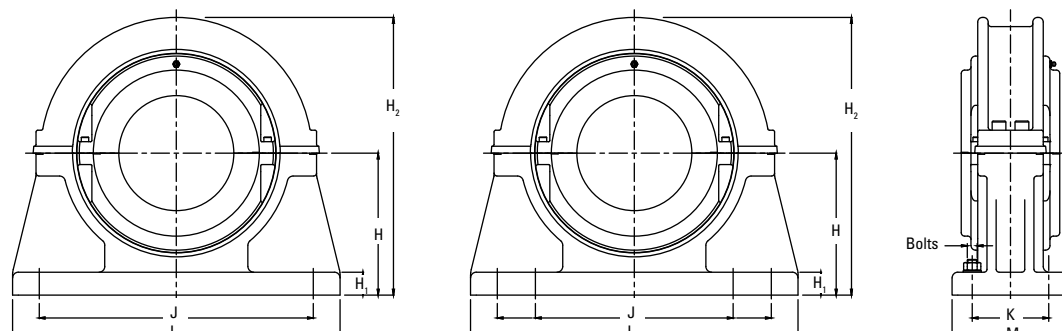


Shaft (d)		Reference Add BR for Retained Add BX for Expansion e.g. MSM160BR		Bearings Ratings							Housing Reference						
				Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B	C	ATL Seals	Other Seal Types	G	F	L	L ₁	
											Add HRTL for Retained Add HXTL for Expansion e.g. MS3HRTL	Add HR for Retained Add HX for Expansion e.g. MSM160HR					
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.			mm in.	mm in.	mm in.	mm in.	
160 170	6 7/16 6 1/2 6 11/16 6 3/4	MSM160 MSM170	MSE607 MSE608 MSE611 MSE612	842 189289	1175 264151	61.40 13803	1200	317.50 12.500	83.30 3.280	140.00 5.512	MS32	MSM160 MSM170	MSE607 MSE608 MSE611 MSE612	368.30 14.500	95 3.7	206 8.1	232 9.1
175 180	6 15/16 7	MSM175 MSM180	MSE615 MSE700	927 208398	1357 305066	71.20 16006	1120	330.20 13.000	83.30 3.280	140.00 5.512	MS33	MSM175 MSM180	MSE615 MSE700	381.00 15.000	95 3.7	222 8.7	242 9.5
190 200	7 1/4 7 1/2 7 15/16 8	MSM190 MSM200	MSE704 MSE708 MSE715 MSE800	1013 227732	1516 340810	80.00 17985	960	368.30 14.500	90.50 3.563	156.00 6.142	MS34	MSM190 MSM200	MSE704 MSE708 MSE715 MSE800	425.50 16.752	105 4.1	235 9.3	258 10.2
220 230	8 1/2 8 7/8 9	MSM220 MSM230	MSE808 MSE814 MSE900	1138 255833	1668 374981	89.80 20188	850	393.70 15.500	90.50 3.563	163.00 6.417	MS35	MSM220 MSM230	MSE808 MSE814 MSE900	457.20 18.000	110 4.3	242 9.5	274 10.8
240 250 260	9 1/2 9 3/4 10	MSM240 MSM250 MSM260	MSE908 MSE912 MSE1000	1354 304391	2117 475921	98.80 22211	750	431.80 17.000	96.80 3.811	170.00 6.693	MS36 MS36E0548	MSM240 MSM250 MSM260	MSE908 MSE912 MSE1000	495.30 19.500 —	118 4.6 —	248 9.8 —	280 11.0 —
270 280	10 1/2 10 3/4 11	MSM270 MSM280	MSE1008 MSE1012 MSE1100	1476 331818	2357 529875	113.80 25583	670	463.55 18.250	101.60 4.000	186.00 7.323	MS37	MSM270 MSM280	MSE1008 MSE1012 MSE1100	527.10 20.752	130 5.1	264 10.4	300 11.8
300 305	11 1/2 12	MSM300 MSM305	MSE1108 MSE1200	1587 356772	2644 594395	129.00 29000	610	495.30 19.500	103.20 4.063	193.00 7.598	MS38	MSM300 MSM305	MSE1108 MSE1200	552.50 21.752	128 5.0	268 10.6	306 12.0
320 330	12 1/2 13	MSM320 MSM330	MSE1208 MSE1300	1723 387346	2922 656892	144.20 32417	550	527.05 20.750	106.40 4.189	192.00 7.559	MS39	MSM320 MSM330	MSE1208 MSE1300	587.40 23.126	128 5.0	298 11.7	—
340 350 360	14	MSM340 MSM350 MSM360	MSE1400	1989 447145	3403 765025	159.20 35790	500	565.15 22.250	115.90 4.563	200.00 7.874	MS40	MSM340 MSM350 MSM360	MSE1400	628.70 24.752	146 5.7	305 12.0	—

For triple labyrinth seal designations, please refer to page 32-34.

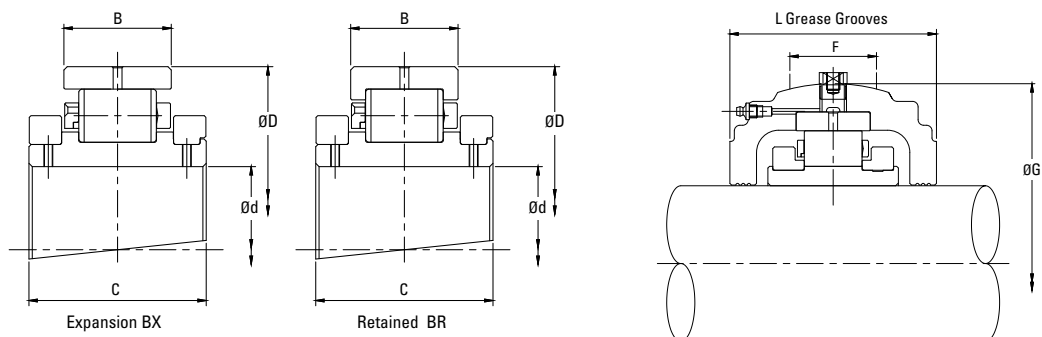
MEDIUM SERIES SUPPORT

S32 - S40



Shaft (d)		Support Reference	H		H ₁		H ₂		J x K		L x M		Bolts
mm	in.		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
160 170	6 7/16 6 1/2	S32	267 10.512		44 1.7		535 21.1		448 x 172 17.6 x 6.8		596 x 242 23.5 x 9.5		4 x M30
175 180	6 11/16 6 3/4 6 15/16 7	S33	273 10.748		44 1.7		545 21.5		458 x 166 18 x 6.5		636 x 242 25 x 9.5		4 x M30
190 200	7 1/4 7 1/2 7 15/16 8	S34	305 12.008		50 2.0		610 24.0		508 x 190 20 x 7.5		686 x 266 27 x 10.5		4 x M30
220 230	8 1/2 8 7/8 9	S35	324 12.756		50 2.0		650 25.6		550 x 190 21.7 x 7.5		750 x 280 29.5 x 11		4 x M30
240 250 260	9 1/2 9 3/4 10	S36	356 14.016		54 2.1		710 28.0		596 x 204 23.5 x 8		812 x 292 32 x 11.5		4 x M36
270 280	10 1/2 10 3/4 11	S37	378 14.882		60 2.4		760 29.9		736 & 534 x 254 29 & 21 x 10		914 x 330 36 x 13		8 x M30
300 305	11 1/2 12	S38	394 15.512		60 2.4		790 31.1		768 & 566 x 254 30.2 & 22.3 x 10		958 x 330 37.7 x 13		8 x M30
320 330	12 1/2 13	S39	419 16.496		64 2.5		840 33.1		812 & 610 x 210 32 & 24 x 8.3		1016 x 292 40 x 11.5		8 x M30
340 350 360	14	S40	451 17.756		67 2.6		900 35.4		864 & 660 x 280 34 & 26 x 11		1092 x 368 43 x 14.5		8 x M36

MEDIUM SERIES BEARING AND HOUSING **380 MM TO 600 MM (15 IN. TO 24 IN.)**

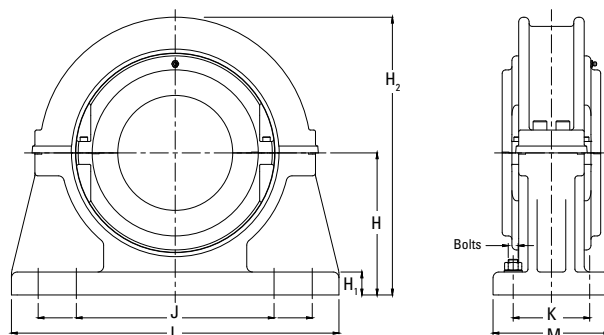


Shaft (d)		Reference		Bearings Ratings						Housing Reference							
										ATL Seals		Other Seal Types		G	F	L	L ₁
		Add BR for Retained Add BX for Expansion e.g. MS1700BR		Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B	C	Add HRTL for Retained Add HXTL for Expansion e.g. MS34HRTL		Add HR for Retained Add HX for Expansion e.g. MSE1700HR				
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.			mm in.	mm in.	mm in.	mm in.	
380	15	MSM380	MSE1500	1931 434106	3522 791778	174.40 39207	460	584.20 23.000	111.10 4.374	200.00 7.874	MS41	MSM360 MSM380	MSE1500	647.70 25.500	146 5.7	305 12.0	—
400	16	MSM400	MSE1600	2105 473223	3793 852701	188.40 42354	430	615.95 24.250	115.90 4.563	200.00 7.874	MS42	MSM400	MSE1600	685.80 27.000	146 5.7	324 12.8	—
420	17	MSM420	MSE1700	2324 522456	4164 936105	202.00 45411	400	647.70 25.500	119.10 4.689	200.00 7.874	MS43	MSM420	MSE1700	717.60 28.252	146 5.7	350 13.8	—
440 460	18	MSM440 MSM460	MSE1800	2215 497952	4183 940376	216.00 48559	380	666.75 26.250	115.90 4.563	200.00 7.874	MS44	MSM440 MSM460	MSE1800	733.40 28.874	146 5.7	350 13.8	—
480	19	MSM480	MSE1900	2445 549658	4594 1032773	230.00 51706	360	698.50 27.500	119.10 4.689	223.00 8.780	MS45	MSM480	MSE1900	762.00 30.000	146 5.7	368 14.5	—
500	20	MSM500	MSE2000	2453 551456	5054 1137229	244.00 54853	340	717.55 28.250	115.90 4.563	226.00 8.898	MS46	MSM500	MSE2000	787.40 31.000	146 5.7	368 14.5	—
530	21	MSM530	MSE2100	2702 607434	5467 1230020	258.00 58001	330	762.00 30.000	119.10 4.689	229.00 9.016	MS47	MSM530	MSE2100	831.90 32.752	150 5.9	368 14.5	—
560	22	MSM560	MSE2200	2851 640930	5794 1303567	272.00 61148	310	793.75 31.250	122.20 4.811	233.00 9.173	MS48	MSM560	MSE2200	866.80 34.126	152 6.0	374 14.7	—
580	23	MSM580	MSE2300	2982 670380	6231 1402056	286.00 64295	300	812.80 32.000	119.10 4.689	232.00 9.134	MS49	MSM580	MSE2300	883.00 34.764	152 6.0	374 14.7	—
600	24	MSM600	MSE2400	2972 668132	6243 1404650	300.00 67443	290	838.20 33.000	119.10 4.689	214.00 8.425	MS50	MSM600	MSE2400	914.40 36.000	152 6.0	388 15.3	—

For triple labyrinth seal designs, please refer to page 32-34.

MEDIUM SERIES SUPPORT

S41 - S50



Shaft (d)		Support Reference	H	H ₁	H ₂	J x K	L x M	Bolts
mm	in.		mm in.	mm in.	mm in.	mm in.	mm in.	
380	15	S41	464 18.268	67 2.6	925 36.4	886 & 682 x 280 34.9 & 26.9 x 11	1092 x 368 43 x 14.5	8 x M36
400	16	S42	495 19.488	70 2.8	990 39.0	934 & 730 x 280 36.8 & 28.7 x 11	1168 x 368 46 x 14.5	8 x M36
420	17	S43	514 20.236	70 2.8	1030 40.6	972 & 768 x 280 38.3 & 30.2 x 11	1194 x 368 47 x 14.5	8 x M36
440 460	18	S44	533 20.984	73 2.9	1070 42.1	996 & 788 x 280 39.2 & 31 x 11	1244 x 368 49 x 14.5	8 x M36
480	19	S45	552 21.732	76 3.0	1110 43.7	1042 & 812 x 280 41 & 32 x 11	1270 x 368 50 x 14.5	8 x M36
500	20	S46	572 22.520	80 3.1	1145 45.1	1074 & 844 x 280 42.3 & 33.2 x 11	1296 x 368 51 x 14.5	8 x M36
530	21	S47	594 23.386	83 3.3	1180 46.5	1118 & 890 x 280 44 & 35 x 11	1398 x 368 55 x 14.5	8 x M36
560	22	S48	616 24.252	86 3.4	1230 48.4	1158 & 930 x 280 45.6 & 36.6 x 11	1422 x 382 56 x 15	8 x M42
580	23	S49	635 25.000	89 3.5	1270 50.0	1187 & 959 x 280 46.7 & 37.8 x 11	1448 x 382 57 x 15	8 x M42
600	24	S50	673 26.496	92 3.6	1345 53.0	1238 & 1010 x 280 48.7 & 39.8 x 11	1524 x 382 60 x 15	8 x M42

MEDIUM SERIES SUPPORT

FLANGE UNITS 45 MM TO 305 MM (1 1/16 IN. TO 12 IN.)

When faced with flat horizontal or vertical faces, flange units offer a simple mounting solution. As with pillow block supports, flange units are produced with spherical location to accommodate standard bearing housings and provide easy initial alignment of shaft and equipment.

To facilitate positive location of the flange to the surface, the rear face is recessed (dimensions N and V). This allows for a spigot (tolerance f8) to be located into the flange.

Bearing inspection is simply a matter of removing the top half of the flange and housing. Bearing replacement also may be achieved in the same manner if required.

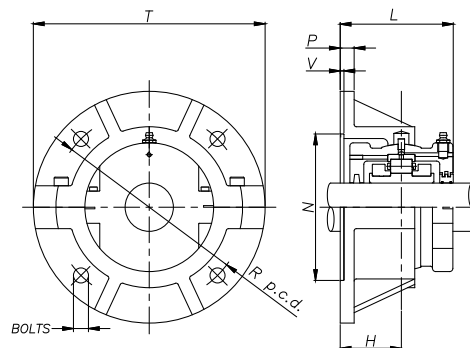
When integrating flange units into new applications, it should be noted that a maximum radial load equivalent to 0.26 C_{or} is permissible. A maximum axial load of 0.25 C_a also must be taken into account for applications with thrust loading. Units for vertically oriented shafts may also need special consideration given to sealing arrangements.

Contact a Timken engineer for any application issues.

Shaft (d)		Flange Reference	T	Bolts	R	P	H	N	V	L
mm	in.		mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
45 50	1 1/16 1 3/4 1 5/16 2	F03	260 10.2	4 x M12	218 8.6	16 0.6	67 2.6	166.9 6.571	3 0.1	124 4.9
55 60 65	2 3/16 2 1/4 2 7/16 2 1/2	F04	286 11.3	4 x M12	242 9.5	16 0.6	73 2.9	192.09 7.563	3 0.1	136 5.4
70 75	2 11/16 2 3/4 2 15/16 3	F05	330 13.0	4 x M16	274 10.8	19 0.7	79 3.1	215.9 8.500	3 0.1	150 5.9
80 85 90	3 3/16 3 1/4 3 7/16 3 1/2	F06	356 14.0	4 x M16	302 11.9	19 0.7	86 3.4	244.47 9.625	3 0.1	164 6.5
100 105	3 11/16 3 3/4 3 15/16 4	F07	382 15.0	4 x M16	334 13.1	22 0.9	92 3.6	276.22 10.875	3 0.1	166 6.5
110 115	4 3/16 4 1/4 4 7/16 4 1/2	F08	432 17.0	4 x M24	374 14.7	22 0.9	98 3.9	314.32 12.375	3 0.1	180 7.1
120 125 130	4 11/16 4 3/4 4 15/16 5	F10	470 18.5	4 x M24	412 16.2	25 1.0	114 4.5	346.07 13.625	3 0.1	206 8.1
135 140	5 3/16 5 1/4 5 7/16 5 1/2	F30	508 20.0	4 x M24	444 17.5	25 1.0	114 4.5	377.82 14.875	3 0.1	208 8.2

For bearings and housings see pages 60, 62 and 64.

continued on next page



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Shaft (d)		Flange Reference	T	Bolts	R	P	H	N	V	L
mm	in.		mm in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
150 155 160A	5 11/16 5 3/4 5 15/16 6	F31	534 21.0	4 x M24	466 18.3	25 1.0	124 4.9	393.70 15.500	3 0.1	226 8.9
160 170	6 7/16 6 1/2	F32	584 23.0	4 x M30	508 20.0	29 1.1	124 4.9	428.62 16.875	5 0.2	240 9.4
175 180	6 11/16 6 3/4 6 15/16 7	F33	596 23.5	4 x M30	524 20.6	32 1.3	130 5.1	444.50 17.500	5 0.2	252 9.9
190 200	7 1/4 7 1/2 7 15/16 8	F34	648 25.5	4 x M30	572 22.5	32 1.3	137 5.4	492.12 19.375	5 0.2	266 10.5
220 230	8 1/2 8 7/8 9	F35	712 28.0	4 x M36	620 24.4	35 1.4	146 5.7	527.05 20.750	5 0.2	284 11.2
240 250 260	9 1/2 9 3/4 10	F36	736 29.0	4 x M36	660 26.0	38 1.5	149 5.9	568.32 22.375	5 0.2	290 11.4
270 280	10 1/2 10 3/4 11	F37	762 30.0	8 x M30	682 26.9	38 1.5	159 6.3	603.25 23.750	5 0.2	310 12.2
300 305	11 1/2 12	F38	788 31.0	8 x M30	708 27.9	41 1.6	162 6.4	628.65 24.750	5 0.2	316 12.4

MEDIUM SERIES SUPPORT

TAKE-UP UNITS TT/TP 45 MM TO 155 MM (1 11/16 IN. TO 6 IN.)

This type of split unit can be found in use on materials handling equipment in many industries. Take-up units provide an efficient and readily accessible means of tensioning conveyor systems and large scale drives.

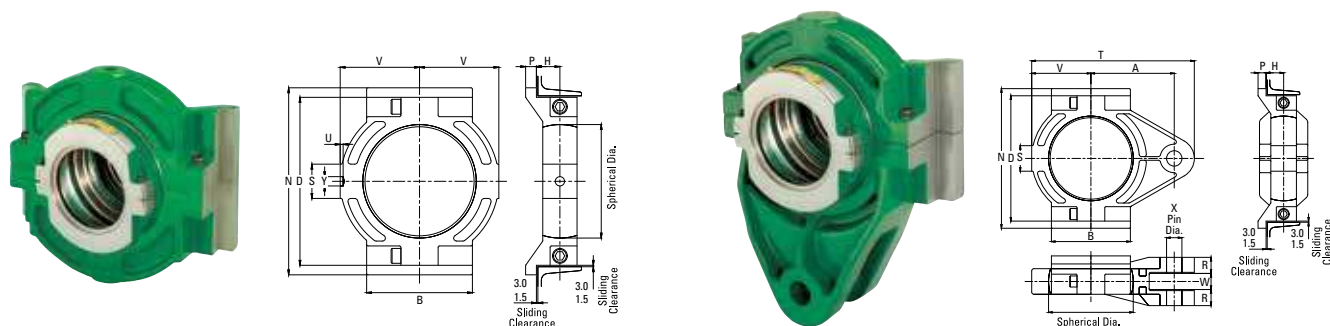
The units consist of either push-type or pull-type sliding supports into which standard housings and bearings may

be mounted. When integrating take-up units into new applications, it should be noted that a maximum radial load equivalent to 0.3 C_{or} is permissible. As with all Timken units, a wide variety of sealing solutions may be applied dependant on the environment and application. Please contact a Timken engineer for assistance.

Shaft (d)		Support Reference		B	N	D	V	P	H	S	A	T	X	W	R	U	Y
		Tension-Type	Push-Type														
mm	in.			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
45 50	1 11/16 1 3/4 1 15/16 2	TT03	TP03	128 5.0	235 9.3	203 8.0	102 4.0	20 0.8	32 1.3	38 1.5	146 5.7	280 11.0	24 0.9	30 1.2	29 1.1	6 0.2	16 0.6
55 60 65	2 3/16 2 1/4 2 7/16 2 1/2	TT04	TP04	152 6.0	266 10.5	229 9.0	114 4.5	22 0.9	40 1.6	41 1.6	158 6.2	305 12.0	24 0.9	30 1.2	32 1.3	6 0.2	16 0.6
70 75	2 11/16 2 3/4 2 15/16 3	TT05	TP05	190 7.5	318 12.5	280 11.0	140 5.5	22 0.9	40 1.6	51 2.0	190 7.5	368 14.5	30 1.2	38 1.5	35 1.4	6 0.2	16 0.6
80 85 90	3 3/16 3 1/4 3 7/16 3 1/2	TT06	TP06	204 8.0	342 13.5	305 12.0	152 6.0	22 0.9	43 1.7	51 2.0	210 8.3	414 16.3	36 1.4	44 1.7	35 1.4	6 0.2	19 0.7
100 105	3 11/16 3 3/4 3 15/16 4	TT07	TP07	216 8.5	382 15.0	343 13.5	162 6.4	22 0.9	48 1.9	70 2.8	228 9.0	445 17.5	42 1.7	44 1.7	41 1.6	6 0.2	19 0.7

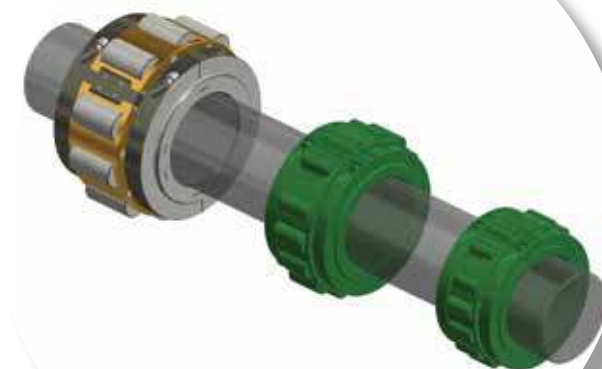
For bearings and housings see pages 60, 62 and 64.

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Shaft (d)		Support Reference		B	N	D	V	P	H	S	A	T	X	W	R	U	Y
		Tension-Type	Push-Type														
mm	in.			mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
110 115	4 3/16 4 1/4 4 7/16 4 1/2	TT08	TP08	254 10.0	420 16.5	381 15.0	190 7.5	25 1.0	51 2.0	76 3.0	260 10.2	508 20.0	42 1.7	44 1.7	44 1.7	6 0.2	19 0.7
120 125 130	4 11/16 4 3/4 4 15/16 5	TT10	TP10	266 10.5	464 18.3	426 16.8	204 8.0	25 1.0	57 2.2	86 3.4	280 11.0	546 21.5	48 1.9	50 2.0	51 2.0	8 0.3	23 0.9
135 140	5 3/16 5 1/4 5 7/16 5 1/2	TT30	TP30	280 11.0	502 19.8	464 18.3	222 8.7	25 1.0	60 2.4	92 3.6	298 11.7	584 23.0	48 1.9	50 2.0	54 2.1	8 0.3	23 0.9
150 155 160	5 11/16 5 3/4 5 15/16 6	TT31	TP31	305 12.0	528 20.8	489 19.3	235 9.3	25 1.0	64 2.5	92 3.6	312 12.3	616 24.3	48 1.9	50 2.0	57 2.2	10 0.4	26 1.0



HEAVY SERIES

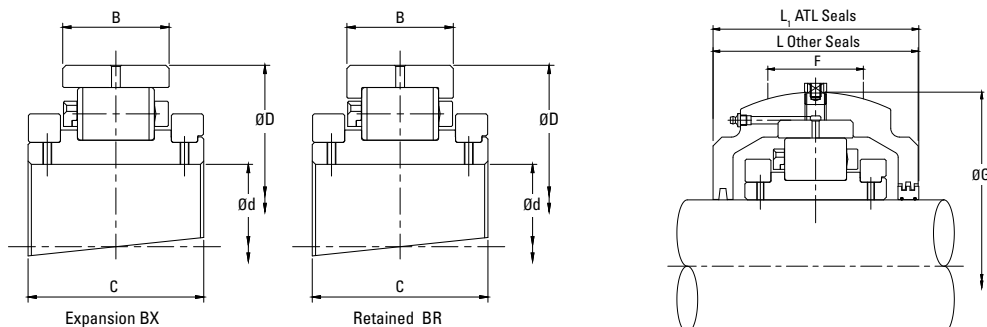
Heavy series bearing products offer solutions to the most demanding of load conditions. Bearings are supported by robust and durable mountings and can be equipped with a variety of sealing solutions. If a standard catalog product does not meet your requirements, a Timken engineer will be happy to provide help and advice on your application.

The following topics are covered within this section:

Heavy Series Bearing and Housing 100 mm to 260 mm (3 ¹¹ / ₁₆ in. to 10 in.)	72
Heavy Series Support S54 - S63	73
Heavy Series Bearing and Housing 280 mm to 600 mm (11 in. to 24 in.)	74
Heavy Series Support S83 - S95	75
Heavy Series Support Flange Units 125 mm to 260 mm (4 ¹⁵ / ₁₆ in. to 10 in.)	76

HEAVY SERIES BEARING AND HOUSING

100 MM TO 260 MM (3 1/16 IN. TO 10 IN.)

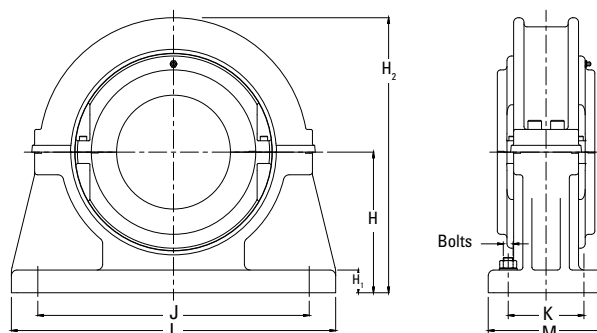


Shaft (d)		Reference		Bearings Ratings							Housing Reference						
				Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B, B ₁	C	ATL Seals	Other Seal Types	G	F	L	L ₁	
		Add BR for Retained Add BX for Expansion e.g. HSE515BR	Add HRTL for Retained Add HXTL for Expansion e.g. HS58HRTL								Add HR for Retained Add HX for Expansion e.g.HSE515HR						
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.			mm in.	mm in.	mm in.	mm in.	
100 105	3 1/16 3 3/4 3 15/16 4	HSM100 HSM105	HSE311 HSE312 HSE315 HSE400	653 146800	783 176025	31.20 7014	1820	254.00 10.000	84.20 3.315	136.00 5.354	HS54	HSM100 HSM105	HSE311 HSE312 HSE315 HSE400	308.00 12.126	95 3.7	200 7.9	206 8.1
110 115 120	4 3/16 4 1/4 4 7/16 4 1/2	HSM110 HSM115 HSM120	HSE403 HSE404 HSE407 HSE408	656 147475	801 180072	39.10 8790	1640	266.70 10.500	87.30 3.437	147.00 5.787	HS55	HSM110 HSM115 HSM120	HSE403 HSE404 HSE407 HSE408	323.85 12.750	102 4.0	210 8.3	222 8.7
125 130	4 11/16 4 3/4 4 15/16 5	HSM125 HSM130	HSE411 HSE412 HSE415 HSE500	753 169281	974 218964	49.00 11016	1500	279.40 11.000	73.10 2.878 84.20 3.315	140.00 5.512	HS56	HSM125 HSM130	HSE415 HSE500	323.85 12.750	102 4.0	214 8.4	222 8.7
135 140	5 3/16 5 1/4 5 7/16 5 1/2	HSM135 HSM140	HSE503 HSE504 HSE507 HSE508	928 208623	1265 284383	58.80 13219	1340	304.80 12.000	79.40 3.126 90.50 3.563	147.00 5.787	HS57	HSM135 HSM140	HSE503 HSE504 HSE507 HSE508	355.60 14.000	108 4.3	216 8.5	230 9.1
150 155	5 11/16 5 3/4 5 15/16 6	HSM150 HSM155	HSE511 HSE512 HSE515 HSE600	1037 233127	1325 297872	69.40 15602	1220	330.20 13.000	81.00 3.189 96.90 3.815	160.00 6.299	HS58	HSM150 HSM155	HSE511 HSE512 HSE515 HSE600	393.70 15.500	114 4.5	232 9.1	254 10.0
160 170	6 7/16 6 1/2 6 11/16	HSM160 HSM170	HSE607 HSE608 HSE611	1196 268871	1576 354299	79.20 17805	1110	355.60 14.000	103.20 4.063	171.00 6.732	HS59	HSM160 HSM170	HSE607 HSE608 HSE611	422.30 16.626	120 4.7	244 9.6	268 10.6
175 180	6 3/4 6 15/16 7	HSM175 HSM180	HSE612 HSE615 HSE700	1330 298996	1867 419718	89.00 20008	1030	374.65 14.750	92.10 3.626 108.80 4.283	178.00 7.008	HS60	HSM175 HSM180	HSE612 HSE615 HSE700	431.80 17.000	132 5.2	254 10.0	284 11.2
190 200	7 1/4 7 1/2 7 15/16 8	HSM190 HSM200	HSE704 HSE708 HSE715 HSE800	1597 359020	2285 513688	99.60 22391	880	419.10 16.500	97.70 3.846 118.30 4.657	191.00 7.520	HS61	HSM190 HSM200	HSE704 HSE708 HSE715 HSE800	489.00 19.252	146 5.7	270 10.6	300 11.8
220 230	8 1/2 8 7/8 9	HSM220 HSM230	HSE808 HSE814 HSE900	1665 374307	2455 551906	109.40 24594	760	469.90 18.500	109.60 4.315 131.80 5.189	212.00 8.346	HS62	HSM220 HSM230	HSE808 HSE814 HSE900	546.10 21.500	165 6.5	298 11.7	334 13.1
240 260	9 1/2 9 3/4 10	HSM240 HSM260	HSE908 HSE912 HSE1000	1896 426238	2789 626992	130.80 29405	700	482.60 19.000	105.60 4.157 124.60 4.906	211.00 8.307	HS63 HS63E0548	HSM240 HSM260	HSE908 HSE912 HSE1000	558.80 22.000	165 6.5	298 11.7	334 13.1

For triple labyrinth seal designations, please refer to page 32-34.

HEAVY SERIES SUPPORT

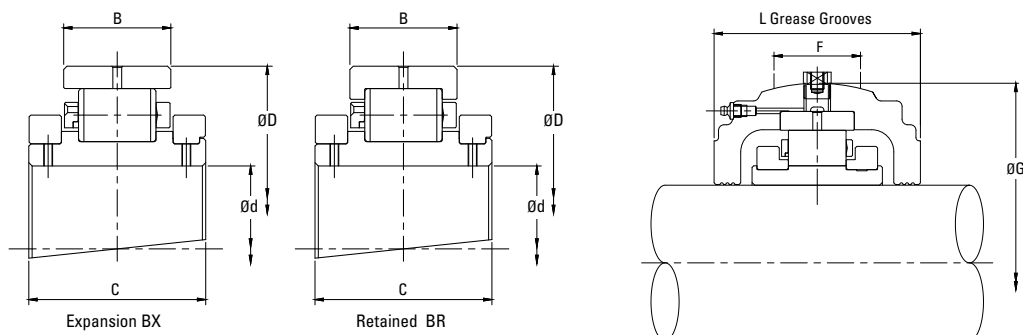
S54 - S63



Shaft (d)		Support Reference	H	H ₁	H ₂	J x K	L x M	Bolts
mm	in.		mm in.	mm in.	mm in.	mm in.	mm in.	
100 105	3 11/16 3 3/4 3 15/16 4	S54	191 7.520	38 1.5	405 15.9	438 x 82 17.2 x 3.2	514 x 152 20.2 x 6	4 x M24
110 115 120	4 3/16 4 1/4 4 7/16 4 1/2	S55	197 7.756	38 1.5	425 16.7	458 x 88 18 x 3.5	534 x 166 21 x 6.5	4 x M24
125 130	4 15/16 5	S56	203 7.992	48 1.9	435 17.1	470 x 96 18.5 x 3.8	546 x 166 21.5 x 6.5	4 x M24
135 140	5 3/16 5 1/4 5 7/16 5 1/2	S57	229 9.016	54 2.1	485 19.1	514 x 102 20.2 x 4	622 x 178 24.5 x 7	4 x M30
150 155	5 11/16 5 3/4 5 15/16 6	S58	254 10.000	57 2.2	535 21.1	558 x 120 22 x 4.7	666 x 204 26.2 x 8	4 x M30
160 170	6 7/16 6 1/2 6 11/16	S59	267 10.512	60 2.4	570 22.4	628 x 140 24.7 x 5.5	736 x 228 29 x 9	4 x M30
175 180	6 3/4 6 15/16 7	S60	279 10.984	64 2.5	580 22.8	636 x 152 25 x 6	762 x 254 30 x 10	4 x M30
190 200	7 1/4 7 1/2 7 15/16 8	S61	311 12.244	67 2.6	655 25.8	636 x 172 25 x 6.8	838 x 266 33 x 10.5	4 x M36
220 230	8 1/2 8 5/8 9	S62	349 13.740	76 3.0	730 28.7	736 x 178 29 x 7	952 x 280 37.5 x 11	4 x M42
240 260	9 1/2 9 3/4 10	S63	394 15.512	76 3.0	790 31.1	670 x 304 26.4 x 12	914 x 406 36 x 16	4 x M42

HEAVY SERIES BEARING AND HOUSING

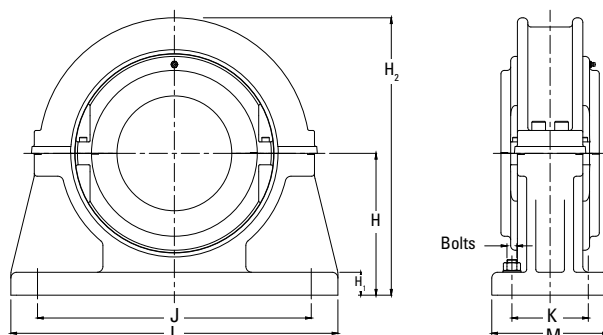
280 MM TO 600 MM (11 IN. TO 24 IN.)



Shaft (d)		Reference		Bearings Ratings							Housing Reference						
											ATL Seals		Other Seal Types		G	F	L
		Add BR for Retained Add BX for Expansion e.g. HSE1700BR	Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B, B ₁	C	Add HRTL for retained Add HXTL for expansion e.g. HS89HRTL	Add HR for Retained Add HX for Expansion e.g. HSE1700HR						
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.			mm in.	mm in.	mm in.	mm in.	
280	11	HSM280	HSE1100	2202 495029	3507 788405	153.00 34396	620	495.30 19.500	139.70 5.500	244.00 9.606	HS83	HSM280	HSE1100	571.50 22.500	165 6.5	356 14.0	
300	12	HSM300	HSE1200	2337 525379	3650 820553	174.40 39207	560	558.80 22.000	139.70 5.500	244.00 9.606	HS65	HSM300	HSE1200	641.40 25.252	165 6.5	346 13.6	
320	13	HSM320	HSE1300	2718 611031	4093 920143	198.80 44692	500	622.30 24.500	160.40 6.315	272.00 10.709	HS66	HSM320	HSE1300	717.60 28.252	170 6.7	368 14.5	
340 360	14	HSM340 HSM360	HSE1400	2935 659814	4973 1117975	213.60 48019	460	615.95 24.250	158.00 6.220	279.00 10.984	HS86	HSM340 HSM360	HSE1400	704.90 27.752	196 7.7	432 17.0	
380 400	15 16	HSM380 HSM400	HSE1500 HSE1600	3195 718265	5238 1177550	250.80 56382	420	685.80 27.000	166.70 6.563	292.00 11.496	HS68 HS68E0548	HSM380 HSM400	HSE1500 HSE1600	774.70 30.500	202 8.0	400 15.7	
420 440	17	HSM420 HSM440	HSE1700	3582 805266	6377 1433607	275.80 62002	360	700.00 27.559	160.00 6.299	284.00 11.181	HS89	HSM420 HSM440	HSE1700	788.00 31.024	200 7.9	440 17.3	
460	18	HSM460	HSE1800	3807 855848	6611 1486212	302.40 67982	340	740.00 29.134	170.00 6.693	294.00 11.575	HS90	HSM460	HSE1800	840.00 33.071	200 7.9	450 17.7	
500 530	20 21	HSM500 HSM530	HSE2000 HSE2100	4660 1047610	8183 1839612	347.00 78009	310	850.90 33.500	187.40 7.378	300.00 11.811	HS94 HS94E0548	HSM500 HSM530	HSE2000 HSE2100	958.90 37.752	204 8.0	495 19.5	
560	22	HSM560	HSE2200	4795 1077959	9412 2115902	382.60 86012	280	863.60 34.000	196.90 7.752	310.00 12.205	HS94	HSM560	HSE2200	958.90 37.752	204 8.0	490 19.3	
580 600	23 24	HSM580 HSM600	HSE2300 HSE2400	4951 1113029	9451 2124669	400 89924	270	890.00 35.039	184.00 7.244	310.00 12.205	HS95	HSM580 HSM600	HSE2300 HSE2400	990.00 38.976	204 8.0	490 19.3	

HEAVY SERIES SUPPORT

S83 - S95



Shaft (d)		Support Reference	H	H ₁	H ₂	J x K	L x M	Bolts
mm	in.		mm in.	mm in.	mm in.	mm in.	mm in.	
280	11	S83	368 14.488	70 2.8	785 30.9	742 & 502 x 178 29.2 & 19.8 x 7	940 x 280 37 x 11	8 x M36
300	12	S65	457 17.992	76 3.0	915 36.0	876 & 674 x 330 34.5 & 26.5 x 13	1092 x 420 43 x 16.5	8 x M36
320	13	S66	518 20.394	80 3.1	1035 40.7	978 & 762 x 266 38.5 & 30 x 10.5	1194 x 356 47 x 14	8 x M36
340 360	14	S86	470 18.504	82 3.2	1000 39.4	928 & 660 x 190 36.5 & 26 x 7.5	1220 x 318 48 x 12.5	8 x M42
380 400	15 16	S68	559 22.008	92 3.6	1120 44.1	1036 & 806 x 292 40.8 & 31.7 x 11.5	1270 x 394 50 x 15.5	8 x M42
420 440	17	S89	508 20.000	90 3.5	1075 42.3	990 & 690 x 210 39 & 27.2 x 8.3	1270 x 360 50 x 14.2	8 x M48
460	18	S90	550 21.654	95 3.7	1165 45.9	1080 & 780 x 220 42.5 & 30.7 x 8.7	1370 x 380 53.9 x 15	8 x M48
500 530	20 21	S94	622 24.488	102 4.0	1340 52.8	1270 & 940 x 242 50 & 37 x 9.5	1600 x 406 63 x 16	8 x M56
560	22	S94	622 24.488	102 4.0	1340 52.8	1270 & 940 x 242 50 & 37 x 9.5	1600 x 406 63 x 16	8 x M56
580 600	23 24	S95	622 24.488	102 4.0	1340 52.8	1270 & 940 x 242 50 & 37 x 9.5	1600 x 406 63 x 16	8 x M56

HEAVY SERIES

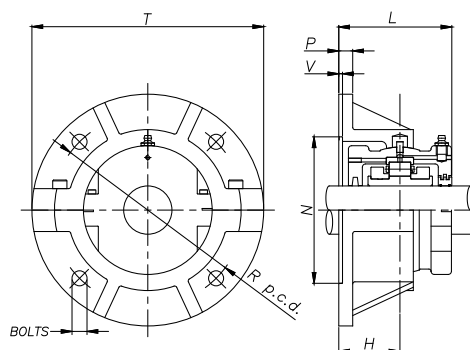
FLANGE UNITS 125 MM TO 260 MM (4 15/16 IN. TO 10 IN.)

When faced with flat horizontal or vertical faces, flange units offer a simple mounting solution. As with pillow block supports, flange units are produced with spherical location to accommodate standard bearing housings and provide easy initial alignment of shaft and equipment.

To facilitate positive location of the flange to the surface, the rear face is recessed (dimensions N and V). This allows for a spigot (tolerance f8) to be located into the flange.

Bearing inspection is simply a matter of removing the top half of the flange and housing. Bearing replacement also may be achieved in the same manner if required.

When integrating flange units into new applications, it should be noted that a maximum radial load equivalent to 0.26 C_{or} is permissible. A maximum axial load of 0.25 C_a also must be taken into account for applications with thrust loading. Units for vertically oriented shafts may also need special consideration given to sealing arrangements.



Shaft (d)		Flange Reference	T	R	P	H	N	V	L
mm	in.		mm in.	mm in.	mm in.	mm in.	mm in.	mm in.	mm in.
125 130	4 15/16 5	F56	530 20.9	460 18.1	34 1.3	122 4.8	390.45 15.372	7 0.3	233 9.2
150 155	5 11/16 5 3/4 5 15/16 6	F58	648 25.5	574 22.6	44 1.7	137 5.4	495.35 19.502	7 0.3	264 10.4
175 180	6 3/4 6 15/16 7	F60	724 28.5	638 25.1	44 1.7	156 6.1	546.15 21.502	8 0.3	298 11.7
240 250 260	9 1/2 9 3/4 10	F63	890 35.0	796 31.3	48 1.9	181 7.1	692.20 27.252	8 0.3	348 13.7

For bearings and housings see page 72.



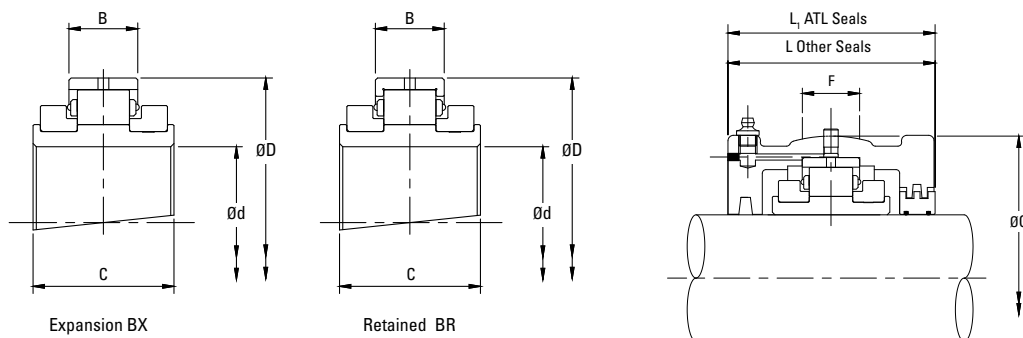
SAF/SN/SD BEARINGS

The new compact split plummer block bearing from Timken is the first split cylindrical roller bearing assembly to be interchangeable with standard SAF, SN and SD series plummer blocks, bringing the benefits of a split design to a much wider customer base.

The following topics are covered within this section:

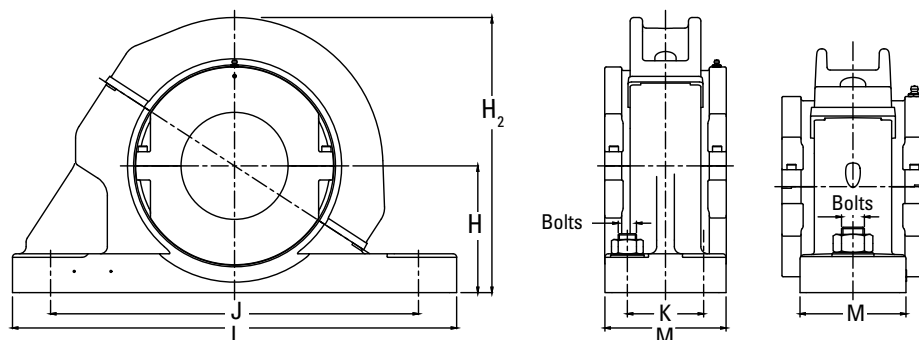
SAFQ Two-Bolt/SAFQ Four-Bolt Bearing and Housing	
1 $\frac{7}{16}$ in. to 3 $\frac{7}{16}$ in.	78
SAFQ Two-Bolt/SAFQ Four-Bolt Support SAFQ1-2B - SAFQ05-2B...	79
SAFQ Two-Bolt/SAFQ Four-Bolt Bearing and Housing	
3 $\frac{7}{16}$ in. to 7 $\frac{1}{16}$ in.	80
SAFQ Two-Bolt/SAFQ Four-Bolt Support SAFQ06A - SAFQ34A. . .	81
Light SNQ/SDQ Range Bearing and Housing	
35 mm to 160 mm (1 $\frac{3}{8}$ in. to 6 in.)	82
Light SNQ/SDQ Range Support SNQ01 - SNQ10	83
Light SNQ/SDQ Range Bearing and Housing	
160 mm to 305 mm (6 $\frac{7}{16}$ in. to 12 in.)	84
Light SNQ/SDQ Range Support SDQ11 - SDQ17.	85
Light SN/SD Range Bearings and Housings	
35 mm to 160 mm (1 $\frac{3}{8}$ in. to 6 in.)	86
Light SN/SD Range Support SN01 - SD10	87
Light SN/SD Range Bearings and Housings	
160 mm to 305 mm (6 $\frac{7}{16}$ in. to 12 in.)	88
Light SN/SD Range Support SD11 - SD17	89
Medium SN/SD Range Bearing and Housing	
135 mm to 260 mm (5 $\frac{3}{8}$ in. to 10 in.)	90
Medium SN/SD Range Support SN30 - SD36A.	91
Medium SN/SD Range Bearing and Housing	
270 mm to 400 mm (10 $\frac{1}{2}$ in. to 16 in.)	92
Medium SN/SD Range Support SD37 - SD42	93

SAFQ TWO-BOLT / SAFQ FOUR-BOLT BEARING AND HOUSING **1 1/16 IN. TO 3 7/16 IN.**



Shaft (d)	Reference			Bearings Ratings						Housing Reference					
	Add BR for Retained Add BX for Expansion	Additional Bearing(s)		Dynamic C _r	Static C _{or}	Max	D	B	C	Retained	Expansion	G	F	L	L ₁
in.		mm	in.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.			mm in.	mm in.	mm in.	mm in.
1 1/16	LSE107	LSM30 LSM35 LSM40	LSE103 LSE104	63.5 14296	65.4 14724	5400	84.14 3.313	23.8 0.937	55 2.165	LS1HRTL	LS1HXTL	100 3.937	25 0.984	84 3.307	91 3.582
1 11/16	LSE111	LSM45	LSE112	83.1 18694	87.3 19643	4630	98.42 3.875	25.4 1.000	60 2.362	LS2HRTL	LS2HXTL	117.48 4.625	25 0.984	96 3.780	98 3.858
1 15/16	LSE115	LSM45 LSM50	LSE111 LSE112 LSE200	83.1 18695	87.3 19644	4630	98.42 3.875	25.4 1.000	60 2.362	LS2HRTL	LS2HXTL	117.48 4.625	25 0.984	96 3.780	98 3.858
2 3/16	LSE203	LSM55 LSM60 LSM65	LSE204 LSE207 LSE208	102.7 23118	115 25848	3940	114.3 4.500	27 1.063	60 2.362	LS3HRTL	LS3HXTL	134.94 5.313	32 1.260	102 4.016	104 4.094
2 7/16	LSE207	LSM55 LSM60 LSM65	LSE203 LSE204 LSE208	102.7 23118	114.9 25848	3940	114.3 4.500	27 1.063	60 2.362	LS3HRTL	LS3HXTL	134.94 5.313	32 1.260	102 4.016	104 4.094
2 7/16	LSE207	LSM55 LSM60 LSM65	LSE203 LSE204 LSE208	102.7 23118	114.9 25848	3940	114.3 4.500	27 1.063	60 2.362	LS3HRTL	LS3HXTL	134.94 5.313	32 1.260	102 4.016	104 4.094
2 11/16	LSE211	LSM70 LSM75	LSE212 LSE215 LSE300	138 31041	160.8 36179	3310	133.35 5.250	31.8 1.252	65 2.559	LS4HRTL	LS4HXTL	157.16 6.187	38 1.496	112 4.409	114 4.488
2 11/16	LSE211	LSM70 LSM75	LSE212 LSE215 LSE300	138 31041	160.8 36179	3310	133.35 5.250	31.8 1.252	65 2.559	LS4HRTL	LS4HXTL	157.16 6.187	38 1.496	112 4.409	114 4.488
2 15/16	LSE215	LSM70 LSM75	LSE211 LSE212 LSE300	138 31041	160.8 36179	3310	133.35 5.250	31.8 1.252	65 2.559	LS4HRTL	LS4HXTL	157.16 6.187	38 1.496	112 4.409	114 4.488
2 15/16	MSE215	MSM70	MSE211 MSE212 MSE300	258 58051	300.3 67566	3080	149.22 5.875	46.1 1.815	82.6 3.252	MS5HRTL	MS5HXTL	177.8 7.000	50 1.969	138 5.433	140 5.512
3 3/16	LSE303	LSM80 LSM85	LSE304	187.3 42145	231.3 52033	2790	152.4 6.000	38.9 1.532	70.7 2.784	LS5HRTL	LS5HXTL	177.8 7.000	50 1.969	134 5.276	136 5.354
3 7/16	LSE307	LSM80 LSM85	LSE303 LSE304 LSE308	187.3 42145	231.3 52033	2790	152.4 6.000	38.9 1.532	70.7 2.784	LS5HRTL	LS5HXTL	177.8 7.000	50 1.969	134 5.276	136 5.354

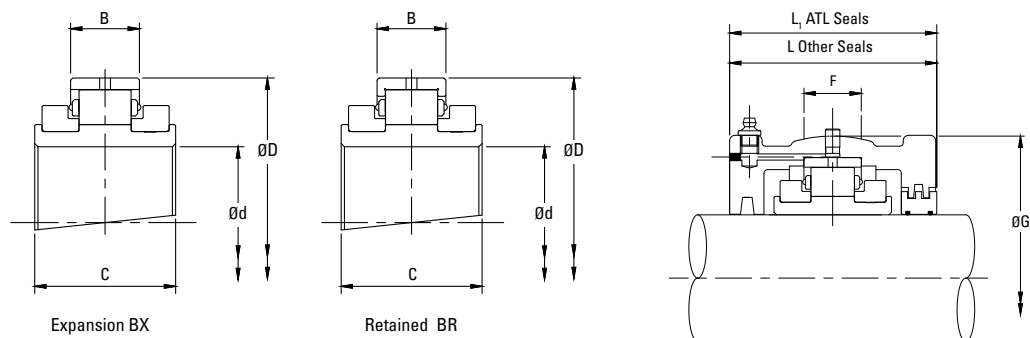
SAFQ TWO-BOLT / SAFQ FOUR-BOLT SUPPORT **SAFQ1-2B - SAFQ05-2B**



Shaft (d)	Support Reference	SAF Reference	Additional Shafts		H	J		K	Bolts	L	M	H ₂
			mm	in.		Min.	Max.					
in.			mm	in.	in.	in.	in.	in.		in.	in.	in.
1 ¹ / ₁₆	SAFQ01-2B	SAF 509 2-BOLT	30 35 40	1 ³ / ₁₆ 1 ¹ / ₄	2 ¹ / ₄	6 ¹ / ₄	7	—	2 x 1/2	8 ³ / ₄	2 ³ / ₁₆	5.2
1 ¹¹ / ₁₆	SAFQ02-2B	SAF 510 2-BOLT	45	1 ³ / ₄	2 ¹ / ₂	6 ¹ / ₂	7	—	2 x 1/2	8 ³ / ₄	2 ³ / ₈	5.9
1 ¹⁵ / ₁₆	SAFQ02A-2B	SAF 511 2-BOLT	45 50	1 ¹¹ / ₁₆ 1 ³ / ₄ 2	2 ³ / ₄	7 ³ / ₈	8 ¹ / ₄	—	2 x 5/8	9 ⁵ / ₈	2 ³ / ₄	6.15
2 ³ / ₁₆	SAFQ03-2B	SAF 513 2-BOLT	55 60 65	2 ¹ / ₄ 2 ⁷ / ₁₆ 2 ¹ / ₂	3	8 ¹ / ₄	9 ¹ / ₂	—	2 x 5/8	11	3 ¹ / ₄	6.95
2 ⁷ / ₁₆	SAFQ03A-2B	SAF 515 2-BOLT	55 60 65	2 ³ / ₁₆ 2 ¹ / ₄ 2 ¹ / ₂	3 ¹ / ₄	8 ⁵ / ₈	9 ⁵ / ₈	—	2 x 5/8	11 ¹ / ₈	3 ¹ / ₈	7.2
2 ⁷ / ₁₆	SAFQ03A-4B	SAF 515 4-BOLT	55 60 65	2 ³ / ₁₆ 2 ¹ / ₄ 2 ¹ / ₂	3 ¹ / ₄	8 ⁵ / ₈	9 ⁵ / ₈	1 ⁷ / ₈	4 x 1/2	11 ¹ / ₈	3 ¹ / ₈	7.2
2 ¹¹ / ₁₆	SAFQ04A-2B	SAF 516 2-BOLT	70 75	2 ³ / ₄ 2 ¹⁵ / ₁₆ 3	3 ¹ / ₂	9 ³ / ₄	11	—	2 x 3/4	12 ¹⁹ / ₃₂	3 ¹ / ₂	7.95
2 ¹¹ / ₁₆	SAFQ04A-4B	SAF 516 4-BOLT	70 75	2 ³ / ₄ 2 ¹⁵ / ₁₆ 3	3 ¹ / ₂	9 ⁵ / ₈	11	2 ¹ / ₈	4 x 5/8	12 ¹⁹ / ₃₂	3 ¹ / ₂	7.95
2 ¹⁵ / ₁₆	SAFQ04-2B	SAF 517 2-BOLT	70 75	2 ¹¹ / ₁₆ 2 ³ / ₄ 3	3 ³ / ₄	9 ⁷ / ₈	11	—	2 x 3/4	12 ¹⁹ / ₃₂	3 ¹ / ₂	8.2
2 ¹⁵ / ₁₆	SAFQ05A-4B	SAF 517 4-BOLT	80 85	2 ¹¹ / ₁₆ 2 ³ / ₄	3 ³ / ₄	9 ⁷ / ₈	11	2 ¹ / ₈	4 x 5/8	12 ¹⁹ / ₃₂	3 ¹ / ₂	8.5
3 ³ / ₁₆	SAFQ05B-2B	SAF 518 2-BOLT	80 85	3 ¹ / ₄	4	10 ¹ / ₄	11 ³ / ₄	—	2 x 3/4	13 ³ / ₈	3 ⁷ / ₈	8.95
3 ⁷ / ₁₆	SAFQ05-2B	SAF 520 2-BOLT	80 85 90	3 ³ / ₁₆ 3 ¹ / ₄ 3 ¹ / ₂	4 ¹ / ₂	11 ⁵ / ₈	13 ¹ / ₈	—	2 x 7/8	15 ²³ / ₆₄	4 ¹¹ / ₃₂	9.6

SAFQ TWO-BOLT / SAFQ FOUR-BOLT BEARING AND HOUSING

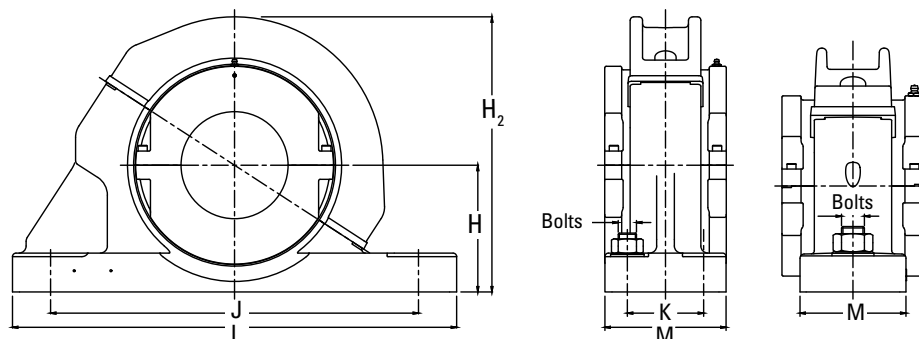
3 7/16 IN. TO 7 15/16 IN.



Shaft (d)	Reference			Bearings Ratings						Housing Reference					
	Add BR for Retained Add BX for Expansion	Additional Bearing(s)		Dynamic C _r	Static C _{or}	Max	D	B	C	Retained	Expansion	G	F	L	L ₁
in.		mm	in.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.			mm in.	mm in.	mm in.	mm in.
3 7/16	MSE307	MSM80 MSM85	MSE303 MSE304 MSE308	297 66830	352.5 79315	2520	169.86 6.687	48.4 1.906	89.7 3.532	MS6HRTL	MS6HXTL	203.2 8.000	50 1.969	152 5.984	154 6.063
3 15/16	MSE315	MSM95 MSM100	MSE311 MSE312 MSE400	387.7 87235	490.6 110375	2130	193.68 7.625	51.6 2.032	92.1 3.626	MS7HRTL	MS7HXTL	231.78 9.125	64 2.517	144 5.669	146 5.748
4 3/16	LSE403	LSM110 LSM115	LSE404 LSE406 LSE407 LSE408	316 71105	426.9 96059	1970	203.2 8.000	46.9 1.847	84.9 3.343	LS7HRTL	LS7HXTL	231.78 9.125	64 2.517	140 5.512	142 5.591
4 7/16	MSE407	MSM110 MSM115	MSE403 MSE404 MSE406 MSE408	453.9 102130	591.7 133135	1820	228.6 9.000	57.2 2.252	100 3.937	MS8HRTL	MS8HXTL	266.7 10.500	76 2.992	160 6.299	162 6.378
4 15/16	MSE415	MSM120 MSM125	MSE411 MSE412	524.8 118084	700.3 157566	1600	254 10.000	63.5 2.189	114.3 3.874	MS10HR- TLE0509	MS10HX- TLE0509	287.98 11.625	82 3.228	182 6.772	184 6.850
5 3/16	LSE503	LSM135 LSM140	LSE504 LSE507 LSE508	422.5 95055	585.2 131675	1570	241.3 9.500	55.6 2.189	98.4 3.874	LS9HRTL	LS9HXTL	279.4 11.000	76 2.992	166 6.535	168 6.614
5 7/16	MSE507	MSM135 MSM140	MSE503 MSE504 MSE508	600.4 135088	816.6 183729	1450	273.05 10.750	66.7 2.626	117.5 4.626	MS30HRTL	MS30HXTL	323.85 12.750	90 3.543	186 7.323	188 7.402
5 15/16	MSE515	MSM150	MSE511 MSE512 MSE514	730.2 164289	1033.8 232600	1320	292.1 11.500	68.3 2.689	123.8 4.874	MS31HRTL	MS31HXTL	336.55 13.250	95 3.740	202 7.953	204 8.031
6 7/16	MSE607	MSM160	MSE608	824.1 185430	1143 257168	1200	317.5 12.500	83.3 3.280	140 5.512	MS32HRTL	MS32HXTL	368.3 14.500	95 3.740	206 8.110	232 9.134
6 15/16	LSE615	LSM170 LSM175 LSM180	LSE611 LSE612 LSE700	524.4 117993	827.7 186233	1220	285.75 11.250	55.5 2.185	109 4.291	LS12HRTL	LS12HXTL	323.85 12.750	70 2.756	172 6.772	200 7.874
7 3/16	LSE703	LSM190 LSM200	LSE704 LSE708 LSE715 LSE800	607 136576	989.7 222676	1070	311.15 12.250	60.3 2.374	109 4.291	LS13HRTL	LS13HXTL	258.78 10.188	86 3.386	172 6.772	200 7.874
7 15/16	MSE715	MSM190 MSM200	MSE703 MSE704 MSE708 MSE800	1012.9 227893	1516.3 341160	960	368.3 14.500	90.5 3.563	156 6.142	MS34HRTL	MS34HXTL	425.5 16.752	105 4.134	235 9.252	258 10.157

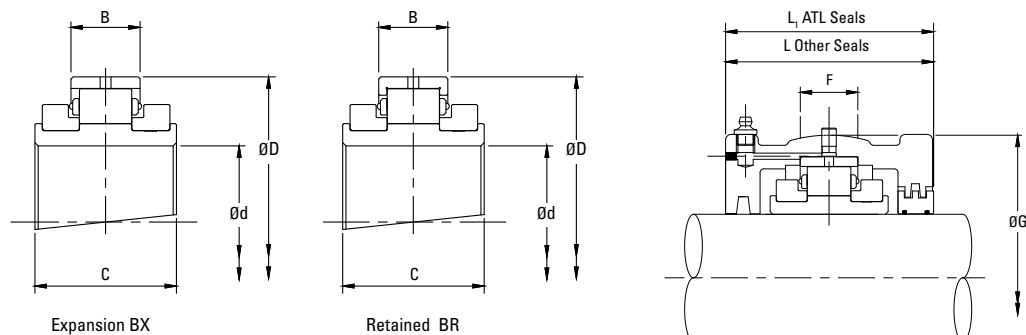
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SAFQ TWO-BOLT / SAFQ FOUR-BOLT SUPPORT **SAFQ06A - SAFQ34A**



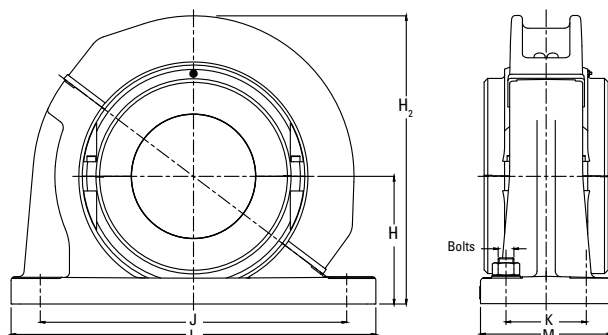
Shaft (d)	Support Reference	SAF Reference	Additional Shafts		H	J		K	Bolts	L	M	H ₂
						Min.	Max.					
in.			mm	in.	in.	in.	in.	in.		in.	in.	in.
3 1/16	SAFQ06A	SAF 520 4-BOLT	80 85	3 3/16 3 1/4 3 1/2	4 1/2	11 5/8	13 1/8	2 3/8	4 x 3/4	15 23/64	4 11/32	9.95
3 15/16	SAFQ07A	SAF 522	95 100	3 11/16 3 3/4 4	4 15/16	12 5/16	14 1/2	2 3/4	4 x 3/4	16 1/2	4 3/4	11
4 3/16	SAFQ07B	SAF 524	110 115	4 1/4 4 3/8 4 7/16 4 1/2	5 1/4	13 1/4	14 1/2	2 3/4	4 x 3/4	16 1/2	4 3/4	11.3
4 7/16	SAFQ08A	SAF526	110 115	4 3/16 4 1/4 4 3/8 4 1/2	6	14 1/2	16	3 1/4	4 x 7/8	18 3/8	5 1/8	13.1
4 15/16	SAFQ10A	SAF528	120 125	4 11/16 4 3/4 5	6	15 5/8	17 3/8	3 3/8	4 x 1	19 45/64	5 7/8	13.3
5 3/16	SAFQ09A	SAF530	135 140	5 7/16 5 1/4 5 1/2	6 3/16	16 3/4	18 1/2	3 3/4	4 x 1	21 1/4	6 1/4	14.2
5 7/16	SAFQ30	SAF532	135 140	5 3/16 5 1/4 5 1/2	6 11/16	17 3/8	19 1/4	3 3/4	4 x 1	21 21/32	6 1/4	15.15
5 15/16	SAFQ31	SAF534	150	5 11/16 5 3/4 5 7/8 6	7 1/16	19 3/8	21 5/8	4 1/4	4 x 1	24 3/4	6 3/4	15.75
6 7/16	SAFQ32	SAF536	160	6 1/2	7 1/2	20 7/8	23 5/8	4 5/8	4 x 1	26 3/4	7 1/8	17.6
6 15/16	SAFQ12	SAF538	170 175 180	6 11/16 6 3/4 7	7 7/8	21 5/8	24 3/8	4 1/2	4 x 1 1/4	28	7 1/2	16.75
7 3/16	SAFQ13	SAF540	190 200	7 1/4 7 1/2 7 11/16 8	8 1/4	22 1/2	25	5	4 x 1 1/4	29 3/8	8	17.7
7 15/16	SAFQ34A	SAF544	190 200	7 3/16 7 1/4 7 1/2 8	9 1/2	24 3/4	27 7/8	5 1/4	4 x 1 1/2	32 3/4	8 3/4	21.35

LIGHT SNQ/SDQ RANGE BEARING AND HOUSING **35 MM TO 160 MM (1 3/16 IN. TO 6 IN.)**



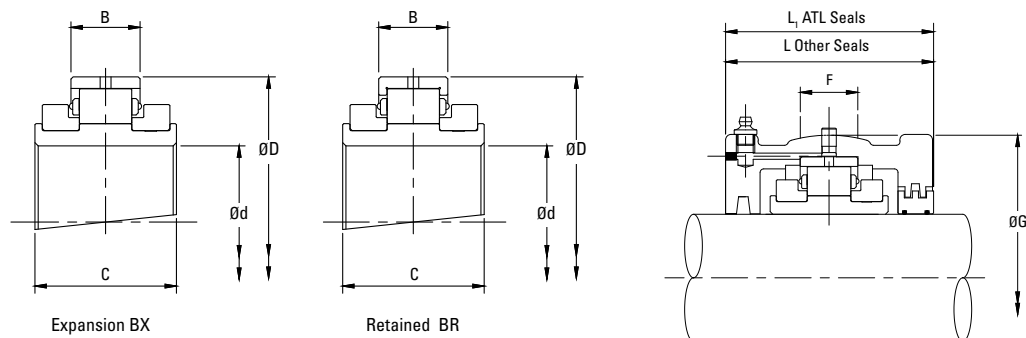
Shaft (d)		Reference Add BR for Retained Add BX for Expansion e.g. LSE103BR		Bearings Ratings							Housing Reference						
				Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B, B ₁	C	ATL Seals	Other Seal Types	G	F	L	L ₁	
											Add HRTL for retained Add HXTL for Expansion e.g. LS1HRTL	Add HR for Retained Add HX for Expansion e.g. LSE103HR					
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.				mm in.	mm in.	mm in.	mm in.
35 40	1 3⁄16 1 1⁄4 1 7⁄16 1 1⁄2	LSM35 LSM40	LSE103 LSE104 LSE107 LSE108	65 14613	68 15287	3.20 719.38	5400	84.14 3.313	23.80 0.937	55.00 2.165	LS1	LSM35 LSM40	LSE103 LSE104 LSE107 LSE108	100.00 3.937	25 1.0	84 3.3	91 3.6
45 50	1 11⁄16 1 3⁄4 1 15⁄16 2	LSM45 LSM50	LSE111 LSE112 LSE115 LSE200	83 18659	87 19558	3.60 809.30	4630	98.42 3.875	25.40 1.000	60.00 2.362	LS2	LSM50	LSE111 LSE112 LSE115 LSE200	117.48 4.625	25 1.0	96 3.8	98 3.9
55 60 65	2 3⁄16 2 1⁄4 2 1⁄2 2 1⁄2	LSM55 LSM60 LSM65	LSE203 LSE204 LSE207 LSE208	103 23155	115 25853	5.40 1213.95	3940	114.30 4.500	27.00 1.063	60.00 2.362	LS3	LSM55 LSM60 LSM65	LSE203 LSE204 LSE207 LSE208	134.94 5.313	32 1.3	102 4.0	104 4.1
70 75	2 11⁄16 2 3⁄4 2 15⁄16 3	LSM70 LSM75	LSE211 LSE212 LSE215 LSE300	138 31024	161 36194	7.60 1708.53	3310	133.35 5.250	31.80 1.252	65.00 2.559	LS4	LSM70 LSM75	LSE211 LSE212 LSE215 LSE300	157.16 6.187	38 1.5	112 4.4	114 4.5
80 85 90	3 3⁄16 3 1⁄4 3 1⁄2 3 1⁄2	LSM80 LSM85 LSM90	LSE303 LSE304 LSE307 LSE308	187 42039	231 51931	12.40 2787.59	2790	152.40 6.000	38.90 1.531	75.00 2.953	LS5	LSM80 LSM85 LSM90	LSE303 LSE304 LSE307 LSE308	177.80 7.000	50 2.0	134 5.3	136 5.4
95 100 105	3 11⁄16 3 3⁄4 3 15⁄16 4	LSM95 LSM100 LSM105	LSE311 LSE312 LSE315 LSE400	288 64745	366 82280	16.00 3596.90	2340	174.62 6.875	45.30 1.783	85.00 3.346	LS6	LSM95 LSM100 LSM105	LSE311 LSE312 LSE315 LSE400	203.20 8.000	50 2.0	132 5.2	134 5.3
110 115	4 3⁄16 4 1⁄4 4 7⁄16 4 1⁄2	LSM110 LSM115	LSE403 LSE404 LSE407 LSE408	316 71040	427 95993	18.60 4181.39	1970	203.20 8.000	46.90 1.846	90.00 3.543	LS7	LSM110 LSM115	LSE403 LSE404 LSE407 LSE408	231.78 9.125	64 2.5	140 5.5	142 5.6
120 125 130	4 11⁄16 4 3⁄4 4 15⁄16 5	LSM120 LSM125 LSM130	LSE411 LSE412 LSE415 LSE500	363 81606	496 111505	22.20 4990.69	1740	222.25 8.750	54.00 2.126	95.00 3.740	LS8	LSM120 LSM125 LSM130	LSE411 LSE412 LSE415 LSE500	266.70 10.500	76 3.0	154 6.1	156 6.1
135 140	5 3⁄16 5 1⁄4 5 7⁄16 5 1⁄2	LSM135 LSM140	LSE503 LSE504 LSE507 LSE508	422 94869	585 131513	25.80 5799.99	1570	241.30 9.500	55.60 2.189	98.40 3.874	LS9	LSM135 LSM140	LSE503 LSE504 LSE507 LSE508	279.40 11.000	76 3.0	166 6.5	168 6.6
150 155 160	5 11⁄16 5 3⁄4 5 15⁄16 6	LSM150 LSM155 LSM160A	LSE511 LSE512 LSE515 LSE600	459 103187	664 149273	29.40 6609.30	1450	254.00 10.000	55.60 2.189	98.40 3.874	LS10	LSM150 LSM155 LSM160A	LSE511 LSE512 LSE515 LSE600	295.28 11.625	82 3.2	172 6.8	174 6.9

LIGHT SNQ/SDQ RANGE SUPPORT **SNQ01 - SNQ10**



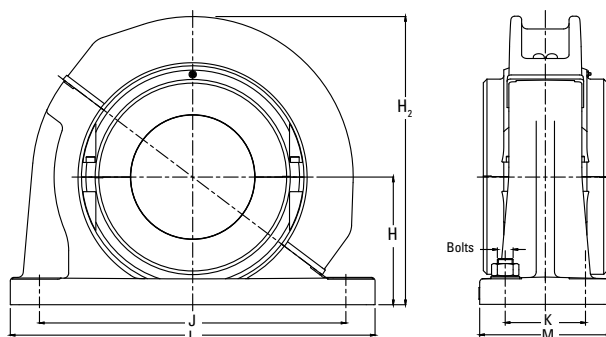
Shaft (d)		Spherical Roller Bearing Reference	SN/SD Reference	H	H ₂	J x K	L x M	Bolts
mm	in.			mm	mm	mm	mm	
35 40	1 3/16 1 1/4 1 7/16 1 1/2	SNQ01	SN 508 SN 509	60	135	170	205 x 60	2 x M12
45 50	1 11/16 1 3/4 1 5/8 2	SNQ02	SN 511	70	155	210	255 x 70	2 x M16
55 60 65	2 3/16 2 1/4 2 7/16 2 1/2	SNQ03	SN 513 SN 515	80	180	234	275 x 70	2 x M16
70 75	2 11/16 2 3/4 2 15/16 3	SNQ04	SN 516 SN 517	95	208	260	315 x 90	2 x M20
80 85 90	3 3/16 3 1/4 3 7/16 3 1/2	SNQ05 SNQ05A SNQ05B	SN 518 SN 519 SN 520	100 112 112	230 242 242	290 290 320	345 x 100 345 x 100 380 x 110	2 x M20 2 x M20 2 x M24
95 100 105	3 11/16 3 3/4 3 15/16 4	SNQ06	SN 522	125	265	350	410 x 120	2 x M24
110 115	4 3/16 4 1/4 4 7/16 4 1/2	SNQ07 SNQ07A	SN 524 SN 526	140 150	300 310	350 380	410 x 120 445 x 130	2 x M24 2 x M24
120 125 130	4 11/16 4 3/4 4 15/16 5	SNQ08	SN 528	150	354	420	500 x 150	2 x M30
135 140	5 3/16 5 1/4 5 7/16 5 1/2	SNQ09 SNQ09A	SN 530 SN 532	160 170	369 379	450 470	530 x 160 550 x 160	2 x M30 2 x M30
150 155 160	5 11/16 5 3/4 5 15/16 6	SDQ10	SD 3134	170	379	430 x 100	510 x 180	4 x M24

LIGHT SNQ/SDQ RANGE BEARING AND HOUSING **160 MM TO 305 MM (6 7/16 IN. TO 12 IN.)**



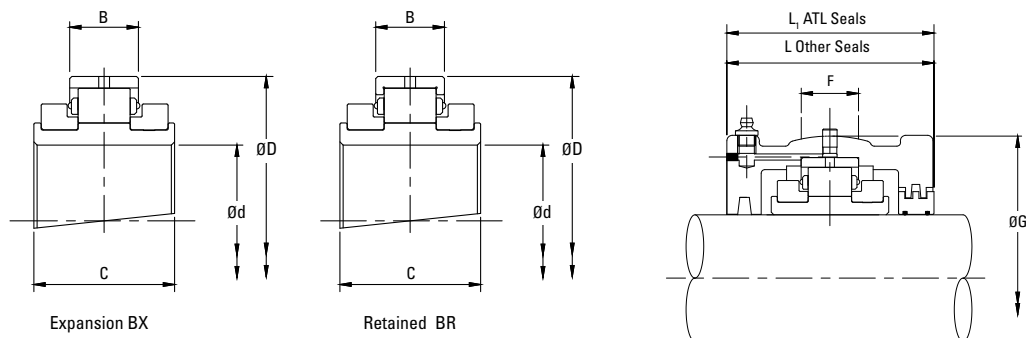
Shaft (d)		Reference		Bearings Ratings							Housing Reference						
											ATL Seals		Other Seal Types		G	F	L
		Add BR for Retained Add BX for Expansion e.g. LSE103BR	Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B, B ₁	C	Add HRTL for Retained Add HXTL for Expansion e.g. LS1HRTL	Add HR for Retained Add HX for Expansion e.g. LSE103HR						
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.				mm in.	mm in.	mm in.	mm in.
160 170	6 7/16 6 1/2	LSM160 LSM170A	LSE607 LSE608	583 131064	792 178049	33.00 7419	1320	273.05 10.750	60.30 2.374	109.00 4.291	LS11	LSM160 LSM170A	LSE607 LSE608	311.15 12.250	76 3.0	172 6.8	192 7.6
170 175 180	6 11/16 6 3/4 6 15/16 7	LSM170 LSM175 LSM180	LSE611 LSE612 LSE615 LSE700	524 117800	828 186142	36.40 8183	1220	285.75 11.250	55.50 2.185	109.00 4.291	LS12	LSM170 LSM175 LSM180	LSE611 LSE612 LSE615 LSE700	323.85 12.750	70 2.8	172 6.8	200 7.9
190 200	7 3/16 7 1/4 7 1/2 7 15/16 8	LSM190 LSM200	LSE703 LSE704 LSE708 LSE715 LSE800	614 138033	990 222561	41.00 9217	1070	311.15 12.250	60.30 2.374	106.00 4.173	LS13	LSM190 LSM200	LSE703 LSE704 LSE708 LSE715 LSE800	358.78 14.125	86 3.4	172 6.8	200 7.9
220 230	8 7/16 8 1/2 8 7/8 9	LSM220 LSM230	LSE807 LSE808 LSE814 LSE900	708 159165	1168 262577	49.00 11016	930	342.90 13.500	63.50 2.500	115.00 4.528	LS14	LSM220 LSM230	LSE807 LSE808 LSE814 LSE900	387.35 15.250	82 3.2	178 7.0	216 8.5
240 250 260	9 1/2 9 3/4 10	LSM240 LSM250 LSM260A	LSE908 LSE912 LSE1000	744 167258	1289 289779	57.80 12994	820	374.65 14.750	66.70 2.626	122.00 4.803	LS15	LSM240 LSM250 LSM260A	LSE908 LSE912 LSE1000	419.10 16.500	90 3.5	188 7.4	222 8.7
260 270 280	10 7/16 10 1/2 10 3/4 11	LSM260 LSM270 LSM280	LSE1007 LSE1008 LSE1012 LSE1100	848 190638	1502 337663	66.80 15017	730	406.40 16.000	69.00 2.717	128.00 5.039	LS16	LSM260 LSM270 LSM280	LSE1007 LSE1008 LSE1012 LSE1100	454.00 17.874	95 3.7	204 8.0	232 9.1
300 305	11 1/2 12	LSM300 LSM305	LSE1108 LSE1200	929 208848	1665 374307	78.20 17580	650	438.15 17.250	74.60 2.937	143.00 5.630	LS17	LSM300 LSM305	LSE1108 LSE1200	489.00 19.252	98 3.9	216 8.5	248 9.8

LIGHT SNQ/SDQ RANGE SUPPORT **SDQ11 - SDQ17**



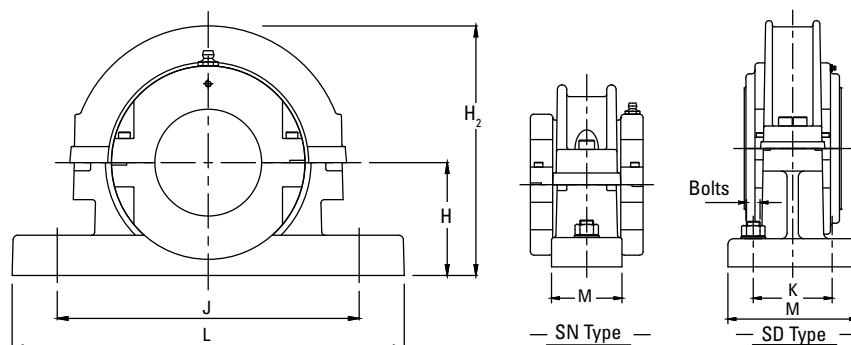
Shaft (d)		Spherical Roller Bearing Reference	SN/SD Reference	H	H ₂	J x K	L x M	Bolts
mm	in.			mm	mm	mm	mm	
160 170	6 7/16 6 1/2	SDQ11	SD 3136	180	396	450 x 110	530 x 190	4 x M24
170 175 180	6 11/16 6 3/4 6 15/16 7	SDQ12 SDQ12A	SD 3138 SD 3140	190 210	417 437	480 x 120 510 x 130	560 x 210 610 x 230	4 x M24 4 x M30
190 200	7 3/16 7 1/4 7 1/2 7 15/16 8	SDQ13	SD 3144	220	457	540 x 140	640 x 240	4 x M30
220 230	8 7/16 8 1/2 8 7/8 9	SDQ14	SD 3148	240	510	600 x 150	700 x 260	4 x M30
240 250 260	9 1/2 9 3/4 10	SDQ15	SD 3152	260	545	650 x 160	770 x 280	4 x M36
260 270 280	10 7/16 10 1/2 10 3/4 11	SDQ16 SDQ16A	SD 3156 SD 3160	280 300	589 609	670 x 160 710 x 190	790 x 280 830 x 310	4 x M36 4 x M36
300 305	11 1/2 12	SDQ17	SD3164	320	662	750 x 200	880 x 330	4 x M36

LIGHT SN/SD RANGE BEARINGS AND HOUSINGS **35 MM TO 160 MM (1 3/16 IN. TO 6 IN.)**



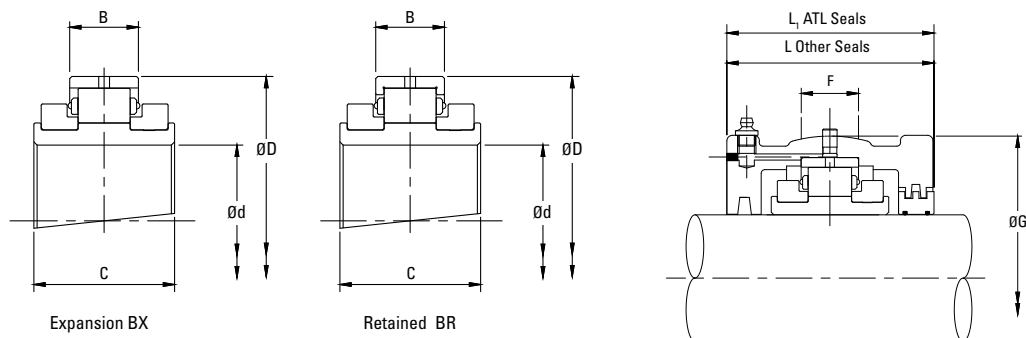
Shaft (d)		Reference Add BR for Retained Add BX for Expansion e.g. LSE103BR		Bearings Ratings							Housing Reference						
				Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B	C	ATL Seals	Other Seal Types	G	F	L	L ₁	
											Add HRTL for Retained Add HXTL for Expansion e.g. LS1HRTL	Add HR for Retained Add HX for Expansion e.g. LSE103HR					
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.			mm in.	mm in.	mm in.	mm in.	
35 40	1 3⁄16 1 1⁄4 1 7⁄16 1 1⁄2	LSM35 LSM40	LSE103 LSE104 LSE107 LSE108	65 14613	68 15287	3.20 719.38	5400	84.14 3.313	23.80 0.937	55.00 2.165	LS1	LSM35 LSM40	LSE103 LSE104 LSE107 LSE108	100.00 3.937	25 1.0	84 3.3	91 3.6
45 50	1 11⁄16 1 3⁄4 1 15⁄16 2	LSM45 LSM50	LSE111 LSE112 LSE115 LSE200	83 18659	87 19558	3.60 809.30	4630	98.42 3.875	25.40 1.000	60.00 2.362	LS2	LSM50	LSE111 LSE112 LSE115 LSE200	117.48 4.625	25 1.0	96 3.8	98 3.9
55 60 65	2 3⁄16 2 1⁄4 2 7⁄16 2 1⁄2	LSM55 LSM60 LSM65	LSE203 LSE204 LSE207 LSE208	103 23155	115 25853	5.40 1213.95	3940	114.30 4.500	27.00 1.063	60.00 2.362	LS3	LSM55 LSM60 LSM65	LSE203 LSE204 LSE207 LSE208	134.94 5.313	32 1.3	102 4.0	104 4.1
70 75	2 11⁄16 2 3⁄4 2 15⁄16 3	LSM70 LSM75	LSE211 LSE212 LSE215 LSE300	138 31024	161 36194	7.60 1708.53	3310	133.35 5.250	31.80 1.252	65.00 2.559	LS4	LSM70 LSM75	LSE211 LSE212 LSE215 LSE300	157.16 6.187	38 1.5	112 4.4	114 4.5
80 85 90	3 3⁄16 3 1⁄4 3 7⁄16 3 1⁄2	LSM80 LSM85 LSM90	LSE303 LSE304 LSE307 LSE308	187 42039	231 51931	12.40 2787.59	2790	152.40 6.000	38.90 1.531	75.00 2.953	LS5	LSM80 LSM85 LSM90	LSE303 LSE304 LSE307 LSE308	177.80 7.000	50 2.0	134 5.3	136 5.4
95 100 105	3 11⁄16 3 3⁄4 3 15⁄16 4	LSM95 LSM100 LSM105	LSE311 LSE312 LSE315 LSE400	288 64745	366 82280	16.00 3596.90	2340	174.62 6.875	45.30 1.783	85.00 3.346	LS6	LSM95 LSM100 LSM105	LSE311 LSE312 LSE315 LSE400	203.20 8.000	50 2.0	132 5.2	134 5.3
110 115	4 3⁄16 4 1⁄4 4 7⁄16 4 1⁄2	LSM110 LSM115	LSE403 LSE404 LSE407 LSE408	316 71040	427 95993	18.60 4181.39	1970	203.20 8.000	46.90 1.846	90.00 3.543	LS7	LSM110 LSM115	LSE403 LSE404 LSE407 LSE408	231.78 9.125	64 2.5	140 5.5	142 5.6
120 125 130	4 11⁄16 4 3⁄4 4 15⁄16 5	LSM120 LSM125 LSM130	LSE411 LSE412 LSE415 LSE500	363 81606	496 111505	22.20 4990.69	1740	222.25 8.750	54.00 2.126	95.00 3.740	LS8	LSM120 LSM125 LSM130	LSE411 LSE412 LSE415 LSE500	266.70 10.500	76 3.0	154 6.1	156 6.1
135 140	5 3⁄16 5 1⁄4 5 7⁄16 5 1⁄2	LSM135 LSM140	LSE503 LSE504 LSE507 LSE508	422 94869	585 131513	25.80 5799.99	1570	241.30 9.500	55.60 2.189	98.40 3.874	LS9	LSM135 LSM140	LSE503 LSE504 LSE507 LSE508	279.40 11.000	76 3.0	166 6.5	168 6.6
150 155 160	5 11⁄16 5 3⁄4 5 15⁄16 6	LSM150 LSM155 LSM160A	LSE511 LSE512 LSE515 LSE600	459 103187	664 149273	29.40 6609.30	1450	254.00 10.000	55.60 2.189	98.40 3.874	LS10	LSM150 LSM155 LSM160A	LSE511 LSE512 LSE515 LSE600	295.28 11.625	82 3.2	172 6.8	174 6.9

LIGHT SN/SD RANGE SUPPORT **SN01 - SD10**



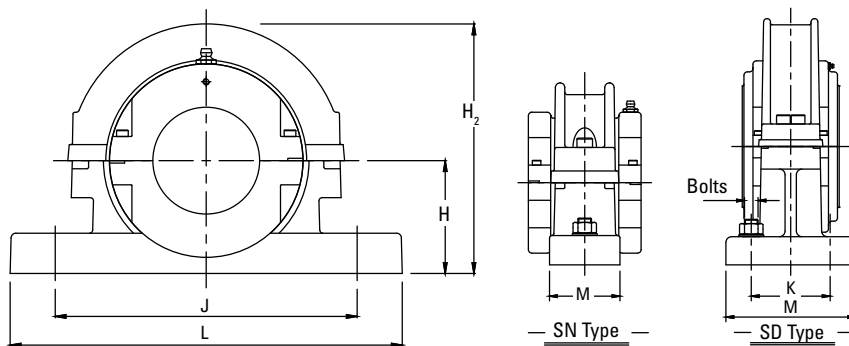
Shaft (d)		Spherical Roller Bearing Reference	SN/SD Reference	H	H ₂	J x K	L x M	Bolts
mm	in.			mm	mm	mm	mm	
35 40	1 3/16 1 1/4 1 7/16 1 1/2	SN01	SN 508 SN 509	60	135	170	205 x 60	2 x M12
45 50	1 11/16 1 3/4 1 15/16 2	SN02	SN 511	70	155	210	255 x 70	2 x M16
55 60 65	2 3/16 2 1/4 2 7/16 2 1/2	SN03	SN 513 SN 515	80	180	234	275 x 70	2 x M16
70 75	2 11/16 2 3/4 2 15/16 3	SN04	SN 516 SN 517	95	208	260	315 x 90	2 x M20
80 85 90	3 3/16 3 1/4 3 7/16 3 1/2	SN05 SN05A SN05B	SN 518 SN 519 SN 520	100 112 112	230 242 242	290 290 320	345 x 100 345 x 100 380 x 110	2 x M20 2 x M20 2 x M24
95 100 105	3 11/16 3 3/4 3 15/16 4	SN06	SN 522	125	265	350	410 x 120	2 x M24
110 115	4 3/16 4 1/4 4 7/16 4 1/2	SN07 SN07A	SN 524 SN 526	140 150	300 310	350 380	410 x 120 445 x 130	2 x M24 2 x M24
120 125 130	4 11/16 4 3/4 4 15/16 5	SN08	SN 528	150	354	420	500 x 150	2 x M30
135 140	5 3/16 5 1/4 5 7/16 5 1/2	SN09 SN09A	SN 530 SN 532	160 170	369 379	450 470	530 x 160 550 x 160	2 x M30 2 x M30
150 155 160	5 11/16 5 3/4 5 15/16 6	SD10	SD 3134	170	379	430 x 100	510 x 180	4 x M24

LIGHT SN/SD RANGE BEARINGS AND HOUSINGS **160 MM TO 305 MM (6 7/16 IN. TO 12 IN.)**



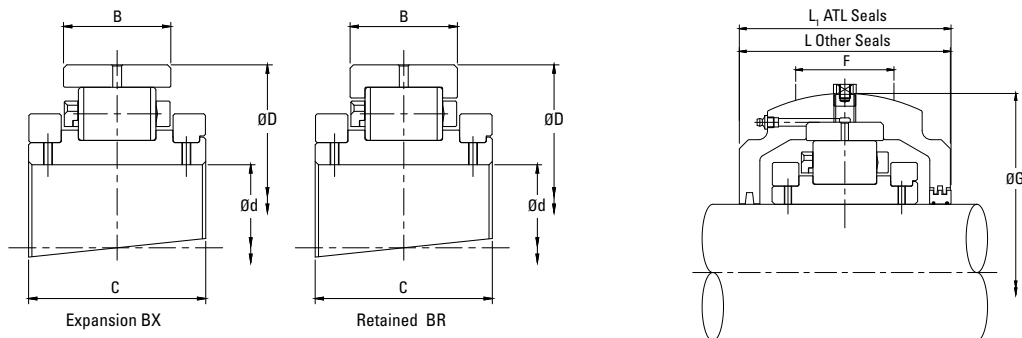
Shaft (d)		Reference		Bearings Ratings							Housing Reference						
		Add BR for Retained Add BX for Expansion e.g. LSE215BR		Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B, B ₁	C	ATL Seals Add HRTL for Retained Add HXTL for Expansion e.g. LS4HRTL	Other Seal Types Add HR for Retained Add HX for Expansion e.g. LSE215HR		G	F	L	L ₁
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.				mm in.	mm in.	mm in.	mm in.
160 170	6 7/16 6 1/2	LSM160 LSM170A	LSE607 LSE608	583 131064	792 178049	33.00 7419	1320	273.05 10.750	60.30 2.374	109.00 4.291	LS11	LSM160 LSM170A	LSE607 LSE608	311.15 12.250	76 3.0	172 6.8	192 7.6
170 175 180	6 11/16 6 3/4 6 15/16 7	LSM170 LSM175 LSM180	LSE611 LSE612 LSE615 LSE700	524 117800	828 186142	36.40 8183	1220	285.75 11.250	55.50 2.185	109.00 4.291	LS12	LSM170 LSM175 LSM180	LSE611 LSE612 LSE615 LSE700	323.85 12.750	70 2.8	172 6.8	200 7.9
190 200	7 3/16 7 1/4 7 1/2 7 15/16 8	LSM190 LSM200	LSE703 LSE704 LSE708 LSE715 LSE800	614 138033	990 222561	41.00 9217	1070	311.15 12.250	60.30 2.374	106.00 4.173	LS13	LSM190 LSM200	LSE703 LSE704 LSE708 LSE715 LSE800	358.78 14.125	86 3.4	172 6.8	200 7.9
220 230	8 7/16 8 1/2 8 7/8 9	LSM220 LSM230	LSE807 LSE808 LSE814 LSE900	708 159165	1168 262577	49.00 11016	930	342.90 13.500	63.50 2.500	115.00 4.528	LS14	LSM220 LSM230	LSE807 LSE808 LSE814 LSE900	387.35 15.250	82 3.2	178 7.0	216 8.5
240 250 260	9 1/2 9 3/4 10	LSM240 LSM250 LSM260A	LSE908 LSE912 LSE1000	744 167258	1289 289779	57.80 12994	820	374.65 14.750	66.70 2.626	122.00 4.803	LS15	LSM240 LSM250 LSM260A	LSE908 LSE912 LSE1000	419.10 16.500	90 3.5	188 7.4	222 8.7
260 270 280	10 7/16 10 1/2 10 3/4 11	LSM260 LSM270 LSM280	LSE1007 LSE1008 LSE1012 LSE1100	848 190638	1502 337663	66.80 15017	730	406.40 16.000	69.00 2.717	128.00 5.039	LS16	LSM260 LSM270 LSM280	LSE1007 LSE1008 LSE1012 LSE1100	454.00 17.874	95 3.7	204 8.0	232 9.1
300 305	11 1/2 12	LSM300 LSM305	LSE1108 LSE1200	929 208848	1665 374307	78.20 17580	650	438.15 17.250	74.60 2.937	143.00 5.630	LS17	LSM300 LSM305	LSE1108 LSE1200	489.00 19.252	98 3.9	216 8.5	248 9.8

LIGHT SN/SD RANGE SUPPORT **SD11 - SD17**



Shaft (d)		Spherical Roller Bearing Reference	SN/SD Reference	H	H ₂	J x K	L x M	Bolts
mm	in.			mm	mm	mm	mm	
160 170	6 7/16 6 1/2	SD11	SD 3136	180	396	450 x 110	530 x 190	4 x M24
170 175 180	6 11/16 6 3/4 6 15/16 7	SD12 SD12A	SD 3138 SD 3140	190 210	417 437	480 x 120 510 x 130	560 x 210 610 x 230	4 x M24 4 x M30
190 200	7 3/16 7 1/4 7 1/2 7 15/16 8	SD13	SD 3144	220	457	540 x 140	640 x 240	4 x M30
220 230	8 7/16 8 1/2 8 7/8 9	SD14	SD 3148	240	510	600 x 150	700 x 260	4 x M30
240 250 260	9 1/2 9 3/4 10	SD15	SD 3152	260	545	650 x 160	770 x 280	4 x M36
260 270 280	10 7/16 10 1/2 10 3/4 11	SD16 SD16A	SD 3156 SD 3160	280 300	589 609	670 x 160 710 x 190	790 x 280 830 x 310	4 x M36 4 x M36
300 305	11 1/2 12	SD17	SD 3164	320	662	750 x 200	880 x 330	4 x M36

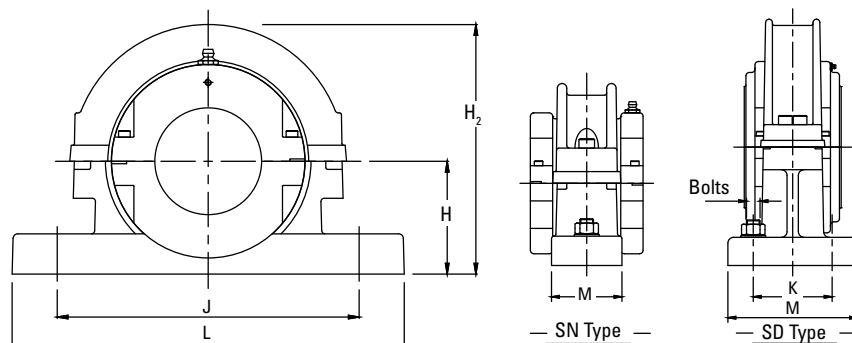
MEDIUM SN/SD RANGE BEARING AND HOUSING **135 MM TO 260 MM (5 3/16 IN. TO 10 IN.)**



Shaft (d)		Reference Add BR for Retained Add BX for Expansion e.g. MSE503BR		Bearings Ratings							Housing Reference						
				Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B	C	ATL Seals	Other Seal Types	G	F	L	L ₁	
											Add HRTL for Retained Add HXTL for Expansion e.g. MS30HRTL	Add HR for Retained Add HX for Expansion e.g. MSE503HR					
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.			mm in.	mm in.	mm in.	mm in.	
135 140 150	5 3⁄16 5 1⁄4 5 1⁄2 6	MSM135 MSM140 MSM150A ⁽¹⁾	MSE503 MSE504 MSE507 MSE508 MSE600A ⁽¹⁾	600 134885	817 183669	45.40 10206	1450	273.05 10.750	66.70 2.626	117.50 4.626	MS30 MS30E0548	MSM135 MSM140 MSM150A	MSE503 MSE504 MSE507 MSE508 MSE600A	323.85 12.750	90 3.543	186 7.323	188 7.402
150 155 160	5 11⁄16 5 3⁄4 5 15⁄16 6	MSM150 MSM155 MSM160A ⁽¹⁾	MSE511 MSE512 MSE515 MSE600	730 164111	1034 232452	52.40 11780	1320	292.10 11.500	68.30 2.689	123.80 4.874	MS31 MS31E0548	MSM150 MSM155 MSM160A	MSE511 MSE512 MSE515 MSE600	336.55 13.250	95 3.74	202 7.953	204 8.031
160 170	6 7⁄16 6 1⁄2	MSM160 MSM170	MSE607 MSE608	842 189289	1175 264151	61.40 13803	1200	317.50 12.500	83.30 3.280	140.00 5.512	MS32	MSM160 MSM170	MSE607 MSE608	368.30 14.500	95 3.74	206 8.11	232 9.134
175 180	6 11⁄16 6 3⁄4 6 15⁄16 7	MSM175 MSM180	MSE611 MSE612 MSE615 MSE700	927 208398	1357 305066	71.20 16006	1120	330.20 13.000	83.30 3.280	140.00 5.512	MS33	MSM175 MSM180	MSE611 MSE612 MSE615 MSE700	381.00 15.000	95 3.74	222 8.74	242 9.528
190 200	7 1⁄4 7 1⁄2 7 15⁄16 8	MSM190 MSM200	MSE704 MSE708 MSE715 MSE800	1013 227731	1516 340810	80.00 17985	960	368.30 14.500	90.50 3.563	156.00 6.417	MS34	MSM190 MSM200	MSE704 MSE708 MSE715 MSE800	425.5 16.752	105 4.134	235 9.252	258 10.157
220 230	8 1⁄2 8 7⁄8 9	MSM220 MSM230	MSE807 MSE814 MSE900	1138 255833	1668 374981	89.80 20188	850	393.70 15.500	90.50 3.563	163.00 6.147	MS35	MSM220 MSM230	MSE807 MSE814 MSE900	457.20 18.000	110 4.331	242 9.528	274 10.787
240 250 260	9 1⁄2 9 3⁄4 10	MSM240 MSM250 MSM260	MSE908 MSE912 MSE1000	1360 305740	2130 478843	98.80 22211	750	431.80 17.000	96.80 3.811	170.00 6.693	MS36	MSM240 MSM250 MSM260	MSE908 MSE912 MSE1000	495.30 19.500	118 4.646	248 9.764	280 11.024

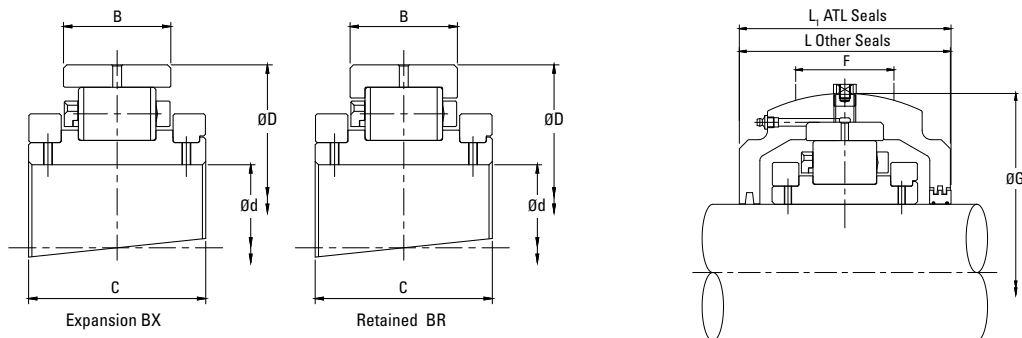
⁽¹⁾When ordering these bearings with ATL seals the housing must contain the E0548 suffix.

MEDIUM SN/SD RANGE SUPPORT **SN30 - SD36A**



Shaft (d)		Spherical Roller Bearing Reference	SN/SD Reference	H	H ₂	J x K	L x M	Bolts
mm	in.			mm	mm	mm	mm	
135 140 150	5 3/16 5 1/4 5 7/16 5 1/2 6	SN30 SD30	SNL532 SD/SNL3134	170 170	397 397	470 430 x 100	550 x 160 510 x 180	2 x M30 4 x M24
150 155 160	5 11/16 5 3/4 5 15/16 6	SD31	SD3136 SNL3136	180	410	450 x 110	530 x 190	4 x M24
160 170	6 7/16 6 1/2	SD32	SD3138 SNL3138	190	456	480 x 120	560 x 210	4 x M24
175 180	6 11/16 6 3/4 6 15/16 7	SD33	SD3140 SNL3140	210	482	510 x 130	610 x 230	4 x M30
190 200	7 1/4 7 1/2 7 15/16 8	SD34	SD3144 SNL3144	220	510	540 x 140	640 x 240	4 x M30
220 230	8 1/2 8 7/8 9	SD35	SD/SNL3148	240	566	600 x 150	700 x 260	4 x M30
240 250 260	9 1/2 9 3/4 10	SD36 SD36A	SD/SNL3152 SD/SNL3156	260 280	614 634	650 x 160 670 x 160	770 x 280 790 x 280	4 x M36 4 x M36

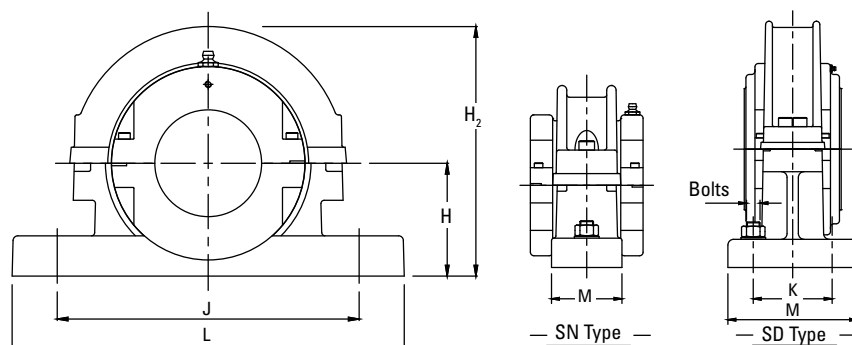
MEDIUM SN/SD RANGE BEARING AND HOUSING **270 MM TO 400 MM (10 ½ IN. TO 16 IN.)**



Shaft (d)		Reference Add BR for Retained Add BX for Expansion e.g. MSE503BR		Bearings Ratings						Housing Reference								
				Dynamic C _r	Static C _{or}	Axial C _a	Max	D	B	C	ATL Seals		Other Seal Types		G	F	L	L ₁
											Add HRTL for Retained Add HXTL for Expansion e.g. MS30HRTL	Add HR for Retained Add HX for Expansion e.g. MSE503HR						
mm	in.			kN lb.	kN lb.	kN lb.	RPM	mm in.	mm in.	mm in.					mm in.	mm in.	mm in.	mm in.
270 280	10 ½ 10 ¾ 11	MSM270 MSM280	MSE1008 MSE1012 MSE1000	1476 331818	2357 529875	113.80 25583	670	463.55 18.250	101.60 4.000	186.00 7.323	MS37	MSM270 MSM280	MSE1008 MSE1012 MSE1000	527.10 20.752	130 5.118	264 10.394	300 11.811	
300 305	11 ½ 12	MSM300 MSM305	MSE1108 MSE1200	1587 356771	2644 594395	129.00 29000	610	495.30 19.500	103.20 4.063	193.00 7.598	MS38	MSM300 MSM305	MSE1108 MSE1200	552.50 21.752	128 5.039	268 10.6	306 12.0	
320 330	12 ½ 13	MSM320 MSM330	MSE1208 MSE1300	1851 416121	3214 722536	144.20 32417	550	527.05 20.750	106.40 4.189	192.00 7.559	MS39	MSM320 MSM330	MSE1208 MSE1300	587.40 23.126	128 5.039	298 11.732	—	
340 350 360	13 ½ 14	MSM340 MSM350 MSM360 ⁽¹⁾	MSE1308 MSE1400	2029 456137	3449 775366	159.20 35790	500	565.15 22.250	115.90 4.563	200.00 7.874	MS40 MS40E0548	MSM340 MSM350 MSM360	MSE1308 MSE1400	628.70 24.752	146 5.748	305 12.008	—	
380	15	MSM380	MSE1500	1931 434106	3522 791777	174.40 39207	460	584.20 23.000	111.10 4.374	200.00 7.874	MS41	MSM380	MSE1500	647.70 25.500	146 5.748	305 12.008	—	
400	16	MSM400	MSE1600	2105 473223	3793 852700	188.40 42354	430	615.95 24.250	115.90 4.563	200.00 7.874	MS42	MSM400	MSE1600	685.80 27.000	146 5.748	324 12.756	—	

⁽¹⁾When ordering these bearings with ATL seals the housing must contain the E0548 suffix.

MEDIUM SN/SD RANGE SUPPORT **SD37 - SD42**



Shaft (d)		Spherical Roller Bearing Reference	SN/SD Reference	H	H ₂	J x K	L x M	Bolts
mm	in.			mm	mm	mm	mm	
270 280	10 ½ 10 ¾ 11	SD37	SD3160 SNL3160	300	682	710 x 190	830 x 310	4 x M36
300 305	11 ½ 12	SD38	SD3164 SNL3164	320	716	750 x 200	880 x 330	4 x M36
320 330	12 ½ 13	SD39	SNL3168L	340	761	810 x 220	950 x 360	4 x M36
340 350 360	13 ½ 14	SD40 SD40A	SNL3172L SNL3176L	350 360	799 809	840 x 220 870 x 220	1000 x 360 1040 x 360	4 x M36 4 x M36
380	15	SD41	SNL3180L	380	841	950 x 240	1120 x 390	4 x M42
400	16	SD42	SNL3184L	410	902	1000 x 260	1170 x 420	4 x M42



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