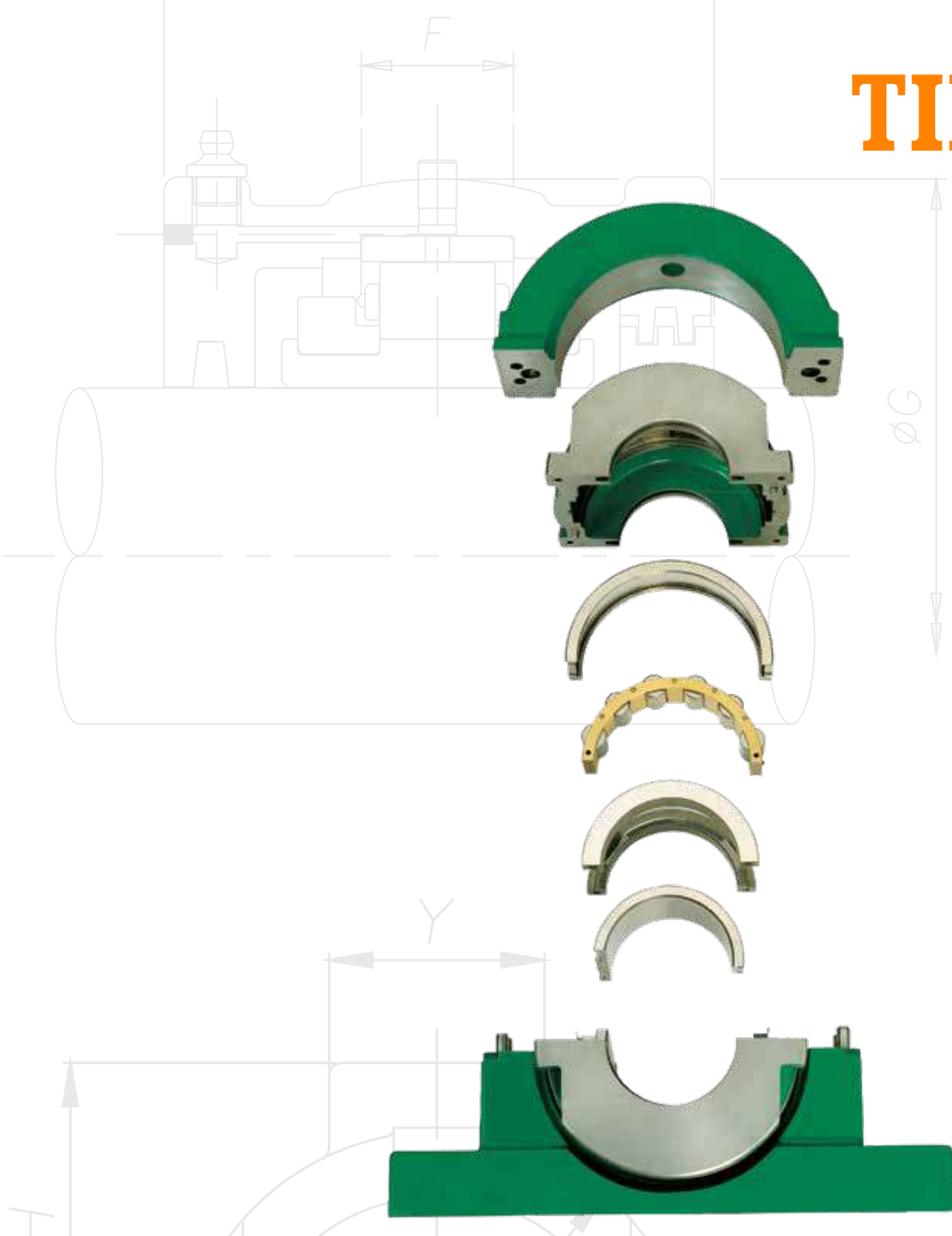


TIMKEN



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.

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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.

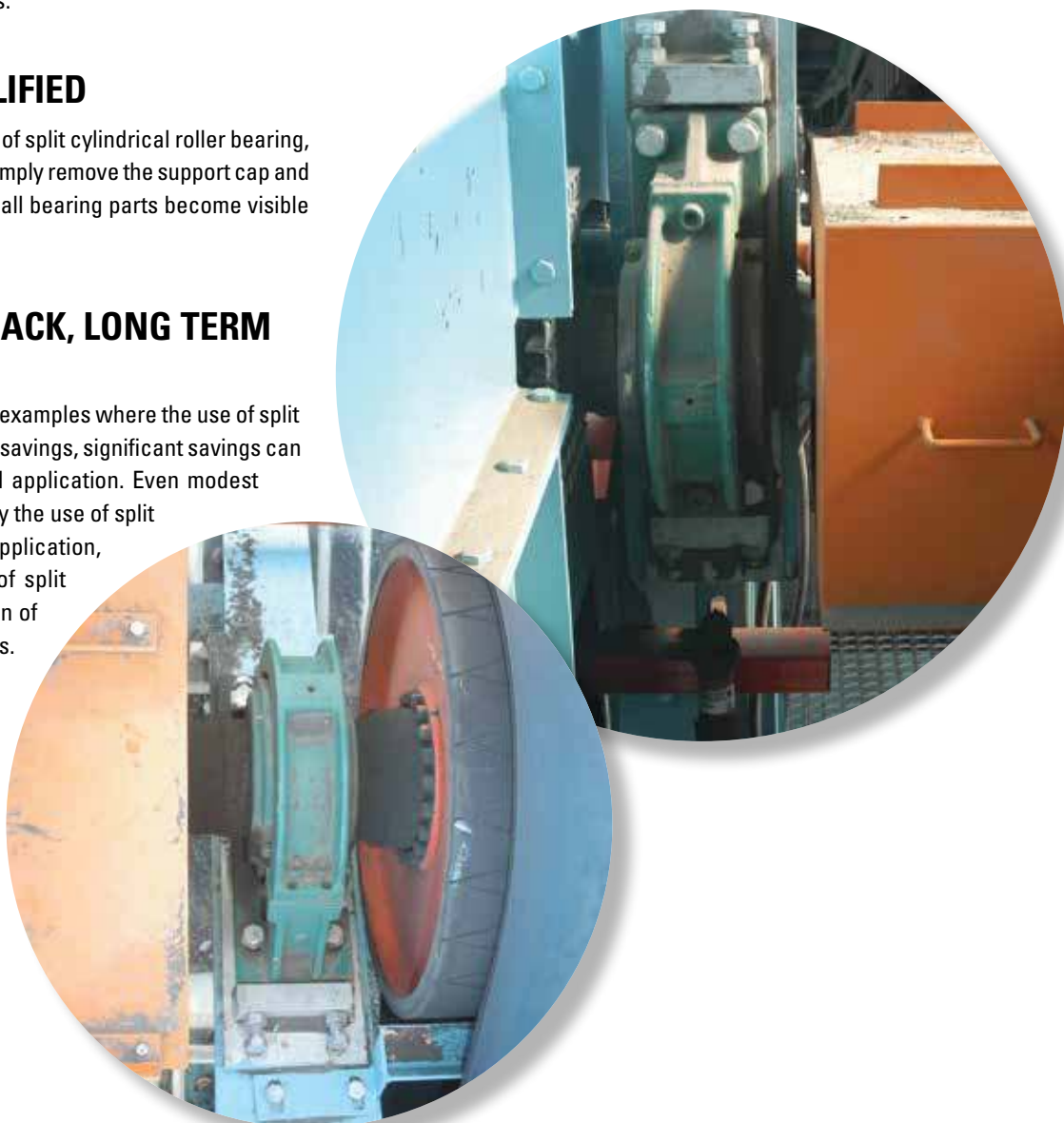
SHORT TERM PAYBACK, LONG TERM BENEFITS

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.

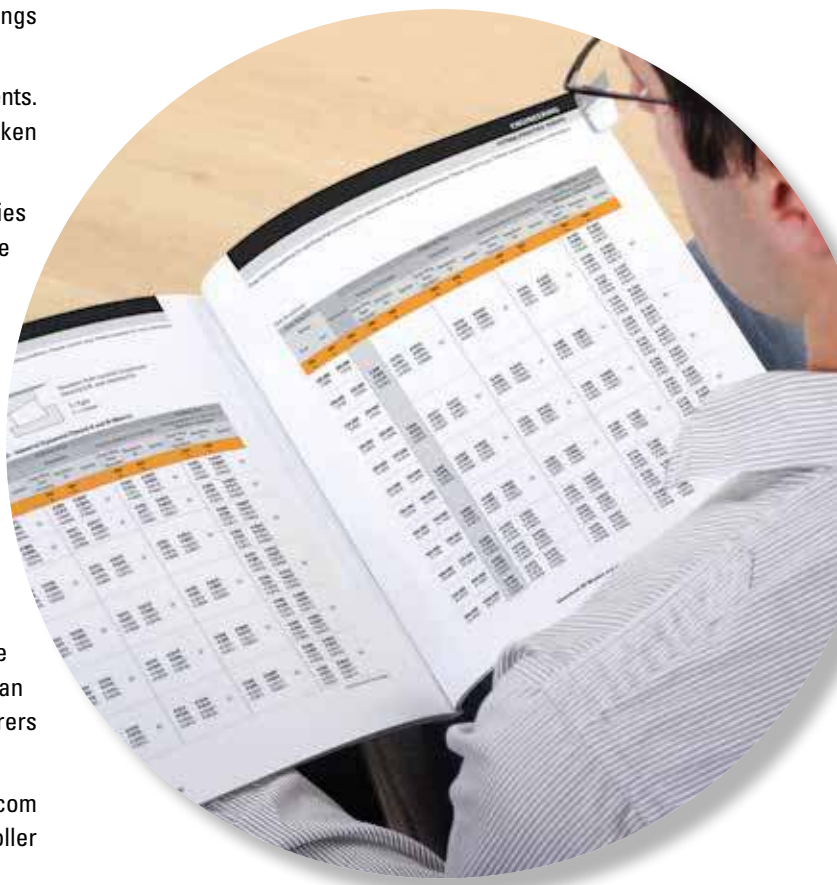
The product tables list split bearing housed units and components. For other bearing types, please refer to the respective Timken product catalog reference.

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.

NOTE

Do not use excessive force when mounting or dismantling 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-notices/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.

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



ENGINEERING

The following topics are covered within this section:

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STANDARD UNIT ANATOMY

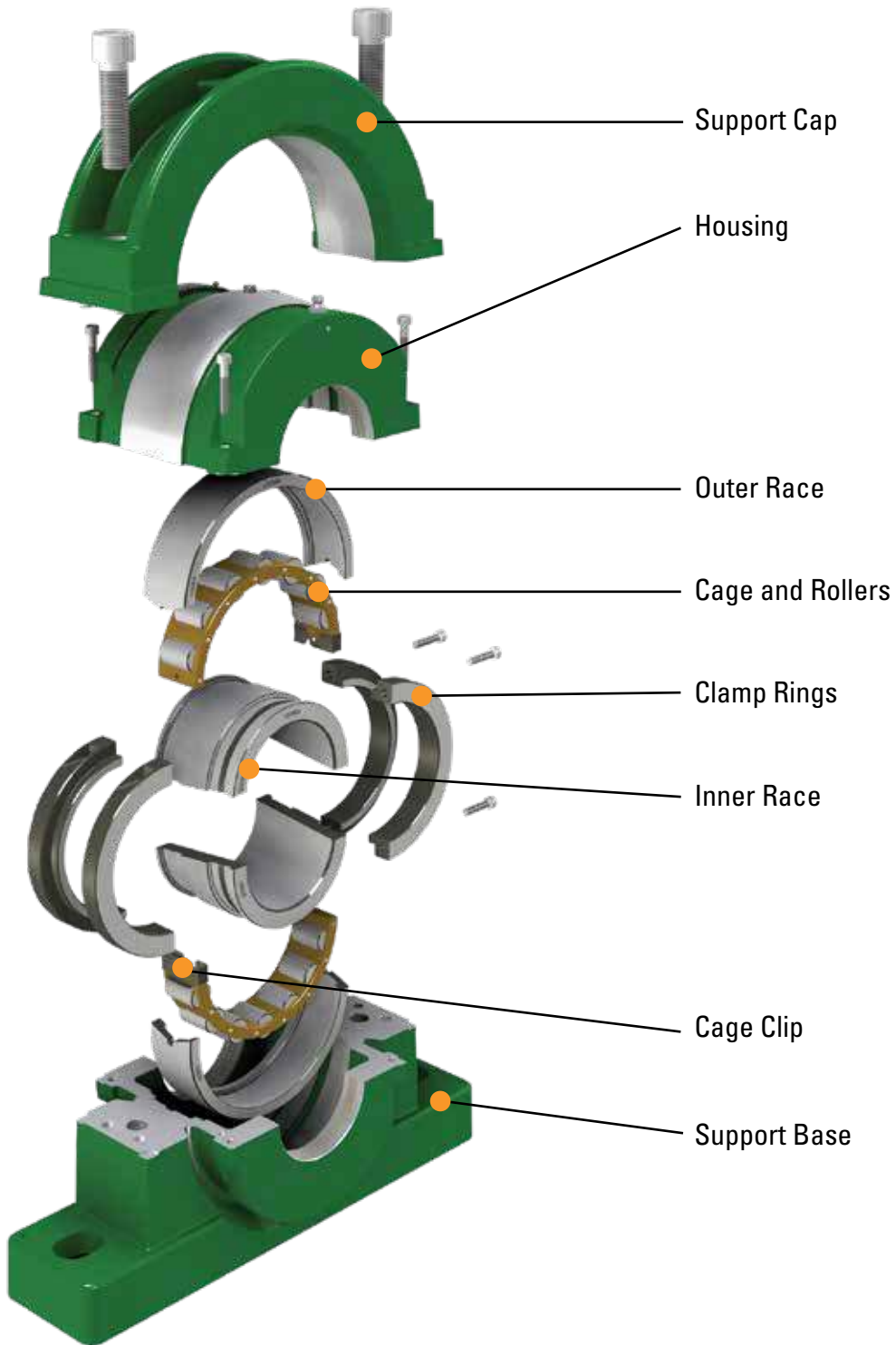


Fig. 1. Standard unit anatomy.

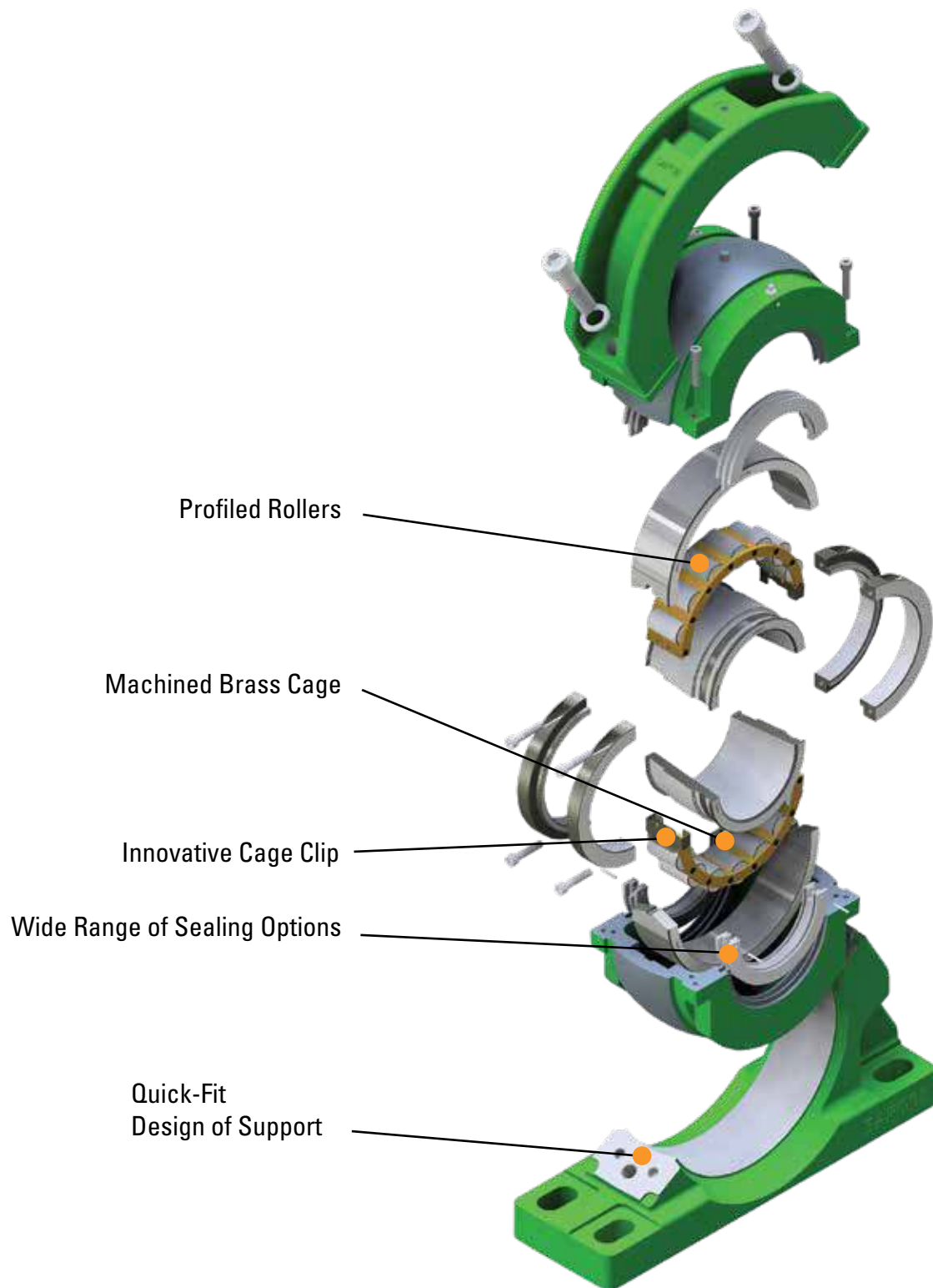
TECHNICAL FEATURES

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.

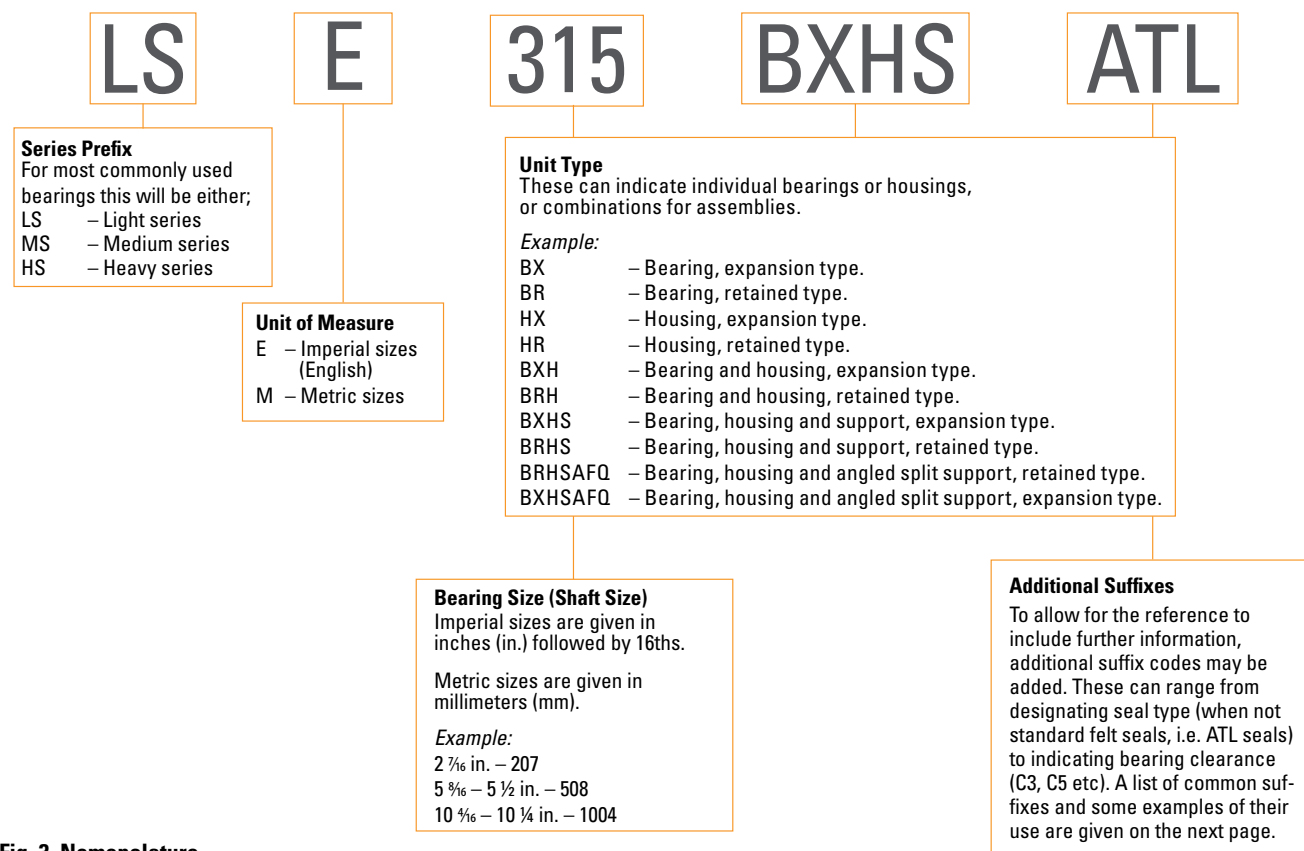


Fig. 3. Nomenclature.

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.

MSE815BRHKS

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 3/16 to 1 1/2 | 35 to 40 | S01 | F01 | TT01 | TP01 |
| 1 1/16 to 2 | 45 to 50 | S02 | F02 | TT02 | TP02 |
| 2 3/16 to 2 1/2 | 60 to 65 | S03 | F03 | TT03 | TP03 |
| 2 1/16 to 3 | 70 to 75 | S04 | F04 | TT04 | TP04 |
| 3 3/16 to 3 1/2 | 80 to 90 | S05 | F05 | TT05 | TP05 |
| 3 1/16 to 4 | 100 to 105 | S06 | F06 | TT06 | TP06 |
| 4 3/16 to 4 1/2 | 110 to 115 | S07 | F07 | TT07 | TP07 |
| 4 1/16 to 5 | 120 to 130 | S08 | F08 | TT08 | TP08 |
| 5 3/16 to 5 1/2 | 135 to 140 | S09 | F09 | TT09 | TP09 |
| 5 1/16 to 6 | 150 to 155 | S10 | F10 | TT10 | TP10 |
| 6 7/16 to 6 1/2 | 160 | S11 | F11 | – | – |
| 6 1/16 to 7 | 170 to 180 | S12 | F12 | – | – |
| 7 1/4 to 8 | 190 to 200 | S13 | F13 | – | – |
| 8 1/2 to 9 | 220 to 230 | S14 | F14 | – | – |
| 9 1/2 to 10 | 240 to 250 | S15 | F15 | – | – |
| 10 1/2 to 11 | 260 to 280 | S16 | F16 | – | – |
| 11 1/2 to 12 | 300 | S17 | – | – | – |
| 12 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 1/16 to 2 | 45 to 50 | S03 | F03 | TT03 | TP03 |
| 2 3/16 to 2 1/2 | 60 to 65 | S04 | F04 | TT04 | TP04 |
| 2 1/16 to 3 | 70 to 75 | S05 | F05 | TT05 | TP05 |
| 3 3/16 to 3 1/2 | 80 to 90 | S06 | F06 | TT06 | TP06 |
| 3 1/16 to 4 | 100 to 105 | S07 | F07 | TT07 | TP07 |
| 4 3/16 to 4 1/2 | 110 to 115 | S08 | F08 | TT08 | TP08 |
| 4 1/16 to 5 | 120 to 130 | S10 | F10 | TT09 | TP09 |
| 5 3/16 to 5 1/2 | 135 to 140 | S30 | F30 | TT30 | TP30 |
| 5 1/16 to 6 | 150 to 155 | S31 | F31 | TT31 | TP31 |
| 6 7/16 to 6 1/2 | 160 to 170 | S32 | F32 | – | – |
| 6 1/16 to 7 | 180 | S33 | F33 | – | – |
| 7 1/4 to 8 | 190 to 200 | S34 | F34 | – | – |
| 8 1/2 to 9 | 220 to 230 | S35 | F35 | – | – |
| 9 1/2 to 10 | 240 to 260 | S36 | F36 | – | – |
| 10 1/2 to 11 | 280 | S37 | F37 | – | – |
| 11 1/2 to 12 | 300 | S38 | F38 | – | – |
| 12 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 1/16 to 4 | 100 to 105 | S54 | F54 |
| 4 3/16 to 4 1/2 | 110 to 120 | S55 | F55 |
| 4 1/16 to 5 | 125 to 130 | S56 | F56 |
| 5 3/16 to 5 1/2 | 135 to 140 | S57 | F57 |
| 5 1/16 to 6 | 150 to 155 | S58 | F58 |
| 6 7/16 to 6 1/2 | 160 to 170 | S59 | F59 |
| 6 1/16 to 7 | 180 | S60 | F60 |
| 7 1/4 to 8 | 190 to 200 | S61 | F61 |
| 8 1/2 to 9 | 220 to 230 | S62 | F62 |
| 9 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.

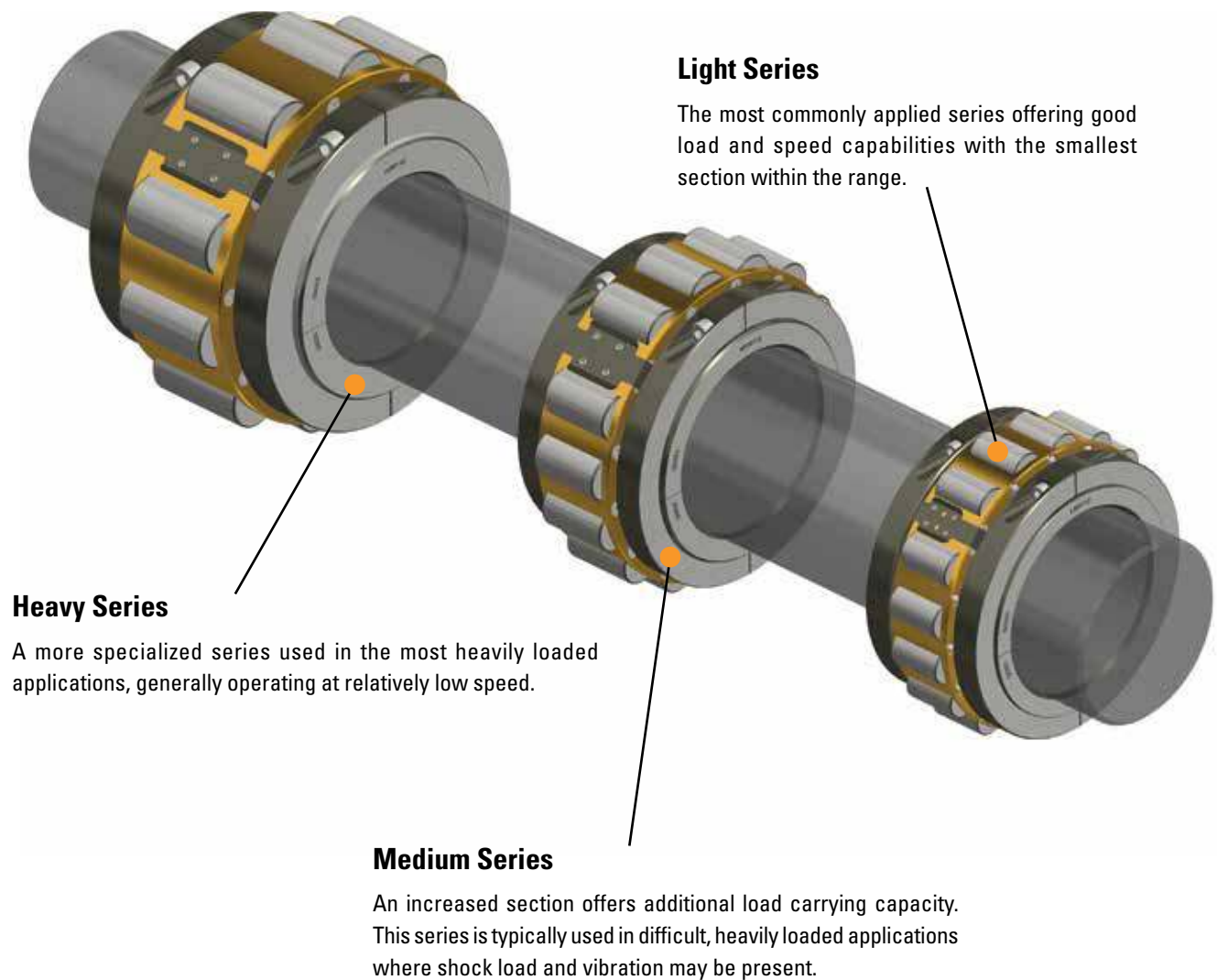


Fig. 10. Series comparison.

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:

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

Where

L_{hna} = Adjusted life

L_{10h} = 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.

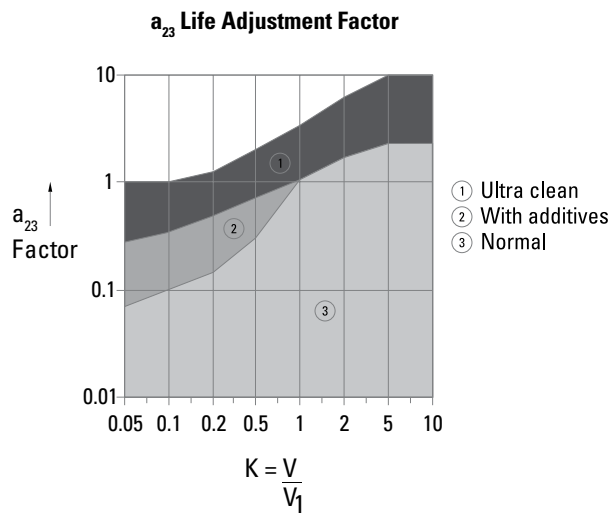
Decreasing effectiveness of lubricant due to decreasing film thickness or effects of contamination will reduce the a_3 factor.

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:

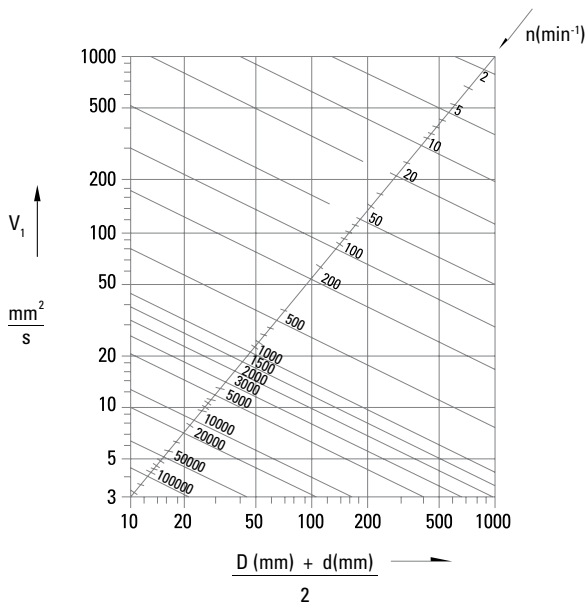


Fig. 12. V and V_1 values.

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.

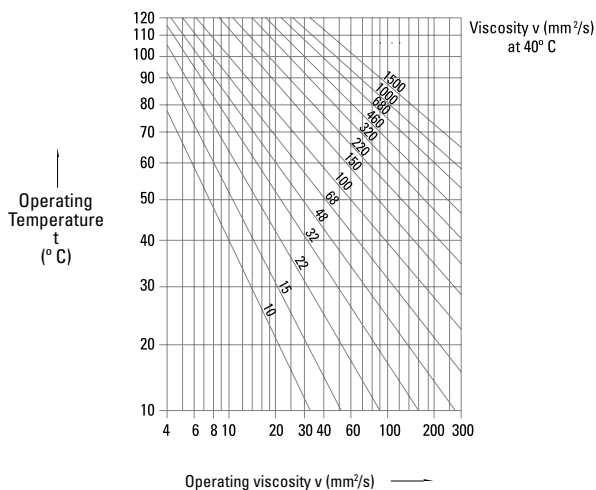


Fig. 13. Operating viscosity.

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:

$$C_o = F_s \times P_o$$

C_o = Basic static load rating

P_o = 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 |
| 170 | 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 | 14 | 229755 | 441745 | 22391 | |
| 360 | 15 | 1224 | 2431 | 110.40 | 500 |
| 380 | 15 | 275166 | 546511 | 24819 | |
| 400 | 16 | 1107 | 2266 | 115.60 | 460 |
| 400 | 16 | 248864 | 509417 | 25988 | |
| 420 | 17 | 1146 | 2418 | 121.00 | 430 |
| 420 | 17 | 257631 | 543588 | 27202 | |
| 440 | 18 | 1185 | 2469 | 127.20 | 410 |
| 460 | 18 | 266399 | 555053 | 28596 | |
| 480 | 19 | 1348 | 2965 | 132.60 | 380 |
| 480 | 19 | 303042 | 666559 | 29810 | |
| 500 | 20 | 1392 | 3139 | 137.80 | 360 |
| 500 | 20 | 312934 | 705675 | 30979 | |
| 530 | 21 | 1431 | 3316 | 140.60 | 340 |
| 530 | 21 | 321702 | 745466 | 31608 | |
| 560 | 22 | 1472 | 3490 | 142.40 | 330 |
| 560 | 22 | 330919 | 784583 | 32013 | |
| 580 | 23 | 1616 | 3841 | 144.00 | 310 |
| 580 | 23 | 363291 | 863491 | 32372 | |
| 600 | 24 | 1660 | 4033 | 146.80 | 300 |
| 600 | 24 | 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 |
| 180 | 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 | 14 | 456137 | 765025 | 35790 | |
| 380 | 15 | 1931 | 3522 | 174.40 | 460 |
| 380 | 15 | 434106 | 791777 | 39207 | |
| 400 | 16 | 2105 | 3793 | 188.40 | 430 |
| 400 | 16 | 473223 | 852701 | 42354 | |
| 420 | 17 | 2324 | 4164 | 202.00 | 400 |
| 420 | 17 | 522456 | 936105 | 45411 | |
| 440 | 18 | 2215 | 4183 | 216.00 | 380 |
| 460 | 18 | 497952 | 940376 | 48559 | |
| 480 | 19 | 2445 | 4594 | 230.00 | 360 |
| 480 | 19 | 549658 | 1032773 | 51706 | |
| 500 | 20 | 2453 | 4923 | 244.00 | 340 |
| 500 | 20 | 551456 | 1106734 | 54853 | |
| 530 | 21 | 2702 | 5415 | 258.00 | 330 |
| 530 | 21 | 607434 | 1217340 | 58001 | |
| 560 | 22 | 2851 | 5740 | 272.00 | 310 |
| 560 | 22 | 640930 | 1290403 | 61148 | |
| 580 | 23 | 2982 | 6173 | 286.00 | 300 |
| 580 | 23 | 670380 | 1387746 | 64295 | |
| 600 | 24 | 2972 | 6185 | 300.00 | 290 |
| 600 | 24 | 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 _{0r} | 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

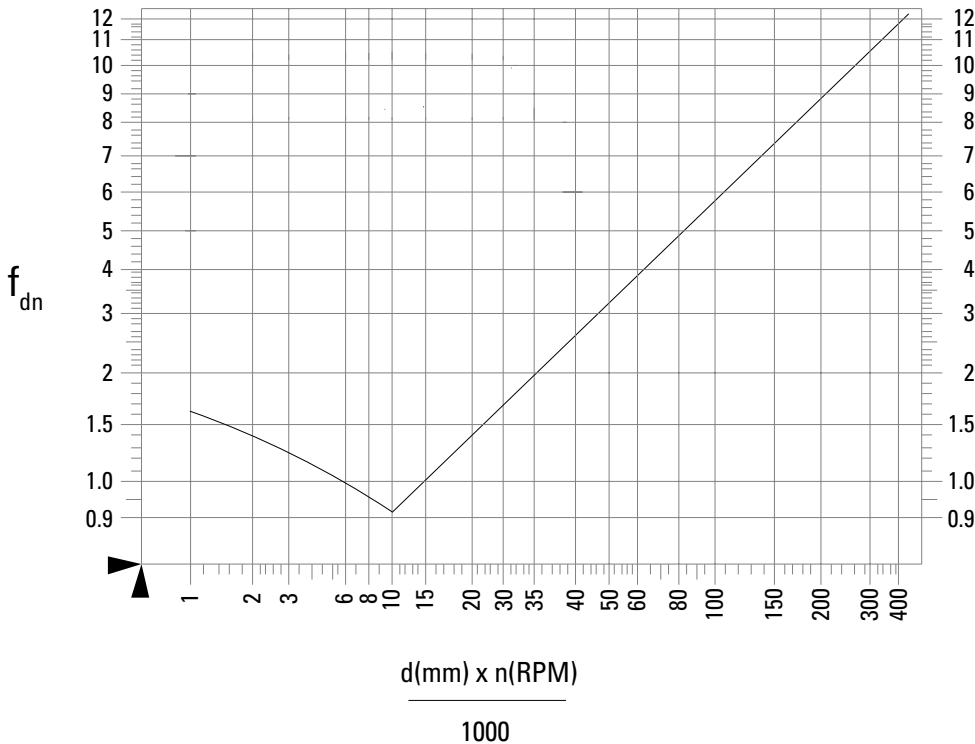
AXIAL LOAD

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.

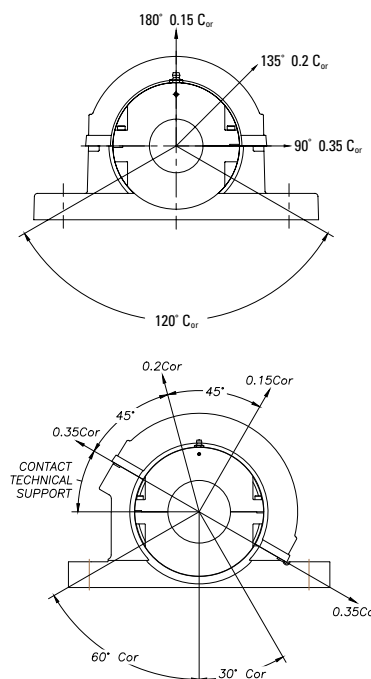


Fig. 15. C_{or} rating application.

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 | 1 3/16 | 5.878 | 4.122 | 2.760 | 0.412 |
| 40 | 1 1/2 | | | | |
| 45 | 1 11/16 | 5.852 | 4.148 | 2.847 | 0.415 |
| 50 | 2 | | | | |
| 60 | 2 3/16 | 6.932 | 5.068 | 3.140 | 0.422 |
| 65 | 2 1/2 | | | | |
| 70 | 2 11/16 | 6.902 | 5.098 | 3.252 | 0.425 |
| 75 | 3 | | | | |
| 80 | 3 3/16 | 8.017 | 5.983 | 3.370 | 0.427 |
| 90 | 3 1/2 | | | | |
| 100 | 3 11/16 | 8.089 | 5.911 | 3.137 | 0.422 |
| 105 | 4 | | | | |
| 110 | 4 3/16 | 9.109 | 6.891 | 3.538 | 0.431 |
| 115 | 4 1/2 | | | | |
| 120 | 4 11/16 | 9.100 | 6.900 | 3.569 | 0.431 |
| 130 | 5 | | | | |
| 135 | 5 3/16 | 9.087 | 6.913 | 3.612 | 0.432 |
| 140 | 5 1/2 | | | | |
| 150 | 5 11/16 | 10.159 | 7.841 | 3.819 | 0.436 |
| 155 | 6 | | | | |
| 160 | 6 7/16 | 10.162 | 7.838 | 3.809 | 0.435 |
| 170 | 6 1/2 | | | | |
| 170 | 6 11/16 | 12.223 | 9.777 | 4.442 | 0.444 |
| 180 | 7 | | | | |
| 190 | 7 1/4 | 12.204 | 9.796 | 4.515 | 0.445 |
| 200 | 8 | | | | |
| 220 | 8 1/2 | 12.171 | 9.829 | 4.645 | 0.447 |
| 230 | 9 | | | | |
| 240 | 9 1/2 | 13.154 | 10.846 | 5.152 | 0.452 |
| 250 | 10 | | | | |
| 260 | 10 1/2 | 13.118 | 10.882 | 5.319 | 0.453 |
| 280 | 11 | | | | |
| 300 | 11 1/2 | 13.087 | 10.913 | 5.472 | 0.455 |
| 305 | 12 | | | | |
| 320 | 12 1/2 | 13.028 | 10.972 | 5.795 | 0.457 |
| 330 | 13 | | | | |
| 340 | 14 | 15.125 | 12.875 | 6.182 | 0.460 |
| 350 | | | | | |
| 360 | 15 | 16.133 | 13.867 | 6.580 | 0.462 |
| 380 | | | | | |
| 400 | 16 | 17.150 | 14.850 | 6.92 | 0.464 |
| 420 | 17 | 18.156 | 15.844 | 7.319 | 0.466 |
| 440 | 18 | 19.165 | 16.835 | 7.694 | 0.468 |
| 460 | | | | | |
| 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 | 1 11/16 | 5.988 | 4.012 | 2.432 | 0.401 |
| 50 | 2 | | | | |
| 60 | 2 3/16 | 7.091 | 4.909 | 2.659 | 0.409 |
| 65 | 2 1/2 | | | | |
| 70 | 2 11/16 | 7.153 | 4.847 | 2.506 | 0.404 |
| 75 | 3 | | | | |
| 80 | 3 3/16 | 7.091 | 4.909 | 2.659 | 0.409 |
| 90 | 3 1/2 | | | | |
| 100 | 3 11/16 | 8.205 | 5.795 | 2.818 | 0.414 |
| 105 | 4 | | | | |
| 110 | 4 3/16 | 8.143 | 5.857 | 2.981 | 0.418 |
| 115 | 4 1/2 | | | | |
| 120 | 4 11/16 | 8.105 | 5.895 | 3.088 | 0.421 |
| 130 | 5 | | | | |
| 135 | 5 3/16 | 8.082 | 5.918 | 3.157 | 0.423 |
| 140 | 5 1/2 | | | | |
| 150 | 5 11/16 | 9.225 | 6.775 | 3.188 | 0.423 |
| 155 | 6 | | | | |
| 160 | 6 7/16 | 8.107 | 5.893 | 3.083 | 0.421 |
| 170 | 6 1/2 | | | | |
| 180 | 6 11/16 | 9.192 | 6.808 | 3.281 | 0.425 |
| 190 | 7 1/4 | 9.119 | 6.881 | 3.505 | 0.430 |
| 200 | 8 | | | | |
| 220 | 8 1/2 | 9.161 | 6.839 | 3.372 | 0.427 |
| 230 | 9 | | | | |
| 240 | 9 1/2 | 10.218 | 7.782 | 3.628 | 0.432 |
| 260 | 10 | | | | |
| 270 | 10 1/2 | 10.162 | 7.838 | 3.808 | 0.435 |
| 280 | 11 | | | | |
| 300 | 11 1/2 | 11.207 | 8.793 | 4.082 | 0.440 |
| 305 | 12 | | | | |
| 320 | 12 1/2 | 12.287 | 9.713 | 4.217 | 0.442 |
| 330 | 13 | | | | |
| 340 | 14 | 11.202 | 8.798 | 4.100 | 0.440 |
| 360 | | | | | |
| 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 | 18 | 14.257 | 11.743 | 5.122 | 0.452 |
| 460 | | | | | |
| 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 | 3 ¹¹ / ₁₆ | 6.073 | 3.927 | 2.222 | 0.393 |
| 105 | 4 | | | | |
| 110 | 4 ³ / ₁₆ | 5.983 | 4.017 | 2.446 | 0.402 |
| 120 | 4 ¹ / ₂ | | | | |
| 125 | 4 ¹¹ / ₁₆ | 7.114 | 4.886 | 2.601 | 0.407 |
| 130 | 5 | | | | |
| 135 | 5 ³ / ₁₆ | 8.259 | 5.741 | 2.690 | 0.410 |
| 140 | 5 ¹ / ₂ | | | | |
| 150 | 5 ¹¹ / ₁₆ | 7.190 | 4.810 | 2.422 | 0.401 |
| 155 | 6 | | | | |
| 160 | 6 ⁷ / ₁₆ | 7.159 | 4.841 | 2.491 | 0.403 |
| 170 | 6 ¹ / ₂ | | | | |
| 175 | 6 ¹¹ / ₁₆ | 8.243 | 5.757 | 2.727 | 0.411 |
| 180 | 7 | | | | |
| 190 | 7 ¹ / ₄ | 8.221 | 5.779 | 2.779 | 0.413 |
| 200 | 8 | | | | |
| 220 | 8 ¹ / ₂ | 8.102 | 5.898 | 3.097 | 0.421 |
| 230 | 9 | | | | |
| 240 | 9 ¹ / ₂ | 8.131 | 5.869 | 3.013 | 0.419 |
| 260 | 10 | | | | |
| 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 | 14 | 10.224 | 7.776 | 3.609 | 0.432 |
| 360 | | | | | |
| 380 | 15 | 10.250 | 7.750 | 3.530 | 0.431 |
| 400 | 16 | | | | |
| 420 | 17 | 11.263 | 8.737 | 3.895 | 0.437 |
| 440 | | | | | |
| 460 | 18 | 10.170 | 7.830 | 3.781 | 0.435 |
| – | – | – | – | – | – |
| 500 | 20 | 10.172 | 7.828 | 3.773 | 0.435 |
| 530 | 21 | | | | |
| 560 | 22 | 12.174 | 9.826 | 4.630 | 0.447 |
| 580 | 23 | 12.240 | 9.760 | 4.378 | 0.444 |
| 600 | 24 | | | | |

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 ¾ | 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 ¾ | 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 ¾ | 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.

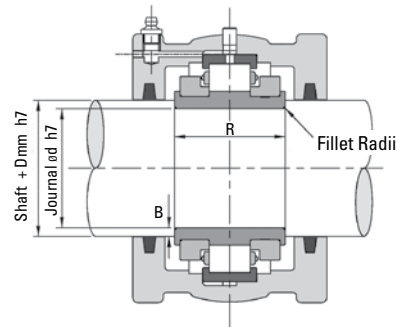


Fig. 16. Recess Mounting.

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.

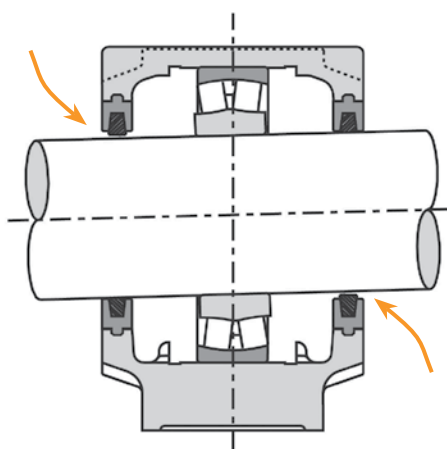


Fig. 17. Seal ineffective.



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.

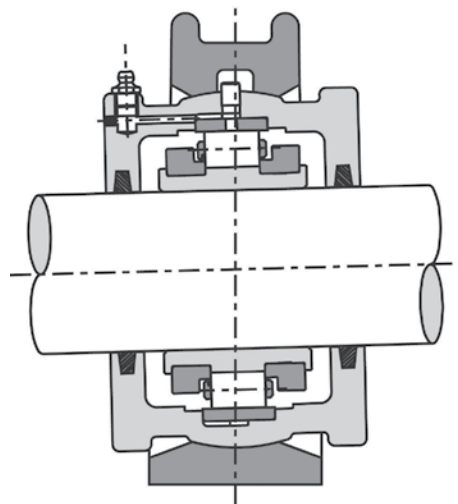


Fig. 19. Seal remains concentric.



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 |

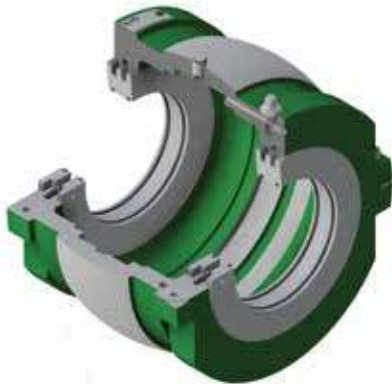


Fig. 21. Aluminium Triple Labyrinth.

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 |

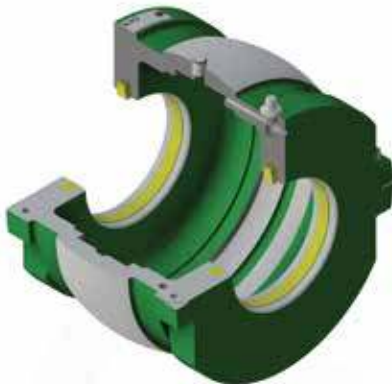


Fig. 22. Kevlar Packing Seal.

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

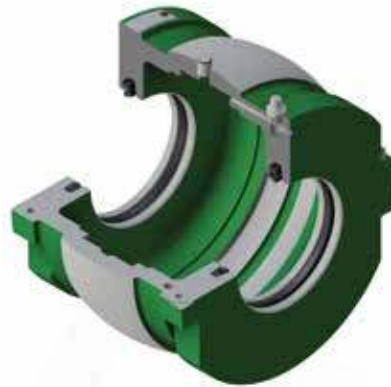


Fig. 23. Viton Single Lip.

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

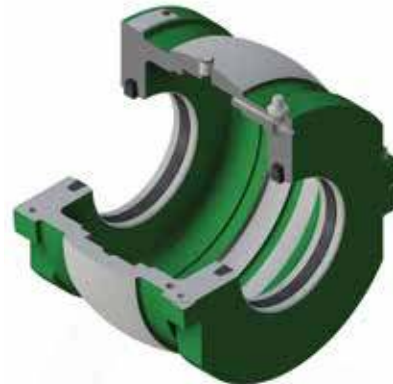


Fig. 24. High-Temperature Packing.

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(mm)<150000 |
| Temp. Range | -60° C to +100° C (-76° F to +212° F) |
| Shaft Finish | 1.6µm Ra |

Note: d = shaft diameter, N = RPM

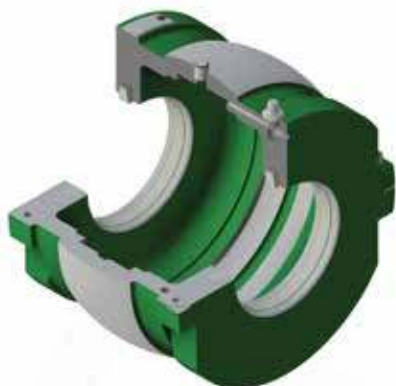


Fig. 25. Felt Seal.

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(mm)<150000 |
| Temp. Range | -20° C to +100° C (-4° F to + 212° F) |
| Shaft Finish | 0.8µm 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 | 3.2µm Ra |
| Suffix Letters | LAB |

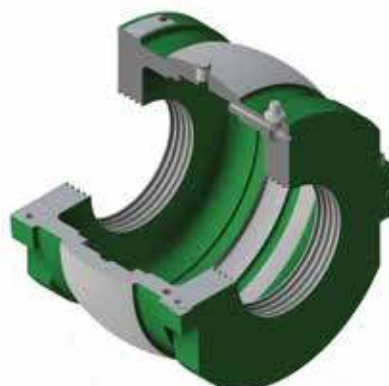


Fig. 27. Labyrinth Grease Groove.

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 | 1.6µm Ra |
| Suffix Letters | LABLUB |

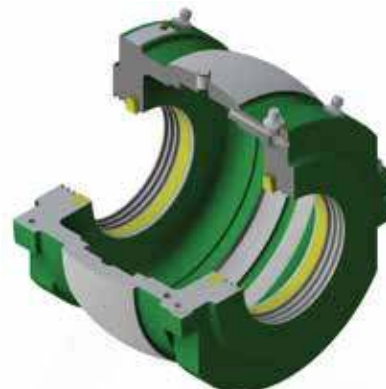


Fig. 28. Combination Seal.

TRIPLE LABYRINTH HOUSING AND SEAL REFERENCES

TABLE 22. LIGHT SERIES

| Shaft (d) | | Triple Labyrinth Seal Reference | | Housing Reference | Retained Expansion | Shaft (d) | | Triple Labyrinth Seal Reference | | Housing Reference | Retained Expansion |
|-------------------|---------|----------------------------------|--------|---------------------------------|--------------------|-------------------|----------------------|----------------------------------|----------------------|----------------------|--------------------|
| mm | in. | mm | in. | | | mm | in. | mm | in. | | |
| 35 40 | 1 3/16 | 35MMATL 40MMATL | 103ATL | LS1HRTL LS1HXTL | | 240 250 | 9 1/2 | 240MMATL 250MMATL | 908ATL | LS15HRTL LS15HXTL | |
| | 1 1/4 | | 104ATL | | | | 912ATL | | | | |
| | 1 7/16 | | 107ATL | | | | 1000ATL | | | | |
| 45 50 | 1 1/2 | 45MMATL 50MMATL | 108ATL | LS2HRTL LS2HXTL | | 260 270 280 | 10 1/2 10 3/4 11 | 260MMATL 270MMATL 280MMATL | 1008ATL | LS16HRTL LS16HXTL | |
| | 1 11/16 | | 111ATL | | | | | | 1012ATL | | |
| | 1 3/4 | | 112ATL | | | | | | 1100ATL | | |
| 55 60 65 | 1 5/8 | 55MMATL 60MMATL 65MMATL | 115ATL | LS3HRTL LS3HXTL | | 300 305 | 11 1/2 12 | 300MMATL 305MMATL | 1108ATL | LS17HRTL LS17HXTL | |
| | 2 | | 200ATL | | | | | | 1200ATL | | |
| | 2 3/16 | | 203ATL | | | | | | | | |
| 70 75 | 2 1/4 | 70MMATL 75MMATL | 204ATL | LS4HRTL LS4HXTL | | 320 330 | 12 1/2 13 | 320MMATL 330MMATL | 1208ATL | LS18HRTL LS18HXTL | |
| | 2 3/8 | | 212ATL | | | | | | 1300ATL | | |
| | 2 5/8 | | 215ATL | | | | | | | | |
| 80 85 90 | 3 | 80MMATL 85MMATL 90MMATL | 300ATL | LS5HRTL LS5HXTL | 340 350 | 14 | 340MMATL 350MMATL | 1400ATL | LS19HRTL LS19HXTL | | |
| | 3 1/16 | | 303ATL | | | | | | | | |
| | 3 1/4 | | 304ATL | | | | | | | | |
| 100 105 | 3 3/8 | 100MMATL 105MMATL | 307ATL | LS6HRTL LS6HXTL | 360 380 | 15 | 360MMATL 380MMATL | 1500ATL | LS20HRTL LS20HXTL | | |
| | 3 7/8 | | 308ATL | | | | | | | | |
| | 4 | | 311ATL | | | | | | | | |
| 110 115 | 4 1/16 | 110MMATL 115MMATL | 312ATL | LS7HRTL LS7HXTL | 400 | 16 | 400MMATL | 1600ATL | LS21HRTL LS21HXTL | | |
| | 4 1/4 | | 403ATL | | | | | | | | |
| | 4 3/8 | | 404ATL | | | | | | | | |
| 120 125 130 | 4 7/8 | 120MMATL 125MMATL 130MMATL | 407ATL | LS8HRTL LS8HXTL | 420 | 17 | 420MMATL | 1700ATL | LS22HRTL LS22HXTL | | |
| | 4 1/2 | | 408ATL | | | | | | | | |
| | 4 11/16 | | 411ATL | | | | | | | | |
| 135 140 | 4 3/4 | 135MMATL 140MMATL | 412ATL | LS9HRTL LS9HXTL | 440 460 | 18 | 440MMATL 460MMATL | 1800ATL | LS23HRTL LS23HXTL | | |
| | 4 15/16 | | 415ATL | | | | | | | | |
| | 5 | | 415ATL | | | | | | | | |
| 150 155 | 5 1/16 | 150MMATL 155MMATL | 500ATL | LS10HRTL LS10HXTL | 480 | 19 | 480MMATL | 1900ATL | LS24HRTL LS24HXTL | | |
| | 5 3/8 | | 503ATL | | | | | | | | |
| | 5 7/8 | | 504ATL | | | | | | | | |
| 160A 160 | 5 1/2 | 160MMATL | 507ATL | LS10HRTLE0548 LS10HXRTLE0548 | 500 | 20 | 500MMATL | 2000ATL | LS25HRTL LS25HXTL | | |
| | 6 | | 508ATL | | | | | | | | |
| 170 175 180 | 6 1/16 | 160MMATL | 511ATL | LS11HRTL LS11HXTL | 530 | 21 | 530MMATL | 2100ATL | LS26HRTL LS26HXTL | | |
| | 6 3/8 | | 607ATL | | | | | | | | |
| | 6 15/16 | | 608ATL | | | | | | | | |
| 190 200 | 7 | 170MMATL 175MMATL 180MMATL | 611ATL | LS12HRTL LS12HXTL | 560 | 22 | 560MMATL | 2200ATL | LS27HRTL LS27HXTL | | |
| | 7 1/4 | | 612ATL | | | | | | | | |
| | 7 1/2 | | 615ATL | | | | | | | | |
| 220 230 | 7 3/4 | 190MMATL 200MMATL | 700ATL | LS13HRTL LS13HXTL | 580 | 23 | 580MMATL | 2300ATL | LS28HRTL LS28HXTL | | |
| | 7 7/8 | | 704ATL | | | | | | | | |
| | 8 | | 708ATL | | | | | | | | |
| | 8 1/2 | 220MMATL 230MMATL | 715ATL | LS14HRTL LS14HXTL | 600 | 24 | 600MMATL | 2400ATL | LS29HRTL LS29HXTL | | |
| | 8 3/8 | | 800ATL | | | | | | | | |
| | 9 | | 814ATL | | | | | | | | |
| | | | 900ATL | | | | | | | | |

TABLE 23. MEDIUM SERIES

| Shaft (d) | | Triple Labyrinth Seal Reference | | Housing Reference | Retained Expansion | Shaft (d) | | Triple Labyrinth Seal Reference | | Housing Reference | Retained Expansion |
|-------------------|-------------------------------------|----------------------------------|--|--------------------------------|--------------------|-------------------|------------------------|----------------------------------|-------------------------------|--|--------------------|
| mm | in. | mm | in. | | | mm | in. | mm | in. | | |
| - | - | - | - | - | - | 240 | 9 1/2 9 3/4 10 | 240MMATL | 908ATL 912ATL 1000ATL | MS36HRTL MS36HXTL | |
| 45 50 | 1 1/16 1 3/4 1 5/16 2 | 45MMATL 50MMATL | 111ATL 112ATL 115ATL 200ATL | MS3HRTL MS3HXTL | | 260 270 280 | 10 1/2 10 3/4 11 | 260MMATL 270MMATL 280MMATL | 1008ATL 1012ATL 1100ATL | MS36HRTLE0548 MS36HXTLE0548 MS37HRTL MS37HXTL | |
| 55 60 65 | 2 3/16 2 1/4 2 7/16 2 1/2 | 55MMATL 60MMATL 65MMATL | 203ATL 204ATL 207ATL 208ATL | MS4HRTL MS4HXTL | | 300 305 | 11 1/2 12 | 300MMATL 305MMATL | 1108ATL 1200ATL | MS38HRTL MS38HXTL | |
| 70 75 | 2 1/16 2 3/4 2 5/16 3 | 70MMATL 75MMATL | 211ATL 212ATL 215ATL 300ATL | MS5HRTL MS5HXTL | | 320 330 | 12 1/2 13 | 320MMATL 330MMATL | 1208ATL 1300ATL | MS39HRTL MS39HXTL | |
| 80 85 90 | 3 3/16 3 1/4 3 7/16 3 1/2 | 80MMATL 85MMATL 90MMATL | 303ATL 304ATL 307ATL 308ATL | MS6HRTL MS6HXTL | | 340 360 | 14 | 340MMATL 360MMATLE0547 | 1400ATL | MS40HRTL MS40HXTL | |
| 100 105 | 3 1/16 3 3/4 3 5/16 4 | 100MMATL 105MMATL | 311ATL 312ATL 315ATL 400ATL | MS7HRTL MS7HXTL | | 380 | 15 | 380MMATL | 1500ATL | MS41HRTL MS41HXTL | |
| 110 115 | 4 3/16 4 1/4 4 7/16 4 1/2 | 110MMATL 115MMATL | 403ATL 404ATL 407ATL 408ATL | MS8HRTL MS8HXTL | | 400 | 16 | 400MMATL | 1600ATL | MS42HRTL MS42HXTL | |
| 120 125 130 | 4 1/16 4 3/4 4 5/16 5 | 120MMATL 125MMATL 130MMATL | 411ATL 412ATL 415ATL 500ATL | MS10HRTL MS10HXTL | | 420 | 17 | 420MMATL | 1700ATL | MS43HRTL MS43HXTL | |
| 135 140 | 5 3/16 5 1/4 5 7/16 5 1/2 | 135MMATL 140MMATL | 503ATL 504ATL 507ATL 508ATL | MS30HRTL MS30HXTL | | 440 460 | 18 | 440MMATL 460MMATL | 1800ATL | MS44HRTL MS44HXTL | |
| 150 155 | 5 1/16 5 3/4 5 5/16 | 150MMATL 155MMATL | 511ATL 512ATL 515ATL 600ATL | MS31HRTL MS31HXTL | | 480 | 19 | 480MMATL | 1900ATL | MS45HRTL MS45HXTL | |
| 160A | 6 | 160MMATL | - | MS31HRTLE0548 MS31HXTLE0548 | | 500 | 20 | 500MMATL | 2000ATL | MS46HRTL MS46HXTL | |
| 160 170 | 6 7/16 6 1/2 6 11/16 6 3/4 | 160MMATL 170MMATLE0547 | 607ATL 608ATL 611ATLE0547 612ATLE0547 | MS32HRTL MS32HXTL | | 530 | 21 | 530MMATL | 2100ATL | MS47HRTL MS47HXTL | |
| 175 180 | 6 15/16 7 | 175MMATL 180MMATL | 615ATL 700ATL | MS33HRTL MS33HXTL | | 560 | 22 | 560MMATL | 2200ATL | MS48HRTL MS48HXTL | |
| 190 200 | 7 1/4 7 1/2 7 5/16 8 | 190MMATL 200MMATL | 704ATL 708ATL 715ATL 800ATL | MS34HRTL MS34HXTL | | 580 | 23 | 580MMATL | 2300ATL | MS49HRTL MS49HXTL | |
| 220 230 | 8 1/2 8 7/8 9 | 220MMATL 230MMATL | 808ATL 814ATL 900ATL | MS35HRTL MS35HXTL | | 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 | Shaft (d) | | Triple Labyrinth Seal Reference | | Housing Reference | Retained Expansion |
|-------------------|-------------------------------------|---------------------------------------|--|--------------------------------|--------------------|------------|------------------------|---------------------------------|-------------------------------|--------------------------------|--------------------|
| mm | in. | mm | in. | | | 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 | |
| 100 105 | 3 11/16 3 3/4 3 15/16 4 | 100MMATL 105MMATL | 311ATL 312ATL 315ATL 400ATL | HS54HRTL HS54HXTL | | 340 360 | 14 | 340MMATL 360MMATLE0547 | 1400ATL | HS86HRTL HS86HXTL | |
| 110 115 120 | 4 3/16 4 1/4 4 7/16 4 1/2 | 110MMATL 115MMATL 120MMATLE0547 | 403ATL 404ATL 407ATL 408ATL | HS55HRTL HS55HXTL | | 380 | 15 | 380MMATL | 1500ATL | HS68HRTL HS68HXTL | |
| 125 130 | 4 11/16 4 3/4 4 15/16 5 | 125MMATL 130MMATL | 411ATL 412ATL 415ATL 500ATL | HS56HRTL HS56HXTL | | 400 | - | 400MMATL | - | HS68HRTLE0548 HS68HXTLE0548 | |
| 135 140 | 5 3/16 5 1/4 5 7/16 5 1/2 | 135MMATL 140MMATL | 503ATL 504ATL 507ATL 508ATL | HS57HRTL HS57HXTL | | 420 440 | 17 | 420MMATL 440MMATLE0547 | 1700ATL | HS89HRTL HS89HXTL | |
| 150 155 | 5 11/16 5 3/4 5 15/16 6 | 150MMATL 155MMATL | 511ATL 512ATL 515ATL 600ATL | HS58HRTL HS58HXTL | | 460 | 18 | 460MMATL | 1800ATL | HS90HRTL HS90HXTL | |
| 160A | 6 | 160MMATL | - | HS58HRTLE0548 HS58HXTLE0548 | | 500 | 20 | 500MMATL | 2000ATL | HS94HRTL HS94HXTL | |
| 160 170 | 6 7/16 6 1/2 6 11/16 6 3/4 | 160MMATL 170MMATLE0547 | 607ATL 608ATL 611ATLE0547 612ATLE0547 | HS59HRTL HS59HXTL | | 530 | - | 530MMATL | - | HS94HRTLE0548 HS94HXTLE0548 | |
| 175 180 | 6 15/16 7 | 175MMATL 180MMATL | 615ATL 700ATL | HS60HRTL HS60HXTL | | 560 | 22 | 560MMATL | 2200ATL | HS94HRTLE0548 HS94HXTLE0548 | |
| 190 200 | 7 1/4 7 1/2 7 15/16 8 | 190MMATL 200MMATL | 704ATL 708ATL 715ATL 800ATL | HS61HRTL HS61HXTL | | 580 600 | 23 | 580MMATL 600MMATLE0547 | 2300ATL | HS95HRTL HS95HXTL | |
| 220 230 | 8 1/2 8 7/8 9 | 220MMATL 230MMATL | 808ATL 814ATL 900ATL | HS62HRTL HS62HXTL | | - | - | - | - | - | |

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 $\frac{1}{6}$ 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.



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.



- 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.



- 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

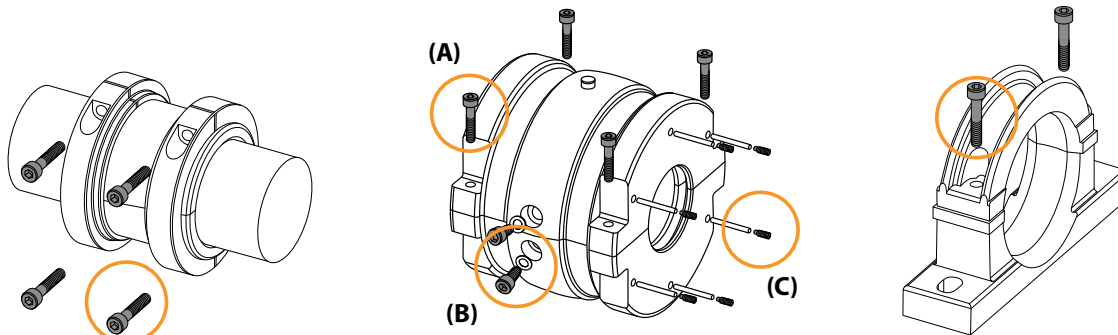


TABLE 26. LIGHT SERIES

| Shaft (d) | | Clamping Ring ⁽¹⁾ | | | Housing | | | | | | | | | Support | | |
|-----------|----------------|------------------------------|-----|----------------------|-----------|-----|----------------------|---------------------|-----|----------------------|---------------|-----|----------------------|---------|-----|----------------------|
| | | | | | Joint (A) | | | Radial Retainer (B) | | | (HR only) (C) | | | | | |
| mm | in. | Screw | Key | Torque Nm (lb.ft) | Screw | Key | Torque Nm (lb.ft) | Screw | Key | Torque Nm (lb.ft) | Screw | Key | Torque Nm (lb.ft) | Screw | Key | Torque Nm (lb.ft) |
| 35 - 40 | 1 3/16 - 1 1/2 | M4 | 3 | 4 (2.6) | M4 | 3 | 4 (2.6) | - | - | - | M4 | 3 | 4 (2.6) | M8 | 6 | 27 (20) |
| 45 - 50 | 1 11/16 - 2 | M4 | 3 | 4 (2.6) | M4 | 3 | 4 (2.6) | - | - | - | M4 | 3 | 4 (2.6) | M8 | 6 | 27 (20) |
| 60 - 65 | 2 3/16 - 2 1/2 | M4 | 3 | 4 (2.6) | M4 | 3 | 4 (2.6) | - | - | - | M4 | 3 | 4 (2.6) | M10 | 8 | 54 (40) |
| 70 - 75 | 2 11/16 - 3 | M4 | 3 | 4 (2.6) | M4 | 3 | 4 (2.6) | - | - | - | M4 | 3 | 4 (2.6) | M12 | 10 | 94 (69) |
| 80 - 90 | 3 3/16 - 3 1/2 | M5 | 4 | 7 (5) | M5 | 4 | 7 (5) | - | - | - | M4 | 3 | 4 (2.6) | M16 | 14 | 231 (170) |
| 100 - 105 | 3 11/16 - 4 | M6 | 5 | 11 (8) | M6 | 5 | 11 (8) | - | - | - | M4 | 3 | 4 (2.6) | M16 | 14 | 231 (170) |
| 110 - 115 | 4 3/16 - 4 1/2 | M6 | 5 | 11 (8) | M6 | 5 | 11 (8) | - | - | - | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 120 - 130 | 4 11/16 - 5 | M6 | 5 | 11 (8) | M6 | 5 | 11 (8) | - | - | - | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 135 - 140 | 5 3/16 - 5 1/2 | M8 | 6 | 27 (20) | M8 | 6 | 27 (20) | - | - | - | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 150 - 155 | 5 11/16 - 6 | M8 | 6 | 27 (20) | M8 | 6 | 27 (20) | - | - | - | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 160 | 6 7/16 - 6 1/2 | M8 | 6 | 27 (20) | M8 | 6 | 27 (20) | - | - | - | M6 | 5 | 11 (8) | M16 | 14 | 231 (170) |
| 170 - 180 | 6 11/16 - 7 | M8 | 6 | 27 (20) | M8 | 6 | 27 (20) | - | - | - | M6 | 5 | 11 (8) | M16 | 14 | 231 (170) |
| 190 - 200 | 7 1/4 - 8 | M8 | 6 | 27 (20) | M8 | 6 | 27 (20) | M10 | 8 | 54 (40) | M6 | 5 | 11 (8) | M16 | 14 | 231 (170) |
| 220 - 230 | 8 1/2 - 9 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M6 | 5 | 11 (8) | M16 | 14 | 231 (170) |
| 240 - 250 | 9 1/2 - 10 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 260 - 280 | 10 1/2 - 11 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 300 | 11 1/2 - 12 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 320 - 330 | 12 1/2 - 13 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 340 - 350 | 14 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 360 - 380 | 15 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 400 | 16 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 420 | 17 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 440 - 460 | 18 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 480 | 19 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 500 | 20 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 530 | 21 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 560 | 22 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 580 | 23 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 600 | 24 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |

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

MEDIUM SERIES

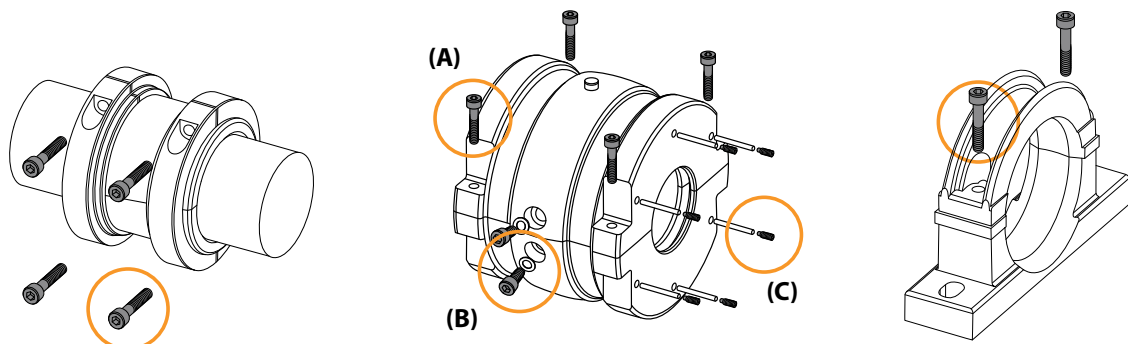


TABLE 27. MEDIUM SERIES

| Shaft (d) | | Clamping Ring ⁽¹⁾ | | | Housing | | | | | | | | | Support | | |
|-----------|----------------|------------------------------|-----|------------|-----------|-----|------------|---------------------|-----|------------|---------------|-----|------------|---------|-----|------------|
| | | | | | Joint (A) | | | Radial Retainer (B) | | | (HR only) (C) | | | | | |
| mm | in. | 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) |
| 45 - 50 | 1 11/16 - 2 | M5 | 4 | 7 (5) | M5 | 4 | 7 (5) | – | – | – | M4 | 3 | 4 (2.6) | M110 | 8 | 54 (40) |
| 60 - 65 | 2 3/16 - 2 1/2 | M5 | 4 | 7 (5) | M5 | 4 | 7 (5) | – | – | – | M4 | 3 | 4 (2.6) | M12 | 10 | 94 (69) |
| 70 - 75 | 2 11/16 - 3 | M6 | 5 | 11 (8) | M6 | 5 | 11 (8) | – | – | – | M4 | 3 | 4 (2.6) | M16 | 14 | 231 (170) |
| 80 - 90 | 3 3/16 - 3 1/2 | M6 | 5 | 11 (8) | M6 | 5 | 11 (8) | – | – | – | M4 | 3 | 4 (2.6) | M16 | 14 | 231 (170) |
| 100 - 105 | 3 11/16 - 4 | M6 | 5 | 11 (8) | M6 | 5 | 11 (8) | – | – | – | M4 | 3 | 4 (2.6) | M20 | 17 | 434 (320) |
| 110 - 115 | 4 3/16 - 4 1/2 | M8 | 6 | 27 (20) | M8 | 6 | 27 (20) | – | – | – | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 120 - 130 | 4 11/16 - 5 | M8 | 6 | 27 (20) | M8 | 6 | 27 (20) | – | – | – | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 135 - 140 | 5 3/16 - 5 1/2 | M8 | 6 | 27 (20) | M8 | 6 | 27 (20) | – | – | – | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 150 - 155 | 5 11/16 - 6 | M8 | 6 | 27 (20) | M8 | 6 | 27 (20) | – | – | – | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 160 - 170 | 6 7/16 - 6 1/2 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | – | – | – | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 180 | 6 11/16 - 7 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 190 - 200 | 7 1/4 - 8 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 220 - 230 | 8 1/2 - 9 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M6 | 5 | 11 (8) | M20 | 17 | 434 (320) |
| 240 - 260 | 9 1/2 - 10 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 280 | 10 1/2 - 11 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 300 | 11 1/2 - 12 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 320 - 330 | 12 1/2 - 13 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 340 - 360 | 14 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 380 | 15 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 400 | 16 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 420 | 17 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 440 - 460 | 18 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 480 | 19 | M20 | 17 | 434 (320) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 500 | 20 | M20 | 17 | 434 (320) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 530 | 21 | M20 | 17 | 434 (320) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 560 | 22 | M20 | 17 | 434 (320) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 580 | 23 | M20 | 17 | 434 (320) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 600 | 24 | M20 | 17 | 434 (320) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |

⁽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

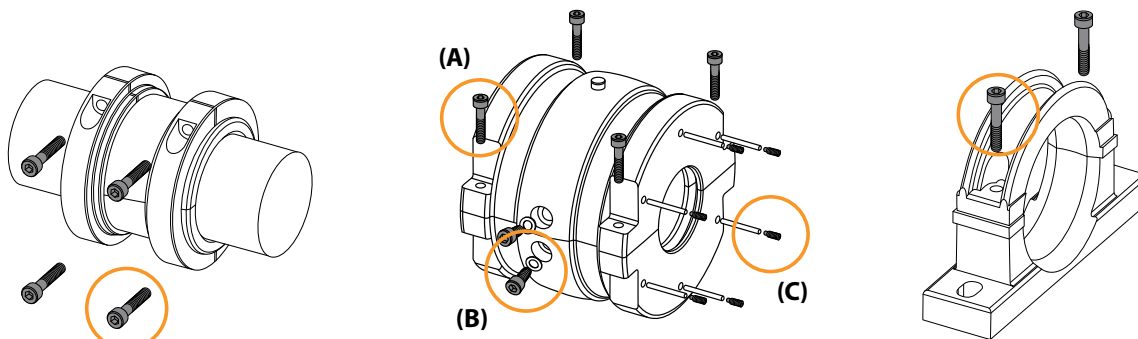


TABLE 28. HEAVY SERIES

| Shaft (d) | | Clamping Ring ⁽¹⁾ | | | Housing | | | | | | | | | Support | | |
|-----------|------------------|------------------------------|-----|------------|-----------|-----|------------|---------------------|-----|------------|---------------|-----|------------|---------|-----|------------|
| | | | | | Joint (A) | | | Radial Retainer (B) | | | (HR only) (C) | | | | | |
| mm | in. | 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) |
| 100 - 105 | 3 11/16 - 4 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M6 | 5 | 11 (8) | M16 | 14 | 231 (170) |
| 110 - 120 | 4 3/16 - 4 1/2 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M6 | 5 | 11 (8) | M16 | 14 | 231 (170) |
| 125 - 130 | 4 15/16 - 5 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M16 | 14 | 231 (170) |
| 135 - 140 | 5 3/16 - 5 1/2 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 150 - 155 | 5 11/16 - 6 | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 160 - 170 | 6 7/16 - 6 11/16 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 180 | 6 3/4 - 7 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 190 - 200 | 7 1/4 - 8 | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 220 - 230 | 8 1/2 - 9 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 240 - 260 | 9 1/2 - 10 | M16 | 14 | 231 (170) | M16 | 14 | 231 (170) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 280 | 11 | M20 | 17 | 434 (320) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 300 | 12 | M20 | 17 | 434 (320) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M20 | 17 | 434 (320) |
| 320 - 330 | 13 | M20 | 17 | 434 (320) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 340 - 360 | 14 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 380 - 400 | 15 - 16 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 420 - 440 | 17 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M16 | 14 | 231 (170) | M24 | 19 | 760 (560) |
| 460 | 18 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M16 | 14 | 231 (170) | M24 | 19 | 760 (560) |
| 480 | 19 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M16 | 14 | 231 (170) | M24 | 19 | 760 (560) |
| 500 | 20 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M16 | 14 | 231 (170) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 530 | 21 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M16 | 14 | 231 (170) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 560 | 22 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 580 | 23 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |
| 600 | 24 | M24 | 19 | 760 (560) | M20 | 17 | 434 (320) | M12 | 10 | 94 (69) | M10 | 8 | 54 (40) | M24 | 19 | 760 (560) |

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

SHIPPING WEIGHTS

TABLE 29. LIGHT SERIES

TABLE 30. MEDIUM SERIES

TABLE 31. HEAVY SERIES

| | | Bearing | Housing | Support | Comp. Unit | | | Bearing | Housing | Support | Comp. Unit | | | Bearing | Housing | Support | Comp. Unit |
|-----|---------|---------|---------|---------|------------|-----|---------|---------|---------|---------|------------|-----|---------|---------|---------|---------|------------|
| mm | in. | Kg lb. | Kg lb. | Kg lb. | Kg lb. | mm | in. | Kg lb. | Kg lb. | Kg lb. | Kg lb. | mm | in. | Kg lb. | Kg lb. | Kg lb. | Kg lb. |
| 35 | 1 3/16 | 1.3 | 2.5 | 3 | 6.8 | - | - | - | - | - | - | - | - | - | - | - | - |
| 40 | 1 1/2 | 3 | 6 | 7 | 16 | - | - | - | - | - | - | - | - | - | - | - | - |
| 45 | 1 11/16 | 1.8 | 3.5 | 5 | 10.3 | 45 | 1 11/16 | 2.5 | 5 | 5.9 | 13.4 | - | - | - | - | - | - |
| 50 | 2 | 4 | 8 | 11 | 23 | 50 | 2 | 6 | 11 | 13 | 30 | - | - | - | - | - | - |
| 60 | 2 3/16 | 2.3 | 4.4 | 5.9 | 12.6 | 60 | 2 3/16 | 3.7 | 8 | 9.5 | 21.2 | - | - | - | - | - | - |
| 65 | 2 1/2 | 5 | 10 | 13 | 28 | 65 | 2 1/2 | 8 | 18 | 21 | 47 | - | - | - | - | - | - |
| 70 | 2 11/16 | 3.3 | 6.5 | 9.5 | 19.3 | 70 | 2 11/16 | 5.6 | 10 | 15 | 30.6 | - | - | - | - | - | - |
| 75 | 3 | 7 | 14 | 21 | 42 | 75 | 3 | 12 | 22 | 33 | 67 | - | - | - | - | - | - |
| 80 | 3 3/16 | 5 | 9 | 15 | 29 | 80 | 3 3/16 | 7 | 12 | 16 | 35 | - | - | - | - | - | - |
| 90 | 3 1/2 | 11 | 20 | 33 | 64 | 90 | 3 1/2 | 15 | 26 | 35 | 76 | - | - | - | - | - | - |
| 100 | 3 11/16 | 7 | 11 | 16 | 34 | 100 | 3 11/16 | 11 | 13 | 24 | 48 | 100 | 3 11/16 | 35 | 40 | 121 | 196 |
| 105 | 4 | 15 | 24 | 35 | 74 | 105 | 4 | 24 | 29 | 53 | 106 | 105 | 4 | 77 | 88 | 266 | 431 |
| 110 | 4 3/16 | 10.5 | 16 | 24 | 50.5 | 110 | 4 3/16 | 15.5 | 20 | 41 | 76.5 | 110 | 4 3/16 | 41 | 45 | 141 | 227 |
| 115 | 4 1/2 | 23 | 35 | 53 | 111 | 115 | 4 1/2 | 34 | 44 | 90 | 168 | 115 | 4 1/2 | 90 | 90 | 310 | 499 |
| 120 | 4 11/16 | 14 | 24 | 41 | 79 | 120 | 4 11/16 | 21 | 28 | 49 | 98 | 125 | 4 11/16 | 42 | 46 | 156 | 244 |
| 130 | 5 | 31 | 53 | 90 | 174 | 130 | 5 | 46 | 62 | 108 | 216 | 130 | 5 | 92 | 101 | 343 | 536 |
| 135 | 5 3/16 | 17 | 27 | 49 | 93 | 135 | 5 3/16 | 25 | 36 | 72 | 133 | 135 | 5 3/16 | 50 | 51 | 197 | 298 |
| 140 | 5 1/2 | 37 | 59 | 108 | 204 | 140 | 5 1/2 | 55 | 79 | 158 | 292 | 140 | 5 1/2 | 110 | 112 | 433 | 655 |
| 150 | 5 11/16 | 18 | 31 | 49 | 98 | 150 | 5 11/16 | 31 | 42 | 80 | 153 | 150 | 5 11/16 | 59 | 75 | 261 | 395 |
| 155 | 6 | 40 | 68 | 108 | 216 | 155 | 6 | 68 | 92 | 176 | 336 | 155 | 6 | 130 | 165 | 574 | 869 |
| 160 | 6 7/16 | 19 | 35 | 65 | 119 | 160 | 6 7/16 | 40 | 58 | 118 | 216 | 160 | 6 7/16 | 74 | 87 | 291 | 452 |
| 170 | 6 1/2 | 42 | 77 | 143 | 262 | 170 | 6 1/2 | 88 | 128 | 260 | 476 | 170 | 6 1/2 | 163 | 191 | 640 | 994 |
| 175 | 6 11/16 | 23 | 36 | 73 | 132 | 180 | 6 11/16 | 47 | 68 | 138 | 253 | 175 | 6 11/16 | 83 | 91 | 338 | 512 |
| 180 | 7 | 51 | 79 | 161 | 291 | 180 | 7 | 103 | 150 | 304 | 557 | 180 | 7 | 183 | 200 | 744 | 1127 |
| 190 | 7 1/4 | 26 | 45 | 92 | 163 | 190 | 7 1/4 | 59 | 86 | 192 | 337 | 190 | 7 1/4 | 105 | 120 | 454 | 679 |
| 200 | 8 | 57 | 99 | 202 | 358 | 200 | 8 | 130 | 189 | 422 | 741 | 200 | 8 | 231 | 264 | 999 | 1494 |
| 220 | 8 1/2 | 33 | 48 | 117 | 198 | 220 | 8 1/2 | 69 | 101 | 229 | 399 | 220 | 8 1/2 | 151 | 164 | 408 | 949 |
| 230 | 9 | 73 | 106 | 257 | 436 | 230 | 9 | 152 | 222 | 504 | 878 | 230 | 9 | 332 | 361 | 1395 | 2088 |
| 240 | 9 1/2 | 42 | 60 | 147 | 249 | 240 | 9 1/2 | 79 | 108 | 277 | 464 | 240 | 9 1/2 | 153 | 174 | 540 | 1064 |
| 250 | 10 | 92 | 132 | 323 | 547 | 260 | 10 | 174 | 238 | 609 | 1021 | 260 | 10 | 337 | 383 | 1621 | 2341 |
| 260 | 10 1/2 | 53 | 73 | 171 | 297 | 270 | 10 1/2 | 87 | 134 | 320 | 541 | 280 | 11 | 203 | 201 | 459 | 863 |
| 280 | 11 | 117 | 161 | 376 | 654 | 280 | 11 | 191 | 295 | 704 | 1190 | 280 | 11 | 447 | 442 | 1010 | 1899 |
| 300 | 11 1/2 | 60 | 89 | 199 | 348 | 300 | 11 1/2 | 125 | 132 | 372 | 629 | 300 | 12 | 242 | 249 | 1019 | 1510 |
| 305 | 12 | 132 | 196 | 438 | 766 | 305 | 12 | 275 | 290 | 818 | 1383 | 305 | 12 | 532 | 548 | 2242 | 3322 |
| 320 | 12 1/2 | 72 | 109 | 214 | 395 | 320 | 12 1/2 | 150 | 176 | 385 | 711 | 320 | 13 | 327 | 300 | 1116 | 1743 |
| 330 | 13 | 158 | 240 | 471 | 869 | 330 | 13 | 330 | 387 | 847 | 1564 | 320 | 13 | 719 | 660 | 2455 | 3834 |
| 340 | 14 | 79 | 121 | 241 | 441 | 340 | 14 | 184 | 190 | 477 | 851 | 340 | 14 | 375 | 361 | 1620 | 2356 |
| 350 | 14 | 174 | 266 | 530 | 970 | 360 | 14 | 405 | 418 | 1049 | 1872 | 360 | 14 | 825 | 794 | 3564 | 5183 |
| 360 | 15 | 90 | 130 | 294 | 514 | 380 | 15 | 187 | 213 | 490 | 890 | 380 | 15 | 436 | 433 | 1538 | 2407 |
| 380 | 15 | 198 | 286 | 647 | 1131 | 380 | 15 | 411 | 469 | 1078 | 1958 | 400 | 16 | 959 | 953 | 3384 | 5296 |
| 400 | 16 | 96 | 145 | 315 | 556 | 400 | 16 | 210 | 258 | 540 | 1008 | - | - | - | - | - | - |
| 420 | 17 | 211 | 319 | 693 | 1223 | 400 | 16 | 462 | 568 | 1188 | 2218 | 420 | 17 | 400 | 443 | 1014 | 1857 |
| 440 | 18 | 105 | 155 | 323 | 583 | 420 | 17 | 245 | 269 | 586 | 1100 | 440 | 18 | 880 | 975 | 2231 | 4086 |
| 460 | 18 | 231 | 341 | 711 | 1283 | 440 | 18 | 539 | 592 | 1289 | 2420 | 460 | 18 | 636 | 274 | 1513 | 2423 |
| 480 | 19 | 119 | 156 | 377 | 652 | 480 | 19 | 255 | 270 | 623 | 1148 | 480 | 19 | 1399 | 603 | 3329 | 5331 |
| 480 | 19 | 262 | 343 | 829 | 1434 | 480 | 19 | 561 | 594 | 1371 | 2526 | - | - | - | - | - | - |
| 480 | 19 | 123 | 167 | 467 | 757 | 480 | 19 | 268 | 277 | 690 | 1235 | - | - | - | - | - | - |
| 500 | 20 | 271 | 367 | 1027 | 1665 | 480 | 19 | 590 | 609 | 1518 | 2717 | 500 | 20 | 700 | 880 | 1863 | 3443 |
| 500 | 20 | 139 | 198 | 449 | 786 | 500 | 20 | 276 | 328 | 745 | 1349 | 530 | 21 | 1540 | 1936 | 4099 | 7575 |
| 530 | 21 | 306 | 436 | 988 | 1730 | 500 | 20 | 607 | 722 | 1639 | 2968 | 530 | 21 | 700 | 880 | 1863 | 3443 |
| 530 | 21 | 180 | 220 | 502 | 902 | 530 | 21 | 314 | 357 | 899 | 1570 | - | - | - | - | - | - |
| 560 | 22 | 396 | 484 | 1104 | 1984 | 530 | 21 | 691 | 785 | 1978 | 3454 | 560 | 22 | 675 | 694 | 1847 | 3216 |
| 560 | 22 | 185 | 258 | 578 | 1021 | 560 | 22 | 341 | 385 | 960 | 1686 | 560 | 22 | 1485 | 1527 | 4063 | 7075 |
| 560 | 22 | 407 | 568 | 1272 | 2247 | 560 | 22 | 750 | 847 | 2112 | 3709 | 580 | 23 | 700 | 770 | 1794 | 3264 |
| 580 | 23 | 190 | 280 | 690 | 1160 | 580 | 23 | 375 | 405 | 1001 | 1781 | 580 | 23 | 1540 | 1694 | 3947 | 7181 |
| 580 | 23 | 418 | 616 | 1518 | 2552 | 580 | 23 | 825 | 891 | 2202 | 3918 | 600 | 24 | 700 | 770 | 1794 | 3264 |
| 600 | 24 | 240 | 296 | 730 | 1266 | 600 | 24 | 390 | 460 | 1056 | 1906 | - | - | - | - | - | - |
| 600 | 24 | 528 | 651 | 1606 | 2785 | 600 | 24 | 858 | 1012 | 2323 | 4193 | - | - | - | - | - | - |

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

| <i>Load</i> | <i>Lubrication</i> | <i>Specification</i> | <i>Amount</i> |
|---------------------------|--|-----------------------------|----------------------|
| Radial (kN or lbs): _____ | Oil: <input type="checkbox"/> YES <input type="checkbox"/> NO | _____ | _____ |
| Axial (kN or lbs): _____ | Grease: <input type="checkbox"/> YES <input type="checkbox"/> NO | _____ | _____ |

Duty

Intermittent: YES NO

Continuous: YES NO

Current Sealing Arrangement: _____



LIGHT SERIES

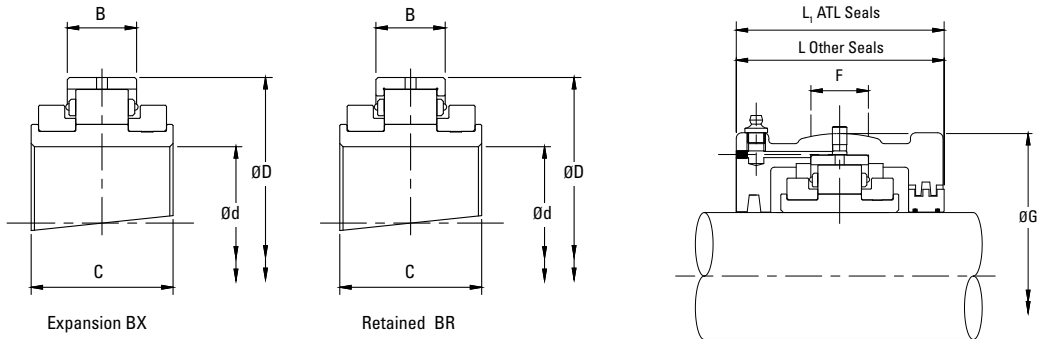
Light series bearing products are by far the most commonly utilized range within the split bearing family. With a wide variety of mounting and sealing solutions available, light series bearing units can readily be matched to an ever-increasing range of applications. If a standard catalog product does 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 3/16 in. to 6 in.) | 46 |
| Light Series Support S01 - S10 | 47 |
| Light Series Bearing and Housing 160 mm to 350 mm (6 1/4 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 3/16 in. to 12 in.) | 52 |
| Light Series Take-Up Units TT/TP 35 mm to 155 mm (1 3/16 in. to 6 in.) | 54 |
| Light Series Support Hanger Units | 56 |

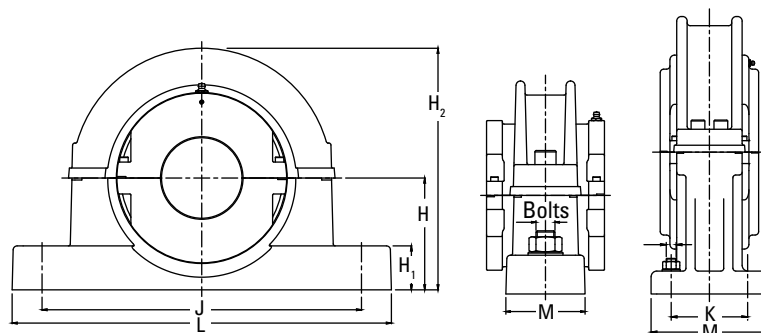
LIGHT SERIES BEARING AND HOUSING

35 MM TO 155 MM (1 3/16 IN. TO 6 IN.)



| Shaft (d) | | Reference | | Bearings Ratings | | | | | | Housing Reference | | | | | | | |
|-------------------|---------|--|------------------|------------------|---------------|------------------|------|------------------|----------------|-------------------|---|---|--------------------------------------|------------------|-----------|------------|------------|
| | | Add BR for Retained Add BX for Expansion e.g. LSE215BR | | Dynamic Cr | Static Cor | Axial Ca | Max | D | B | 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 | L1 | |
| 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 LSE104 | 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 LSE104 LSE107 LSE108 | 100.00 3.937 | 25 1.0 | 84 3.3 | 91 3.6 |
| | 1 1/4 | | LSE111 LSE112 | | | | | | | | | | 83 18659 | | | | |
| 55 60 65 | 2 3/16 | LSM55 LSM60 LSM65 | LSE203 LSE204 | 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 LSE204 LSE207 LSE208 | 134.94 5.313 | 32 1.3 | 102 4.0 | 104 4.1 |
| | 2 1/4 | | LSE211 LSE212 | | | | | | | | | | 138 31024 | | | | |
| 70 75 | 2 11/16 | LSM70 LSM75 | LSE303 LSE304 | 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 LSE304 LSE307 LSE308 | 177.80 7.000 | 50 2.0 | 134 5.3 | 136 5.4 |
| | 3 3/16 | | LSE311 LSE312 | | | | | | | | | | 288 64745 | | | | |
| 80 85 90 | 3 1/4 | LSM80 LSM85 LSM90 | LSE403 LSE404 | 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 LSE404 LSE407 LSE408 | 231.78 9.125 | 64 2.5 | 140 5.5 | 142 5.6 |
| | 3 1/2 | | LSE411 LSE412 | | | | | | | | | | 363 81606 | | | | |
| 100 105 | 3 11/16 | LSM100 LSM105 | LSE503 LSE504 | 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 LSE504 LSE507 LSE508 | 279.40 11.000 | 76 3.0 | 166 6.5 | 168 6.6 |
| | 3 3/4 | | LSE511 LSE512 | | | | | | | | | | 459 103187 | | | | |
| 110 115 | 4 3/16 | LSM110 LSM115 | LSE511 LSE512 | 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 LSE512 LSE515 LSE600 | 295.28 11.625 | 82 3.2 | 172 6.8 | 174 6.9 |
| | 4 1/4 | | LSE511 LSE512 | | | | | | | | | | 459 103187 | | | | |
| 120 125 130 | 4 1/2 | LSM120 LSM125 LSM130 | LSE511 LSE512 | 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 LSE512 LSE515 LSE600 | 295.28 11.625 | 82 3.2 | 172 6.8 | 174 6.9 |
| | 4 3/4 | | LSE511 LSE512 | | | | | | | | | | 459 103187 | | | | |
| 135 140 | 5 1/16 | LSM135 LSM140 | LSE511 LSE512 | 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 LSE512 LSE515 LSE600 | 295.28 11.625 | 82 3.2 | 172 6.8 | 174 6.9 |
| | 5 1/4 | | LSE511 LSE512 | | | | | | | | | | 459 103187 | | | | |
| 150 155 160 | 5 3/8 | LSM150 LSM155 LSM160A | LSE511 LSE512 | 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 LSE512 LSE515 LSE600 | 295.28 11.625 | 82 3.2 | 172 6.8 | 174 6.9 |
| | 5 7/16 | | LSE511 LSE512 | | | | | | | | | | 459 103187 | | | | |
| 150 155 160 | 5 7/8 | LSM150 LSM155 LSM160A | LSE511 LSE512 | 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 LSE512 LSE515 LSE600 | 295.28 11.625 | 82 3.2 | 172 6.8 | 174 6.9 |
| | 6 | | LSE511 LSE512 | | | | | | | | | | 459 103187 | | | | |

LIGHT SERIES SUPPORT
S01 - S10

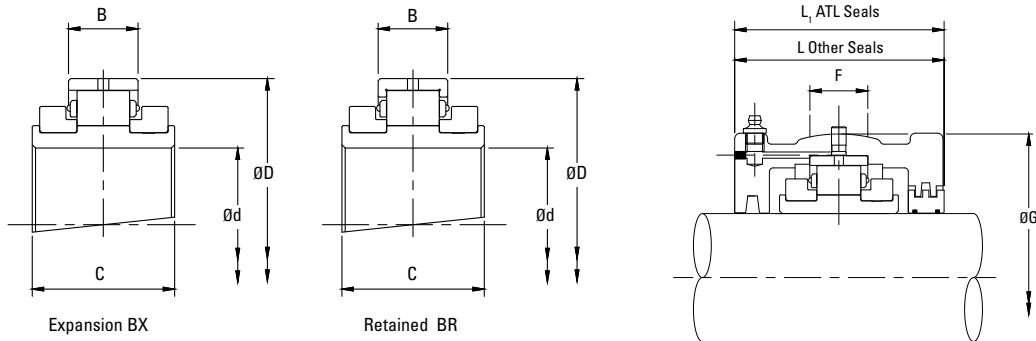


| Shaft (d) | | Support Reference | H | H ₁ | H ₂ | J x K | L x M | Bolts |
|--|------------------------------------|-------------------|--|--|--|--|--|--------------------|
| mm | in. | | mm in. | mm in. | mm in. | mm in. | mm in. | |
| 35 40 | 1 3/16 1 1/4 1 7/16 1 1/2 | S01 | 60 2.362 | 22 0.9 | 138 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 |

PRODUCT DATA TABLES

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

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

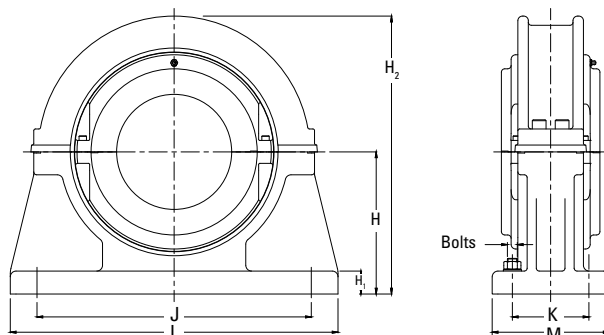


| Shaft (d) | | Reference Add BR for Retained Add BX for Expansion e.g. LSE715BR | | Bearings Ratings | | | | | | Housing Reference | | | | | | | |
|-------------------|----------------------------------|---|--------------------------------------|------------------------|------------------------|----------------------|------|------------------|----------------|-------------------|--|--|--------------------------------------|------------------|-----------|----------------|------------|
| | | | | Dynamic C _r | Static C _{or} | Axial C _a | Max | D | B | C | ATL Seals Add HRTL for Retained Add HXTL for Expansion e.g. LS13HRTL | Other Seal Types Add HR for Retained Add HX for Expansion e.g. LS715HR | 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 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

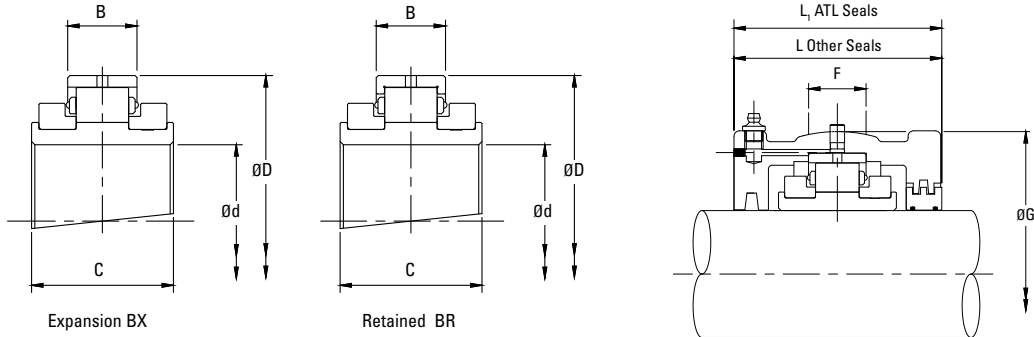
S11 - S19



| 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

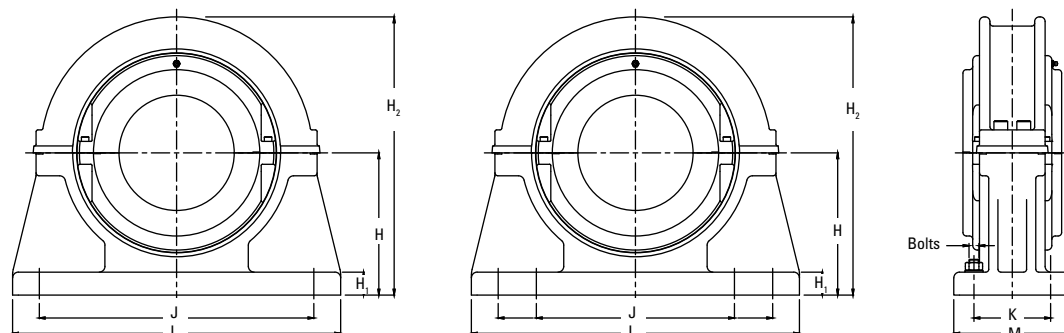
360 MM TO 600 MM (15 IN. TO 24 IN.)



| Shaft (d) | | Reference | | Bearings Ratings | | | | | | Housing Reference | | | | | | | |
|------------|-----|---|---------|------------------|-----------------|-----------------|-----|------------------|----------------|-------------------|--|--|---------|------------------|------------|-------------|---|
| | | Add BR for Retained Add BX for Expansion e.g. LSM35BR | | Dynamic C_r | Static C_{or} | Axial C_a | Max | D | B | C | ATL Seals Add HRTL for Retained Add HXTL for Expansion e.g. LS11HRTL | Other Seal Types Add HR for Retained Add HX for Expansion e.g. LSM35HR | 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. | |
| 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.

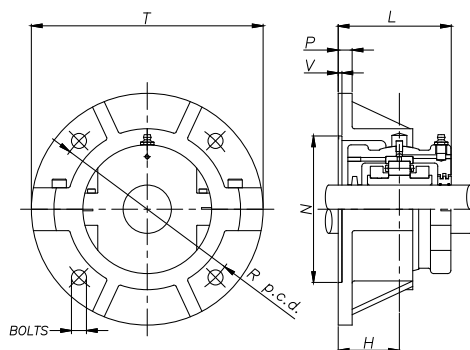
When integrating flange units into new applications, it should be noted that a maximum radial load equivalent to 0.26 C_r is permissible. A maximum axial load of 0.25 C_a must also be taken into account for applications with thrust loading. Units for vertically oriented shafts may also need special consideration 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. | | | | | | | | | |
| 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 | | | | | | | | | |
| 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 5.71 | 3 0.1 | 120 4.7 |
| | 70 75 | | | | | | | | | |
| 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 | | | | | | | | | |
| 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 | | | | | | | | | |

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. | | | | | | | | | |
| 135 140 | 5 3/16 | F09 | 444 | 4 x M24 | 384 | 25 | 98 | 317.51 | 3 | 182 |
| | 5 1/4 | | | | | | | | | |
| | 5 7/16 | | | | | | | | | |
| | 5 1/2 | | | | | | | | | |
| 150 155 160A | 5 11/16 | F10 | 470 | 4 x M24 | 412 | 25 | 114 | 346.07 | 3 | 202 |
| | 5 3/4 | | | | | | | | | |
| | 5 15/16 | | | | | | | | | |
| | 6 | | | | | | | | | |
| 160 170A | 6 7/16 | F11 | 496 | 4 x M24 | 426 | 25 | 105 | 352.42 | 3 | 202 |
| | 6 1/2 | | | | | | | | | |
| 170 175 180 | 6 11/16 | F12 | 508 | 4 x M24 | 438 | 29 | 108 | 365.12 | 3 | 208 |
| | 6 3/4 | | | | | | | | | |
| | 6 15/16 | | | | | | | | | |
| | 7 | | | | | | | | | |
| 190 200 | 7 1/4 | F13 | 534 | 4 x M24 | 474 | 32 | 108 | 400.05 | 3 | 208 |
| | 7 1/2 | | | | | | | | | |
| | 7 15/16 | | | | | | | | | |
| | 8 | | | | | | | | | |
| 220 230 | 8 1/2 | F14 | 584 | 4 x M30 | 512 | 35 | 117 | 431.81 | 3 | 226 |
| | 8 7/8 | | | | | | | | | |
| | 9 | | | | | | | | | |
| 240 250 | 9 1/2 | F15 | 610 | 4 x M30 | 542 | 35 | 117 | 463.55 | 3 | 228 |
| | 9 3/4 | | | | | | | | | |
| | 10 | | | | | | | | | |
| 260 270 280 | 10 1/2 | F16 | 660 | 4 x M30 | 584 | 38 | 124 | 504.82 | 3 | 240 |
| | 10 3/4 | | | | | | | | | |
| | 11 | | | | | | | | | |
| 300 305 | 11 1/2 | F17 | 712 | 4 x M30 | 626 | 38 | 133 | 539.75 | 3 | 258 |
| | 12 | | | | | | | | | |

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

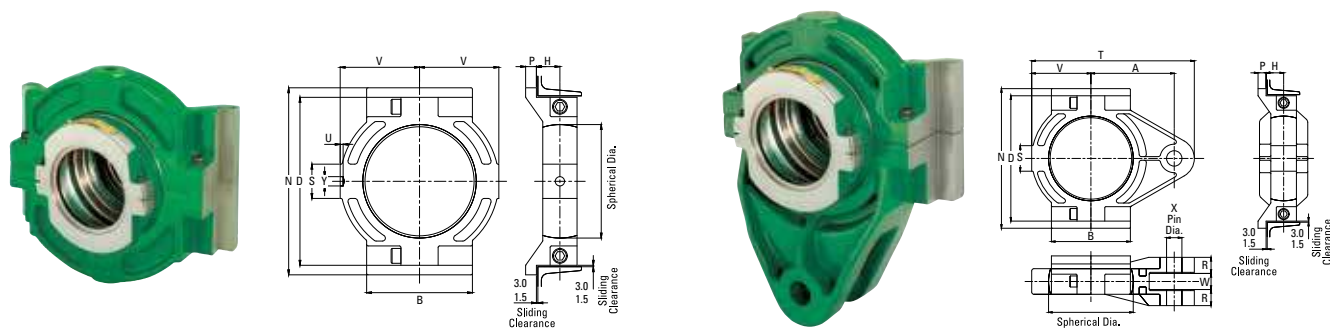
mounted. When integrating take-up units into new applications, it should be noted that a maximum radial load equivalent to 0.3 C_{or} is permissible. As with all Timken units, a wide variety of sealing solutions may be applied dependant on the environment and application. Please contact a Timken engineer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

continued on next page

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



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 | 3 11/16 | TT06 | TP06 | 204 | 342 | 305 | 152 | 22 | 43 | 51 | 210 | 414 | 36 | 44 | 35 | 6 | 19 |
| | 3 3/4 | | | | | | | | | | | | | | | | |
| 105 | 3 15/16 | TT07 | TP07 | 216 | 382 | 343 | 162 | 22 | 48 | 70 | 228 | 445 | 42 | 44 | 41 | 6 | 19 |
| | 4 | | | | | | | | | | | | | | | | |
| 110 | 4 3/16 | TT08 | TP08 | 254 | 420 | 381 | 190 | 25 | 51 | 76 | 260 | 508 | 42 | 44 | 44 | 6 | 19 |
| | 4 1/4 | | | | | | | | | | | | | | | | |
| 115 | 4 7/16 | TT09 | TP09 | 266 | 438 | 400 | 196 | 25 | 54 | 76 | 266 | 514 | 42 | 44 | 48 | 8 | 23 |
| | 4 1/2 | | | | | | | | | | | | | | | | |
| 120 | 4 11/16 | TT10 | TP10 | 266 | 464 | 426 | 204 | 25 | 57 | 86 | 280 | 546 | 48 | 50 | 51 | 8 | 23 |
| | 4 3/4 | | | | | | | | | | | | | | | | |
| 125 | 5 1/16 | TT09 | TP09 | 266 | 438 | 400 | 196 | 25 | 54 | 76 | 266 | 514 | 42 | 44 | 48 | 8 | 23 |
| | 5 3/16 | | | | | | | | | | | | | | | | |
| 130 | 5 1/4 | TT10 | TP10 | 266 | 464 | 426 | 204 | 25 | 57 | 86 | 280 | 546 | 48 | 50 | 51 | 8 | 23 |
| | 5 7/16 | | | | | | | | | | | | | | | | |
| 135 | 5 11/16 | TT10 | TP10 | 266 | 464 | 426 | 204 | 25 | 57 | 86 | 280 | 546 | 48 | 50 | 51 | 8 | 23 |
| | 5 3/4 | | | | | | | | | | | | | | | | |
| 140 | 5 15/16 | TT10 | TP10 | 266 | 464 | 426 | 204 | 25 | 57 | 86 | 280 | 546 | 48 | 50 | 51 | 8 | 23 |
| | 6 | | | | | | | | | | | | | | | | |

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.

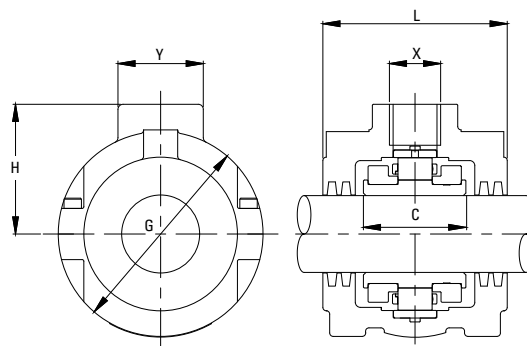
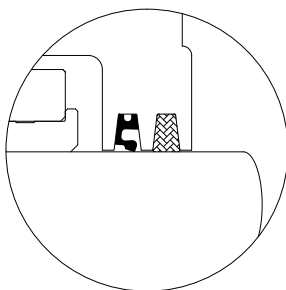
Hanger units have two seal grooves per side. They are supplied with double felt seals as standard. However, the standard seal groove will accept any combination of strip seal.

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

⁽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

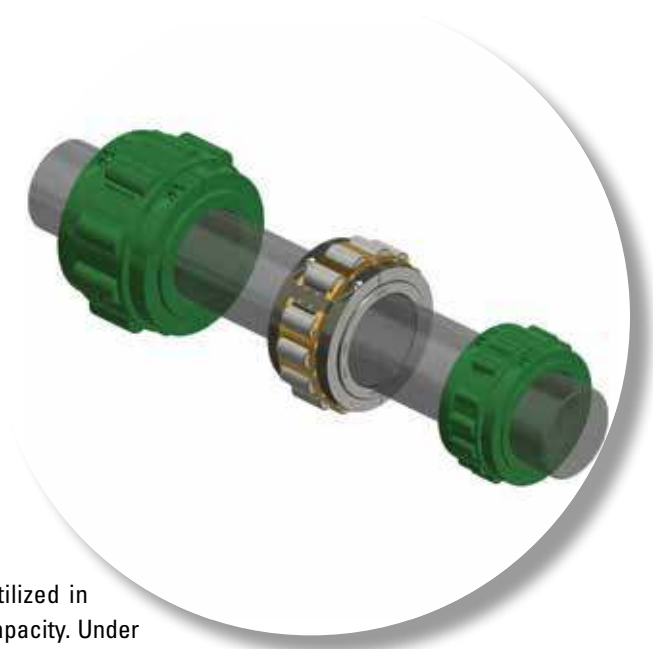
continued on next page



continued from previous page

| 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 | LSE311HG | 85.0 | 210 | 152 | 128 | M36 | 76 |
| | 3 3/4 | | LSE312HG | | | | | | |
| 105 | 3 15/16 | LSM105HG | LSE315HG | 3.346 | 8.3 | 6.0 | 5.0 | 1 1/2 - 6 UNC | 3.0 |
| | 4 | | LSE400HG | | | | | | |
| 110 | 4 3/16 | LSM110HG | LSE403HG | 90.0 | 232 | 156 | 140 | M36 | 76 |
| | 4 1/4 | | LSE404HG | | | | | | |
| 115 | 4 7/16 | LSM115HG | LSE407HG | 3.543 | 9.1 | 6.1 | 5.5 | 1 1/2 - 6 UNC | 3.0 |
| | 4 1/2 | | LSE408HG | | | | | | |
| 120 | 4 11/16 | LSM120 | LSE411 | 95 | 276 | 162 | 156 | M36 | 76 |
| | 4 3/4 | | LSE412 | | | | | | |
| 125 | 4 15/16 | LSM125 | LSE415 | 3.740 | 10.866 | 6.378 | 6.142 | 1 1/2 - 6 UNC | 2.992 |
| | 5 | | LSE500 | | | | | | |
| 135 | 5 3/16 | LSM135 | LSE503 | 98.4 | 280 | 158 | 160 | M36 | 75 |
| | 5 1/4 | | LSE504 | | | | | | |
| 140 | 5 7/16 | LSM140 | LSE507 | 3.874 | 11.024 | 6.220 | 6.299 | 1 1/2 - 6 UNC | 2.953 |
| | 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

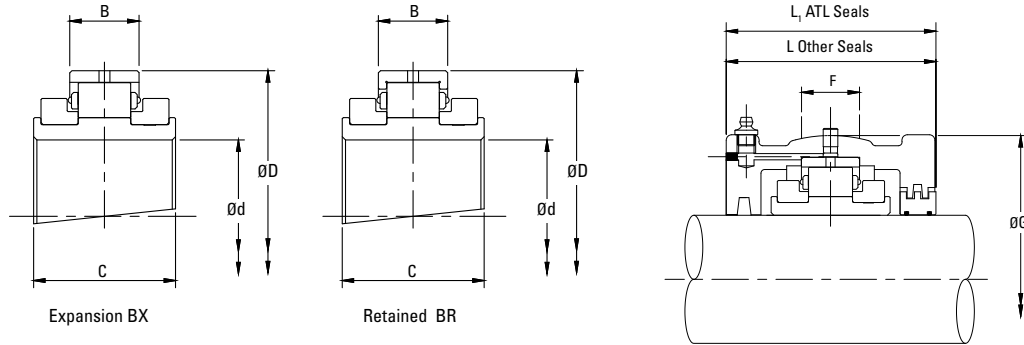
Medium series bearing products can be utilized in applications requiring higher load-carrying capacity. Under normal conditions, medium series also may be selected to provide an extended bearing life when compared to light series. Medium series offers the same range of mounting and sealing solutions 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 1/16 in. to 6 in.) | 60 |
| Medium Series Support S03 - S31 | 61 |
| Medium Series Bearing and Housing 160 mm to 360 mm (6 3/16 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 1/16 in. to 12 in.) | 66 |
| Medium Series Support Take-Up Units TT/TP 45 mm to 155 mm (1 1/16 in. to 6 in.) | 68 |

MEDIUM SERIES BEARING AND HOUSING

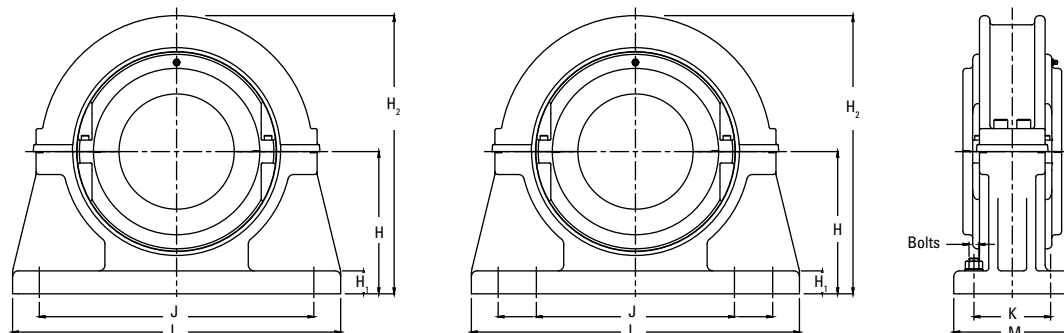
45 MM TO 155 MM (1 1/16 IN. TO 6 IN.)



| Shaft (d) | | Reference | | Bearings Ratings | | | | | | Housing Reference | | | | | | | |
|-------------------|------------------------------------|---|--------------------------------------|------------------|----------------|----------------|------|------------------|----------------|-------------------|---|--|--------------------------------------|------------------|-----------|------------|------------|
| | | Add BR for Retained Add BX for Expansion e.g. MSM55BR | | Dynamic Cr | Static Cor | Axial Ca | 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 | L1 | |
| 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 MSE115 MSE200 | 134.94 5.313 | 32 1.3 | 112 4.4 | 114 4.5 |
| | 1 1/16 2 | | MSE203 MSE204 MSE207 MSE208 | | | | | | | | | | | | | | |
| 55 60 65 | 2 3/16 2 1/4 2 7/16 2 1/2 | MSM55 MSM60 MSM65 | MSE203 MSE204 MSE207 MSE208 | 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 MSE207 MSE208 | 157.16 6.187 | 38 1.5 | 124 4.9 | 126 5.0 |
| | 2 1/16 2 3/4 2 15/16 3 | | MSE211 MSE212 MSE215 MSE300 | | | | | | | | | | | | | | |
| 70 75 | 2 11/16 2 3/4 2 15/16 3 | MSM70 MSM75 | MSE211 MSE212 MSE215 MSE300 | 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 MSE215 MSE300 | 177.80 7.000 | 50 2.0 | 138 5.4 | 140 5.5 |
| | 3 3/16 3 1/4 3 7/16 3 1/2 | | MSE303 MSE304 MSE307 MSE308 | | | | | | | | | | | | | | |
| 80 85 90 | 3 3/16 3 1/4 3 7/16 3 1/2 | MSM80 MSM85 MSM90 | MSE303 MSE304 MSE307 MSE308 | 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 MSE307 MSE308 | 203.20 8.000 | 50 2.0 | 152 6.0 | 154 6.1 |
| | 3 11/16 3 3/4 3 15/16 4 | | MSE311 MSE312 MSE315 MSE400 | | | | | | | | | | | | | | |
| 100 105 | 3 11/16 3 3/4 3 15/16 4 | MSM100 MSM105 | MSE311 MSE312 MSE315 MSE400 | 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 MSE315 MSE400 | 231.78 9.125 | 64 2.5 | 144 5.7 | 146 5.7 |
| | 4 3/16 4 1/4 4 7/16 4 1/2 | | MSE403 MSE404 MSE407 MSE408 | | | | | | | | | | | | | | |
| 110 115 | 4 3/16 4 1/4 4 7/16 4 1/2 | MSM110 MSM115 | MSE403 MSE404 MSE407 MSE408 | 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 MSE407 MSE408 | 266.70 10.500 | 76 3.0 | 160 6.3 | 162 6.4 |
| | 4 11/16 4 3/4 4 15/16 5 | | MSE411 MSE412 MSE415 MSE500 | | | | | | | | | | | | | | |
| 120 125 130 | 4 11/16 4 3/4 4 15/16 5 | MSM120 MSM125 MSM130 | MSE411 MSE412 MSE415 MSE500 | 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 MSE415 MSE500 | 295.28 11.625 | 82 3.2 | 182 7.2 | 184 7.2 |
| | 5 3/16 5 1/4 5 7/16 5 1/2 | | MSE503 MSE504 MSE507 MSE508 | | | | | | | | | | | | | | |
| 135 140 | 5 3/16 5 1/4 5 7/16 5 1/2 | MSM135 MSM140 | MSE503 MSE504 MSE507 MSE508 | 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 MSE507 MSE508 | 323.85 12.750 | 90 3.5 | 186 7.3 | 188 7.4 |
| | 5 11/16 5 3/4 5 15/16 6 | | MSE511 MSE512 MSE515 MSE600 | | | | | | | | | | | | | | |
| 150 155 160 | 5 11/16 5 3/4 5 15/16 6 | MSM150 MSM155 MSM160A | MSE511 MSE512 MSE515 MSE600 | 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 MSE515 MSE600 | 336.55 13.250 | 95 3.7 | 202 8.0 | 204 8.0 |
| | | | | | | | | | | | | | | | | | |

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

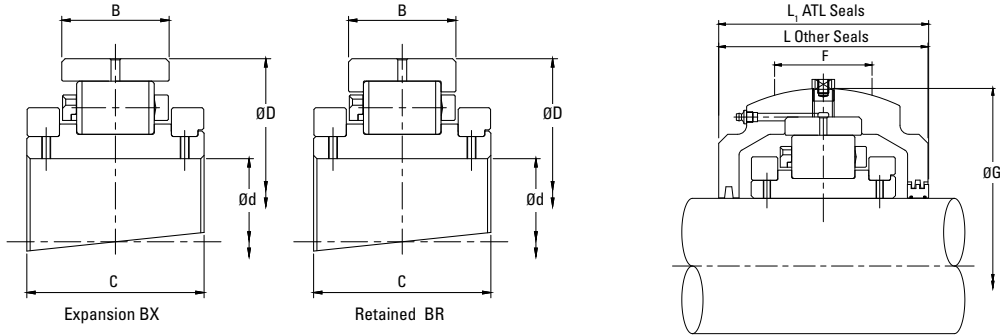
MEDIUM SERIES SUPPORT S03 - S31



| 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

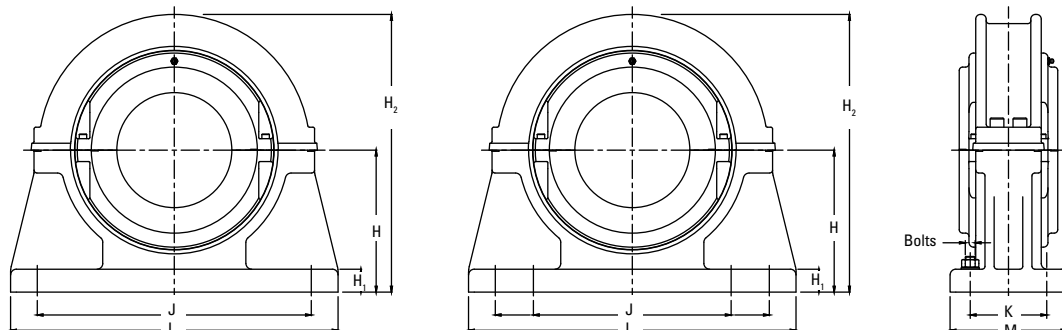
160 MM TO 360 MM (6 7/16 IN. TO 14 IN.)



| Shaft (d) | | Reference | | 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 |
| Add BR for Retained Add BX for Expansion e.g. MSM160BR | 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 | MSM160 MSM170 | MSE607 | 842 189289 | 1175 264151 | 61.40 13803 | 1200 | 317.50 12.500 | 83.30 3.280 | 140.00 5.512 | MS32 | MSM160 MSM170 | MSE607 | 368.30 14.500 | 95 3.7 | 206 8.1 | 232 9.1 |
| | 6 1/2 | | MSE608 | | | | | | | | | | MSE608 | | | | |
| | 6 11/16 | | MSE611 | | | | | | | | | | MSE611 | | | | |
| | 6 3/4 | | MSE612 | | | | | | | | | | MSE612 | | | | |
| 175 180 | 6 15/16 | MSM175 MSM180 | MSE615 | 927 208398 | 1357 305066 | 71.20 16006 | 1120 | 330.20 13.000 | 83.30 3.280 | 140.00 5.512 | MS33 | MSM175 MSM180 | MSE615 | 381.00 15.000 | 95 3.7 | 222 8.7 | 242 9.5 |
| | 7 | | MSE700 | | | | | | | | | | MSE700 | | | | |
| 190 200 | 7 1/4 | MSM190 MSM200 | MSE704 | 1013 227732 | 1516 340810 | 80.00 17985 | 960 | 368.30 14.500 | 90.50 3.563 | 156.00 6.142 | MS34 | MSM190 MSM200 | MSE704 | 425.50 16.752 | 105 4.1 | 235 9.3 | 258 10.2 |
| | 7 1/2 | | MSE708 | | | | | | | | | | MSE708 | | | | |
| 220 230 | 7 15/16 | MSM200 | MSE715 | 1013 227732 | 1516 340810 | 80.00 17985 | 960 | 368.30 14.500 | 90.50 3.563 | 156.00 6.142 | MS34 | MSM200 | MSE715 | 425.50 16.752 | 105 4.1 | 235 9.3 | 258 10.2 |
| | 8 | | MSE800 | | | | | | | | | | MSE800 | | | | |
| 220 230 | 8 1/2 | MSM220 MSM230 | MSE808 | 1138 255833 | 1668 374981 | 89.80 20188 | 850 | 393.70 15.500 | 90.50 3.563 | 163.00 6.417 | MS35 | MSM220 MSM230 | MSE808 | 457.20 18.000 | 110 4.3 | 242 9.5 | 274 10.8 |
| | 8 7/8 | | MSE814 | | | | | | | | | | MSE814 | | | | |
| 240 250 260 | 9 1/2 | MSM240 MSM250 MSM260 | MSE908 | 1354 304391 | 2117 475921 | 98.80 22211 | 750 | 431.80 17.000 | 96.80 3.811 | 170.00 6.693 | MS36 | MSM240 MSM250 | MSE908 | 495.30 19.500 | 118 4.6 | 248 9.8 | 280 11.0 |
| | 9 3/4 | | MSE912 | | | | | | | | | | MSE912 | | | | |
| 270 280 | 10 1/2 | MSM270 MSM280 | MSE1008 | 1476 331818 | 2357 529875 | 113.80 25583 | 670 | 463.55 18.250 | 101.60 4.000 | 186.00 7.323 | MS37 | MSM270 MSM280 | MSE1008 | 527.10 20.752 | 130 5.1 | 264 10.4 | 300 11.8 |
| | 10 3/4 | | MSE1012 | | | | | | | | | | MSE1012 | | | | |
| 300 305 | 11 1/2 | MSM300 MSM305 | MSE1108 | 1587 356772 | 2644 594395 | 129.00 29000 | 610 | 495.30 19.500 | 103.20 4.063 | 193.00 7.598 | MS38 | MSM300 MSM305 | MSE1108 | 552.50 21.752 | 128 5.0 | 268 10.6 | 306 12.0 |
| | 12 | | MSE1200 | | | | | | | | | | MSE1200 | | | | |
| 320 330 | 12 1/2 | MSM320 MSM330 | MSE1208 | 1723 387346 | 2922 656892 | 144.20 32417 | 550 | 527.05 20.750 | 106.40 4.189 | 192.00 7.559 | MS39 | MSM320 MSM330 | MSE1208 | 587.40 23.126 | 128 5.0 | 298 11.7 | - |
| | 13 | | MSE1300 | | | | | | | | | | MSE1300 | | | | |
| 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 | - |
| | 14 | | MSE1400 | | | | | | | | | | MSE1400 | | | | |

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

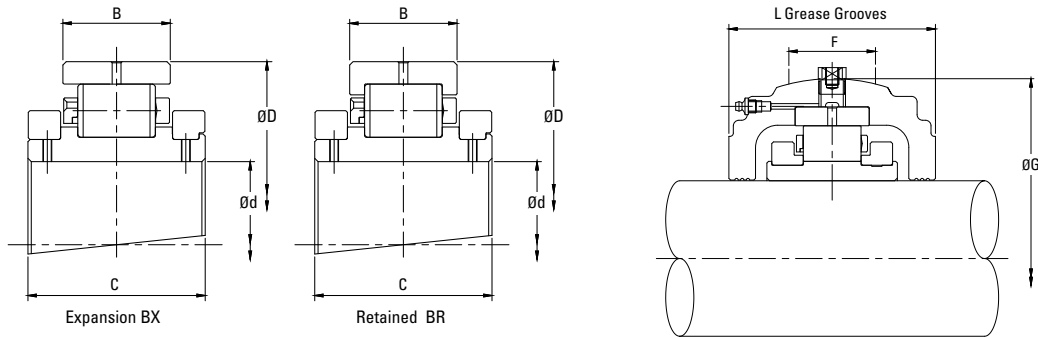
MEDIUM SERIES SUPPORT S32 - S40



| Shaft (d) | | Support Reference | H | H ₁ | H ₂ | J x K | L x M | Bolts |
|--|----------------------------------|-------------------|----------------------|------------------|--------------------|--|--------------------------------|---------|
| mm | in. | | | | | | | |
| 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.)

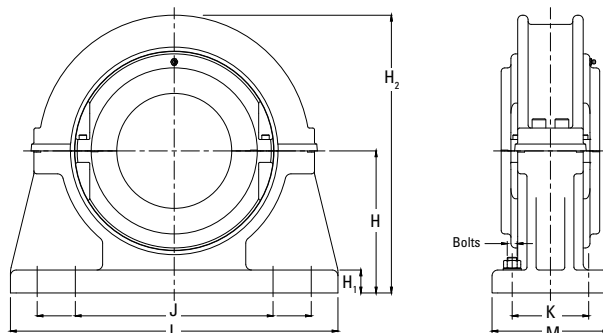


| Shaft (d) | | Reference | | Bearings Ratings | | | | | | Housing Reference | | | | | | | |
|--|--|---|---------|------------------------|------------------------|----------------------|--------|------------------|-----------------|-------------------|-----------|------------------|------------------|------------------|------------|-------------|---|
| | | | | Dynamic C _r | Static C _{0r} | Axial C _a | Max | D | B | C | ATL Seals | | Other Seal Types | | G | F | L |
| Add BR for Retained Add BX for Expansion e.g. MS1700BR | 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 designations, 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.

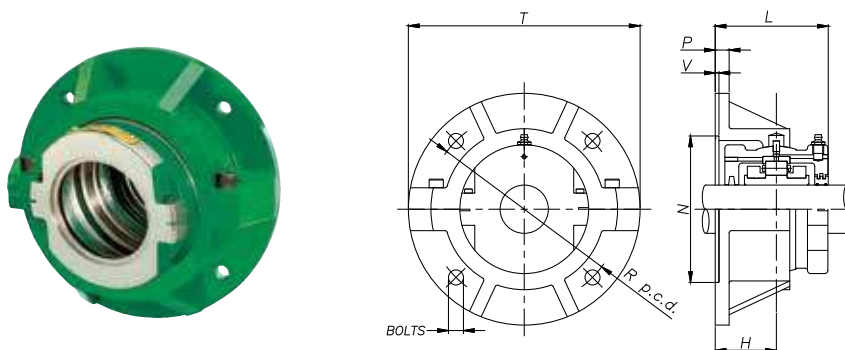
When integrating flange units into new applications, it should be noted that a maximum radial load equivalent to 0.26 C_{or} is permissible. A maximum axial load of 0.25 C_a also must be taken into account for applications with thrust loading. Units for vertically oriented shafts may also need special 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. | | | | | | | | | |
| 45 50 | 1 11/16 1 3/4 1 15/16 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



continued from previous page

| Shaft (d) | | Flange Reference | T | Bolts | R | P | H | N | V | L |
|--------------------|----------------------------------|------------------|-------------|---------|-------------|-----------|------------|------------------|----------|-------------|
| 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 1/16 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

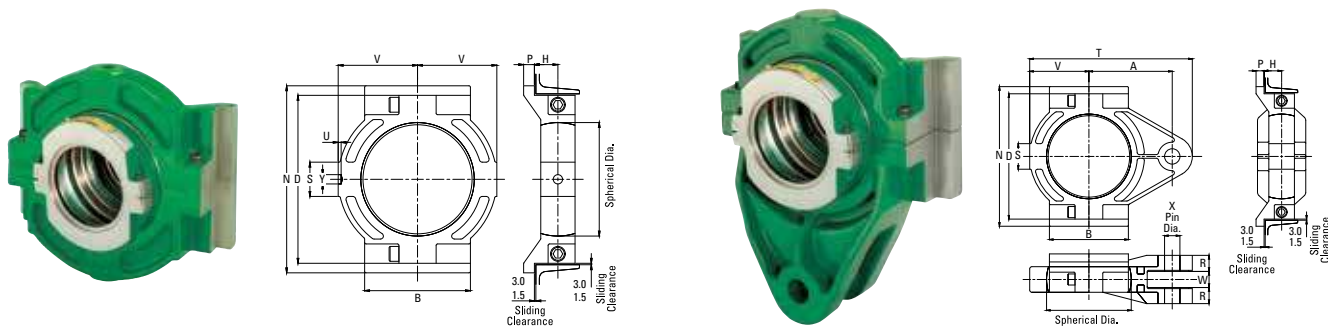
be mounted. When integrating take-up units into new applications, it should be noted that a maximum radial load equivalent to 0.3 C_{or} is permissible. As with all Timken units, a wide variety of sealing solutions may be applied dependant on the environment and application. Please contact a Timken engineer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

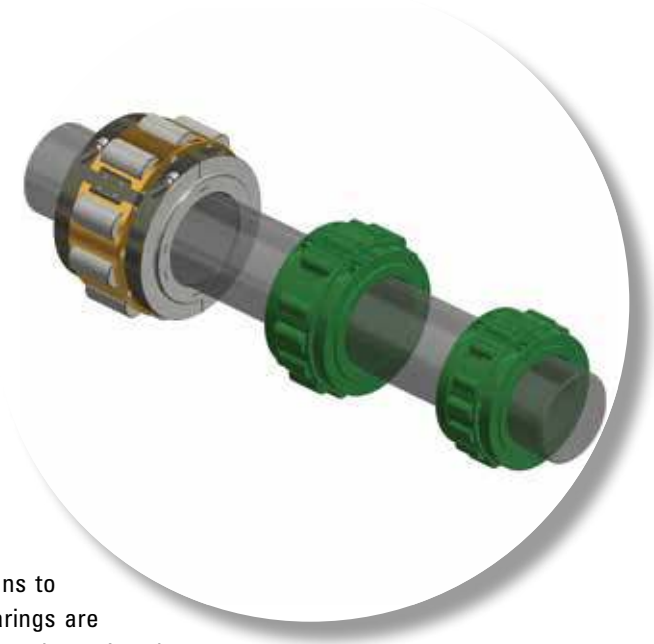
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MEDIUM SERIES • MEDIUM SERIES SUPPORT • TAKE-UP UNITS TT/TP 45 MM TO 155 MM (1 1/16 IN. TO 6 IN.)



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. |
| 110 115 | 4 3/16 | 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 |
| | 4 1/4 | | | | | | | | | | | | | | | | |
| | 4 7/16 | | | | | | | | | | | | | | | | |
| | 4 1/2 | | | | | | | | | | | | | | | | |
| 120 125 130 | 4 11/16 | 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 |
| | 4 3/4 | | | | | | | | | | | | | | | | |
| | 4 15/16 | | | | | | | | | | | | | | | | |
| | 5 | | | | | | | | | | | | | | | | |
| 135 140 | 5 3/16 | 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 |
| | 5 1/4 | | | | | | | | | | | | | | | | |
| | 5 7/16 | | | | | | | | | | | | | | | | |
| | 5 1/2 | | | | | | | | | | | | | | | | |
| 150 155 160 | 5 11/16 | 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 |
| | 5 3/4 | | | | | | | | | | | | | | | | |
| | 5 15/16 | | | | | | | | | | | | | | | | |
| | 6 | | | | | | | | | | | | | | | | |



HEAVY SERIES

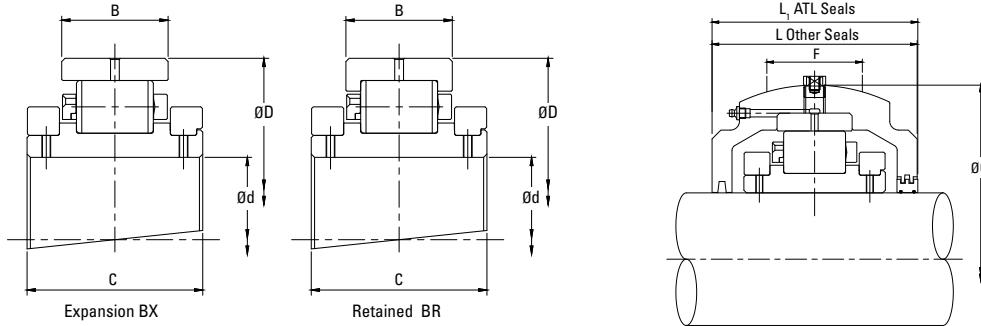
Heavy series bearing products offer solutions to the most demanding of load conditions. Bearings are supported by robust and durable mountings and can be equipped with a variety of sealing solutions. If a standard catalog product does not meet your requirements, a Timken engineer will be happy to provide 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 1/8 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 1/8 in. to 10 in.) | 76 |

HEAVY SERIES BEARING AND HOUSING

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

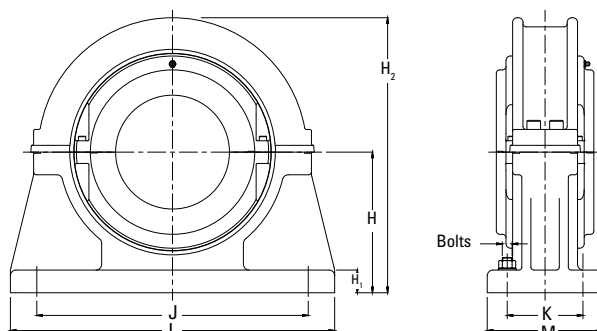


| Shaft (d) | | Reference | | Bearings Ratings | | | | | | | Housing Reference | | | | | | |
|------------|---------------------------------|--|--------------------------------------|--------------------------------------|------------------------|----------------------|-----------------|------------------|-------------------|------------------------------------|--|---|--------------------------------------|--------------------------------------|------------------|----------------|-------------|
| | | Add BR for Retained Add BX for Expansion e.g. HSE515BR | | Dynamic C _r | Static C _{0r} | Axial C _a | Max | D | B, B ₁ | C | ATL Seals Add HRTL for Retained Add HXTL for Expansion e.g. HS58HRTL | Other Seal Types Add HR for Retained Add HX for Expansion e.g. HSE515HR | 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. | |
| 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 |
| 125 130 | | 4 1/16 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 |
| | 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 |
| 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 |
| | 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 |
| 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 |
| | 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 |
| 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 |
| | 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 |

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

HEAVY SERIES SUPPORT

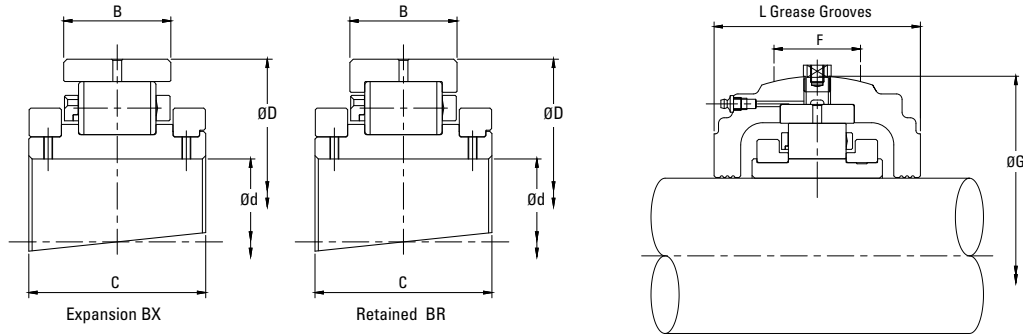
S54 - S63



| 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 1/4 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

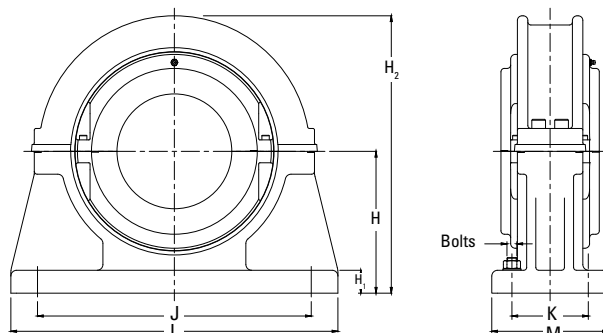
280 MM TO 600 MM (11 IN. TO 24 IN.)



| Shaft (d) | | Reference | | Bearings Ratings | | | | | | Housing Reference | | | | | | | |
|---|----------|--|--------------------|------------------------|------------------------|----------------------|-----|------------------|-------------------|-------------------|---|------------------|--------------------|------------------|------------|-------------|-------------|
| | | | | Dynamic C _r | Static C _{or} | Axial C _a | Max | D | B, B ₁ | C | ATL Seals | | Other Seal Types | | G | F | L |
| Add BR for Retained Add BX for Expansion e.g. HSE1700BR | | 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 | 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 | 370 14.6 |
| | | | | | | | | | | | | | | | | | |
| 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 |

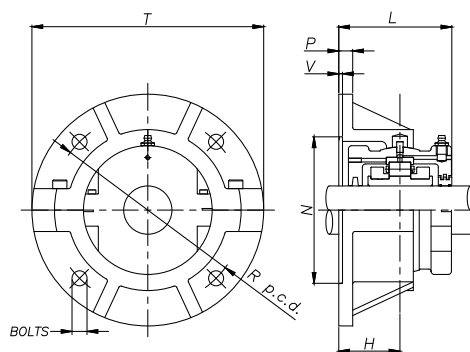
HEAVY SERIES FLANGE UNITS 125 MM TO 260 MM (4 15/16 IN. TO 10 IN.)

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.

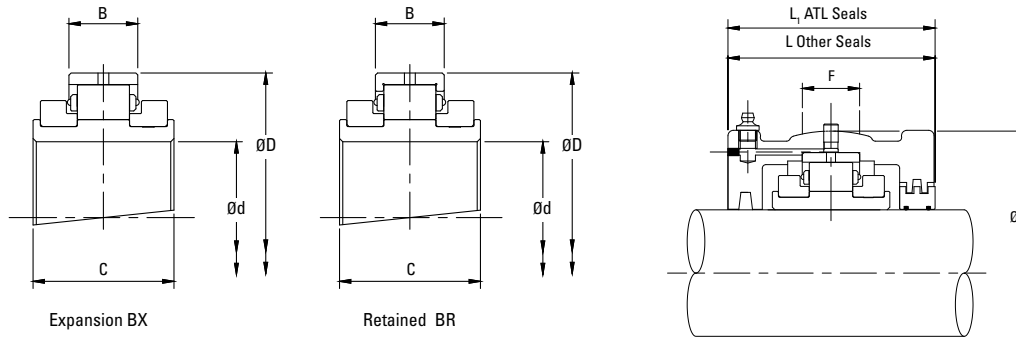
The following topics are covered within this section:

| | |
|---|----|
| SAFQ Two-Bolt/SAFQ Four-Bolt Bearing and Housing 1 7/16 in. to 3 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 7/16 in. to 7 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 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 3/8 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 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 3/8 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 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 1/2 in. to 16 in.) | 92 |
| Medium SN/SD Range Support SD37 - SD42 | 93 |

PRODUCT DATA TABLES

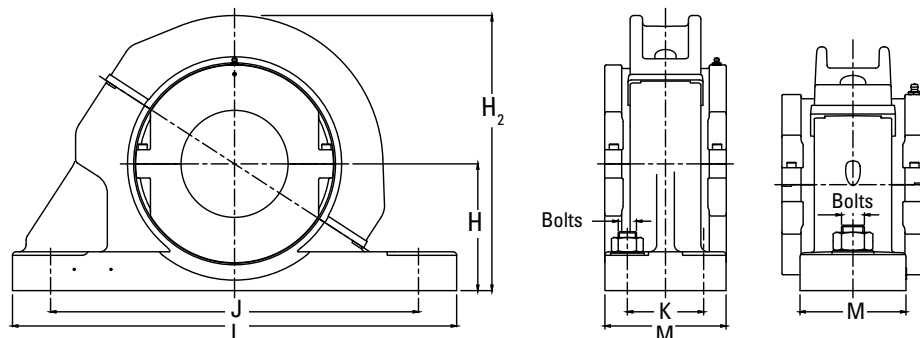
SAF/SN/SD BEARINGS • SAFQ TWO-BOLT / SAFQ FOUR-BOLT BEARING AND HOUSING • 1 7/16 IN. TO 3 7/16 IN.

SAFQ TWO-BOLT / SAFQ FOUR-BOLT BEARING AND HOUSING 1 7/16 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 7/16 | 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 | MSSHRTL | MSSHXTL | 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 | LSSHRTL | LSSHXTL | 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 | LSSHRTL | LSSHXTL | 177.8 7.000 | 50 1.969 | 134 5.276 | 136 5.354 |

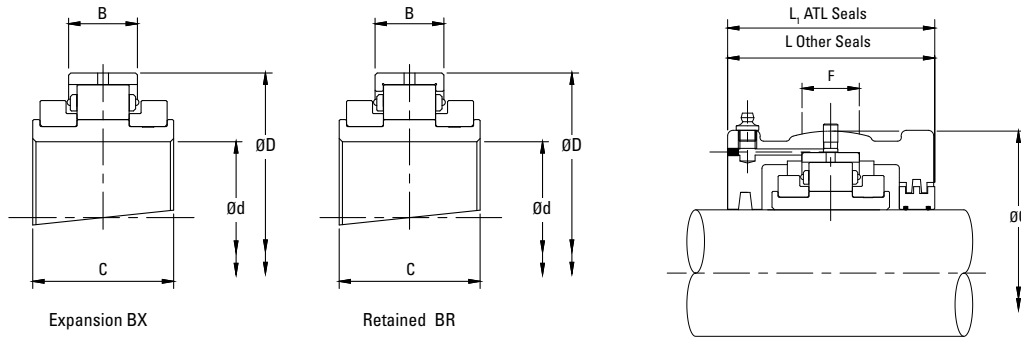
SAFQ TWO-BOLT / SAFQ FOUR-BOLT SUPPORT SAFQ1-2B - SAFQ05-2B



| 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 3/16 | 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.

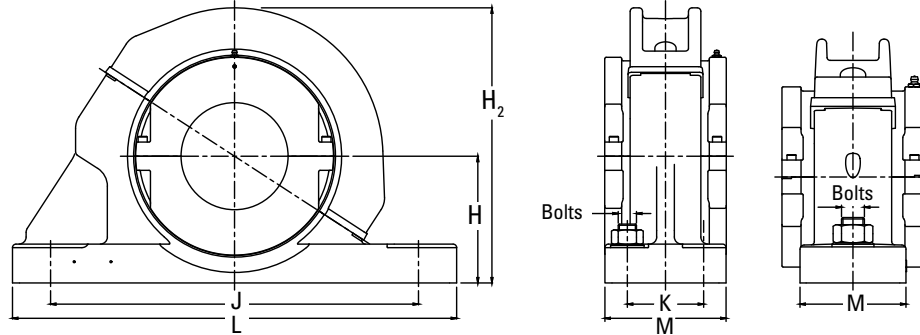


| Shaft (d) | Reference | | | Bearings Ratings | | | | | | Housing Reference | | | | | |
|-----------|---|---|--------------------------------------|-------------------------|-------------------------|------|-------------------------|----------------------|-----------------------|--------------------|--------------------|-------------------------|---------------------|---------------------|----------------------|
| | Add BR for Retained Add BX for Expansion | Additional Bearing(s) | | Dynamic Cr | Static Cor | 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 |

continued on next page

SAFQ TWO-BOLT / SAFQ FOUR-BOLT SUPPORT

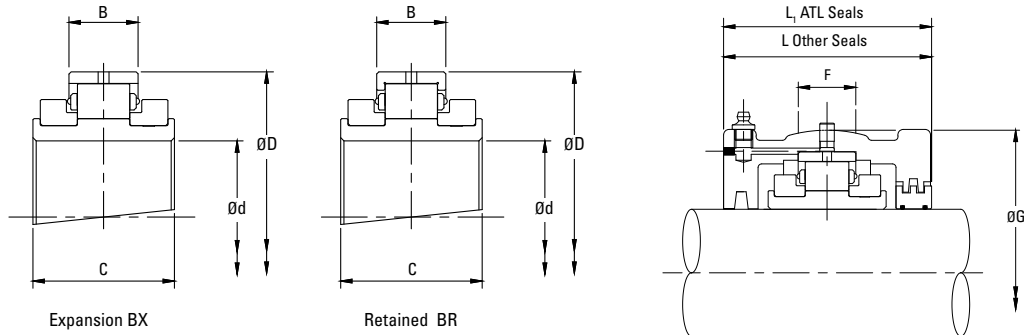
SAFQ06A - SAFQ34A



| Shaft (d) | Support Reference | SAF Reference | Additional Shafts | | H | J | | K | Bolts | L | M | H ₂ |
|--------------|----------------------|------------------|--|-----------------------------------|---------|---------|--------|-------|-----------|----------|---------|----------------|
| | | | mm | in. | | Min. | Max. | | | | | |
| in. | | | mm | in. | in. | in. | in. | in. | | in. | in. | in. |
| 3 7/16 | 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 5/16 | 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

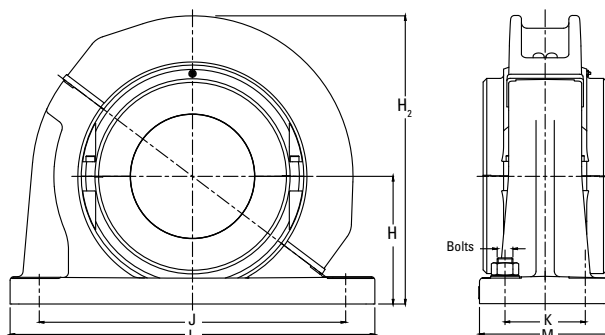
35 MM TO 160 MM (1 3/16 IN. TO 6 IN.)



| Shaft (d) | | Reference | | Bearings Ratings | | | | | | Housing Reference | | | | | | | |
|-------------------|---------|--|--------|------------------------|------------------------|----------------------|------|------------------|-------------------|-------------------|---|---|--------|------------------|-----------|----------------|------------|
| | | 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 | ATL Seals Add HRTL for retained Add HXTL for Expansion e.g. LS1HRTL | Other Seal Types Add HR for Retained Add HX for Expansion e.g. LSE103HR | 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. | |
| 35 40 | 1 3/16 | LSM35 LSM40 | LSE103 | 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 | 100.00 3.937 | 25 1.0 | 84 3.3 | 91 3.6 |
| | 1 1/4 | | LSE104 | | | | | | | | | | LSE104 | | | | |
| | 1 7/16 | | LSE107 | | | | | | | | | | LSE107 | | | | |
| | 1 1/2 | | LSE108 | | | | | | | | | | LSE108 | | | | |
| 45 50 | 1 11/16 | LSM45 LSM50 | LSE111 | 83 18659 | 87 19558 | 3.60 809.30 | 4630 | 98.42 3.875 | 25.40 1.000 | 60.00 2.362 | LS2 | LSM50 | LSE111 | 117.48 4.625 | 25 1.0 | 96 3.8 | 98 3.9 |
| | 1 3/4 | | LSE112 | | | | | | | | | | LSE112 | | | | |
| | 1 15/16 | | LSE115 | | | | | | | | | | LSE115 | | | | |
| | 2 | | LSE200 | | | | | | | | | | LSE200 | | | | |
| 55 60 65 | 2 3/16 | LSM55 LSM60 LSM65 | LSE203 | 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 | 134.94 5.313 | 32 1.3 | 102 4.0 | 104 4.1 |
| | 2 1/4 | | LSE204 | | | | | | | | | | LSE204 | | | | |
| | 2 7/16 | | LSE207 | | | | | | | | | | LSE207 | | | | |
| | 2 1/2 | | LSE208 | | | | | | | | | | LSE208 | | | | |
| 70 75 | 2 11/16 | LSM70 LSM75 | LSE211 | 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 | 157.16 6.187 | 38 1.5 | 112 4.4 | 114 4.5 |
| | 2 3/4 | | LSE212 | | | | | | | | | | LSE212 | | | | |
| | 2 15/16 | | LSE215 | | | | | | | | | | LSE215 | | | | |
| | 3 | | LSE300 | | | | | | | | | | LSE300 | | | | |
| 80 85 90 | 3 3/16 | LSM80 LSM85 LSM90 | LSE303 | 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 | 177.80 7.000 | 50 2.0 | 134 5.3 | 136 5.4 |
| | 3 1/4 | | LSE304 | | | | | | | | | | LSE304 | | | | |
| | 3 7/16 | | LSE307 | | | | | | | | | | LSE307 | | | | |
| | 3 1/2 | | LSE308 | | | | | | | | | | LSE308 | | | | |
| 95 100 105 | 3 11/16 | LSM95 LSM100 LSM105 | LSE311 | 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 | 203.20 8.000 | 50 2.0 | 132 5.2 | 134 5.3 |
| | 3 3/4 | | LSE312 | | | | | | | | | | LSE312 | | | | |
| | 3 15/16 | | LSE315 | | | | | | | | | | LSE315 | | | | |
| | 4 | | LSE400 | | | | | | | | | | LSE400 | | | | |
| 110 115 | 4 3/16 | LSM110 LSM115 | LSE403 | 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 | 231.78 9.125 | 64 2.5 | 140 5.5 | 142 5.6 |
| | 4 1/4 | | LSE404 | | | | | | | | | | LSE404 | | | | |
| | 4 7/16 | | LSE407 | | | | | | | | | | LSE407 | | | | |
| | 4 1/2 | | LSE408 | | | | | | | | | | LSE408 | | | | |
| 120 125 130 | 4 11/16 | LSM120 LSM125 LSM130 | LSE411 | 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 | 266.70 10.500 | 76 3.0 | 154 6.1 | 156 6.1 |
| | 4 3/4 | | LSE412 | | | | | | | | | | LSE412 | | | | |
| | 4 15/16 | | LSE415 | | | | | | | | | | LSE415 | | | | |
| | 5 | | LSE500 | | | | | | | | | | LSE500 | | | | |
| 135 140 | 5 3/16 | LSM135 LSM140 | LSE503 | 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 | 279.40 11.000 | 76 3.0 | 166 6.5 | 168 6.6 |
| | 5 1/4 | | LSE504 | | | | | | | | | | LSE504 | | | | |
| | 5 7/16 | | LSE507 | | | | | | | | | | LSE507 | | | | |
| | 5 1/2 | | LSE508 | | | | | | | | | | LSE508 | | | | |
| 150 155 160 | 5 11/16 | LSM150 LSM155 LSM160A | LSE511 | 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 | 295.28 11.625 | 82 3.2 | 172 6.8 | 174 6.9 |
| | 5 3/4 | | LSE512 | | | | | | | | | | LSE512 | | | | |
| | 5 15/16 | | LSE515 | | | | | | | | | | LSE515 | | | | |
| | 6 | | LSE600 | | | | | | | | | | LSE600 | | | | |

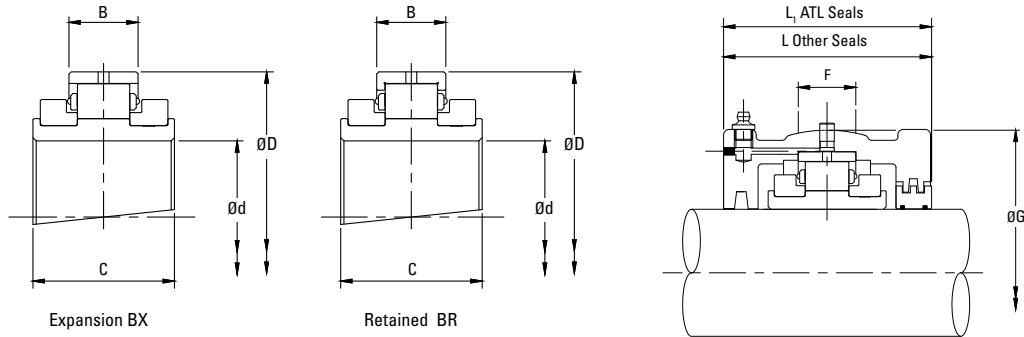
LIGHT SNQ/SDQ RANGE SUPPORT

SNQ01 - SNQ10



| Shaft (d) | | Spherical Roller Bearing Reference | SN/SD Reference | H | H ₂ | J x K | L x M | Bolts |
|-------------------|------------------------------------|------------------------------------|----------------------------|-------------------|-------------------|-------------------|-------------------------------------|-------------------------------|
| mm | in. | | | | | | | |
| 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 7/8 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 |

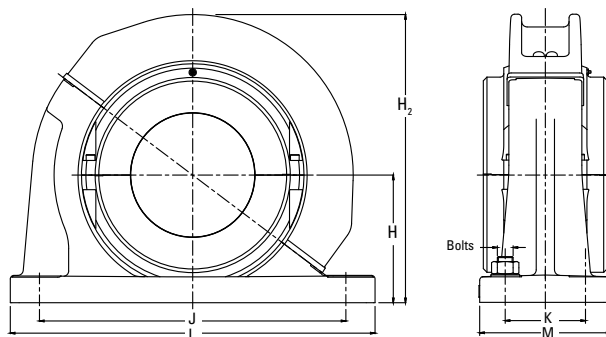
LIGHT SNQ/SDQ RANGE BEARING AND HOUSING
160 MM TO 305 MM (6 7/16 IN. TO 12 IN.)



| Shaft (d) | | Reference | | Bearings Ratings | | | | | | | Housing Reference | | | | | | |
|-------------------|--|--|---|---------------------------|---------------------------|-------------------------|-----------|------------------|-------------------|-----------------|--|-----------|------------------|------------------|-----------|------------|------------|
| | | | | Dynamic C _r | Static C _{0r} | Axial C _a | Max | D | B, B ₁ | C | ATL Seals | | Other Seal Types | | G | F | L |
| | | Add BR for Retained Add BX for Expansion e.g. LSE103BR | 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 | LSE607 | 583 131064 | 792 178049 | 33.00 7419 | 1320 | 273.05 10.750 | 60.30 2.374 | 109.00 4.291 | LS11 | LSM160 | LSE607 | 311.15 12.250 | 76 3.0 | 172 6.8 | 192 7.6 |
| | | LSM170A | LSE608 | | | | | | | | | LSM170A | LSE608 | | | | |
| 170 175 180 | 6 11/16 6 3/4 6 15/16 7 | LSM170 | LSE611 | 524 117800 | 828 186142 | 36.40 8183 | 1220 | 285.75 11.250 | 55.50 2.185 | 109.00 4.291 | LS12 | LSM170 | LSE611 | 323.85 12.750 | 70 2.8 | 172 6.8 | 200 7.9 |
| | | LSM175 | LSE612 | | | | | | | | | LSM175 | LSE612 | | | | |
| 190 200 | 7 3/16 7 1/4 7 1/2 7 15/16 8 | LSM190 | LSE703 | 614 138033 | 990 222561 | 41.00 9217 | 1070 | 311.15 12.250 | 60.30 2.374 | 106.00 4.173 | LS13 | LSM190 | LSE703 | 358.78 14.125 | 86 3.4 | 172 6.8 | 200 7.9 |
| | | LSM200 | LSE704 | | | | | | | | | LSM200 | LSE704 | | | | |
| 220 230 | 8 7/16 8 1/2 8 7/8 9 | LSM220 | LSE807 | 708 159165 | 1168 262577 | 49.00 11016 | 930 | 342.90 13.500 | 63.50 2.500 | 115.00 4.528 | LS14 | LSM220 | LSE807 | 387.35 15.250 | 82 3.2 | 178 7.0 | 216 8.5 |
| | | LSM230 | LSE808 | | | | | | | | | LSM230 | LSE808 | | | | |
| 240 250 260 | 9 1/2 9 3/4 10 | LSM240 | LSE908 | 744 167258 | 1289 289779 | 57.80 12994 | 820 | 374.65 14.750 | 66.70 2.626 | 122.00 4.803 | LS15 | LSM240 | LSE908 | 419.10 16.500 | 90 3.5 | 188 7.4 | 222 8.7 |
| | | LSM250 | LSE912 | | | | | | | | | LSM250 | LSE912 | | | | |
| 260 270 280 | 10 7/16 10 1/2 10 3/4 11 | LSM260 | LSE1007 | 848 190638 | 1502 337663 | 66.80 15017 | 730 | 406.40 16.000 | 69.00 2.717 | 128.00 5.039 | LS16 | LSM260 | LSE1007 | 454.00 17.874 | 95 3.7 | 204 8.0 | 232 9.1 |
| | | LSM270 | LSE1008 | | | | | | | | | LSM270 | LSE1008 | | | | |
| 300 305 | 11 1/2 12 | LSM300 | LSE1108 | 929 208848 | 1665 374307 | 78.20 17580 | 650 | 438.15 17.250 | 74.60 2.937 | 143.00 5.630 | LS17 | LSM300 | LSE1108 | 489.00 19.252 | 98 3.9 | 216 8.5 | 248 9.8 |
| | | LSM305 | LSE1200 | | | | | | | | | LSM305 | LSE1200 | | | | |

LIGHT SNQ/SDQ RANGE SUPPORT

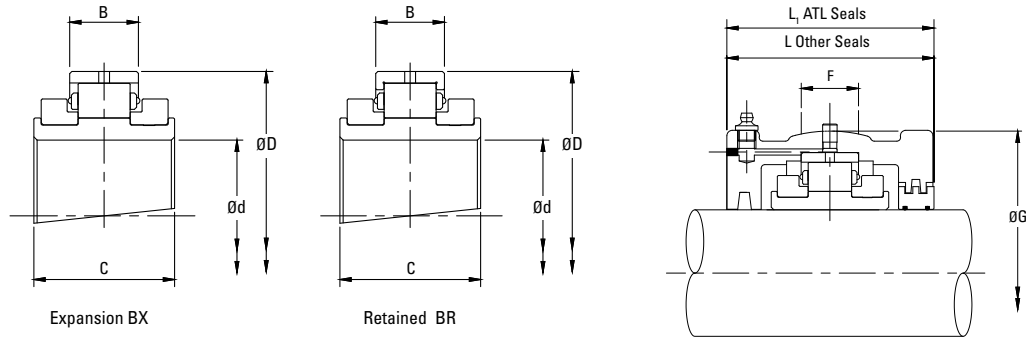
SDQ11 - SDQ17



| Shaft (d) | | Spherical Roller Bearing Reference | SN/SD Reference | H | H ₂ | J x K | L x M | Bolts |
|-------------------|--|------------------------------------|--------------------|------------|----------------|------------------------|------------------------|--------------------|
| mm | in. | | | | | | | |
| 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 |

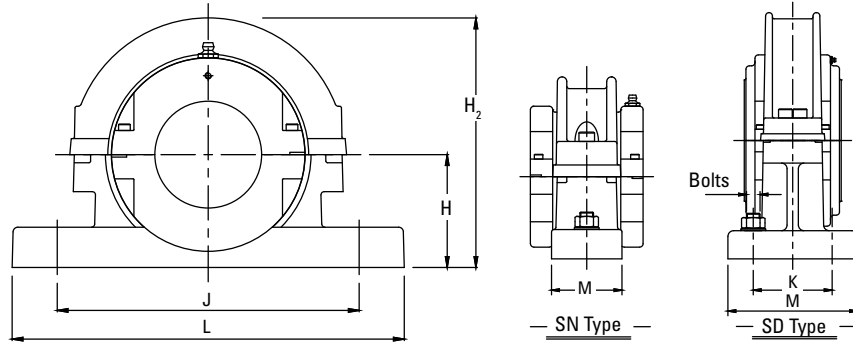
LIGHT SN/SD RANGE BEARINGS AND HOUSINGS

35 MM TO 160 MM (1 3/16 IN. TO 6 IN.)



| Shaft (d) | | Reference | | Bearings Ratings | | | | | | Housing Reference | | | | | | | |
|-------------------|--------|--|--------|------------------------|------------------------|----------------------|------|--------|--------|-------------------|---|---|--------|--------|--------|----------------|-----|
| | | Add BR for Retained Add BX for Expansion e.g. LSE103BR | | Dynamic C _r | Static C _{or} | Axial C _a | Max | D | B | C | ATL Seals Add HRTL for Retained Add HXTL for Expansion e.g. LS1HRTL | Other Seal Types Add HR for Retained Add HX for Expansion e.g. LSE103HR | 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. | |
| 35 40 | 1 3/16 | LSM35 LSM40 | LSE103 | 65 | 68 | 3.20 | 5400 | 84.14 | 23.80 | 55.00 | LS1 | LSM35 LSM40 | LSE103 | 100.00 | 25 | 84 | 91 |
| | 1 1/4 | | LSE104 | | | | | | | | | | LSE104 | | | | |
| 45 50 | 1 1/16 | LSM45 LSM50 | LSE111 | 83 | 87 | 3.60 | 4630 | 98.42 | 25.40 | 60.00 | LS2 | LSM50 | LSE111 | 117.48 | 25 | 96 | 98 |
| | 1 3/8 | | LSE112 | | | | | | | | | | LSE112 | | | | |
| 55 60 65 | 2 3/16 | LSM55 LSM60 LSM65 | LSE203 | 103 | 115 | 5.40 | 3940 | 114.30 | 27.00 | 60.00 | LS3 | LSM55 LSM60 LSM65 | LSE203 | 134.94 | 32 | 102 | 104 |
| | 2 1/4 | | LSE204 | | | | | | | | | | LSE204 | | | | |
| 70 75 | 2 1/16 | LSM70 LSM75 | LSE211 | 138 | 161 | 7.60 | 3310 | 133.35 | 31.80 | 65.00 | LS4 | LSM70 LSM75 | LSE211 | 157.16 | 38 | 112 | 114 |
| | 2 3/4 | | LSE212 | | | | | | | | | | LSE212 | | | | |
| 80 85 90 | 3 3/16 | LSM80 LSM85 LSM90 | LSE303 | 187 | 231 | 12.40 | 2790 | 152.40 | 38.90 | 75.00 | LS5 | LSM80 LSM85 LSM90 | LSE303 | 177.80 | 50 | 134 | 136 |
| | 3 1/4 | | LSE304 | | | | | | | | | | LSE304 | | | | |
| 95 100 105 | 3 1/16 | LSM95 LSM100 LSM105 | LSE311 | 288 | 366 | 16.00 | 2340 | 174.62 | 45.30 | 85.00 | LS6 | LSM95 LSM100 LSM105 | LSE311 | 203.20 | 50 | 132 | 134 |
| | 3 3/4 | | LSE312 | | | | | | | | | | LSE312 | | | | |
| 110 115 | 4 3/16 | LSM110 LSM115 | LSE403 | 316 | 427 | 18.60 | 1970 | 203.20 | 46.90 | 90.00 | LS7 | LSM110 LSM115 | LSE403 | 231.78 | 64 | 140 | 142 |
| | 4 1/4 | | LSE404 | | | | | | | | | | LSE404 | | | | |
| 120 125 130 | 4 1/16 | LSM120 LSM125 LSM130 | LSE411 | 363 | 496 | 22.20 | 1740 | 222.25 | 54.00 | 95.00 | LS8 | LSM120 LSM125 LSM130 | LSE411 | 266.70 | 76 | 154 | 156 |
| | 4 3/8 | | LSE412 | | | | | | | | | | LSE412 | | | | |
| 135 140 | 5 3/16 | LSM135 LSM140 | LSE503 | 422 | 585 | 25.80 | 1570 | 241.30 | 55.60 | 98.40 | LS9 | LSM135 LSM140 | LSE503 | 279.40 | 76 | 166 | 168 |
| | 5 1/4 | | LSE504 | | | | | | | | | | LSE504 | | | | |
| 150 155 160 | 5 1/16 | LSM150 LSM155 LSM160A | LSE511 | 459 | 664 | 29.40 | 1450 | 254.00 | 55.60 | 98.40 | LS10 | LSM150 LSM155 LSM160A | LSE511 | 295.28 | 82 | 172 | 174 |
| | 5 3/8 | | LSE512 | | | | | | | | | | LSE512 | | | | |

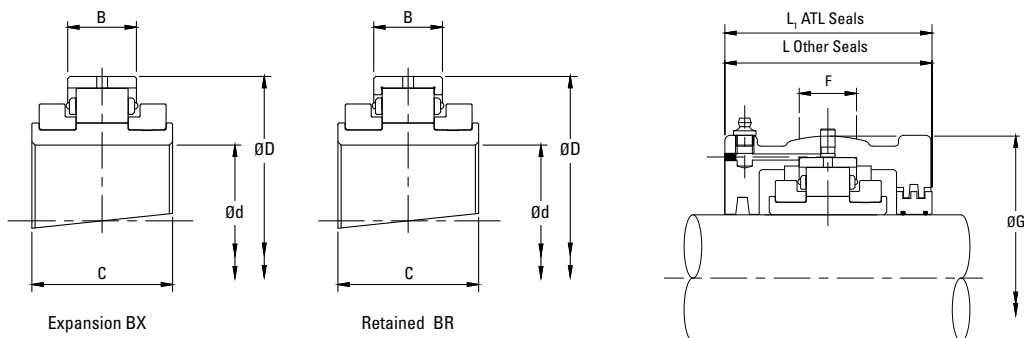
LIGHT SN/SD RANGE SUPPORT SN01 - SD10



| Shaft (d) | | Spherical Roller Bearing Reference | SN/SD Reference | H | H ₂ | J x K | L x M | Bolts |
|-------------------|------------------------------------|------------------------------------|----------------------------|-------------------|-------------------|-------------------|-------------------------------------|-------------------------------|
| mm | in. | | | | | | | |
| 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 |

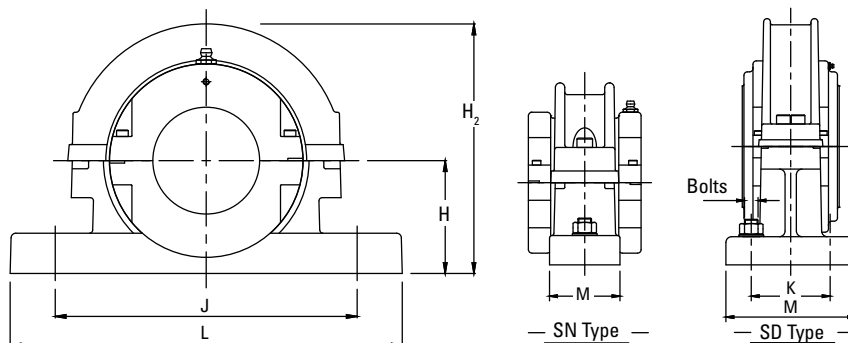
LIGHT SN/SD RANGE BEARINGS AND HOUSINGS

160 MM TO 305 MM (6 7/16 IN. TO 12 IN.)



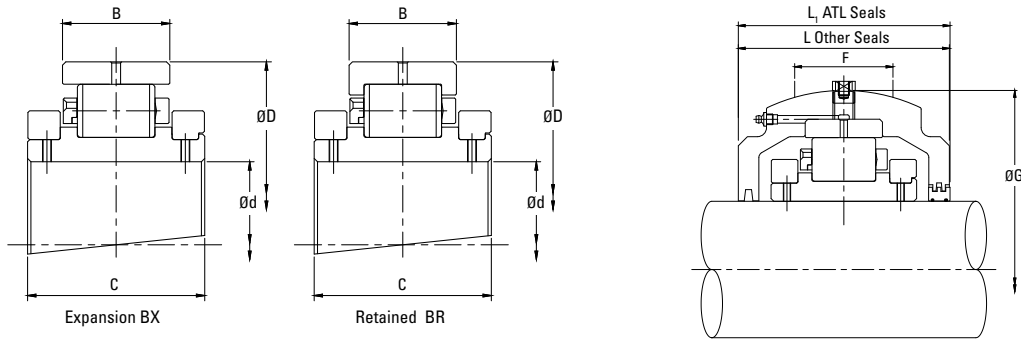
| Shaft (d) | | Reference | | Bearings Ratings | | | | | | Housing Reference | | | | | | | |
|-------------------|--|--|--|------------------------|------------------------|----------------------|------|------------------|-------------------|-------------------|--|--|--|------------------|-----------|------------|----------------|
| | | 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. | | | | | | | |
| 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.)

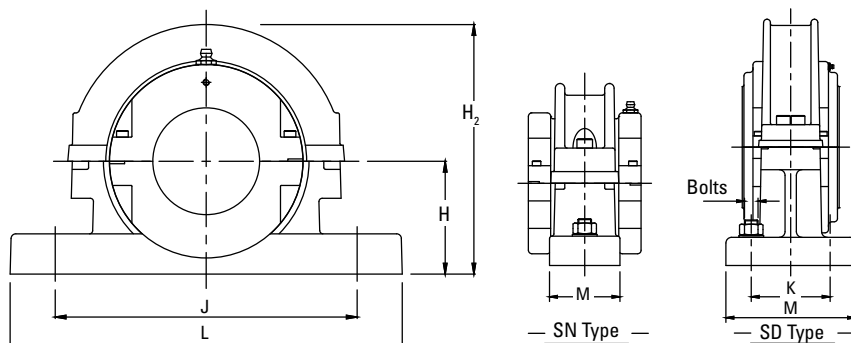


| Shaft (d) | | Reference Add BR for Retained Add BX for Expansion e.g. MSE503BR | | Bearings Ratings | | | | | | | Housing Reference | | | | | | | | | |
|-----------|---------|---|---------|------------------------|------------------------|----------------------|------|--------|--------|--------|--|---|---------|--------|--------|----------------|-----|------------------------|------------------------|---------|
| | | | | Dynamic C _r | Static C _{0r} | Axial C _a | Max | D | B | C | ATL Seals Add HRTL for Retained Add HXTL for Expansion e.g. MS30HRTL | Other Seal Types Add HR for Retained Add HX for Expansion e.g. MSE503HR | 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. | | | | |
| 135 | 5 3/16 | MSM135 | MSE503 | 600 | 817 | 45.40 | 1450 | 273.05 | 66.70 | 117.50 | MS30 MS30E0548 | MSM135 MSM140 MSM150A | MSE503 | 323.85 | 90 | 186 | 188 | | | |
| 140 | 5 1/4 | MSM140 | MSE504 | | | | | | | | | | MSE507 | | | | | MSE508 | MSE600A ⁽¹⁾ | MSE504 |
| 150 | 5 7/16 | MSM150A ⁽¹⁾ | MSE507 | | | | | | | | | | MSE508 | | | | | MSE600A ⁽¹⁾ | MSE507 | MSE600A |
| 150 | 5 11/16 | MSM150 | MSE511 | 730 | 1034 | 52.40 | 1320 | 292.10 | 68.30 | 123.80 | MS31 MS31E0548 | MSM150 MSM155 MSM160A | MSE511 | 336.55 | 95 | 202 | 204 | | | |
| 155 | 5 3/4 | MSM155 | MSE512 | | | | | | | | | | MSE515 | | | | | MSE600 | MSE512 | |
| 160 | 5 15/16 | MSM160A ⁽¹⁾ | MSE515 | | | | | | | | | | MSE600 | | | | | MSE515 | MSE600 | |
| 160 | 6 7/16 | MSM160 | MSE607 | 842 | 1175 | 61.40 | 1200 | 317.50 | 83.30 | 140.00 | MS32 | MSM160 MSM170 | MSE607 | 368.30 | 95 | 206 | 232 | | | |
| 170 | 6 1/2 | MSM170 | MSE608 | | | | | | | | | | MSE608 | | | | | MSE608 | MSE608 | |
| 175 | 6 11/16 | MSM175 | MSE611 | 927 | 1357 | 71.20 | 1120 | 330.20 | 83.30 | 140.00 | MS33 | MSM175 MSM180 | MSE611 | 381.00 | 95 | 222 | 242 | | | |
| 180 | 6 3/4 | MSM180 | MSE612 | | | | | | | | | | MSE615 | | | | | MSE700 | MSE612 | |
| | 6 15/16 | | MSE615 | | | | | | | | | | MSE700 | | | | | MSE615 | MSE700 | |
| 190 | 7 1/4 | MSM190 | MSE704 | 1013 | 1516 | 80.00 | 960 | 368.30 | 90.50 | 156.00 | MS34 | MSM190 MSM200 | MSE704 | 425.5 | 105 | 235 | 258 | | | |
| 200 | 7 1/2 | MSM200 | MSE708 | | | | | | | | | | MSE715 | | | | | MSE800 | MSE708 | |
| | 7 15/16 | | MSE715 | | | | | | | | | | MSE800 | | | | | MSE715 | MSE800 | |
| 220 | 8 1/2 | MSM220 | MSE807 | 1138 | 1668 | 89.80 | 850 | 393.70 | 90.50 | 163.00 | MS35 | MSM220 MSM230 | MSE807 | 457.20 | 110 | 242 | 274 | | | |
| 230 | 8 7/8 | MSM230 | MSE814 | | | | | | | | | | MSE900 | | | | | MSE814 | MSE900 | |
| | 9 | | MSE900 | | | | | | | | | | MSE900 | | | | | MSE900 | MSE900 | |
| 240 | 9 1/2 | MSM240 | MSE908 | 1360 | 2130 | 98.80 | 750 | 431.80 | 96.80 | 170.00 | MS36 | MSM240 MSM250 MSM260 | MSE908 | 495.30 | 118 | 248 | 280 | | | |
| 250 | 9 3/4 | MSM250 | MSE912 | | | | | | | | | | MSE1000 | | | | | MSE912 | MSE1000 | |
| 260 | 10 | MSM260 | MSE1000 | | | | | | | | | | MSE1000 | | | | | MSE1000 | MSE1000 | |

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

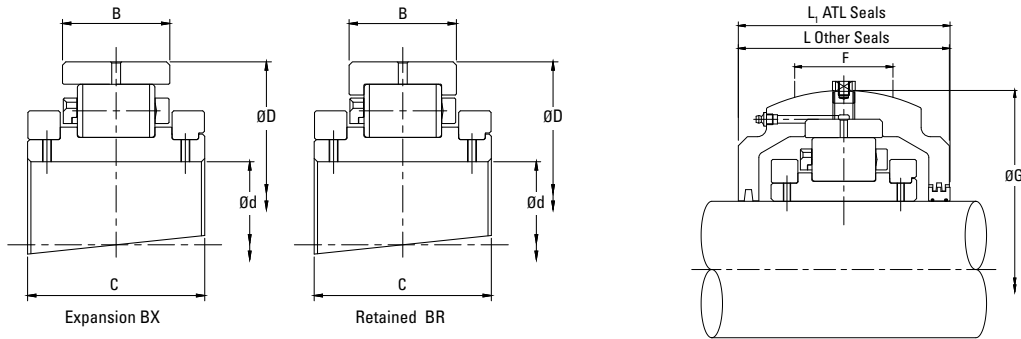
MEDIUM SN/SD RANGE SUPPORT

SN30 - SD36A



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

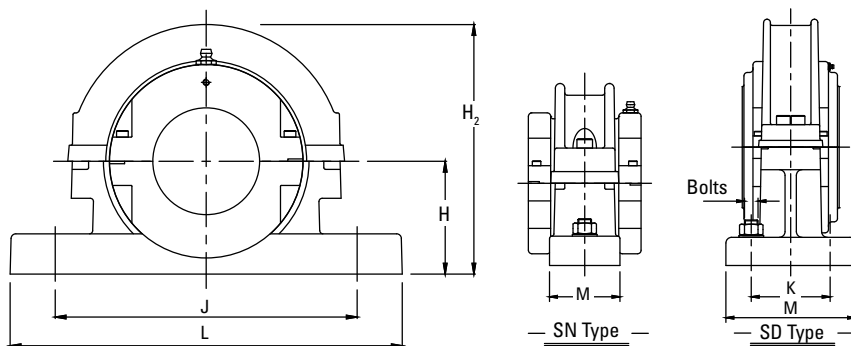
MEDIUM SN/SD RANGE BEARING AND HOUSING 270 MM TO 400 MM (10 1/2 IN. TO 16 IN.)



| 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 |
| Add BR for Retained Add BX for Expansion e.g. MSE503BR | 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 1/2 | MSM270 MSM280 | MSE1008 | 1476 331818 | 2357 529875 | 113.80 25583 | 670 | 463.55 18.250 | 101.60 4.000 | 186.00 7.323 | MS37 | MSM270 MSM280 | MSE1008 | 527.10 | 130 | 264 | 300 |
| | 10 3/4 11 | | MSE1012 MSE1000 | | | | | | | | | | MSE1012 MSE1000 | | | | |
| 300 305 | 11 1/2 | MSM300 MSM305 | MSE1108 | 1587 356771 | 2644 594395 | 129.00 29000 | 610 | 495.30 19.500 | 103.20 4.063 | 193.00 7.598 | MS38 | MSM300 MSM305 | MSE1108 | 552.50 | 128 | 268 | 306 |
| | 12 | | MSE1200 | | | | | | | | | | MSE1200 | | | | |
| 320 330 | 12 1/2 | MSM320 MSM330 | MSE1208 | 1851 416121 | 3214 722536 | 144.20 32417 | 550 | 527.05 20.750 | 106.40 4.189 | 192.00 7.559 | MS39 | MSM320 MSM330 | MSE1208 | 587.40 | 128 | 298 | - |
| | 13 | | MSE1300 | | | | | | | | | | MSE1300 | | | | |
| 340 350 360 | 13 1/2 | MSM340 MSM350 MSM360 ⁽¹⁾ | MSE1308 | 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 | 628.70 | 146 | 305 | - |
| | 14 | | MSE1400 | | | | | | | | | | MSE1400 | | | | |
| 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 | 146 | 305 | - |
| | | | | | | | | | | | | | | 25.500 | | | |
| 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 | 146 | 324 | - |
| | | | | | | | | | | | | | | 27.000 | | | |

⁽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. | | | | | | | |
| 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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