

**REVOLVO**



**SPLIT CYLINDRICAL ROLLER BEARING CATALOG**

**TIMKEN**

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# Introduction

## Taking the Initiative

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

*Rapid response and flexibility are provided from a production facility manufacturing not only split cylindrical roller bearing assemblies but also cutting edge products for aerospace and motor sport. 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® Revolve products have been designed and developed to maximize service life and minimize maintenance effort.

Timken Revolve 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.

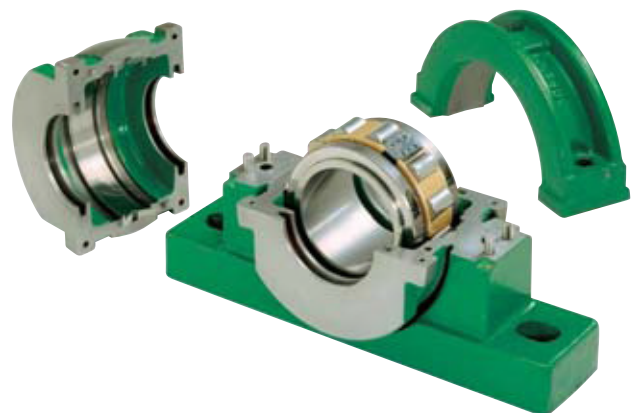
All supports and housings incorporate pry slots and doweled machined joints for easy separation. Supports are manufactured from high strength cast iron and feature double webs and thick sections; product life is thus enhanced due to high rigidity and inherent strength.

### Innovation in 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 ever-wider range of applications. Additional features and benefits available from the split cylindrical roller bearing range allow our products to run faster, take higher loads at higher temperatures and in increasingly hostile environments.

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

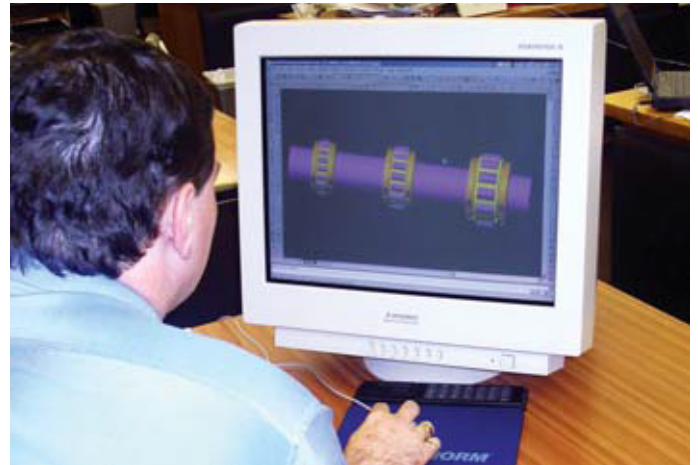




### *Innovation in Service*

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 is available to assist customers with concepts through consultation, commissioning, training, supply and post installation support.



Cellular manufacture, modular stocking, logistical expertise and unique distributor/manufacturer interfaces provide excellent availability of product in the right place at the right time.

A team of design engineers provides custom solutions on state of the art CAD systems. Close liaison with our customers allows Timken to continuously refine and improve products, production processes and service procedures. This enables ongoing development allowing Timken to provide a bench mark in technical support.



# Advantages of Split Cylindrical Roller Bearings

*Split Cylindrical Roller Bearings are essential in applications involving limited access and are highly cost effective where down time due to change-outs results in significant production losses.*

*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.*

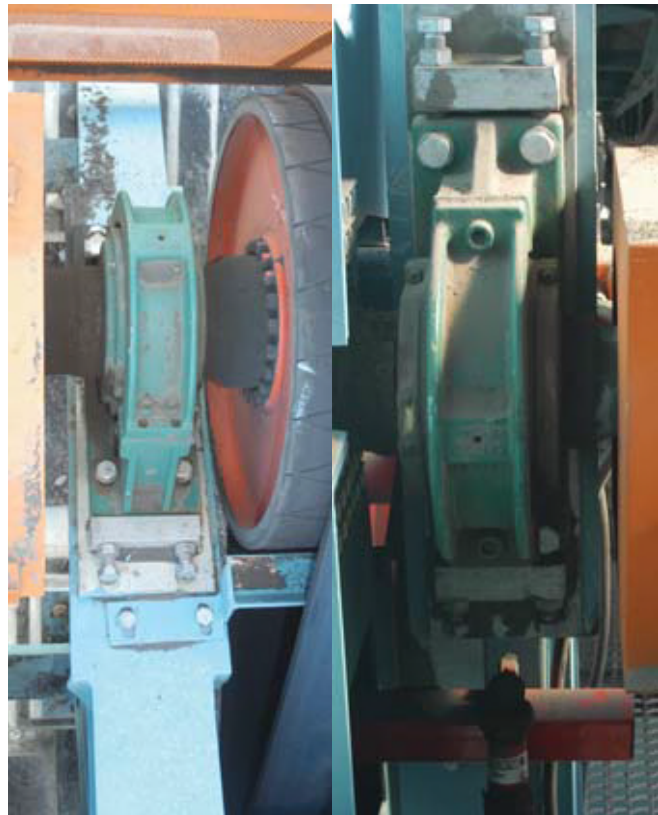
## Inspection Simplified

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

As a result considerable numbers of man-hours can be saved during planned maintenance, further adding to the potential cost savings available.

## Short Term Payback, Long Term Benefits.

Though it would be easy to cite examples where the use of split bearings results in spectacular savings, the truth of the matter is that savings of a significant amount can be made in almost any 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 man-hours and lost production.



When such cost savings are taken into account at the bearing selection stage, the case for Revolve split cylindrical roller bearings becomes irrefutable.

## Further Savings

In situations where Revolve 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, Revolve bearings have the capability to extend service life leading to a reduction in bearing consumption.

# Industry Applications

Application	Target Markets													
	Bulk Terminals	Cement and Agg	Construction Materials	Food and Bev	Forest Products and Timber	Grains and Malts	Metals	Marine	Mining and Quarrying	Power Generation	Pulp and Paper	Refining and Petrochem	Sugar	Water Treatment
<b>Ancillary Equipment</b>														
Crankshafts		X					X		X					
Fans and Blowers		X	X	X	X	X	X		X	X	X		X	
Gearboxes and transmissions	X	X		X	X	X	X		X	X	X		X	
Heat Exchangers									X					
Motors		X					X		X	X	X			
Pumps and Pump Drives		X						X	X	X				X
<b>Mechanical Handling</b>														
Continous 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 and 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				
<b>Process Equipment</b>														
Ball Mill Drives		X	X				X		X	X				
Ball Mill Trunnions		X	X				X		X	X				
Cane knives and slicers													X	
Crushers		X	X				X		X	X				
Drum Drier Trunnions		X										X	X	
Dryer Rolls											X			
Kiln and Mill Carrier Rollers		X							X				X	
Kiln and 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	
<b>Other Applications</b>														
Hydro Electric Turbines										X				
Rotary Biological Contactors														X
Mine winders										X				
Marine Propulsion shafts								X						
Water Treatment Screens											X			X
Water Treatment Airators														X

# Features and Benefits

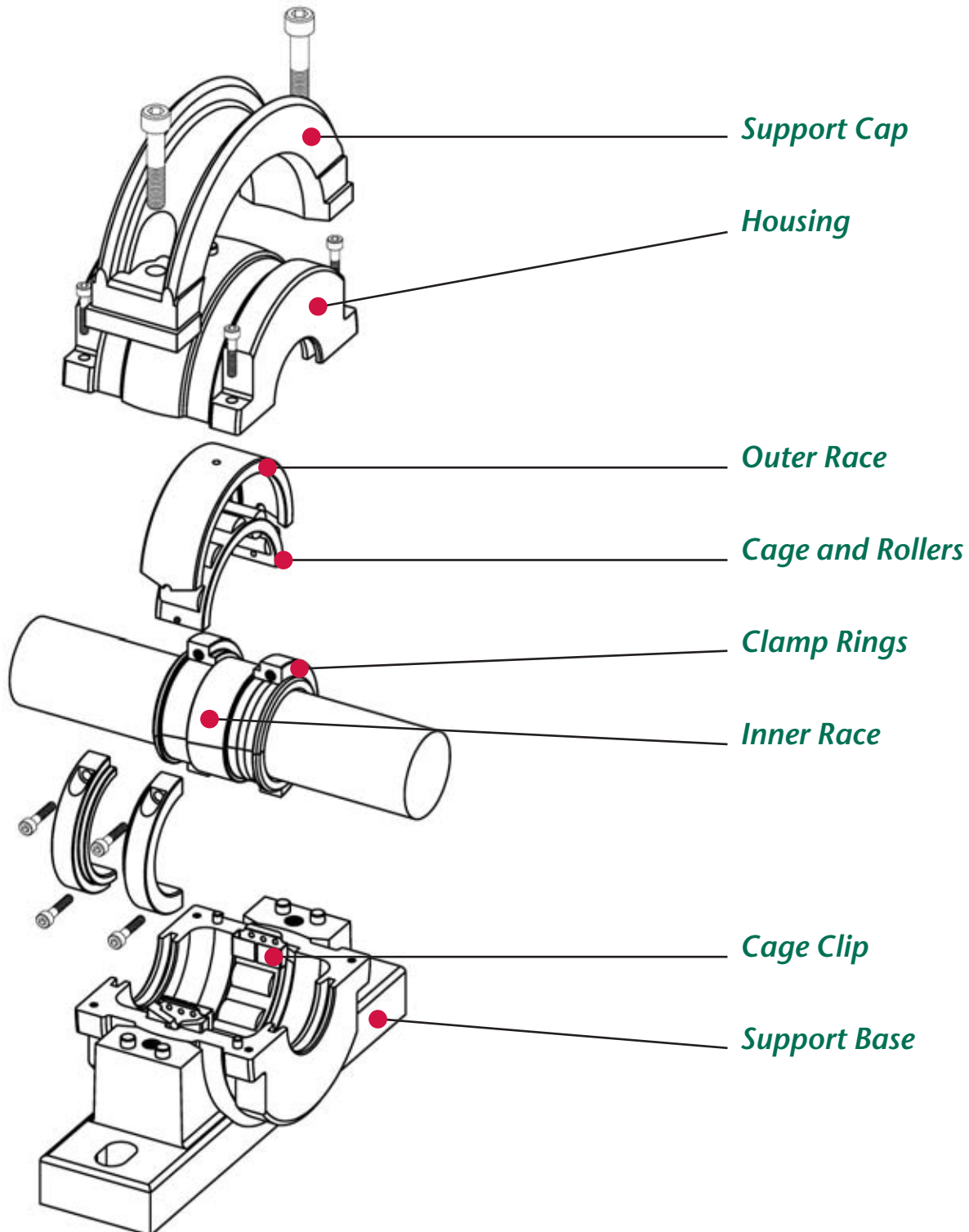
## Features

## 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 40 Cast Iron	Strength and durability
Profiled rolling elements	Minimizes damaging edge stresses



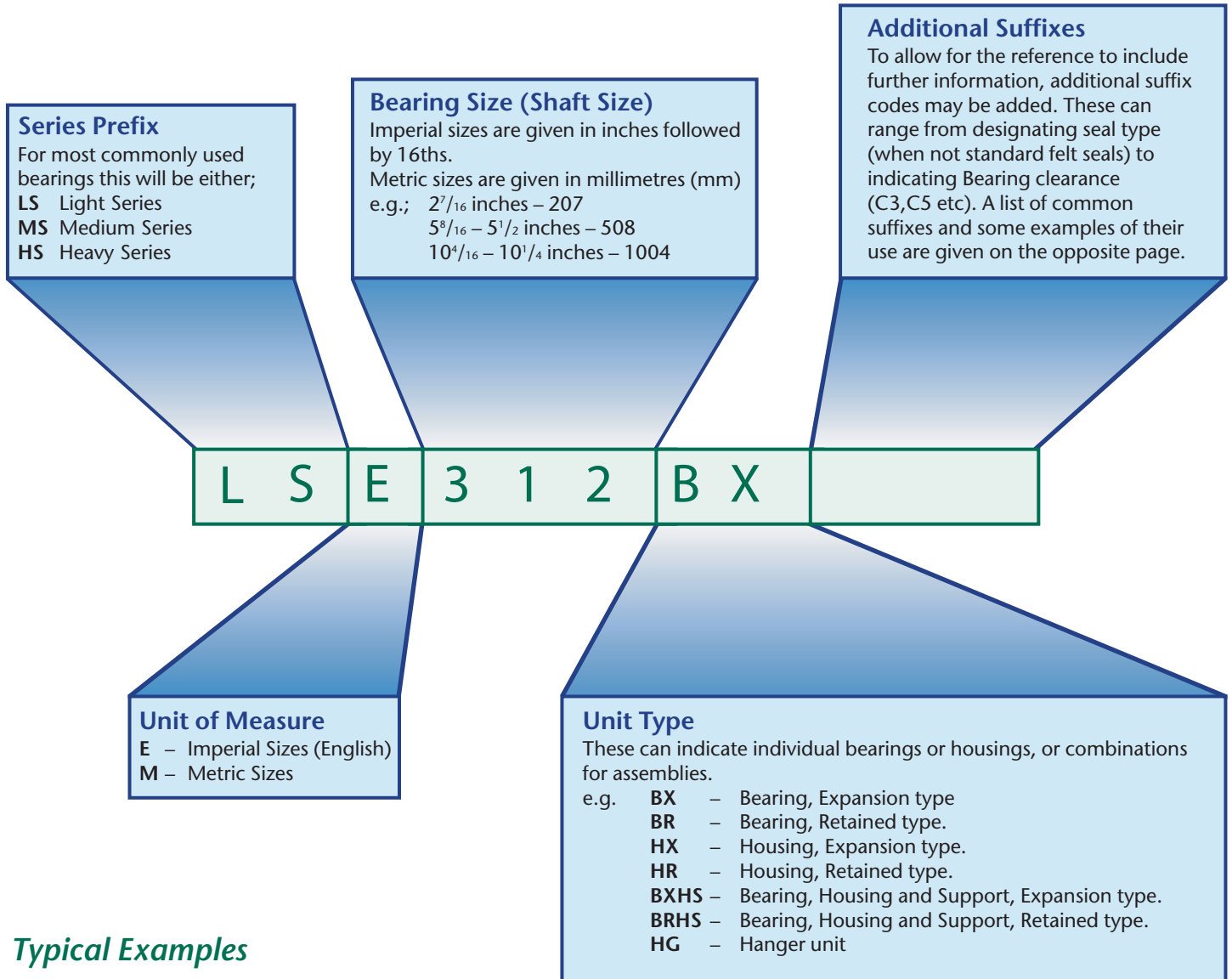
# Standard Unit Anatomy





# Quick Reference Guide

In order to provide our customers with clear and concise labelling, Timken has endeavoured to keep things simple when creating references. The following should cover the majority of ordering situations, however, as always, your local Timken sales engineer will be pleased to provide further assistance if required.



## Typical Examples

### LSE108BXH

Light Series 1½ inch Expansion Bearing with Housing

### LSM50BR

Light Series 50mm Retained Bearing

### MSE200BXHS

Medium Series 2 inch Expansion Bearing with Housing and Support

### MSM100HR

Medium Series 100mm Retained Housing

### LSM75BXHG

Light Series 75mm Expansion Bearing in Hanger Unit

## Series Prefixes

<b>LSE</b>	Light Series Imperial
<b>LSM</b>	Light Series Metric
<b>MSE</b>	Medium Series Imperial
<b>MSM</b>	Medium Series Metric
<b>HSE</b>	Heavy Series Imperial
<b>HSM</b>	Heavy Series Metric
<b>XSM</b>	Tubular Strander Series Metric
<b>XSE</b>	Tubular Strander Series Imperial
<b>CCM</b>	Water Cooled Series Metric
<b>CCE</b>	Water Cooled Series Imperial

## Type References

<b>BX</b>	Expansion Bearing
<b>BR</b>	Retained Bearing
<b>HX</b>	Expansion Housing
<b>HR</b>	Retained Housing
<b>HG</b>	Hanger Housing
<b>BXH</b>	Expansion Bearing with Housing
<b>BRH</b>	Retained Bearing with Housing
<b>BXHG</b>	Expansion Bearing with Hanger
<b>BXHS</b>	Expansion Bearing with Housing and Support
<b>BRHS</b>	Retained Bearing with Housing and Support
<b>BXHF</b>	Expansion Bearing with Housing and Flange
<b>BRHF</b>	Retained Bearing with Housing and Flange
<b>BXHTT</b>	Expansion Bearing with Housing and Tension Type Take Up
<b>BRHTT</b>	Retained Bearing with Housing and Tension Take Up
<b>BXHTP</b>	Expansion Bearing with Housing and Pull Type Take Up
<b>BRHTP</b>	Retained Bearing with Housing and Pull Type Take Up

## Examples of Additional Suffixes

<b>AF</b>	Axial Float
<b>AP</b>	Air Purge
<b>ATL</b>	Aluminium Triple Labyrinth
<b>BEM</b>	Base Ends Machined
<b>BL</b>	Brass Label
<b>BOEC</b>	Bolt On End Cover
<b>C2,C3,C5</b>	Bearing Clearance (ISO)
<b>CH</b>	Inner Race bore Chamfer with size eg CH6mm, CH11mm
<b>EC</b>	End Cover
<b>ECTL</b>	End Cover for Triple Labyrinth Bore
<b>ES</b>	Electrical Specification
<b>FC</b>	Full Compliment of rollers
<b>GE</b>	Grease Escape
<b>HTPS</b>	High Temperature Packing Seal
<b>LSR</b>	Laminar Seal Rings
<b>NTL</b>	Nitrile Triple Labyrinth
<b>OB</b>	Overbored with size eg OB160mm
<b>OTL</b>	Overbored Triple Labyrinth Seal
<b>RSS</b>	Nitrile Single Lip Seal
<b>S1,S2,S3</b>	Designation for Tempered Bearings (ISO)
<b>SFO</b>	Swivel fit, Zero clearance.
<b>SLO</b>	Single Lipped Outer
<b>SLUB</b>	Spherical Lubrication
<b>TE</b>	Temperature Probe hole
<b>WSRP</b>	Single Lip Seal with Garter Spring and Retaining Plate
<b>XAR</b>	Extended Antirotation Pin

## Light Series

inch	mm	Support	Flange	Take Ups
1 <sup>1</sup> / <sub>16</sub> to 1 <sup>1</sup> / <sub>2</sub>	35 to 40	S01	F01	TT01 TP01
1 <sup>1</sup> / <sub>16</sub> to 2	45 to 50	S02	F02	TT02 TP02
2 <sup>1</sup> / <sub>16</sub> to 2 <sup>1</sup> / <sub>2</sub>	60 to 65	S03	F03	TT03 TP03
2 <sup>1</sup> / <sub>16</sub> to 3	70 to 75	S04	F04	TT04 TP04
3 <sup>1</sup> / <sub>16</sub> to 3 <sup>1</sup> / <sub>2</sub>	80 to 90	S05	F05	TT05 TP05
3 <sup>1</sup> / <sub>16</sub> to 4	100 to 105	S06	F06	TT06 TP06
4 <sup>1</sup> / <sub>16</sub> to 4 <sup>1</sup> / <sub>2</sub>	110 to 115	S07	F07	TT07 TP07
4 <sup>1</sup> / <sub>16</sub> to 5	120 to 130	S08	F08	TT08 TP08
5 <sup>1</sup> / <sub>16</sub> to 5 <sup>1</sup> / <sub>2</sub>	135 to 140	S09	F09	TT09 TP09
5 <sup>1</sup> / <sub>16</sub> to 6	150 to 155	S10	F10	TT10 TP10
6 <sup>1</sup> / <sub>16</sub> to 6 <sup>1</sup> / <sub>2</sub>	160	S11	F11	
6 <sup>1</sup> / <sub>16</sub> to 7	170 to 180	S12	F12	
7 <sup>1</sup> / <sub>4</sub> to 8	190 to 200	S13	F13	
8 <sup>1</sup> / <sub>2</sub> to 9	220 to 230	S14	F14	
9 <sup>1</sup> / <sub>2</sub> to 10	240 to 250	S15	F15	
10 <sup>1</sup> / <sub>2</sub> to 11	260 to 280	S16	F16	
11 <sup>1</sup> / <sub>2</sub> to 12	300	S17		
12 <sup>1</sup> / <sub>2</sub> 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		

## Medium Series

inch	mm	Support	Flange	Take Ups
1 <sup>1</sup> / <sub>16</sub> to 2	45 to 50	S03	F03	TT03 TP03
2 <sup>1</sup> / <sub>16</sub> to 2 <sup>1</sup> / <sub>2</sub>	60 to 65	S04	F04	TT04 TP04
2 <sup>1</sup> / <sub>16</sub> to 3	70 to 75	S05	F05	TT05 TP05
3 <sup>1</sup> / <sub>16</sub> to 3 <sup>1</sup> / <sub>2</sub>	80 to 90	S06	F06	TT06 TP06
3 <sup>1</sup> / <sub>16</sub> to 4	100 to 105	S07	F07	TT07 TP07
4 <sup>1</sup> / <sub>16</sub> to 4 <sup>1</sup> / <sub>2</sub>	110 to 115	S08	F08	TT08 TP08
4 <sup>1</sup> / <sub>16</sub> to 5	120 to 130	S10	F10	TT09 TP09
5 <sup>1</sup> / <sub>16</sub> to 5 <sup>1</sup> / <sub>2</sub>	135 to 140	S30	F30	TT30 TP30
5 <sup>1</sup> / <sub>16</sub> to 6	150 to 155	S31	F31	TT31 TP31
6 <sup>1</sup> / <sub>16</sub> to 6 <sup>1</sup> / <sub>2</sub>	160 to 170	S32	F32	
6 <sup>1</sup> / <sub>16</sub> to 7	180	S33	F33	
7 <sup>1</sup> / <sub>4</sub> to 8	190 to 200	S34	F34	
8 <sup>1</sup> / <sub>2</sub> to 9	220 to 230	S35	F35	
9 <sup>1</sup> / <sub>2</sub> to 10	240 to 260	S36	F36	
10 <sup>1</sup> / <sub>2</sub> to 11	280	S37	F37	
11 <sup>1</sup> / <sub>2</sub> to 12	300	S38	F38	
12 <sup>1</sup> / <sub>2</sub> to 13	320 to 330	S39		
14	340 to 350	S40		
15	360 to 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		

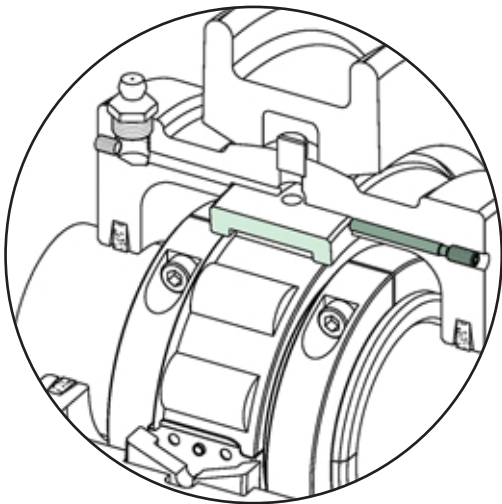
## Heavy Series

inch	mm	Support	Flange
3 <sup>1</sup> / <sub>16</sub> to 4	100 to 105	S54	F54
4 <sup>1</sup> / <sub>16</sub> to 4 <sup>1</sup> / <sub>2</sub>	110 to 120	S55	F55
4 <sup>1</sup> / <sub>16</sub> to 5	125 to 130	S56	F56
5 <sup>1</sup> / <sub>16</sub> to 5 <sup>1</sup> / <sub>2</sub>	135 to 140	S57	F57
5 <sup>1</sup> / <sub>16</sub> to 6	150 to 155	S58	F58
6 <sup>1</sup> / <sub>16</sub> to 6 <sup>1</sup> / <sub>2</sub>	160 to 170	S59	F59
6 <sup>1</sup> / <sub>16</sub> to 7	180	S60	F60
7 <sup>1</sup> / <sub>4</sub> to 8	190 to 200	S61	F61
8 <sup>1</sup> / <sub>2</sub> to 9	220 to 230	S62	F62
9 <sup>1</sup> / <sub>2</sub> 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)

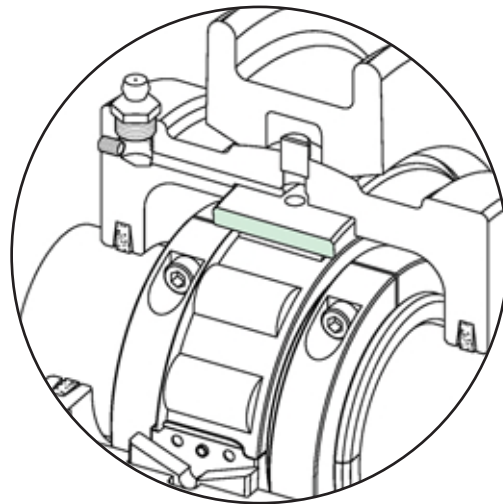
This bearing has integral flanges on the outer race to provide a surface for axial load. This axial load is accommodated on the inner race via the hardened clamp rings, which both align the inner race halves and provide roller guidance. In larger bearings the inner race is manufactured with integral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



*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.



*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.*

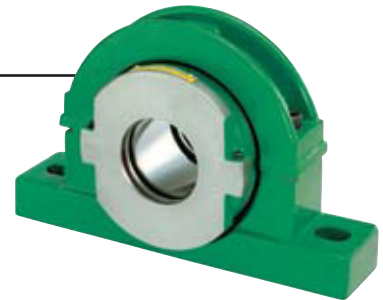
# Support Types

## Support Units

Revolvo 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.

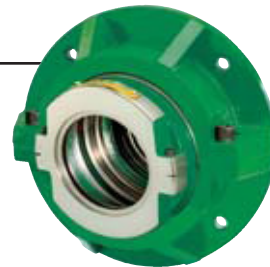
### Pillow Block (Support) Type

This is by far the most popular method for mounting Revolvo units. These supports are manufactured from high strength, ASTM 48A grade 40 cast iron. This, combined with the robust design, provides a stable, rigid base, allowing the split bearing fitted to give optimum performance.



### Flange Units

In applications where bearings need to be mounted against horizontal or vertical faces, Revolvo flange units provide a simple means of achieving this goal. Again, the use of ASTM 48A Grade 40 cast iron ensures a durable unit.



### Hanger Units

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



### Take-up Units

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



# Range Comparison

## Bearing 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.

### Light Series

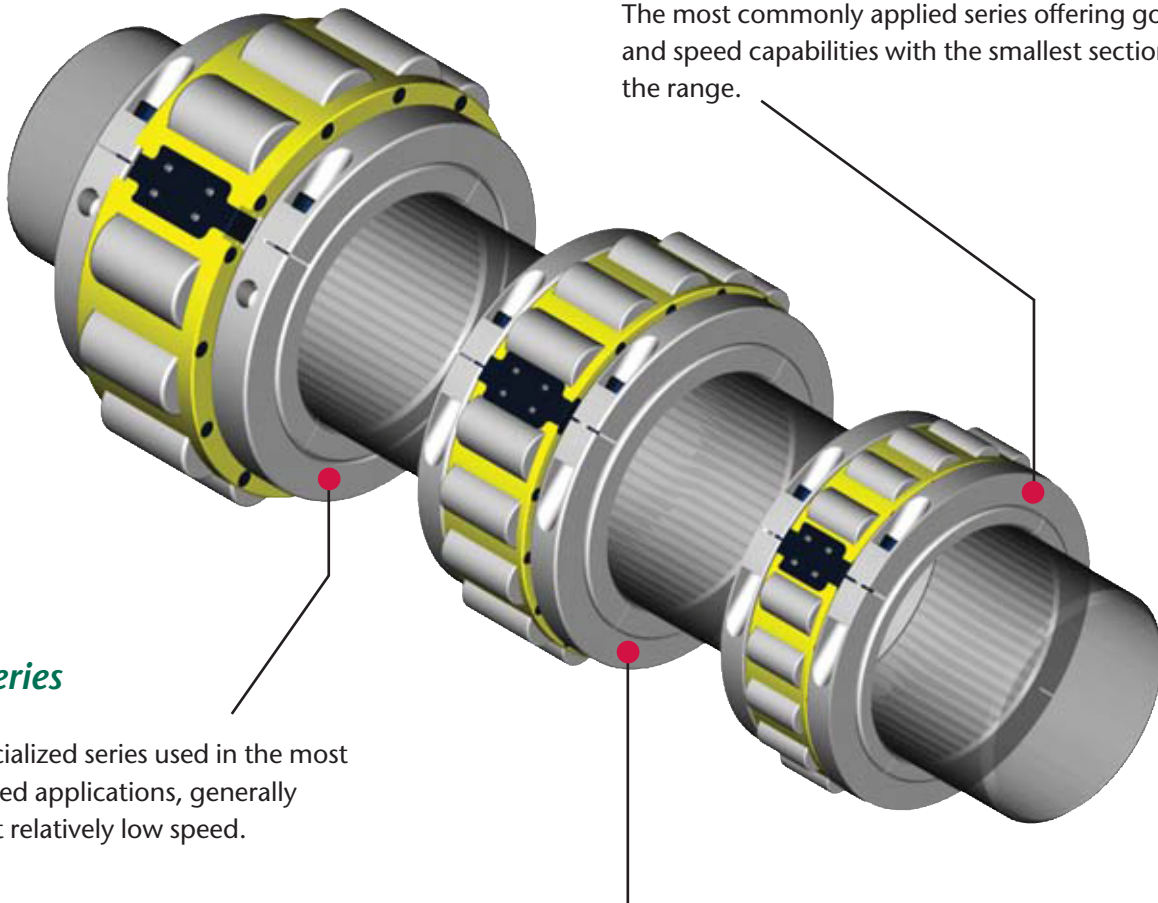
The most commonly applied series offering good load and speed capabilities with the smallest section within the range.

### Heavy Series

A more specialized series used in the most heavily loaded applications, generally operating at relatively low speed.

### Medium Series

An increased section offers additional load carrying capacity. This series is typically used in arduous, heavily loaded applications where shock load and vibration may be present.



# Bearing Selection

## Dynamic Loading

Selection of Revolve 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 ISO281:2007

$$L_{10} = (C/P)^{10/3} (10^6 \text{ Revolutions}) \quad - (i)$$

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)

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

$L_{10}$  = Basic Rating Life (90% reliability),  $10^6$  Revolutions

$L_{10}h$  = Basic Rating Life (90% Reliability), Hours

$C$  = Bearing Dynamic Capacity, kN

$n$  = Speed,  $\text{min}^{-1}$

$P$  = 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, moment 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.

### Fr = Radial Loads

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

Load Condition	Factor Fz
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

### Fz = 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:

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 hours

## Adjusted Life Calculation

The L10 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% 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.

ISO281 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%

$a_2$  = Life adjustment factor, material properties

$a_3$  = Life adjustment factor, operating conditions

### $a_1$ Factor

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

Table A1

	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.

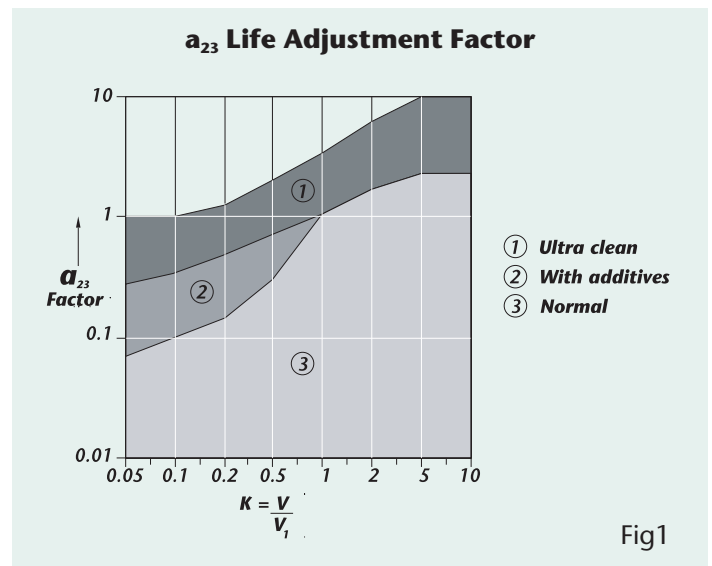
Decreasing effectiveness of lubricant due to decreasing film thickness or effects of contamination will reduce the  $a_3$  factor.

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

$$a_{23} = a_2 + a_3$$

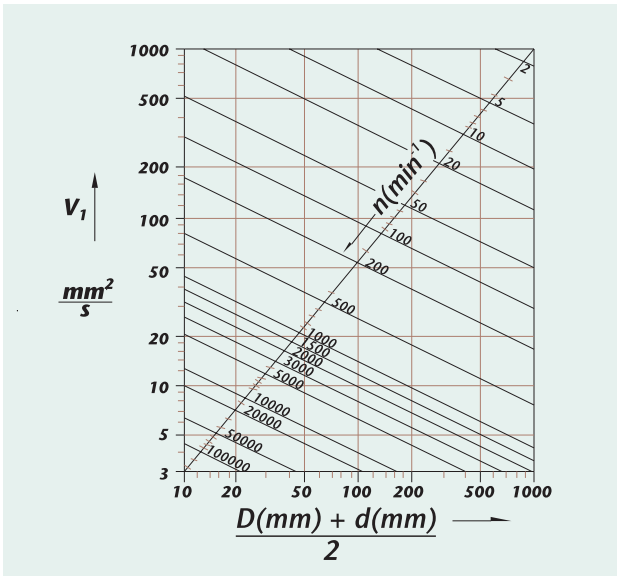
The  $a_{23}$  factor can be taken from fig 1:



$V_1$  = Rated Viscosity (Depends on bearing size and operating speed)

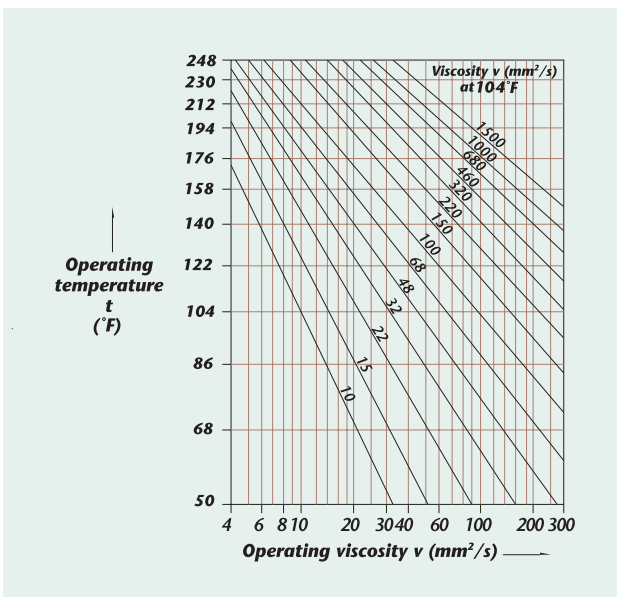
$V$  = Operating Viscosity (Depends on original viscosity and operating temperature)

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



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.

## Static Loading

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

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

The required static load rating can be determined from:

$$C_0 = F_s \cdot P_0$$

$C_0$  = Basic Static Load Rating

$P_0$  = Equivalent Static Load

$F_s$  = Static Safety Factor

Guidelines for the Static Safety Factor  $F_s$  can be found in the table below:

Nature of Duty	Requirements for Duty		
	Low	Medium	High
Smooth no Vibration	1.0	1.5	3.0
<b>Normal</b>	<b>1.0</b>	<b>1.5</b>	<b>3.5</b>
Heavy	>2.5	>3.0	>4.0



# Bearing Ratings

Light Series					
Shaft (d)		Bearings Ratings			
inch	mm	Dynamic C <sub>r</sub> (kN/lb)	Static C <sub>or</sub> (kN/lb)	Axial C <sub>a</sub> (kN/lb)	Max RPM
1 <sup>3</sup> / <sub>16</sub>	35	65	68	3.20	5400
1 <sup>1</sup> / <sub>2</sub>	40	14613	15287	719.38	
1 <sup>11</sup> / <sub>16</sub>	45	83	87	3.60	4630
2	50	18659	19558	809.30	
2 <sup>3</sup> / <sub>16</sub>	60	103	115	5.40	3940
2 <sup>1</sup> / <sub>2</sub>	65	23155	25853	1213.95	
2 <sup>11</sup> / <sub>16</sub>	70	138	161	7.60	3310
3	75	31024	36194	1708.53	
3 <sup>3</sup> / <sub>16</sub>	80	187	231	12.40	2790
3 <sup>1</sup> / <sub>2</sub>	90	42039	51931	2787.59	
3 <sup>11</sup> / <sub>16</sub>	100	288	366	16.00	2340
4	105	64745	82280	3596.90	
4 <sup>3</sup> / <sub>16</sub>	110	316	427	18.60	1970
4 <sup>1</sup> / <sub>2</sub>	115	71040	95993	4181.39	
4 <sup>11</sup> / <sub>16</sub>	120	363	496	22.20	1740
5	130	81606	111505	4990.69	
5 <sup>3</sup> / <sub>16</sub>	135	422	585	25.80	1570
5 <sup>1</sup> / <sub>2</sub>	140	94869	131513	5799.99	
5 <sup>11</sup> / <sub>16</sub>	150	459	664	29.40	1450
6	155	103187	149273	6609.30	
6 <sup>7</sup> / <sub>16</sub>	160	583	792	33.00	1320
6 <sup>1</sup> / <sub>2</sub>		131064	178049	7419	
6 <sup>11</sup> / <sub>16</sub>	170	524	828	36.40	1220
7	180	117800	186142	8183	
7 <sup>1</sup> / <sub>4</sub>	190	614	990	41.00	1070
8	200	138033	222561	9217	
8 <sup>1</sup> / <sub>2</sub>	220	659	1062	49.00	930
9	230	148149	238747	11016	
9 <sup>1</sup> / <sub>2</sub>	240	696	1182	57.80	820
10	250	156467	265724	12994	
10 <sup>1</sup> / <sub>2</sub>	260	794	1376	66.80	730
11	280	178498	309337	15017	
11 <sup>1</sup> / <sub>2</sub>	300	929	1665	78.20	650
12	305	208848	374307	17580	
12 <sup>1</sup> / <sub>2</sub>	320	920	1674	89.00	590
13	330	206824	376330	20008	
14	340	967	1824	99.60	540
	350	217390	410052	22391	
15	360	1011	1975	110.40	500
	380	227282	443998	24819	
16	400	1054	2125	115.60	460
		236949	477719	25988	
17	420	1095	2275	121.00	430
		246166	511440	27202	
18	440	1134	2427	127.20	410
	460	254933	545611	28596	
19	480	1291	2800	132.60	380
		290228	629465	29810	
20	500	1336	2974	137.80	360
		300345	668582	30979	
21	530	1377	3150	140.60	340
		309562	708148	31608	
22	560	1419	3324	142.40	330
		319004	747265	32013	
23	580	1591	3759	144.00	310
		357671	845057	32372	
24	600	1638	3956	146.80	300
		368237	889344	33002	

Medium Series					
Shaft (d)		Bearings Ratings			
inch	mm	Dynamic C <sub>r</sub> (kN/lb)	Static C <sub>or</sub> (kN/lb)	Axial C <sub>a</sub> (kN/lb)	Max RPM
1 <sup>11</sup> / <sub>16</sub>	45	121	127	6.20	4350
2	50	27202	28551	1394	
2 <sup>3</sup> / <sub>16</sub>	55	168	190	8.80	3680
2 <sup>1</sup> / <sub>2</sub>	65	37768	42714	1978	
2 <sup>11</sup> / <sub>16</sub>	70	258	300	10.60	3080
3	75	58001	67443	2383	
3 <sup>3</sup> / <sub>16</sub>	80	297	353	17.80	2520
3 <sup>1</sup> / <sub>2</sub>	90	66768	79358	4002	
3 <sup>11</sup> / <sub>16</sub>	100	388	491	25.00	2130
4	105	87226	110381	5620	
4 <sup>3</sup> / <sub>16</sub>	110	454	592	31.20	1820
4 <sup>1</sup> / <sub>2</sub>	115	102063	133087	7014	
4 <sup>11</sup> / <sub>16</sub>	120	525	700	38.20	1600
5	130	118025	157366	8588	
5 <sup>3</sup> / <sub>16</sub>	135	600	817	45.40	1450
5 <sup>1</sup> / <sub>2</sub>	140	134885	183669	10206	
5 <sup>11</sup> / <sub>16</sub>	150	730	1034	52.40	1320
6	155	164111	232453	11780	
6 <sup>7</sup> / <sub>16</sub>	160	842	1175	61.40	1200
6 <sup>1</sup> / <sub>2</sub>	170	189289	264151	13803	
6 <sup>11</sup> / <sub>16</sub>	180	927	1357	71.20	1120
7		208398	305066	16006	
7 <sup>1</sup> / <sub>4</sub>	190	1013	1516	80.00	960
8	200	227732	340810	17985	
8 <sup>1</sup> / <sub>2</sub>	220	1138	1668	89.80	850
9	230	255833	374981	20188	
9 <sup>1</sup> / <sub>2</sub>	240	1240	1882	98.80	750
10	260	278763	423091	22211	
10 <sup>1</sup> / <sub>2</sub>	270	1476	2357	113.80	670
11	280	331818	529875	25583	
11 <sup>1</sup> / <sub>2</sub>	300	1569	2607	129.00	610
12	305	352725	586077	29000	
12 <sup>1</sup> / <sub>2</sub>	320	1723	2922	144.20	550
13	330	387346	656892	32417	
14	340	1989	3403	159.20	500
	360	447145	765025	35790	
15	380	1800	3202	174.40	460
		404656	719838	39207	
16	400	2105	3793	188.40	430
		473223	852701	42354	
17	420	2324	4164	202.00	400
		522456	936105	45411	
18	440	2215	4183	216.00	380
	460	497952	940376	48559	
19	480	2445	4594	230.00	360
		549658	1032773	51706	
20	500	2320	4571	244.00	340
		521557	1027602	54853	
21	530	2556	5028	258.00	330
		574612	1130340	58001	
22	560	2683	5436	272.00	310
		603163	1222062	61148	
23	580	2740	5601	286.00	300
		615977	1259155	64295	
24	600	2770	5637	300.00	290
		622721	1267248	67443	

Heavy Series					
Shaft (d)		Bearings Ratings			
inch	mm	Dynamic C <sub>r</sub> (kN/lb)	Static C <sub>or</sub> (kN/lb)	Axial C <sub>a</sub> (kN/lb)	Max RPM
3 <sup>11</sup> / <sub>16</sub>	100	653	783	31.20	1820
4	105	146800	176025	7014	
4 <sup>3</sup> / <sub>16</sub>	110	656	801	39.10	1640
4 <sup>1</sup> / <sub>2</sub>	120	147475	180072	8790	
4 <sup>11</sup> / <sub>16</sub>	125	753	974	49.00	1500
5	130	169281	218964	11016	
5 <sup>3</sup> / <sub>16</sub>	135	827	1084	58.80	1340
5 <sup>1</sup> / <sub>2</sub>	140	185917	243693	13219	
5 <sup>11</sup> / <sub>16</sub>	150	1037	1325	69.40	1220
6	155	233127	297872	15602	
6 <sup>7</sup> / <sub>16</sub>	160	1015	1326	79.20	1110
6 <sup>1</sup> / <sub>2</sub>	170	228181	298097	17805	
6 <sup>3</sup> / <sub>4</sub>	175	1275	1767	89.00	1030
7	180	286631	397238	20008	
7 <sup>1</sup> / <sub>4</sub>	190	1423	1958	99.60	880
8	200	319903	440176	22391	
8 <sup>1</sup> / <sub>2</sub>	220	1665	2455	109.40	760
9	230	374307	551906	24594	
9 <sup>1</sup> / <sub>2</sub>	240	1694	2519	130.80	700
10	260	380826	566294	29405	
11	280	1936	3115	153.00	620
		435230	700280	34396	
12	300	2114	3194	174.40	560
		475246	718040	39207	
13	320	2718	4093	198.80	500
		611031	920143	44692	
14	340	2686	4421	213.60	460
	360	603837	993881	48019	
15	380	3195	5238	250.80	420
	400	718265	1177550	56382	
17	420	3187	5813	275.80	360
	440	716466	1306815	62002	
18	460	3501	6091	302.40	340
		787056	1369312	67982	
20	500	4324	7603	347.00	310
	530	972074	1709223	78009	
22	560	4448	8781	382.60	280
		999950	1974048	86012	
23	580	4443	8918	400	270
	600	998826	2004847	89924	

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

# Axial Considerations

## Axial Load

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

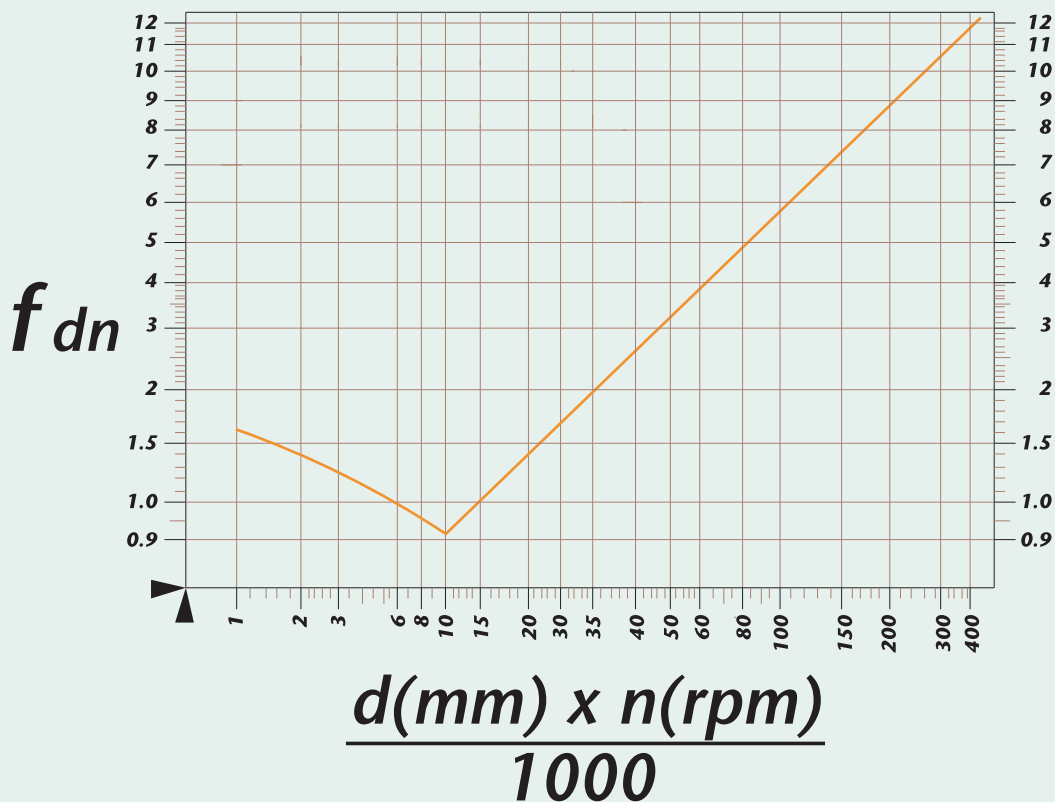
1. Calculate the axial loads acting on the bearing
2. Multiply each load by the appropriate dynamic factor  $f_z$
3. Combine these loads to determine the effective axial load  $P_a$
4. Select a bearing having a  $C_a$  value greater than the product of  $P_a \times f_{dn}$ ,  $d \cdot n$  is the product of the shaft size in mm and the speed in r.p.m. 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 catalogue rating must be decreased by 50%. In instances where bearings operate at over 50% of their catalogue speed rating and over 50% of their axial load ratings ( $C_a$ ) then recessed shafts should be considered. Please contact Timken for assistance.

### VELOCITY

APPLIES ONLY TO AXIAL LOADS  
ON BR RETAINED BEARINGS.  
BEARING BORE =  $d$   
BEARING R.P.M. =  $n$



# Bearing Clearance and Temperature Considerations

*Revolvo 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 should also be noted that an increase in bearing clearance will lead to a small reduction in bearing capacity. Typically a C3 clearance will reduce capacity by 5% and C5 clearance by 10%.*

Revolvo bearings can also be produced as C2. 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 a new bearing 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 should also be given to the bearings dimensional stability. Revolvo bearings are tempered to give stability up to 284°F (140°C). 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.

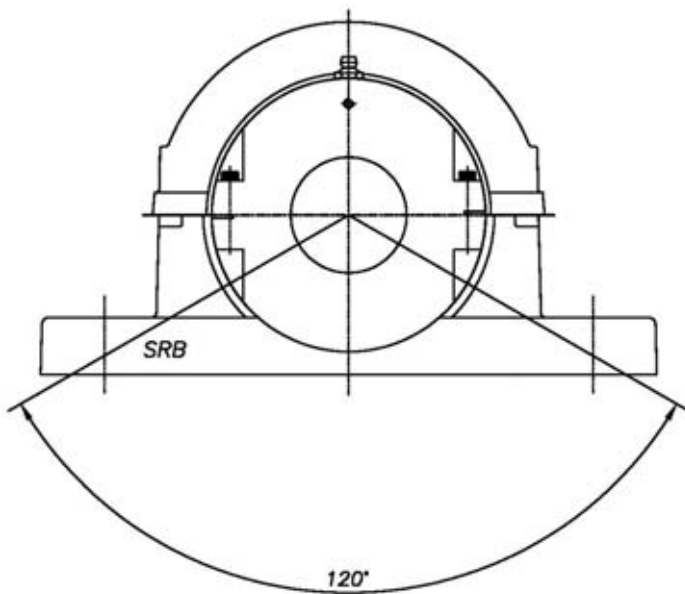
The designations for specially heat-treated bearings are in line with those quoted in ISO standards. The effects of temperature stabilization are detailed in the table shown.

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

# Support Loads

Throughout the Revolvo range, the support units 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 Revolvo support units are manufactured from ASTM 48A - Grade 40 cast iron 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.



# Bearing Frequencies

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 Revolve 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 Timken.



# Bearing Frequencies Table (Hz)

Light Series						Medium Series						Heavy Series						
inch	mm	Inner Race	Outer Race	Roller	Cage	inch	mm	Inner Race	Outer Race	Roller	Cage	mm	inch	Inner Race	Outer Race	Roller	Cage	
1 <sup>3</sup> / <sub>16</sub>	35	5.878	4.122	2.760	0.412													
1 <sup>11</sup> / <sub>16</sub>	45	5.852	4.148	2.847	0.415	1 <sup>11</sup> / <sub>16</sub>	45	5.988	4.012	2.432	0.401							
2 <sup>3</sup> / <sub>16</sub>	60	6.932	5.068	3.140	0.422	2 <sup>3</sup> / <sub>16</sub>	55	7.091	4.909	2.659	0.409							
2 <sup>11</sup> / <sub>16</sub>	70	6.902	5.098	3.252	0.425	2 <sup>11</sup> / <sub>16</sub>	70	7.153	4.847	2.506	0.404							
3 <sup>3</sup> / <sub>16</sub>	80	8.017	5.983	3.370	0.427	3 <sup>3</sup> / <sub>16</sub>	80	7.091	4.909	2.659	0.409							
3 <sup>11</sup> / <sub>16</sub>	100	8.089	5.911	3.137	0.422	3 <sup>11</sup> / <sub>16</sub>	100	8.205	5.795	2.818	0.414	3 <sup>11</sup> / <sub>16</sub>	100	6.073	3.927	2.222	0.393	
4 <sup>3</sup> / <sub>16</sub>	110	9.109	6.891	3.538	0.431	4 <sup>3</sup> / <sub>16</sub>	110	8.143	5.857	2.981	0.418	4 <sup>3</sup> / <sub>16</sub>	110	5.982	4.018	2.446	0.402	
4 <sup>11</sup> / <sub>16</sub>	120	9.100	6.900	3.569	0.431	4 <sup>11</sup> / <sub>16</sub>	120	8.105	5.895	3.088	0.421	4 <sup>11</sup> / <sub>16</sub>	125	7.114	4.886	2.601	0.407	
5 <sup>3</sup> / <sub>16</sub>	135	9.087	6.913	3.612	0.432	5 <sup>3</sup> / <sub>16</sub>	135	8.082	5.918	3.157	0.423	5 <sup>3</sup> / <sub>16</sub>	135	7.079	4.921	2.690	0.410	
5 <sup>11</sup> / <sub>16</sub>	150	10.159	7.841	3.819	0.436	5 <sup>11</sup> / <sub>16</sub>	150	9.225	6.775	3.188	0.423	5 <sup>11</sup> / <sub>16</sub>	150	7.190	4.810	2.422	0.401	
6 <sup>3</sup> / <sub>16</sub>	160	10.162	7.838	3.809	0.435	6 <sup>3</sup> / <sub>16</sub>	160	8.107	5.893	3.083	0.421	6 <sup>3</sup> / <sub>16</sub>	160	7.126	4.874	2.570	0.406	
6 <sup>11</sup> / <sub>16</sub>	170	12.223	9.777	4.442	0.444	6 <sup>11</sup> / <sub>16</sub>	170	9.192	6.808	3.281	0.425	6 <sup>11</sup> / <sub>16</sub>	170	7.126	4.874	2.570	0.406	
7 <sup>1</sup> / <sub>4</sub>	190	12.204	9.796	4.515	0.445	7 <sup>1</sup> / <sub>4</sub>	190	9.119	6.881	3.505	0.430	7 <sup>1</sup> / <sub>4</sub>	175	8.243	5.757	2.727	0.411	
8 <sup>1</sup> / <sub>2</sub>	220	11.064	8.936	4.645	0.447	8 <sup>1</sup> / <sub>2</sub>	200	9.119	6.881	3.505	0.430	8 <sup>1</sup> / <sub>2</sub>	180	7.047	4.953	2.779	0.413	
9 <sup>1</sup> / <sub>2</sub>	240	12.058	9.942	5.152	0.452	9 <sup>1</sup> / <sub>2</sub>	220	9.161	6.839	3.372	0.427	9 <sup>1</sup> / <sub>2</sub>	200	8.102	5.898	3.097	0.421	
10 <sup>1</sup> / <sub>2</sub>	260	12.025	9.975	5.319	0.453	10 <sup>1</sup> / <sub>2</sub>	230	9.082	6.918	3.628	0.432	10 <sup>1</sup> / <sub>2</sub>	230	8.056	5.944	3.240	0.425	
11 <sup>1</sup> / <sub>2</sub>	300	13.087	10.913	5.472	0.455	11 <sup>1</sup> / <sub>2</sub>	240	9.082	6.918	3.628	0.432	11	240	9.114	6.886	3.520	0.430	
12 <sup>1</sup> / <sub>2</sub>	320	13.028	10.972	5.795	0.457	12 <sup>1</sup> / <sub>2</sub>	260	10.162	7.838	3.808	0.435	12	260	8.043	5.957	3.280	0.425	
14	340	14.045	11.955	6.180	0.460	14	280	11.207	8.793	4.082	0.440	13	300	8.105	5.895	3.088	0.421	
15	360	15.058	12.942	6.580	0.462	14	300	11.170	8.830	4.217	0.442	14	320	8.105	5.895	3.088	0.421	
16	400	16.076	13.924	6.935	0.464	15	330	11.180	8.820	4.178	0.441	15	340	9.093	6.907	3.591	0.432	
17	420	17.088	14.912	7.319	0.466	15	360	11.037	8.963	4.769	0.448	16	360	9.111	6.889	3.530	0.431	
18	440	18.094	15.906	7.739	0.468	16	380	11.037	8.963	4.769	0.448	17	380	9.111	6.889	3.530	0.431	
19	480	18.102	15.898	7.684	0.468	16	400	12.169	9.831	4.651	0.447	18	400	9.111	6.889	3.530	0.431	
20	500	19.115	16.885	8.038	0.469	17	420	12.195	9.805	4.548	0.446	18	420	11.158	8.842	4.260	0.442	
21	530	20.117	17.883	8.479	0.471	17	440	12.195	9.805	4.548	0.446	19	440	11.158	8.842	4.260	0.442	
22	560	21.127	18.873	8.841	0.472	18	460	13.160	10.840	5.122	0.452	20	460	10.125	7.875	3.938	0.438	
23	580	21.140	18.860	8.744	0.472	19	480	13.181	10.819	5.031	0.451	20	500	10.132	7.868	3.911	0.437	
24	600	22.153	19.847	9.078	0.473	20	500	14.153	11.847	5.593	0.456	21	530	11.158	8.842	4.260	0.442	
						21	530	14.160	11.840	5.559	0.455	22	560	12.159	9.841	4.693	0.447	
						22	560	15.200	12.800	5.793	0.457	23	580	13.208	10.792	4.916	0.450	
						23	580	15.203	12.797	5.778	0.457	24	600	13.208	10.792	4.916	0.450	
						24	600	15.168	12.832	5.951	0.458							

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.

Tolerance units are 0.001 inches / 0.001 mm. All tolerances are +0.000					
Shaft Dia.	dn<50000 & C/P>10	50000<dn<150000 & C/P>10	50000<dn<150000 & C/P<10	dn>150000	Cylindricity of Shaft
	h9	h8	h7	h6	IT6
0 - 2" 0 - 50 mm	-2.5 -62	-1.5 -39	-1 -25	-0.6 -16	-0.6 -16
2 - 3" 50 - 80 mm	-3 -74	-1.8 -46	-1.2 -30	-0.7 -19	-0.7 -19
3 - 5" 80 - 120 mm	-3.5 -87	-2.1 -54	-1.4 -35	-0.9 -22	-0.9 -22
5 - 7" 120 - 180 mm	-3.9 -100	-2.5 -63	-1.6 -40	-1 -25	-1 -25
7 - 10" 180 - 250 mm	-4.5 -115	-2.8 -72	-1.8 -46	-1.2 -29	-1.2 -29
10 - 12½" 250 - 315 mm	-5.1 -130	-3.2 -8.1	-2 -52	-1.3 -32	-1.3 -32
12½ - 15½" 315 - 400 mm	-5.5 -140	-3.5 -89	-2.2 -57	-1.4 -36	-1.4 -36
15½ - 19½" 400 - 500 mm	-6.1 -155	-3.8 -97	-2.5 -63	-1.6 -40	-1.6 -40
19½ - 24" 500 - 600 mm	-6.9 -175	-4.3 -110	-2.8 -70	-1.7 -44	-1.7 -44

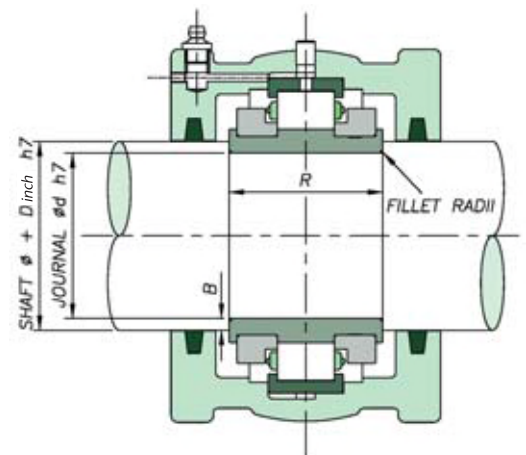
## Recess Mounting

In applications where the resultant axial load exceeds 50% of the Ca 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 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 the following table.

Journal Diameter d	Shoulder Diameter 'D' inch	Fillet Radii	Shoulder Height B	Recess Width R	Squareness of Abutment Faces
1½" - 3½" 40 - 90 mm	$d + \frac{1}{4}"$	$\frac{3}{64}"$	$\frac{1}{8}"$	$C + 0.004"$ $C + 0.012"$	0.004"
Over 3½" - 6" Over 90 - 150 mm	$d + \frac{3}{8}"$	$\frac{5}{64}"$	$\frac{3}{16}"$	$C + 0.006"$ $C + 0.016"$	0.004"
Over 6" Over 155 mm	$d + \frac{3}{8}"$	$\frac{3}{32}"$	$\frac{3}{16}"$	$C + 0.008"$ $C + 0.02"$	0.004"

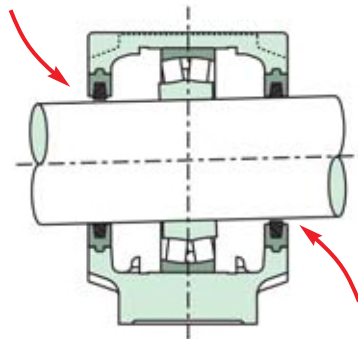
N.B. Width of recesses for standard bearings maybe different from that used for existing products. Please consult Timken for bearings suitable for other recess sizes.



# Sealing Arrangements

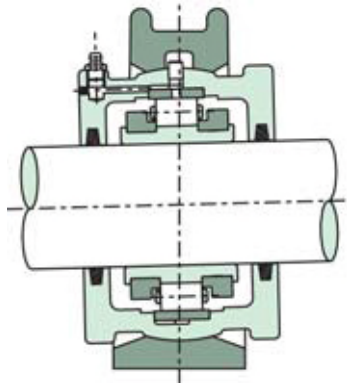
*Any bearing, housing and support unit that is not suitably sealed against its surrounding environment is unlikely to achieve its full potential, either in terms of performance or life span. The prevention of ingress of foreign materials and contaminants is of paramount importance and should be considered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

A wide variety of sealing solutions are available to users of Revolve 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.

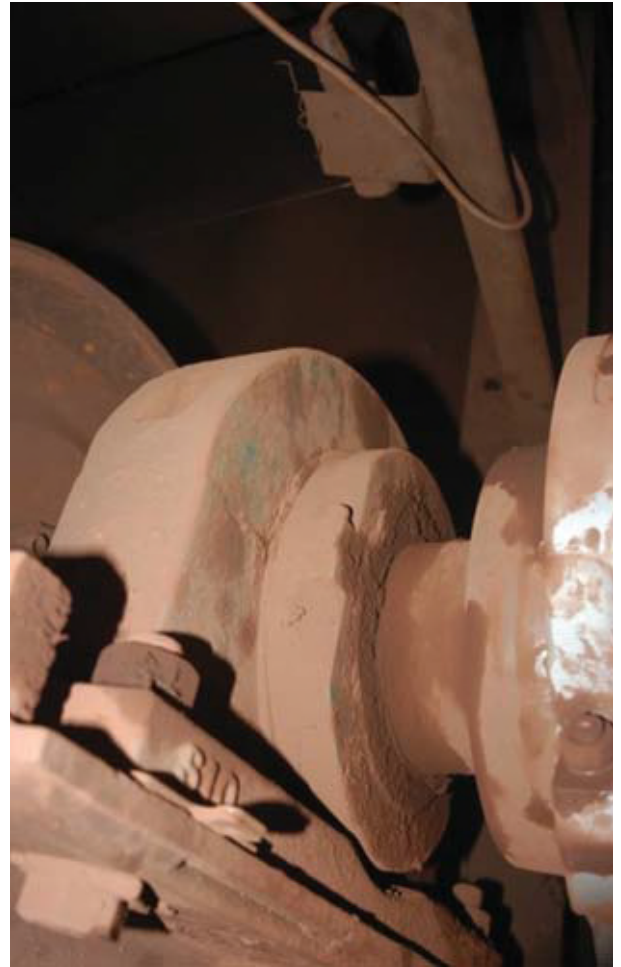


*Seal ineffective*

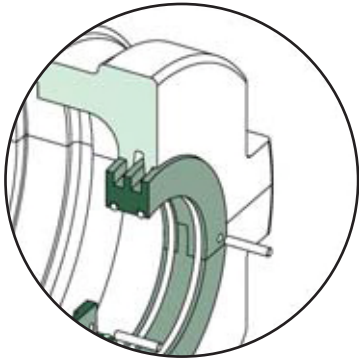
Revolve units have inherent advantages over traditional solid bearing arrangements when considering sealing. The spherical location between housing and support ensures that whichever type of seal is used, it will always remain concentric to the shaft.



*Seal remains concentric*



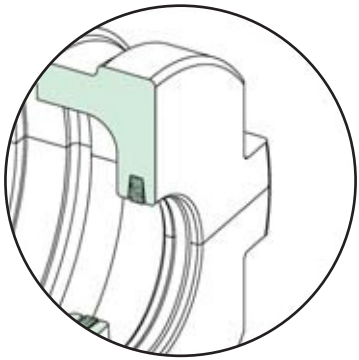




### Aluminium Triple Labyrinth

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. Revolve Triple Labyrinth seals are fitted with high temperature Viton cord as standard.

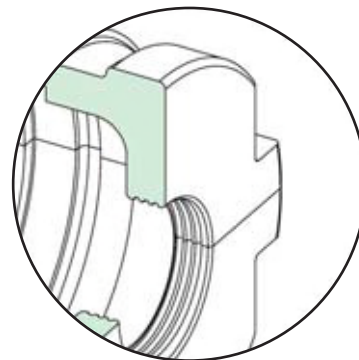
Max Speed	As Bearing
Temp Range	-4°F to + 347°F
Shaft Finish	3.2µm Ra
Suffix Letters	<b>ATL</b>



### Felt Seal

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

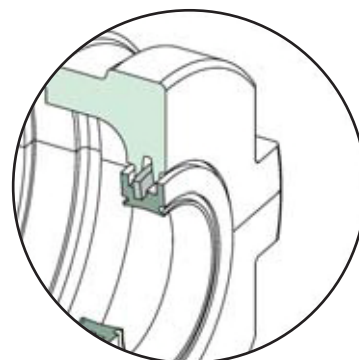
Max Speed	6000dN (dN(mm)≤150000)
Temp Range	-76°F to +212°F
Shaft Finish	1.6µm Ra



### Labyrinth Grease Groove

For shaft sizes over 12inch, 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.

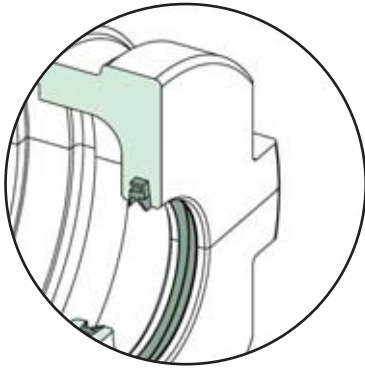
Max Speed	As Bearing
Temp Range	As Bearing
Shaft Finish	3.2µm Ra



### Neoprene Triple Labyrinth

The seal is molded from Neoprene rubber and incorporates a steel center band. This steel pressing has ends which form an interlocking arrangement and hence secure the seal to the shaft. The seal can be used where restrictions prevent the use of Aluminium (e.g. Mining).

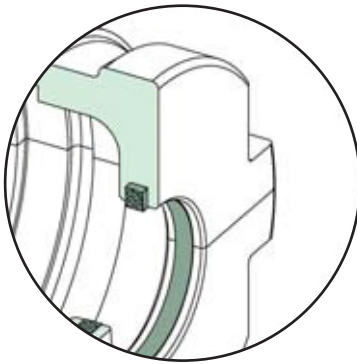
Max Speed	6000 (dN(mm)≤150000)
Temp Range	-4°F to + 212°F
Shaft Finish	3.2µm Ra
Suffix Letters	<b>NTL</b>



### ***Nitrile 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. High temperature versions are also available.

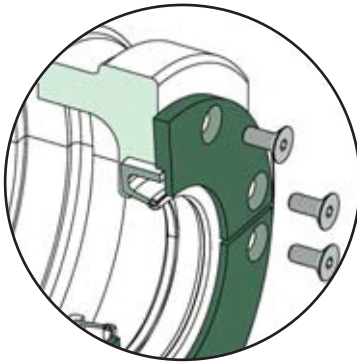
Max Speed	6000dN (dN(mm) ≤150000)
Temp Range	-4°F to + 212°F
Shaft Finish	3.2µm Ra
Suffix Letters	<b>RSS (RSSHT for high temperature)</b>



### ***High Temperature Packing***

A self-lubricating seal based around PTFE and graphite. In order to utilize the highest quality materials available, Revolve housings for high temperature applications are machined to suit the High Temperature Packing used.

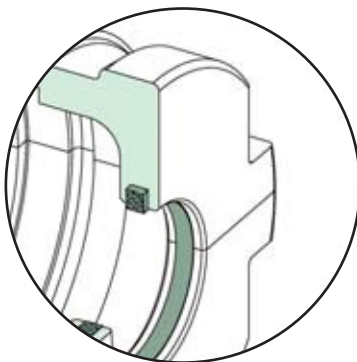
Max Speed	6000dN (dN(mm) ≤150000)
Temp Range	-76°F to + 572°F
Shaft Finish	1.2µm Ra
Suffix Letters	<b>HTPS</b>



### ***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 Timken for more information.

Max Speed	6000dN (dN(mm) ≤150000)
Temp Range	-4°F to + 212°F
Shaft Finish	0.8µm Ra
Suffix Letters	<b>WSRP</b>



### ***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 Timken for more information.

Max Speed	As bearing
Temp Range	-148°F to + 536°F
Shaft Finish	1.6µm Ra
Suffix Letters	<b>KPS</b>

# 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 normally grease and oil. In the case of Revolve Split Bearings grease lubrication is most often employed.*

## Grease Lubrication

Greases can be used to lubricate Revolve 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 essentially oils thickened usually with a metal soap, other ingredients are additives such as rust inhibitors, or extra pressure additives. The oils employed may be mineral or synthetic depending upon the application.

Revolve bearings are heat treated to retain dimensional stability up to 284°F. At temperatures up to 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 catalogue for axial capacity assume the use of a grease with extra pressure (EP) additives. If EP additives are not present then axial capacity is reduced by 50%

At temperatures exceeding 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 Timken 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% of catalog speed rating, we suggest that the remaining housing space be fully filled with grease.

At medium speeds, between 25 and 50% of catalogue speed rating, the remaining housing space may be 1/3 to 1/2 filled with grease.

At high speeds, exceeding 50% of catalogue 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 whilst 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

*Revolvo 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 Timken.

## **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 is also a cost and space requirement to this system.

# Assembly and Maintenance

## Shaft Check

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

- Check a minimum of three positions along the journal length.
- Check a minimum of three positions around the shaft to establish roundness.
- Shaft tolerances and shaft surface finish are given in the table on page 23.

## 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.

### Please 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 Timken.

- 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  $90^\circ$  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.

If a retained bearing is being fitted:

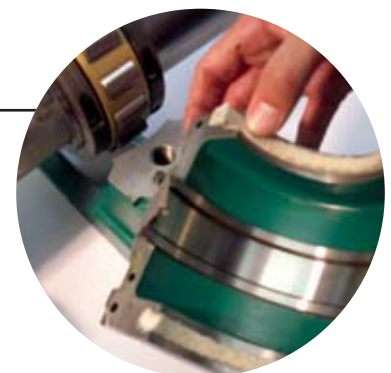
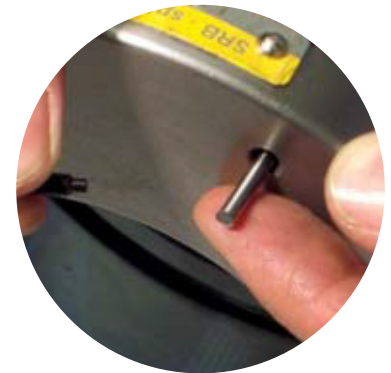
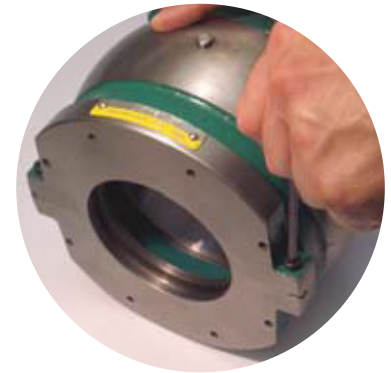
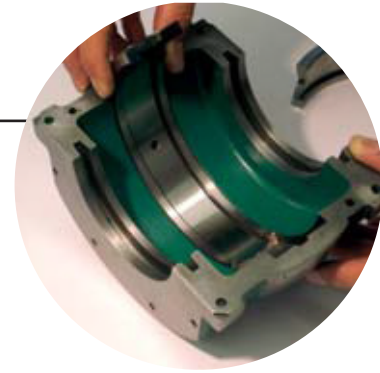
- Pre-assemble the housing halves and fully tighten the joint socket head cap screws.
- Ensure that the joints are closed.
- Fit the pins and screws provided and tighten up evenly to ensure that the outer race is fixed square against the opposite shoulder of the seating groove.

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 that new seals are fitted.

## 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.



## 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

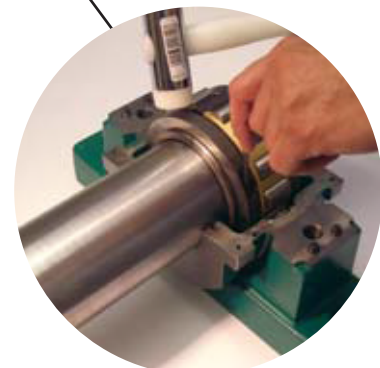
- As in the case of the retained bearing, slide in the pre-assembled bottom housing half.
- Line up the inner ring by adjusting it sideways until it is central with the outer race.
- The clearance between the inner race end faces and inside housing walls should be equal. If cage and rollers are assembled in this position the shaft can expand either side of the centre line by the amount shown in column 1 in the table right.
- 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 2 of the table.

Group	Maximum Expansion if cage and rollers are assembled central	
	1	2
1½" 40 mm	1/8"	1/4"
2" 50 mm	1/8"	1/4"
2½" 60 mm	9/64"	9/32"
3" 70 mm	5/32"	5/16"
3½" 80 mm	13/64"	13/32"
4" 100 mm	7/32"	7/16"
4½" 110 mm	5/16"	5/8"
5" 120 mm	11/32"	11/16"
5½" 140 mm	23/64"	23/32"
6" 160 mm	23/64"	23/32"

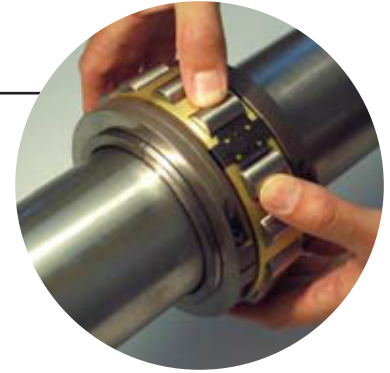
## Tightening of the Locating Clamping Ring Screws

- 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.



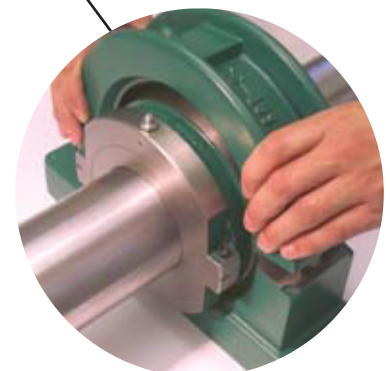
## Final Fitting of the Housing

- Charge the bottom and upper housing halves with the correct amount of grease. Refer to page 27 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.
- Rotate 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 table at the end of this section. Check that there is no gap at the joints.



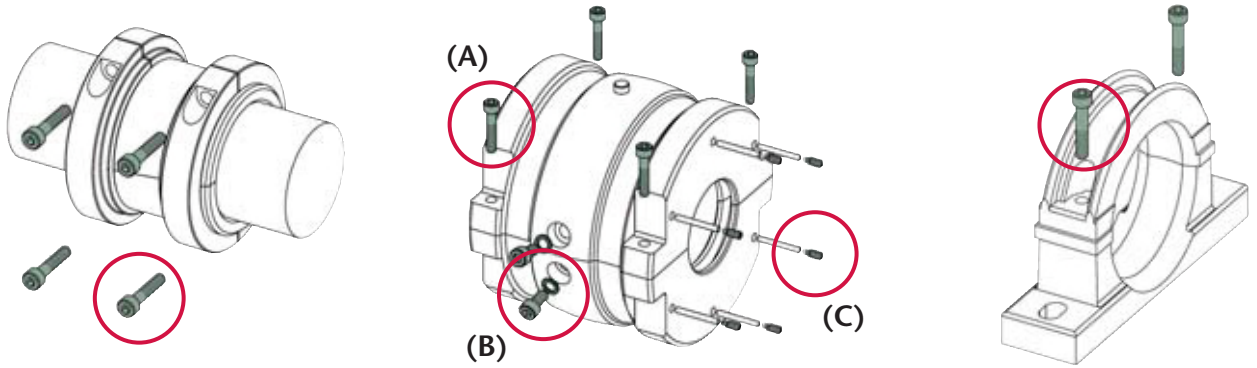
## Fitting the Support Cap

- 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 table at the end of this section.





# Light Series Screw Sizes, Key Sizes & Torque Values

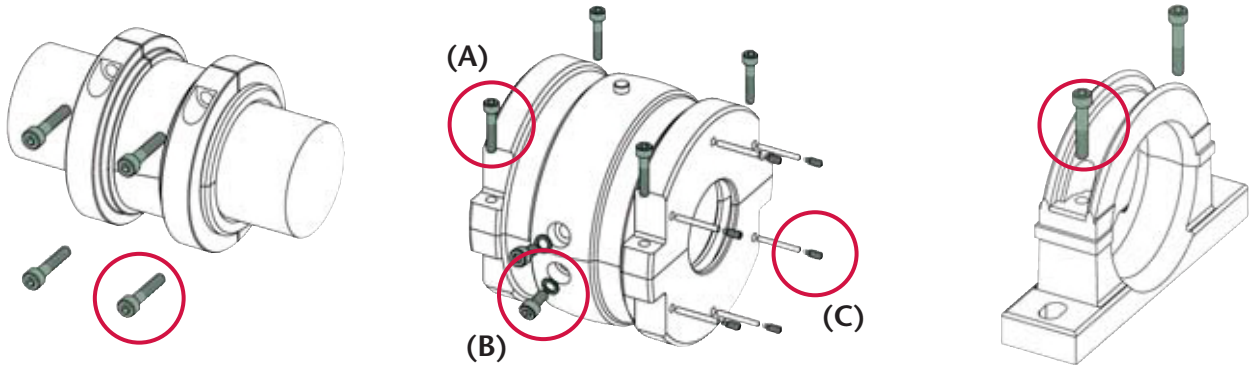


Shaft (d)		Clamping Ring*			Housing						Support					
					Joint (A)		Radial Retainer (B)		Axial Retainers (HR only) (C)							
inch	mm	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)			
1 <sup>3</sup> / <sub>16</sub> - 1 <sup>1</sup> / <sub>2</sub>	35 - 40	M4	3	5 (3.6)	M4	3	4 (2.6)			M4	2	4 (2.6)	M8	6	27 (20)	
1 <sup>11</sup> / <sub>16</sub> - 2	45 - 50	M4	3	5 (3.6)	M4	3	4 (2.6)			M4	2	4 (2.6)	M8	6	27 (20)	
2 <sup>3</sup> / <sub>16</sub> - 2 <sup>1</sup> / <sub>2</sub>	60 - 65	M4	3	5 (3.6)	M4	3	4 (2.6)			M4	2	4 (2.6)	M10	8	54 (40)	
2 <sup>11</sup> / <sub>16</sub> - 3	70 - 75	M4	3	5 (3.6)	M4	3	4 (2.6)			M4	2	4 (2.6)	M12	10	94 (69)	
3 <sup>3</sup> / <sub>16</sub> - 3 <sup>1</sup> / <sub>2</sub>	80 - 90	M5	4	9 (7)	M5	4	7 (5)			M4	2	4 (2.6)	M16	14	231 (170)	
3 <sup>11</sup> / <sub>16</sub> - 4	100 - 105	M6	5	15 (11)	M6	5	11 (8)			M4	2	4 (2.6)	M16	14	231 (170)	
4 <sup>3</sup> / <sub>16</sub> - 4 <sup>1</sup> / <sub>2</sub>	110 - 115	M6	5	15 (11)	M6	5	11 (8)			M6	3	11 (8)	M20	17	434 (320)	
4 <sup>11</sup> / <sub>16</sub> - 5	120 - 130	M6	5	15 (11)	M6	5	11 (08)			M6	3	11 (08)	M20	17	434 (320)	
5 <sup>3</sup> / <sub>16</sub> - 5 <sup>1</sup> / <sub>2</sub>	135 - 140	M8	6	35 (26)	M8	6	27 (20)			M6	3	11 (08)	M20	17	434 (320)	
5 <sup>11</sup> / <sub>16</sub> - 6	150 - 155	M8	6	35 (26)	M8	6	27 (20)			M6	3	11 (08)	M20	17	434 (320)	
6 <sup>3</sup> / <sub>16</sub> - 6 <sup>1</sup> / <sub>2</sub>	160	M8	6	35 (26)	M8	6	27 (20)			M6	3	11 (08)	M16	14	231 (170)	
6 <sup>11</sup> / <sub>16</sub> - 7	170 - 180	M8	6	35 (26)	M8	6	27 (20)			M6	3	11 (08)	M16	14	231 (170)	
7 <sup>1</sup> / <sub>4</sub> - 8	190 - 200	M8	6	35 (26)	M8	6	27 (20)	M10	8	54 (40)	M6	3	11 (08)	M16	14	231 (170)
8 <sup>1</sup> / <sub>2</sub> - 9	220 - 230	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M16	14	231 (170)
9 <sup>1</sup> / <sub>2</sub> - 10	240 - 250	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M20	17	434 (320)
10 <sup>1</sup> / <sub>2</sub> - 11	260 - 280	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
11 <sup>1</sup> / <sub>2</sub> - 12	300	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
12 <sup>1</sup> / <sub>2</sub> - 13	320 - 330	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
14	340 - 350	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
15	360 - 380	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
16	400	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
17	420	M12	10	125 (92)	M12	10	94 (69)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
18	440 - 460	M12	10	125 (92)	M12	10	94 (69)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
19	480	M12	10	125 (92)	M12	10	94 (69)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
20	500	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
21	530	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
22	560	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
23	580	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
24	600	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)

\* May be increased by up to 20% for high axial load applications

# Medium Series

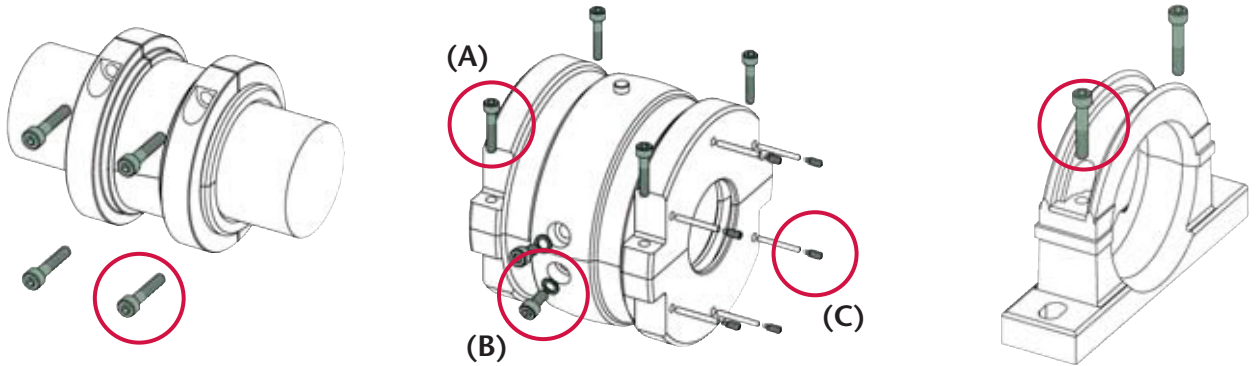
## Screw Sizes, Key Sizes & Torque Values



Shaft (d)		Clamping Ring*			Housing						Support					
					Joint (A)		Radial Retainer (B)		Axial Retainers (HR only) (C)							
inch	mm	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)	Screw	Key	Torque Nm (lb.ft)			
1 <sup>11</sup> / <sub>16</sub> - 2	45 - 50	M5	4	9 (7)	M5	4	7 (5)			M4	2	4 (2.6)	M10	8	54 (40)	
2 <sup>3</sup> / <sub>16</sub> - 2 <sup>1</sup> / <sub>2</sub>	60 - 65	M5	4	9 (7)	M5	4	7 (5)			M4	2	4 (2.6)	M12	10	94 (69)	
2 <sup>11</sup> / <sub>16</sub> - 3	70 - 75	M6	5	15 (11)	M6	5	11 (08)			M4	2	4 (2.6)	M16	14	231 (170)	
3 <sup>3</sup> / <sub>16</sub> - 3 <sup>1</sup> / <sub>2</sub>	80 - 90	M6	5	15 (11)	M6	5	11 (08)			M4	2	4 (2.6)	M16	14	231 (170)	
3 <sup>11</sup> / <sub>16</sub> - 4	100 - 105	M6	5	15 (11)	M6	5	11 (8)			M4	2	4 (2.6)	M20	17	434 (320)	
4 <sup>3</sup> / <sub>16</sub> - 4 <sup>1</sup> / <sub>2</sub>	110 - 115	M8	6	35 (26)	M8	6	27 (20)			M6	3	11 (8)	M20	17	434 (320)	
4 <sup>11</sup> / <sub>16</sub> - 5	120 - 130	M8	6	35 (26)	M8	6	27 (20)			M6	3	11 (08)	M20	17	434 (320)	
5 <sup>3</sup> / <sub>16</sub> - 5 <sup>1</sup> / <sub>2</sub>	135 - 140	M8	6	35 (26)	M8	6	27 (20)			M6	3	11 (08)	M20	17	434 (320)	
5 <sup>11</sup> / <sub>16</sub> - 6	150 - 155	M8	6	35 (26)	M8	6	27 (20)			M6	3	11 (08)	M20	17	434 (320)	
6 <sup>3</sup> / <sub>16</sub> - 6 <sup>1</sup> / <sub>2</sub>	160 - 170	M10	8	72 (53)	M10	8	54 (40)			M6	3	11 (08)	M20	17	434 (320)	
6 <sup>11</sup> / <sub>16</sub> - 7	180	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M20	17	434 (320)
7 <sup>3</sup> / <sub>4</sub> - 8	190 - 200	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M6	3	11 (08)	M20	17	434 (320)
8 <sup>1</sup> / <sub>2</sub> - 9	220 - 230	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M6	3	11 (08)	M20	17	434 (320)
9 <sup>1</sup> / <sub>2</sub> - 10	240 - 260	M12	10	125 (92)	M12	10	94 (69)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
10 <sup>1</sup> / <sub>2</sub> - 11	280	M16	14	309 (228)	M16	14	231 (170)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
11 <sup>1</sup> / <sub>2</sub> - 12	300	M16	14	309 (228)	M16	14	231 (170)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
12 <sup>1</sup> / <sub>2</sub> - 13	320 - 330	M16	14	309 (228)	M16	14	231 (170)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
14	340 - 360	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
15	380	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
16	400	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
17	420	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
18	440 - 460	M16	14	309 (228)	M16	14	231 (170)	M12	10	54 (40)	M10	5	54 (40)	M20	17	434 (320)
19	480	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
20	500	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
21	530	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
22	560	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
23	580	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)
24	600	M20	17	600 (442)	M20	17	434 (320)	M12	10	54 (40)	M10	5	54 (40)	M24	19	760 (560)

\* May be increased by up to 20% for high axial load applications

# Heavy Series Screw Sizes, Key Sizes & Torque Values



Shaft (d)		Clamping Ring*			Joint (A)			Housing Radial Retainer (B)			Axial Retainers (HR only) (C)			Support		
inch	mm	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)
3 <sup>11</sup> / <sub>16</sub> - 4	100 - 105	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M16	14	231 (170)
4 <sup>3</sup> / <sub>16</sub> - 4 <sup>1</sup> / <sub>2</sub>	110 - 120	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M6	3	11 (08)	M16	14	231 (170)
4 <sup>13</sup> / <sub>16</sub> - 5	125 - 130	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M16	14	231 (170)
5 <sup>3</sup> / <sub>16</sub> - 5 <sup>1</sup> / <sub>2</sub>	135 - 140	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
5 <sup>11</sup> / <sub>16</sub> - 6	150 - 155	M10	8	72 (53)	M10	8	54 (40)	M10	8	54 (40)	M10	5	54 (40)	M20	17	434 (320)
6 <sup>7</sup> / <sub>16</sub> - 6 <sup>11</sup> / <sub>16</sub>	160 - 170	M12	10	125 (92)	M12	10	94 (69)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
6 <sup>3</sup> / <sub>4</sub> - 7	180	M12	10	125 (92)	M12	10	94 (69)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
7 <sup>1</sup> / <sub>4</sub> - 8	190 - 200	M12	10	125 (92)	M12	10	94 (69)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
8 <sup>1</sup> / <sub>2</sub> - 9	220 - 230	M16	14	309 (228)	M16	14	231 (170)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
9 <sup>1</sup> / <sub>2</sub> - 10	240 - 260	M16	14	309 (228)	M16	14	231 (170)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
11	280	M20	17	600 (442)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
12	300	M20	17	600 (442)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M20	17	434 (320)
13	320 - 330	M20	17	600 (442)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
14	340 - 360	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
15 - 16	380 - 400	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
17	420 - 440	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M16	14	231 (170)	M24	19	760 (560)
18	460	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M16	14	231 (170)	M24	19	760 (560)
19	480	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M16	14	231 (170)	M24	19	760 (560)
20	500	M24	19	997 (735)	M20	17	434 (320)	M16	14	231 (170)	M10	5	54 (40)	M24	19	760 (560)
21	530	M24	19	997 (735)	M20	17	434 (320)	M16	14	231 (170)	M10	5	54 (40)	M24	19	760 (560)
22	560	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
23	580	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)
24	600	M24	19	997 (735)	M20	17	434 (320)	M12	10	94 (69)	M10	5	54 (40)	M24	19	760 (560)

\* May be increased by up to 20% for high axial load applications

# Shipping Weights

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

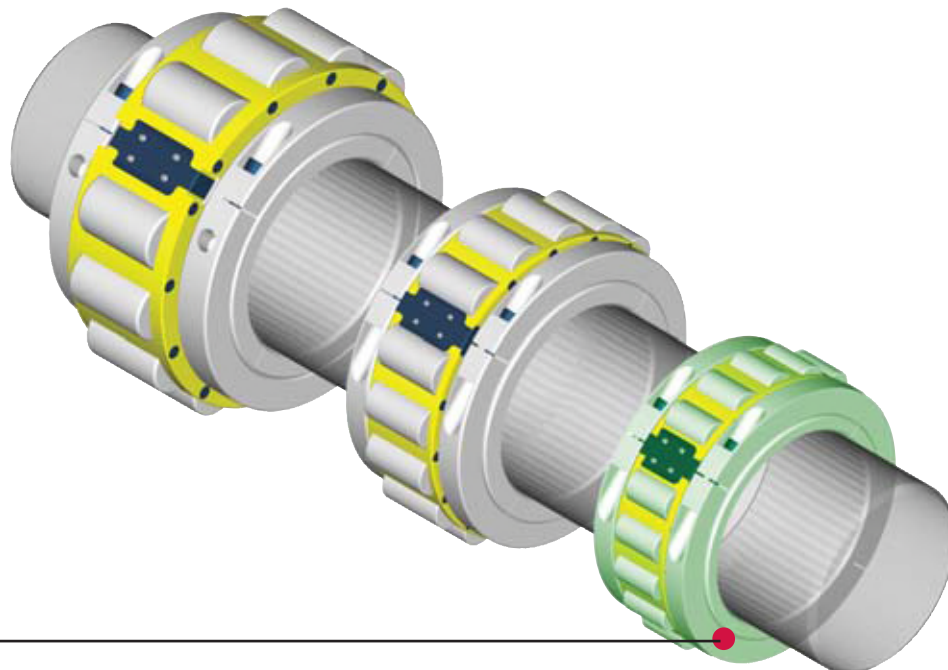
Medium Series						
inch	mm	Bearing Kg/lb	Housing Kg/lb	Support Kg/lb	Comp. Unit	
1 <sup>11</sup> / <sub>16</sub>	45	2.5	5	5.9	13.4	
2	50	6	11	13	30	
2 <sup>1</sup> / <sub>16</sub>	60	3.7	8	9.5	21.2	
2 <sup>1</sup> / <sub>2</sub>	65	8	18	21	47	
2 <sup>11</sup> / <sub>16</sub>	70	5.6	10	15	30.6	
3	75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

Heavy Series						
inch	mm	Bearing Kg/lb	Housing Kg/lb	Support Kg/lb	Comp. Unit	
3 <sup>11</sup> / <sub>16</sub>	100	35	40	121	196	
4	105	77	88	266	431	
4 <sup>1</sup> / <sub>16</sub>	110	41	45	141	227	
4 <sup>1</sup> / <sub>2</sub>	120	90	99	310	499	
4 <sup>11</sup> / <sub>16</sub>	125	42	46	156	244	
5	130	92	101	343	536	
5 <sup>1</sup> / <sub>16</sub>	135	50	51	197	298	
5 <sup>1</sup> / <sub>2</sub>	140	110	112	433	655	
5 <sup>11</sup> / <sub>16</sub>	150	59	75	261	395	
6	155	130	165	574	869	
6 <sup>1</sup> / <sub>16</sub>	160	74	87	291	452	
6 <sup>1</sup> / <sub>2</sub>	170	163	191	640	994	
6 <sup>1</sup> / <sub>4</sub>	175	83	91	338	512	
7	180	183	200	744	1127	
7 <sup>1</sup> / <sub>4</sub>	190	105	120	454	679	
8	200	231	264	999	1494	
8 <sup>1</sup> / <sub>2</sub>	220	151	164	408	949	
9	230	332	361	1395	2088	
9 <sup>1</sup> / <sub>2</sub>	240	153	174	540	1064	
10	260	337	383	1621	2341	
11	280	203	201	459	863	
		447	442	1010	1899	
12	300	242	249	1019	1510	
		532	548	2242	3322	
13	320	327	300	1116	1743	
		719	660	2455	3834	
14	340	375	361	1620	2356	
	360	825	794	3564	5183	
15	380	436	433	1538	2407	
16	400	959	953	3384	5296	
17	420	400	443	1014	1857	
	440	880	975	2231	4086	
18	460	636	274	1513	2423	
		1399	603	3329	5331	
20	500	700	880	1863	3443	
21	530	1540	1936	4099	7575	
22	560	675	694	1847	3216	
		1485	1527	4063	7075	
23	580	700	770	1794	3264	
24	600	1540	1694	3947	7181	

# Light Series Product

*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, Timken will be happy to provide help and advice on your application.*

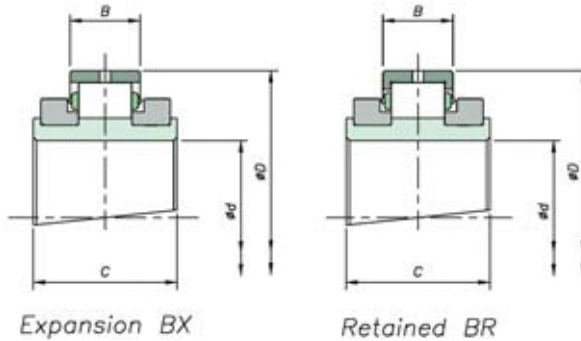
Bearings, Housings & Supports	1 <sup>3</sup> / <sub>16</sub> inch to 6 inch	Page	38 – 39
	6 <sup>7</sup> / <sub>16</sub> inch to 14 inch	Page	40 – 41
	15 inch to 24 inch	Page	42 – 43
Flange Units		Page	44 – 45
Tensioning Units		Page	46 – 47
Hanger Units		Page	48



## Light Series

# Light Series Bearing & Housing

## 1 3/16 inch to 6 inch

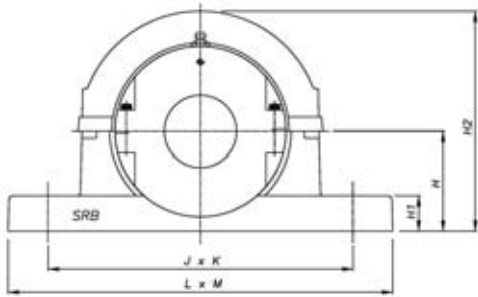


Shaft (d)		Reference	Bearings Ratings				Housing Reference			
inch	mm	Add BR for retained Add BX for expansion e.g. LSM35BR	Dynamic C <sub>r</sub> (kN/lb)	Static C <sub>0r</sub> (kN/lb)	Axial C <sub>a</sub> (kN/lb)	Max RPM	D	B	C	
1 3/16	35	LSE103	65	68	3.20	5400	84.14	23.80	55.00	
1 1/4		LSM35								LSE104
1 7/16		LSM40								LSE107
1 1/2										
1 11/16	45	LSE111	83	87	3.60	4630	98.42	25.40	60.00	
1 3/4		LSM45								LSE112
1 15/16		LSM50								LSE115
2										
2 1/16	55	LSE203	103	115	5.40	3940	114.30	27.00	60.00	
2 1/4		LSM55								LSE204
2 7/16		LSM60								LSE207
2 1/2										
2 11/16	70	LSE211	138	161	7.60	3310	133.35	31.80	65.00	
2 3/4		LSM70								LSE212
2 15/16		LSM75								LSE215
3										
3 1/16	80	LSE303	187	231	12.40	2790	152.4	38.90	75.00	
3 1/4		LSM80								LSE304
3 7/16		LSM85								LSE307
3 1/2										
3 11/16	100	LSE311	288	366	16.00	2340	174.62	45.30	85.00	
3 3/4		LSM100								LSE312
3 15/16		LSM105								LSE315
4										
4 1/16	110	LSE403	316	427	18.60	1970	203.20	46.90	90.00	
4 1/4		LSM110								LSE404
4 7/16		LSM115								LSE407
4 1/2										
4 11/16	120	LSE411	363	496	22.20	1740	222.25	54.00	95.00	
4 3/4		LSM120								LSE412
4 15/16		LSM125								LSE415
5										
5 1/16	135	LSE503	422	585	25.80	1570	241.30	55.60	98.40	
5 1/4		LSM135								LSE504
5 7/16		LSM140								LSE507
5 1/2										
5 11/16	150	LSE511	459	664	29.40	1450	254.00	55.60	98.40	
5 3/4		LSM150								LSE512
5 15/16		LSM155								LSE515
6										
	160A	LSM160A	LSE600	103187	149273	6609.30				

Housing	Reference	G	F	L	L <sub>1</sub>
Retained	Expansion				
LS1HR	LS1HX	100.00 3.937	25 1.0	84 3.3	86 3.4
LS2HR	LS2HX	117.48 4.625	25 1.0	96 3.8	98 3.9
LS3HR	LS3HX	134.94 5.313	32 1.3	102 4.0	104 4.1
LS4HR	LS4HX	157.16 6.187	38 1.5	112 4.4	114 4.5
LS5HR	LS5HX	177.80 7.000	50 2.0	134 5.3	136 5.4
LS6HR	LS6HX	203.20 8.000	50 2.0	132 5.2	134 5.3
LS7HR	LS7HX	231.78 9.125	64 2.5	140 5.5	142 5.6
LS8HR	LS8HX	266.70 10.500	76 3.0	154 6.1	156 6.1
LS9HR	LS9HX	279.40 11.000	76 3.0	166 6.5	168 6.6
LS10HR	LS10HX	295.28 11.625	82 3.2	172 6.8	174 6.9

\* For triple labyrinth seal designs, please refer to page 66.

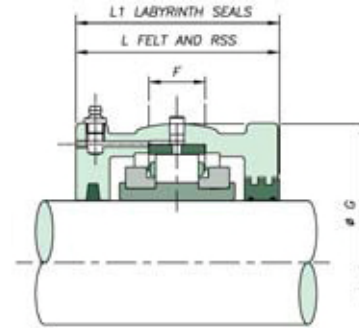
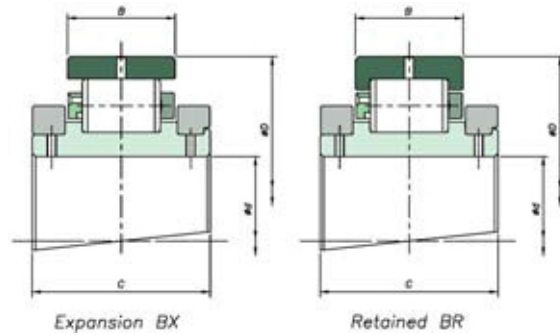
# Light Series Support S01 - S10



S01 - S10								
Shaft (d)		Support Reference	H	H <sub>1</sub>	H <sub>2</sub>	J x K	L x M	Bolts
inch	mm							
1 <sup>3</sup> / <sub>16</sub> 1 <sup>1</sup> / <sub>4</sub> 1 <sup>7</sup> / <sub>16</sub> 1 <sup>1</sup> / <sub>2</sub>	35 40	S01	60 2.362	22 0.9	138 5.4	180 7.1	228 x 60 9 x 2.4	2 x M12
1 <sup>11</sup> / <sub>16</sub> 1 <sup>3</sup> / <sub>4</sub> 1 <sup>15</sup> / <sub>16</sub> 2	45 50	S02	70 2.756	25 1.0	158 6.2	214 8.4	270 x 60 10.6 x 2.4	2 x M16
2 <sup>2</sup> / <sub>16</sub> 2 <sup>1</sup> / <sub>4</sub> 2 <sup>2</sup> / <sub>16</sub> 2 <sup>1</sup> / <sub>2</sub>	55 60 65	S03	80 3.150	32 1.3	180 7.1	234 9.2	280 x 70 11 x 2.8	2 x M16
2 <sup>11</sup> / <sub>16</sub> 2 <sup>3</sup> / <sub>4</sub> 2 <sup>15</sup> / <sub>16</sub> 3	70 75	S04	95 3.740	38 1.5	208 8.2	270 10.6	330 x 76 13 x 3	2 x M20
3 <sup>3</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>4</sub> 3 <sup>3</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>2</sub>	80 85 90	S05	112 4.409	44 1.7	252 9.9	320 12.6	380 x 90 15 x 3.5	2 x M24
3 <sup>11</sup> / <sub>16</sub> 3 <sup>3</sup> / <sub>4</sub> 3 <sup>15</sup> / <sub>16</sub> 4	100 105	S06	125 4.921	52 2.0	272 10.7	354 13.9	420 x 102 16.5 x 4	2 x M24
4 <sup>3</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>4</sub> 4 <sup>7</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>2</sub>	110 115	S07	143 5.630	60 2.4	314 12.4	392 15.4	466 x 120 18.3 x 4.7	2 x M24
4 <sup>11</sup> / <sub>16</sub> 4 <sup>3</sup> / <sub>4</sub> 4 <sup>15</sup> / <sub>16</sub> 5	120 125 130	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
5 <sup>3</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>4</sub> 5 <sup>7</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>2</sub>	135 140	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
5 <sup>11</sup> / <sub>16</sub> 5 <sup>3</sup> / <sub>4</sub> 5 <sup>15</sup> / <sub>16</sub> 6	150 155 160A	S10	181 7.126	40 1.6	415 16.3	496 x 120 19.5 x 4.7	558 x 178 22 x 7	4 x M24

# Light Series Bearing & Housing

## 6<sup>7</sup>/<sub>16</sub> inch to 14 inch



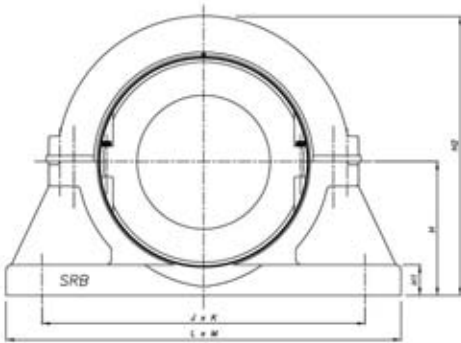
Shaft (d)		Reference		Bearings Ratings						
inch	mm	Add BR for retained	Add BX for expansion	Dynamic C <sub>r</sub>	Static C <sub>0r</sub>	Axial C <sub>a</sub>	Max RPM	D	B	C
		e.g. LSM35BR	e.g. LSM35BR	(kN/lb)	(kN/lb)	(kN/lb)				
6 <sup>7</sup> / <sub>16</sub>	160	LSM160	LSE607	583	792	33.00	1320	273.05	60.30	109.00
6 <sup>1</sup> / <sub>2</sub>	170A	LSM170A	LSE608	131064	178049	7419		10.750	2.374	4.291
6 <sup>11</sup> / <sub>16</sub>	170	LSM170	LSE611	524	828	36.40	1220	285.75	55.50	109.00
6 <sup>3</sup> / <sub>4</sub>	175	LSM175	LSE612							
6 <sup>15</sup> / <sub>16</sub>	180	LSM180	LSE615							
7			LSE700	117800	186142	8183		11.250	2.185	4.291
7 <sup>1</sup> / <sub>4</sub>			LSE704	138033	222561	9217	1070	311.15	60.30	109.00
7 <sup>1</sup> / <sub>2</sub>	190	LSM190	LSE708							
7 <sup>15</sup> / <sub>16</sub>	200	LSM200	LSE715							
8			LSE800	138033	222561	9217		12.250	2.374	4.291
8 <sup>1</sup> / <sub>2</sub>	220	LSM220	LSE808	659	1062	49.00	930	342.90	63.50	115.00
8 <sup>7</sup> / <sub>8</sub>	230	LSM230	LSE814	148149	238747	11016		13.500	2.500	4.528
9			LSE900							
9 <sup>1</sup> / <sub>2</sub>	240	LSM240	LSE908	696	1182	57.80	820	374.65	66.70	122.00
9 <sup>3</sup> / <sub>4</sub>	250	LSM250	LSE912	156467	265724	12994		14.750	2.626	4.803
10			LSE1000							
10 <sup>1</sup> / <sub>2</sub>	260	LSM260	LSE1008	794	1376	66.80	730	406.40	69.00	128.00
10 <sup>3</sup> / <sub>4</sub>	270	LSM270	LSE1012	178498	309337	15017		16.000	2.717	5.039
11	280	LSM280	LSE1100							
11 <sup>1</sup> / <sub>2</sub>	300	LSM300	LSE1108	929	1665	78.20	650	438.15	74.60	143.00
12	305	LSM305	LSE1200	208848	374307	17580		17.250	2.937	5.630
12 <sup>1</sup> / <sub>2</sub>	320	LSM320	LSE1208	920	1674	89.00	590	463.55	74.60	136.00
13	330	LSM330	LSE1300	206824	376330	20008		18.250	2.937	5.354
14	340	LSM340	LSE1400	967	1824	99.60	540	488.95	74.60	136.00
	350	LSM350		217390	410052	22391		19.250	2.937	5.354

Housing Reference					
Housing Retained	Reference Expansion	G	F	L	L <sub>1</sub>
LS11HR	LS11HX	311.15	76	172	192
		12.250	3.0	6.8	7.6
LS12HR	LS12HX	323.85	70	172	200
		12.750	2.8	6.8	7.9
LS13HR	LS13HX	358.78	86	172	200
		14.125	3.4	6.8	7.9
LS14HR	LS14HX	387.35	82	178	216
		15.250	3.2	7.0	8.5
LS15HR	LS15HX	419.10	90	188	222
		16.500	3.5	7.4	8.7
LS16HR	LS16HX	454.00	95	204	232
		17.874	3.7	8.0	9.1
LS17HR	LS17HX	489.00	98	216	248
		19.252	3.9	8.5	9.8
LS18HR	LS18HX	520.70	95	260	-
		20.500	3.7	10.2	
LS19HR	LS19HX	546.10	98	260	-
		21.500	3.9	10.2	

\*For Triple Labyrinth Seal Designations, please refer to page 66.



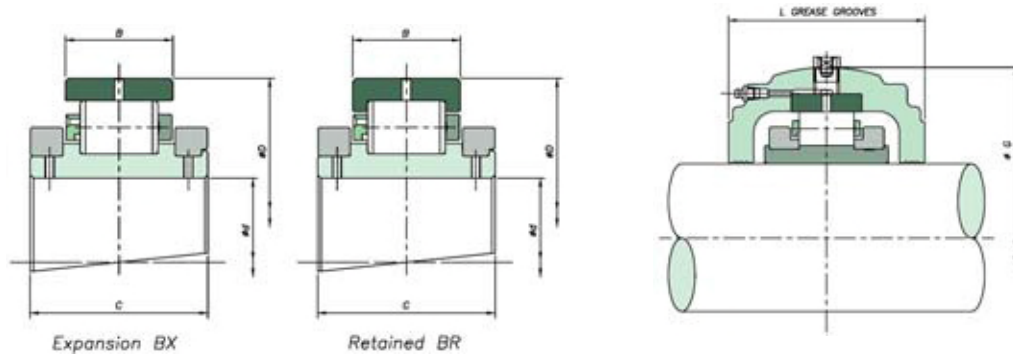
# Light Series Support S11 - S19



## S11 - S19

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

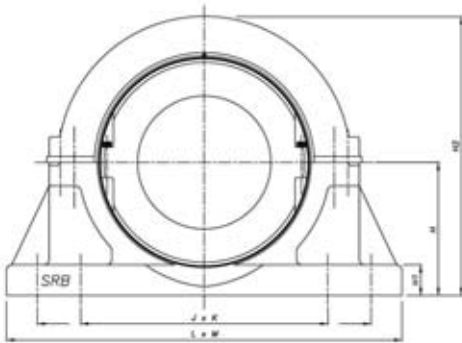
# Light Series Bearing & Housing 15inch to 24inch



Shaft (d)		Reference		Bearings Ratings						Housing Reference						
inch	mm	Add BR for retained Add BX for expansion e.g. LSM35BR		Dynamic C <sub>r</sub> (kN/lb)	Static C <sub>or</sub> (kN/lb)	Axial C <sub>a</sub> (kN/lb)	Max RPM	D	B	C	Housing Retained	Reference Expansion	G	F	L	L <sub>1</sub>
15	360	LSM360	LSE1500	1011	1975	110.40	500	520.70	76.20	140.00	LS20HR	LS20HX	571.50	98	260	-
	380	LSM380		227282	443998	24819		20.500	3.000	5.512			22.500	3.9	10.2	
16	400	LSM400	LSE1600	1054	2125	115.60	460	546.10	76.20	140.00	LS21HR	LS21HX	603.30	102	280	-
				236949	477719	25988		21.500	3.000	5.512			23.752	4.0	11.0	
17	420	LSM420	LSE1700	1095	2275	121.00	430	571.50	76.20	140.00	LS22HR	LS22HX	628.70	102	292	-
				246166	511440	27202		22.500	3.000	5.512			24.752	4.0	11.5	
18	440	LSM440	LSE1800	1134	2427	127.20	410	596.90	76.20	140.00	LS23HR	LS23HX	650.90	108	304	-
	460	LSM460		254933	545611	28596		23.500	3.000	5.512			25.626	4.3	12.0	
19	480	LSM480	LSE1900	1291	2800	132.60	380	628.65	81.00	144.00	LS24HR	LS24HX	682.60	108	304	-
				290228	629465	29810		24.750	3.189	5.669			26.874	4.3	12.0	
20	500	LSM500	LSE2000	1336	2974	137.80	360	654.05	80.20	168.00	LS25HR	LS25HX	717.60	114	304	-
				300345	668582	30979		25.750	3.157	6.614			28.252	4.5	12.0	
21	530	LSM530	LSE2100	1377	3150	140.60	340	692.15	81.00	168.00	LS26HR	LS26HX	755.70	114	330	-
				309562	708148	31608		27.250	3.189	6.614			29.752	4.5	13.0	
22	560	LSM560	LSE2200	1419	3324	142.40	330	717.55	81.00	168.00	LS27HR	LS27HX	781.10	114	336	-
				319004	747265	32013		28.250	3.189	6.614			30.752	4.5	13.2	
23	580	LSM580	LSE2300	1591	3759	144.00	310	749.00	84.10	172.00	LS28HR	LS28HX	816.00	120	342	-
				357671	845057	32372		29.488	3.311	6.772			32.126	4.7	13.5	
24	600	LSM600	LSE2400	1638	3956	146.80	300	774.70	84.10	172.00	LS29HR	LS29HX	841.40	120	342	-
				368237	889344	33002		30.500	3.311	6.772			33.126	4.7	13.5	

\*For Triple Labyrinth Seal Designations, please refer to page 66.

# Light Series Support S20 - S29



## S20 - S29

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

# Flange Units

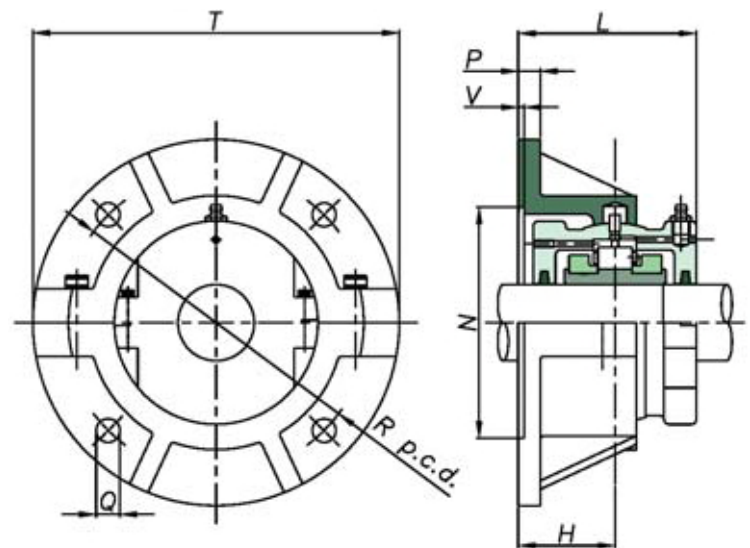
*When faced with flat horizontal or vertical faces, flange units offer a simple mounting solution. As with Pillow block supports, Flange units are produced with spherical location to accommodate standard bearing housings and provide easy initial alignment of shaft and equipment.*

To facilitate positive location of the flange to the surface, the rear face is recessed (dimensions N & 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  $0.26C_{or}$  is permissible. A maximum axial load of  $0.25C_a$  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.



# Light Series Support

## 1<sup>3</sup>/<sub>16</sub> inch to 12 inch Flanges

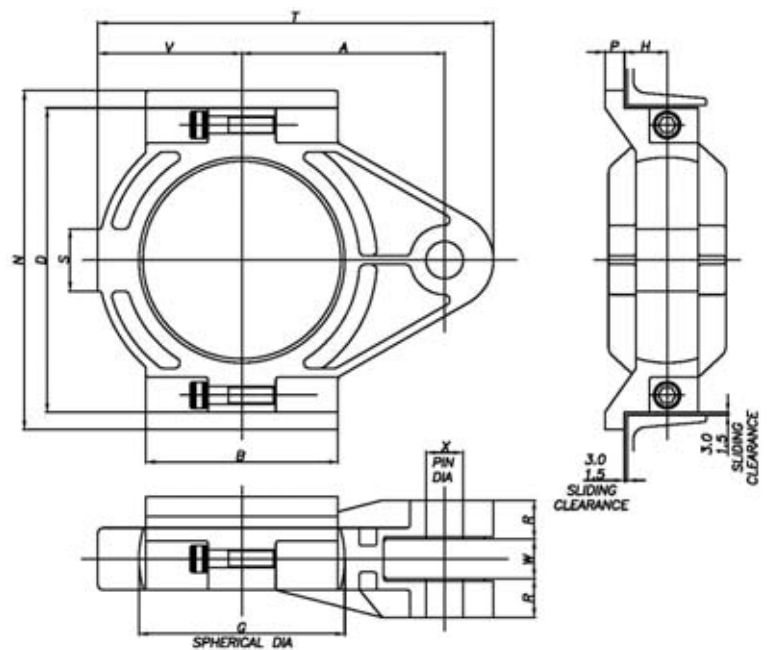
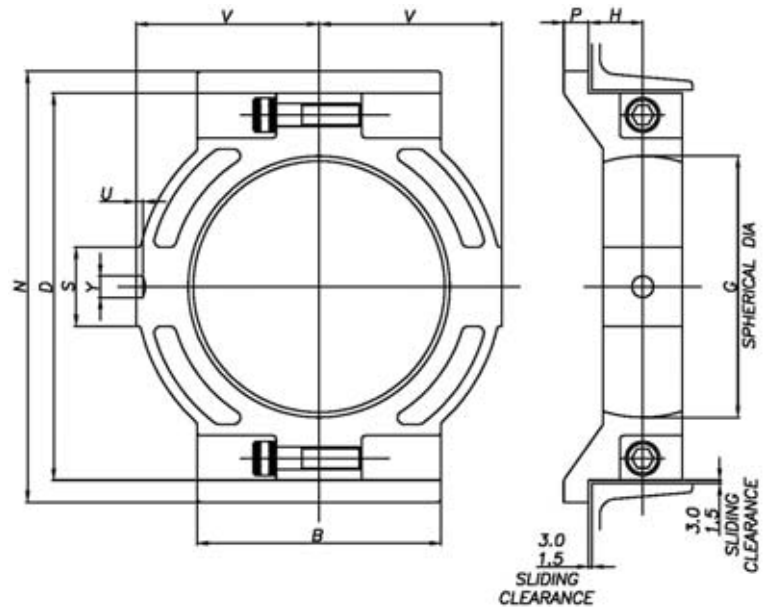
Light Series 1 <sup>3</sup> / <sub>16</sub> inch to 12 inch Flanges										
Shaft (d)		Flange Reference	T	Bolts	R	P	H	N	V	L
inch	mm									
1 <sup>3</sup> / <sub>16</sub>		F01	204	4 x M12	164	13	51	119.06	3	94
1 <sup>1</sup> / <sub>4</sub>	35									
1 <sup>7</sup> / <sub>16</sub>	40									
1 <sup>1</sup> / <sub>2</sub>										
1 <sup>11</sup> / <sub>16</sub>		F02	216	4 x M12	180	13	57	136.52	3	106
1 <sup>3</sup> / <sub>4</sub>	45									
1 <sup>13</sup> / <sub>16</sub>	50									
2										
2 <sup>3</sup> / <sub>16</sub>		F03	260	4 x M12	218	16	67	166.96	3	120
2 <sup>1</sup> / <sub>4</sub>	55									
2 <sup>7</sup> / <sub>16</sub>	60									
2 <sup>1</sup> / <sub>2</sub>	65									
2 <sup>11</sup> / <sub>16</sub>		F04	286	4 x M12	242	16	73	192.09	3	130
2 <sup>3</sup> / <sub>4</sub>	70									
2 <sup>13</sup> / <sub>16</sub>	75									
3										
3 <sup>3</sup> / <sub>16</sub>		F05	330	4 x M16	274	19	79	215.98	3	148
3 <sup>1</sup> / <sub>4</sub>	80									
3 <sup>7</sup> / <sub>16</sub>	85									
3 <sup>1</sup> / <sub>2</sub>	90									
3 <sup>11</sup> / <sub>16</sub>		F06	356	4 x M16	302	19	86	244.47	3	154
3 <sup>3</sup> / <sub>4</sub>	100									
3 <sup>13</sup> / <sub>16</sub>	105									
4										
4 <sup>3</sup> / <sub>16</sub>		F07	382	4 x M16	334	22	92	276.22	3	164
4 <sup>1</sup> / <sub>4</sub>	110									
4 <sup>7</sup> / <sub>16</sub>	115									
4 <sup>1</sup> / <sub>2</sub>										
4 <sup>11</sup> / <sub>16</sub>		F08	432	4 x M24	374	22	98	314.32	3	176
4 <sup>3</sup> / <sub>4</sub>	120									
4 <sup>13</sup> / <sub>16</sub>	125									
5	130									
5 <sup>3</sup> / <sub>16</sub>		F09	444	4 x M24	384	25	98	317.51	3	182
5 <sup>1</sup> / <sub>4</sub>	135									
5 <sup>7</sup> / <sub>16</sub>	140									
5 <sup>1</sup> / <sub>2</sub>										
5 <sup>11</sup> / <sub>16</sub>		F10	470	4 x M24	412	25	114	346.07	3	202
5 <sup>3</sup> / <sub>4</sub>	150									
5 <sup>13</sup> / <sub>16</sub>	155									
6	160A									
6 <sup>7</sup> / <sub>16</sub>		F11	496	4 x M24	426	25	105	352.42	3	202
6 <sup>1</sup> / <sub>2</sub>	160									
	170A		19.5		16.8	1.0	4.1	13.875	0.1	8.0
6 <sup>11</sup> / <sub>16</sub>		F12	508	4 x M24	438	29	108	365.12	3	208
6 <sup>3</sup> / <sub>4</sub>	170									
6 <sup>13</sup> / <sub>16</sub>	175									
7	180									
7 <sup>1</sup> / <sub>4</sub>		F13	534	4 x M24	474	32	108	400.05	3	208
7 <sup>1</sup> / <sub>2</sub>	190									
7 <sup>13</sup> / <sub>16</sub>	200									
8										
8 <sup>1</sup> / <sub>2</sub>		F14	584	4 x M30	512	35	117	431.81	3	226
8 <sup>7</sup> / <sub>8</sub>	220									
9	230									
9 <sup>1</sup> / <sub>2</sub>		F15	610	4 x M30	542	35	117	463.55	3	228
9 <sup>3</sup> / <sub>4</sub>	240									
10	250									
10 <sup>1</sup> / <sub>2</sub>		F16	660	4 x M30	584	38	124	504.82	3	240
10 <sup>3</sup> / <sub>4</sub>	260									
11	270									
	280		26.0		23.0	1.5	4.9	19.875	0.1	9.4
11 <sup>1</sup> / <sub>2</sub>		F17	712	4 x M30	626	38	133	539.75	3	258
12	300									
	305		28.0		24.6	1.5	5.2	21.250	0.1	10.2

For Bearings and Housings see pages 38 – 43.

# Tensioning Units

*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 tensioning units into new applications, it should be noted that a maximum radial load equivalent to  $0.3C_{or}$  is permissible. As with all Revolvo Units, a wide variety of sealing solutions may be applied dependant on the environment and application. Please contact Timken for assistance.



# Tensioning Units TT/TP

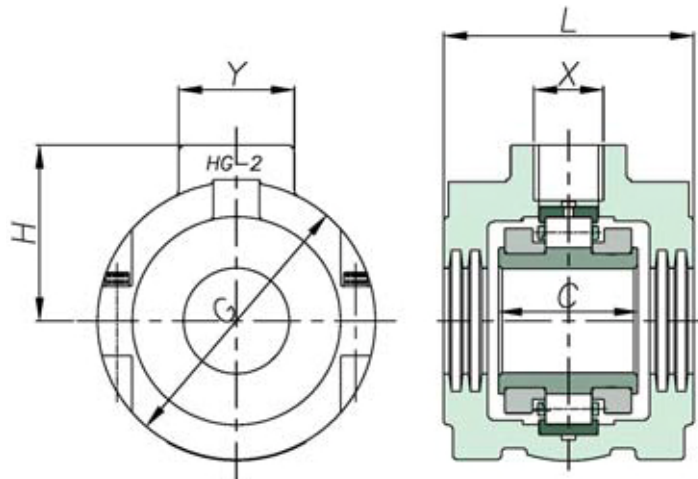
## Light Series - 1<sup>3</sup>/<sub>16</sub>inch to 6inch Flanges

Shaft (d)		Support Reference																
inch	mm	Tension Type	Push Type	B	N	D	V	P	H	L	S	A	T	X	W	R		
1 <sup>3</sup> / <sub>16</sub> 1 <sup>1</sup> / <sub>4</sub> 1 <sup>7</sup> / <sub>16</sub> 1 <sup>1</sup> / <sub>2</sub>	35 40	TT01	TP01	102	172	153	76	14	29	86	25	114	216	20	25	24		
				4.0	6.8	6.0	3.0	0.6	1.1	3.4	1.0	4.5	8.5	0.8	1.0	0.9		
1 <sup>11</sup> / <sub>16</sub> 1 <sup>3</sup> / <sub>4</sub> 1 <sup>15</sup> / <sub>16</sub> 2	45 50			TT02	TP02	114	204	178	88	16	29	98	29	128	242	24	25	25
						4.5	8.0	7.0	3.5	0.6	1.1	3.9	1.1	5.0	9.5	0.9	1.0	1.0
2 <sup>3</sup> / <sub>16</sub> 2 <sup>1</sup> / <sub>4</sub> 2 <sup>7</sup> / <sub>16</sub> 2 <sup>1</sup> / <sub>2</sub>	55 60 65	TT03	TP03			128	235	203	102	20	32	104	38	146	280	24	30	29
						5.0	9.3	8.0	4.0	0.8	1.3	4.1	1.5	5.7	11.0	0.9	1.2	1.1
2 <sup>11</sup> / <sub>16</sub> 2 <sup>3</sup> / <sub>4</sub> 2 <sup>15</sup> / <sub>16</sub> 3	70 75			TT04	TP04	152	266	229	114	22	40	114	41	158	305	24	30	114
						6.0	10.5	9.0	4.5	0.9	1.6	4.5	1.6	6.2	12.0	0.9	1.2	4.5
3 <sup>3</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>4</sub> 3 <sup>7</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>2</sub>	80 85 90	TT05	TP05			190	318	280	140	22	40	136	51	190	368	30	38	35
						7.5	12.5	11.0	5.5	0.9	1.6	5.4	2.0	7.5	14.5	1.2	1.5	1.4
3 <sup>11</sup> / <sub>16</sub> 3 <sup>3</sup> / <sub>4</sub> 3 <sup>15</sup> / <sub>16</sub> 4	100 105			TT06	TP06	204	342	305	152	22	43	134	51	210	414	36	44	35
						8.0	13.5	12.0	6.0	0.9	1.7	5.3	2.0	8.3	16.3	1.4	1.7	1.4
4 <sup>3</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>4</sub> 4 <sup>7</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>2</sub>	110 115	TT07	TP07			216	382	343	162	22	48	142	70	228	445	42	44	41
						8.5	15.0	13.5	6.4	0.9	1.9	5.6	2.8	9.0	17.5	1.7	1.7	1.6
4 <sup>11</sup> / <sub>16</sub> 4 <sup>3</sup> / <sub>4</sub> 4 <sup>15</sup> / <sub>16</sub> 5	120 125 130			TT08	TP08	254	420	381	190	25	51	156	76	260	508	42	44	44
						10.0	16.5	15.0	7.5	1.0	2.0	6.1	3.0	10.2	20.0	1.7	1.7	1.7
5 <sup>3</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>4</sub> 5 <sup>7</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>2</sub>	135 140	TT09	TP09			266	438	400	196	25	54	168	76	266	514	42	44	48
						10.5	17.2	15.7	7.7	1.0	2.1	6.6	3.0	10.5	20.2	1.7	1.7	1.9
5 <sup>11</sup> / <sub>16</sub> 5 <sup>3</sup> / <sub>4</sub> 5 <sup>15</sup> / <sub>16</sub> 6	150 155 160A			TT10	TP10	266	464	426	204	25	57	174	86	280	546	48	50	51
						10.5	18.3	16.8	8.0	1.0	2.2	6.9	3.4	11.0	21.5	1.9	2.0	2.0

# Hanger Units

*Revolvo Hanger Units are the optimum solution for the support of screw conveyor shafts. The unit comprises of a cast iron split housing into which standard 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. Revolvo 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  $0.3C_{or}$  is permissible. Please contact Timken for further information.



Light Series Hanger Units

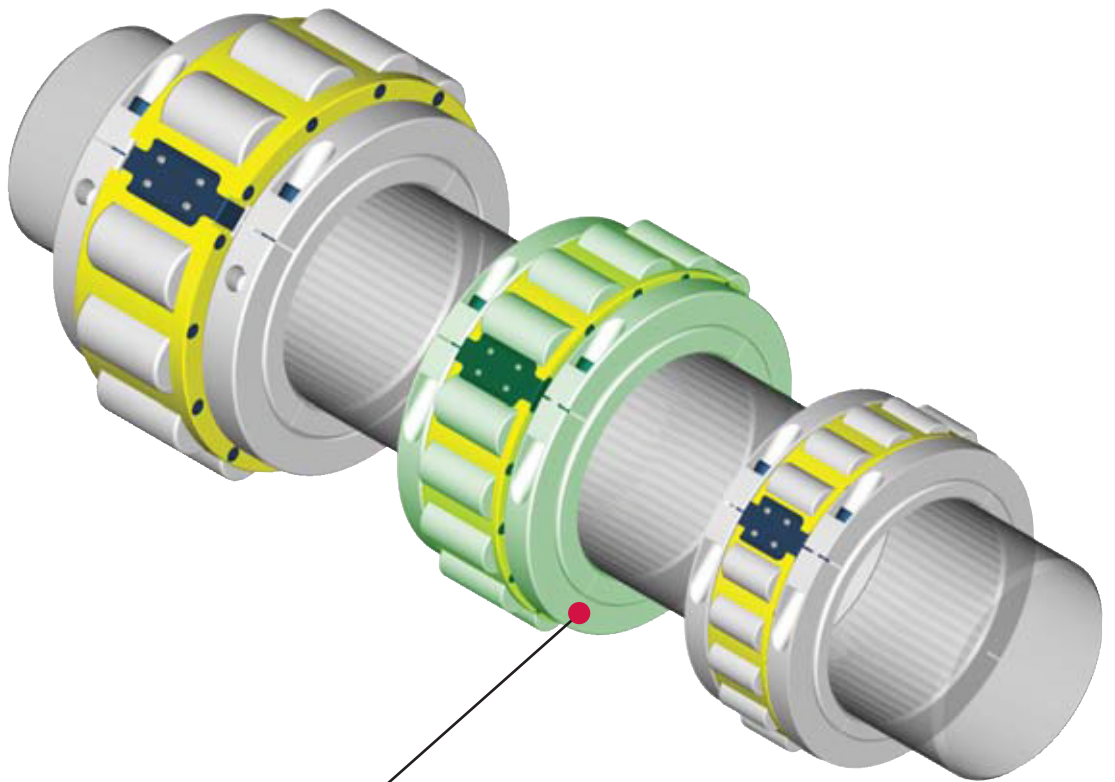
Shaft (d)		Reference	C	G	L	H	X	Y	
inch	mm								
1 <sup>3</sup> / <sub>16</sub>	35	LSM35HG	LSE103HG	55.0	100	108	66	M30	50
1 <sup>1</sup> / <sub>4</sub>		LSM40HG	LSE104HG						
1 <sup>7</sup> / <sub>16</sub>			LSE107HG						
1 <sup>1</sup> / <sub>2</sub>			LSE108HG						
1 <sup>11</sup> / <sub>16</sub>	45	LSM45HG	LSE111HG	60.0	117	108	76	M30	50
1 <sup>3</sup> / <sub>4</sub>		LSM50HG	LSE112HG						
1 <sup>15</sup> / <sub>16</sub>			LSE115HG						
2			LSE200HG	2.362	4.6	4.3	3.0		2.0
2 <sup>1</sup> / <sub>16</sub>	55	LSM55HG	LSE203HG	60.0	135	108	82	M30	50
2 <sup>1</sup> / <sub>4</sub>		LSM60HG	LSE204HG						
2 <sup>7</sup> / <sub>16</sub>		LSM65HG	LSE207HG						
2 <sup>1</sup> / <sub>2</sub>			LSE208HG						
2 <sup>11</sup> / <sub>16</sub>	70	LSM70HG	LSE211HG	65.0	157	130	92	M30	50
2 <sup>3</sup> / <sub>4</sub>		LSM75HG	LSE212HG						
2 <sup>15</sup> / <sub>16</sub>			LSE215HG						
3			LSE300HG	2.559	6.2	5.1	3.6		2.0
3 <sup>1</sup> / <sub>16</sub>	80	LSM80HG	LSE303HG	75.0	178	146	114	M36	76
3 <sup>1</sup> / <sub>4</sub>		LSM85HG	LSE304HG						
3 <sup>7</sup> / <sub>16</sub>		LSM90HG	LSE307HG						
3 <sup>1</sup> / <sub>2</sub>			LSE308HG						
3 <sup>11</sup> / <sub>16</sub>	100	LSM100HG	LSE311HG	85.0	203	152	128	M36	76
3 <sup>3</sup> / <sub>4</sub>		LSM105HG	LSE312HG						
3 <sup>15</sup> / <sub>16</sub>			LSE315HG						
4			LSE400HG						
3.346			LSE400HG	3.346	8.0	6.0	5.0		3.0
4 <sup>1</sup> / <sub>16</sub>	110	LSM110HG	LSE403HG	90.0	232	156	140	M36	76
4 <sup>1</sup> / <sub>4</sub>		LSM115HG	LSE404HG						
4 <sup>7</sup> / <sub>16</sub>			LSE407HG						
4 <sup>1</sup> / <sub>2</sub>			LSE408HG						
3.543			LSE408HG	3.543	9.1	6.1	5.5		3.0



# Medium Series Product

*Medium Series bearing products can be utilized in applications requiring higher load carrying capacity. Under nominal conditions, Medium Series may also 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, Timken will be happy to provide help and advice on your application.*

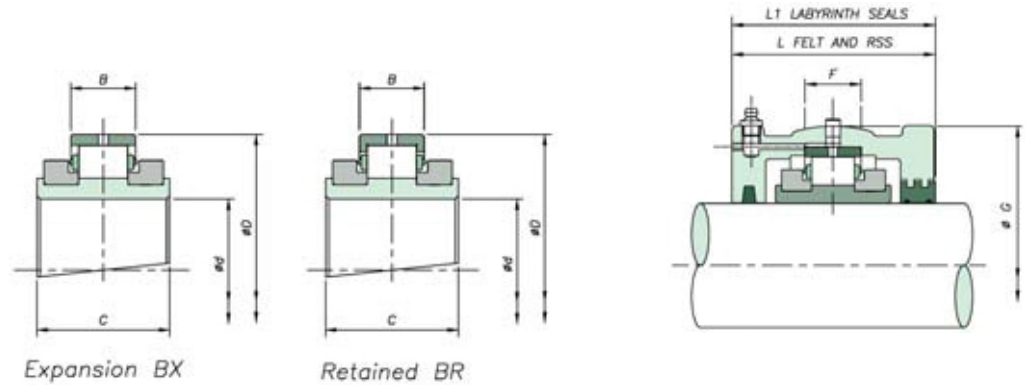
Bearings, Housings & Supports	1 <sup>11</sup> / <sub>16</sub> inch to 6inch	Page	50 – 51
	6 <sup>7</sup> / <sub>16</sub> inch to 14inch	Page	52 – 53
	15inch to 24inch	Page	54 – 55
Flange Units		Page	56 – 57
Tensioning Units		Page	58 – 59



**Medium Series**

# Medium Series Bearing & Housing

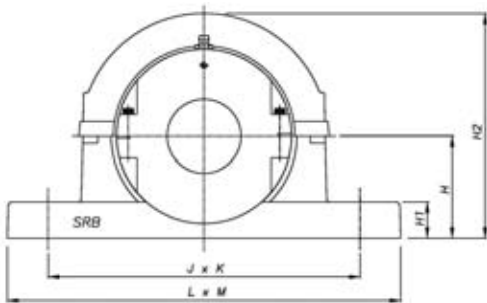
## 1<sup>11</sup>/<sub>16</sub> inch to 6 inch



Shaft (d)		Reference	Bearings Ratings						Housing Reference							
inch	mm	Add BR for retained Add BX for expansion e.g. MSM55BR	Dynamic C <sub>r</sub> (kN/lb)	Static C <sub>0r</sub> (kN/lb)	Axial C <sub>a</sub> (kN/lb)	Max RPM	D	B	C	Housing Retained	Reference Expansion	G	F	L	L <sub>1</sub>	
1 <sup>11</sup> / <sub>16</sub>																
1 <sup>3</sup> / <sub>4</sub>	45	MSM45	MSE111	121	127	6.20	4350	107.95	35.00	67.50	MS3HR	MS3HX	134.94	32	112	114
1 <sup>15</sup> / <sub>16</sub>	50	MSM50	MSE112	27202	28551	1394		4.250	1.378	2.657			5.313	1.3	4.4	4.5
2			MSE200													
2 <sup>1</sup> / <sub>16</sub>			MSE203													
2 <sup>1</sup> / <sub>4</sub>	55	MSM55	MSE204	168	190	8.80	3680	127.00	38.90	72.30	MS4HR	MS4HX	157.16	38	124	126
2 <sup>1</sup> / <sub>2</sub>	60	MSM60	MSE207	37768	42714	1978		5.000	1.531	2.846			6.187	1.5	4.9	5.0
2 <sup>1</sup> / <sub>2</sub>	65	MSM65	MSE208													
2 <sup>11</sup> / <sub>16</sub>			MSE211													
2 <sup>3</sup> / <sub>4</sub>	70	MSM70	MSE212	258	300	10.60	3080	149.22	46.10	82.60	MS5HR	MS5HX	177.80	50	138	140
2 <sup>15</sup> / <sub>16</sub>	75	MSM75	MSE215	58001	67443	2383		5.875	1.815	3.252			7.000	2.0	5.4	5.5
3			MSE300													
3 <sup>1</sup> / <sub>16</sub>			MSE303													
3 <sup>1</sup> / <sub>4</sub>	80	MSM80	MSE304	297	353	17.80	2520	169.86	48.40	89.70	MS6HR	MS6HX	203.20	50	152	154
3 <sup>1</sup> / <sub>2</sub>	85	MSM85	MSE307	66768	79358	4002		6.687	1.906	3.531			8.000	2.0	6.0	6.1
3 <sup>1</sup> / <sub>2</sub>	90	MSM90	MSE308													
3 <sup>11</sup> / <sub>16</sub>			MSE311													
3 <sup>3</sup> / <sub>4</sub>	100	MSM100	MSE312	388	491	25.00	2130	193.68	51.60	92.10	MS7HR	MS7HX	231.78	64	144	146
3 <sup>15</sup> / <sub>16</sub>	105	MSM105	MSE315	87226	110381	5620		7.625	2.031	3.626			9.125	2.5	5.7	5.7
4			MSE400													
4 <sup>1</sup> / <sub>16</sub>			MSE403													
4 <sup>1</sup> / <sub>4</sub>	110	MSM110	MSE404	454	592	31.20	1820	228.60	57.20	100.00	MS8HR	MS8HX	266.70	76	160	162
4 <sup>1</sup> / <sub>2</sub>	115	MSM115	MSE407	102063	133087	7014		9.000	2.252	3.937			10.500	3.0	6.3	6.4
4 <sup>1</sup> / <sub>2</sub>			MSE408													
4 <sup>11</sup> / <sub>16</sub>			MSE411													
4 <sup>3</sup> / <sub>4</sub>	120	MSM120	MSE412	525	700	38.20	1600	254.00	63.50	114.30	MS10HR	MS10HX	295.28	82	182	184
4 <sup>15</sup> / <sub>16</sub>	125	MSM125	MSE415	118025	157366	8588		10.000	2.500	4.500			11.625	3.2	7.2	7.2
5	130	MSM130	MSE500													
5 <sup>1</sup> / <sub>16</sub>			MSE503													
5 <sup>1</sup> / <sub>4</sub>	135	MSM135	MSE504	600	817	45.40	1450	273.05	66.70	117.50	MS30HR	MS30HX	323.85	90	186	188
5 <sup>1</sup> / <sub>2</sub>	140	MSM140	MSE507	134885	183669	10206		10.750	2.626	4.626			12.750	3.5	7.3	7.4
5 <sup>1</sup> / <sub>2</sub>			MSE508													
5 <sup>11</sup> / <sub>16</sub>			MSE511													
5 <sup>3</sup> / <sub>4</sub>	150	MSM150	MSE512	730	1034	52.40	1320	292.10	68.30	123.80	MS31HR	MS31HX	336.55	95	202	204
5 <sup>15</sup> / <sub>16</sub>	155	MSM155	MSE515	164111	232453	11780		11.500	2.689	4.874			13.250	3.7	8.0	8.0
6	160A	MSM160A	MSE600													

\*For Triple Labyrinth Seal Designations, please refer to page 66.

# Medium Series Support S03 - S31

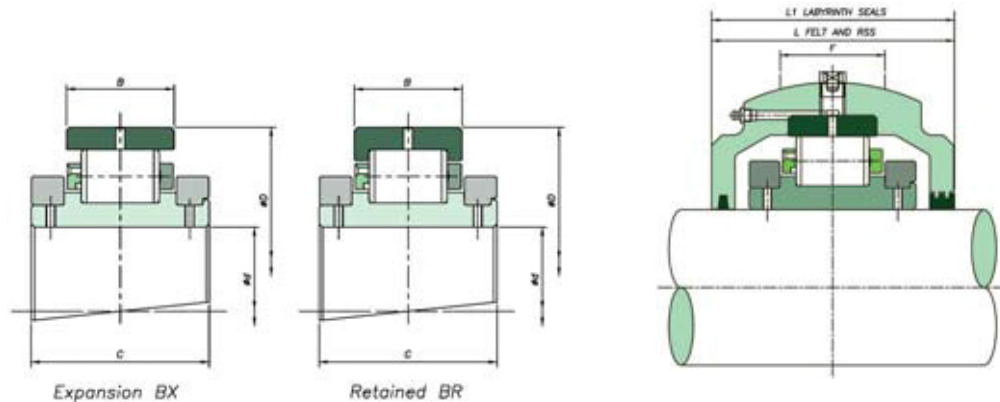


## S03 - S31

Shaft (d) inch	mm	Support Reference	H	H <sub>1</sub>	H <sub>2</sub>	J x K	L x M	Bolts
1 <sup>11</sup> / <sub>16</sub> 1 <sup>3</sup> / <sub>4</sub> 1 <sup>15</sup> / <sub>16</sub> 2	45 50	S03	80 3.150	32 1.3	180 7.1	234 9.2	280 x 70 11 x 2.8	2 x M16
2 <sup>3</sup> / <sub>16</sub> 2 <sup>1</sup> / <sub>4</sub> 2 <sup>7</sup> / <sub>16</sub> 2 <sup>1</sup> / <sub>2</sub>	55 60 65	S04	95 3.740	38 1.5	208 8.2	270 10.6	330 x 76 13 x 3	2 x M20
2 <sup>11</sup> / <sub>16</sub> 2 <sup>3</sup> / <sub>4</sub> 2 <sup>15</sup> / <sub>16</sub> 3	70 75	S05	112 4.409	44 1.7	252 9.9	320 12.6	380 x 90 15 x 3.5	2 x M24
3 <sup>3</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>4</sub> 3 <sup>7</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>2</sub>	80 85 90	S06	125 4.921	52 2.0	272 10.7	354 13.9	420 x 102 16.5 x 4	2 x M24
3 <sup>11</sup> / <sub>16</sub> 3 <sup>3</sup> / <sub>4</sub> 3 <sup>15</sup> / <sub>16</sub> 4	100 105	S07	143 5.630	60 2.4	314 12.4	392 15.4	466 x 120 18.3 x 4.7	2 x M24
4 <sup>3</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>4</sub> 4 <sup>7</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>2</sub>	110 115	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
4 <sup>11</sup> / <sub>16</sub> 4 <sup>3</sup> / <sub>4</sub> 4 <sup>15</sup> / <sub>16</sub> 5	120 125 130	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
5 <sup>3</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>4</sub> 5 <sup>7</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>2</sub>	135 140	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
5 <sup>11</sup> / <sub>16</sub> 5 <sup>3</sup> / <sub>4</sub> 5 <sup>15</sup> / <sub>16</sub> 6	150 155 160A	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 & Housing

## 6<sup>7</sup>/<sub>16</sub> inch to 14inch

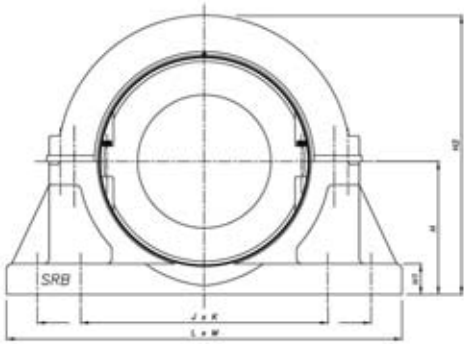


Shaft (d)		Reference		Bearings Ratings						
inch	mm	Add BR for retained Add BX for expansion e.g. MSM160BR		Dynamic C <sub>r</sub> (kN/lb)	Static C <sub>0r</sub> (kN/lb)	Axial C <sub>a</sub> (kN/lb)	Max RPM	D	B	C
6 <sup>7</sup> / <sub>16</sub>	160	MSM160	MSE607	842	1175	61.40	1200	317.50	83.30	140.00
6 <sup>1</sup> / <sub>2</sub>	170	MSM170	MSE608	189289	264151	13803		12.500	3.280	5.512
6 <sup>11</sup> / <sub>16</sub>			MSE611							
6 <sup>3</sup> / <sub>4</sub>	175	MSM175	MSE612	927	1357	71.20	1120	330.20	83.30	140.00
6 <sup>15</sup> / <sub>16</sub>	180	MSM180	MSE615	208398	305066	16006		13.000	3.280	5.512
7			MSE700							
7 <sup>1</sup> / <sub>4</sub>			MSE704							
7 <sup>1</sup> / <sub>2</sub>	190	MSM190	MSE708	1013	1516	80.00	960	368.30	90.50	156.00
7 <sup>15</sup> / <sub>16</sub>	200	MSM200	MSE715	227732	340810	17985		14.500	3.563	6.142
8			MSE800							
8 <sup>1</sup> / <sub>2</sub>	220	MSM220	MSE808	1138	1668	89.80	850	393.70	90.50	163.00
8 <sup>7</sup> / <sub>8</sub>	230	MSM230	MSE814	255833	374981	20188		15.500	3.563	6.417
9			MSE900							
9 <sup>1</sup> / <sub>2</sub>	240	MSM240	MSE908	1240	1882	98.80	750	431.80	96.80	170.00
9 <sup>3</sup> / <sub>4</sub>	250	MSM250	MSE912	278763	423091	22211		17.000	3.811	6.693
10	260	MSM260	MSE1000							
10 <sup>1</sup> / <sub>2</sub>	270	MSM270	MSE1008	1476	2357	113.80	670	463.55	101.60	186.00
10 <sup>3</sup> / <sub>4</sub>	280	MSM280	MSE1012	331818	529875	25583		18.250	4.000	7.323
11			MSE1100							
11 <sup>1</sup> / <sub>2</sub>	300	MSM300	MSE1108	1569	2607	129.00	610	495.30	103.20	193.00
12	305	MSM305	MSE1200	352725	586077	29000		19.500	4.063	7.598
12 <sup>1</sup> / <sub>2</sub>	320	MSM320	MSE1208	1723	2922	144.20	550	527.05	106.40	192.00
13	330	MSM330	MSE1300	387346	656892	32417		20.750	4.189	7.559
14	340	MSM340	MSE1400	1989	3403	159.20	500	565.15	115.90	200.00
	360	MSM360		447145	765025	35790		22.250	4.563	7.874

Housing Reference					
Housing Retained	Reference Expansion	G	F	L	L <sub>1</sub>
MS32HR	MS32HX	368.30 14.500	95 3.7	206 8.1	232 9.1
MS33HR	MS33HX	381.00 15.000	95 3.7	222 8.7	242 9.5
MS34HR	MS34HX	425.50 16.752	105 4.1	235 9.3	258 10.2
MS35HR	MS35HX	457.20 18.000	110 4.3	242 9.5	274 10.8
MS36HR	MS36HX	495.30 19.500	118 4.6	248 9.8	280 11.0
MS37HR	MS37HX	527.10 20.752	130 5.1	264 10.4	300 11.8
MS38HR	MS38HX	552.50 21.752	128 5.0	268 10.6	306 12.0
MS39HR	MS39HX	587.40 23.126	128 5.0	298 11.7	-
MS40HR	MS40HX	628.70 24.752	146 5.7	305 12.0	-

\*For Triple Labyrinth Seal Designations, please refer to page 66.

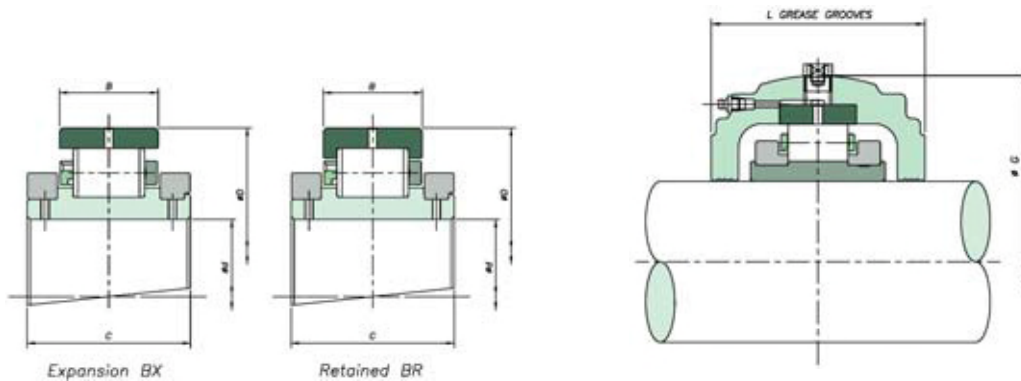
# Medium Series Support S32 - S40



## S32 - S40

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

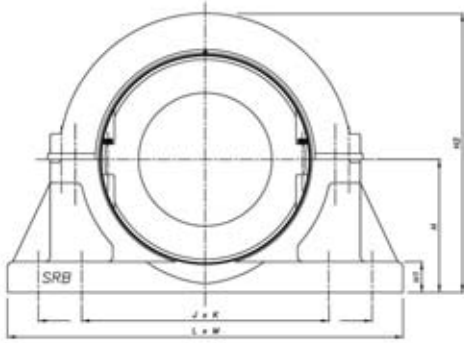
# Medium Series Bearing & Housing 15inch to 24inch



Shaft (d)		Reference		Bearings Ratings							Housing Reference					
inch	mm	Add BR for retained	Add BX for expansion	Dynamic C <sub>r</sub>	Static C <sub>0r</sub>	Axial C <sub>a</sub>	Max RPM	D	B	C	Housing Retained	Referenece Expansion	G	F	L	L <sub>1</sub>
15	380	MSM380	MSE1500	1800 404656	3202 719838	174.40 39207	460	584.20 23.000	111.10 4.374	200.00 7.874	MS41HR	MS41HX	647.70 25.500	146 5.7	305 12.0	-
16	400	MSM400	MSE1600	2105 473223	3793 852701	188.40 42354	430	615.95 24.250	115.90 4.563	200.00 7.874	MS42HR	MS42HX	685.80 27.000	146 5.7	324 12.8	-
17	420	MSM420	MSE1700	2324 522456	4164 936105	202.00 45411	400	647.70 25.500	119.10 4.689	200.00 7.874	MS43HR	MS43HX	717.60 28.252	146 5.7	350 13.8	-
18	440 460	MSM440 MSM460	MSE1800	2215 497952	4183 940376	216.00 48559	380	666.75 26.250	115.90 4.563	200.00 7.874	MS44HR	MS44HX	733.40 28.874	146 5.7	350 13.8	-
19	480	MSM480	MSE1900	2445 549658	4594 1032773	230.00 51706	360	698.50 27.500	119.10 4.689	223.00 8.780	MS45HR	MS45HX	762.00 30.000	146 5.7	368 14.5	-
20	500	MSM500	MSE2000	2320 521557	4571 1027602	244.00 54853	340	717.55 28.250	115.90 4.563	226.00 8.898	MS46HR	MS46HX	787.40 31.000	146 5.7	368 14.5	-
21	530	MSM530	MSE2100	2556 574612	5028 1130340	258.00 58001	330	762.00 30.000	119.10 4.689	229.00 9.016	MS47HR	MS47HX	831.90 32.752	150 5.9	368 14.5	-
22	560	MSM560	MSE2200	2683 603163	5436 1222062	272.00 61148	310	793.75 31.250	122.20 4.811	233.00 9.173	MS48HR	MS48HX	866.80 34.126	152 6.0	374 14.7	-
23	580	MSM580	MSE2300	2740 615977	5601 1259155	286.00 64295	300	812.80 32.000	119.10 4.689	232.00 9.134	MS49HR	MS49HX	883.00 34.764	152 6.0	374 14.7	-
24	600	MSM600	MSE2400	2770 622721	5637 1267248	300.00 67443	290	838.20 33.000	119.10 4.689	214.00 8.425	MS50HR	MS50HX	914.40 36.000	152 6.0	388 15.3	-

\*For Triple Labyrinth Seal Designations, please refer to page 66.

# Medium Series Support S41 - S50



## S41 - S50

inch	Shaft (d) mm	Support Reference	H	H <sub>1</sub>	H <sub>2</sub>	J x K	L x M	Bolts
15	380	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
16	400	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
17	420	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
18	440 460	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
19	480	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
20	500	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
21	530	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
22	560	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
23	580	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
24	600	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

# Flange Units

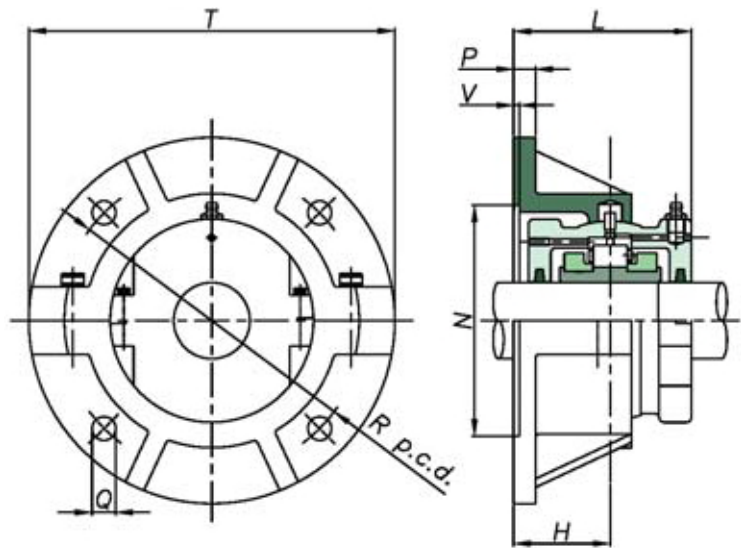
*When faced with flat horizontal or vertical faces, flange units offer a simple mounting solution. As with Pillow block supports, Flange units are produced with spherical location to accommodate standard bearing housings and provide easy initial alignment of shaft and equipment.*

To facilitate positive location of the flange to the surface, the rear face is recessed (dimensions N & 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  $0.26C_{or}$  is permissible. A maximum axial load of  $0.25C_a$  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.





# Medium Series Support

## 1<sup>11</sup>/<sub>16</sub> inch to 12 inch Flanges

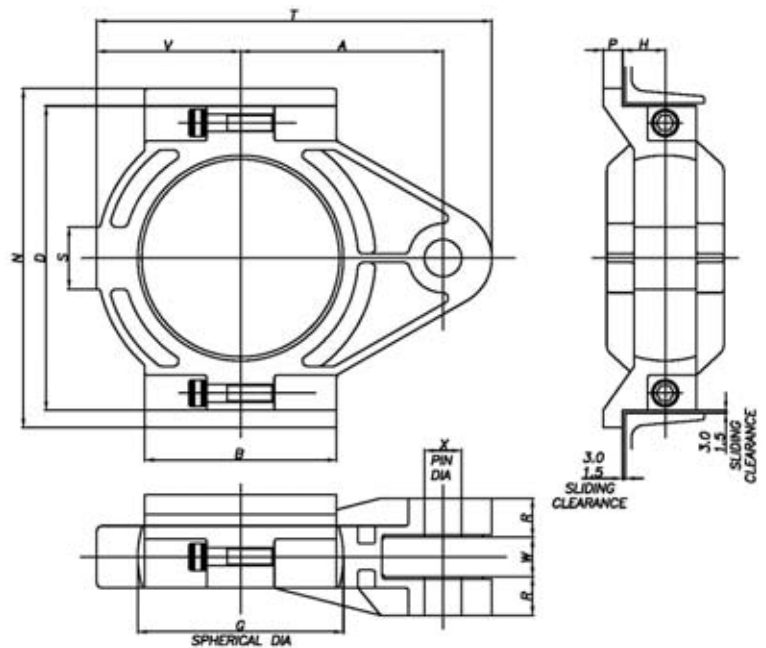
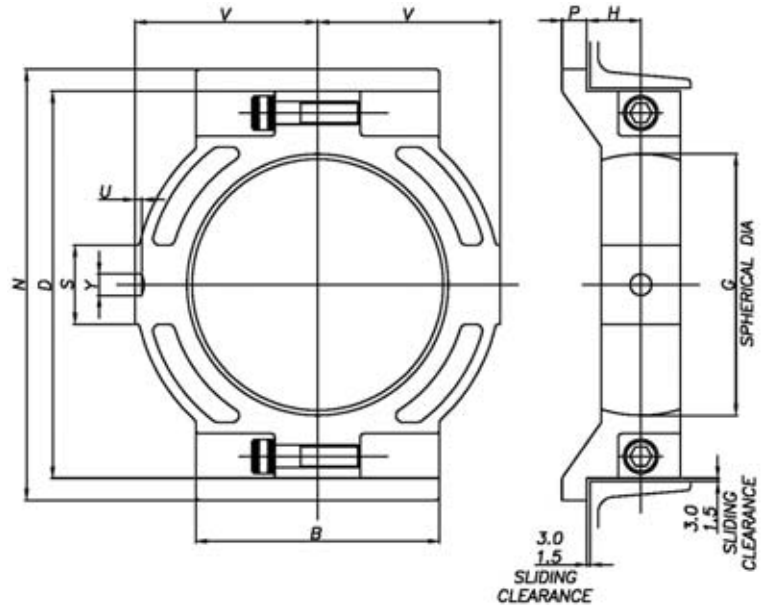
Medium Series 1 <sup>11</sup> / <sub>16</sub> inch to 12 inch Flanges										
Shaft (d)		Flange Reference	T	Bolts	R	P	H	N	V	L
inch	mm									
1 <sup>11</sup> / <sub>16</sub>		F03	260	4 x M12	218	16	67	166.9	3	124
1 <sup>3</sup> / <sub>4</sub>	45		10.2		8.6	0.6	2.6	6.571	0.1	4.9
1 <sup>15</sup> / <sub>16</sub>	50									
2 <sup>3</sup> / <sub>16</sub>		F04	286	4 x M12	242	16	73	192.09	3	136
2 <sup>1</sup> / <sub>4</sub>	55		11.3		9.5	0.6	2.9	7.563	0.1	5.4
2 <sup>7</sup> / <sub>16</sub>	60									
2 <sup>1</sup> / <sub>2</sub>	65									
2 <sup>11</sup> / <sub>16</sub>		F05	330	4 x M16	274	19	79	215.9	3	150
2 <sup>3</sup> / <sub>4</sub>	70		13.0		10.8	0.7	3.1	8.500	0.1	5.9
2 <sup>15</sup> / <sub>16</sub>	75									
3										
3 <sup>3</sup> / <sub>16</sub>		F06	356	4 x M16	302	19	86	244.47	3	164
3 <sup>1</sup> / <sub>4</sub>	80		14.0		11.9	0.7	3.4	9.625	0.1	6.5
3 <sup>7</sup> / <sub>16</sub>	85									
3 <sup>1</sup> / <sub>2</sub>	90									
3 <sup>11</sup> / <sub>16</sub>		F07	382	4 x M16	334	22	92	276.22	3	166
3 <sup>3</sup> / <sub>4</sub>	100		15.0		13.1	0.9	3.6	10.875	0.1	6.5
3 <sup>15</sup> / <sub>16</sub>	105									
4										
4 <sup>1</sup> / <sub>16</sub>		F08	432	4 x M24	374	22	98	314.32	3	180
4 <sup>1</sup> / <sub>4</sub>	110		17.0		14.7	0.9	3.9	12.375	0.1	7.1
4 <sup>7</sup> / <sub>16</sub>	115									
4 <sup>1</sup> / <sub>2</sub>										
4 <sup>11</sup> / <sub>16</sub>		F10	470	4 x M24	412	25	114	346.07	3	206
4 <sup>3</sup> / <sub>4</sub>	120		18.5		16.2	1.0	4.5	13.625	0.1	8.1
4 <sup>15</sup> / <sub>16</sub>	125									
5	130									
5 <sup>3</sup> / <sub>16</sub>		F30	508	4 x M24	444	25	114	377.82	3	208
5 <sup>1</sup> / <sub>4</sub>	135		20.0		17.5	1.0	4.5	14.875	0.1	8.2
5 <sup>7</sup> / <sub>16</sub>	140									
5 <sup>1</sup> / <sub>2</sub>										
5 <sup>11</sup> / <sub>16</sub>		F31	534	4 x M24	466	25	124	393.70	3	226
5 <sup>3</sup> / <sub>4</sub>	150		21.0		18.3	1.0	4.9	15.500	0.1	8.9
5 <sup>15</sup> / <sub>16</sub>	155									
6	160A									
6 <sup>7</sup> / <sub>16</sub>		F32	584	4 x M30	508	29	124	428.62	5	240
6 <sup>1</sup> / <sub>2</sub>	160		23.0		20.0	1.1	4.9	16.875	0.2	9.4
	170									
6 <sup>11</sup> / <sub>16</sub>		F33	596	4 x M30	524	32	130	444.50	5	252
6 <sup>3</sup> / <sub>4</sub>	175		23.5		20.6	1.3	5.1	17.500	0.2	9.9
6 <sup>15</sup> / <sub>16</sub>	180									
7										
7 <sup>1</sup> / <sub>4</sub>		F34	648	4 x M30	572	32	137	492.12	5	266
7 <sup>1</sup> / <sub>2</sub>	190		25.5		22.5	1.3	5.4	19.375	0.2	10.5
7 <sup>15</sup> / <sub>16</sub>	200									
8										
8 <sup>1</sup> / <sub>2</sub>		F35	712	4 x M36	620	35	146	527.05	5	284
8 <sup>7</sup> / <sub>8</sub>	220		28.0		24.4	1.4	5.7	20.750	0.2	11.2
9	230									
9 <sup>1</sup> / <sub>2</sub>		F36	736	4 x M36	660	38	149	568.32	5	290
9 <sup>3</sup> / <sub>4</sub>	240		29.0		26.0	1.5	5.9	22.375	0.2	11.4
10	250									
260										
10 <sup>1</sup> / <sub>2</sub>		F37	762	8 x M30	682	38	159	603.25	5	310
10 <sup>3</sup> / <sub>4</sub>	270		30.0		26.9	1.5	6.3	23.750	0.2	12.2
11	280									
11 <sup>1</sup> / <sub>2</sub>		F38	788	8 x M30	708	41	162	628.65	5	316
12	300		31.0		27.9	1.6	6.4	24.750	0.2	12.4
	305									

For Bearings and Housings see pages 53 – 58

# Tensioning Units

*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 tensioning units into new applications, it should be noted that a maximum radial load equivalent to  $0.3C_{or}$  is permissible. As with all Revolve Units, a wide variety of sealing solutions may be applied dependant on the environment and application. Please contact Timken for assistance.



# Tensioning Units TT/TP

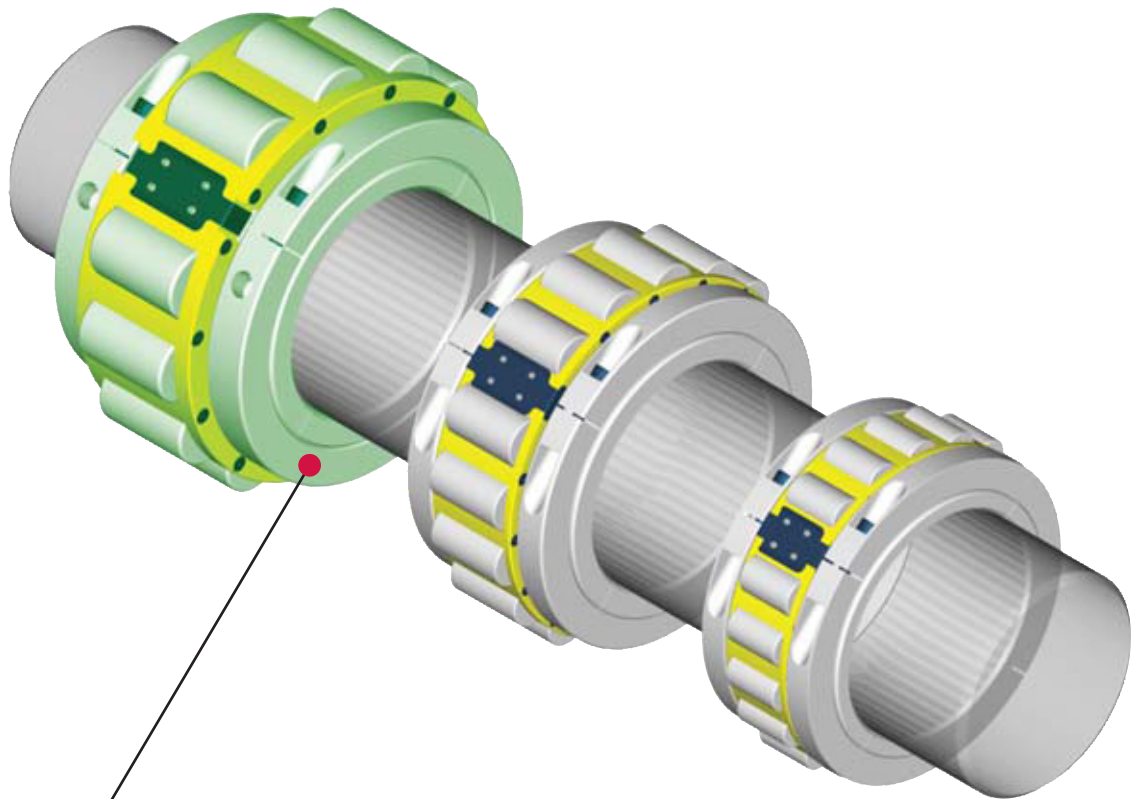
## Medium Series 1<sup>11</sup>/<sub>16</sub> inch to 6 inch Support

Shaft (d)		Support Reference														
inch	mm	Tension Type	Push Type	B	N	D	V	P	H	L	S	A	T	X	W	R
1 <sup>11</sup> / <sub>16</sub> 1 <sup>3</sup> / <sub>4</sub> 1 <sup>15</sup> / <sub>16</sub> 2	45 50	TT03	TP03	128 5.0	235 9.3	203 8.0	102 4.0	20 0.8	32 1.3	108 4.3	38 1.5	146 5.7	280 11.0	24 0.9	30 1.2	29 1.1
2 <sup>3</sup> / <sub>16</sub> 2 <sup>1</sup> / <sub>4</sub> 2 <sup>7</sup> / <sub>16</sub> 2 <sup>1</sup> / <sub>2</sub>	55 60 65	TT04	TP04	152 6.0	266 10.5	229 9.0	114 4.5	22 0.9	40 1.6	124 4.9	41 1.6	158 6.2	305 12.0	24 0.9	30 1.2	114 4.5
2 <sup>11</sup> / <sub>16</sub> 2 <sup>3</sup> / <sub>4</sub> 2 <sup>15</sup> / <sub>16</sub> 3	70 75	TT05	TP05	190 7.5	318 12.5	280 11.0	140 5.5	22 0.9	40 1.6	131 5.2	51 2.0	190 7.5	368 14.5	30 1.2	38 1.5	35 1.4
3 <sup>3</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>4</sub> 3 <sup>5</sup> / <sub>16</sub> 3 <sup>1</sup> / <sub>2</sub>	80 85 90	TT06	TP06	204 8.0	342 13.5	305 12.0	152 6.0	22 0.9	43 1.7	141 5.6	51 2.0	210 8.3	414 16.3	36 1.4	44 1.7	35 1.4
3 <sup>11</sup> / <sub>16</sub> 3 <sup>3</sup> / <sub>4</sub> 3 <sup>15</sup> / <sub>16</sub> 4	100 105	TT07	TP07	216 8.5	382 15.0	343 13.5	162 6.4	22 0.9	48 1.9	142 5.6	70 2.8	228 9.0	445 17.5	42 1.7	44 1.7	41 1.6
4 <sup>3</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>4</sub> 4 <sup>7</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>2</sub>	110 115	TT08	TP08	254 10.0	420 16.5	381 15.0	190 7.5	25 1.0	51 2.0	156 6.1	76 3.0	260 10.2	508 20.0	42 1.7	44 1.7	44 1.7
4 <sup>11</sup> / <sub>16</sub> 4 <sup>3</sup> / <sub>4</sub> 4 <sup>15</sup> / <sub>16</sub> 5	120 125 130	TT10	TP10	266 10.5	464 18.3	426 16.8	204 8.0	25 1.0	57 2.2	173 6.8	86 3.4	280 11.0	546 21.5	48 1.9	50 2.0	51 2.0
5 <sup>3</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>4</sub> 5 <sup>7</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>2</sub>	135 140	TT30	TP30	280 11.0	502 19.8	464 18.3	222 8.7	25 1.0	60 2.4	178 7.0	92 3.6	298 11.7	584 23.0	48 1.9	50 2.0	54 2.1
5 <sup>11</sup> / <sub>16</sub> 5 <sup>3</sup> / <sub>4</sub> 5 <sup>15</sup> / <sub>16</sub> 6	150 155 160A	TT31	TP31	305 12.0	528 20.8	489 19.3	235 9.3	25 1.0	64 2.5	190 7.5	92 3.6	312 12.3	616 24.3	48 1.9	50 2.0	57 2.2

# Heavy Series Product

*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, Timken will be happy to provide help and advice on your application.*

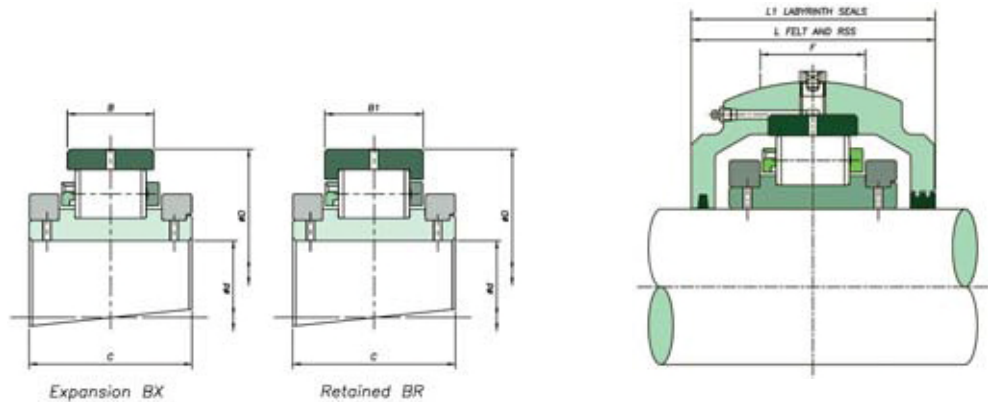
Bearings, Housings & Supports 3 <sup>11</sup> / <sub>16</sub> inch to 10inch	Page	61 – 62
1 inch to 24inch	Page	63 – 64
Flange Units	Page	65



*Heavy Series*

# Heavy Series Bearing & Housing

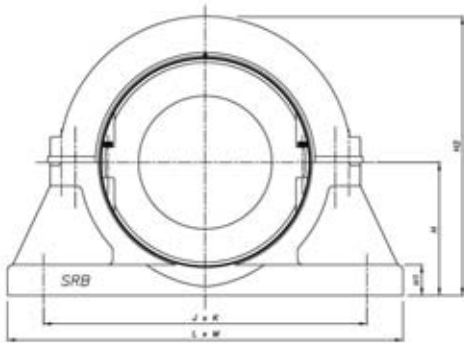
## 3<sup>11</sup>/<sub>16</sub> inch to 10 inch



Shaft (d)		Reference	Bearings Ratings							Housing Reference						
inch	mm	Add BR for retained Add BX for expansion e.g. HSM100BR	Dynamic C <sub>r</sub> (kN/lb)	Static C <sub>or</sub> (kN/lb)	Axial C <sub>a</sub> (kN/lb)	Max RPM	D	B B <sub>1</sub>	C	Housing Retained	Referenece Expansion	G	F	L	L <sub>1</sub>	
3 <sup>11</sup> / <sub>16</sub>																
3 <sup>3</sup> / <sub>4</sub>	100	HSM100	HSE311	653	783	31.20	1820	254.00	84.20	136.00						
3 <sup>15</sup> / <sub>16</sub>	105	HSM105	HSE312	146800	176025	7014		10.000	3.315	5.354	HS54HR	HS54HX	308.00	95	200	206
4			HSE315													
			HSE400													
4 <sup>3</sup> / <sub>16</sub>																
4 <sup>1</sup> / <sub>4</sub>	110	HSM110	HSE403	656	801	39.10	1640	266.70	87.30	147.00						
4 <sup>7</sup> / <sub>16</sub>	115	HSM115	HSE404	147475	180072	8790		10.500	3.437	5.787	HS55HR	HS55HX	323.85	102	210	222
4 <sup>1</sup> / <sub>2</sub>	120	HSM120	HSE407													
			HSE408													
4 <sup>15</sup> / <sub>16</sub>																
5	125	HSM125	HSE415	753	974	49.00	1500	279.40	73.10	140.00						
	130	HSM130	HSE500	169281	218964	11016		11.000	84.20	5.512	HS56HR	HS56HX	323.85	102	214	222
									3.315							
5 <sup>3</sup> / <sub>16</sub>																
5 <sup>1</sup> / <sub>4</sub>	135	HSM135	HSE503	827	1084	58.80	1340	304.80	3.126	147.00						
5 <sup>7</sup> / <sub>16</sub>	140	HSM140	HSE504	185917	243693	13219		12.000	90.50	5.787	HS57HR	HS57HX	355.60	108	216	230
5 <sup>1</sup> / <sub>2</sub>			HSE507						3.563							
			HSE508													
5 <sup>11</sup> / <sub>16</sub>																
5 <sup>3</sup> / <sub>4</sub>	150	HSM150	HSE511	1037	1325	69.40	1220	330.20	81.00	160.00						
5 <sup>15</sup> / <sub>16</sub>	155	HSM155	HSE512	233127	297872	15602		13.000	3.189	6.299	HS58HR	HS58HX	393.70	114	232	254
6			HSE515						96.90	6.299						
			HSE600						3.815							
6 <sup>7</sup> / <sub>16</sub>																
6 <sup>1</sup> / <sub>2</sub>	160	HSM160	HSE607	1015	1326	79.20	1110	355.60	103.20	171.00						
6 <sup>11</sup> / <sub>16</sub>	170	HSM170	HSE608	228181	298097	17805		14.000	4.063	6.732	HS59HR	HS59HX	422.30	120	244	268
			HSE611													
6 <sup>3</sup> / <sub>4</sub>																
6 <sup>15</sup> / <sub>16</sub>	175	HSM175	HSE612	1275	1767	89.00	1030	374.65	92.10	178.00						
7	180	HSM180	HSE615	286631	397238	20008		14.750	3.626	7.008	HS60HR	HS60HX	431.80	132	254	284
			HSE700						108.80	7.008						
									4.283							
7 <sup>1</sup> / <sub>4</sub>																
7 <sup>1</sup> / <sub>2</sub>	190	HSM190	HSE704	1423	1958	99.60	880	419.10	97.70	191.00						
7 <sup>15</sup> / <sub>16</sub>	200	HSM200	HSE708	319903	440176	22391		16.500	3.846	7.520	HS61HR	HS61HX	489.00	146	270	300
8			HSE715						118.30	7.520						
			HSE800						4.657							
8 <sup>1</sup> / <sub>2</sub>																
8 <sup>7</sup> / <sub>8</sub>	220	HSM220	HSE808	1665	2455	109.40	760	469.90	109.60	212.00						
9	230	HSM230	HSE814	374307	551906	24594		18.500	4.315	8.346	HS62HR	HS62HX	546.10	165	298	334
			HSE900						131.80	8.346						
									5.189							
9 <sup>1</sup> / <sub>2</sub>																
9 <sup>3</sup> / <sub>4</sub>	240	HSM240	HSE908	1694	2519	130.80	700	482.60	105.60	211.00						
10	260	HSM260	HSE912	380826	566294	29405		19.000	4.157	8.307	HS63HR	HS63HX	558.80	165	298	334
			HSE1000						124.60	8.307						
									4.906							

\*For Triple Labyrinth Seal Designations, please refer to page 66.

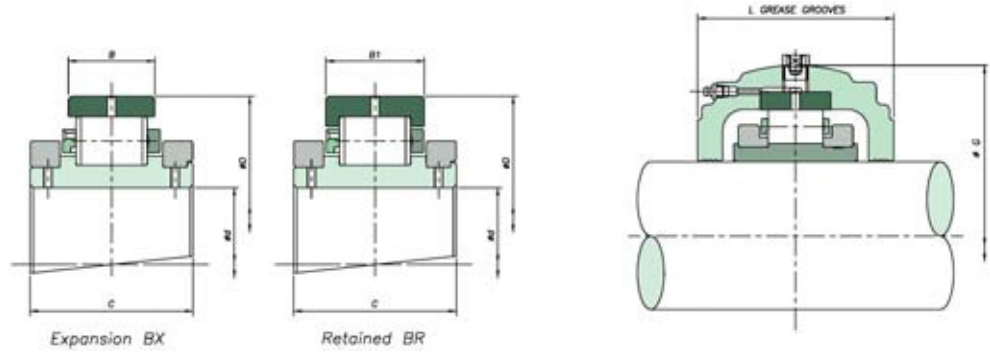
# Heavy Series Support S54 - S63



## S54 - S63

Shaft (d) inch	mm	Support Reference	H	H <sub>1</sub>	H <sub>2</sub>	J x K	L x M	Bolts
3 <sup>11</sup> / <sub>16</sub> 3 <sup>3</sup> / <sub>4</sub> 3 <sup>15</sup> / <sub>16</sub> 4	100 105	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
4 <sup>3</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>4</sub> 4 <sup>7</sup> / <sub>16</sub> 4 <sup>1</sup> / <sub>2</sub>	110 115 120	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
4 <sup>15</sup> / <sub>16</sub> 5	125 130	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
5 <sup>3</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>4</sub> 5 <sup>7</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>2</sub>	135 140	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
5 <sup>11</sup> / <sub>16</sub> 5 <sup>3</sup> / <sub>4</sub> 5 <sup>15</sup> / <sub>16</sub> 6	150 155	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
6 <sup>7</sup> / <sub>16</sub> 6 <sup>1</sup> / <sub>2</sub> 6 <sup>11</sup> / <sub>16</sub>	160 170	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
6 <sup>3</sup> / <sub>4</sub> 6 <sup>15</sup> / <sub>16</sub> 7	175 180	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
7 <sup>1</sup> / <sub>4</sub> 7 <sup>1</sup> / <sub>2</sub> 7 <sup>15</sup> / <sub>16</sub> 8	190 200	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
8 <sup>1</sup> / <sub>2</sub> 8 <sup>7</sup> / <sub>8</sub> 9	220 230	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
9 <sup>1</sup> / <sub>2</sub> 9 <sup>3</sup> / <sub>4</sub> 10	240 260	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

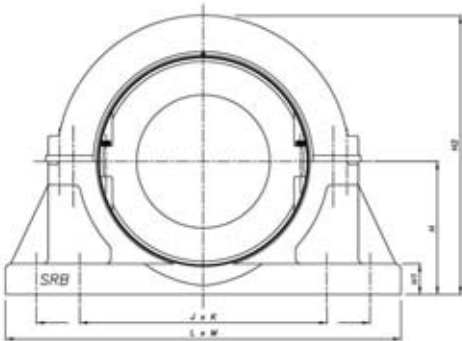
# Heavy Series Bearing & Housing 11inch to 24inch



Shaft (d)		Reference	Bearings Ratings						
inch	mm	Add BR for retained Add BX for expansion e.g. HSM280BR	Dynamic C <sub>r</sub> (kN/lb)	Static C <sub>0r</sub> (kN/lb)	Axial C <sub>a</sub> (kN/lb)	Max RPM	D	B	C
11	280	HSM280 HSE1100	1936 435230	3115 700280	153.00 34396	620	495.30 19.500	139.70 5.500	244.00 9.606
12	300	HSM300 HSE1200	2114 475246	3194 718040	174.40 39207	560	558.80 22.000	139.70 5.500	244.00 9.606
13	320	HSM320 HSE1300	2718 611031	4093 920143	198.80 44692	500	622.30 24.500	160.40 6.315	272.00 10.709
14	340 360	HSM340 HSE1400 HSM360	2686 603837	4421 993881	213.60 48019	460	615.95 24.250	158.00 6.220	279.00 10.984
15	380	HSM380 HSE1500	3195 718265	5238 1177550	250.80 56382	420	685.80 27.000	166.70 6.563	292.00 11.496
16	400	HSM400 HSE1600	3187 716466	5813 1306815	275.80 62002	360	700.00 27.559	160.00 6.299	284.00 11.181
17	420 440	HSM420 HSE1700 HSM440	3501 787056	6091 1369312	302.40 67982	340	740.00 29.134	170.00 6.693	294.00 11.575
20	500	HSM500 HSE2000	4324 972074	7603 1709223	347.00 78009	310	850.90 33.500	187.40 7.378	300.00 11.811
21	530	HSM530 HSE2100	4448 999950	8781 1974048	382.60 86012	280	863.60 34.000	196.90 7.752	310.00 12.205
22	560	HSM560 HSE2200	4443 998826	8918 2004847	400 89924	270	890.00 35.039	184.00 7.244	310.00 12.205

Housing Reference					
Housing Retained	Reference Expansion	G	F	L	L <sub>1</sub>
HS83HR	HS83HX	571.50 22.500	165 6.5	356 14.0	356 14.0
HS65HR	HS65HX	641.40 25.252	165 6.5	346 13.6	370 14.6
HS66HR	HS66HX	717.60 28.252	170 6.7	368 14.5	-
HS86HR	HS86HX	704.90 27.752	196 7.7	432 17.0	-
HS68HR	HS68HX	774.70 30.500	202 8.0	400 15.7	-
HS89HR	HS89HX	788.00 31.024	200 7.9	440 17.3	-
HS90HR	HS90HX	840.00 33.071	200 7.9	450 17.7	-
HS94HR	HS94HX	958.90 37.752	204 8.0	495 19.5	-
HS94HR	HS94HX	958.90 37.752	204 8.0	490 19.3	-
HS95HR	HS95HX	990.00 38.976	204 8.0	490 19.3	-

# Heavy Series Support S83 - S95



## S83 - S95

Shaft (d) inch	mm	Support Reference	H	H <sub>1</sub>	H <sub>2</sub>	J x K	L x M	Bolts
11	280	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
12	300	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
13	320	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
14	340 360	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
15	380	S68	559	92	1120	1036 & 806 x 292	1270 x 394	8 x M42
16	400		22.008	3.6	44.1	40.8 & 31.7 x 11.5	50 x 15.5	
17	420 440	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
18	460	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
20	500	S94	622	102	1340	1270 & 940 x 242	1600 x 406	8 x M56
21	530		24.488	4.0	52.8	50 & 37 x 9.5	63 x 16	
22	560	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
23	580	S95	622	102	1340	1270 & 940 x 242	1600 x 406	8 x M56
24	600		24.488	4.0	52.8	50 & 37 x 9.5	63 x 16	



# Flange Units

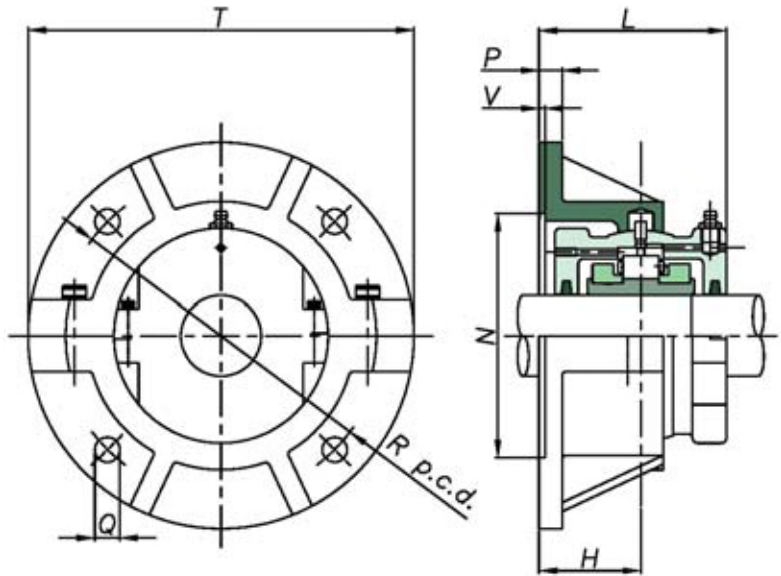
When faced with flat horizontal or vertical faces, flange units offer a simple mounting solution. As with Pillow block supports, Flange units are produced with spherical location to accommodate standard bearing housings and provide easy initial alignment of shaft and equipment.

To facilitate positive location of the flange to the surface, the rear face is recessed (dimensions N & 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  $0.26C_{or}$  is permissible. A maximum axial load of  $0.25C_a$  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.



Flange Units										
Shaft (d)	Flange Reference	T	Bolts	R	P	H	N	V	L	
										inch
4 <sup>15</sup> / <sub>16</sub>	F56	530	4 x M24	460	34	122	390.45	7	233	
5		20.9		18.1	1.3	4.8	15.372	0.3	9.2	
5 <sup>11</sup> / <sub>16</sub>	F58	648	4 x M24	574	44	137	495.35	7	264	
5 <sup>3</sup> / <sub>4</sub>		25.5		22.6	1.7	5.4	19.502	0.3	10.4	
5 <sup>15</sup> / <sub>16</sub>										
6										
6 <sup>3</sup> / <sub>4</sub>	F60	724	4 x M24	638	44	156	546.15	8	298	
6 <sup>15</sup> / <sub>16</sub>		28.5		25.1	1.7	6.1	21.502	0.3	11.7	
7										
9 <sup>1</sup> / <sub>2</sub>	F63	890	4 x M24	796	48	181	692.20	8	348	
9 <sup>3</sup> / <sub>4</sub>		35.0		31.3	1.9	7.1	27.252	0.3	13.7	
10										

For Bearings and Housings see pages 61 – 64.

# Triple Labyrinth Housing and Seal References

Light Series				
Shaft (d)	Triple Labyrinth Seal Reference		Housing Reference	
inch	mm	mm	inch	Retained Expansion
1 <sup>3</sup> / <sub>16</sub>			103ATL	
1 <sup>1</sup> / <sub>4</sub>	35	35MMATL	104ATL	LS1HRTL
1 <sup>7</sup> / <sub>16</sub>	40	40MMATL	107ATL	LS1HXTL
1 <sup>1</sup> / <sub>2</sub>			108ATL	
1 <sup>11</sup> / <sub>16</sub>			111ATL	
1 <sup>3</sup> / <sub>4</sub>	45	45MMATL	112ATL	LS2HRTL
1 <sup>15</sup> / <sub>16</sub>	50	50MMATL	200ATL	LS2HXTL
2			200ATL	
2 <sup>3</sup> / <sub>16</sub>	55	55MMATL	203ATL	
2 <sup>1</sup> / <sub>4</sub>	60	60MMATL	204ATL	LS3HRTL
2 <sup>7</sup> / <sub>16</sub>	65	65MMATL	207ATL	LS3HXTL
2 <sup>1</sup> / <sub>2</sub>			208ATL	
2 <sup>11</sup> / <sub>16</sub>			211ATL	
2 <sup>3</sup> / <sub>4</sub>	70	70MMATL	212ATL	LS4HRTL
2 <sup>15</sup> / <sub>16</sub>	75	75MMATL	215ATL	LS4HXTL
3			300ATL	
3 <sup>3</sup> / <sub>16</sub>	80	80MMATL	303ATL	
3 <sup>1</sup> / <sub>4</sub>	85	85MMATL	304ATL	LS5HRTL
3 <sup>7</sup> / <sub>16</sub>	90	90MMATL	307ATL	LS5HXTL
3 <sup>1</sup> / <sub>2</sub>			308ATL	
3 <sup>11</sup> / <sub>16</sub>			311ATL	
3 <sup>3</sup> / <sub>4</sub>	100	100MMATL	312ATL	LS6HRTL
3 <sup>15</sup> / <sub>16</sub>	105	105MMATL	315ATL	LS6HXTL
4			400ATL	
4 <sup>3</sup> / <sub>16</sub>			403ATL	
4 <sup>1</sup> / <sub>4</sub>	110	110MMATL	404ATL	LS7HRTL
4 <sup>7</sup> / <sub>16</sub>	115	115MMATL	407ATL	LS7HXTL
4 <sup>1</sup> / <sub>2</sub>			408ATL	
4 <sup>11</sup> / <sub>16</sub>	120	120MMATL	411ATL	
4 <sup>3</sup> / <sub>4</sub>	125	125MMATL	412ATL	LS8HRTL
4 <sup>15</sup> / <sub>16</sub>	130	130MMATL	415ATL	LS8HXTL
5			500ATL	
5 <sup>3</sup> / <sub>16</sub>			503ATL	
5 <sup>1</sup> / <sub>4</sub>	135	135MMATL	504ATL	LS9HRTL
5 <sup>7</sup> / <sub>16</sub>	140	140MMATL	507ATL	LS9HXTL
5 <sup>1</sup> / <sub>2</sub>			508ATL	
5 <sup>11</sup> / <sub>16</sub>			511ATL	
5 <sup>3</sup> / <sub>4</sub>	150	150MMATL	512ATL	LS10HRTL
5 <sup>15</sup> / <sub>16</sub>	155	155MMATL	515ATL	LS10HXTL
6			600ATL	
6 <sup>7</sup> / <sub>16</sub>			607ATL	
6 <sup>1</sup> / <sub>2</sub>	160	160MMATL	608ATL	LS11HRTL
6 <sup>11</sup> / <sub>16</sub>			611ATL	
6 <sup>3</sup> / <sub>4</sub>	170	170MMATL	612ATL	LS12HRTL
6 <sup>15</sup> / <sub>16</sub>	175	175MMATL	615ATL	LS12HXTL
7			700ATL	
7 <sup>1</sup> / <sub>4</sub>			704ATL	
7 <sup>1</sup> / <sub>2</sub>	190	190MMATL	708ATL	LS13HRTL
7 <sup>5</sup> / <sub>16</sub>	200	200MMATL	715ATL	LS13HXTL
8			800ATL	
8 <sup>1</sup> / <sub>2</sub>	220	220MMATL	808ATL	
8 <sup>7</sup> / <sub>8</sub>	230	230MMATL	814ATL	LS14HRTL
9			900ATL	LS14HXTL
9 <sup>1</sup> / <sub>2</sub>			908ATL	
9 <sup>3</sup> / <sub>4</sub>	240	240MMATL	912ATL	LS15HRTL
10	250	250MMATL	1000ATL	LS15HXTL
10 <sup>1</sup> / <sub>2</sub>	260	260MMATL	1008ATL	
10 <sup>3</sup> / <sub>4</sub>	270	270MMATL	1012ATL	LS16HRTL
11	280	280MMATL	1100ATL	LS16HXTL
11 <sup>1</sup> / <sub>2</sub>	300	300MMATL	1108ATL	
12	305	305MMATL	1200ATL	LS17HRTL

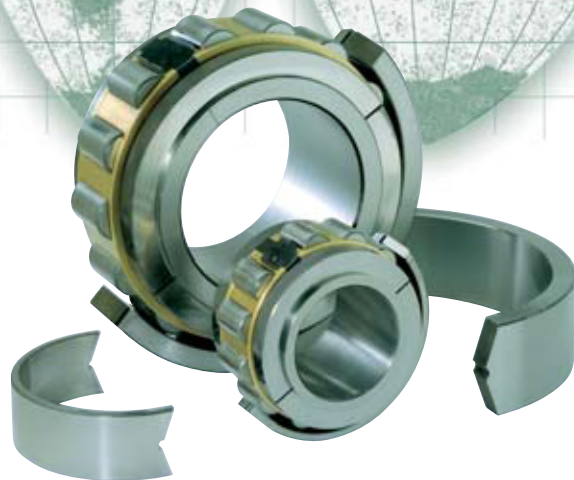
Medium Series				
Shaft (d)	Triple Labyrinth Seal Reference		Housing Reference	
inch	mm	mm	inch	Retained Expansion
1 <sup>11</sup> / <sub>16</sub>			111ATL	
1 <sup>3</sup> / <sub>4</sub>	45	45MMATL	112ATL	MS3HRTL
1 <sup>15</sup> / <sub>16</sub>	50	50MMATL	115ATL	MS3HXTL
2			200ATL	
2 <sup>3</sup> / <sub>16</sub>	55	55MMATL	203ATL	
2 <sup>1</sup> / <sub>4</sub>	60	60MMATL	204ATL	MS4HRTL
2 <sup>7</sup> / <sub>16</sub>	65	65MMATL	207ATL	MS4HXTL
2 <sup>1</sup> / <sub>2</sub>			208ATL	
2 <sup>11</sup> / <sub>16</sub>			211ATL	
2 <sup>3</sup> / <sub>4</sub>	70	70MMATL	212ATL	MS5HRTL
2 <sup>15</sup> / <sub>16</sub>	75	75MMATL	215ATL	MS5HXTL
3			300ATL	
3 <sup>3</sup> / <sub>16</sub>	80	80MMATL	303ATL	
3 <sup>1</sup> / <sub>4</sub>	85	85MMATL	304ATL	MS6HRTL
3 <sup>7</sup> / <sub>16</sub>	90	90MMATL	307ATL	MS6HXTL
3 <sup>1</sup> / <sub>2</sub>			308ATL	
3 <sup>11</sup> / <sub>16</sub>			311ATL	
3 <sup>3</sup> / <sub>4</sub>	100	100MMATL	312ATL	MS7HRTL
3 <sup>15</sup> / <sub>16</sub>	105	105MMATL	315ATL	MS7HXTL
4			400ATL	
4 <sup>3</sup> / <sub>16</sub>			403ATL	
4 <sup>1</sup> / <sub>4</sub>	110	110MMATL	404ATL	MS8HRTL
4 <sup>7</sup> / <sub>16</sub>	115	115MMATL	407ATL	MS8HXTL
4 <sup>1</sup> / <sub>2</sub>			408ATL	
4 <sup>11</sup> / <sub>16</sub>	120	120MMATL	411ATL	
4 <sup>3</sup> / <sub>4</sub>	125	125MMATL	412ATL	MS10HRTL
4 <sup>15</sup> / <sub>16</sub>	130	130MMATL	415ATL	MS10HXTL
5			500ATL	
5 <sup>3</sup> / <sub>16</sub>			503ATL	
5 <sup>1</sup> / <sub>4</sub>	135	135MMATL	504ATL	MS30HRTL
5 <sup>7</sup> / <sub>16</sub>	140	140MMATL	507ATL	MS30HXTL
5 <sup>1</sup> / <sub>2</sub>			508ATL	
5 <sup>11</sup> / <sub>16</sub>			511ATL	
5 <sup>3</sup> / <sub>4</sub>	150	150MMATL	512ATL	MS31HRTL
5 <sup>15</sup> / <sub>16</sub>	155	155MMATL	515ATL	MS31HXTL
6			600ATL	
6 <sup>7</sup> / <sub>16</sub>			607ATL	
6 <sup>1</sup> / <sub>2</sub>	160	160MMATL	608ATL	MS32HRTL
6 <sup>11</sup> / <sub>16</sub>	170	170MMATL	611ATL	MS32HXTL
6 <sup>3</sup> / <sub>4</sub>			612ATL	
6 <sup>15</sup> / <sub>16</sub>	175	175MMATL	615ATL	MS33HRTL
7	180	180MMATL	700ATL	MS33HXTL
7 <sup>1</sup> / <sub>4</sub>			704ATL	
7 <sup>1</sup> / <sub>2</sub>	190	190MMATL	708ATL	MS34HRTL
7 <sup>5</sup> / <sub>16</sub>	200	200MMATL	715ATL	MS34HXTL
8			800ATL	
8 <sup>1</sup> / <sub>2</sub>	220	220MMATL	808ATL	
8 <sup>7</sup> / <sub>8</sub>	230	230MMATL	814ATL	MS35HRTL
9			900ATL	MS35HXTL
9 <sup>1</sup> / <sub>2</sub>			908ATL	
9 <sup>3</sup> / <sub>4</sub>	240	240MMATL	912ATL	MS36HRTL
10	260	260MMATL	1000ATL	MS36HXTL
10 <sup>1</sup> / <sub>2</sub>	270	270MMATL	1008ATL	
10 <sup>3</sup> / <sub>4</sub>	280	280MMATL	1012ATL	MS37HRTL
11			1100ATL	MS37HXTL
11 <sup>1</sup> / <sub>2</sub>	300	300MMATL	1108ATL	
12	305	305MMATL	1200ATL	MS38HRTL

Heavy Series				
Shaft (d)	Triple Labyrinth Seal Reference		Housing Reference	
inch	mm	mm	inch	Retained Expansion
3 <sup>11</sup> / <sub>16</sub>			311ATL	
3 <sup>3</sup> / <sub>4</sub>	100	100MMATL	312ATL	HS6HRTL
3 <sup>15</sup> / <sub>16</sub>	105	105MMATL	315ATL	HS6HXTL
4			400ATL	
4 <sup>3</sup> / <sub>16</sub>			403ATL	
4 <sup>1</sup> / <sub>4</sub>	110	110MMATL	404ATL	HS7HRTL
4 <sup>7</sup> / <sub>16</sub>	115	115MMATL	407ATL	HS7HXTL
4 <sup>1</sup> / <sub>2</sub>	120	120MMATL	408ATL	
4 <sup>11</sup> / <sub>16</sub>			411ATL	
4 <sup>3</sup> / <sub>4</sub>	125	125MMATL	412ATL	HS8HRTL
4 <sup>15</sup> / <sub>16</sub>	130	130MMATL	415ATL	HS8HXTL
5			500ATL	
5 <sup>3</sup> / <sub>16</sub>			503ATL	
5 <sup>1</sup> / <sub>4</sub>	135	135MMATL	504ATL	HS9HRTL
5 <sup>7</sup> / <sub>16</sub>	140	140MMATL	507ATL	HS9HXTL
5 <sup>1</sup> / <sub>2</sub>			508ATL	
5 <sup>11</sup> / <sub>16</sub>			511ATL	
5 <sup>3</sup> / <sub>4</sub>	150	150MMATL	512ATL	HS10HRTL
5 <sup>15</sup> / <sub>16</sub>	155	155MMATL	515ATL	HS10HXTL
6			600ATL	
6 <sup>7</sup> / <sub>16</sub>			607ATL	
6 <sup>1</sup> / <sub>2</sub>	160	160MMATL	608ATL	HS11HRTL
6 <sup>11</sup> / <sub>16</sub>	170	170MMATL	611ATL	HS11HXTL
6 <sup>3</sup> / <sub>4</sub>			612ATL	
6 <sup>15</sup> / <sub>16</sub>	175	175MMATL	615ATL	HS12HRTL
7	180	180MMATL	700ATL	HS12HXTL
7 <sup>1</sup> / <sub>4</sub>			704ATL	
7 <sup>1</sup> / <sub>2</sub>	190	190MMATL	708ATL	HS13HRTL
7 <sup>5</sup> / <sub>16</sub>	200	200MMATL	715ATL	HS13HXTL
8			800ATL	
8 <sup>1</sup> / <sub>2</sub>	220	220MMATL	808ATL	
8 <sup>7</sup> / <sub>8</sub>	230	230MMATL	814ATL	HS14HRTL
9			900ATL	HS14HXTL
9 <sup>1</sup> / <sub>2</sub>			908ATL	
9 <sup>3</sup> / <sub>4</sub>	240	240MMATL	912ATL	HS15HRTL
10	260	260MMATL	1000ATL	HS15HXTL
10 <sup>1</sup> / <sub>2</sub>	270	270MMATL	1008ATL	
10 <sup>3</sup> / <sub>4</sub>	280	280MMATL	1012ATL	HS16HRTL
11			1100ATL	HS16HXTL
11 <sup>1</sup> / <sub>2</sub>	300	300MMATL	1108ATL	
12	305	305MMATL	1200ATL	HS17HRTL

The most popular sealing solution for split cylindrical roller bearings after the standard felt seal is the Triple Labyrinth. This non contacting seal offers resistance to contaminant ingress at speeds greater than can be accommodated by other seal types (see page 25).

The Revolve split cylindrical roller bearing product range and all support services are available through a selected worldwide network of Authorized Distributors.

Selected as the best in their area, Timken® Revolve product Authorized Distributors are technically competent to support all our customers in application engineering, supply, installation and life maintenance of split cylindrical roller bearings. They have the full support and backing of Timken including a complete design and manufacturing service for special and custom applications.



# Timken Housed Unit Offering



Type	Bearing	Size range	Features	Material	
<b>Ball Bearing (includes R, Y, V and S)</b>					
	<ul style="list-style-type: none"> <li>• Pillow</li> <li>• Flange</li> <li>• Take Up</li> <li>• Cartridge</li> </ul>	Ball	1/2 – 3 15/16 in 12 – 90 mm	<ul style="list-style-type: none"> <li>• Wide range of locking options</li> <li>• Safety end caps</li> </ul>	Cast Iron
<b>UC Series Ball Bearing</b>					
	<ul style="list-style-type: none"> <li>• Pillow</li> <li>• Flange</li> <li>• Take Up</li> <li>• Cartridge</li> </ul>	Ball	1/2 – 3 15/16 in 12 – 90 mm	<ul style="list-style-type: none"> <li>• Precision formed flinger</li> <li>• Wide inner ring</li> </ul>	Cast Iron
<b>SAF Pillow</b>					
	<ul style="list-style-type: none"> <li>• Pillow</li> </ul>	Spherical Roller	1 3/8 – 19 1/2 in	<ul style="list-style-type: none"> <li>• Split Housing</li> <li>• Multiple sealing options</li> </ul>	Cast Iron
<b>SNT Plummer</b>					
	<ul style="list-style-type: none"> <li>• Split Plummer</li> </ul>	Spherical Roller	20 – 400 mm	<ul style="list-style-type: none"> <li>• Split Housing</li> <li>• Multiple sealing options</li> </ul>	Cast Iron Ductile Iron Cast Steel
<b>SRB Solid Block</b>					
	<ul style="list-style-type: none"> <li>• Pillow</li> <li>• Flange</li> <li>• Take Up</li> <li>• Cartridge</li> </ul>	Spherical Roller	1 7/16 – 7 in 40 – 380 mm	<ul style="list-style-type: none"> <li>• Wide range of locking options</li> <li>• Multiple sealing options and end covers</li> </ul>	Cast Steel
<b>Type E</b>					
	<ul style="list-style-type: none"> <li>• Pillow</li> <li>• Flange</li> <li>• Take Up</li> <li>• Cartridge</li> </ul>	Tapered Roller	1 3/16 – 5 in 35 mm – 125 mm	<ul style="list-style-type: none"> <li>• High-load carrying capacity</li> <li>• Optimized double lip seal</li> </ul>	Cast Iron
<b>Split Cylindrical Roller Bearing and Housed Unit</b>					
	<ul style="list-style-type: none"> <li>• Pedestal</li> <li>• Flange</li> <li>• Take Up</li> <li>• Hanger</li> </ul>	Split Cylindrical Roller Bearing	1 9/16 – 24 in 40 mm – 600 mm	<ul style="list-style-type: none"> <li>• Simplified inspection and assembly</li> <li>• Robust brass cage</li> <li>• High speed capabilities</li> <li>• Multiple sealing options</li> </ul>	Cast Iron Ductile Iron Cast Steel

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# TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets high-performance mechanical components, including bearings, gears, chain and related mechanical power transmission products and services.

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