Link-Belt®

Link-Belt® Solid Housed Mounted Roller Bearings, B22400, B22500, B22600 Series Installation Instructions

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FORM
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⚠ WARNING Indicates a hazard which, if not avoided, could result in serious injury or death.

⚠ CAUTION Indicates a hazard which, if not avoided, could result in minor or moderate personal injury.

NOTICE Indicates information considered important, but not hazard-related (e.g. messages relating to property damage).

GENERAL SAFETY INSTRUCTIONS

⚠ WARNING

- Read and follow all instructions carefully.
- Disconnect and lock out power before installation and maintenance. Working on or near energized equipment can result in severe injury.
- Do not operate equipment without guards in place. Exposed equipment can result in severe injury or death.
- These instructions should be read entirely and followed carefully before attempting to install or remove Link-Belt Roller Bearings. Failure to do so can result in improper installation which could cause bearing performance problems as well as serious personal injury.

⚠ CAUTION

- Perform periodic inspections. Equipment may fail prematurely and could become unsafe if not properly inspected and maintained.

BEARING MOUNTING PROCEDURE

ALL UNITS

1. Inspect shaft size. (See **Table 1**, Shaft Tolerance.) Shaft must be to correct size. Clean shaft and mounting surface as needed.
2. Position bearings on the shaft, applying all driving pressure to the face of the inner ring.
   Notice: Do NOT strike or exert pressure on housing or seals.
3. Align the bearing housing to its mounting base by measuring from the face of the inner ring to the face of the threaded cover. Measure at the 12, 3, 6 & 9 o'clock positions. All four measurements must be within .060" of one another. Where shimming is required – use full shims across the housing base – not just at the bolt holes.
4. Position and loosely bolt housing to mounting base. SAE Grade 5 bolts are recommended.
5. Lock bearing to the shaft. If one unit is an expansion type, lock the fixed bearing first.

Set Screw Lock Units (B22400 & B22500 Series)
Tighten the collar set screws on the bearing to the proper tightening torque which can be found in **Table 2**, Set Screw Torque. Alternate torquing the screws to prevent unequal loading. See **comment 8** in Additional Installation Comments.

Adapter Mount Units (B22600 Series)

a) **Zero Shaft Fit** — Take a large flat blade screw driver to wedge between the bearing's face and lockwasher. Use the screwdriver to draw the bearing's sleeve through the inner ring until you achieve a snug fit and then finger tighten the locknut (See **Figure 1**). Use a spanner wrench to bring the locknut to a snug fit. This zero's out the clearance between bore & shaft.

TABLE 1 — Shaft Tolerance (Inches)

Nominal Shaft Sizes (inches)		Commercial Shaft Tolerance* (Cold Finished Steel, Low Carbon)	RECOMMENDED SHAFT TOLERANCES*		
			Set Collar Mounting	Adapter Mounting	Press Fit Mounting
Over	Incl.		Severe Loading or High Speed		
1	2	+.000 -.003"	+.000 -.0005"	+.000 -.003"	Consult Regal Rexnord™
2	4	+.000 -.004"	+.000 -.001"	+.000 -.004"	
4	5	+.000 -.005"	+.000 -.0015"	+.000 -.005"	

* Recommended shaft tolerances are generally satisfactory for loads up to 15% of C (see load ratings in catalog). High load applications will require a press fit to the shaft.

TABLE 2 — Set Screw Torque

Set Screw Size	Normal Duty B22400 Series	Heavy Duty B22500 Series	Tightening Torque (in-lbs / N-m)	Axial Load Capacity B22400 lb.*
5/16	B22416-420	···	185 / 21	500
3/8	B22423-432	B22523-531	325 / 37	650
7/16	B22435-436	B22532-535	460 / 52	825
1/2	B22439-456	B22539-555	680 / 77	990
5/8	B22459-464	B22563-580	1350 / 153	1320

* For B22500 Series Axial Load Capacity, value should be doubled.

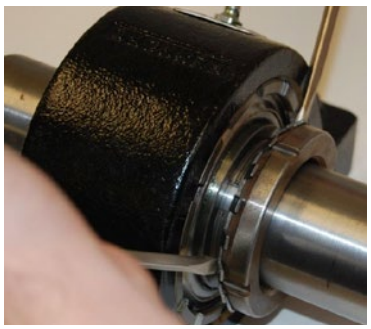

Figure 1 — Zero Shaft Fit: Pry against housing to draw adapter sleeve through bearing. Sleeve should not be protruding out the backside of the inner ring.

b) **Final Tightening** — Mark the position of the locknut relative to the shaft with a grease pencil or a dark marker at the top of the locknut and shaft. Using a soft steel drift pin and hammer, drive against the face of the locknut as to relieve thread pressure. Tighten the locknut with the spanner wrench until Final Locknut Adjustment is achieved, values listed in **Table 3**. When tightening the locknut make sure sleeve doesn't turn on shaft.

TABLE 3 — Final Locknut Adjustment

Basic Size 00		Locknut Adjustment (turn)
From	To	
16	23	1 1/8
24	31	1
32	71	7/8

c) **Secure Locknut** — Bend one of the lock washer tangs into one of the slots on the outside diameter of the locknut. If necessary, slightly tighten the locknut to line up the closest tang.

d) **Installing Two Fixed Adapter Units** — When installing two pillow blocks, tighten the mounting bolts of the 1st unit and install as shown in the steps a-c. Install the 2nd bearing as normal, then tighten up mounting bolts last. If installing two flange units, tighten the mounting bolts on the 1st unit and install as normal. Snug up the mounting bolts on the 2nd unit with the proper shim stock between the mounting surface and housing base shown in **Table 4**. Then find zero fit (step a). Next, loosen bolts enough to pull out the shim stock. Install 2nd unit as normal (steps b & c), then tighten mounting bolts last.

TABLE 4 — Shim Thickness

Basic Size 00		Shim Stock (in / mm)
From	To	
16	23	.035 / .889
24	31	.042 / 1.07
32	71	.049 / 1.25

6. Fully tighten down housing bolts.
7. Rotate the shaft a few revolutions to locate remaining bearings position on the shaft.
8. **Set Screw Units** — Torque down set screws in remaining bearings using procedure in **step 5** (page 1).

   Adapter Mount Units — Secure remaining bearing using procedure in **step 5** (page 1).

EXPANSION UNITS ONLY

1. Center cartridge in outer housing. If maximum expansion capability is required, place cartridge in extreme position of housing to permit full movement of the cartridge in direction of expansion.
2. The remainder of the installation is the same as fixed units.

ADDITIONAL INSTALLATION COMMENTS

1. Position housings for:
   a. Accessibility of grease fittings.
   b. If thrust is present — place thrust force against shoulder of housing, not against threaded cover side.
2. Spot drill or mill flats on shaft for increased holding power of set screws or ease of removal.
3. When an eccentric load condition exists, position set screws directly opposite from eccentric weight.
4. Shaft shoulders are recommended to support vertical shafts and high thrust loads. The shoulder diameter should not exceed the outside diameter of the inner ring.
5. When pillow blocks are mounted on an inclined plane or the work force is parallel with the base, either lateral bolts or welded stop blocks should be used to prevent shifting.
6. Avoid direct hammer blows to the bearing and its components by using a soft drift or block.
7. New seals should be used whenever a bearing is rebuilt.
8. If an Allen wrench is used as a torque wrench, place a length of pipe over the long end and pull until the wrench begins to twist.

DISASSEMBLY OF BEARING INSERT: REF FIGURE 2

1. Remove shaft locking device (collar or adapter assembly).
2. Remove seals.
3. Remove microlock screw and key. (Do not lose nylon washer).
4. Remove threaded cover by turning counter clockwise.
5. Place housing threaded cover side down on arbor press with spacer blocks under housing.
6. Place a soft metal bar or wood block on face of inner ring and press bottom outer ring and inner ring assembly from housing.
7. To remove the back outer ring, use a bearing puller or hammer and drift.

Figure 2 — Exploded View of B22400 Series Bearing

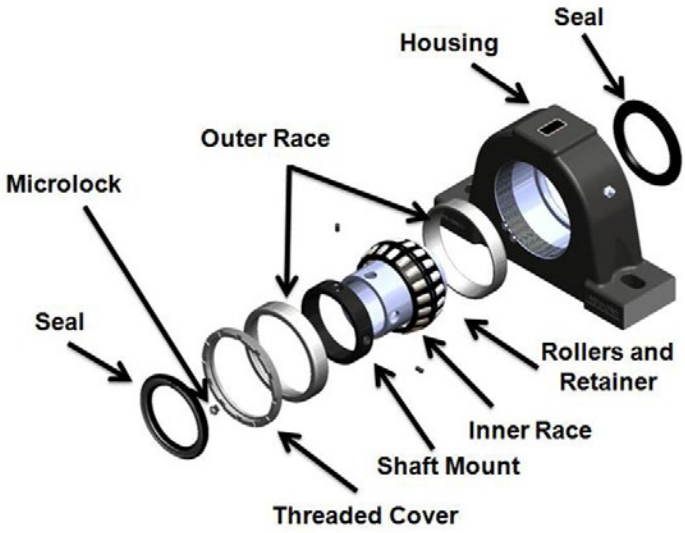

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TABLE 5 — Adjustment (Axial and Radial Clearances) B22400 & B22500 Series

B22400 SERIES	B22500 SERIES	STANDARD FACTORY ADJUSTMENT (Average Speed and Temperature)	RECOMMENDED ADJUSTMENT HIGH SPEEDS		CLEARANCE ADJUSTMENT INCHES PER 15 DEGREES	
		STANDARD DEGREES ADJUST.	SPEED OVER	HIGH SPEED DEGREES ADJUST.	RADIAL	AXIAL
B416	…	35	2000	45	.0008	.0026
B418 to B420	…	40	2000	50	.0008	.0026
B421 to B424	B523	45	2000	55	.0008	.0027
B425 to B428	B524 to B527	50	1500	60	.0008	.0029
B429 to B432	B528 to B531	65	1500	85	.0007	.0025
B433 to B436	B532 to B535	45	1250	60	.0009	.0034
B437 to B440	B536 to B539	50	1250	65	.0008	.0034
B441 to B448	B540 to B547	60	1250	80	.0009	.0035
B449 to B456	B548 to B555	75	1000	100	.0009	.0034
B457 to B464	B556 to B564	90	1000	120	.0008	.0034
…	B565 to B572	60	750	80	.0013	.0051
…	B573 to B580	75	750	90	.0013	.0054

REASSEMBLY OF BEARING INSERT: REF FIGURE 2

1. Place housing threaded cover side up on arbor press with spacer blocks under housing.
2. Press in back outer ring and seat against housing shoulder.
3. Insert inner ring — roller assembly and rotate to seat rollers against back outer ring.
4. Press in front outer ring. Do not bottom out outer race on rollers.
5. Install threaded cover, turning clockwise until inner ring resists rotation or misalignment.
6. Back off threaded cover the required degrees per the Clearance Adjustment **Tables 5 & 6**. Align cover slot with the nearest counter bored hole in housing.
7. Install microlock key with nylon washer under the head of the screw.
8. Using arbor press, press on inner ring face on the side opposite the threaded cover to seat front outer ring against threaded cover face. Alternate method, turn housing over and provide support so inner race on threaded cover side sits above table. Remove seal opposite threaded cover. Place a soft drift or block of wood that just fits over the face of the inner ring. Using a hammer, strike the block with several sharp blows. Inner ring assembly should rotate and misalign freely.
9. Install seals. **H-Seal** — Place seal into the seal groove with the tab sticking up. Install snap ring so that the tab is between the snap ring ends. **E7-Seal** — Place seal into the seal groove with the tab sticking up. Install snap ring so that the tab is between the snap ring ends. **E-Seal** — Place seal into seal groove with spring facing out. A hammer and flat punch will be required. (See **Figure 3**) Go around seal face with punch until completely seated. Make sure seal is seated firmly. No snap ring is required with **E-Seal**.
10. Install shaft locking device (collar or adapter assembly).
11. Lubricate bearing with amount of grease shown in Lubrication **Table 7**. Rotate inner ring assembly during lubrication to distribute grease in bearing.

TABLE 6 — Adjustment (Axial and Radial Clearances)
B22600 Series Tapered Adapter

Size Code	SHAFT SIZE (INCHES)	STANDARD FACTORY ADJUSTMENT (Average Speed and Temperature) *MOUNTED CLEARNACE RESULT OF TIGHTENENING TAPERED ADAPTER
	B22600 SERIES	STD. DEG. ADJ.
B624	1 7/16	100
B631	1 15/16	120
B635	2 3/16	90
B639	2 7/16	95
B647	2 11/16- 2 15/16	105
B655	3 7/16	120
B663	3 15/16	135

Figure 3 — Seal Install

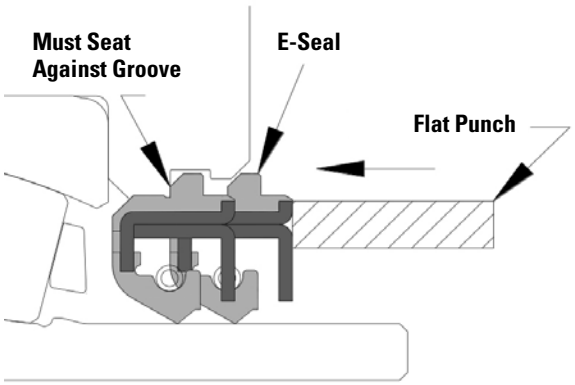

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TABLE 7 — Lubrication*

SHAFT SIZE - INCHES			GREASE WT. REQUIRED (OZ)		RECOMMENDED NUMBER OF MONTHS BEWEEN RELUBRICATION** (BASED ON 24/7 OPERATION)				
Single Collar B22400 Series	Double Collar B22500 Series	Adapter B22600 Series	To Lubricate Rebuilt Units	To Relubricate Units	Relube Interval				
					6 Months	4 Months	2 Months	1 Month	2 weeks
1	…	…	0.3	0.20	1400	2200	3400	5000	6500
1 3/16 – 1 1/4	…	…	0.4	0.25	1150	1800	2800	4500	5750
1 7/16 – 1 1/2	1 7/16	1 7/16	0.5	0.30	1000	1550	2400	3800	5250
1 5/8 – 1 3/4	1 11/16	1 11/16	0.7	0.40	870	1350	2100	3300	4450
1 15/16 – 2	1 15/16	1 15/16	0.7	0.45	700	1100	1700	2700	4050
2 3/16 – 2 1/4	2 – 2 3/16	2 3/16	0.9	0.55	630	1000	1500	2400	3650
2 7/16 – 2 1/2	2 7/16	2 7/16	1.1	0.65	580	910	1400	2250	3300
2 11/16 – 3	2 11/16 – 2 15/16	2 11/16 – 2 15/16	2.0	1.20	460	730	1100	1800	2800
3 3/16 – 3 1/2	3 7/16	3 7/16	3.2	2.00	410	640	1000	1550	2400
3 11/16 – 4	3 15/16 – 4	3 15/16	4.7	2.90	350	550	850	1350	2050
…	4 3/16 – 4 1/2	…	5.3	3.25	300	470	740	1150	1850
…	4 15/16 – 5	…	8.4	5.00	280	440	480	1050	1600
					Shaft Speed in RPM				

* Reduce lubrication intervals by half in vertical shaft applications.

** Relubrication amounts and frequencies shown in the table are based on standard clearance, moderate loads, etc., which yield housing temperatures of 150°F or less. Lubrication practices indicate that the relubrication frequency should be doubled for every 20°f above that level.

LUBRICATION INFORMATION

Standard bearings come pre-lubricated from the factory with Mobil™♦ Ronex™♦ MP Grease. Mobil Ronex MP is an NLGI Grade 2 EP (extreme pressure) grease with a lithium complex thickener. It can be used for high loads, and in some cases at temperatures as low as -40°F or as high as +225°F. For high speeds, other special service conditions, or for inquires on other acceptable greases, please consult your local Rexnord® representative or the Rexnord Bearing Engineering Department. When rebuilding Rexnord bearings for use in average operating conditions, the bearing should be lubricated with the amount of grease by weight as shown in Lubrication **Table 7**. Oil lubrication is not recommended.

RELUBRICATION

Bearings should be re-lubricated at regular intervals. The frequency and amount of lubricant will be determined by the type of service. General guidelines for re-lubrication frequency and amount are based upon average application conditions. See Lubrication **Table 7**. Oil lubrication is not recommended.

At High temperatures, greases tend to degrade more rapidly and thus require fresh grease more frequently. In general, small amounts of grease added frequently provide better lubrication. When equipment will not be in operation for some time, grease should be added to provide corrosion protection. This is particularly important for equipment exposed to severe weather.

AUTOMATIC LUBRICATION SYSTEMS

A variety of automatic re-lubrication systems are available for use with roller bearings. Key considerations are:

1. NLGI grade of grease used, consistent with system layout
2. An amount/frequency combination necessary to replenish the grease

♦ Mobil and Ronex are believed to be trademarks and/or trade names of Exxon Mobil Corporation and are not owned or controlled by Regal Rexnord™ Corporation or any of its affiliates.

MIXING OF GREASES

Mixing of any 2 greases should be checked with the lubricant manufacturer.

***NOTICE*:** If the grease bases are different they should never be mixed.

CLEARANCE ADJUSTMENT

To increase the clearance for high speed use:

1. Remove microlock assembly.
2. With soft steel drift pin/punch and hammer, rotate the threaded cover counter-clockwise the additional amount listed in Clearance Adjustment **Tables 5 & 6**.

   NOTICE: Each screw hole is separated by 15° and every threaded cover slot is separated by 30°.
3. Install microlock assembly with nylon washer under head of screw.

   NOTICE: If increase in degrees does not match up to listed change, always go to the higher setting that is possible.
4. Using arbor press, press on inner ring face on the side opposite the threaded cover to seat front outer ring against threaded cover face. Alternate method, turn housing over and provide support so inner race on threaded cover side sits above table. Remove seal opposite threaded cover. Place a soft drift or block of wood that just fits over the face of the inner ring. Using a hammer, strike the block with several sharp blows. Inner ring assembly should rotate and misalign freely.

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RETROFITTING BEARING TO INCLUDE END CAP*

1. Remove microlock assembly.
2. With soft steel drift pin/punch and hammer, rotate the existing threaded cover counter-clockwise to remove completely.
3. Install the new threaded cover, turning clockwise until inner ring resists rotation or misalignment.
4. Back off threaded cover the required degrees per Clearance Adjustment **Table 5** or **Table 6**. Align cover slot with the nearest counter bored hole in housing.

   NOTICE: Each screw hole is separated by 15° and every threaded cover slot is separated by 30°.
5. Install microlock key with nylon washer under the head of the screw.
6. Turn housing over and provide support so inner race on threaded cover side sits above table. Place a soft piece of steel or block of wood that just fits over the face of the inner ring. Using a soft blow hammer, strike the block with several sharp blows, inner ring assembly should rotate and misalign freely.
7. Install o-ring over threaded cover. The o-ring should be seated at the base of the threaded cover and will overlap the head of the setscrew. (See **Figure 4**)
8. Press cap over threaded cover. Using a rubber mallet apply force to the cap to properly seat cap over the threaded cover. Some deformation of the cap around the microlock assembly is to be expected. (See **Figure 5**)

* For standard loose fit outer rings.

For press fit outer rings which are designated with K15 in Link-Belt® spherical roller bearing part numbers, please call Rexnord® Engineering.

Cannot install on expansion units.

Figure 4 — Proper O-Ring Installation

Figure 5 — Cap Installation

LIMITED WARRANTY – LIABILITY

A. IT IS EXPRESLY AGREED THAT THE FOLLOWING WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY. INCLUDING THOSE OF **MERCHANTABILITY** AND FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATION OR LIABILITY ON OUR PART OF ANY KIND OR NATURE WHATSOEVER.

No representative of ours has any authority to waive, alter, vary, or add to the terms hereof without prior approval in writing, to our customer, signed by an officer of our company. It is expressly agreed that the entire warranty given to the customer is embodied in this writing. This writing constitutes the final expression of the parties agreement with respect to warranties, and that it is a complete and exclusive statement of the terms of the warranty.

We warrant to our customers that all Products manufactured by us will be free from defects in material and workmanship at the time of shipment to our customer for a period of one (1) year from the date of shipment. All warranty claims must be submitted to us within ten days of discovery of defects within the warranty period, or shall be deemed waived. As to Products or parts thereof that are proven to have been defective at the time of shipment, and that were not damaged in shipment, the sole and exclusive remedy shall be repair or replacement of the defective parts or repayment of the proportionate purchase price for such Products or part, at our option. Replacement parts shall be shipped free of charge f.o.b. from our factory.

This warranty shall not apply to any Product which has been subject to misuse; misapplication, neglect (including but not limited to improper maintenance and storage); accident, improper installation, modification (including but not limited to use of unauthorized parts or attachments), adjustment, repair or lubrication. Misuse also includes, without implied limitation, deterioration in the Product or part caused by chemical reaction, wear caused by the presence of abrasive materials, and improper lubrication. Identifiable items manufactured by others but installed in or affixed to our Products are not warranted by use but, bear only those warranties, express or implied, given by the manufacturer of that item, if any. Responsibility for system design to insure proper use and application of Link-Belt Products within their published specifications and ratings rests solely with customer. This includes without implied limitation analysis of loads created by torsional vibrations within the entire system regardless of how induced.

B. It is expressly agreed that our liability for any damage arising out of or related to this transaction, or the use of our Products, whether in contract or in tort, is limited to the repair or replacement of the Products, or the parts thereof by use, or to a refund of the proportionate purchase price. We will not be liable for any other injury, loss, damage, or expense, whether direct or consequential, including but not limited to use, income, profit, production, or increased cost of operation, or spoilage of or damage to material, arising in connection with the sale, installation, use of, inability to use, or the replacement of, or late delivery of, our Products.

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