



SPHERICAL ROLLER BEARING Installation Instructions SERIES 1000 / 1100 / 1101

⚠ WARNING

Failure to observe safety precautions could cause personal injury or equipment damage.

These instructions cover the set screw and eccentric locking spherical roller bearings with the Multi-Trap labyrinth or contact seals. It is important that they be read in their entirety before attempting installation or removal. The procedures indicated should be carefully followed. Failure to do so can result in mis-installation which could cause bearing performance problems as well as serious personal injury.

NON-EXPANSION AND EXPANSION BEARING TYPES

In most applications where two or more bearings are used on the same shaft, one bearing should be of the non-expansion type to fix the shaft, while the other bearing should be of the expansion type to allow for mounting variables and normal expansion (heat growth) of the shaft. Ideally, the expansion bearing should be located on the shaft end furthest from a belt or chain drive. Two non-expansion bearings may be used on short shaft applications if the shaft growth (shaft temperature change) is minimal. For long shafts and extensive temperature changes, consult Browning engineers*.

Note: The bearing part number indicates whether the unit is an expansion or non-expansion type.

Example:

SPB1000NE x 2 7/16" **NE** - non-expansion
 SPB1000E x 2 7/16" **E** - expansion

BEARING INSTALLATION

- CHECK AREA** - Clean and organize bearing installation area, keep well lit. Be sure mounting surfaces are clean and flat.
- CHECK SHAFT** - Shaft should be within tolerance range shown in Table #1, clean, and free of nicks and burrs. Mount bearing on unused section of shafting or repair/replace shafting as required.

TABLE #1

RECOMMENDED SHAFT TOLERANCES	
Nominal Shaft Size (inches)	Shaft Tolerances (inches)
1 1/8 to 1 15/16	+ .0000 / -.0005
2 to 3 15/16	+ .0000 / -.0010
4 to 4 15/16	+ .0000 / -.0015

3. INSTALL UNIT - Slide the bearing unit and locking collar on shaft. (If the projecting side of the bearing is to be mounted toward the machine, put the locking collar on first.) If it is difficult to mount the bearing on shaft, use a piece of emery cloth to reduce any high spots on shaft. **Do not hammer on any component of the bearing.**

4. FASTEN UNIT IN PLACE - Install housing attachment bolts, check and align bearing and tighten attachment bolts. Rotate shaft slowly to center bearing.

4.1 SET SCREW INSERTS

- Set screws in a multiple bearing setup should be aligned.
- Torque first set screw to one half recommended torque in Table #2. Torque second set screw to full torque. Torque first set screw to full torque.
- Check shaft again for freedom of rotation and then lock second bearing unit to shaft.

TABLE #2

SET SCREW LOCK				
Bore Size	Screw Size	Torque		
		(in-lbs.)	(ft-lbs.)	(N-m)
1 1/8 to 2 3/16	3/8	250	20	290
2 7/16 to 3 1/2	1/2	535	45	655
3 7/16 to 4 15/16	5/8	1060	90	1310

4.2 ECCENTRIC LOCK INSERTS

- Rotate locking collar in the direction of rotation until hand tight. Lock tightly with a drift pin and hammer or spanner wrench and hammer. Tighten set screws to torque specified in Table # 3.
- Check shaft again for freedom of rotation and then lock second bearing unit to shaft.

TABLE #3

ECCENTRIC LOCK				
Bore Size	Screw Size	Torque		
		(in-lbs.)	(ft-lbs.)	(N-m)
1 1/8 to 2 3/16	3/16	250	20	290
2 7/16 to 3 1/2	7/32	360	30	435
3 7/16 to 4 15/16	1/4	535	45	655

- CENTER INSERT** - The expansion unit must be centered in the housing to allow axial shaft expansion. Move the bearing as far as it will go in both directions in the housing and determine the centered position. It may be necessary to unload the bearing while moving the assembly.
- CHECK HOUSING ALIGNMENT** - The maximum permissible misalignment of the shaft is 1.5°. To check the for alignment, observe the clearance between the sealing shield and the housing or collar. The clearance should be evenly distributed around the circumference.
- INSTALL 2nd UNIT** - Repeat Steps 4 through 6 for each additional bearing used on the shaft.

*Browning Engineering Department: Phone 630-898-9620.



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RELUBRICATION INSTRUCTIONS

BROWNING Spherical Roller Bearing Units are factory lubricated with a high quality lithium soap grease with an EP additive. The bearing is ready for use with no (initial) additional lubrication required. However, for slow speed applications less than 100 RPM, operating in dirty or wet environment, sufficient additional grease should be applied at start-up to completely fill the void in the bearing. Relubrication intervals depend upon the type of application, speed and other external conditions. For general use, suggested intervals are shown in Table #4 and grease charge in Table #5. Experience will determine the best interval for each specific application.

When lubricating bearings, add grease slowly while the shaft is rotating. When grease begins to come out of the seals, the bearing will contain the correct amount of grease. Re-lubricate with a lithium soap grease with EP additive, which conforms to NLGI 2 consistency and is suitable for an operating range of -20°F to +250°F. Compatibility of grease is critical, therefore consult with Browning Engineering Department* and your grease supplier for current grease specifications to ensure greases are compatible. For applications operating below -20°F, above 250°F, and all unusual applications, contact Browning Engineering Department*

TABLE #4

RELUBRICATION SCHEDULE			
A QUALITY LITHIUM SOAP GREASE WITH AN EP ADDITIVE SHOULD BE USED			
Speed RPM	Temperature	Cleanliness	Greasing Interval
100 500 1000	-20°F to 125°F -20°F to 150°F -20°F to 210°F	Clean Clean Clean	1-4 Months 1 Week to 1 Month 1-2 Weeks
1500 to Maximum Catalog Rating	Up to 150°F Over 150°F Up to 250°F Up to 250°F	Dirty Dirty Very Dirty * Extreme Conditions *	Daily to 1 week Daily to 1 week Daily to 1 week Daily to 1 week

TABLE #5

RECOMMENDED SHAFT TOLERANCES	
Nominal Shaft Size (inches)	Shaft Tolerances (inches)
1 1/8 to 1 1/4	0.10
1 3/8 to 1 7/16	0.22
1 1/2 to 1 11/16	0.32
1 3/4 to 2	0.50
2 to 2 3/16	0.55
2 1/4 to 2 1/2	0.65
2 11/16 to 3	0.85
3 3/16 to 4	1.25
4 7/16 to 4 1/2	2.50
4 15/16 to 5	3.10
	4.75

*Browning Engineering Department: Phone 630-898-9620.



▲WARNING
Failure to observe safety precautions could cause personal injury or equipment damage.

These instructions cover the installation and re-lubrication of Sealmaster SleeveLoc type spherical roller bearings. It is important that they be read in their entirety before attempting installation or removal. The procedures indicated should be carefully followed. Failure to do so can result in mis-installation which could cause bearing performance problems as well as serious personal injury.

NON-EXPANSION AND EXPANSION BEARING TYPES

In most applications where two or more bearings are used on the same shaft, one bearing should be of the non-expansion type to fix the shaft, while the other bearing should be of the expansion type to allow for mounting variables and normal expansion (heat growth) of the shaft. Ideally, the expansion bearing should be located on the shaft end furthest from a belt or chain drive. Two non-expansion bearings may be used on short shaft applications if the shaft growth (shaft temperature change) is minimal. For long shafts and extensive temperature changes, consult Sealmaster engineers*.

Note: The bearing part number indicates whether the unit is an expansion or non-expansion type.

Example: SPB2207-C2 non-expansion
ESP2207-C2 E - expansion

INSTALLATION

▲CAUTION This is a unit assembly. No attempt should be made to disassemble the unit prior to installation. **The mounting set screws must under no condition be tightened unless the unit is mounted on a shaft since this may damage the unit.** Read through all instructions carefully before mounting or dismounting.

Note: The mounting side of the unit is marked "MOUNTING".

- CHECK AREA** - Clean and organize bearing installation area, keep well lit. Be sure mounting surfaces are clean and flat.
- CHECK SHAFT** - Shaft should be within tolerance range shown in Table #1, clean and free of nicks and burrs. Mount bearings on unused section of shafting or repair/replace shafting as required. Lubricate the shaft with light oil.

TABLE #1

RECOMMENDED SHAFT TOLERANCES	
Nominal Shaft Size (inches)	Shaft Tolerances (inches)
1 7/16	+ .0000 / -.003
1 1/2 to 4	+ .0000 / -.004

3. CHECK SUPPORT SURFACE - Make sure the base of the housing and the support surface are clean and free from burrs. If the housing elevation is adjusted with shims these must cover the entire contact area between the housing and the support surface.

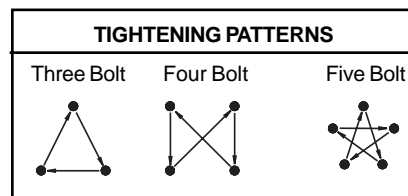
4. INSTALL UNIT - Slide the unit on the shaft with the mounting side (marked "MOUNTING") facing outward. If it is difficult to mount bearing on shaft, **do not hammer on any component of the bearing.** use a piece of emery cloth to reduce any high spots on shaft. Fit the housing attachment bolts in the feet but do not tighten. Leave 1 1/2" minimum spacing behind pillow blocks if the dismounting screws are to be used.

5. TIGHTEN SCREWS -

▲CAUTION Do not use auxiliary equipment such as a hammer or a pipe when tightening the screws.

- Using the hex key provided, snug all set screws.
- Tighten all set screws, following the pattern shown in Table 2, until the long end of the hex key deflects about 2 1/2 inches.
- Repeat step 2 to ensure the set screws are tightened properly.

TABLE #2



6. CENTER INSERT - The expansion unit must be centered in the housing to allow axial shaft expansion. Move the bearing as far as it will go in both directions in the housing and determine the centered position. It may be necessary to unload the bearing while moving the assembly.

7. CHECK HOUSING ALIGNMENT - The maximum permissible misalignment of the shaft is 1.5°. To check the for alignment, observe the clearance between the sealing shield and the housing or collar. The clearance should be evenly distributed around the circumference.

8. FINISH BOLTS - Tighten the housing attachment bolts to final tightening torque.

REMOVAL

▲CAUTION Be careful not to strike any of the components other than the shaft end. Doing so may result in internal bearing damage or fracture of one or more of the bearing components.

PILLOW BLOCKS

- Make sure the exposed shaft extension is free from rust and burrs.
- Loosen the housing attachment bolts on one of the two bearing units on the shaft.
- Switch location to the other bearing on the shaft. Loosen the small installation hex screws on the side marked "MOUNTING", 3-4 turns.
- Strike the end of the shaft (where the loosened hex screw bearing is) with a sharp blow. This should free the bearing lock.
- Remove the housing attachment bolts and slide the unit off the shaft.
- Switch location. Loosen the small hex installation (MOUNTING SIDE) set screws 3-4 turns and tighten the housing attachment bolts.
- Repeat the sharp blow to the end of the shaft.

FLANGE UNITS

- Make sure the shaft extension is free from rust and burrs.
- Loosen the housing attachment bolts on one unit.
- Switch location to the other bearing on the shaft. Loosen the housing attachment bolts and small hex installation set screws.
- Pull the bearing housing away from the mounting surface until the bearing frees.
- Switch location. Loosen the small hex installation set screws.
- Strike the end of the shaft with a sharp blow. This should free the bearing lock.
- Remove the housing attachment bolts and slide the unit off the shaft.

USING DISMOUNTING SCREWS

Note: This procedure will only work with units where the dismounting screws are accessible, namely pillow blocks and take-ups.

Follow steps 1-3 as above.

- Using a screw driver or other suitable tool, remove the 2 plastic protection plugs.
- Alternately tighten the dismounting hex set screws in 1/4 turn increments until the bearing is released from the shaft.
- Loosen the dismounting hex set screws, unbolt the unit and remove.

*Sealmaster Engineering Department: Phone 630-898-9620.
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RELUBRICATION INSTRUCTIONS

Sealmaster SleeveLoc bearing units are delivered with a high quality NLGI 2 lithium soap grease with an EP additive. The bearing is ready for use with no (initial) additional lubrication required. Relubrication intervals depend upon the type of application, speed and external conditions; however, for general use refer to Table #3. Experience will determine the best interval for each specific application.

When lubricating bearings, add grease slowly while the shaft is rotating. Recommended grease charges are in Table #4.

When grease begins to come out of the seals, the bearing is adequately lubricated. Re-lubricate with a high quality lithium soap grease with an EP additive, which conforms to NLGI 2 consistency and is suitable for an operating range of -20°F to +250°F. Compatibility of grease is critical, therefore consult with SealMaster Engineering Department* and your grease supplier for current grease specifications to ensure greases are compatible. For applications operating below -20°F, above 250°F and all unusual applications, contact SealMaster Engineering Department*.

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100 500 1000	-20°F to 125°F -20°F to 150°F -20°F to 210°F	Clean Clean Clean	6 Months 2 Months 2 Weeks
1500 to Maximum Catalog Rating	Up to 150°F Over 150°F Up to 250°F Up to 250°F	Dirty Dirty Very Dirty * Extreme Conditions *	1 week to 1 month Daily to 1 week Daily to 1 week Daily to 1 week

*daily lubrication is required.

TABLE #4

GREASE CHARGE FOR RELUBRICATION	
Shaft Size (inches)	Grease Charge (ounces)
1 7/16	0.22
1 1/2 to 1 11/16	0.32
1 3/4 to 2	0.50
2 to 2 3/16	0.55
2 1/4 to 2 1/2	0.65
2 11/16 to 3	0.85
3 3/16 to 3 1/2	1.25
3 15/16 to 4	2.50

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