ASSEMBLY AND LUBRICATION INSTRUCTIONS

ENHANCED SPLIT ROLLER BEARINGS

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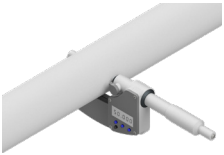
A division of Bowman International Ltd

BOWMAN®
SPLIT BEARINGS

PRELIMINARY NOTES

- Wipe clean all bearing parts to remove preservative oil
- Take note of the marking numbers on each split component to identify matching halves
- Determine the bearing positions
- Lightly oil the shaft with thin oil and lubricate all other interfaces and threads
- Where possible, install the fixed bearing first to locate the shaft axially



STAGE 1

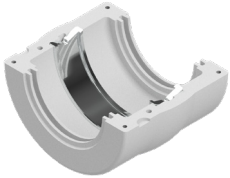
Clean and inspect the shaft at the bearing seating, ensuring it is within the correct tolerance indicated in the table provided in this instruction leaflet. When the two halves of the inner race are assembled around the shaft there should be a gap at each joint. This feature ensures the race is gripped to the shaft securely by the clamp ring halves. Maintain even joint gaps on the inner race and clamp rings. Soft packing can be used to equalise the inner race joint gaps. Fit the clamp rings with their joints approximately 90° to the inner race joints. Progressively tighten the clamp ring joint screws keeping all gaps equal. With a soft faced hammer, tap the clamp ring halves to seat in their grooves. Finally, tighten the joint screws to the torque figure indicated in the table provided in this instruction leaflet.

For expansion bearings, the inner race can be offset according to the amount of shaft thermal expansion, so that when operating temperature is reached, the rollers will run central to the outer race. When fitted, recheck the inner race and clamp ring joint gaps are equal, and the race is correctly positioned axially.

STAGE 2

Apply a film of grease to the assembled inner race and bore of the cage before placing the cage around the race. The cage halves do not have matching numbers, instead they have a male/female tenon. Push together with firm pressure until the joints lock. Rotate the cage to assemble the second joint.

STAGE 3



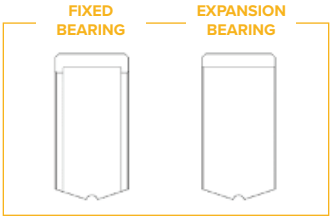
The Fixed bearing locates the shaft by axially positioning the rollers between lips on the outer race, and corresponding locating faces on the clamp rings

The lipped outer races of Fixed bearings should be installed in cartridge housings with side locating rods and screws, in accordance with the housing manufacturer's instructions.

Prime the small radial groove of the housing with grease. Fit the radial outer race halves - the upper half is identifiable by the radial lubrication holes and must be fitted in the housing top half, which has the lubrication nipple. Push the race halves into the seating grooves ensuring match numbers are adjacent. The race joints will protrude slightly beyond the housing joints. Protect these faces when handling the halves.

FIXED BEARINGS ONLY:
Pre-assemble the two cartridge halves away from the shaft to ensure the halves fit together accurately.

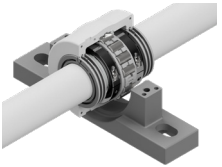
Fully tighten the joint screws first, followed by the side screws. Ensure the side screws are tight and there is a smooth transition across the joint of the fixed outer race halves. Separate the cartridge halves and assemble around the rest of the bearing.

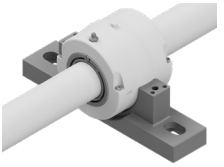


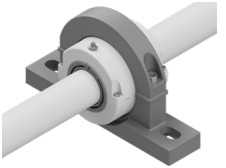
STAGE 4

Apply lubricant to the inside surface of the housing, covering the fitted races. Coat the assembled cages and rollers on the inner race and add grease to the labyrinths of the seals or cartridge end bores.

Note: Lubricate the bearing surfaces with grease during assembly. The quantity of grease to be used to fill the housing can be determined according to the housing manufacturer's instructions.







STAGE 5

With the pedestal base located in position, place the lower half of the cartridge on top of the shaft. Lubricate the spherical surfaces of the pedestal and cartridge. Align the two spherical surfaces, ensuring the labyrinth seals (where fitted) mate with their corresponding grooves. Rotate the cartridge around the shaft into the pedestal base ensuring both joint faces are aligned. Place the upper half of the cartridge on top of the shaft, lower gently into position, then fit and progressively tighten the cartridge joint screws.

Shaft supports or jacks can now be removed.

STAGE 6

Apply a thin film of grease to the spherical surfaces of the pedestal cap and upper half of the cartridge. The pedestal cap can now be fitted, ensuring the matching numbers are paired together. Fit the joint screws, tighten then release approximately half a turn. Rotate the shaft by hand or under power for a few revolutions before finally tightening the cap screws. This allows the housings to align the bearing with the shaft.

ASSEMBLY CHECK LIST

- Clean bearing parts and shaft before installation
- Measure shaft to ensure it is within tolerance
- Keep matched component halves together
- Equalise joint gaps on both sides of inner race and clamp rings
- Inner race must be fully tightened
- Lubricate bearing during assembly NOT after
- Lubricate seal bores, labyrinths and housing spherical surfaces
- Tighten screws according to torque figures provided

SCREW SIZES AND TIGHTENING TORQUES (CLAMPING RING SCREWS ARE GRADE 12.9)

BEARING SIZE	30 mm to 75 mm (1 3/16 in. to 3 in.)	80 mm to 90 mm (3 1/4 in. to 3 1/2 in.)	100 mm to 130 mm (3 3/4 in. to 5 in.)	135 mm to 200 mm (5 1/2 in. to 8 in.)	220 mm to 300 mm (9 in. to 12 in.)
SCREW SIZE (mm)	M4	M5	M6	M8	M10
KEY SIZE A/F (mm)	3	4	5	6	8
TORQUE (Nm)	4.5	8.5	15	35	70

LUBRICANT TYPE

Greases of NLGI No. 2 designation are recommended for most applications. For centrally pumped systems a No. 1 grease may be used for increased dispensation.

Greases with extreme pressure (EP) additives are recommended.

Grease with a lithium complex thickener is usually used for normal applications operating at temperatures between 0° - 100°C (32°F - 176°F). When water resistance is required a grease with an aluminium complex thickener can be used. Some greases are immiscible with each other so if changing lubricants, the bearing unit must be solvent-cleaned of the old lubricant before using the new lubricant.

Please contact our Technical Department if lubrication advice is required.

GREASE QUANTITY FOR INITIAL LUBRICATION

The quantity of grease required for initial lubrication is dependent upon operating speed. For slow applications, the bearing can be packed full of grease, however at higher speeds excessive grease will cause the bearing to overheat. Lubricate the bearing surfaces with grease during assembly. The quantity of grease required to fill the housing can be determined according to the housing manufacturer's instructions.

Re-lubrication quantity should be around 2 – 3 grams given at the following interval:

- Radial bearing with axial bearing (fixed or thrust arrangement): 100 operating hours
- Radial bearing only (expansion arrangement): 400 operating hours

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