

FRB Bearings



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Installation

- **Delivery - handling**

Our slewing ring bearings are carefully packed to avoid damage in transit. Transportation and inventory should be placed horizontally. If the slewing bearings cannot be kept horizontally during transportation, special measures should be taken. As with any mechanical precision part, the slewing ring must be carefully handled to avoid any impact, especially in the radial direction. When handling, should be able to bear the bearing weight of the corresponding equipment, bearing weight has been noted in the label.

- **Storage - rust protection**

The packed slewing bearings have been treated with rust or corrosion resistance and can be stored indoors at room temperature for 6 months. Refill every 18 months.

- **Unpacking - preparation**

When unpacking, note:

When wrapping paper, be careful to cut the protective sealing ring with sharp tools;

When cutting wrapping paper, it is best to begin removing it on the outside diameter.

Bearing degreasing:

Use standard industrial solvents and never use chlorinated solvents;

Be careful not to let the solvent flow into the sealing ring or raceway;

Remove the plastic plug or screw plug from the oil hole before fitting the grease nozzle or connecting the pipe.

- **Install**

When installing the bearing, the requirements for the supporting connection structure are as follows:

1. Ensure that the supporting structure meets the technical requirements. Ensure that the support has enough strength, the connection surface should be machined.
2. Check whether there are metal chips, welding particles and rust marks on the surface of the support seat.
3. The installation surface is smooth without sundries and burrs. For mechanical processing can not achieve the required flatness, can be used to inject the strength of the special plastic as filler, to ensure the accuracy of the installation plane and to reduce vibration.

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● Centering

When the load is mainly radial, especially when the bearing is installed vertically, it is necessary to force centering.

Specific method: cross tighten installation bolts, and check the rotation of the bearing. When tightening bolts, there should be enough pre-tightening force, which should be 70% of the yield limit of bolt material.

● Positioning

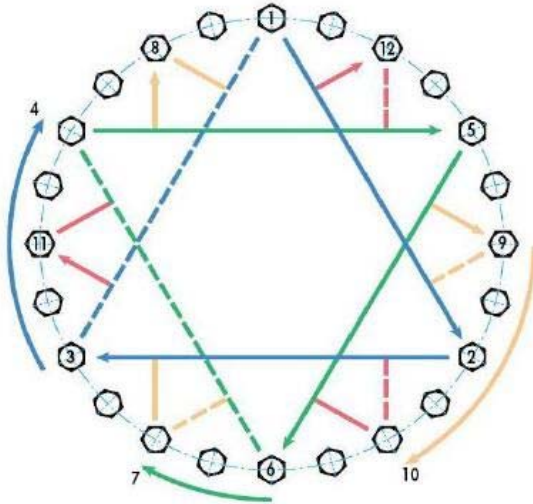
Quench connection point (soft zone) - marked with red line on tooth ring, and quench connection point on toothless ring is located at the hole filled rolling body. The quenching connection must be set at a 90 degree Angle to the main bearing axis.

● Fastening

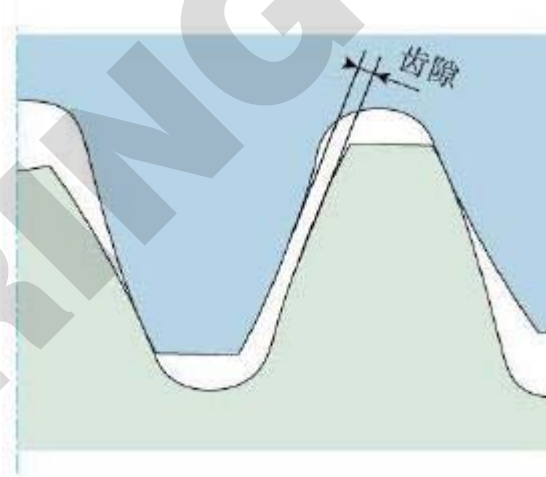
1. Check whether the fasteners really meet the recommended level, whether the flat washers meet the requirements of the drawing, and the spring washers and any other type of washers are not allowed to be used.
2. Install the fastener and tighten it gently.
3. Using a properly calibrated torque wrench, a hydraulic device is desirable.
4. Use the "star" diagram method to tighten successively with appropriate torque wrench or hydraulic tool to achieve uniform tightening effect on the whole circumference. The recommended tightening torque value for the bolt grade 10.9 is shown in the following table:

Bolt dia(mm)	10	12	14	16	18	20	22	24	27	30	33
Torque(Nm)	69	117	185	280	390	560	750	960	1400	1900	2600

Star fastening method:



Checking the gear backlash:



● **Pinion mounting**

1. Adjust the eccentricity of the pinion (generally the driving gear) to the gear ring, so that the tooth clearance is close to the minimum designed value.
2. When several pinions are used, each shall be adjusted to the same state.
3. During the test, make sure that the pinion gear is well aligned with the gear ring so that the gear meshes well.
4. Lubricate the large ring and small gear before starting.

Maintenance

- **Lubrication**

Proper lubrication is necessary for the life of the raceway and gear, and operating conditions such as load, temperature, speed and vibration determine the choice of lubricant.

Raceway

If no special requirements, the delivery of slewing support are filled with standard lubrication lithium grease.

Gear

Protection from oxidation.

Lubrication hole

These holes, whether in radial or end faces, are plugged with plastic caps or screws, and these plugs should be removed before fitting the rotary bearing with the nozzle or the central lubrication system.

Relubrication method: Every time you add grease, you need to rotate at least two turns at a slow speed, and every lubrication hole should be filled with grease evenly.

- **Lubrication cycle**

Race and tooth

Lubrication cycle is based on the use and environment, we recommend that the general lubrication every 150 hours, if the use of strict requirements or dust, wet environment, then shorten to 50 hours lubrication once.

Grease should be added before or after long-term discontinuation. If the discontinuation is longer, grease should be added every 6 months.

- **Grease quantity**

Raceway

When adding the raceway grease, it is appropriate to see a small amount of new grease traces squeezed on the lip of the sealing ring under the condition of uniform grease injection and slow rotation. If you need more grease, please contact our engineering department.

Gear

Regardless of spray or brush greasing, the grease should completely cover the pinion and tooth surfaces with ring teeth.

Preventive maintenance

● Sealing ring inspection

Visually judge whether the sealing ring is intact:

1. There is no overstretching or breakage
2. Whether there is dislocation phenomenon
3. Whether the friction lip is worn seriously

Replace seals if necessary.

Before reapplying grease, wipe off old grease and check for non-polluting substances such as sand, coal powder and metal particles.

● Fastener inspection

It is especially important to check whether the bolts maintain the required pre-tightening force level due to the fatigue phenomenon of the slewing bearing fasteners.

We recommend that after the first two to four months of use, the fasteners be re-tightened and then transitioned to an annual systematic inspection. If loose bolts are found, further inspection must be requested and the necessary precautions must be taken.

● Directional check

Need to clean the tooth surface:

1. Carefully check the root, ring and pinion for foreign bodies.
2. Check whether the load of the pinion acting on the whole tooth width of the gear ring is evenly distributed, and if necessary, correct the axial inclination of the slewing bearings.
3. Check the backlash