

Cam followers

Notes on storage, construction, mounting, transport, operation, control, and maintenance

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1 Storage

ASK stud type track rollers and yoke type track rollers are provided with a corrosion protection agent and can be stored in the original packaging at temperatures between 10°C and 40°C and a relative humidity of less than 60% for several years. During storage, care must be taken to ensure that the boxes are not exposed to direct sunlight, otherwise the storage temperatures may be exceeded.

2 Construction

The following must be observed when designing and using stud type track rollers and support rollers:

- The housing that receives the cam follower pin or the shaft on which the support roller is mounted must be strong enough to withstand excessive deformation and deflection under the expected load.
- The housing face must be flat and perpendicular to the housing bore and have a diameter at least in accordance with the dimensional tables to provide adequate support for the bearing thrust washer.
- Optimum support is achieved when the chamfer does not exceed 0.5 mm x 45°.
- If a tighter bearing fit on the shaft is required, this should correspond to a J6 fit according to ISO.
- If the bearing cannot be axially clamped, care should be taken to ensure a close axial fit in the mounting in which the bearing is fitted. This is to avoid axial displacement of the thrust washers under load.

3 Mounting

3.1 Before Mounting

In individual cases, it may happen that the anti-corrosion oil dries up in open bearings. Then the cam or support roller must be cleaned beforehand with a suitable washing solution (petroleum).

- Shaft or pin and bore must be free of burrs.
- All parts must be clean and dust-free.
- Do not touch bare metal surfaces with bare hands, risk of corrosion.

3.2 Mounting

Press in / press out shaft or bolt only with even pressure on the inner ring. Lubricate bearing if necessary. Ensure that the lubrication hole is connected. Observe the machine designer's instructions for the tightening torque.

When mounting stud type track rollers and yoke type track rollers, observe the following:

- When mounting stud type track rollers in a machine, the radial lubrication hole (in line with the McGill-lettering) should be in the unloaded part of the raceway.
- The pressure required for mounting should be applied to the fixed, inner part of the integral pin and not on the rim of the locating washer. The nut of the stud type track roller should be tightened so that the thrust washer is securely trimmed.
- Care should be taken not to overtighten the fastening nut, as this may cause excessive tension in the bolt. The fixing nut should not be tightened beyond the maximum torque values given in the dimension table.
- Back-up rollers should be mounted with the lubrication hole in the unloaded part of the raceway and according to the shaft diameters according to the table values.
- When used under heavy load, the bearing must be axially clamped and mounted on a quenched and tempered shaft with a tolerance of J6 according to the ISO standard.

Attention:

- **Never transmit installation forces via rolling elements (e.g., when pressing the bearing into the bore, press on the inner ring).**
- **Never install or remove by hammering or knocking.**

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3.3 Testing after mounting

Check the mobility of the shaft. If necessary, check the loose fit.

4 Transport

If the stud type track rollers and yoke type track rollers have been installed in a machine/plant and are then to be transported to the place of use, a suitable transport securing device must be provided. In case of vibrations and impacts, considerable forces can act on the stationary stud type track rollers and yoke type track rollers, which can lead to the destruction of the rolling elements and raceways. The transport lock must prevent vibrations during transport from damaging the stationary stud type track rollers and yoke type track rollers.

5 Operation

The temperature of the unit must be between -15°C and 100°C during operation.

5.1 Use on a flat track

Cam rollers and yoke type track rollers are one component of a bearing construction consisting of two elements. The second component is the flat raceway or cam plate on which the bearings move. Therefore, a suitable selection of the material for the raceway or cam plate must be ensured. This has a direct effect on the life and the effectiveness of the stud type track roller application.

If the bearings are used as guide rollers, it is often difficult for all machine parts that are used against the bearings to achieve a high hardness and tensile strength to achieve a high hardness and tensile strength. In the economic interest, in most application cases, where dimensional accuracy is not extremely critical, a relatively soft textured material can be used. A raceway of cold-hardened iron with a low carbon content generally provides satisfactory operation of the bearing with little wear of the raceway by the bearing.

When using cam rollers and support rollers (e.g., for lifting equipment), it is common to use profiled steel rails as bearing raceways. Here, the hardening of the raceway surface and low raceway wear has been preserved, provided no excessive loads occur.

5.2 Use on a cam plate

Applications on a cam plate are similar in many respects to applications on a flat track except for the increased speed due to the multiplication of the revolutions per minute of the cam plate by the quotient of the outer diameter of the cam plate to the outer diameter of the bearing used the ratio of the outside diameter of the cam to the outside diameter of the bearing used. Due to the increased speed, oil lubrication is preferable. If such lubrication is not available, the bearings must be regreased regularly.

When used in cam discs with a milled cam profile, there is the possibility of a different rotation of the outer ring and a resulting load reversal of the bearing outer ring, as well as a load reversal depending on this. This can lead to excessive wear of the cam of the cam disc or the bearing. To prevent this, the appropriate hardness must be used for the cam disc and bearing and bearing, as well as providing ample lubrication. In enclosed applications of this type of the pitch and slope of the cam plate must be closely monitored, as the incident load reversal will cause excessive shock loading on the pin or bearing.

The same precautions should be applied to ordinary circular cams. Momentary loads due to rapid inclines of the cam must be calculated and must be below the maximum strength of the pin or bearing. In ordinary cam designs it is possible to use the best performing material for best resistance to fatigue against material fatigue. The goal to be achieved is high hardness and good wear resistance of the raceway surface. The same general precautions regarding tensile strength as listed in under "Use on a flat raceway" should also be observed here.

For applications with high marginal loads on the cam or bearing, please contact one of our application engineers beforehand.

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5.3 Lubrication

5.3.1 Relubrication for stud type cam followers

Metric McGill stud type cam followers up to 19 mm outside diameter can only be relubricated via the front face, as they have neither an axial hole at the threaded end nor a cross drilled hole at the threaded bolt. From 22 mm outside diameter, the stud types also have a end to end lubrication hole from the front face to the threaded end. From 30 mm outside diameter, these stud types can also be lubricated via a cross drilled hole on the threaded bolt.

Attention: In the standard version of the -B version with hexagon hole, there is no axially end to end lubrication hole and therefore no lubrication possibility via the threaded end!

The cylindrically drilled ends of the axial holes are suitable for metric press-fit grease nipples. Sealing plugs are supplied, so that unused axial holes can be sealed. If the hole on the bolt is not used for lubrication, it should be covered by the housing. No plug is therefore supplied for this lubrication hole.

ASK stud type cam followers up to size 19 do not have a relubrication facility. The versions KR 22 and KR 26 have a relubrication hole on the front. The versions KR 30 and KR 32 have a end to end lubrication hole and an additional hexagon socket at the threaded end. The KRV version from size 22 has a end to end lubrication hole and an additional hexagon socket at the threaded end.

5.3.2 Relubrication for yoke type cam followers

Yoke type cam followers have a lubrication hole in the bore of the inner ring so that relubrication can be carried out through a transverse bore of the shaft if required.

For further questions, we recommend our knowledgebase at www.askubal.de