Bearing units

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

1 Storage

ASK and ASAHI bearing units 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 cartons are not exposed to direct sunlight, otherwise the storage temperatures may be exceeded.

2 Construction

Determine forces and direction of force (axial/radial) during standstill and operation.
Determine special forces and direction of force (axial/radial) during overload, blocking and transport of the machine.
Determine environmental conditions (temperature, dust, vibrations.....).
Determine the type of bearing - locating or non-locating bearing.
Determine bearing clearance and shaft tolerance (consider operating temperature)
Select safety factors depending on the worst case of damage.
Calculate strength for housing and static load rating for bearing.
Carry out service life calculation and determine maximum speed.
Calculate the tightening torques of the fastening screws and determine the preload forces for the bearing.
For all calculations, consider the direction of force (radial/axial) and ensure that the permissible axial/radial ratio is not exceeded and that the forces are not too high in absolute terms.

Attention: The insert bearings can be swivelled in the housings by a small amount. This serves to align the bearings before mounting the shaft. Under no circumstances must there be any movement between the housing and the radial insert ball bearing during operation, due to bending of the shaft or other conditions of the construction.

Caution with central lubrication systems, the pressure may have to be reduced before entering the bearing, otherwise the covers and seals may be damaged.

3 Mounting

3.1 Before Mounting

Shaft or bolt 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.
The screw-on surfaces must be even and clean.
Screw holes must be such that the heads do not bend when the screws are tightened, and the threads are free-flowing and do not touch the housing.

3.2 Mounting

Align bearing so that shafts can be inserted without forcing.
Press in / press out shaft or bolt only with even pressure on inner ring.
Lubricate bearing.
Observe the machine designer's instructions for the tightening torque of the housing screws and the shaft lock.
If necessary, follow the instructions of the machine designer for preloading / adjusting the bearings.

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.
Never screw the cast iron housing on uneven surfaces, otherwise the housing may be damaged by excessive stresses.

3.3 Testing after mounting

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

4 Transport

If the bearings have been installed in a machine/plant and then transport to the place of use is to take place, suitable transport securing must be provided. Due to the dead weight of the shaft and the rotor, considerable forces can act on the stationary bearing in case of vibrations and impacts, which can lead to the destruction of the rolling elements and raceways. The transport lock must prevent the vibrations during transport from damaging the stationary bearing.

5 Operation

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

5.1 Control

The following points should be checked regularly:

Heating, running noise and vibrations of the bearing during operation.
Increase in bearing air, excessive wear,
Seat of the fastening screws
Loose or tight fit of the shaft
Damage to the housing
Seat of the covers and seals

5.2 Lubrication

Bearing units are filled ex works with a standard grease for rolling bearings. Small amounts of grease may leak out during commissioning. It is advisable to remove the quantities that have leaked out.

5.3 Relubrication

Relubrication must be done with a suitable grease gun. Grease must be pressed in until a small amount of grease escapes from the seal. Caution: In the case of central lubrication systems, the pressure may have to be reduced before the grease enters the bearing, otherwise the covers and seals may be damaged.

It is advisable to lubricate the bearing before longer standstills.

After lubrication, run the bearing briefly and remove any grease that escapes.

5.4 Relubrication intervals

It is not possible to make a general statement about the inspection and relubrication intervals, as they depend on many influencing factors such as ambient conditions, dust, dirt, direction of rotation, load, temperature, etc., but also on the damage that can be caused by a failure. If no empirical values are available, the check should be carried out daily and before each start-up after a standstill.

Greases:
For the lubrication of rolling bearings, corrosion-protective pressure-resistant greases based on lithium or lithium complex metal soap greases have proven their worth. When selecting the grease, please also consider the operating temperature range of the bearings. The grease manufacturers can advise you in individual cases.

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