

Installation and Maintenance Instructions Freewheel Type BAT

To avoid premature failure of the freewheel or possible machine malfunction, installation of the freewheel should be carried out by suitably qualified personnel and according to the following instructions.

STIEBER will not accept liability in cases of non-compliance with these instructions!

Description:

BAT units are designed to provide an indexing function without cumulative error.

The main components are: outer race, inner race, drive rollers and a roller cage.

The cage is spring loaded, and provides the engaging / disengaging function of the clutch.

BAT units have felt seals up to size 50, and lip seals from size 60 on.

For design reasons there is no seal between the outer race and the inner race at the inboard end of the unit.

The outer race must be supported by bearings external to the unit.

Prior to Installation:

The Freewheel should be unpacked and installed in a clean working environment.

The driving direction should be checked prior to installation. The driving direction cannot be changed without replacing components.

Remove the corrosion inhibitor using flushing oil.

The inner race should be fitted to a shaft of h6 or j6 tolerance.

The mounting register of the outer race should be to h6 tolerance.

The concentricity and angular alignment of the shaft relative to the outer race should be within the limits specified in the table below.

Permissible concentricity and alignment errors:

| Bore Ø [mm] | Concentricity [mm] | Parallelism [mm] |
|----------------|-----------------------|---------------------|
| 12 - 20 | 0,02 | 0,02 |
| 25 - 40 | 0,035 | 0,03 |
| 50 - 80 | 0,05 | 0,04 |
| 90 - 120 | 0,06 | 0,05 |

We recommend ball bearings with normal bearings clearance are installed adjacent to the clutch.

A proper seal between the face of the outer race and the mounting surface has to be provided by the customer.

Installation:

Ideally BAT units should be installed as an assembly.

If this is not possible, first disconnect the engagement springs, then remove the outer race whilst slightly rotating in the freewheeling direction.

Install the outer race. Install the inner race, cage and rollers. (To simplify this procedure hold the rollers in position by means of an O-Ring)

Re-engage the drive springs. Install a key to DIN 6885 sheet 1. The key should be the full length of the hub.

Drive torque is transmitted via the outer race face and bolts of 10.9 quality or better.

We recommend the following torque figures for the outer race mounting bolts.

| Bolt Size | Tightening Torque [Nm] |
|-----------|------------------------|
| M5 | 8,6 |
| M8 | 36 |
| M10 | 72 |
| M12 | 125 |
| M16 | 305 |

During installation, apply axial load to the inner race only.

After installation:

After installation, ensure the unit rotates smoothly in direction of free-wheeling.

Prior to use, 1/3 of the free space within the unit should be filled with oil of the recommended grade via the oil filler plug(s) in the outer race.

Ensure that the actuating latch does not foul against the outer race or the spring mounting plate.

Dismantling:

Dismantling is achieved by following the installation procedure in reverse sequence.

Lubrication and Maintenance:

BAT units are not sealed perfectly. It is essential that BAT units up to size 50 are re-lubricated daily, and larger sizes once a week.

Relubrication volume depends on the clutch size and oil loss - normally 10% of initial volume.

The oil should be changed after 1000 hours operation or every 6 months.

Oil lubrication should be used rather than grease lubrication.

Initial oil fill volume:

| Type | Initial Oil Volume [ml] |
|--------|-------------------------|
| BAT 12 | 1,5 |
| BAT 20 | 2 |
| BAT 25 | 2 |
| BAT 30 | 6 |
| BAT40 | 7,5 |
| BAT 50 | 12 |

If grease lubrication is used, 30 to 40% of the free space in the freewheel should be grease filled. Excessive grease may lead to malfunction of the clutch.

Depending on environmental conditions, grease lubricated freewheels should be cleaned and re-greased every 2 to 6 months.

Slip additives such as Molykote and Graphite may inhibit operation of the unit and should not be used.

Recommended Lubricants

| | Ambient temperature | | | | Grease |
|-------------------------------|-------------------------|--------------------------|-------------------------|--------------------|----------------|
| | -40°C to- 15°C | -15°C to +15°C | +15°C to +30°C | +30°C to +50°C | |
| | Operating temperature | | | | |
| | -20°C to +20°C | +10°C to +50°C | +40°C to +70°C | +50°C to +85°C | |
| | Oil | | | | |
| ISO - VG DIN 51519 | 10 | 22 | 46 | 100 | |
| ARAL | SUMOROL CM10 | SUMOROL CM22 | MOTANOL HK46 | DEGOL CL100T | ARALUB HL2 |
| BP | ENERGOL CS10 | ENERGOL CS22 | ENERGOL CS46 | ENERGOL RC100 | ENERGREASE LS2 |
| DEA | ASTRON HL10 | ASTRON HL22 | ASTRON HL46 | ASTRON HL100 | GLISSANDO 20 |
| ESSO | NUTTO H10 SINESSO 10 | NUTTO H22 SPINESSO 22 | NUTTO H46 TERESSO 46 | NUTTO H100 | BEACON 2 |
| FUCHS | RENOLIN MR3 | RENOLIN DTA22 | RENOLIN DTA46 | RENOLIN MR30 | RENOLIT LZR2 |
| KLÜBER | CRUCOLAN 10 | CRUCOLAN 22 | CRUCOLAN 46 | CRUCOLAN 100 | POLYLUB WH2 |
| MOBIL | VELOCITE No6 | VELOCITE No10 | VACTRA MEDIUM VG46 | VACTRA HEAVY VG100 | MOBILUX2 |
| SHELL | MORLINA 10 | MORLINA 22 | MORLINA 46 | MORLINA 100 | ALVANIA G2 |
| TOTAL | AZZOLA ZS10 | AZZOLA ZS22 | AZZOLA ZS46 | AZZOLA ZS100 | MULTIS 2 |

The ambient temperature should only be used as a guide. The operating temperature should be used to select the oil viscosity required.

Corrosion inhibitor: Rivolta KSP

Time of protection: 6 to 12 months