Assembly and maintenance manual

Type GFK

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Important notes

These mounting and operating instructions must be kept in a safe place and must be supplied with the equipment when it is delivered.

These installation and operating instructions must be read carefully before the product is put into operation.

If these assembly and operating instructions are not observed or misinterpreted, any product liability and warranty of Stieber GmbH expires.

The assembly and operating instructions are only valid under the condition that the product is selected for your intended use. Selection and design of the product are not subject of these assembly and operating instructions.

In case of disassembly or modification of the product, any product liability and warranty of Stieber GmbH will also expire.

Notes and danger notices must be observed in particular.

Safety information

Repair work may only be carried out by the manufacturer or by trained personnel.

Circulating components must be secured against accidental contact.

If a malfunction is suspected, the product or the machine in which it is used must be taken out of operation.

For deliveries abroad, the safety regulations applicable there must also be observed.

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Attention!

These assembly and operating instructions must be followed carefully!

1. Functionality of sprag freewheels

Freewheels are machine elements that permit rotary motion (freewheeling) in one direction and support or transmit torque in the opposite direction.

During a rotary motion in the freewheeling direction, the sprags slide on the rotating running surfaces of the rings (sliding friction).

The torque of the drive is not transmitted to the output side.

If a rotary motion takes place against the freewheeling direction, frictional locking occurs due to static friction on the contact surfaces between the races and sprags.

The torque is transmitted via the sprags.

If the direction of rotation changes from the clamping direction to the freewheeling direction, the rotation takes place in the opposite direction.

The sprags resume their freewheeling positions. This switching process takes place with high repeatability and precision.

2. Applikation areas

Attention!

The maximum permissible torque of the freewheel must not be exceeded due to application-related torque peaks. These can lead to a loss of function!

Backstop

A backstop is characterized by a fixed output side that blocks rotational movement of the input side in the clamping direction.

Attention!

When used as a backstop, it must be ensured that, if necessary, it can only be released when the system is load-free and at a standstill.

Attention!

When using the freewheel as a backstop, the drive must no longer be started against the freewheeling direction, otherwise the freewheel may be destroyed.

Indexing clutch

An input direction with repeated change of direction is gradually transferred to a rectified rotary motion on the output side (in clamping direction).

Attention.

No impermissible torsional vibrations (amplitudes and frequencies that lead to loading and unloading of the freewheel, etc.) may occur. These can lead to a loss of function!

Overrunning clutch

If the speed of the output side exceeds the speed of the input, the freewheel disengaged input and output and switches from power transmission to freewheeling.

Attention!

When disengaging above the speed limit, the sprags lift off. A new indexing operation is only possible again below the speed limit.

3. Sevice life

Freewheeling operation

The constant frictional contact of the sprags with the connecting parts

in freewheeling operation causes material wear, which limits the service life of sprag freewheels.

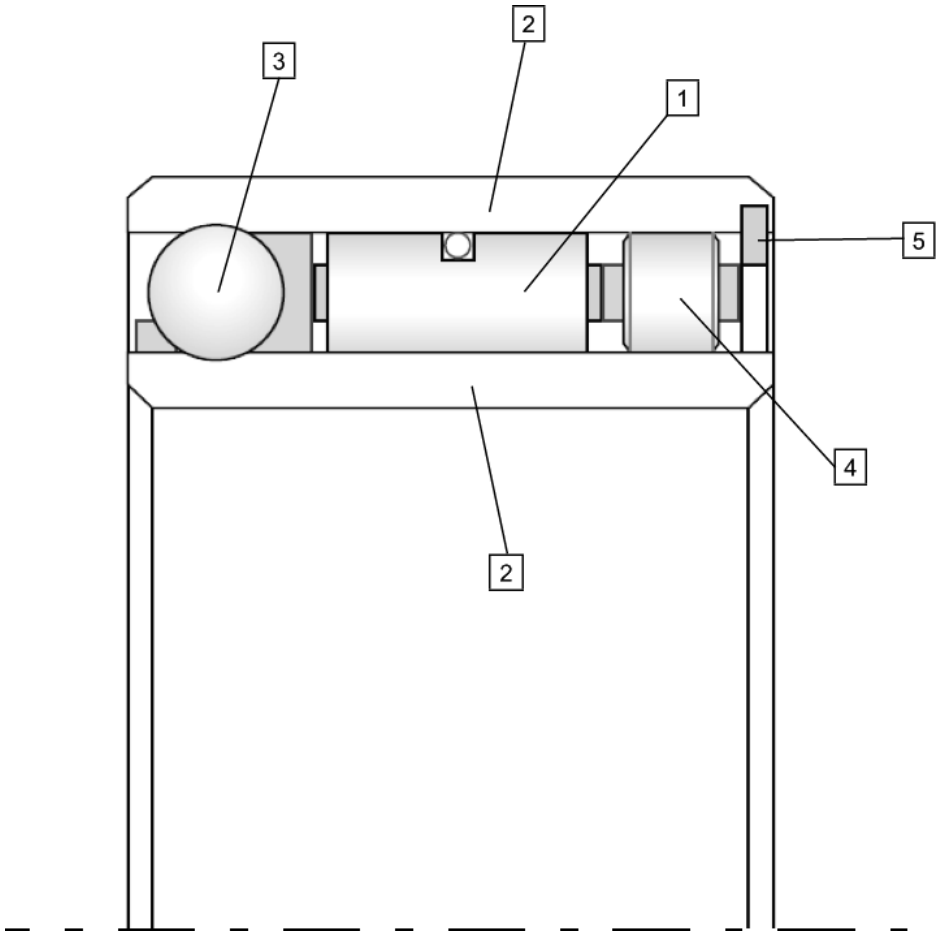
Indexing operation

During indexing operation, torque-dependent deformation forces (stresses and Hertzian pressures) act on the relevant freewheel components and lead to material fatigue in the long term.

Attention!

Applications with permanently high switching frequencies can cause microcracks and material chipping!

4. Components and characteristic values complete Freewheel GFK



The most important functional parts are:

The mounting element (1), the races (2), the ball bearing (3), the roller bearing (4) and the circlip (5).

The freewheels of the Complete Freewheel GFK group are designed according to the following table.

Components			
Freewheel installation element	GFK		
Sprag Hardened rolled bearing steel	Spring Tension spring (Z) plastic (PA)	Cage stamped steel /	Switching frequency max. 10 Hz
Races	rolling bearing steel, hardened and ground		
Inner ring	Press fit		
Outer ring	Press fit		
Ball bearing	iintegrated		
Roller bearing	integrated		
Lubrication	Grease life lubrication		
Seal	customer side		
Operating temperature	max. 140°C		
max. Speed	Equity speed of the installation element		

5. Mounting instructions

Before installation, the direction of rotation of the device must be determined. Make sure that the desired freewheeling direction corresponds to the installation direction of the freewheel.

Attention!

The freewheel must not be mounted by hammer blows, as this may damage it!

Attention!

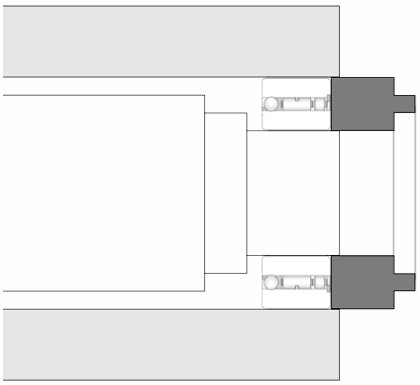
The press-in pressure must not be applied via the balls!

No additional storage of the freewheel required.

Hardening and grinding of the connecting parts is not required. Thoroughly clean the connecting parts in the area of the freewheel seat and the freewheel rings before pressing them in (free of grease).

GFK freewheels with races can be installed with either right-hand or left-hand clamping.

The marking arrow on the inner ring indicates the clamping direction of the inner ring.



Pressing in or on by means of mounting aid (tube or bushing)

6. Installation tolerances

The following installation tolerances apply to

the component: Shaft p5; Hub R6

Attention!

If the installation tolerances are not observed, the proper function of the freewheel cannot be guaranteed!

7. Nominal torque

The nominal torque designates the torque that the freewheel can transmit as a continuous load. The determination of the catalog specification of the nominal torque is based on a standardized adjacent construction.

Attention!

Deviating properties of the adjacent construction influence the nominal torque!

8. Lubrication

The component is equipped with grease-for-life lubrication and does not require additional lubrication.

Attention!

The service temperatures must be observed!