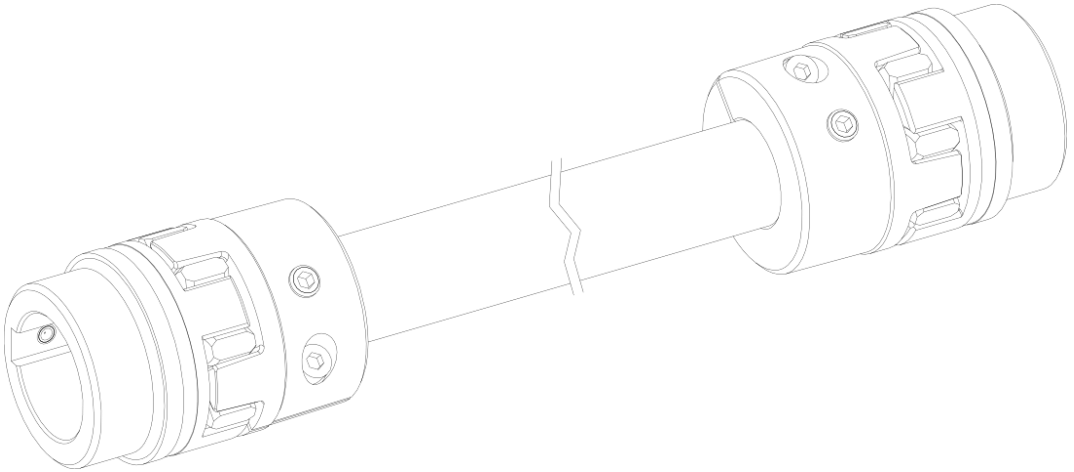


Operating Manuel
Drive Shafts ZR



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1 Important Information

This chapter contains important information on the safe handling of the product and on this operating manual.

1.1 Instructions on Documentation

The following instructions will guide you through the entire documentation.

We assume no liability for damages resulting from non-compliance with this operating manual.

Forward this operating manual to the plant operator so that it is available if needed.

1.2 Safekeeping of the Documentation

Keep this operating manual and all other applicable documents safe so that they are available if needed.

1.3 Used Symbols



Information

Instructions and information on the operation of the worm gear screw jacks.



Attention!

Non-compliance may result in material damage and impair the operation of the gear unit.



Warning!

Safety instruction: non-compliance may result in serious or fatal injuries.



QR Barcode

Provides a direct link to the products on our website. Compatible with QR barcode scanner apps for all Android, Apple and Windows smart phones / tablets.

1.4 Qualified Staff



Qualified staff according to this operating manual refers to specialists who are familiar with the installation, assembly, commissioning and operation of the drive shafts and the hazards involved and who possess the necessary capabilities on the basis of their specialist training and knowledge of the applicable standards.

1.5 General safety instructions

The following warnings, preventive measures and instructions are intended to guarantee your safety and to avoid damage to the drive shafts or the components connected to it. This chapter contains warnings and instructions that generally apply to the handling of the drive shafts.



Intended Use:

The drive shafts of the ZR series are designed exclusively for the transmission of torques.

Torque specifications can be found in the product catalogue at www.neff-gewindetriebe.de

Any other use is considered misuse. The manufacturer assumes no liability for any damage resulting from misuse.

If the device is installed in machines or plants, commissioning is prohibited until it is determined that it complies with the EC machinery directive.



Attention!

This operating manual must be kept close to the device and be easily accessible and available to all users.



Attention!

Risk of damage to the drive shafts resulting from storage and transport.

Correct storage, installation and assembly as well as diligent operation and maintenance are prerequisites for the trouble-free and safe operation of the drive shafts.

The drive shafts must be protected against mechanical impacts and vibrations during transport and storage.

2 Technical description



Description drive shaft ZR:

- The cardan shaft ZR is a torsionally flexible claw coupling. It is able to compensate for shaft misalignment, e.g. caused by manufacturing inaccuracies, thermal expansion, etc.
 - The double-cardanic design of the coupling enables greater absorption of the radial misalignment.
 - Type ZR is not permitted for crane and hoist drives.
 - For vertical installation of type ZR, a thrust washer is required in the cam base of the lower hub.
-



Coupling design drive shaft ZR:

- The clutch must be designed for the application in accordance with the design regulations (in accordance with DIN 740, Part 2) to ensure that the clutch operates trouble-free over the long term.
- If the operating conditions change (power, speed, changes to the prime mover and driven machine), it is essential to check the clutch design. Please note that the technical data relating to the torque refer exclusively to the spider. The transmittable torque of the shaft-hub connection must be checked by the customer and is his responsibility.
- For drives subject to torsional vibration (drives with periodic torsional vibration stress), it is necessary to carry out a torsional vibration calculation to ensure a reliable design. Typical drives subject to torsional vibration are, for example, drives with diesel engines, piston pumps, piston compressors, etc. NEFF can carry out the coupling design and torsional vibration calculation on request.

3 Assembly

3.1 Aligning the units to be connected



- Aligning units during assembly
- Align the units to be connected as precisely as possible. This ensures a long service life for the coupling and maximum operating misalignment values. The sum of the operating and alignment misalignment gives the total misalignment. The permissible total misalignment values can be found in the relevant catalogue and must not be exceeded.
- The specified alignment values apply to systems at operating temperature. If alignment is carried out at a different temperature, additional dimensional deviations will occur in the system due to the difference between the alignment temperature and the operating temperature. These must be taken into account during alignment.
- After installation is complete, the alignment of the coupling must be checked again and corrected if necessary.



Caution!

To ensure a long service life of the clutch, the shaft ends must be precisely aligned. Always adhere to the specified misalignment values (see Table 5). If the values are exceeded, the clutch will be damaged. The more precisely the clutch is aligned, the longer its service life will be.



The misalignment values specified in Table 5 are maximum values that must not occur simultaneously. If radial and angular misalignment occur at the same time, the permissible misalignment values may only be used proportionally. Use a dial gauge, ruler or feeler gauge to check whether the permissible misalignment values in Table 5 are adhered to.

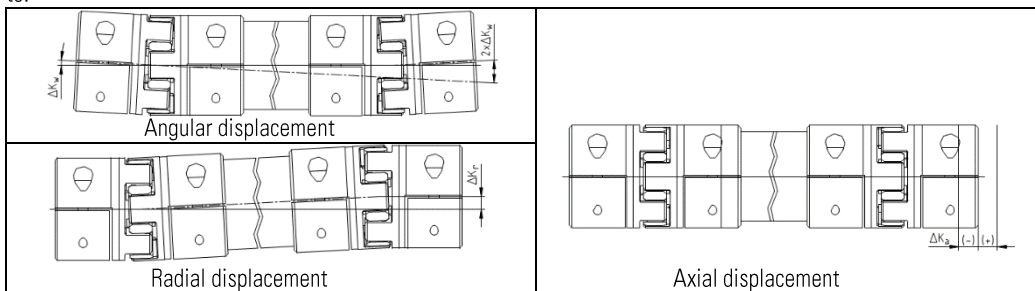


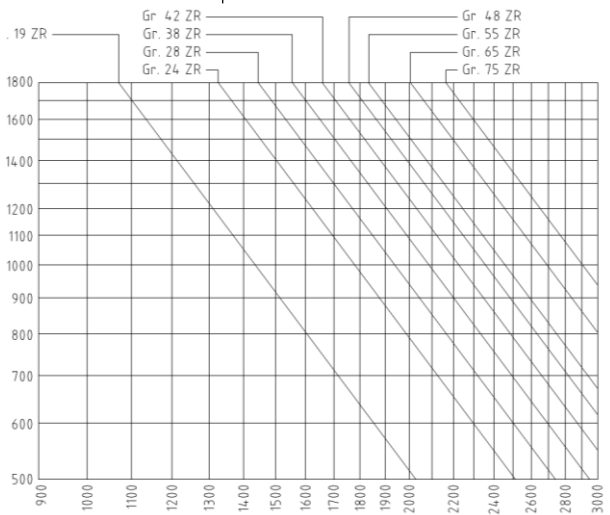
Table: Displacement values indicated

Size	max. axial displacement ΔK_a [mm]	max. angular displacement ΔK_w [°] n =		max. radial displacement ΔK_r [mm]
		1500 ⁻¹ /min	3000 ⁻¹ /min	
19	1,2	1	0,75	→ Determine the distance from the center of the spider to the center of the spider $L_{ZK} = L_{ZR} - 2 \times l1 - E$ → Determine the maximum radial displacement $D_{Kr} = \tan \Delta K_w \times L_{ZK}$
24	1,4			
28	1,5			
38	1,8			
42	2,0			
48	2,1			

4 Critical speed



Please note the critical speed of the drive shaft ZR:



5 Malfunctions



Warning!

Switch off the system before eliminating all faults

Malfunction	Cause	Remedy
Running noises or vibrations in the system	<ul style="list-style-type: none"> ➤ Alignment error ➤ Loose screws 	Check alignment and correct. Check screw tightening torques Loose screws and correct
Breakage of elastic element(s)	<ul style="list-style-type: none"> ➤ Alignment error ➤ Impermissible torque 	Check alignment and correct. Replace defective parts. Eliminate reason for impermissibly high torque

Carry out a test run after eliminating all faults.



Table: Tightening Torque of the Clamping Screws (Socket head screws)

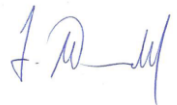
Size	14	19 ⁽¹⁾	24	28	38	42	48
Screw	M3	M6	M6	M8	M8	M10	M12
Tightening Torque [Nm]	1,34	10,5	10,5	25	25	69	120

⁽¹⁾Size 19: Bore Ø22-Ø24 with 2x clamping screws M4, tightening torque = 2,9 Nm

6 Note on the EC Machinery Directive 2006/42/EC

The drive shafts supplied by NEFF are components and not machines or partly completed machines within the meaning of the EC Machinery Directive 2006/42/EC. Consequently, NEFF is not required to issue a declaration of incorporation. Information on safe installation, commissioning and safe operation can be found in these operating/installation instructions, taking into account the warnings.

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Weil im Schönbuch, 27.03.2024

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