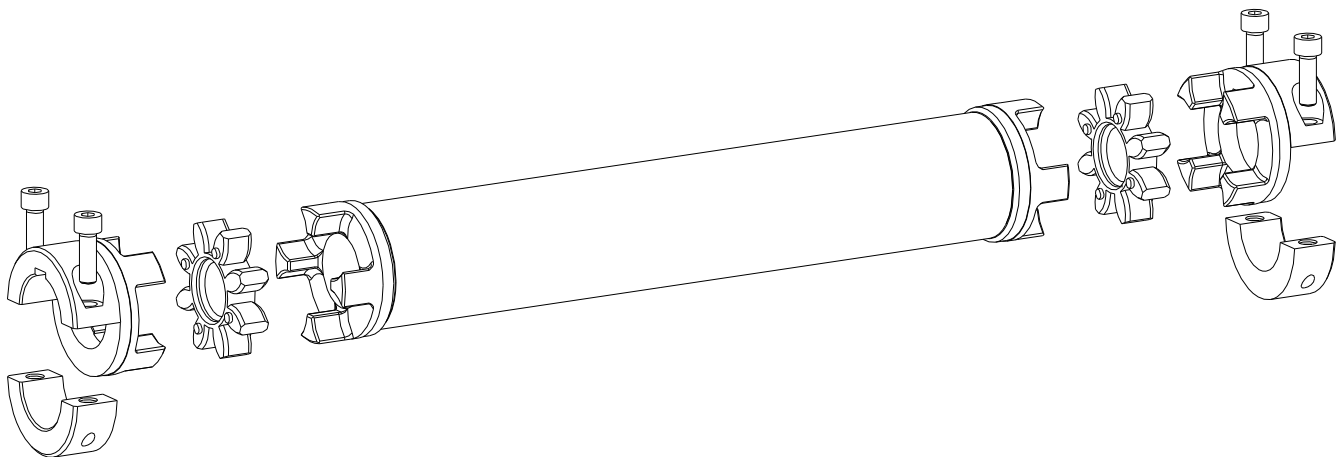




These mounting instructions are a summary of KTR N 45510 comprising details about the assembly/disassembly of the intermediate shaft coupling ROTEX® GS ZR3 only. Please refer to the instructions KTR N 45510 for general advice as well as advice on safety and danger before starting up the coupling. According to EU standard 2014/34/EU, legal claims for warranty cannot be allowed.

ROTEX® GS

Torsionally flexible intermediate shaft coupling type ZR3



ROTEX® GS, ZR3

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1 Technical data

Intermediate shaft coupling type ZR3

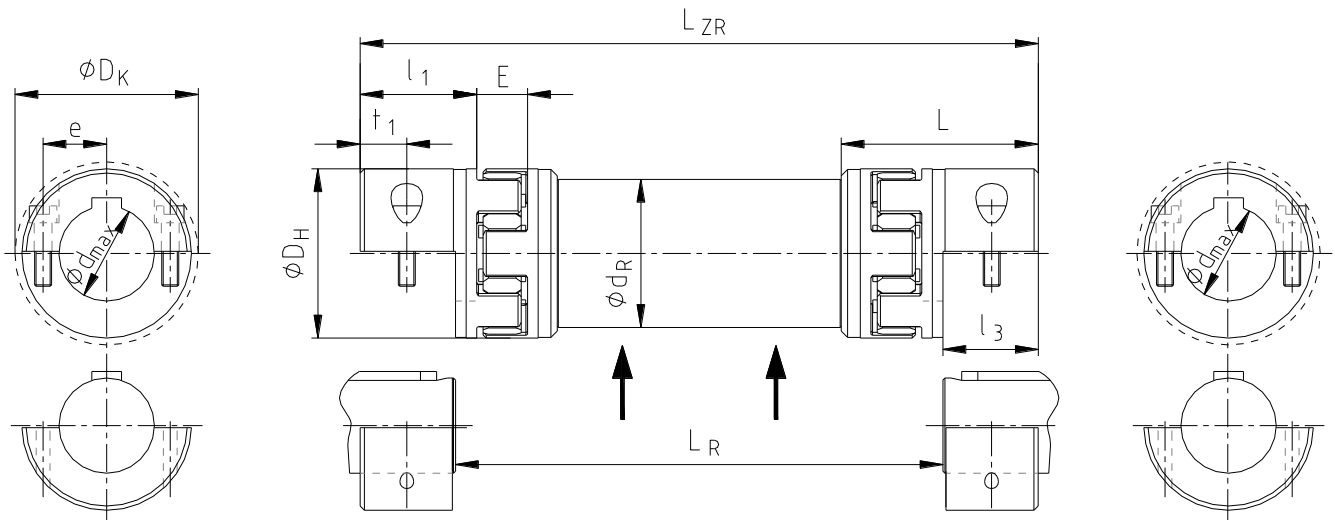


Illustration 1: ROTEX® GS, type ZR3

Table 1: Dimensions

| Size | Dimensions [mm] | | | | | | | | | | | | | | |
|------|-----------------|------------|-------|------|-------|-------|----|-------|------|-------|-------|-------|------|---------------------------|------|
| | $d_{min.}$ | $d_{max.}$ | D_H | L | l_3 | l_1 | E | t_1 | e | D_K | d_R | L_R | | $L_{ZR}=L_R+2 \times l_3$ | |
| | | | | | | | | | | | | Min. | Max. | Min. | Max. |
| 14 | 5 | 15 | 30 | 36.0 | 14.5 | 18.5 | 13 | 7.5 | 10.5 | 33.3 | 28 | 72 | 2971 | 101 | 3000 |
| 19 | 8 | 20 | 40 | 49 | 17.5 | 25 | 16 | 8 | 14.5 | 46 | 40 | 98 | 2965 | 133 | 3000 |
| 24 | 10 | 28 | 55 | 59 | 22 | 30 | 18 | 10.5 | 20 | 57.5 | 50 | 121 | 3456 | 165 | 3500 |
| 28 | 14 | 38 | 65 | 67 | 25 | 35 | 20 | 11.5 | 25 | 73 | 60 | 137 | 3950 | 187 | 4000 |
| 38 | 18 | 45 | 80 | 83.5 | 33 | 45 | 24 | 15.5 | 30 | 83.5 | 70 | 169 | 3934 | 235 | 4000 |
| 42 | 22 | 50 | 95 | 93 | 36.5 | 50 | 26 | 18 | 32 | 93.5 | 80 | 180 | 3927 | 253 | 4000 |
| 48 | 22 | 55 | 105 | 100 | 39.5 | 56 | 28 | 18.5 | 36 | 105 | 100 | 202 | 3921 | 281 | 4000 |

Table 2: Torques

| Size | Spider ¹⁾ (component 2) Rated torque [Nm] | | | |
|------|---|-----------|-----------|-------------------|
| | 92 ShA-GS | 98 ShA-GS | 64 ShD-GS | 72 ShD-GS |
| 14 | 7.5 | 12.5 | 16 | - |
| 19 | 12 | 21 | 26 | - |
| 24 | 35 | 60 | 75 | 97 ²⁾ |
| 28 | 95 | 160 | 200 | 260 ²⁾ |
| 38 | 190 | 325 | 405 | 525 ²⁾ |
| 42 | 265 | 450 | 560 | 728 ²⁾ |
| 48 | 310 | 525 | 655 | 852 ²⁾ |

- 1) Maximum torque of the coupling $T_{Kmax.}$ = Rated torque of coupling $T_{Krated.}$ x 2; **with clamping hubs 7.5 the transmittable friction torque has to be observed (see table 3).**
- 2) When using the spider 72 Sh-D, we recommend to use hubs made of steel.

| | | | | |
|---|-----------|-------------------|--------------|------------------------|
| Please observe protection note ISO 16016. | Drawn: | 2017-03-15 Shg/Ki | Replacing: | KTR-N dated 2017-01-02 |
| | Verified: | 2017-03-15 Shg | Replaced by: | |



1 Technical data

Table 3: Torques and surface pressure of shell clamping hubs type 7.5

| Size | 14 | 19 | 24 | 28 | 38 | 42 | 48 |
|---|---|------|------|-------|-------|-------|------|
| Clamping screw M ₁ ¹⁾ | M4 | M6 | M6 | M8 | M8 | M10 | M12 |
| Dimension t ₁ | 7.5 | 8.0 | 10.5 | 11.5 | 15.5 | 18.0 | 18.5 |
| Dimension e | 10.5 | 14.5 | 20 | 25 | 30 | 32 | 36 |
| Dimension ØD _K | 33.3 | 46.0 | 57.5 | 73.0 | 83.5 | 93.5 | 105 |
| Tightening torque T _A [Nm] | 2.90 | 10 | 10 | 25 | 25 | 49 | 86 |
| Bore Ø | Transmittable torque of clamping hub [Nm] | | | | | | |
| | Surface pressure [N/mm ²] | | | | | | |
| Ø5 | 4.6 | | | | | | |
| | 75.0 | | | | | | |
| Ø6 | 5.5 | | | | | | |
| | 62.5 | | | | | | |
| Ø8 | 7.4 | 17.0 | | | | | |
| | 46.9 | 87.9 | | | | | |
| Ø10 | 9.2 | 21.2 | 21.2 | | | | |
| | 37.5 | 70.3 | 54.9 | | | | |
| Ø11 | 10.1 | 23.3 | 23.3 | | | | |
| | 34.1 | 63.9 | 63.9 | | | | |
| Ø12 | 11.0 | 25.4 | 25.4 | 46.7 | | | |
| | 31.3 | 58.6 | 45.7 | 74.7 | | | |
| Ø14 | 12.9 | 29.7 | 29.7 | 54.4 | | | |
| | 26.8 | 50.2 | 39.2 | 64.1 | | | |
| Ø15 | 13.8 | 31.8 | 31.8 | 58.3 | | | |
| | 25.0 | 46.9 | 36.6 | 59.8 | | | |
| Ø16 | | 33.9 | 33.9 | 62.2 | | | |
| | | 43.9 | 34.3 | 56.0 | | | |
| Ø19 | | 40.3 | 40.3 | 73.9 | 73.9 | | |
| | | 37.0 | 28.9 | 47.2 | 35.0 | | |
| Ø20 | | 42.4 | 42.4 | 77.8 | 77.8 | 123.5 | 180 |
| | | 35.2 | 27.4 | 44.8 | 33.3 | 48.2 | 64.5 |
| Ø22 | | | 46.7 | 85.5 | 85.5 | 135.8 | 198 |
| | | | 24.9 | 40.8 | 30.2 | 43.8 | 58.7 |
| Ø24 | | | 50.9 | 93.3 | 93.3 | 148.2 | 216 |
| | | | 22.9 | 37.4 | 27.7 | 40.1 | 53.8 |
| Ø25 | | | 53.0 | 97.2 | 97.2 | 154.3 | 225 |
| | | | 22.0 | 35.9 | 26.6 | 38.5 | 51.6 |
| Ø28 | | | 59.4 | 108.9 | 108.9 | 172.9 | 252 |
| | | | 19.6 | 32.0 | 23.8 | 34.4 | 46.1 |
| Ø30 | | | | 116.6 | 116.6 | 185.2 | 270 |
| | | | | 29.9 | 22.2 | 32.1 | 43.0 |
| Ø32 | | | | 124.4 | 124.4 | 197.5 | 288 |
| | | | | 28.0 | 20.8 | 30.1 | 40.3 |
| Ø35 | | | | 136.1 | 136.1 | 216.1 | 315 |
| | | | | 25.6 | 19.0 | 27.5 | 36.9 |
| Ø38 | | | | 147.7 | 147.7 | 234.6 | 342 |
| | | | | 23.6 | 17.5 | 25.3 | 34.0 |
| Ø40 | | | | | 155.5 | 246.9 | 360 |
| | | | | | 15.8 | 22.9 | 30.7 |
| Ø42 | | | | | 163.3 | 259.3 | 378 |
| | | | | | 14.8 | 21.4 | 28.7 |
| Ø45 | | | | | 174.9 | 277.8 | 405 |
| | | | | | 14.8 | 21.4 | 28.7 |
| Ø48 | | | | | | 296.3 | 432 |
| | | | | | | 20.1 | 26.9 |
| Ø50 | | | | | | 308.7 | 450 |
| | | | | | | 19.3 | 25.8 |
| Ø55 | | | | | | | 495 |
| | | | | | | | 23.5 |



2 Assembly

The coupling is generally supplied in individual parts. Before starting with the assembly, please inspect the coupling for completeness and dimensional accuracy.



With vertical assembly of the intermediate shaft couplings a special distance washer of KTR has to be inserted between the coupling hub at the bottom and the spider at the bottom.

2.1 Components of the couplings

Components of ROTEX® GS, intermediate shaft coupling type ZR3

| Component | Quantity | Description |
|-----------|----------|---|
| 1 | 2 | Half shell clamping hub type 7.5 or 7.6 (component 1.1 is the basic body of the hub; component 1.2 is the clamping part) |
| 2 | 2 | Spider |
| 3 | 1 | Intermediate pipe |
| 4 | 4 | Cap screws DIN EN ISO 4762 |

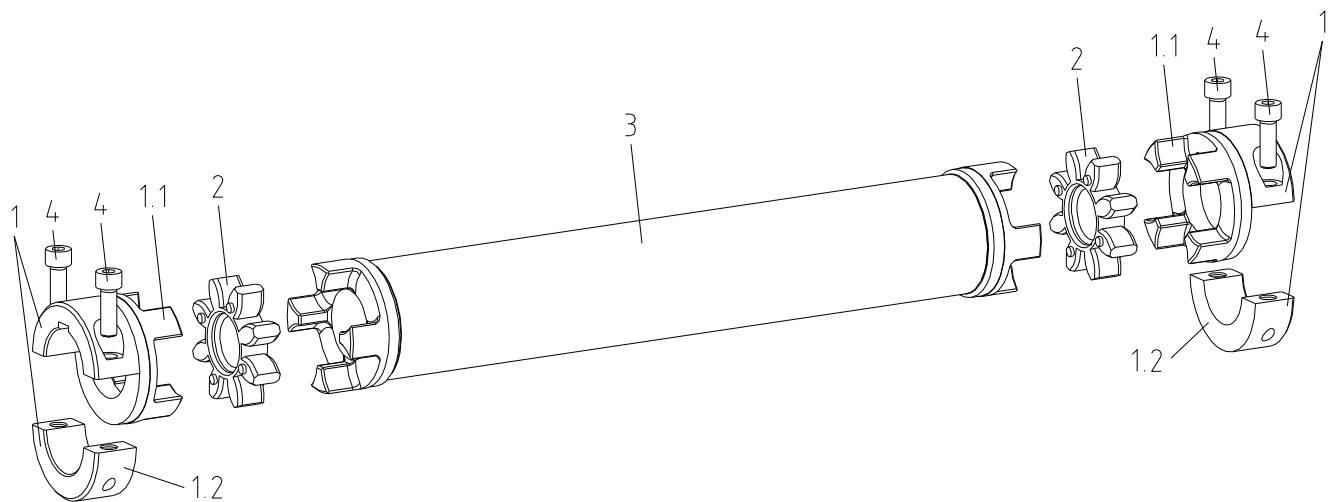


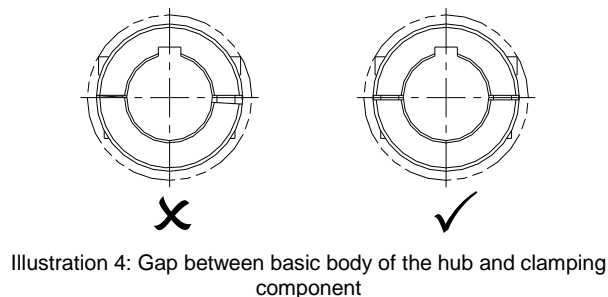
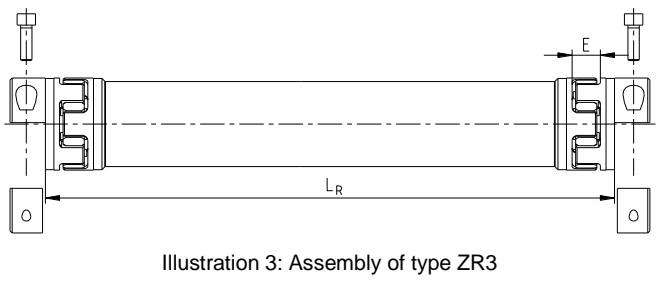
Illustration 2: ROTEX® GS ZR3, size 14 - 48



2 Assembly

2.2 Assembly of type ZR3

- Disassemble the cap screws of the half shell clamping hubs. Store the clamping components and cap screws carefully.
- Insert the spiders into the basic body of the hub.
- Fit the intermediate pipe between the two basic bodies of the hubs. The tapping of the basic bodies of the hubs should point to the same direction. Here dimension L_R is the shaft distance dimension. The distance dimension E shown in table 1 has to be observed.
- Insert the coupling between driving and driven side.
- Mount the clamping components to the basic bodies of the hubs. Secure the half shell clamping hubs by tightening the cap screws DIN EN ISO 4762 evenly at the tightening torques T_A specified in table 3. Make sure that the gap between the basic body of the hub and the clamping components has roughly the same width.



2.3 Displacements - alignment of the couplings

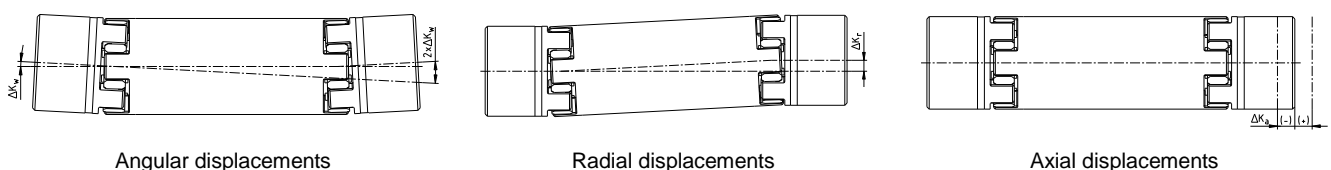
The displacement figures specified in table 4 provide for sufficient safety to compensate for external influences like, for example, thermal expansion or foundation settling.



In order to ensure a long service life of the coupling, the shaft ends have to be accurately aligned.
Please absolutely observe the displacement figures specified (see table 4). If the figures are exceeded, the coupling will be damaged.
The more accurate the alignment of the coupling, the longer is its service life.

Please note:

- The displacement figures specified in table 4 are maximum figures which must not arise in parallel. If radial and angular displacements arise at the same time, the permissible displacement values may only be used proportionally.
- Please inspect with a dial gauge, ruler or feeler gauge whether the permissible displacement figures specified in table 4 can be observed.



$$\Delta K_r = (L_{ZR} - 2 \cdot l_1 - E) \cdot \tan \alpha$$

$$L_{max} = L + \Delta K_a$$

Illustration 5: Displacements

| | | |
|---|--------------------------|-----------------------------------|
| Please observe protection note ISO 16016. | Drawn: 2017-03-15 Shg/Ki | Replacing: KTR-N dated 2017-01-02 |
| | Verified: 2017-03-15 Shg | Replaced by: |



2 Assembly

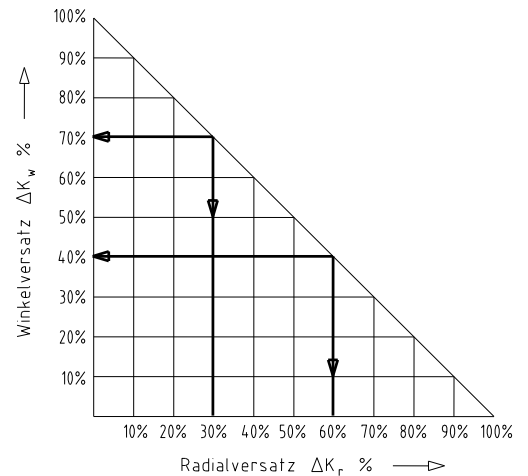
2.3 Displacements - alignment of the couplings

Examples of the displacement combinations specified in illustration 6:

Example 1:
 $\Delta K_r = 30\%$
 $\Delta K_w = 70\%$

Example 2:
 $\Delta K_r = 60\%$
 $\Delta K_w = 40\%$

Illustration 6: Combinations of displacement



$$\Delta K_{\text{total}} = \Delta K_r + \Delta K_w \leq 100 \%$$

Table 4: Displacement figures – Intermediate shaft coupling

| Size | Max. axial displacement ΔK_a [mm] | Max. radial displacement ΔK_r [mm] ¹⁾ | | | | Max. angular displacement ΔK_w [degree] | | | |
|------|--|---|--------------|--------------|--------------|--|--------------|--------------|--------------|
| | | 92 ShA-GS | 98 ShA-GS | 64 ShD-GS | 72 ShD-GS | 92 ShA-GS | 98 ShA-GS | 64 ShD-GS | 72 ShD-GS |
| 14 | +1.0 / -1.0 | 16.6 | 14.9 | 13.3 | - | 1.0 | 0.9 | 0.8 | - |
| 19 | +1.2 / -1.0 | 16.3 | 14.7 | 13.0 | - | 1.0 | 0.9 | 0.8 | - |
| 24 | +1.4 / -1.0 | 16.1 | 14.5 | 12.9 | 11.3 | 1.0 | 0.9 | 0.8 | 0.7 |
| 28 | +1.5 / -1.4 | 15.9 | 14.3 | 12.7 | 11.1 | 1.0 | 0.9 | 0.8 | 0.7 |
| 38 | +1.8 / -1.4 | 15.5 | 13.9 | 12.4 | 10.8 | 1.0 | 0.9 | 0.8 | 0.7 |
| 42 | +2.0 / -2.0 | 15.3 | 13.7 | 12.2 | 10.7 | 1.0 | 0.9 | 0.8 | 0.7 |
| 48 | +2.1 / -2.0 | 15.0 | 13.5 | 12.0 | 10.5 | 1.0 | 0.9 | 0.8 | 0.7 |

1) Referring to an overall coupling length of $L_{ZR} = 1000$ mm.

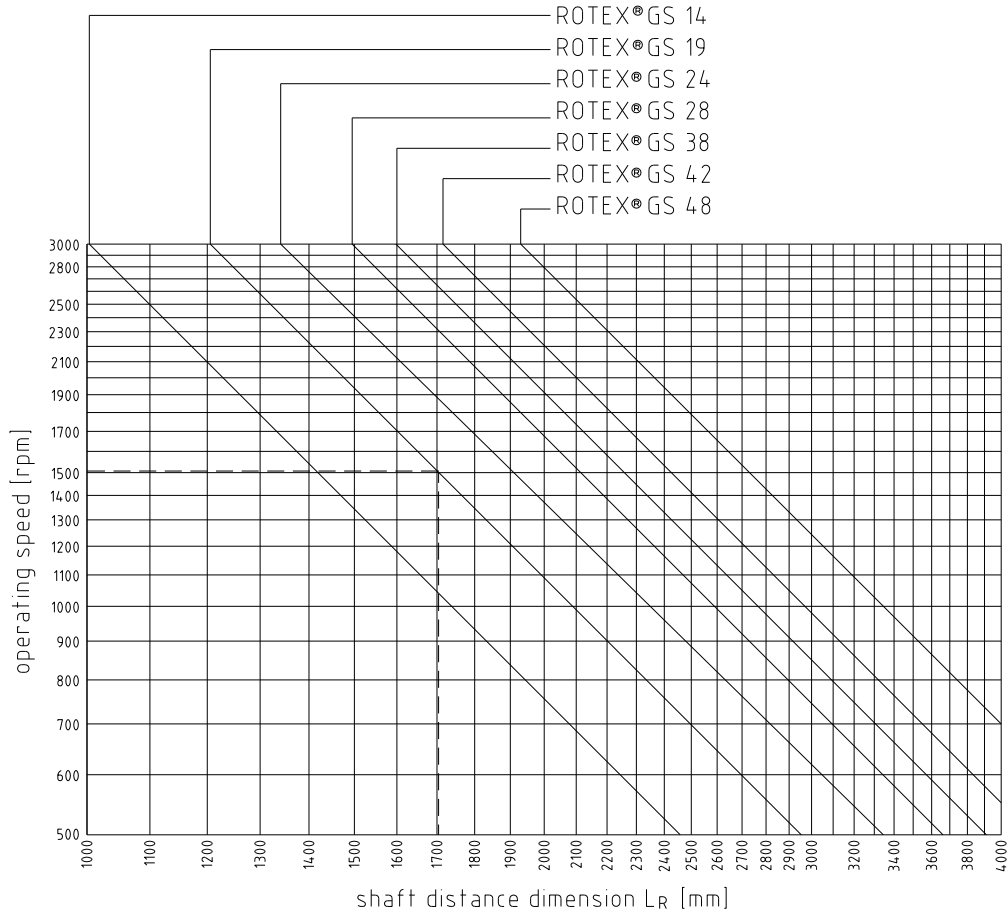
The permissible displacement figures of the flexible **ROTEX® GS** couplings mentioned are general standard values taking into account the load of the coupling up to the rated torque TKN of the coupling and an ambient temperature of + 30 °C.



2 Assembly

2.4 Critical whirling speed

Please observe the critical whirling speed of the coupling.



Example ZR3:
ROTEX® GS 19
Speed 1500 rpm
Max. permissible shaft
distance dimension
1700 mm

Illustration 7: Critical whirling speed of type ZR3