

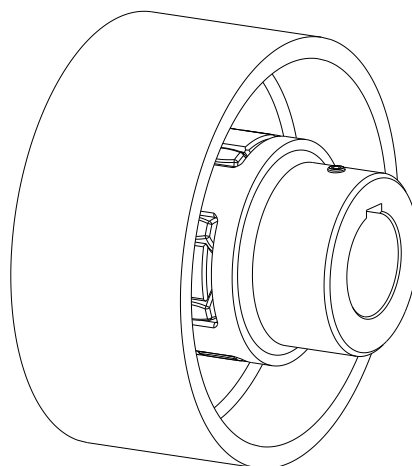


# ROTEX®

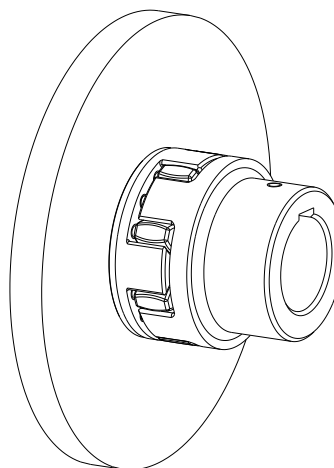
Torsionally flexible jaw-type couplings

BTAN and SBAN  
and their combinations

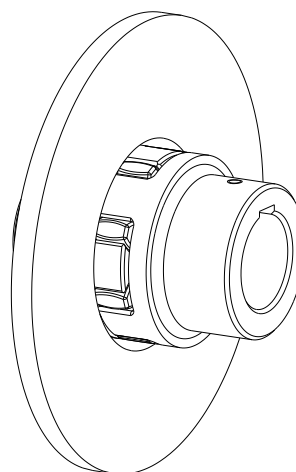
for finish bored, pilot bored  
and unbored couplings



**Type BTAN**



**Type SBAN**



**Type SBAN with cranked brake disk**

|  |  |          |          |
|--|--|----------|----------|
|  | <b>ROTEX<sup>®</sup></b>               | KTR-N    | 40221 EN |
|  | <b>Operating/Assembly instructions</b> | Sheet:   | 2 of 15  |
|  | <b>Type BTAN and SBAN</b>              | Edition: | 5        |

**ROTEX<sup>®</sup>** is a torsionally flexible jaw coupling. It is able to compensate for shaft misalignment, for example caused by manufacturing inaccuracies, thermal expansion, etc.

- Type BTAN is designed with a brake drum
- Type SBAN is designed with a brake disk resp. cranked brake disk

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|   |           |               |              |                        |
|---|-----------|---------------|--------------|------------------------|
| Please observe protection note ISO 16016. | Drawn:    | 2019-03-11 Pz | Replacing:   | KTR-N dated 2000-09-14 |
|   | Verified: | 2019-03-11 Pz | Replaced by: |                        |





**1 Technical data**

**Table 1: Dimensions and technical data**

| Size | Component | Dimensions [mm] |                |       |                |     |                |                |                |                |    |    |     |
|------|-----------|-----------------|----------------|-------|----------------|-----|----------------|----------------|----------------|----------------|----|----|-----|
|      |           | d               | d <sub>1</sub> |       | D <sub>H</sub> | D   | D <sub>1</sub> | D <sub>2</sub> | D <sub>4</sub> | d <sub>H</sub> | E  | b  | s   |
|      |           |                 | GJS            | Steel |                |     |                |                |                |                |    |    |     |
| 38   | 1         | 40              | -              | 35    | 80             | 66  | -              | 50             | 66             | 38             | 24 | 18 | 3.0 |
|      | 1a        | 48              | -              | 35    | 80             | -   | 78             | 50             | 66             | 38             | 24 | 18 | 3.0 |
| 42   | 1         | 45              | -              | 45    | 95             | 75  | -              | 60             | 80             | 46             | 26 | 20 | 3.0 |
|      | 1a        | 55              | -              | 45    | 95             | -   | 94             | 60             | 80             | 46             | 26 | 20 | 3.0 |
| 48   | 1         | 52              | -              | 50    | 105            | 85  | -              | 68             | 90             | 51             | 28 | 21 | 3.5 |
|      | 1a        | 62              | -              | 50    | 105            | -   | 104            | 68             | 90             | 51             | 28 | 21 | 3.5 |
| 55   | 1         | 60              | -              | 58    | 120            | 98  | -              | 78             | 102            | 60             | 30 | 22 | 4.0 |
|      | 1a        | 74              | -              | 58    | 120            | -   | 118            | 78             | 102            | 60             | 30 | 22 | 4.0 |
| 65   | 1         | 70              | -              | 68    | 135            | 115 | -              | 92             | 116            | 68             | 35 | 26 | 4.5 |
| 75   | 1         | 80              | -              | 78    | 160            | 135 | -              | 106            | 136            | 80             | 40 | 30 | 5.0 |
| 90   | 1         | 97              | -              | 100   | 200            | 160 | -              | 140            | 172            | 100            | 45 | 34 | 5.5 |
| 100  | 1         | 115             | 100            | -     | 225            | 180 | -              | 156            | 195            | 113            | 50 | 38 | 6.0 |
| 110  | 1         | 125             | 110            | -     | 255            | 200 | -              | 176            | 218            | 127            | 55 | 42 | 6.5 |
| 125  | 1         | 145             | 130            | -     | 290            | 230 | -              | 204            | 252            | 147            | 60 | 46 | 7.0 |

| Size | Spider <sup>1)</sup> (component 2)<br>Rated torque [Nm] |        |        | Dimensions [mm]                 |     |    |                      |     |                     |
|------|---|--------|--------|---------------------------------|-----|----|----------------------|-----|---------------------|
|      | 92 ShA  | 98 ShA | 64 ShD | l <sub>1</sub> ; l <sub>2</sub> | L   | z  | Pitch<br>(z x angle) | M   | T <sub>A</sub> [Nm] |
| 38   | 190   | 325    | 405    | 45                              | 114 | 8  | 8 x 45               | M8  | 35                  |
| 42   | 265   | 450    | 560    | 50                              | 126 | 12 | 16 x 22.5            | M8  | 41                  |
| 48   | 310   | 525    | 655    | 56                              | 140 | 12 | 16 x 22.5            | M8  | 41                  |
| 55   | 410   | 685    | 825    | 65                              | 160 | 8  | 8 x 45               | M10 | 83                  |
| 65   | 625   | 940    | 1175   | 75                              | 185 | 12 | 16 x 22.5            | M10 | 83                  |
| 75   | 1280  | 1920   | 2400   | 85                              | 210 | 12 | 16 x 22.5            | M12 | 120                 |
| 90   | 2400  | 3600   | 4500   | 100                             | 245 | 15 | 20 x 18              | M16 | 295                 |
| 100  | 3300  | 4950   | 6185   | 110                             | 270 | 15 | 20 x 18              | M16 | 295                 |
| 110  | 4800  | 7200   | 9000   | 120                             | 295 | 15 | 20 x 18              | M20 | 580                 |
| 125  | 6650  | 10000  | 12500  | 140                             | 340 | 15 | 20 x 18              | M20 | 580                 |

1) Maximum torque of the coupling T<sub>Kmax.</sub> = rated torque of the coupling T<sub>K rated</sub> x 2

**Table 2: Dimensions of the cranked brake disk (type SBAN)**

| Nominal Ø of brake disk  | 250 | 300 | 350 | 400 | 460 | 515 | 610 | 710 | 810 | 915 |
|--------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Dimension A              | 250 | 300 | 356 | 406 | 457 | 514 | 610 | 711 | 812 | 915 |
| Dimension B <sub>1</sub> | 128 | 181 | 210 | 260 | 311 | 368 | 464 | 565 | 660 | 760 |
| Dimension f              | 6   | 13  | 16  | 13  | 16  | 16  | 16  | 19  | 25  | 25  |
| Dimension F              | 36  | 41  | 54  | 54  | 54  | 54  | 54  | 54  | 54  | 54  |

**Table 3: Allocation of brake drum to coupling - BTAN**

| Brake drum<br>ØD <sub>B</sub> x B | Dimension „C“ with coupling size |     |     |    |     |     |     |     |     |     | Max. speed<br>[rpm]<br>(30 m/s) |
|-----------------------------------|----------------------------------|-----|-----|----|-----|-----|-----|-----|-----|-----|---------------------------------|
|                                   | 38                               | 42  | 48  | 55 | 65  | 75  | 90  | 100 | 110 | 125 |                                 |
| 160 x 60                          | 14                               |     |     |    |     |     |     |     |     |     | 3550                            |
| 200 x 75                          | 9                                | 12  | 17  | 24 |     |     |     |     |     |     | 2800                            |
| 250 x 95                          | 1                                | 4   | 9   | 16 | 25  | 33  |     |     |     |     | 2240                            |
| 315 x 118                         |                                  | -5  | 0   | 7  | 16  | 24  | 36  |     |     |     | 1800                            |
| 400 x 150                         |                                  | -18 | -13 | -6 | 3   | 11  | 23  | 31  | 38  |     | 1400                            |
| 500 x 190                         |                                  |     |     |    | -12 | -4  | 8   | 16  | 23  | 39  | 1120                            |
| 630 x 236                         |                                  |     |     |    |     | -22 | -10 | -2  | 5   | 21  | 900                             |
| 710 x 265                         |                                  |     |     |    |     |     |     | -13 | -6  | 10  | 800                             |
| 800 x 300                         |                                  |     |     |    |     |     |     |     |     | -4  | 710                             |



## 1 Technical data

**Table 4: Allocation of brake disk to coupling - SBAN**

| Brake disk<br>ØA x G <sub>s</sub> | Dimension „N“ with coupling size |       |       |      |      |      |      |      |      |       | Max. speed<br>[rpm]<br>(30 m/s) |      |
|-----------------------------------|----------------------------------|-------|-------|------|------|------|------|------|------|-------|---------------------------------|------|
|                                   | 38                               | 42    | 48    | 55   | 65   | 75   | 90   | 100  | 110  | 125   |                                 |      |
| 200 x 12.5                        | 31.25                            |       |       |      |      |      |      |      |      |       |                                 | 2800 |
| 250 x 12.5                        | 31.25                            |       |       |      |      |      |      |      |      |       |                                 | 2240 |
| 315 x 16                          |                                  | 34.25 | 39.25 |      |      |      |      |      |      |       |                                 | 1800 |
| 400 x 16                          |                                  | 32.5  | 37.5  | 44.5 | 53.5 | 61.5 |      |      |      |       |                                 | 1400 |
| 500 x 16                          |                                  |       | 37.5  | 44.5 | 53.5 | 61.5 | 73.5 | 81.5 | 88.5 |       |                                 | 1120 |
| 630 x 20                          |                                  |       |       | 44.5 | 53.5 | 61.5 | 73.5 | 81.5 | 88.5 | 104.5 |                                 | 900  |
| 710 x 20                          |                                  |       |       |      | 51.5 | 59.5 | 71.5 | 79.5 | 86.5 | 102.5 |                                 | 800  |
| 800 x 25                          |                                  |       |       |      | 51.5 | 59.5 |      | 79.5 | 86.5 | 102.5 |                                 | 800  |
| 900 x 25                          |                                  |       |       |      |      |      | 69.0 | 77.0 | 84.0 | 100.0 |                                 | 710  |
|                                   |                                  |       |       |      |      |      |      |      | 84.0 | 100.0 |                                 | 630  |

**Table 5: Allocation of brake disk to coupling - SBAN with cranked brake disk**

| Nominal Ø of<br>brake disk | Dimension „N <sub>1</sub> “ with coupling size |    |    |    |    |     |     |     |     |     | Max. speed<br>[rpm]<br>(30 m/s) |      |
|----------------------------|--|----|----|----|----|-----|-----|-----|-----|-----|---------------------------------|------|
|                            | 38   | 42 | 48 | 55 | 65 | 75  | 90  | 100 | 110 | 125 |                                 |      |
| 250                        | 67   | 70 | 75 |    |    |     |     |     |     |     |                                 | 2240 |
| 300                        |  | 68 | 73 | 80 | 90 | 97  |     |     |     |     |                                 | 1900 |
| 350                        |  |    | 83 | 90 | 99 | 107 |     |     |     |     |                                 | 1650 |
| 400                        |  |    |    |    |    | 110 | 122 | 130 |     |     |                                 | 1400 |
| 460                        |  |    |    |    |    | 107 | 119 | 127 | 134 |     |                                 | 1250 |
| 515                        |  |    |    |    |    | 107 | 119 | 127 | 134 | 150 |                                 | 1100 |
| 610                        |  |    |    |    |    | 107 | 119 | 127 | 134 | 150 |                                 | 950  |
| 710                        |  |    |    |    |    | 104 | 116 | 124 | 131 | 147 |                                 | 800  |
| 810                        |  |    |    |    |    |     | 110 | 118 | 125 | 141 |                                 | 700  |

## 2 Advice

### 2.1 General advice

Please read through these operating/assembly instructions carefully before you start up the coupling.  
 Please pay special attention to the safety instructions!

The operating/assembly instructions are part of your product. Please store them carefully and close to the coupling. The copyright for these operating/assembly instructions remains with KTR.

### 2.2 Safety and advice symbols



**Warning of personal injury**

This symbol indicates notes which may contribute to preventing bodily injuries or serious bodily injuries that may result in death.



**Warning of product damages**

This symbol indicates notes which may contribute to preventing material or machine damage.



**General advice**

This symbol indicates notes which may contribute to preventing adverse results or conditions.



**Warning of hot surfaces**

This symbol indicates notes which may contribute to preventing burns with hot surfaces resulting in light to serious bodily injuries.

|   |  |   |
|---|--|---|
|  <b>KTR KTR-Group</b> | <b>ROTEX®</b><br><b>Operating/Assembly instructions</b><br><b>Type BTAN and SBAN</b> | <b>KTR-N</b> 40221 EN<br><b>Sheet:</b> 6 of 15<br><b>Edition:</b> 5 |
|   |  |   |

## 2 Advice

### 2.3 General hazard warnings



**With assembly, operation and maintenance of the coupling it has to be made sure that the entire drive train is secured against accidental switch-on. You may be seriously hurt by rotating parts. Please make absolutely sure to read through and observe the following safety indications.**

- All operations on and with the coupling have to be performed taking into account "safety first".
- Please make sure to switch off the power pack before you perform your work on the coupling.
- Secure the power pack against accidental switch-on, e. g. by providing warning signs at the place of switch-on or removing the fuse for current supply.
- Do not reach into the operating area of the coupling as long as it is in operation.
- Please secure the coupling against accidental contact. Please provide for the necessary protection devices and covers.

### 2.4 Intended use

You may only assemble, operate and maintain the coupling if you

- have carefully read through the operating/assembly instructions and understood them
- had technical training
- are authorized by your company

The coupling may only be used in accordance with the technical data (see chapter 1). Unauthorized modifications on the coupling design are not admissible. We will not assume liability for any damage that may arise. In the interest of further development we reserve the right for technical modifications.

The **ROTEX®** described in here corresponds to the technical status at the time of printing of these operating/assembly instructions.

### 2.5 Coupling selection



**For a permanent and failure-free operation of the coupling it must be selected according to the selection instructions (according to DIN 740 part 2) for the particular application (see catalogue drive technology "ROTEX®").**

**If the operating conditions (performance, speed, modifications on engine and machine) change, the coupling selection must be reviewed.**

**Please make sure that the technical data regarding torque refer to the spider only. The transmittable torque of the shaft-hub-connection must be reviewed by the customer and is subject to his responsibility.**

For drives subject to torsional vibrations (drives with cyclic stress due to torsional vibrations) it is necessary to perform a torsional vibration calculation to ensure a reliable selection. Typical drives subject to torsional vibrations are e. g. drives with diesel engines, piston pumps, piston compressors etc. If requested, KTR will perform the coupling selection and the torsional vibration calculation.

### 2.6 Reference to EC Machinery Directive 2006/42/EC

The couplings supplied by KTR should be considered as components, not machines or partly completed machines according to EC Machinery Directive 2006/42/EC. Consequently KTR does not have to issue a declaration of incorporation. For details about safe assembly, start-up and safe operation refer to the present operating/assembly instructions considering the warnings.

|   |                         |                                   |
|---|-------------------------|-----------------------------------|
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### 3 Storage, transport and packaging

#### 3.1 Storage

The coupling hubs are supplied in preserved condition and can be stored at a dry and roofed place for 6 - 9 months.  
The features of the coupling spiders (elastomers) remain unchanged for up to 5 years with favourable storage conditions.



The storage rooms must not include any ozone-generating devices like e. g. fluorescent light sources, mercury-vapour lamps or electrical high-voltage appliances.  
Humid storage rooms are not suitable.  
Please make sure that condensation is not generated. The best relative air humidity is less than 65 %.

#### 3.2 Transport and packaging



In order to avoid any injuries and any kind of damage please always make use of proper transport and lifting equipment.

The couplings are packed differently each depending on size, number and kind of transport. Unless otherwise contractually agreed, packaging will follow the in-house packaging specifications of KTR.

### 4 Assembly

The coupling is generally supplied in individual parts. Before assembly the coupling has to be inspected for completeness.

#### 4.1 Components of the coupling

##### Components of ROTEX®, type BTAN

| Component | Number      | Description                |
|-----------|-------------|----------------------------|
| 1         | 1           | Hub                        |
| 2         | 1           | Spider                     |
| 3         | 1           | FN hub                     |
| 4         | 1           | Brake drum                 |
| 5         | see table 1 | Cap screws DIN EN ISO 4762 |
| 6         | 2           | Setscrews DIN EN ISO 4029  |

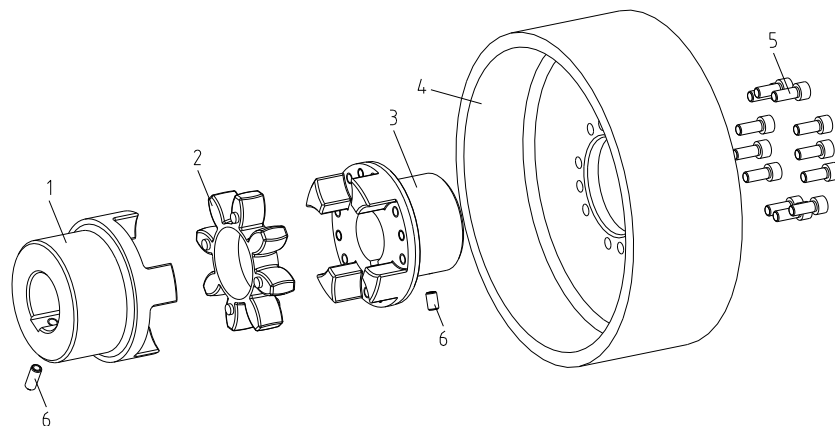


Illustration 4: ROTEX®, type BTAN

|   |           |               |              |                        |
|---|-----------|---------------|--------------|------------------------|
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|   | Verified: | 2019-03-11 Pz | Replaced by: |                        |



4 Assembly

4.1 Components of the coupling

Components of ROTEX®, type SBAN

| Component | Number      | Description                |
|-----------|-------------|----------------------------|
| 1         | 1           | Hub                        |
| 2         | 1           | Spider                     |
| 3         | 1           | FN hub                     |
| 4         | 1           | Brake disk                 |
| 5         | see table 1 | Cap screws DIN EN ISO 4762 |
| 6         | 2           | Setscrews DIN EN ISO 4029  |

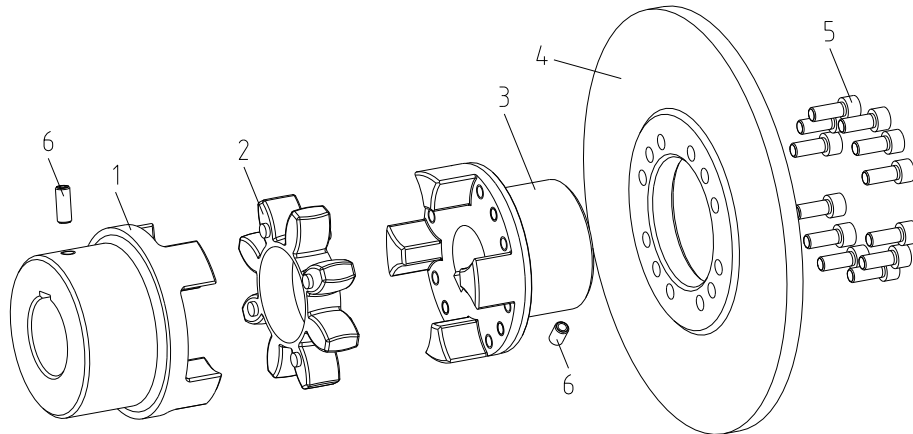


Illustration 5: ROTEX®, type SBAN

Components of ROTEX®, type SBAN with cranked brake disk

| Component | Number      | Description                |
|-----------|-------------|----------------------------|
| 1         | 1           | Hub                        |
| 2         | 1           | Spider                     |
| 3         | 1           | FN hub                     |
| 4         | 1           | Cranked brake disk         |
| 5         | see table 1 | Cap screws DIN EN ISO 4762 |
| 6         | 2           | Setscrews DIN EN ISO 4029  |

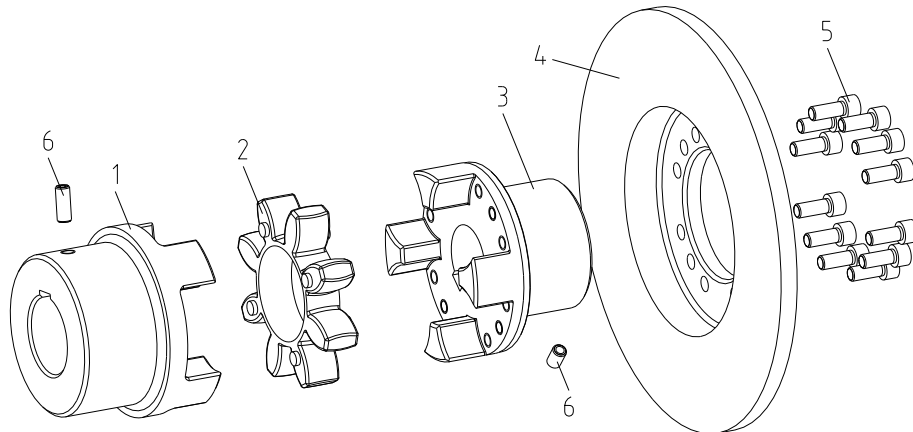


Illustration 6: ROTEX®, type SBAN with cranked brake disk











## 4 Assembly

### 4.1 Components of the coupling

#### Features of standard spiders

| Spider hardness (Shore) | 92 Shore A  |   | 95/98 Shore A   |  | 64 Shore D  |   |
|-------------------------|---|---|---|--|---|---|
|                         | T-PUR® (orange)   | PUR (yellow)  | T-PUR® (purple)   | PUR (red)  | T-PUR® (light green)  | PUR (natural white <sup>1)</sup> )  |
| Marking (colour)        |  |  |  |  |  |  |

1) Natural white with green marking of teeth

### 4.2 Advice for finish bore



**The maximum permissible bore diameters  $d$  (see table 1 to 5 in chapter 1 - technical data) must not be exceeded. If these figures are disregarded, the coupling may tear. Rotating particles may cause danger to life.**

- Hub bores machined by the customer have to observe concentricity or axial runout, respectively (see illustration 7).
- Please make absolutely sure to observe the figures for  $\varnothing d_{max}$ .
- Carefully align the hubs when the finish bores are drilled.
- Please provide for a setscrew according to DIN EN ISO 4029 with a cup point or an end plate to fasten the hubs axially.

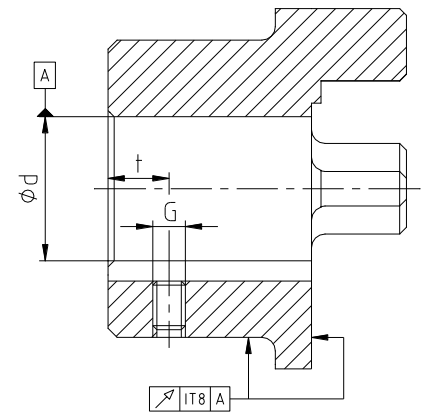


Illustration 7: Concentricity and axial run-out



**The customer bears the sole responsibility for all machining processes performed subsequently on unbored or pilot bored as well as finish machined coupling components and spare parts. KTR does not assume any warranty claims resulting from insufficient remachining.**

**Table 6: Setscrews DIN EN ISO 4029**

| Size                         | 38 | 42 | 48 | 55  | 65  | 75  | 90  | 100 | 110 | 125 |
|------------------------------|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| Dimension G                  | M8 | M8 | M8 | M10 | M10 | M10 | M12 | M12 | M16 | M16 |
| Dimension t                  | 15 | 20 | 20 | 20  | 20  | 25  | 30  | 30  | 35  | 40  |
| Tightening torque $T_A$ [Nm] | 10 | 10 | 10 | 17  | 17  | 17  | 40  | 40  | 80  | 80  |

**Table 7: Recommended fit pairs acc. to DIN 748/1**

| Bore [mm] |       | Shaft tolerance | Bore tolerance       |
|-----------|-------|-----------------|----------------------|
| above     | up to |                 |                      |
|           | 50    | k6              | H7<br>(KTR standard) |
| 50        |       | m6              |                      |



## 4 Assembly

### 4.2 Advice for finish bore

If a feather keyway is intended to be used in the hub, it should correspond to the tolerance ISO JS9 (KTR standard) with standard operating conditions or ISO P9 with complicated operating conditions (frequently alternating torsional direction, shock loads, etc.). The keyway should preferably be located between the cams. With axial fastening by setscrews the tapping should be located on the keyway except for AI-D which should be located opposite the keyway.

The transmittable torque of the shaft-hub-connection must be reviewed by the customer and is subject to his responsibility.

### 4.3 Assembly of the coupling



**We recommend to inspect bores, shaft, keyway and feather key for dimensional accuracy before assembly.**



**Heating the hubs lightly (approx. 80 °C) allows for an easier mounting on the shaft.**



**Touching the heated hubs causes burns. Please wear safety gloves.**



**With the assembly please make sure that the distance dimension E (see table 1 to 5) is observed to allow for axial clearance of the spider when in operation. Disregarding this advice may cause damage to the coupling.**

- Shift the brake drum/disk onto the FN hub (see illustration 8). Hand-tighten the components first.
- Tighten the cap screws by a suitable torque key to the tightening torques  $T_A$  specified in table 1. Secure the screws against working loose by means of an adhesive (e. g. Loctite 243).
- Mount the hub and FN hub with the brake drum/disk onto the shaft of the driving and driven side. The FN hub has to be installed on the shaft end on which the bigger mass moment of inertia becomes operative (see illustration 9).

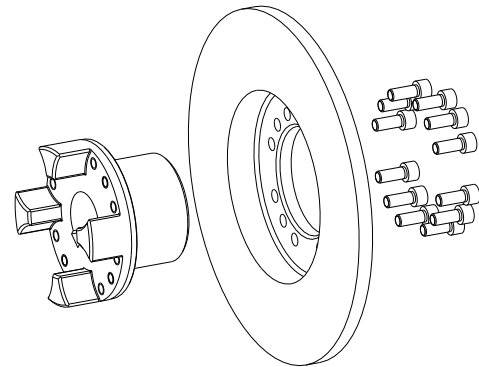


Illustration 8: Assembly of brake drum/disk onto the FN hub



**The maximum braking torque must not exceed the maximum torque ( $T_{Kmax}$ ) of the coupling.**

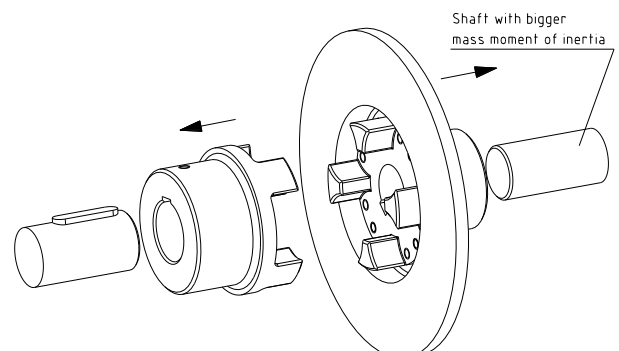


Illustration 9: Assembly of hub and FN hub with brake drum/disk



4 Assembly

4.3 Assembly of the coupling

- Insert the spider into the cam section of the hub (see illustration 10).
- Shift the power packs in axial direction until the distance dimension E is achieved (see illustration 1 to 3).
- If the power packs have already been firmly assembled, shifting the hubs axially on the shafts allows for adjusting dimension E (see illustration 1 to 3).
- Fasten the hubs by tightening the setscrews DIN EN ISO 4029 with a cup point (tightening torque see table 6).

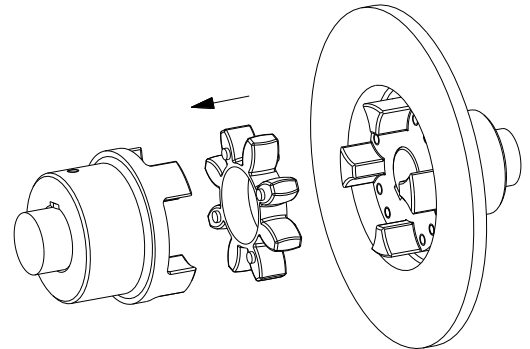


Illustration 10: Assembly of spider



Having started up the coupling, the tightening torque of the screws and the wear of spider have to be inspected at regular maintenance intervals and the spider has to be replaced, if necessary.

4.4 Displacements - alignment of the couplings

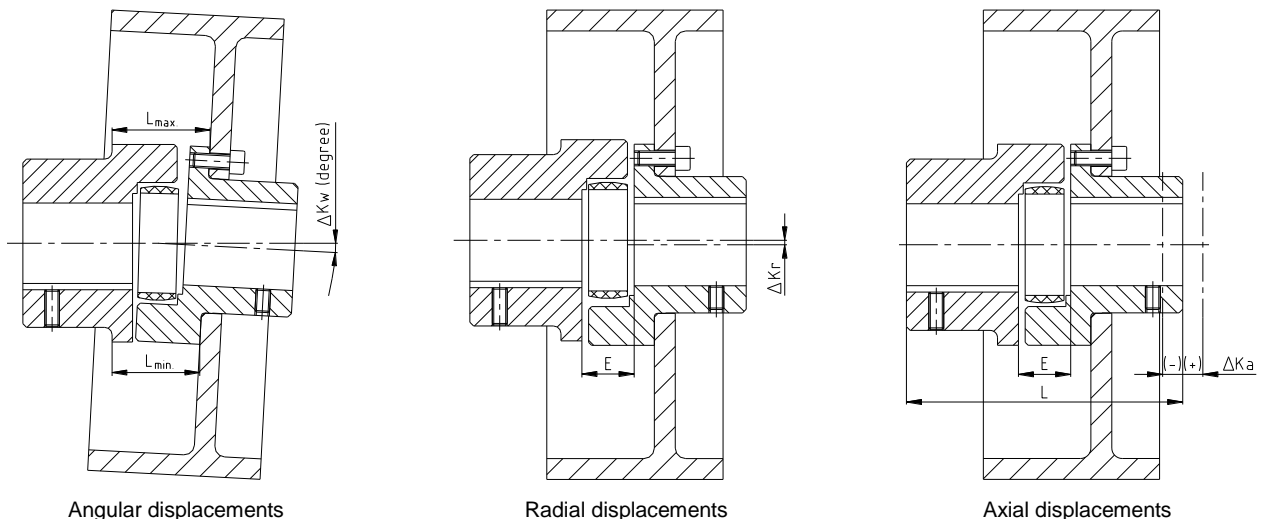
The displacement figures specified in tables 8 and 9 provide for sufficient safety to compensate for external influences like, for example, thermal expansion or foundation settling.



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 tables 8 and 9). 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 tables 8 and 9 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 (see illustration 12).
- Please inspect with a dial gauge, ruler or feeler whether the permissible displacement figures of tables 8 and 9 can be observed.



$\Delta K_w = L_{1max} - L_{1min} \text{ [mm]}$

Illustration 11: Displacements

$L_{max} = L + \Delta K_a \text{ [mm]}$

|   |           |               |              |                        |
|---|-----------|---------------|--------------|------------------------|
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**4 Assembly**

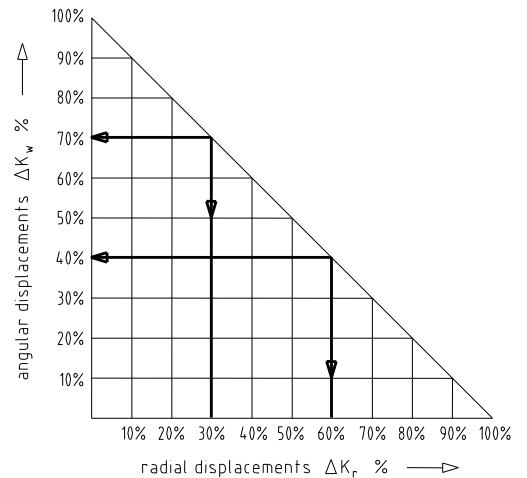
**4.4 Displacements - alignment of the couplings**

Examples of the displacement combinations specified in illustration 12:

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

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

Illustration 12:  
 Combinations of displacement



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

**Table 8: Displacement figures for 92 and 95/98 Shore A**

| Size  |                       | 38   | 42   | 48   | 55   | 65   | 75   | 90   | 100  | 110  | 125  |
|---|-----------------------|------|------|------|------|------|------|------|------|------|------|
| Max. axial displacement $\Delta K_a$ [mm]       |                       | -0.7 | -1.0 | -1.0 | -1.0 | -1.0 | -1.5 | -1.5 | -1.5 | -2.0 | -2.0 |
|   |                       | +1.8 | +2.0 | +2.1 | +2.2 | +2.6 | +3.0 | +3.4 | +3.8 | +4.2 | +4.6 |
| Max. radial displacement $\Delta K_r$ [mm] with | 1500 rpm              | 0.28 | 0.32 | 0.36 | 0.38 | 0.42 | 0.48 | 0.50 | 0.52 | 0.55 | 0.60 |
|   | 3000 rpm              | 0.19 | 0.21 | 0.25 | 0.26 | 0.28 | 0.32 | 0.34 | 0.36 | 0.38 | -    |
| Max. angular displacement with n=1500 rpm       | $\Delta K_w$ [degree] | 1.0  | 1.0  | 1.1  | 1.1  | 1.2  | 1.2  | 1.2  | 1.2  | 1.3  | 1.3  |
|   | $\Delta K_w$ [mm]     | 1.35 | 1.70 | 2.00 | 2.30 | 2.70 | 3.30 | 4.30 | 4.80 | 5.60 | 6.50 |
| Max. angular displacement with n=3000 rpm       | $\Delta K_w$ [degree] | 0.9  | 0.9  | 1.0  | 1.0  | 1.1  | 1.1  | 1.1  | 1.1  | 1.2  | -    |
|   | $\Delta K_w$ [mm]     | 1.10 | 1.40 | 1.60 | 2.00 | 2.30 | 2.90 | 3.80 | 4.20 | 5.00 | -    |

**Table 9: Displacement figures for 64 Shore D**

| Size  |                       | 38   | 42   | 48   | 55   | 65   | 75   | 90   | 100  | 110  | 125  |
|---|-----------------------|------|------|------|------|------|------|------|------|------|------|
| Max. axial displacement $\Delta K_a$ [mm]       |                       | -0.7 | -1.0 | -1.0 | -1.0 | -1.0 | -1.5 | -1.5 | -1.5 | -2.0 | -2.0 |
|   |                       | +1.8 | +2.0 | +2.1 | +2.2 | +2.6 | +3.0 | +3.4 | +3.8 | +4.2 | +4.6 |
| Max. radial displacement $\Delta K_r$ [mm] with | 1500 rpm              | 0.21 | 0.23 | 0.25 | 0.27 | 0.30 | 0.34 | 0.36 | 0.37 | 0.40 | 0.43 |
|   | 3000 rpm              | 0.15 | 0.16 | 0.18 | 0.19 | 0.21 | 0.24 | 0.25 | 0.26 | 0.28 | -    |
| Max. angular displacement with n=1500 rpm       | $\Delta K_w$ [degree] | 0.9  | 0.9  | 1.0  | 1.0  | 1.1  | 1.1  | 1.1  | 1.1  | 1.2  | 1.2  |
|   | $\Delta K_w$ [mm]     | 1.25 | 1.40 | 1.80 | 2.00 | 2.50 | 3.00 | 3.80 | 4.30 | 5.30 | 6.00 |
| Max. angular displacement with n=3000 rpm       | $\Delta K_w$ [degree] | 0.8  | 0.8  | 0.9  | 0.9  | 1.0  | 1.0  | 1.0  | 1.0  | 1.1  | -    |
|   | $\Delta K_w$ [mm]     | 1.00 | 1.30 | 1.60 | 1.80 | 2.20 | 2.70 | 3.50 | 4.00 | 4.90 | -    |

**5 Start-up**

Before start-up of the coupling, inspect tightening of the setscrews in the flange hubs, the alignment and the distance dimension E and adjust, if necessary, and also inspect all screw connections for the tightening torques specified, dependent on the type of coupling.

Finally the coupling protection against accidental contact must be fitted. It is required in accordance with DIN EN ISO 12100 (Safety of Machinery) and directive 2014/14/EU and must protect against

- access with the little finger
- falling down of solid foreign objects.

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## 5 Start-up

The cover may provide for openings intended for necessary heat dissipation. These openings have to comply with DIN EN ISO 13857.

The cover must be electrically conductive and included in the equipotential bonding. Bellhousings (magnesium share below 7.5 %) made of aluminium and damping rings (NBR) can be used as connecting element between pump and electric motor. The cover may only be taken off with standstill of the unit.

During operation of the coupling, please pay attention to

- different operating noise
- vibrations occurring.



**If you note any irregularities with the coupling during operation, the drive unit must be switched off immediately. The cause of the breakdown must be specified by means of the table „Breakdowns“ and, if possible, be eliminated according to the proposals. The potential breakdowns specified can be hints only. To find out the cause all operating factors and machine components must be considered.**

## 6 Breakdowns, causes and elimination

The below-mentioned failures can lead to a use of the **ROTEX®** coupling other than intended. In addition to the specifications given in these operating/assembly instructions make sure to avoid such failures.

The errors listed can only be clues to search for the failures. When searching for the failure the adjacent components must generally be considered.

### General failures with use other than intended:

- Important data for the coupling selection were not forwarded.
- The calculation of the shaft-hub-connection was not considered.
- Coupling components with damage occurred during transport are assembled.
- If the heated hubs are assembled, the permissible temperature is exceeded.
- The clearance of the components to be assembled is not coordinated with one another.
- Tightening torques have been fallen below/exceeded.
- Components are mixed up by mistake/assembled incorrectly.
- A wrong or no spider is inserted in the coupling.
- No original **KTR** components (purchased parts) are used.
- Old/already worn out spiders or spiders stored for too long are used.
- Maintenance intervals are not observed.

| Breakdowns  | Causes  | Elimination   |
|---|---|---|
| Different operating noise and/or vibrations occurring | Misalignment  | 1) Set the unit out of operation<br>2) Eliminate the reason for the misalignment (e. g. loose foundation bolts, breaking of the engine mount, heat expansion of unit components, modification of the installation dimension E of the coupling)<br>3) For inspection of wear see item inspection |
|   | Wear of spider, short-term torque transmission due to metal contact | 1) Set the unit out of operation<br>2) Disassemble the coupling and remove remainders of the spider<br>3) Inspect coupling components and replace coupling components that have been damaged<br>4) Insert spider, assemble coupling components<br>5) Inspect alignment, adjust if necessary     |

|   |                         |                                   |
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**6 Breakdowns, causes and elimination**

| Breakdowns  | Causes  | Elimination  |
|---|---|--|
| Different operating noise and/or vibrations occurring                 | Screws for axial fastening of hubs working loose  | <ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Inspect alignment of coupling</li> <li>3) Tighten the screws to fasten the hubs and secure against working loose</li> <li>4) For inspection of wear see item inspection</li> </ol>   |
| Breaking of cams  | Wear of spider, torque transmission due to metal contact  | <ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Replace complete coupling</li> <li>3) Inspect alignment</li> </ol>   |
|   | Breaking of the cams due to high impact energy/overload   | <ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Replace complete coupling</li> <li>3) Inspect alignment</li> <li>4) Find out the reason for overload</li> </ol>  |
|   | Operating parameters do not meet with the performance of the coupling   | <ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Review the operating parameters and select a bigger coupling (consider mounting space)</li> <li>3) Assemble new coupling size</li> <li>4) Inspect alignment</li> </ol>   |
|   | Operating error of the unit   | <ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Replace complete coupling</li> <li>3) Inspect alignment</li> <li>4) Instruct and train the service staff</li> </ol>  |
| Early wear of spider  | Misalignment  | <ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Eliminate the reason for the misalignment (e. g. loose foundation bolts, breaking of the engine mount, heat expansion of unit components, modification of the installation dimension E of the coupling)</li> <li>3) For inspection of wear see item inspection</li> </ol>  |
|   | e. g. contact with aggressive liquids/oils, ozone influence, too high/low ambient temperatures etc. causing physical modification of the spider | <ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Disassemble the coupling and remove remainders of the spider</li> <li>3) Inspect coupling components and replace coupling components that have been damaged</li> <li>4) Insert spider, assemble coupling components</li> <li>5) Inspect alignment, adjust if necessary</li> <li>6) Make sure that further physical modifications of the spider are excluded</li> </ol>                                   |
|   | Ambient/contact temperatures which are too high for the spider, max. permissible e. g. with T-PUR®<br>T4 = - 50 °C/<br>+ 120 °C                 | <ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Disassemble the coupling and remove remainders of the spider</li> <li>3) Inspect coupling components and replace coupling components that have been damaged</li> <li>4) Insert spider, assemble coupling components</li> <li>5) Inspect alignment, adjust if necessary</li> <li>6) Inspect and adjust ambient/contact temperature (possibly corrective by using different spider materials)</li> </ol>   |
| Early wear of spider (liquefaction of material inside the spider cam) | Vibrations of drive   | <ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Disassemble the coupling and remove remainders of the spider</li> <li>3) Inspect coupling components and replace coupling components that have been damaged</li> <li>4) Insert spider, assemble coupling components</li> <li>5) Inspect alignment, adjust if necessary</li> <li>6) Find out the reason for the vibrations (possibly corrective by spider with lower or higher Shore hardness)</li> </ol> |

|   |  |   |
|---|--|---|
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|   |  |   |

## 7 Disposal

In respect of environmental protection we would ask you to dispose of the packaging or products on termination of their service life in accordance with the legal regulations and standards that apply, respectively.

- **Metal**  
Any metal components have to be cleaned and disposed of by scrap metal.
- **Nylon materials**  
Nylon materials have to be collected and disposed of by a waste disposal company.

## 8 Maintenance and service

**ROTEX®** is a low-maintenance coupling. We recommend to perform a visual inspection on the coupling **at least once a year**. Please pay special attention to the condition of the coupling spiders.

- Since the flexible machine bearings of the driving and driven side settle during the course of load, please inspect the alignment of the coupling and re-align the coupling, if necessary.
- The coupling parts have to be inspected for damages.
- The screw connections have to be inspected visually.



**Having started up the coupling the tightening torques of the screws have to be inspected during the usual inspection intervals.**

## 9 Spares inventory, customer service addresses

A basic requirement to ensure the readiness for use of the coupling is a stock of the most important spare parts on site.

Contact addresses of the KTR partners for spare parts and orders can be obtained from the KTR homepage at [www.ktr.com](http://www.ktr.com).



**KTR does not assume any liability or warranty for the use of spare parts and accessories which are not provided by KTR and for the damages which may incur as a result.**

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