

 KTR Kupplungstechnik GmbH D-48407 Rheine	<b>ROTEX<sup>®</sup></b> <b>mounting instructions</b> <b>design AFN-SB special</b>		KTR-N 40223 E sheet: 1 edition: 3

**ROTEX<sup>®</sup> AFN-SB special** is failsafe, torsionally flexible jaw coupling with disk brake. It is able to compensate for shaft displacement caused by, as an example, inaccuracies in production, heat expansion, etc. It allows to exchange the spider and disk brake without having to disassemble the driving or driven machine.

### General Hints

Please read through these mounting instructions carefully before you set the coupling into operation. Please pay special attention to the safety instructions!

The mounting instructions are part of your product. Please keep them carefully and close to the coupling.

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### Safety and Advice Hints



**DANGER!**

**Danger of injury to persons.**



**CAUTION!**

**Damages on the machine possible.**



**ATTENTION!**

**Pointing to important items.**

### General Hints to Danger



**DANGER!**

**With assembly, operation and maintenance of the coupling it has to be made sure that the entire drive train is protected against unintentional engagement. You can be seriously hurt by rotating parts. Please make absolutely sure to read through and observe the following safety instructions.**

- All operations on and with the coupling have to be performed taking into account "safety first".
- Please make sure to disengage the power pack before you perform your work.
- Protect the power pack against unintentional engagement, e. g. by providing hints at the place of engagement or removing the fuse for current supply.
- Do not touch the operation area of the coupling as long as it is in operation.
- Please protect the coupling against unintentional touch. Please provide for the necessary protection devices and caps.

### Proper Use

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

- have carefully read through the mounting instructions and understood them
- and if you are authorized and have proper skills

The coupling may only be used in accordance with the technical data (see **ROTEX<sup>®</sup>** leaflet and dimension sheet M351054 – **ROTEX<sup>®</sup> 65-180 AFN-SB special**). Unauthorized modifications on the coupling design are not admissible. We do not take any warranty for resulting damages. To further develop the product we reserve the right for technical modifications.

The **ROTEX<sup>®</sup> AFN-SB special** described in here corresponds to the technical status at the time of printing of these mounting instructions.

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GmbH  
D-48407 Rheine

**ROTEX®**  
**mounting instructions**  
**design AFN-SB special**

KTR-N 40223 E  
sheet: 2  
edition: 3

Basically the coupling is supplied in individual parts. Before assembly the coupling has to be controlled for completeness.

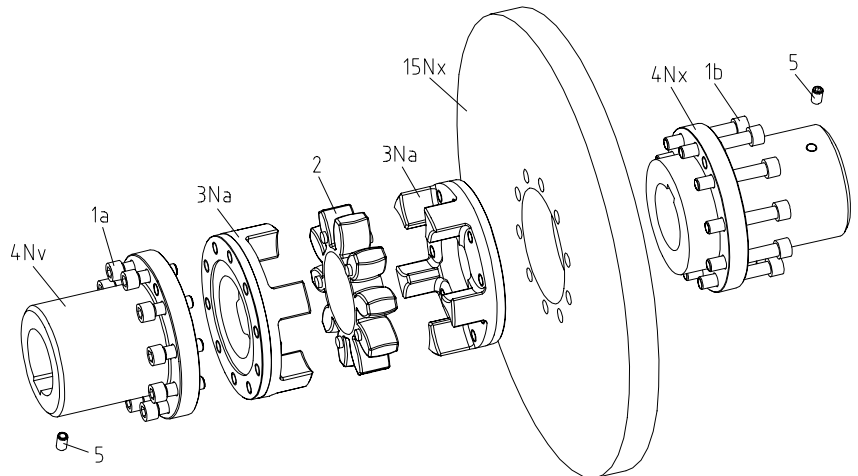
**Components of ROTEX® AFN-SB special**

Component	Quantity	Designation
1a	see table 2	screws Mx1 DIN 912
1b	see table 2	screws Mx1 <sub>1</sub> DIN 912
2	1	spider
3Na	2	driving flange N type A

Component	Quantity	Designation
4Nv	1	coupling flange N lengthened
4Nx	1	coupling flange N special
5	2	setscrew DIN 916
15Nx	1	SB disk brake N

**standard spiders**

spider hardness (Shore)	marking (colour)
95/98 ShA	red



picture 1: ROTEX® AFN-SB special

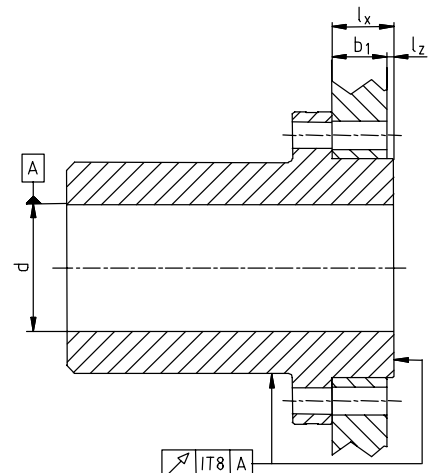
**Mounting Hint**



**DANGER!**

The maximum permissible bore diameters  $d_{1max}$  and  $d_{2max}$  (see ROTEX® leaflet) must not be exceeded. If these figures are disregarded, the coupling may tear. Rotating particles may cause serious danger.

- Bores in the coupling flange machined by the customer have to observe concentric running or axial running, respectively (see picture 2).
- Please make absolutely sure to observe the figures for  $d_{1max}$  and  $d_{2max}$ .
- Please review the length of the centering spigot  $l_x$ .  
 $l_x = b_1 + l_z$
- Carefully align the flanges 4Nv and 4Nx when the finish bore is brought in.
- Please provide for a setscrew or an end plate for the axial fastening of the hubs



picture 2: concentric running and axial running

$b_1$  = width of the disk brake  
 $l_z$  = pilot length of driving flange

ROTEX® size	65	75	90	100	110	125	140	160	180
$l_z$	1,0 +0,2	1,5 +0,2	1,5 +0,2	1,5 +0,2	2,0 +0,2	2,0 +0,2	2,5 +0,2	2,5 +0,2	3,0 +0,2



**CAUTION!**

To ensure a safe fixing of the disk brake, the pilot length  $l_z$  has to be adhered to.

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### Assembly of the coupling



#### ATTENTION!

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

Heating the coupling flanges slightly (approx. 80° C) allows for an easier installation onto the shaft.



#### DANGER!

Touching the heated coupling flanges causes burns.  
We would recommend to wear safety gloves.

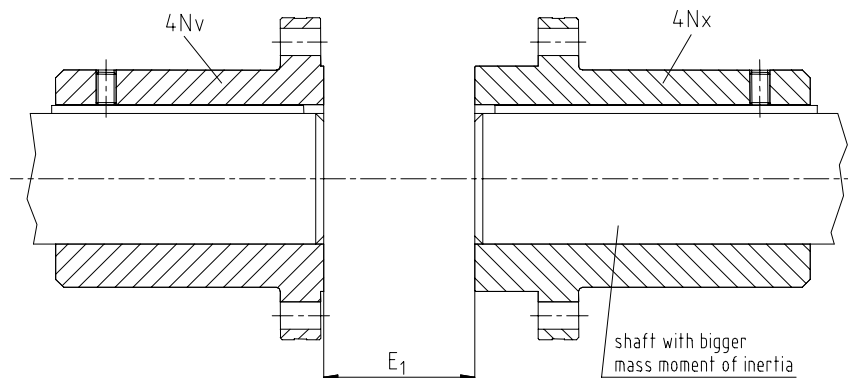
### Axial alignment



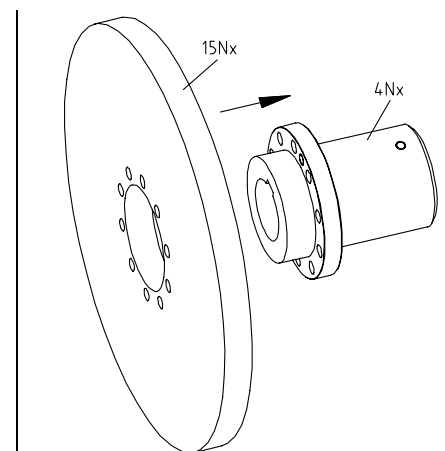
#### CAUTION!

For the assembly please make sure that the distance dimension  $E/E_1$  (table 2) is kept to ensure that the spider (2) can be moved axially when in operation.  
Disregarding this hint may cause damage on the coupling.

- Assemble the coupling flanges (4Nv/4Nx) onto the shaft of driving and driven side. The coupling flange (4Nx) for the assembly of the disk brake (15Nx) has to be mounted to the shaft end which has the bigger mass moment of inertia (see picture 3).
- The inside of the coupling flanges (4Nv/4Nx) have to be flush with the faces of the shafts (see picture 3).
- Move the power packs in axial direction until the dimension  $E_1$  is achieved (see picture 3).
- Secure the coupling flanges (4Nv/4Nx) by fastening the setscrews (5) DIN 916 with cup point or by an end plate.
- Push the disk brake (15Nx) on the centering shoulder of the coupling flange (4Nx) (see picture 4).
- Plug the driving flanges (3Na) and the spider (2) together (see picture 5).
- Mount the plugged-in parts between the coupling flanges (4Nv/4Nx) (see picture 6).
- First of all fasten the parts fingertight.
- Tighten the screws with a suitable torque key to the tightening torques  $T_A$  shown in table 1.
- Center the spider (2) between the driving flanges (3Na) and check the dimensions  $E$  and  $s$  (see picture 7).



picture 3

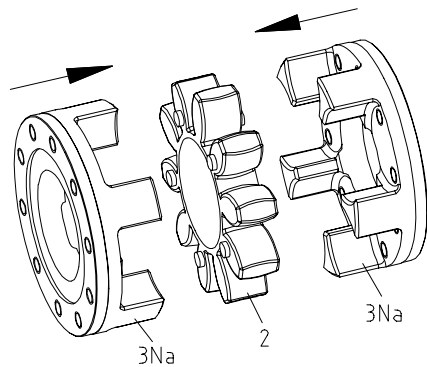


picture 4

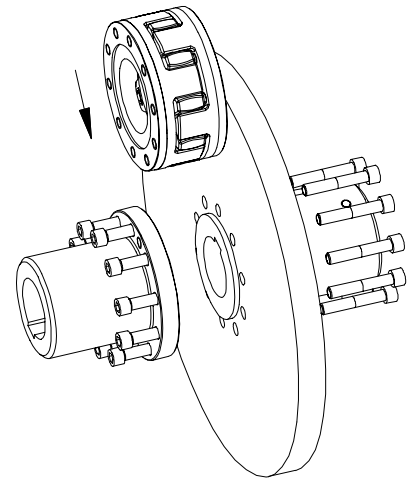
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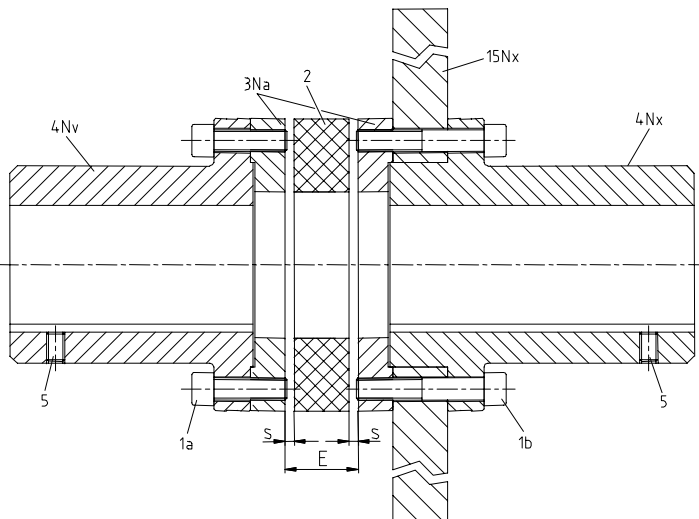
**Axial alignment**



picture 5



picture 6



picture 7



**CAUTION!**

After taking the coupling into operation, the tightening torque of the screws and the wear of the spider have to be checked in regular maintenance intervals and, if necessary, the components have to be exchanged.

**Table 1:**

coupling size	65	75	90	100	110	125	140	160	180
screw size M	M10	M12	M16	M16	M20	M20	M20	M24	M24
tightening torque $T_A$ [Nm]	83	120	295	295	580	580	580	1000	1000

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**Displacements**

The displacement figures shown in table 2 offer sufficient safety to compensate for environmental influences like, for example, heat expansion of lowering of foundation.

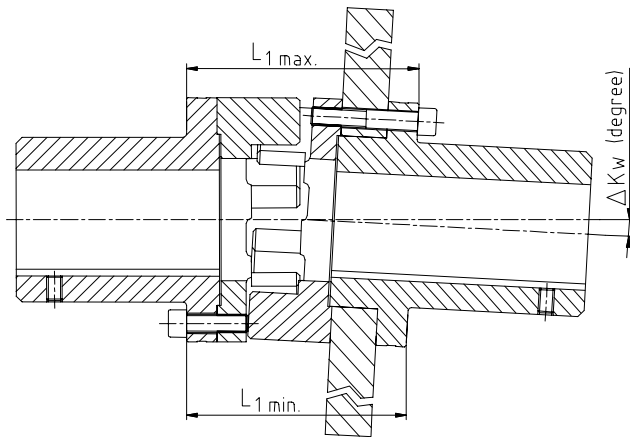


**CAUTION!**

In order to ensure a long lifetime of the coupling, the shaft ends have to be aligned accurately. Please absolutely observe the displacement figures indicated (see table 2). If the figures are exceeded, the coupling will be damaged.

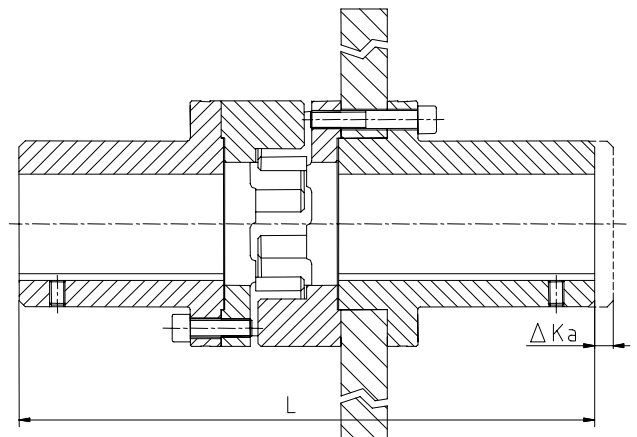
**Please note:**

- The displacement figures mentioned in table 2 are maximum figures which must not arise in parallel. If radial and angular displacement arises at the same time, the permissible displacement values may only be used in part.
- Please check with a dial gauge, ruler or feeler whether the permissible displacement figures of table 2 can be observed.



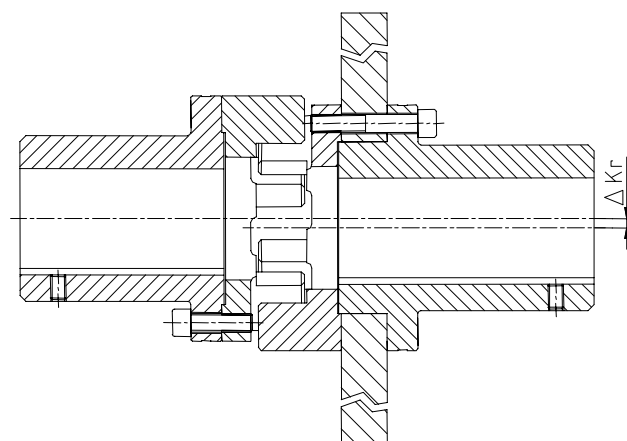
angular displacements

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



axial displacements

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



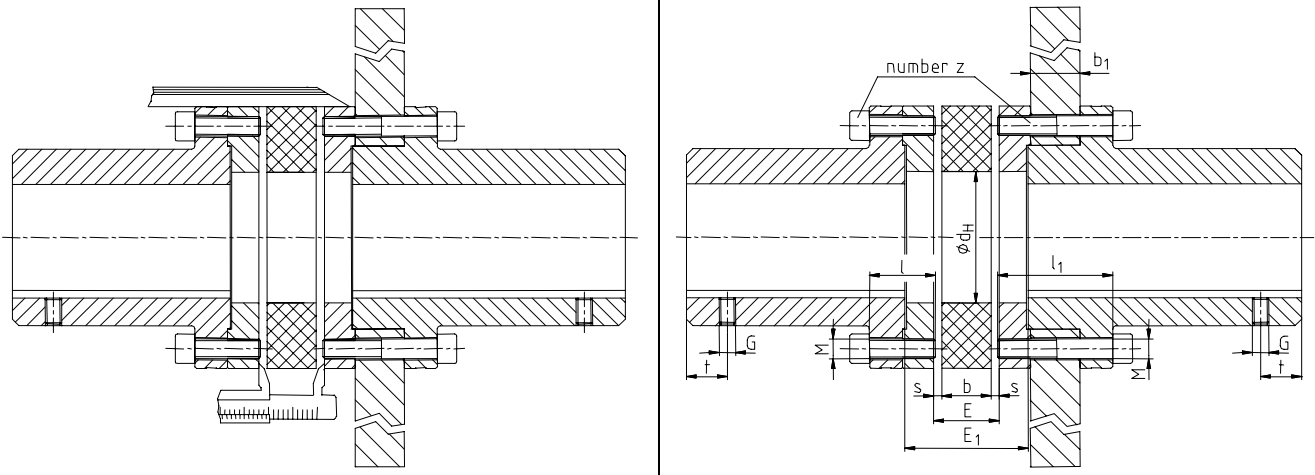
radial displacements

picture 8: displacements

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**Technical Data**



picture 9: dimensions

**Table 2:**

coupling type	65	75	90	100	110	125	140	160	180
<b>installation dimensions</b>									
distance dimension E	35	40	45	50	55	60	65	75	85
distance dimension E <sub>1</sub>	65	75	82	97	103	116	128	146	159
dimension s	4,5	5	5,5	6	6,5	7	7,5	9	10,5
dimension b	26	30	34	38	42	46	50	57	64
dimension b <sub>1</sub>	30	30	30	30	30	30	30/40	30/40	30/40
dimension d <sub>H</sub>	68	80	100	113	127	147	165	190	220
number z	12	15	15	15	15	15	15	15	18
M x l	M10x30	M12x40	M16x40	M16x50	M16x50	M20x60	M20x60	M24x70	M24x80
M x l <sub>1</sub>	M10x60	M12x70	M16x70	M16x80	M16x80	M20x90	M20x90 <sup>1)</sup>	M24x100 <sup>1)</sup>	M24x110
<b>thread for setscrews (Up to size 110 inclusive, for bigger sizes on request.)</b>									
dimension G	M10	M10	M12	M12	M16	M16	M20	M20	M20
dimension t	20	25	30	30	35	40	45	50	50
tightening torque T <sub>A</sub>	17	17	40	40	80	80	140	140	140
<b>Displacements</b>									
max. axial displacement ΔKa (mm)	2,6	3,0	3,4	3,8	4,2	4,6	5,0	5,7	6,4
max. radial displacement with n=1500 1/min. ΔKr (mm)	0,42	0,48	0,50	0,52	0,55	0,60	0,62	0,64	0,68
max. radial displacement with n=3000 1/min. ΔKr (mm)	0,28	0,32	0,34	0,36	0,38	-	-	-	-
ΔKw (degree) max. angular displacement with n=1500 1/min. ΔKw (mm)	1,2	1,2	1,2	1,2	1,3	1,3	1,2	1,2	1,2
ΔKw (degree) max. angular displacement with n=3000 1/min. ΔKw (mm)	2,70	3,30	4,30	4,80	5,60	6,50	6,60	7,60	9,00
ΔKw (degree) max. angular displacement with n=3000 1/min. ΔKw (mm)	1,0	1,0	1,1	1,1	1,1	-	-	-	-
ΔKw (degree) max. angular displacement with n=3000 1/min. ΔKw (mm)	2,30	2,90	3,80	4,20	5,00	-	-	-	-

1) Screw length is different if the width of the disk brake is 40mm (see dimension sheet M351054).

**Further standards and other documents:**

dimension sheet M351054  
spare part list according to KTR-N 40267 sheet 5 and sheet 6  
DIN 15434 part 2 „control of drum and disk brakes in operation“

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