

Installation and Operational Instructions for ROBA®-DS Coupling for Measurement Flange Connection Type 9_10._ _ _ 0 Sizes 16F / 16 / 64 / 300 / 500 / 850

(B.9110.EN)

Please read these Operational Instructions carefully and follow them accordingly!

Ignoring these Instructions may lead to malfunctions or to coupling failure, resulting in damage to other parts.

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Safety and Guideline Signs

CAUTION



Danger of injury to personnel and damage to machines.



Please Observe!
Guidelines on important points.

Safety Regulations

These Installation and Operational Instructions (I + O) are part of the coupling delivery.
Please keep them handy and near to the coupling at all times.



It is forbidden to start initial operation of the product until you have ensured that all applicable EU directives and directives for the machine or system, into which the product has been installed, have been fulfilled.

At the time these Installation and Operational Instructions go to print, the ROBA®-DS couplings accord with the known technical specifications and are operationally safe at the time of delivery.

Without a conformity evaluation, this product is not suitable for use in areas where there is a high risk of explosion. This statement is based on the ATEX directive.

CAUTION



- ☐ If the ROBA®-DS couplings are modified.
- ☐ If the relevant standards for safety and / or installation conditions are ignored.

User-implemented Protective Measures

- ☐ Cover all moving parts to protect against seizure, dust or foreign body impact.

To prevent injury or damage, only specialist personnel are allowed to work on the components. They must be familiar with the dimensioning, transport, installation, initial operation, maintenance and disposal according to the relevant standards and regulations.

Please read the Installation and Operational Instructions carefully prior to installation and initial operation of the device.

These Safety Regulations are user hints only and must not be complete!

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Type 9110. _ _ _ 00

The shrink disk hub (side 1) with module 1 is supplied as a finished assembly.

Side 1

Side 2

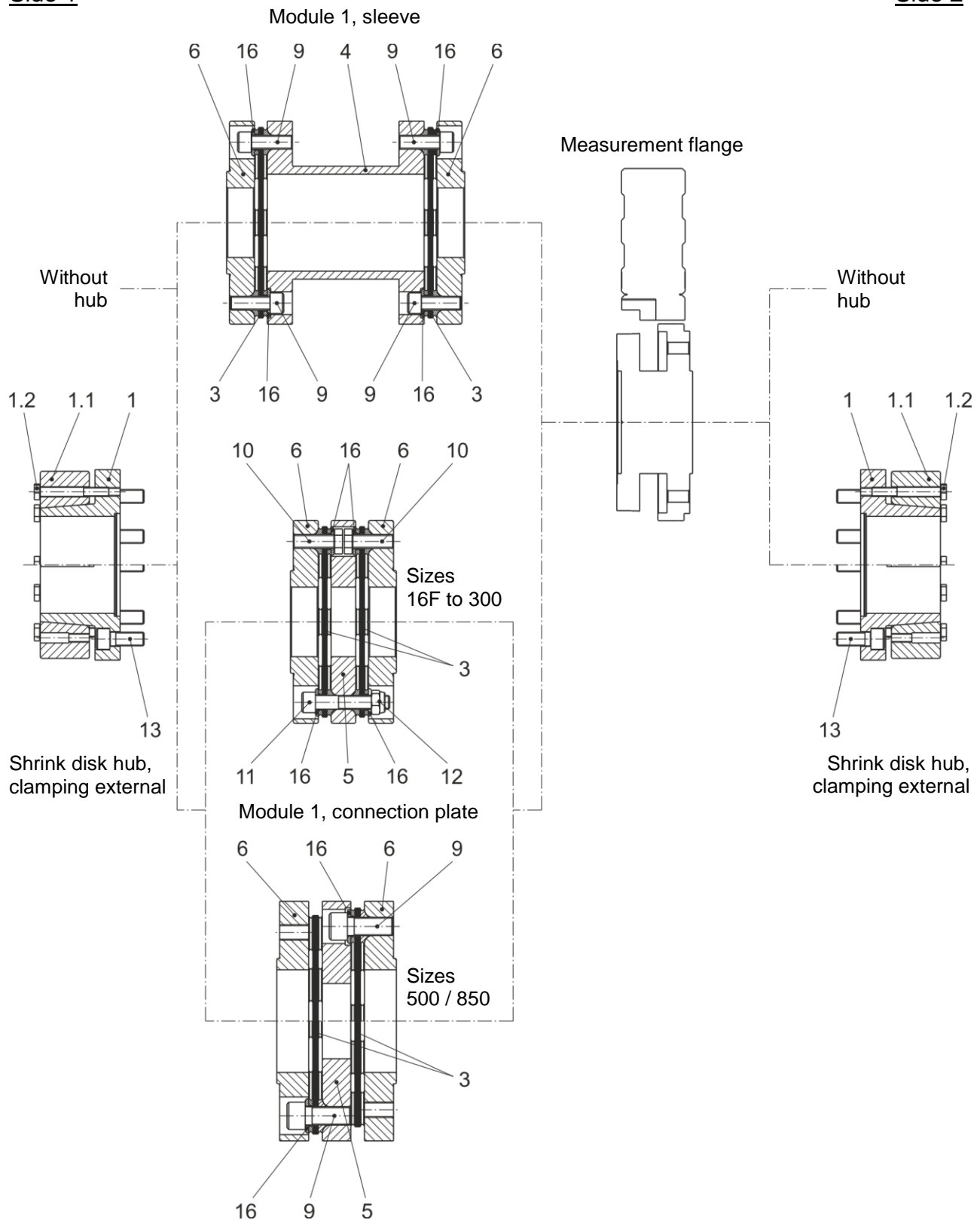


Fig. 1

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The module 2 with shrink disk hub (side 2) is supplied as a finished assembly.

Side 2

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Type 9110._ _330

The shrink disk hub (side 1) with module 1 as well as module 2 with the shrink disk hub (side 2) are supplied as finished assemblies respectively.

Side 1

Side 2

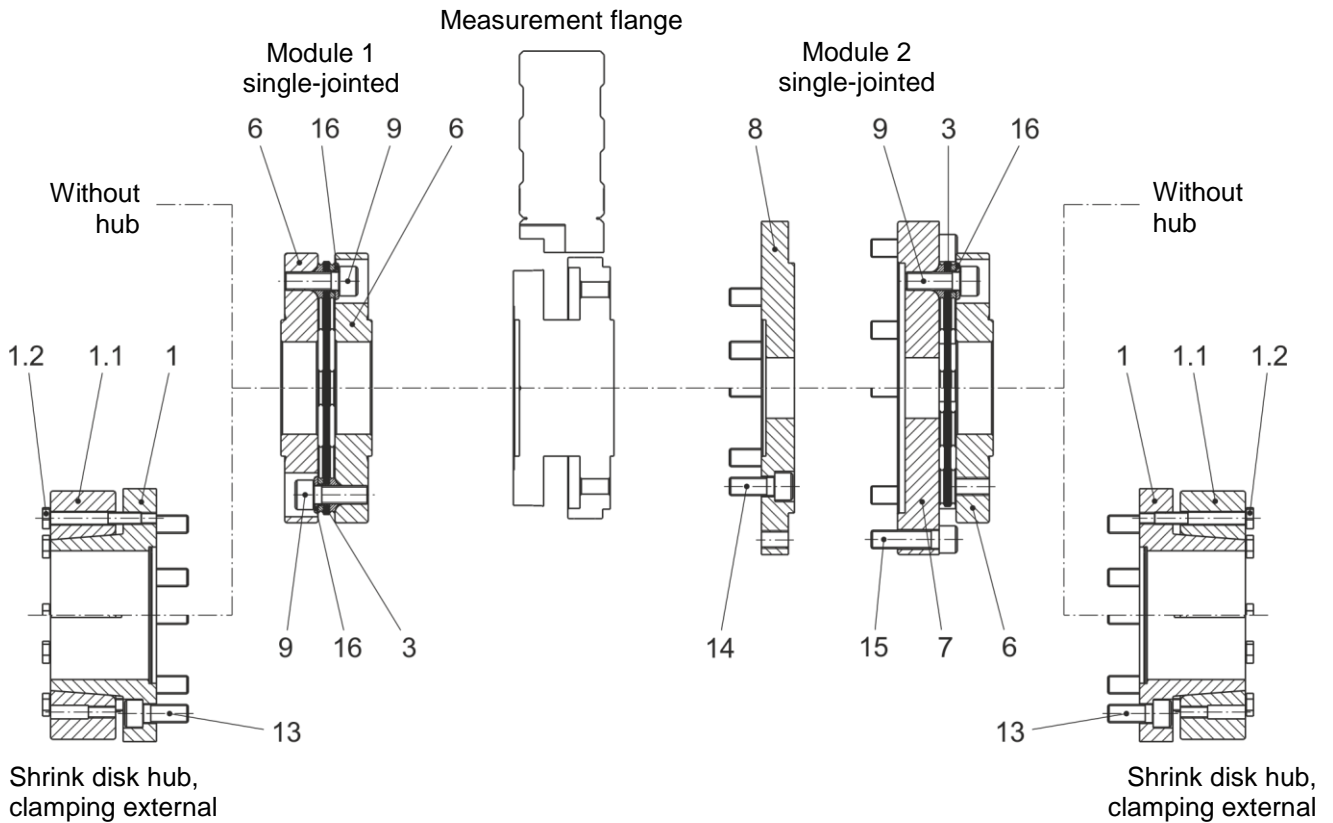


Fig. 3

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The shrink disk hub (side 1) with module 1 is supplied as a finished assembly.

Side 2



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Parts List (Only use mayr® original parts)

Item	Name
1	Shrink disk hub / external clamping
1.1	Shrink disk
1.2	Hexagon head screw
2	Shrink disk hub / internal clamping
2.1	Shrink disk
2.2	Cap screw
3	Disk pack
4	Sleeve
5	Connection plate
6	Flange MF
7	Flange
8	Adaptor flange MF
9	Cap screw
10	Hexagon head screw (only on Sizes 16F, 16, 64 and 300)
11	Cap screw (only on Sizes 16F, 16, 64 and 300)
12	Hexagon nut (only on Sizes 16F, 16, 64 and 300)
13	Cap screw
14	Cap screw
15	Cap screw
16	Washer

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Table 1: Technical Data for Type 9110._ _ _ _0

ROBA®-DS Size			16F	16	64	300	500	850
Sensor measuring range		[Nm]	50 / 100	200	500 / 1000	2000 / 3000	5000	10000
Minimum hub bore (Items 1 and 2)	d_{min}	[mm]	25 H6	25 H6	45 H6	50 H6	60 H6	70 H6
Maximum hub bore (Items 1 and 2)	d_{max}	[mm]	45 H6	45 H6	70 H6	85 H6	100 H6	120 H6
Coupling nominal torque Valid for changing load direction as well as for max. permitted shaft misalignment	T_{KN}	[Nm]	190	300	1100	3500	5800	9500
Coupling peak torque T_{KS} Valid for unchanging load direction, max. load cycle $\leq 10^5$		[Nm]	285	450	1650	5250	8700	14250
Max. speed ¹⁾	n_{max}	[rpm]	18000	18000	15000	12000	10000	8000
Distance dimension	S	[mm]	7.1 \pm 0.1	4.6 \pm 0.1	6.8 \pm 0.15	11.2 \pm 0.15	12 \pm 0.15	14 \pm 0.15
Axial displacement Only permitted as a static or virtually static value.	ΔK_a	[mm]	\pm 1.1	\pm 0.8	\pm 1.1	\pm 1.2	\pm 1.4	\pm 1.6
Max. permitted radial misalignment With connection plate	ΔK_r	[mm]	0.30	0.20	0.25	0.25	0.35	0.40
Max. permitted radial misalignment With sleeve	ΔK_r	[mm]	1.0	0.7	1.0	1.25	1.35	1.7
Max. permitted angular misalignment (per disk pack)	ΔK_w	[°]	1.0	0.7	0.6	0.5	0.5	0.5



¹⁾ For speeds of more than 5000 rpm, a limitation of the misalignment to max. 30 % is necessary.
The values then correspond to the permitted misalignment values on Type 9210._ _ _ _00 acc. Table 2.

Table 2: Technical Data for Type 9210._ _ _ _00

ROBA®-DS Size			16F	16	64	300	500	850
Sensor measuring range		[Nm]	50 / 100	200	500 / 1000	2000 / 3000	5000	10000
Minimum hub bore (Items 1 and 2)	d_{min}	[mm]	25 H5	25 H5	45 H5	50 H5	60 H5	70 H5
Maximum hub bore (Items 1 and 2)	d_{max}	[mm]	45 H5	45 H5	70 H5	85 H5	100 H5	120 H5
Coupling nominal torque Valid for changing load direction as well as for max. permitted shaft misalignment	T_{KN}	[Nm]	190	300	1100	3500	5800	9500
Coupling peak torque T_{KS} Valid for unchanging load direction, max. load cycle $\leq 10^5$		[Nm]	285	450	1650	5250	8700	14250
Max. speed	n_{max}	[rpm]	30000	30000	25000	20000	16000	13000
Distance dimension	S	[mm]	7.1 \pm 0.1	4.6 \pm 0.1	6.8 \pm 0.15	11.2 \pm 0.15	12 \pm 0.15	14 \pm 0.15
Max. permitted axial displacement Only permitted as a static or virtually static value.	ΔK_a	[mm]	\pm 0.2	\pm 0.2	\pm 0.3	\pm 0.4	\pm 0.4	\pm 0.5
Max. permitted radial misalignment	ΔK_r	[mm]	0.06	0.06	0.08	0.08	0.11	0.13
Max. permitted angular misalignment (per disk pack)	ΔK_w	[°]	0.3	0.2	0.2	0.16	0.16	0.16

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Table 3: Overview of Screws and Respective Tightening Torques

ROBA®-DS Size	16F	16	64	300	500	850
Hexagon head screws Item 1.2	M5 x 30	M5 x 30	M8 x 55	M8 x 60	M10 x 70	M12 x 80
Tightening torque	6 Nm	6 Nm	24 Nm	35 Nm	56 Nm	93 Nm
Cap screws Item 2.2	M5 x 18	M5 x 18	M8 x 30	M8 x 30	M10 x 40	M12 x 40
Tightening torque	6 Nm	6 Nm	24 Nm	35 Nm	56 Nm	93 Nm
Cap screws Item 9 ²⁾	M5 x 18	M5 x 16	M8 x 25	M12 x 35	M16 x 40	M20 x 45
Tightening torque	8.5 Nm	8.5 Nm	35 Nm	120 Nm	240 Nm	450 Nm
Hexagon head screws Item 10 ²⁾	M5 x 18	M5 x 16	M8 x 25	M12 x 35	-	-
Tightening torque	8.5 Nm	8.5 Nm	35 Nm	120 Nm -		
Cap screws Item 11 / Hexagon nut Item 12	M5 x 35 M5	M5 x 32 M5	M8 x 45 M8	M12 x 65 M12	-	-
Tightening torque	8.5 Nm	8.5 Nm	35 Nm	120 Nm		
Cap screws Item 13 ^{2) 3)}	M8 x 14	M8 x 14	M10 x 20	M12 x 30	M14 x 30	M16 x 40
Tightening torque	34 Nm	34 Nm	67 Nm	135 Nm	220 Nm	340 Nm
Cap screws Item 14 ^{2) 3)}	M8 x 25	M8 x 25	M10 x 20	M12 x 30	M14 x 35	M16 x 35
Tightening torque	34 Nm	34 Nm	67 Nm	135 Nm	220 Nm	340 Nm
Cap screws Item 15 ²⁾	M8 x 16	M8 x 16	M8 x 25	M12 x 40	M12 x 50	M14 x 50
Tightening torque	34 Nm	34 Nm	37 Nm	127 Nm	127 Nm	174 Nm



²⁾ The screws (Items 9, 10, 13, 14 and 15) must be protected using a screw-securing product, e.g. Loctite 243.

³⁾ For this, please also observe the guidelines in the Installation Instructions of the measurement flange manufacturer.

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Table 4: Transmittable Torques of the Shrink Disk Hubs (Items 1 and 2) - Dependent on Bore -



The values refer to the max. speed on Type 9110.- and are valid for the tolerance constellation H6 / h6.
At max. speed on Type 9210.-, the transmittable torque reduces by approx. 30 % and is valid for the tolerance constellation H5 / h5.

Bore	Sizes					
	16F	16	64	300	500	850
Ø25	320	320	-	-	-	-
Ø28	368	368	-	-	-	-
Ø30	403	403	-	-	-	-
Ø32	442	442	-	-	-	-
Ø35	506	506	-	-	-	-
Ø38	579	579	-	-	-	-
Ø40	632	632	-	-	-	-
Ø42	689	689	-	-	-	-
Ø45	782	782	1935	-	-	-
Ø50	-	-	2241	3101	-	-
Ø55	-	-	2591	3472	-	-
Ø60	-	-	2988	3883	4679	-
Ø65	-	-	3436	4340	5136	-
Ø68	-	-	3730	4637	5430	-
Ø70	-	-	3938	4845	5635	7726
Ø75	-	-	-	5402	6177	8354
Ø80	-	-	-	6016	6768	9088
Ø85	--	--	-	6687	7411	9850
Ø90	-	-	-	-	8107	10670
Ø100	-	-	-	-	9674	12500
Ø110	-	-	-	-	-	14606
Ø120	-	-	-	-	-	17008

Attention! Please observe the permitted coupling torques of the coupling size used.

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Function – Application

The ROBA®-DS coupling is a shaft connection for torsionally rigid, backlash-free torque transmission while at the same time compensating for shaft misalignments, for the connection to measurement flanges.

The coupling compensates for axial, radial and angular shaft misalignments, whereby the total sum of misalignments must not exceed 100%.

Type 9110._ _ _ _0 (standard design / Figs. 1 to 3):

- Balance quality G 2.5 at n = 3000 rpm

Type 9210._ _ _ _00 (design for high speeds / Fig. 4):

- Individual parts are manufactured to a higher level of accuracy (Quality IT5).
- Balance quality G 2.5 at n = 5000 rpm

Design

ROBA®-DS disk pack couplings of the Type series 9110.- and 9210.- are especially designed for the attachment of HBM torque transducers or similar measurement flanges. Different types of construction and flexible combination possibilities allow the integration of measurement flanges in almost every test stand and drive constellation.

State of Delivery

The ROBA®-DS couplings are manufacturer-assembled in units ready for installation (see pages 2 to 5).

The disks are made of stainless steel.

All other parts are blank and conserved.



All screw connections must be checked or pre-tensioned during the final installation to a torque value according to Table 3.

Coupling Application Field

+10 °C to +80 °C.



For this, please observe the guidelines in the Installation Instructions of the measurement flange manufacturer.

Storage

To avoid corrosion, the coupling must be stored in dry rooms protected from the weather.

Preservative oil can be used for protecting (treating) the coupling.

General Installation Guidelines

- The maximum bore diameters according to Tables 1 and 2 must not be exceeded.
- Shaft tolerance requirement:
h6 on Type 9110._ _ _ _0,
h5 on Type 9210._ _ _ _00
- The shaft surfaces should be finely turned or ground (Ra = 0.8 µm).
- The required yield point for the shafts used is at least 350 N/mm² (St60, St70, C45, C60).
- For better joining, the hub (Items 1 / 2) can be heated up to max. 60 °C.
- Please take the axial space requirements for the extracting screws into account in order to de-install the hubs (1/2). See guideline stated in section Hub Installation / De-installation.
- All screw connections to be mounted by the operator, with the exception of the tensioning screws (Items 1.2 and 2.2), must be protected using a screw-securing product, e.g. Loctite 243.
- The operator is responsible for providing the screws for one side of the measurement flange connection.
The required tightening torques can be seen in the Installation Instructions of the measurement flange manufacturer.
Please observe the maximum screw-in depths for the screw connection to the hub (2) or flange MF (6) acc. Table 5.

**Table 5: Maximum Screw-in Depths
for Customer-side Screws**

ROBA®-DS Sizes	Hub (Item 2)	Flange MF (Item 6)
16F	12 mm	9 mm
16	12 mm	9 mm
64	15 mm	15 mm
300	20 mm	21 mm
500	24 mm	24 mm
850	29 mm	28 mm

Hub Installation



The force transmission of the shrink disk hubs takes place via frictional locking. The contact surfaces between the shrink disk (Items 1.1 / 2.1) and the hub (Items 1 / 2) are greased manufacturer-side.

The hub bores and the shaft ends must be completely grease-free during installation. Greasy or oily bores or shafts do not transmit the maximum coupling torque. The transmittable torques dependent on the bore are listed in Table 4.

The shafts must not have a keyway.

For joining the hub (Items 1 / 2), the shrink disk (Items 1.1 / 2.1) must be completely relaxed; if necessary, loosen the screws (Items 1.2 / 2.2) by several thread turns.

No appreciable forces must be transferred via the disk packs (3) while mounting the hub (1).

1. Mount the hubs (Items 1 / 2) onto the shafts using a suitable device and bring them into the correct position.
2. Tighten the tensioning screws (Items 1.2 / 2.2) using a torque wrench evenly and **one after the other in 3 to max. 6 tightening sequences** to the torque stated in Table 3.
3. Check the tightening torque produced after 5 to 10 operating hours.

For de-installation:

1. Loosen all tensioning screws (1.2/2.2) in several sequences by several thread turns.
2. Additional threads are provided in the hub (1/2) or in the shrink disk (1.1/2.1) in order to extract the shrink disk (1.1/2.1).



Please take the axial space requirements for the screws to be screwed into the tapped extracting holes into account. If necessary, suitable set screws can be screwed in before installation. However, it is essential that these screws are secured against loosening.

3. Tighten the tensioning screws (1.2/2.2) evenly and step-wise so that the shrink disk (1.1/2.1) is loosened from the hub (1/2).

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Table 6:
Assignment of the Torque Transducers

Measurement flange company HBM		ROBA®-DS Size
TB2	500 Nm	64
	1000 Nm	64
	2000 Nm	300
	3000 Nm	300
	5000 Nm	500
	10000 Nm	850
T10FS	100 Nm	16F
	200 Nm	16
	500 Nm	64
	1000 Nm	64
	2000 Nm	300
	3000 Nm	300
	5000 Nm	500
	10000 Nm	850
T12	100 Nm	16F
	200 Nm	16
	500 Nm	64
	1000 Nm	64
	2000 Nm	300
	3000 Nm	300
	5000 Nm	500
	10000 Nm	850
T40 ⁴⁾	200 Nm	16
	500 Nm	64
	1000 Nm	64
	2000 Nm	300
	3000 Nm	300
T40B	50 Nm	16F
	100 Nm	16F
	200 Nm	16
	500 Nm	64
	1000 Nm	64
	2000 Nm	300
	3000 Nm	300
	5000 Nm	500
	10000 Nm	850



⁴⁾ Measurement flanges Size T40 cannot be combined with module 2.

Installation of the Coupling in the Drive Line

Type 9110._ _ 00 (Fig. 1)

1. Mount the hub (1) including the completely mounted module 1 onto the shaft using a suitable device, bring it into the correct position and secure it following the instructions in the section 'Hub Installation'.
2. Produce a screw connection between the flange MF (6) and the measurement flange.
Please observe the specifications of the measurement flange manufacturer regarding the screws and the tightening torques required for the connection.
3. Mount the single hub (1) onto the shaft and do not clamp it yet. Loosen the cap screws (1.2) and pull the shrink disk (1.1) back, so that the cap screws (13) and the measurement flange can be screwed together.
4. Produce a screw connection with the measurement flange, observing the tightening torque for cap screws (13) acc. Table 3. The cap screws (13) must be protected using a screw-securing product, e.g. Loctite 243.
5. Secure the exactly positioned hub (1) using the shrink disk (1.1) and the cap screws (1.2) according to section 'Hub Installation'.
6. Check the tightening torques produced after 5 to 10 operating hours.
7. Before initial operation:
Align the input and the output precisely.

Type 9110._ _ 0_0 (Fig. 2)



The angular position of the adaptor flange MF (8) to the flange (7) is marked manufacturer-side due to the balance quality; it must be observed during re-installation.

1. Mount the hub (2) onto the shaft, bring it into the correct position and secure it according to section 'Hub Installation'.
2. Produce a screw connection between the measurement flange and the hub (2).
Please observe the specifications of the measurement flange manufacturer regarding the screws and the tightening torques required for the connection.
3. Remove adaptor flange MF (8) from module 2.
4. Screw the adaptor flange MF (8) and the measurement flange together using cap screws (14) and a tightening torque according to Table 3.
The cap screws (14) must be protected using a screw-securing product, e.g. Loctite 243.
5. Mount the hub (1) including the rest of module 2 onto the shaft using a suitable device, bring it into the correct position and secure it according to section 'Hub Installation'.
6. Screw module 2 and the adaptor flange MF (8) together using cap screws (15) and a tightening torque according to Table 3, keeping to the marked angular position.
7. Check the tightening torques produced after 5 to 10 operating hours.
8. Before initial operation:
Align the input and the output precisely.

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Installation of the Coupling in the Drive Line

Type 9110._ _ 330 (Fig. 3)



The angular position of the adaptor flange MF (8) to the flange (7) is marked manufacturer-side due to the balance quality; it must be observed during re-installation.

1. Mount the hub (1) incl. single-jointed module 1 onto the shaft using a suitable device, bring it into the correct position and secure it according to section 'Hub Installation'.
2. Produce a screw connection between the measurement flange and the single-jointed module 1.
Please observe the specifications of the measurement flange manufacturer regarding the screws and the tightening torques required for the connection.
3. Remove adaptor flange MF (8) from single-jointed module 2.
4. Screw the adaptor flange MF (8) and the measurement flange together using cap screws (14) and a tightening torque according to Table 3.
The cap screws (14) must be protected using a screw-securing product, e.g. Loctite 243.
5. Mount the hub (1) incl. rest of single-jointed module 2 onto the shaft using a suitable device, bring it into the correct position and secure it acc. section 'Hub Installation'.
6. Screw the single-jointed module 2 and the adaptor flange MF (8) together using cap screws (15) and a tightening torque according to Table 3, keeping to the marked angular position.
7. Check the tightening torques produced after 5 to 10 operating hours.
8. Before initial operation:
Align the input and output precisely.

Type 9210._ _ _ 00 (Fig. 4)

1. Mount the hub (1) including the completely mounted module 1 onto the shaft using a suitable device, bring it into the correct position and secure it following the instructions in the section 'Hub Installation'.
2. Produce a screw connection between the measurement flange and the flange MF (6).
Please observe the specifications of the measurement flange manufacturer regarding the screws and the tightening torques required for the connection.
3. Mount the single hub (1) onto the shaft and do not clamp it yet. Loosen the cap screws (1.2) and pull the shrink disk (1.1) back, so that the cap screws (13) can be screwed together.
4. Produce a screw connection with the measurement flange, observing the tightening torque for cap screws (13) acc. Table 3. The cap screws (13) must be protected using a screw-securing product, e.g. Loctite 243.
For this, please observe the guidelines in the Installation Instructions of the measurement flange manufacturer.
5. Secure the exactly positioned hub (1) using the shrink disk (1.1) and the cap screws (1.2) according to section 'Hub Installation'.
6. Check the tightening torques produced after 5 to 10 operating hours.
7. Before initial operation:
Align the input and output precisely.

Disk Pack Installation (Figs. 1 to 5)

The ROBA®-DS disk packs are manufacturer-assembled ready for installation. Should installation or de-installation become necessary, please observe the following:

The disk packs (3) are screwed together **alternately** with the sleeve (4) or the connection plate (5) and the flanges (Items 6 / 7) using lightly oiled screws (Items 9, 10 and 11), washers (16) and hexagon nuts (12) if necessary.

Here, the **tightening torque acc. Table 3** must be produced in **several sequences**. Please see Table 7 for the respective tightening torques for each step.



On Sizes 300, 500 and 850, screws (Items 9, 10 und 11) and, if necessary the hexagon nuts (12) on each connection side, must be tightened **cross-wise**.

Table 7

Step	Tightening Torque of the Cap Screws (Items 9, 10 and 11) and the Hexagon Nuts (12)
1	30 % of the nominal tightening torque
2	60 % of the nominal tightening torque
3	100 % of the nominal tightening torque

The disk pack (3) must not under any circumstances be distorted when applying the pre-tension force.



The disk pack (3) is always to be inserted so that the collar bushing radius (Item 3a, Fig. 5) lies in the grooves of the flanges (Items 6 / 7), the sleeves (4) or the connection plate (5).

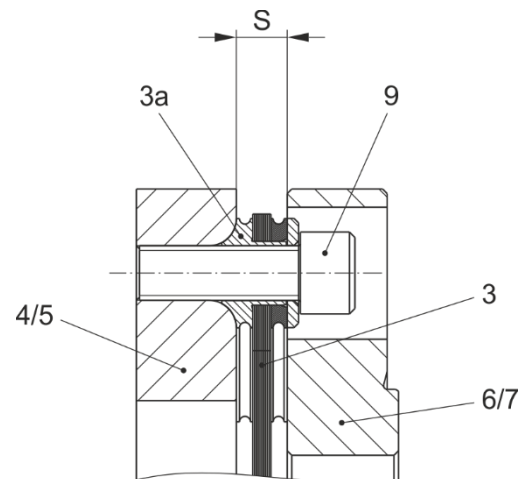


Fig. 5



After de-installation of a ROBA®-DS coupling, re-balancing with a balance quality of G 2.5 at 3000 rpm or 5000 rpm on Type 9210._ _ _ 00 is absolutely necessary.

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Coupling Alignment

Exact coupling alignment reduces the reaction forces and therefore increases the lifetime of the coupling and the shaft bearing.

We recommend alignment of the coupling (of the shaft ends) using a dial gauge or laser.

In order to prevent axial distortion of the disk packs, the dimension "S" (Fig. 5, acc. Tables 1 and 2) must be maintained with aligned angular and radial shaft misalignments.

Permitted Shaft Misalignments

The ROBA®-DS coupling compensates for angular, axial and radial shaft misalignments (Fig. 7) without losing its backlash-free function. However, the permitted shaft misalignments indicated in the Technical Data must not simultaneously reach their maximum value. If more than one kind of misalignment takes place simultaneously, they influence each other. This means that the permitted misalignment values are dependent on one another, see Fig. 6. The sum total of the actual misalignments in percent of the maximum value must not exceed 100 % (see Fig. 6 and the following example).

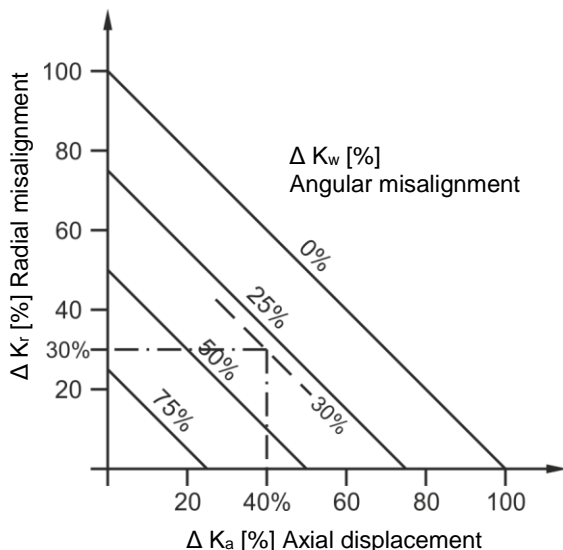


Fig. 6

Example:

ROBA®-DS Size 300, Type 9210.11100

Axial displacement occurrence $\Delta K_a = 0.16$ mm equals 40 % of the permitted maximum value $\Delta K_a = 0.4$ mm
Angular misalignment occurrence in the disk pack $\Delta K_w = 0.048^\circ$ equals 30 % of the permitted maximum value $\Delta K_w = 0.16^\circ$.
=> permitted radial misalignment $\Delta K_r = 30$ % of the maximum value $\Delta K_r = 0.08$ mm => $\Delta K_r = 0.024$ mm

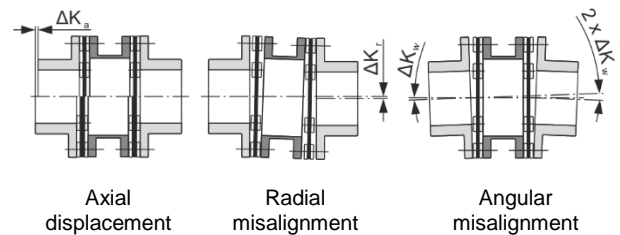


Fig. 7



On standard design Type 9110._ _ _ _0 and for speeds > 5000 rpm, a limitation of the misalignment to max. 30 % is necessary. This will ensure that the machine runs far more smoothly.
The permitted misalignment values for Type 9210._ _ _ _00 stated in Table 2 are already the reduced values.

Maintenance

ROBA®-DS couplings are mainly maintenance-free.

The following maintenance and inspection intervals are to be maintained:

- 1.) Visual inspection, inspection of the installation parameters (misalignment and tightening torques) and the coupling running behaviour **before initial operation**.
- 2.) Visual inspection, torsional backlash, inspection of the misalignment and the tightening torques, coupling running behaviour **after 1000 h, at the latest after 3 months**.
- 3.) If no irregularities or wear are found during the second maintenance and inspection interval, further inspection intervals can, with unchanged operating parameters, take place **after 4000 operating hours or after maximum 12 months**.

In extreme coupling ambient or operating conditions, the maintenance and inspection intervals should be shortened.

Disposal

All steel components:

Steel scrap (Code No. 160117)

Installation and Operational Instructions for ROBA®-DS Coupling for Measurement Flange Connection Type 9_10._ _ _ _0 Sizes 16F / 16 / 64 / 300 / 500 / 850

(B.9110.EN)

Malfunctions / Breakdowns

Malfunction	Possible Causes	Solutions
Changes in running noise and / or vibration occurrence	Incorrect alignment, incorrect installation	1) Set the system out of operation. 2) Find / resolve the cause of incorrect alignment. 3) Check the coupling for wear.
	Loose connecting screws, minor fretting corrosion under the screw head and on the disk pack	1) Set the system out of operation. 2) Check the coupling parts and replace if damaged. 3) Tighten the connecting screws to the specified torque. 4) Check the alignment and correct if necessary.
	Tensioning screws for axial securement of the hubs are loose	1) Set the system out of operation. 2) Check the coupling alignment. 3) Tighten the tensioning screws for axial securement of the hubs to the specified torque. 4) Check the coupling for wear.
Disk pack breakage	Disk pack breakage due to high load impacts / overload	1) Set the system out of operation. 2) Dismantle the coupling and remove the remainders of the disk packs. 3) Check the coupling parts and replace if damaged. 4) Find the cause of overload and remove it.
	Operating parameters are not appropriate for the coupling performance	1) Set the system out of operation. 2) Check the operating parameters and select a suitable coupling (observe installation space). 3) Install a new coupling. 4) Check the alignment.
	Incorrect operation of the system unit	1) Set the system out of operation. 2) Dismantle the coupling and remove the remainders of the disk packs. 3) Check the coupling parts and replace if damaged. 4) Train and advise operating personnel.
Disk packs / connecting screws cracks or breakage	Drive vibrations	1) Set the system out of operation. 2) Dismantle the coupling and remove the remainders of the disk packs. 3) Check the coupling parts and replace if damaged. 4) Check the alignment and correct if necessary. 5) Find the cause of vibration and remove it.



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