Translation of the Original Operational Instructions

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

Attention! Possible property damage can be the consequence.

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 danger of explosion.
This statement is based on the ATEX directive.

CAUTION

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

User-implemented Protective Measures

- ❒ Cover all moving parts to protect against seizure, dust impacts or foreign body impact.
- ❒ Replace self-locking hexagon nuts when they become ineffective after frequent loosening and tightening.

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 may not be complete!

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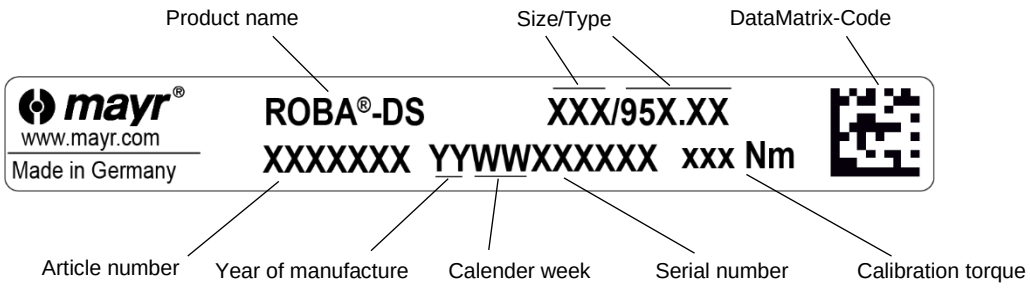

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Summary of Constructional Designs

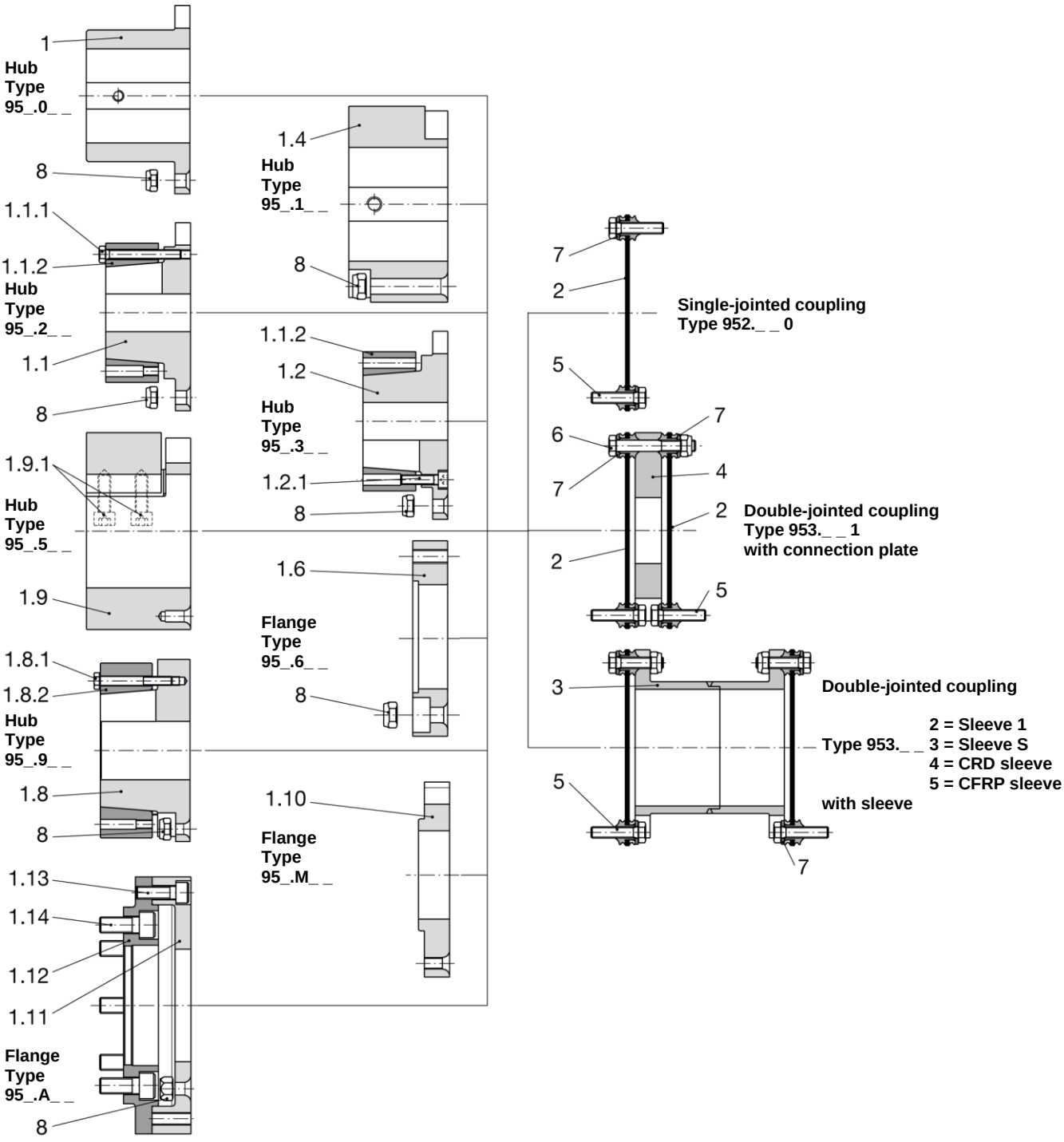

Fig. 1

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Parts List

Only use *mayr*® original parts

Item	Name
1	Hub Type 95_.0_ _
1.1	Hub Type 95_.2_ _
1.1.1	Hexagon head screws for hubs Type 95_.2_ _
1.1.2	Shrink disk
1.2	Hub Type 95_.3_ _
1.2.1	Cap screws for hubs Type 95_.3_ _
1.4	Hub Type 95_.1_ _
1.6	Flange Type 95_.6 _ _
1.8	Hub Type 95_.9_ _
1.8.1	Hexagon head screws for hubs Type 95_.9_ _
1.8.2	Shrink disk
1.9	Hub Type 95_.5_ _
1.9.1	Cap screw for hubs Type 95_.5_ _
1.10	Flange M Type 95_.M _ _
1.11	Flange A Type 95_.A _ _
1.12	Adaptor flange
1.13	Cap screws
1.14	Cap screws for measurement flange connection

Item	Name
2	Disk pack
3	Sleeve
4	Connection plate
5	Hexagon head screw
6	Hexagon head screw
7	Washer
8	Hexagon nut

Table 1a: Technical Data

ROBA® DS Size		16	25	40	64	100	160
d_{Pmax} Hub Type 95_.0 (1)	[mm]	32	40	50	55	70	80
$d_{G\ max}$ Hub Type 95_.1 (1.4)	[mm]	45	55	65	75	95	110
d_{Smax} Hub Type 95_.2/3 (1.1/2)	[mm]	26	36	45	45	55	65
d_{Rmax} Hub Type 95_.5 (1.9)	[mm]	45	52	60	70	90	100
d_{SGmax} Hub Type 95_.9 (1.8)	[mm]	45	52	60	70	90	100
Coupling nominal torque T_{KN} valid for changing load direction as well as for max. permitted shaft misalignment	[Nm]	300	420	650	1100	1600	2600
Coupling peak torque T_{KS} valid for unchanging load direction, max. load cycles ≤ 10^5	[Nm]	450	630	975	1650	2400	3900
Max. speed n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Distance dimension “S”	[mm]	4.6 ±0.2	5.0 ±0.2	6.1 ±0.2	8.0 ±0.25	8.6 ±0.25	9.2 ±0.25
Axial displacement ΔK_a [1] Values refer to couplings with 2 disk packs. Only permitted as a static or virtually static value.	[mm]	±0.8	±0.9	±1.1	±1.3	±1.5	±1.7
Radial misalignment ΔK_r for Type 953._ _ 1	[mm]	0.2	0.2	0.25	0.3	0.3	0.35
Radial misalignment ΔK_r for Type 953._ _ 2	[mm]	0.7	0.8	1	1.25	1.45	1.5
Radial misalignment ΔK_r for Type 953._ _ 3 [1]	[mm]	$(H_S - S) \times 0.0122$					
Radial misalignment for single-jointed coupling		If there is only one disk pack, the shafts must be aligned precisely.					
Angular misalignment ΔK_w per disk pack [1]	[°]	0.7	0.7	0.7	0.7	0.7	0.7

1) For Types 953._ _4 and 953._ _5, the permitted shaft misalignments must be reduced to one-third of the Table values.

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Table 1b: Overview of Screws and Respective Tightening Torques

ROBA® DS Size	16	25	40	64	100	160
Hexagon head screws Item 1.1.1 (Hub Type 95_.2_ _)	M5x30	M5x35	M5x40	M6x45	M8x50	M8x55
Tightening torque [Nm]	6	6	8.5	10	25	25
Cap screws Item 1.2.1 (Hub Type 95_.3_ _)	M5x18	M5x18	M5x20	M6x20	M8x22	M8x25
Tightening torque [Nm]	6	6	8.5	10	25	25
Hexagon head screws Item 1.8.1 (Hub Type 95_.9_ _)	M5x30	M5x35	M5x40	M6x45	M8x50	M8x55
Tightening torque [Nm]	6	6.5	8.5	14	25	32
Cap screws Item 1.9.1 (Hub Type 95_.5_ _)	M6x25	M8x25	M10x35	M12x40	M12x45	M14x50
Tightening torque [Nm]	17.4	42	83	122	143	220
Cap screws Item 1.13 [3] (Flange Type 95_.A_ _)	M5x20	-	M6x25	M8x25	-	-
Tightening torque [Nm]	7.6	-	13.2	32	-	-
Cap screws Item 1.14 [3] [4] (Adaptor flange Type 95_.A_ _)	M8x20	-	M8x25	M10x25	-	-
Tightening torque [Nm]	37	-	37	74	-	-
Hexagon head screws Item 5 Hexagon nut Item 8	M5x20	M5x20	M6x25	M8x30	M8x30	M10x40
Tightening torque [Nm]	8.5	8.5	14	35	35	69
Hexagon head screws Item 5 (Hub Type 95_.1_ _) Hexagon nut Item 8	M5x45	M5x50	M6x60	M8x70	M8x80	M10x90
Tightening torque [Nm]	8.5	8.5	14	35	35	69
Hexagon head screws Item 5 (Hub Type 95_.5_ _) Hexagon nut Item 8	M5x18	M5x18	M6x22	M8x30	M8x30	M10x35
Tightening torque [Nm]	8.5	8.5	14	35	35	69
Hexagon head screws Item 5 (Flange Type 95_.A_ _) Hexagon nut Item 8	M5x20	-	M6x25	M8x30	-	-
Tightening torque [Nm]	8.5	-	14	35	-	-
Hexagon head screws Item 5 (Flange Type 95_.M_ _) Hexagon nut Item 8	M5x16	-	M6x20	M8x25	-	-
Tightening torque [Nm]	8.5	-	14	35	-	-
Hexagon head screws Item 6 Hexagon nut Item 8	M5x32	M5x32	M6x40	M8x50	M8x50	M10x60
Tightening torque [Nm]	8.5	8.5	14	35	35	69
Hexagon head screws Item 6 (Flange Types 95_.M_ _ and 95_.M_ _) Hexagon nut Item 8	M5x32	-	M6x40	M8x50	-	-
Tightening torque [Nm]	8.5	-	14	35	-	-
Adjusting screws for hub Type 95_.0_ _ with hub bore	M5 ≤22 / M6 >22		M5 ≤22 / M6 >22		M6	M8	M10	M12
Tightening torque [Nm]	2 / 4.1		2 / 4.1		4.1	8.5	14	35
Adjusting screws for hub Type 95_.1_ _	M8		M8		M10	M10	M12	M12
Tightening torque [Nm]	8.5		8.5		14	14	35	35

3) The screws (Items 1.13 and 1.14) must be protected using a screw-securing product, e.g. Loctite 243.
4) For this, please observe the guidelines in the Installation Instructions of the measurement flange manufacturer.

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Table 2: Transmittable Torques on Shrink Disk Hubs, Large (1.8) - dependent on bore / suitable for H7/g6

Bore	Size 16	25	40	64	100	160
Ø25	339	-	-	-	-	-
Ø28	404	-	-	-	-	-
Ø30	448	-	-	-	-	-
Ø32	492	526	-	-	-	-
Ø35	558	602	-	-	-	-
Ø38	620	679	-	-	-	-
Ø40	659	730	873	-	-	-
Ø42	694	780	937	-	-	-
Ø45	738	851	1036	1268	-	-
Ø48	-	913	1132	1394	-	-
Ø50	-	948	1195	1480	-	-
Ø52	-	978	1255	1565	-	-
Ø55	-	-	1338	1691	2074	-
Ø60	-	-	1454	1890	2366	-
Ø65	-	-	-	2065	2658	3246
Ø70	-	-	-	2204	2943	3618
Ø75	-	-	-	-	3213	3991
Ø80	**Attention!** Please observe the permitted coupling torques of the coupling size used.		-	-	3458	4353
Ø85			-	-	3666	4695
Ø90	-	-	-	-	3828	5007
Ø100	-	-	-	-	-	5497

Table 3: Transmittable Torques on Shrink Disk Hubs (1.1/1.2) - dependent on bore / suitable for H7/g6

Bore	Size 16	25	40	64	100	160
Ø14	158	-	-	-	-	-
Ø16	186	-	-	-	-	-
Ø20	240	283	-	-	-	-
Ø22	269	320	-	-	-	-
Ø25	312	375	429	-	-	-
Ø28	-	428	495	-	-	-
Ø30	-	468	546	704	-	-
Ø32	-	509	600	769	-	-
Ø35	-	568	669	863	1057	-
Ø38	-	-	741	960	1176	-
Ø40	-	-	796	1031	1269	1783
Ø42	-	-	852	1104	1366	1919
Ø45	-	-	932	1206	1500	2107
Ø50	**Attention!** Please observe the permitted coupling torques of the coupling size used.		-	-	1692	2400
Ø55			-	-	1889	2680
Ø60	-	-	-	-	-	2967
Ø65	-	-	-	-	-	3263

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Table 4: Transmittable Torques on Clamping Hubs (1.9) - dependent on bore / suitable for H7/h6

Bore	Size 16	25	40	64	100	160
Ø20	183	-	-	-	-	-
Ø22	202	354	-	-	-	-
Ø25	229	402	604	-	-	-
Ø28	257	450	677	821	-	-
Ø30	275	483	725	880	-	-
Ø32	293	515	773	938	1102	-
Ø35	321	563	846	1026	1205	-
Ø38	348	611	918	1114	1309	-
Ø40	367	643	967	1173	1378	1839
Ø42	385	676	1015	1232	1447	1931
Ø45	412	724	1087	1319	1550	2069
Ø48	-	772	1160	1407	1653	2207
Ø50	-	804	1208	1466	1722	2299
Ø52	-	836	1257	1525	1791	2391
Ø55	-	-	1329	1613	1894	2529
Ø60	-	-	1450	1759	2066	2759
Ø65	-	-	-	1906	2239	2989
Ø68	-	-	-	1994	2342	3127
Ø70	-	-	-	2053	2411	3219
Ø75	-	-	-	-	2583	3449
Ø80	-	-	-	-	2755	3679
Ø85	-	-	-	-	2927	3909
Ø90	-	-	-	-	3100	4139
Ø95	-	-	-	-	-	4369
Ø100	-	-	-	-	-	4599

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

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Function – Application

ROBA® DS couplings are shaft connections for torsionally rigid, backlash-free torque transmission. At the same time they compensate for angular misalignments and axial displacements on single-jointed couplings (Type 952._ _ _), and additionally for radial misalignments on double-jointed couplings (Type 953._ _ _).
ROBA® DS couplings of the Type series 95_.**A**_ _ and 95_.**M**_ _ are especially designed for the attachment of HBM torque transducers or similar measurement flanges.

State of Delivery

The ROBA® DS couplings are delivered in individual parts and pre-assembled units.

All screw connections must be checked and pre-tensioned during the final installation to a torque value according to Table 1b.

Except for the disk pack (2), all parts are phosphated and therefore have a basic corrosion protection.
All hub designs can be delivered either pilot bored or finish bored. The preferred bore tolerance is H7; deviating bores are possible (please contact the manufacturer).
The key hubs (Items 1 and 1.4) additionally have a keyway acc. DIN 6885 sheet 1 or 3, as well as an adjusting screw for axial securement.

Temperature Resistance

Due to their all-steel design, ROBA® DS couplings are temperature-resistant within a range from -40 °C up to +250 °C. Couplings with CFRP sleeves can be used in the temperature range from -20°C to +80 °C.

Storage

The couplings are delivered preserved and can be stored in dry rooms protected from the weather for 6 to 9 months.

Damp storage rooms are not suitable.
In order to exclude condensation, the relative air humidity should ideally total maximum 65 %.

Installation Position

ROBA® DS couplings are designed for horizontal installation. In case of vertical or inclined installation, on long sleeves (sleeves S/CRD/CFRP) the sleeve's own weight must be supported with a vertical support (Fig. 3). This vertical support including both centerings in the hub and in the sleeve is produced at the place of manufacture.

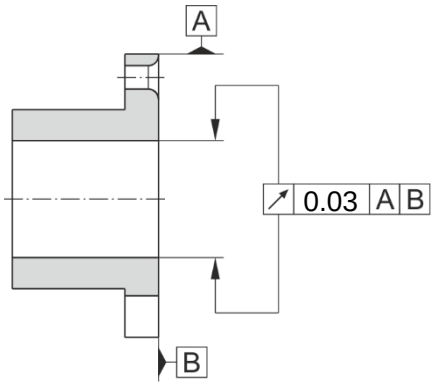

Fig. 2

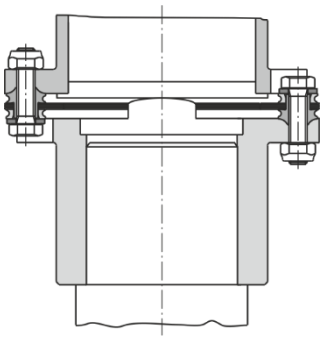

Fig. 3

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Guidelines on Hub Bore and Shaft

General Guidelines:

- ❑ The maximum bore diameter according to Table 1a may not be exceeded.
- ❑ The hub bores are usually produced with tolerance H7. The required shaft tolerance depends on the hub type used as well as on the basic overall load configuration.
  - Shrink disk hubs / clamping hubs: h6/g6
  - Key hubs:
  r6/s6 (alternating rotational direction),
  k6/n6 (one-way rotational direction)
- ❑ The recommended bore tolerances are to be produced using the position and tolerance width as references; at the same time, please keep to the shaft run-out and axial run-out tolerances of 0.03 mm (see Fig. 2).
- ❑ After producing the finish bore, please clean it using suitable cleaning agents.
- ❑ 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).

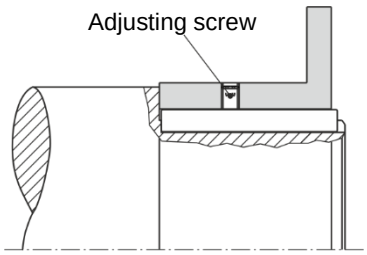

Fig. 4

Please observe the following when boring the hub with keyway (Items 1 and 1.4) Types 95_.0_ _ and 95_.1_ _:

- ❑ The specified form (DIN 6885 sheet 1 or 3) and position of the keyway.
  Position of the keyway on Type:
  95_.0_ _ (Item 1) aligned with a fixing hole
  95_.1_ _ (Item 1.4) 25° offset to a fixing hole
- ❑ For axial securement, please provide an additional adjusting screw (ISO 4029 – 45H) as an alternative to a press cover (see Figs. 4 and 5).
  The adjusting screw dimensions and tightening torques stated in Table 1b must be kept to.

Please observe the following when boring the shrink disk hubs (Items 1.1, 1.2 and 1.8) Types 95_.2_ _, 95_.3_ _ and 95_.9_ _:

- ❑ The shrink disk hubs are generally delivered greased and pre-assembled. For production of the finish bore, the shrink disk is de-installed and the hub is de-greased.
- ❑ Deburr the hubs, in particular in the area of the slots.
- ❑ Clean and re-grease the hubs in the shrink disk contact areas.
  Permitted grease: Klüber Alltemp QNB 50

Guidelines on Measurement Flange Connection

General Guidelines:

- ❑ 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 flange M (Item 1.10) acc. Table 5.
- ❑ The screw connection (Item 1.14) must be protected using a screw-securing product, e.g. Loctite 243.

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

ROBA® DS Size	Flange M (Item 1.10)
16	8 – 11
40	8 – 13
64	10 – 15

Table 6: Assignment to Nominal Torque for HBM Torque Transducers TB2 / T10FS

Measurement flange Nominal torque	ROBA® DS Size	
50 Nm	16	40
100 Nm	16	40
200 Nm	16	40
500 Nm	64	
1000 Nm	64	

The assignment according to Table 6 only indicates the geometric compatibility of the flanges. In addition, it must be assessed whether the coupling nominal torque is sufficient for the application.

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Flange Installation

Please refer to Fig. 1 for the arrangement of the various individual components.

Flange Installation Type 95_.A_ _ (Flange A)

a) Loosen the cap screws (1.13) and separate flange A (1.11) and adaptor flange (1.12).
The cap screws (1.14) are now accessible.

b) Produce a screw connection between the measurement flange and the adaptor flange (1.12).
Please observe the specifications of the measurement flange manufacturer regarding the tightening torques required for the connection (cap screws Item 1.14).

c) Screw flange A (1.11) and adaptor flange (1.12) back together. Tighten the cap screws (1.13) to the torque specified in Table 1b.

Flange Installation Type 95_.M_ _ (Flange M)

1. Produce a screw connection between the measurement flange and flange M (1.10). Please observe the tightening torques of the measurement flange manufacturer and the screw-in depths acc. Table 5.

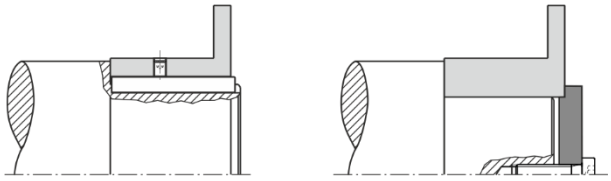

Fig. 5

Hub Installation

Please refer to Fig. 1 for the arrangement of the various individual components.

Hub Installation Types 95_.2_ _ / 95_.3_ _ / 95_.9 _ _ (Hubs with Shrink Disk)

- ❑ The force transmission of the shrink disk hubs (1.1/1.2/1.8) takes place using frictional locking. The contact surfaces between the shrink disk and the hub 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.
- ❑ Please make sure that the key sits securely for designs with keyway.
- ❑ The hub and the shrink disk (1.1.2/1.8.2) must be completely relaxed; if necessary, loosen the screws (1.1.1/1.2.1/1.8.1) by several thread turns.

a) Mount the hubs (1.1/1.2/1.8) onto the shafts using a suitable device and bring them into the correct position.

b) Tighten the tensioning screws (1.1.1/1.2.1/1.8.1) using a torque wrench evenly and **one after the other in 3 to max. 6 tightening sequences** to the torque stated in Table 1b.

For De-installation:

a) Loosen all tensioning screws (1.1.1/1.2.1/1.8.1) in several sequences
by several thread turns.

b) Screw out the tensioning screws located next to the tapped extracting holes and screw them into the tapped extracting holes up to their limits.

Please take the axial space requirements for the tensioning screws to be screwed into the tapped extracting holes into account (length of the hexagon head screws Item 1.1.1 / Item 1.8.1 in Table 1b).

c) Tighten the tensioning screws (1.1.1/1.2.1/1.8.1) evenly and step-wise so that the shrink disk (1.1.2/1.8.2) is loosened from the hub.

Hub Installation Type 95_.5_ _ (Clamping Hubs)

- ❑ 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 shafts must not have a keyway.
- ❑ The clamping hub (1.9) must be completely relaxed; if necessary, loosen the screws (1.9.1) by several thread turns.

a) Mount the hubs (1.9) onto the shafts using a suitable device and bring them into the correct position.

b) Tighten the clamping screws (1.9.1) using a torque wrench to the torque stated in Table 1b.

Hub Installation Types 95_.0_ _ / 95_.1_ _ (Hubs with Keyway)

- ❑ Mount the hubs (1/1.4) onto the shafts using a suitable device and secure them axially (Fig. 5).
Axial securement takes place using a set screw (adjusting screw), which presses radially onto the key; or via a press cover and a screw, screwed into the shaft threaded center hole.
- ❑ The key must lie over the entire length of the hub.

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Coupling Installation (Figs. 1 and 6)

Only a thin oil film is permitted on the contact surfaces of the disk packs (Fig. 6, detail "X"). If applicable, thick layers of preservative must be removed before installation.

The disk packs (2) are screwed together **alternately** with the sleeve (3) and the hubs or the connection plate (4) using lightly oiled hexagon head screws (5 and 6), washers (7) and hexagon nuts (8).

The hexagon nuts (8) or the hexagon head screws (5 and 6) must be tightened in several steps to their full tightening torque acc. Table 1b. Please see Table 7 for the respective tightening torques for each step.

Table 7

Step	Tightening torque for hexagon nuts (8) or hexagon head screws (5 and 6)
1	30 % of the nominal tightening torque
2	60 % of the nominal tightening torque
3	100 % of the nominal tightening torque

The disk pack (2) must not under any circumstances be distorted when applying the pre-tension force.

The disk pack (2) is always to be inserted in such a way that the collar bushing radius (part 2a, Fig. 6, detail “X”) lies in the hub grooves, the sleeve grooves or the connection plate grooves.

Due to the enlarged diameter of the shrink disks (1.8.2), please make sure that the installation sequence is suitable.
In this way, normal torque wrenches can be used for installation of the disk pack (2).

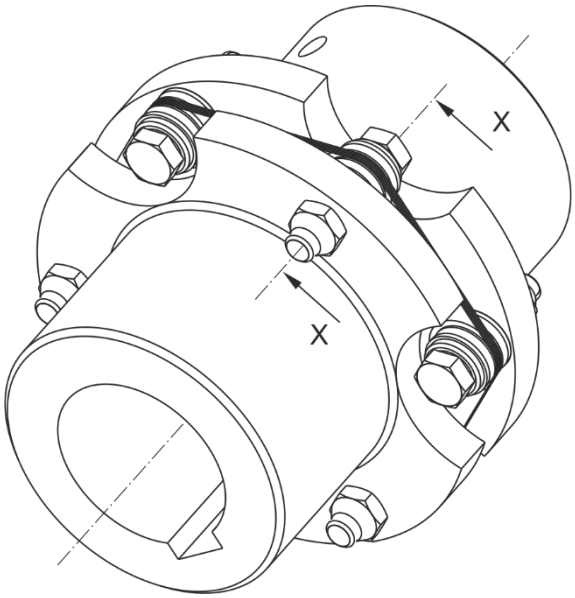

Fig. 6

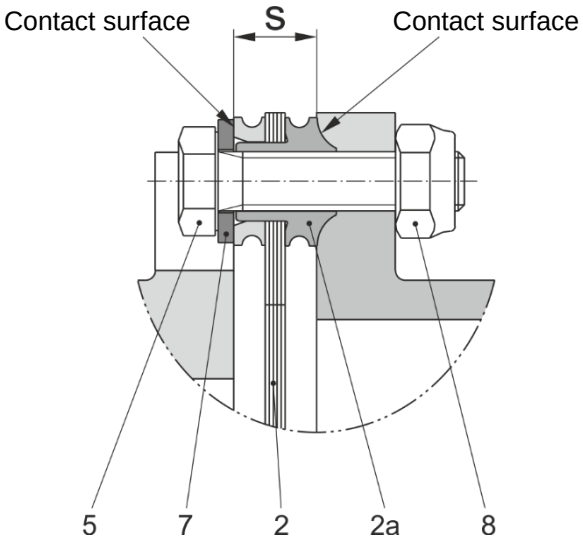

Fig. 6: Detail “X”

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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.
In most of the applications, coupling alignment using a straight edge in two levels vertical to each other is sufficient.
However, we recommend alignment of the coupling (of the shaft ends) using a dial gauge or laser on drives operating at very high speeds.
In order to prevent axial distortion of the disk packs, the dimension “S” (Fig. 6, detail “X”, Table 1a) must be maintained with aligned angular and radial shaft misalignments.

Permitted Shaft Misalignments

ROBA® DS single-jointed couplings (Type 952._ _ _) compensate for angular and axial shaft misalignments.
ROBA® DS double-jointed couplings (Type 953._ _ _) compensate for angular, axial and radial shaft misalignments (Fig. 8) without losing their backlash-free function. However, the permitted shaft misalignments indicated in Table 1a 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. 7. The sum total of the actual misalignments in percent of the maximum value must not exceed 100 % (see example and Fig. 7).

Example:

ROBA® DS, Size 40, Type 953.002
Axial displacement occurrence ΔK_a = 0.44 mm equals 40 % of the permitted maximum value ΔK_a = 1.1 mm.
Angular misalignment occurrence in the disk pack ΔK_w = 0.21° equals 30 % of the permitted maximum value ΔK_w = 0.7°.
=> permitted radial misalignment ΔK_r = 30 % of the maximum value ΔK_r = 1.0 mm => ΔK_r = 0.3 mm

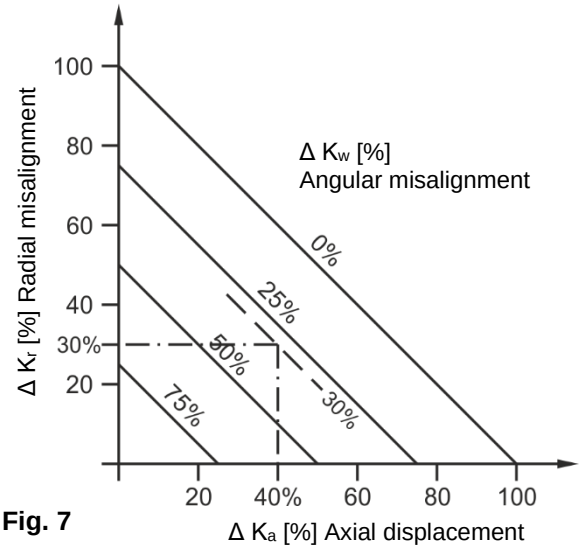

Fig. 7

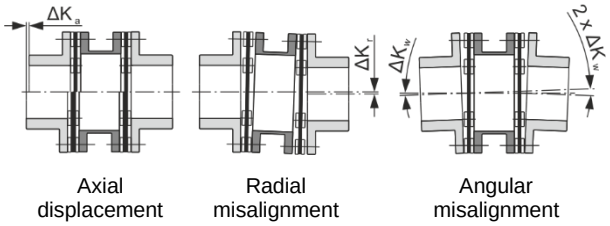

Fig. 8

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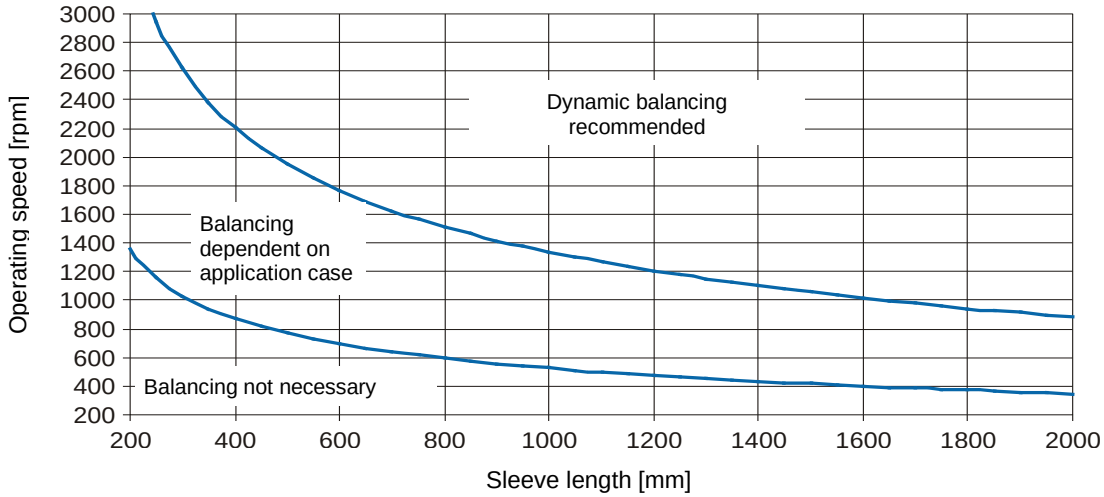
Balancing the Coupling

In most applications, balancing the ROBA® DS coupling is not necessary. In general, the following points are crucial when deciding whether the coupling needs balancing:

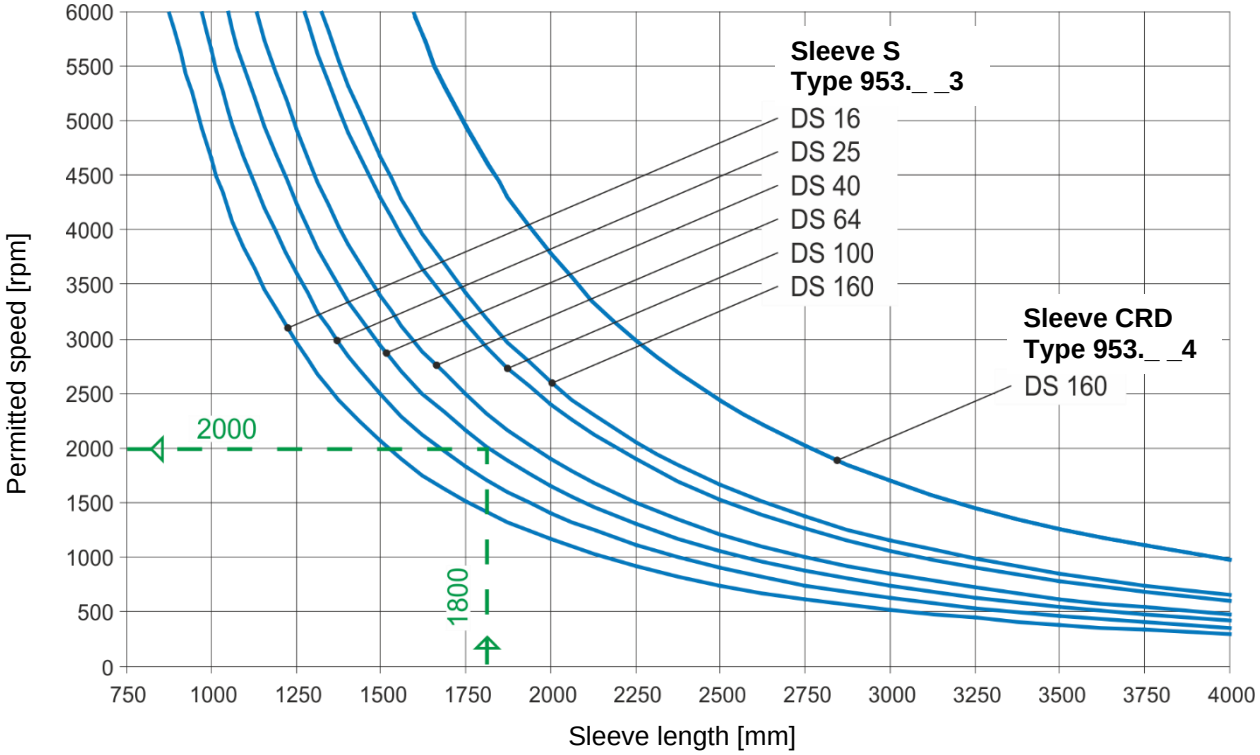
- ❑ Circumferential speed of the coupling
- ❑ Length of the sleeves S/CRD/CFRP (Diagram 1)
- ❑ Required balance quality

Diagram 1: Balancing Couplings with Sleeve S/CRD/CFRP (Special Length)



Smooth running of the machine is not only ensured by the coupling balance quality, but is also influenced by parameters such as rigidity and distance to the adjacent bearings as well as by the sensitivity and mass of the entire construction.
Diagram 1, therefore, only shows reference values as recommendations for balancing.
All parts of the ROBA® DS couplings, except the sleeves S/CRD/CFRP, are machined on all sides, and therefore lie in the range G6.3 acc. DIN ISO 1940 at medium speeds (1500 rpm).
If higher demands are placed on the balance quality, it is possible to balance individual parts or even the entire installed coupling (on request). However, for this option, the hubs must have a finish bore.

Diagram 2: Permitted Speeds (Bend-critical) for Sleeves S Type 953._ _3 and Sleeves CRD Type 953._ _4 (only Size 160)



Example:
Size 40, sleeve length H_S = 1800 mm = > permitted speed 2000 rpm.

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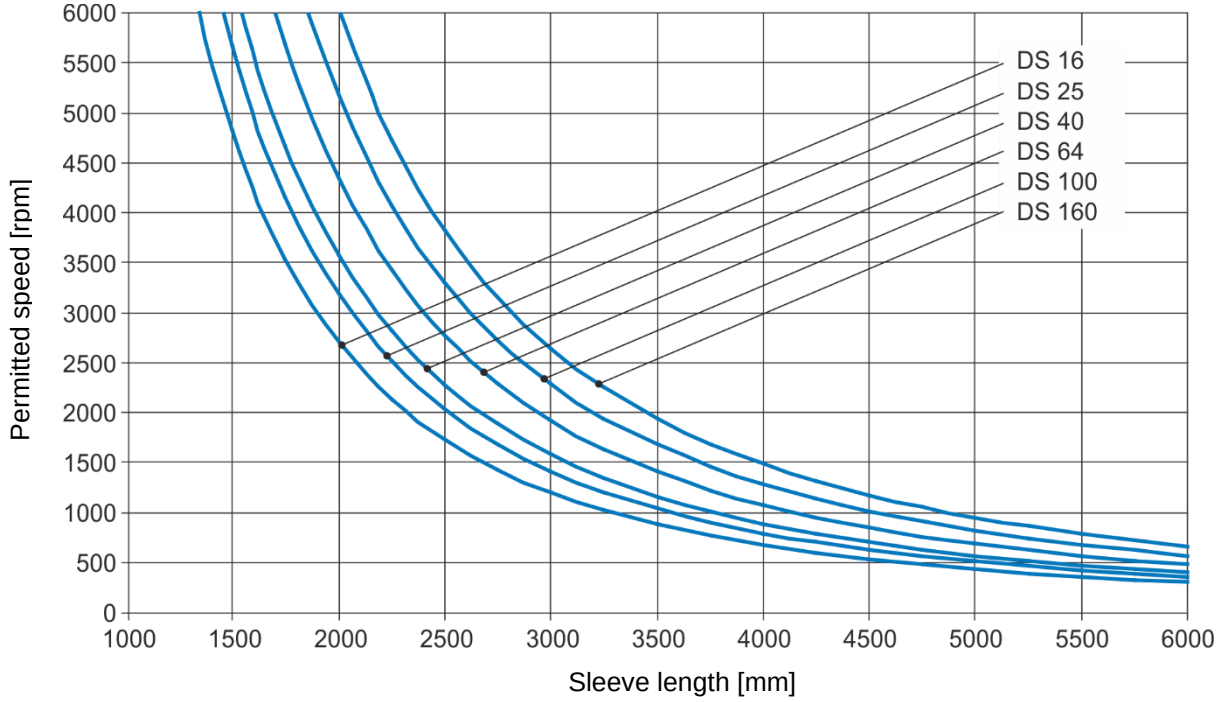
Diagram 3: Permitted Speeds (Bend-critical) for Sleeves CFRP Type 953._ _5



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Maintenance

ROBA® DS couplings are largely 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 behavior **before initial operation.**

2.) Check the tightening torques produced **after 5 to 10 operating hours.**

3.) Visual inspection, torsional backlash, inspection of the misalignment and the tightening torques, coupling running behavior **after 1000 h, at the latest after 3 months.**

4.) If no irregularities or wear are found during the maintenance and inspection interval defined in point 3.), 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 and carbon pipes:
Steel scrap (Code No. 160117)

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 and clamping screws or locking set screw for axial hub securement are loose	1) Set the system out of operation 2) Check the coupling alignment 3) Tighten the tensioning and clamping screws for axial hub securement to the required torque or tighten the locking set screw and secure it against self-loosening using sealing lacquer 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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