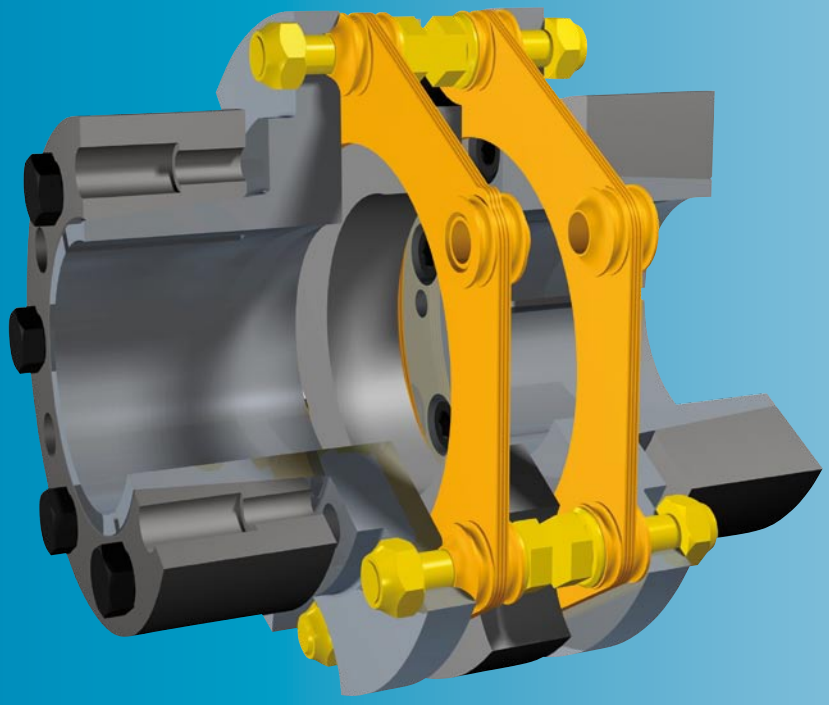
ROBA®-DS

Torsionally Rigid Shaft Couplings



- *High torsional spring rigidity*
- *Extremely high alternating torques*
- *Large variant range*
- *Low mass inertia*

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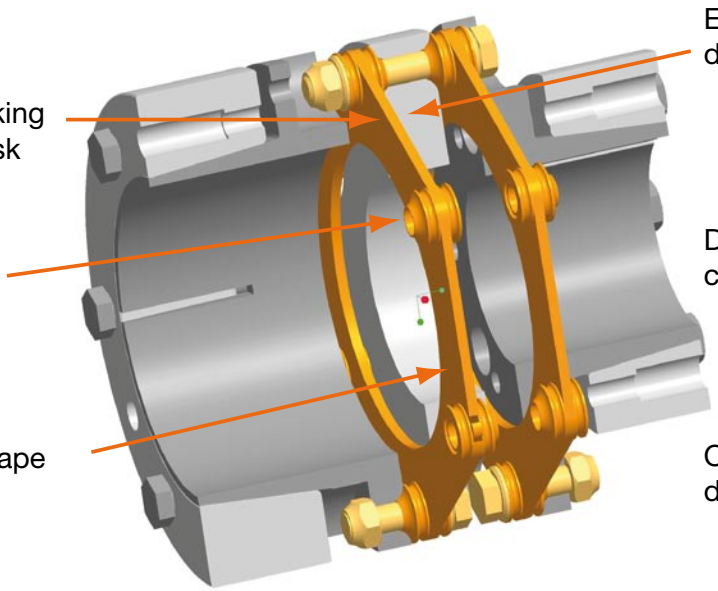
your reliable partner

ROBA®-DS

Technologically superior

- Non-sensitive to alternating loads of up to 100 % of the nominal torque
- Low mass inertia due to high performance density
- Completely backlash-free up to nominal torque
- High misalignment compensation capability at low restoring forces
- High torsional rigidity up to nominal torque
- Completely wear and maintenance-free
- Optimum construction shape due to large variant range



The ROBA®-DS transmits drive torques up to the nominal torque completely backlash-free and with permanently high torsional spring rigidity. Problems to be found on other commercially available couplings, such as denting the disks or overcoming the frictional locking, are not a problem on our couplings. The specified shaft misalignments can be 100 % utilized without affecting the transmittable torque. This guarantees unlimited use.

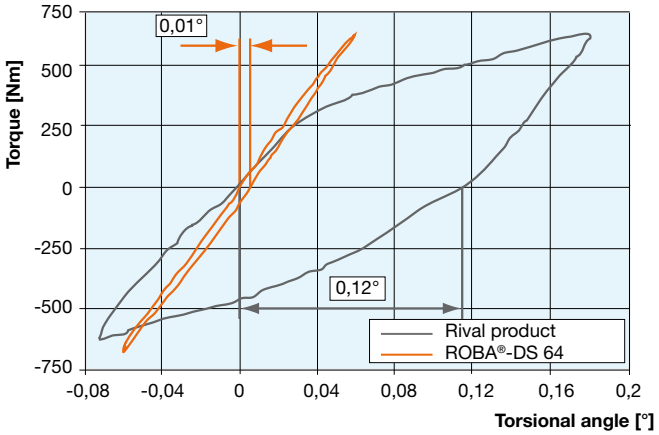


Diagram: A ROBA®-DS coupling rigidity characteristic curve in comparison to a typical rival product with frictionally-locking/positively-locking torque transmission.

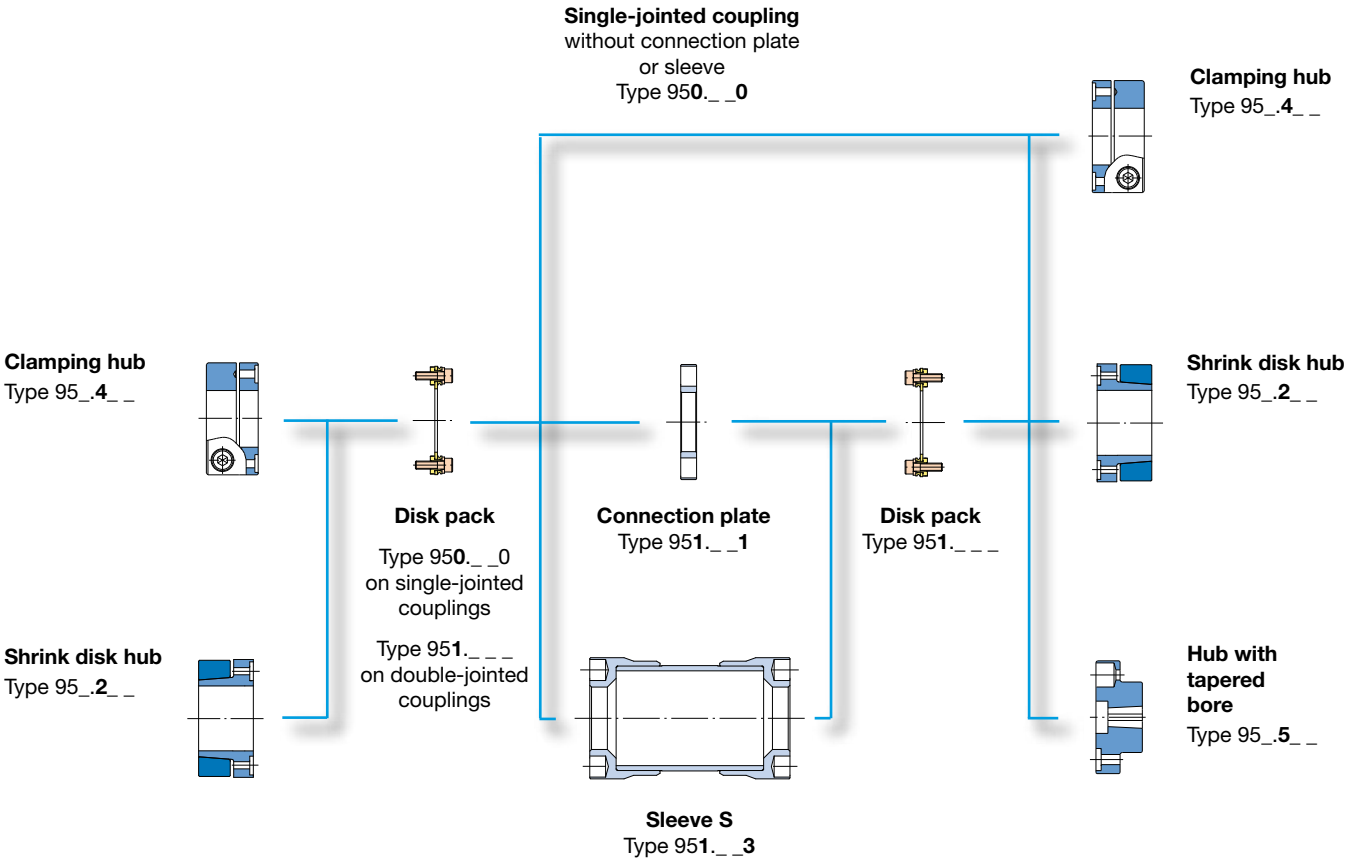
ROBA®-DS couplings are also available in rustproof steel and in ATEX design according to the directive 94/9 EC (ATEX 95).

Please Observe:

According to German notation, decimal points in this catalogue are represented with a comma (e.g. 0,5 instead of 0.5).

We reserve the right to make dimensional and constructional alterations.

Configuration Possibilities/Standard Designs



Type Key/Order Number

Sizes 3 to 15

Type Key/Order Number

		Hub 1	Hub 2	
	Shrink disk hub	**2**	**2**	Shrink disk hub
	Clamping hub	**4**	**4**	Clamping hub
			5	Hub with tapered bore

▽ ▽

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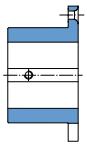
△ △ △ △ △ △

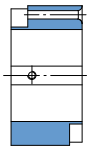
Size				Bore Hub 1 ø	Bore Hub 2 ø	Operating Speed
3	**Single-jointed coupling**	**0**	**Single-jointed coupling**			[rpm]
6						
10	**Double-jointed coupling**	**1**	**Double-jointed coupling**			for Sleeve S
15			Connection plate	**1**		
			Sleeve S	**3**		

Configuration Possibilities/Standard Designs

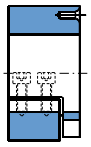
Key Hub
Type 95_.**0**_ _
All sizes



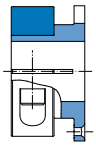
Key Hub large
Type 95_.**1**_ _
Sizes 16 to 160



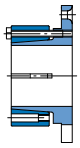
Clamping hub
Type 95_.**5**_ _
Sizes 16 to 160



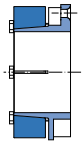
Clamping ring hub
Type 95_.**4**_ _
Sizes 16 to 160
Disk pack HF



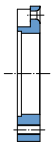
Shrink disk hub external clamping
Type 95_.**2**_ _
All sizes



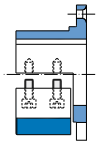
Shrink disk hub large
Type 95_.**9**_ _
Sizes 16 to 160



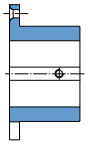
Flange
Type 95_.**6**_ _
All sizes



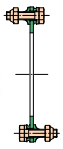
Split clamping hub
Type 95_.**8**_ _
All sizes, double-jointed couplings
Disk pack HF



Key hub internal
Type 95_.**7**_ _
Sizes 180 to 2200
Only with sleeve 1



Single-jointed coupling
without connection plate
or sleeve
Type 95_._ _**0**



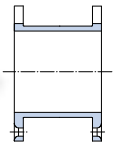
Disk pack HT

Type 95**2**._ _0
on single-jointed couplings

Type 95**3**._ _ _
on double-jointed couplings

Connection plate
Type 95_._ _**1**

Disk pack HT
Type 95**3**._ _ _

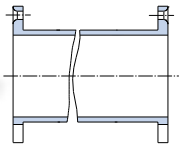


Sleeve 1
Type 95_._ _**2**

Disk pack HF

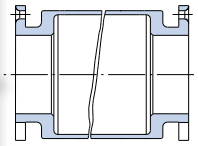
Type 95**0**._ _0
on single-jointed couplings

Type 95**1**._ _ _
on double-jointed couplings

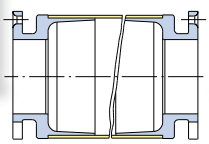


Sleeve S
Type 95_._ _**3**

Disk pack HF
Type 95**1**._ _ _

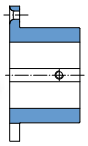


Sleeve GKR
Type 95_._ _**4**

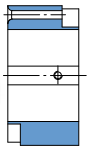


GRP sleeve
Type 95_._ _**5**

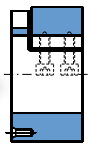
Key Hub
Type 95_.**0**_ _
All sizes



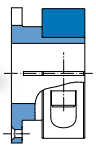
Key Hub large
Type 95_.**1**_ _
Sizes 16 to 160



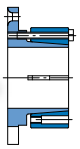
Clamping hub
Type 95_.**5**_ _
Sizes 16 to 160



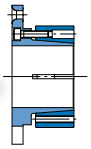
Clamping ring hub
Type 95_.**4**_ _
Sizes 16 to 160
Disk pack HF



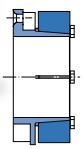
Shrink disk hub external clamping
Type 95_.**2**_ _
All sizes



Shrink disk hub internal clamping
Type 95_.**3**_ _
Sizes 16 to 160

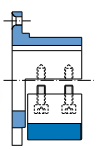


Shrink disk hub
Type 95_.**9**_ _
Sizes 16 to 160

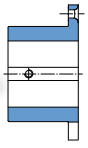


Flange
Type 95_.**6**_ _
All sizes

Split clamping hub
Type 95_.**8**_ _
All sizes, double-jointed couplings
Disk pack HF



Key hub internal
Type 95_.**7**_ _
Sizes 180 to 2200
Only with sleeve 1



Type Key/Order Number

Sizes 16 to 160

Type Key/Order Number

	Hub 1	Hub 2	
Key hub, standard	0	0	Key hub, standard
Key hub, large	1	1	Key hub, large
Shrink disk hub, external clamping	2	2	Shrink disk hub, external clamping
		3	Shrink disk hub, internal clamping
Clamping ring hub	4	4	Clamping ring hub
Clamping hub	5	5	Clamping hub
Flange	6	6	Flange
Split clamping hub	8	8	Split clamping hub
Shrink disk hub, large	9	9	Shrink disk hub, large

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Size				Bore Hub 1 ø	Bore Hub 2 ø	Operating Speed [rpm]
16	**Single-jointed coupling** Disk pack **HF**	0	**Single-jointed coupling**	0		
25	**Double-jointed coupling** Disk pack **HF**	1	**Double-jointed coupling**			
40			Connection plate	1		for Sleeve S
64			Sleeve 1	2		
100	**Single-jointed coupling** Disk pack **HT**	2	Sleeve S	3		Sleeve GKR
160	**Double-jointed coupling** Disk pack **HT**	3	Sleeve GKR	4		GRP sleeve
			GRP sleeve	5		

Sizes 180 to 2200

Type Key/Order Number

	Hub 1	Hub 2	
Key hub, standard	0	0	Key hub, standard
Shrink disk hub, external clamping	2	2	Shrink disk hub, external clamping
Flange	6	6	Flange
Key hub, internal	7	7	Key hub, internal
Split clamping hub	8	8	Split clamping hub

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Size				Bore Hub 1 ø	Bore Hub 2 ø	Operating Speed [rpm]
180	**Single-jointed coupling**	0	**Single-jointed coupling**	0		
300	**Double-jointed coupling**	1	**Double-jointed coupling**			
500			Connection plate	1		for Sleeve S
850			Sleeve 1	2		
1400			Sleeve S	3		Sleeve GKR
2200			Sleeve GKR	4		GRP sleeve
			GRP sleeve	5		

Single-jointed coupling with clamping hubs

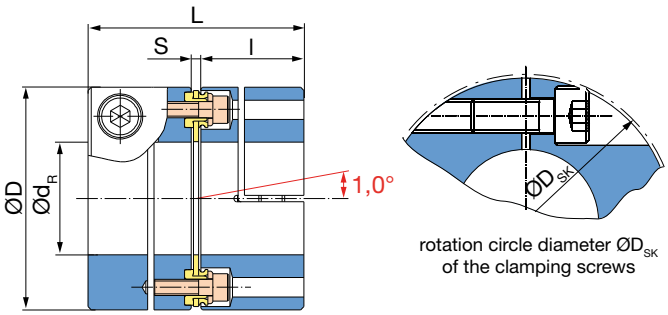


Fig. 1: Type 950.440

Alternative shaft connection

Hub with tapered bore

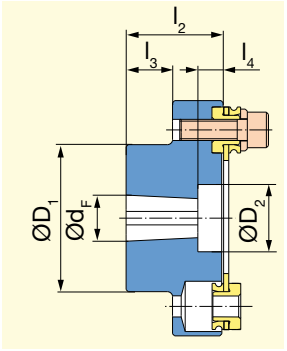


Fig. 2: Type 95_._5_ (only Sizes 3 and 6)
e.g. for Fanuc motors

Technical Data and Main Dimensions					Size			
					3	6	10	15
Nominal torque [1]			T_{KN}	[Nm]	35	60	100	150
Peak transient torque [2]			T_{KS}	[Nm]	52	90	150	225
Alternating torque			T_{KW}	[Nm]	21	36	60	90
Outer diameter			D	[mm]	45	56	69	79
Minimum hub bore [3] [4]			$d_R{}^{H7}{}_{min}$	[mm]	10	14	19	25
Maximum hub bore [3] [4]			$d_R{}^{H7}{}_{max}$	[mm]	20	28	35	42
Maximum speed [5]	with clamping hub		n_{max}	[rpm]	13500	10800	9000	7800
	with hub with tapered bore		n_{max}	[rpm]	22500	18000	15000	13000
Permitted misalignments [6]	permitted axial misalignment [7] [8]		ΔK_a	[mm]	0,5	0,7	0,9	1,1
	permitted radial misalignment [7]	with connecting plate	ΔK_r	[mm]	0,15	0,15	0,2	0,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$			
Spring stiffness	torsion [9]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	17	35	60	145
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	3,3	6,8	12	19
	angular spring stiffness [10]			[Nm/rad]	43	64	105	229

Dimensions [mm]

Size		3		6		10	15
D_{SK}		47		-		71	-
d_3		17		22,5		33,5	40
H_S		acc. customer specifications					
h_2		40		50		60	70
L		48,5		52,6		67	69,9
L_2		59		64,7		79,5	82,8
L_6		dependent on H_S					
l		23		25		32	33,5
S		2,5		2,6		3	2,9
U		28		32		40	46
U_1		13		14,7		15,5	15,8
Hub with tapered bore	d_F ± 0,05	11	14	11	14	16	-	-
	D_1	27	27	35	35	35	-	-
	D_2	16	21	16	25	25	-	-
	l_2	23	30	23	30	40	-	-
	l_3	13	20	11	18	28	-	-
	l_4	6	10	6	10	10	-	-

Mass moments of Inertia J [10^{-3} kgm²]

Size	3	6	10	15
Disk pack [11]	0,006	0,018	0,035	0,077
Clamping hub [12]	0,021	0,054	0,164	0,295
Hub with tapered bore [12]	0,012	0,039	-	-
Connecting plate	0,018	0,050	0,121	0,208
Sleeve S with H_S = 1000 mm	0,349	0,755	1,373	2,341
Sleeve S per 1000 mm tube	0,323	0,682	1,175	1,981

Weight [kg]

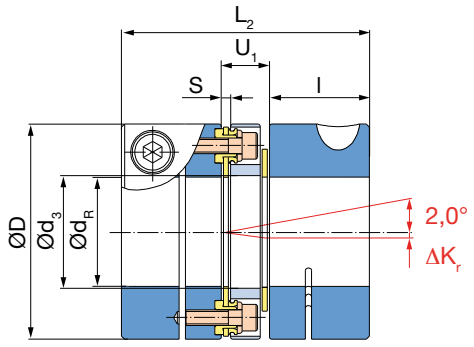
Size	3	6	10	15
Disk pack [11]	0,023	0,041	0,050	0,077
Clamping hub [12]	0,070	0,112	0,221	0,297
Hub with tapered bore [12]	0,053	0,121	-	-
Connecting plate	0,063	0,111	0,161	0,218
Sleeve S with H_S = 1000 mm	1,009	1,361	1,678	2,079
Sleeve S per 1000 mm tube	0,938	1,231	1,443	1,762

1) Valid for max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Recommended hub/shaft tolerance: H7/k6
4) Preferred bores and transmittable torques dependent on bore see page 57.
5) Not valid for coupling with sleeve S.
6) The permitted misalignments may not simultaneously reach their maximum values.
7) The values refer to couplings with 2 disk packs.
8) Only permitted as a static or virtually static value.
9) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

10) The values refer to 1 disk pack.
11) Mass moments of inertia and weights are valid for 1 disk pack.
12) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and clamping hubs



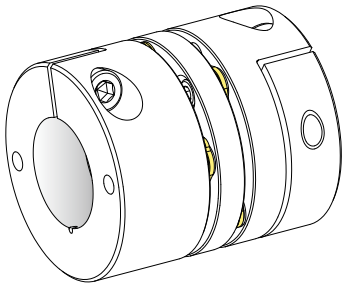
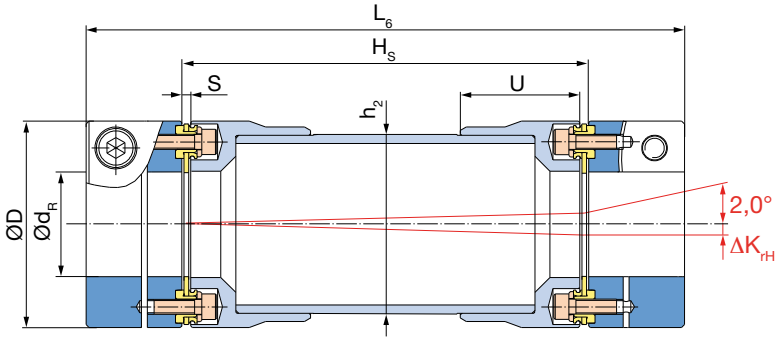


Fig. 3: Type 951.441

Double-jointed coupling with sleeve S (special length) and clamping hubs



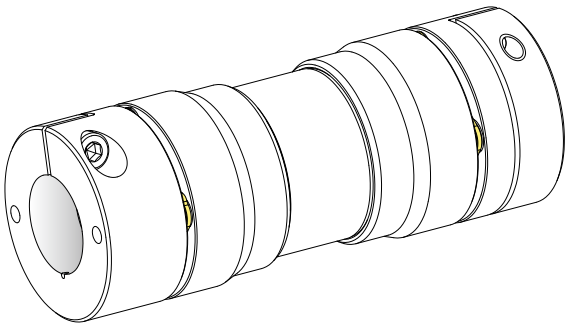


Fig. 4: Type 951.443 (Sleeve S: H_S, L_6)

Order Number

HUB 2

4	Clamping hub**
5	Hub with tapered bore***

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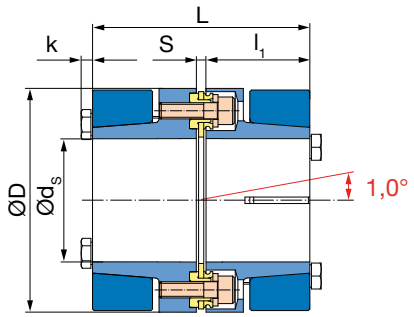
Sizes					**Bore* Hub 1 ø**	**Bore* Hub 2 ø**	**Sleeve length H_S**	**Operating speed n_S**
3	Single-jointed coupling	**0**	Single-jointed coupling	**0**	(Dim. page 8)	(Dim. page 8)	[mm]	[rpm]
to	Double-jointed coupling	**1**	Connecting plate	**1**				
15			Sleeve S	**3**			for special sleeve S	

Example: 10 / 951.441 / Hub 1 – ø 25 H7 / Hub 2 – ø 25 H7

* Standard H7, other tolerances possible
** Clamping hub also available with keyway
*** Only sizes 3 and 6

Backlash-free All-steel Couplings Page 12
Safe Against Overload Page 55
Transmittable Torques for Clamping Hubs Page 57
Installation Examples Page 58
Dimensioning, Size Selection Page 62
Technical Explanations Page 63

Single-jointed coupling with shrink disk hubs



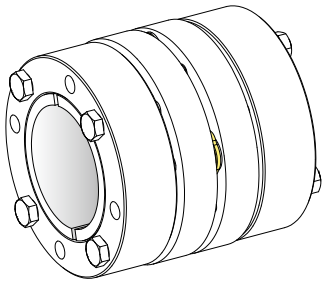


Fig. 5: Type 950.220

Technical Data and Main Dimensions					Size			
					3	6	10	15
Nominal torque [1]			T_{KN}	[Nm]	35	60	100	150
Peak transient torque [2]			T_{KS}	[Nm]	52	90	150	225
Alternating torque			T_{KW}	[Nm]	21	36	60	90
Outer diameter			D	[mm]	45	56	69	79
Minimum hub bore [3] [4] [5]			$d_S{}^{H7}{}_{min}$	[mm]	10	14	19	25
Maximum hub bore [3] [4]			$d_S{}^{H7}{}_{max}$	[mm]	20	28	38	45
Maximum speed [6]			n_{max}	[rpm]	22500	18000	15000	13000
Permitted misalignments [7]	permitted axial misalignment [8] [9]		ΔK_a	[mm]	0,5	0,7	0,9	1,1
	permitted radial misalignment [8]	with connecting plate	ΔK_r	[mm]	0,15	0,15	0,2	0,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$			
Spring stiffness	torsion [10]	disk pack	$C_{T\ LP}$	[10^3 Nm/rad]	17	35	60	145
		tube sleeve S	$C_{T\ H\ rel.}$	[10^6 Nm mm/rad]	3,3	6,8	12	19
	angular spring stiffness [11]			[Nm/rad]	43	64	105	229

Dimensions [mm]

Size	3	6	10	15
d_3	17	22,5	33,5	40
H_S	acc. customer specifications			
h_2	40	50	60	70
k	2,8	3,5	3,5	3,5
L	50,5	58,6	67	77,9
L_2	61	70,7	79,5	90,8
L_6	dependent on H_S			
l_1	24	28	32	37,5
S	2,5	2,6	3	2,9
U	28	32	40	46
U_1	13	14,7	15,5	15,8

Mass moments of Inertia J [10^{-3} kgm²]

Size	3	6	10	15
Disk pack [12]	0,006	0,018	0,035	0,077
Shrink disk hub [13]	0,043	0,129	0,303	0,605
Connecting plate	0,018	0,050	0,121	0,208
Sleeve S with H_S = 1000 mm	0,349	0,755	1,373	2,341
Sleeve S per 1000 mm tube	0,323	0,682	1,175	1,981

Weight [kg]

Size	3	6	10	15
Disk pack [12]	0,023	0,041	0,050	0,077
Shrink disk hub [13]	0,142	0,254	0,379	0,570
Connecting plate	0,063	0,111	0,161	0,218
Sleeve S with H_S = 1000 mm	1,009	1,361	1,678	2,079
Sleeve S per 1000 mm tube	0,938	1,231	1,443	1,762

1) Valid for max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Recommended hub/shaft tolerance: H7/g6
4) On shrink disk hubs, the preferred bores are identical to the preferred bores on the clamping hubs (see preferred bores clamping hubs page 57).
5) ø10: frictionally locking transmittable torque = 80 % of T_{KS}.
6) Not valid for coupling with sleeve S.
7) The permitted misalignments may not simultaneously reach their maximum values.
8) The values refer to couplings with 2 disk packs.
9) Only permitted as a static or virtually static value.
10) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\ tot.} = \frac{1}{\frac{2}{C_{T\ LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\ Hrel.}}}$$

11) The values refer to 1 disk pack.
12) Mass moments of inertia and weights are valid for 1 disk pack.
13) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and shrink disk hubs

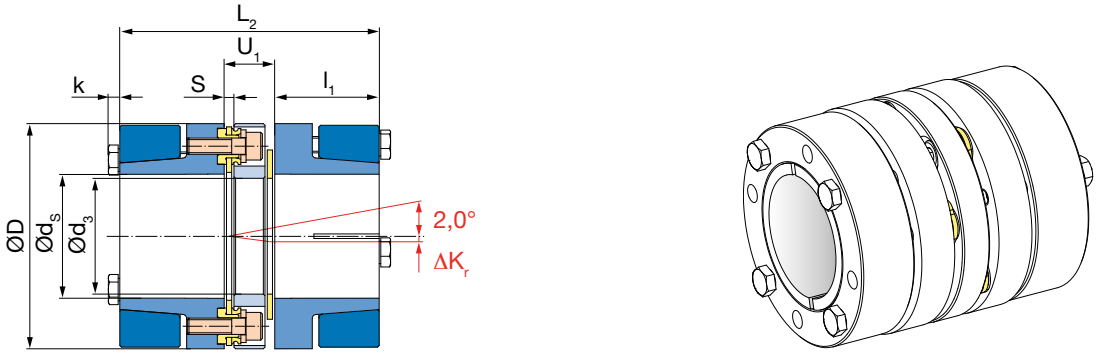


Fig. 6: Type 951.221

Double-jointed coupling with sleeve S (special length) and shrink disk hubs

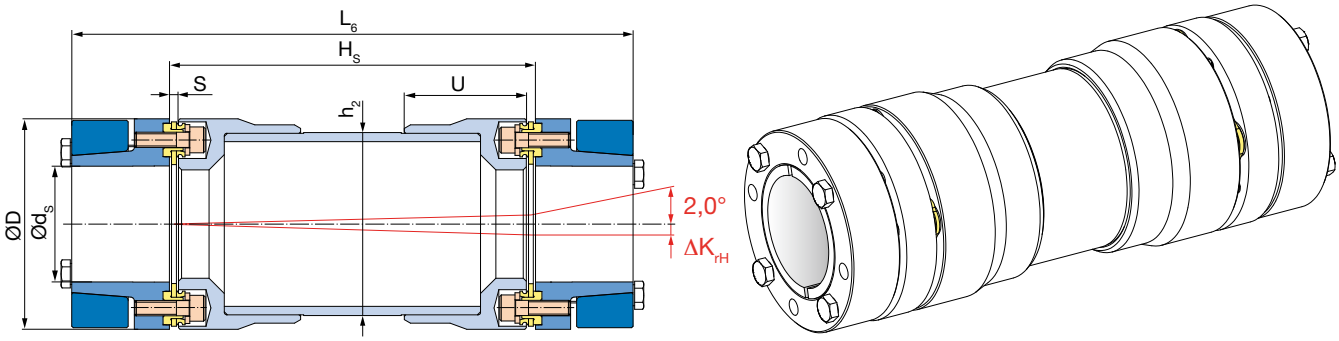


Fig. 7: Type 951.223 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 2 2 __ / __ / __ / __ / __								
△		△		△	△	△	△	△
Sizes 3 to 15	Single-jointed coupling Double-jointed coupling	**0** **1**	Single-jointed coupling Connecting plate Sleeve S	**0** **1** **3**	**Bore* Hub 1 ø** (Dim. page 10)	**Bore* Hub 2 ø** (Dim. page 10)	**Sleeve length H_S** [mm] for special sleeve S	**Operating speed n_S** [rpm]

Example: 10 / 951.221 / Hub 1 – ø 25 H7 / Hub 2 – ø 25 H7

* Standard H7, other tolerances possible

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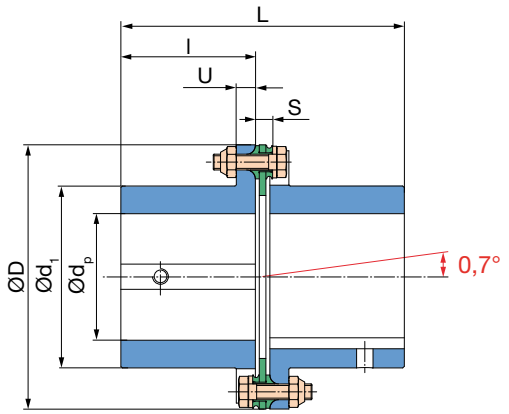
Single-jointed coupling with key hubs



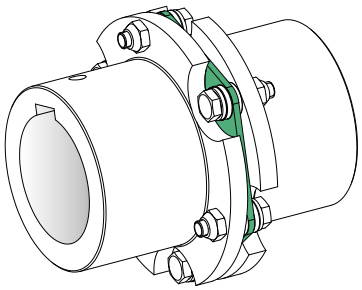


Fig. 8: Type 952.000

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	300	420	650	1100	1600	2600
Peak transient torque [2]			T_{KS}	[Nm]	450	630	975	1650	2400	3900
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore			$d_{p\,min}$	[mm]	16	20	25	30	35	40
Maximum hub bore			$d_{p\,max}$	[mm]	32	40	50	55	70	80
Maximum speed [3]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [4]	permitted axial misalignment [5] [6]		ΔK_a	[mm]	0,8	0,9	1,1	1,3	1,5	1,7
	permitted radial misalignment [5]	with connecting plate	ΔK_r	[mm]	0,2	0,2	0,25	0,3	0,3	0,35
		with sleeve 1	ΔK_{rH}	[mm]	0,7	0,8	1	1,25	1,45	1,5
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0122$					
Spring stiffness	torsion [7]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	180	290	320	1350	1900	2950
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [8]			[Nm/rad]	285	305	875	1285	2025	3260

Dimensions [mm]

Size	16	25	40	64	100	160
d_1	50	60	70	80	100	115
d_3	33	41	46	51	66	76
H_1	65	75,6	91,4	112,8	133,2	135,2
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L	84,6	95	116,1	138	158,6	179,2
L_2	101,2	112	136,2	164	185,2	210,4
L_4	145	165,6	201,4	242,8	283,2	305,2
L_6	dependent on H_S					
l	40	45	55	65	75	85
S	4,6	5	6,1	8	8,6	9,2
U	7	7	8	10	10	12
U_1	21,2	22	26,2	34	35,2	40,4

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,13	0,30	0,81	1,36	3,43
Hub [10]	0,27	0,55	1,16	2,58	6,18	12,51
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

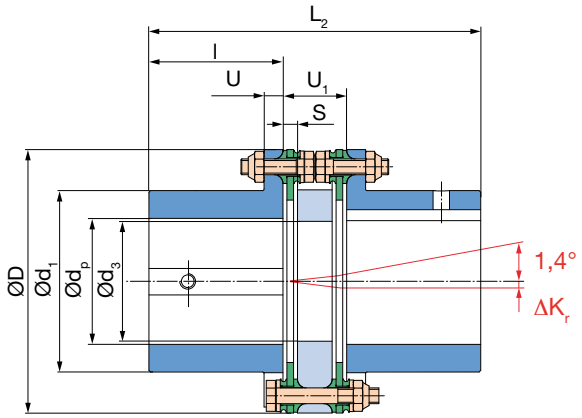
Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,09	0,16	0,32	0,39	0,71
Hub [10]	0,46	0,69	1,02	1,72	2,83	4,25
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.
7) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.
10) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and key hubs



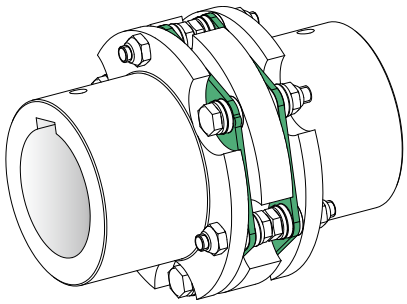
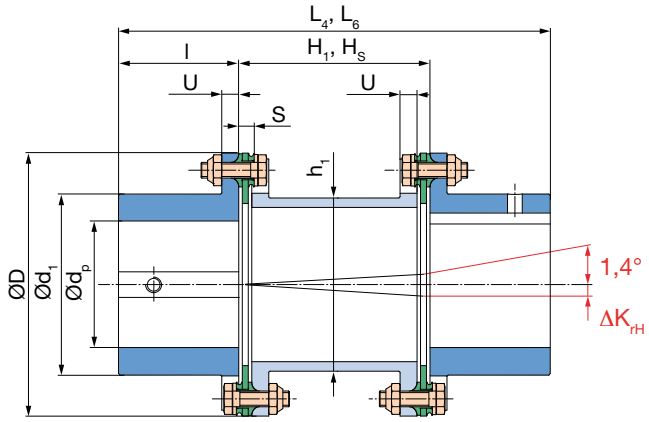


Fig. 9: Type 953.001

Double-jointed coupling with sleeve 1 or sleeve S (special length) and key hubs



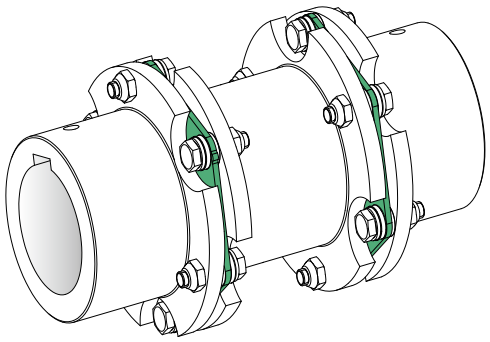


Fig. 10: Type 953.002 (Sleeve 1: H_1, L_4), Type 953.003 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 0 0 __ / __ / __ / __ / __								
Sizes					**Bore***	**Bore***	**Sleeve**	**Operating**
16	Single-jointed	**2**	Single-jointed coupling	**0**	**Hub 1 ø**	**Hub 2 ø**	**length**	**speed**
to	coupling		Connecting plate	**1**	(Dim.	(Dim.	**H_s**	**n_s**
160	Double-jointed	**3**	Sleeve 1	**2**	page 12)	page 12)	[mm]	[rpm]
	coupling		Sleeve S	**3**				
			Sleeve GKR (page 52)	**4**			for special sleeves	
			Sleeve CRP (page 52)	**5**			S / GKR / CRP	

Example: 100 / 952.000 / Hub 1– ø 50 H7 / Hub 2 – ø 60 H7

*Standard H7, other tolerances possible

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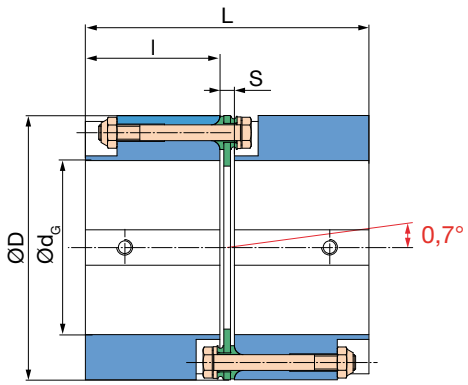
Single-jointed coupling with key hubs, large



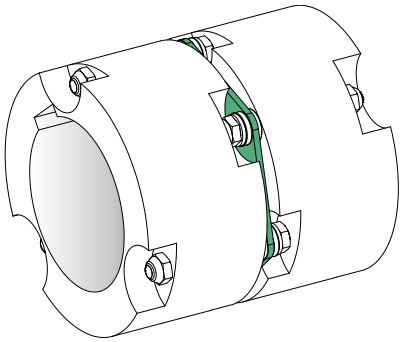


Fig. 11: Type 952.110

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	300	420	650	1100	1600	2600
Peak transient torque [2]			T_{KS}	[Nm]	450	630	975	1650	2400	3900
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore			$d_{G\,min}$	[mm]	30	35	45	55	65	75
Maximum hub bore			$d_{G\,max}$	[mm]	45	55	65	75	95	110
Maximum speed [3]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [4]	permitted axial misalignment [5] [6]		ΔK_a	[mm]	0,8	0,9	1,1	1,3	1,5	1,7
	permitted radial misalignment [5]	with connecting plate	ΔK_r	[mm]	0,2	0,2	0,25	0,3	0,3	0,35
		with sleeve 1	ΔK_{rH}	[mm]	0,7	0,8	1	1,25	1,45	1,5
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0122$					
Spring stiffness	torsion [7]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	180	290	320	1350	1900	2950
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [8]			[Nm/rad]	285	305	875	1285	2025	3260

Dimensions [mm]

Size	16	25	40	64	100	160
d_3	33	41	46	51	66	76
H_1	65	75,6	91,4	112,8	133,2	135,2
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L	84,6	95	116,1	138	158,6	179,2
L_2	101,2	112	136,2	164	185,2	210,4
L_4	145	165,6	201,4	242,8	283,2	305,2
L_6	dependent on H_S					
l	40	45	55	65	75	85
S	4,6	5	6,1	8	8,6	9,2
U	7	7	8	10	10	12
U_1	21,2	22	26,2	34	35,2	40,4

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,13	0,30	0,81	1,36	3,43
Hub [10]	0,86	1,71	3,89	8,98	18,12	36,00
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

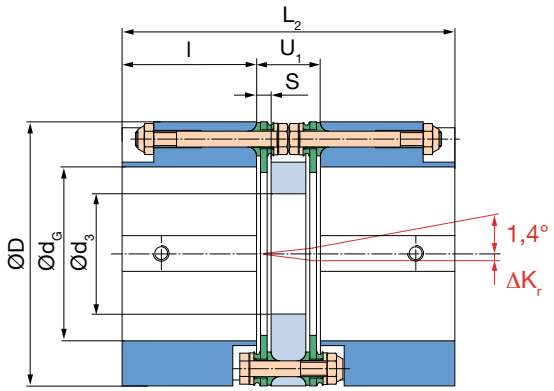
Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,09	0,16	0,32	0,39	0,71
Hub [10]	0,87	1,26	2,08	3,47	4,94	7,23
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.
7) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.
10) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and key hubs, large



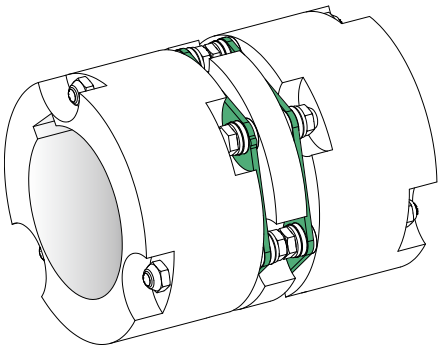
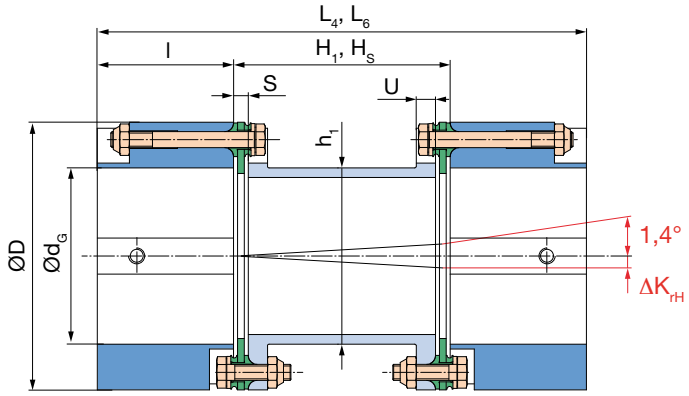


Fig. 12: Type 953.111

Double-jointed coupling with sleeve 1 or sleeve S (special length) and key hubs large



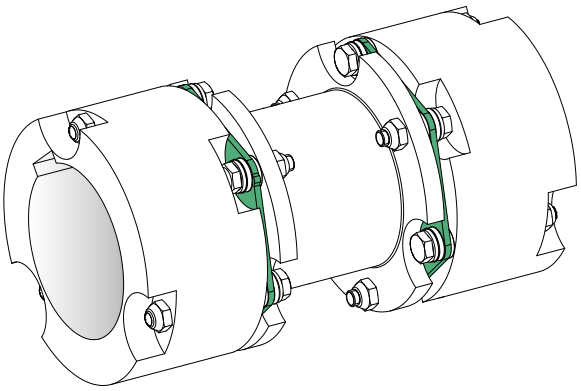


Fig. 13: Type 953.112 (Sleeve 1: H_1, L_4), Type 953.113 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 1 1 __ / __ / __ / __ / __

Sizes 16 to 160	Single-jointed coupling / Double-jointed coupling	2 / 3	Single-jointed coupling 0; Connecting plate 1; Sleeve 1 2; Sleeve S 3; Sleeve GKR (page 52) 4; Sleeve CRP (page 52) 5	Bore* Hub 1 ø (Dim. page 14)	Bore* Hub 2 ø (Dim. page 14)	Sleeve length H_s [mm] for special sleeves S / GKR /CRP	Operating speed n_s [rpm]

Example: 100 / 952.110 / Hub 1 – ø 70 H7 / Hub 2 – ø 80 H7

*Standard H7, other tolerances possible

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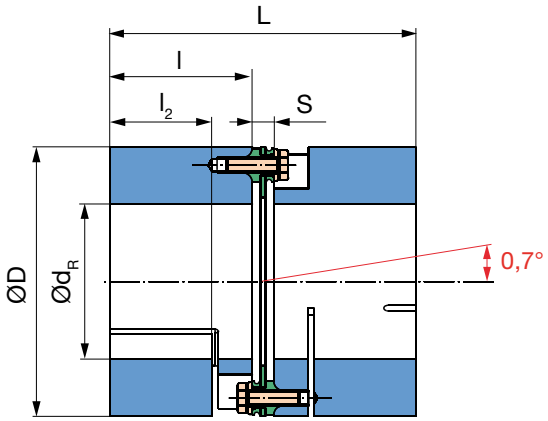
Single-jointed coupling with clamping hubs



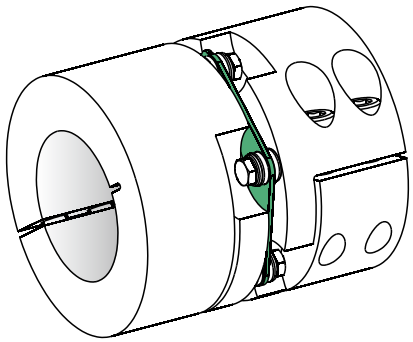


Fig. 14: Type 952.550

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	300	420	650	1100	1600	2600
Peak transient torque [2]			T_{KS}	[Nm]	450	630	975	1650	2400	3900
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore [3]			$d_{R\,min}$	[mm]	20	22	25	28	32	40
Maximum hub bore [3]			$d_{R\,max}$	[mm]	48	54	60	70	95	110
Maximum speed [4]			n_{max}	[rpm]	9500	8200	7000	6000	5100	4300
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	0,8	0,9	1,1	1,3	1,5	1,7
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,2	0,2	0,25	0,3	0,3	0,35
		with sleeve 1	ΔK_{rH}	[mm]	0,7	0,8	1	1,25	1,45	1,5
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0122$					
Spring stiffness	torsion [8]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	180	290	320	1350	1900	2950
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [8]			[Nm/rad]	285	305	875	1285	2025	3260

Dimensions [mm]

Size	16	25	40	64	100	160
d_3	33	41	46	51	66	76
H_1	65	75,6	91,4	112,8	133,2	135,2
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L	84,6	95	116,1	138	158,6	179,2
L_2	101,2	112	136,2	164	185,2	210,4
L_4	145	165,6	201,4	242,8	283,2	305,2
L_6	dependent on H_S					
l	40	45	55	65	75	85
l_2	27	32	39,6	44,8	54,5	60
S	4,6	5	6,1	8	8,6	9,2
U	7	7	8	10	10	12
U_1	21,2	22	26,2	34	35,2	40,4

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,13	0,30	0,81	1,36	3,43
Hub [11]	0,74	1,49	3,64	8,42	16,94	34,32
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

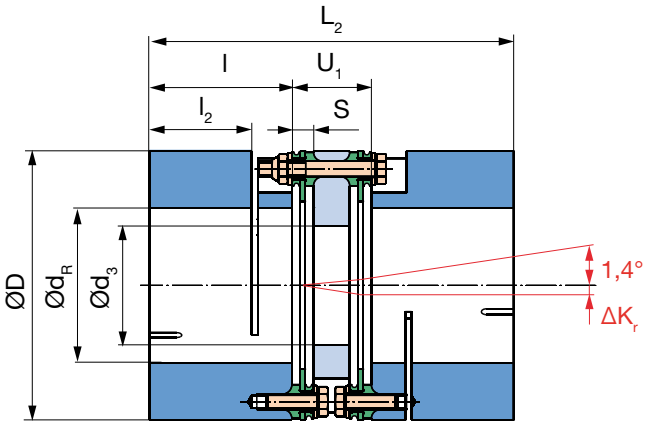
Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,09	0,16	0,32	0,39	0,71
Hub [11]	0,73	1,11	2,05	3,43	4,82	6,94
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 57.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,ges.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for 1 disk pack.
11) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and clamping hubs



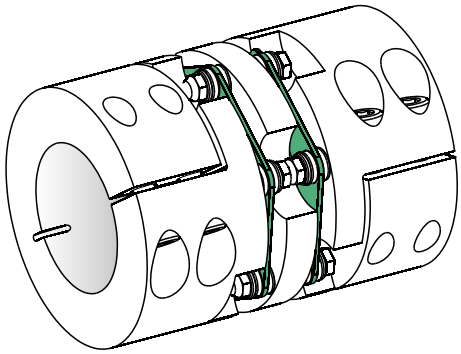
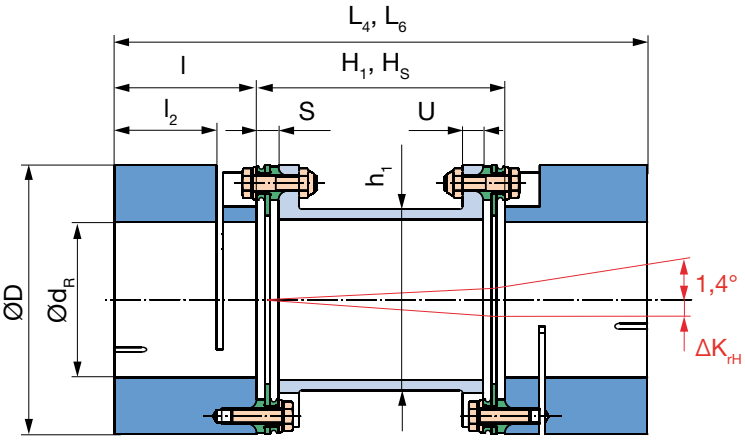


Fig. 15: Type 953.551

Double-jointed coupling with sleeve 1 or sleeve S (special length) and clamping hubs



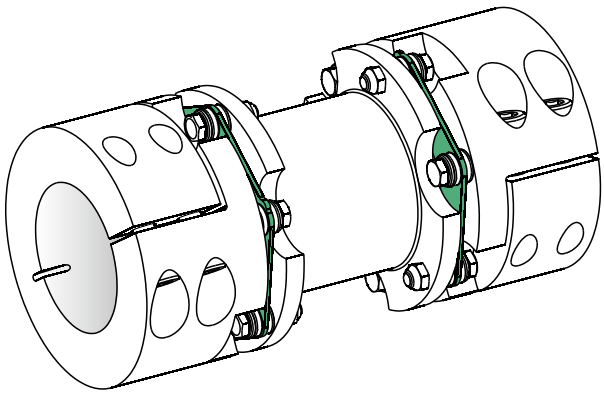


Fig. 16: Type 953.552 (Sleeve 1: H_1, L_4), Type 953.553 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 5 5 __ / __ / __ / __ / __

Sizes 16 to 160													
	Single-jointed coupling	2	Single-jointed coupling	0	**Bore* Hub 1 ø** (Dim. page 16)	**Bore* Hub 2 ø** (Dim. page 16)	**Sleeve length H_s** [mm]	**Operating speed n_s** [rpm]
	Double-jointed coupling	3	Connecting plate	1				
			Sleeve 1	2				
			Sleeve S	3				
			Sleeve GKR (page 52)	4			for special sleeves S / GKR / CFK	
			Sleeve CRP (page 52)	5				

Example: 100 / 952.550 / Hub 1– ø 75 H7 / Hub 2 – ø 90 H7

*Standard H7, other tolerances possible

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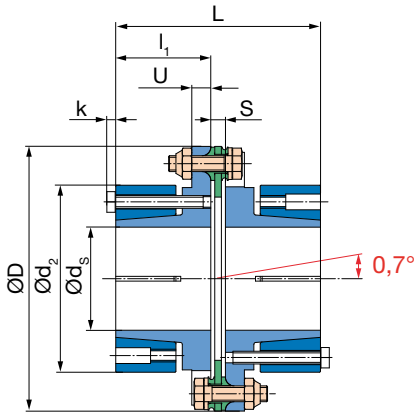
Single-jointed coupling with shrink disk hubs, external clamping



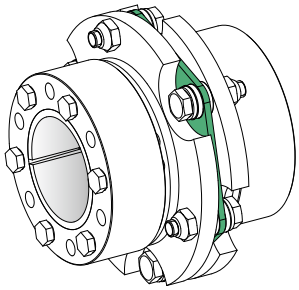


Fig. 17: Type 952.220

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	300	420	650	1100	1600	2600
Peak transient torque [2]			T_{KS}	[Nm]	450	630	975	1650	2400	3900
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore [3]			$d_{S\,min}$	[mm]	14	20	25	30	35	40
Maximum hub bore [3]			$d_{S\,max}$	[mm]	26	36	45	45	55	65
Maximum speed [4]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	0,8	0,9	1,1	1,3	1,5	1,7
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,2	0,2	0,25	0,3	0,3	0,35
		with sleeve 1	ΔK_{rH}	[mm]	0,7	0,8	1	1,25	1,45	1,5
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0122$					
Spring stiffness	torsion [8]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	180	290	320	1350	1900	2950
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [9]			[Nm/rad]	285	305	875	1285	2025	3260

Dimensions [mm]

Size	16	25	40	64	100	160
d_2	53	64	74	84	104	118
d_3	33	41	46	51	66	76
H_1	65	75,6	91,4	112,8	133,2	135,2
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
k	3,5	3,5	3,5	4	5,5	5,5
L	74,6	85	96,1	108	118,6	129,2
L_2	91,2	102	116,2	134	145,2	160,4
L_4	135	155,6	181,4	212,8	243,2	255,2
L_6	dependent on H_S					
l_1	35	40	45	50	55	60
S	4,6	5	6,1	8	8,6	9,2
U	7	7	8	10	10	12
U_1	21,2	22	26,2	34	35,2	40,4

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,13	0,30	0,81	1,36	3,43
Hub [11]	0,27	0,57	1,15	2,46	5,59	11,14
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

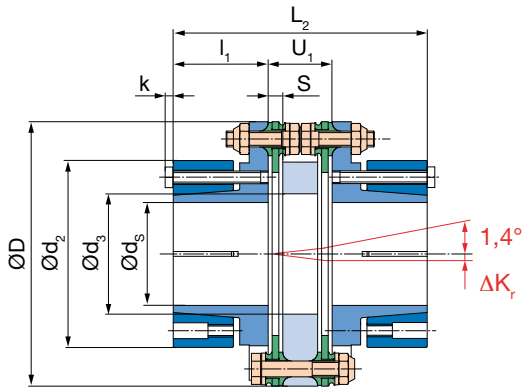
Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,09	0,16	0,32	0,39	0,71
Hub [11]	0,49	0,71	1,03	1,71	2,73	3,99
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 56.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for 1 disk pack.

Double-jointed coupling with connecting plate and shrink disk hubs, external clamping



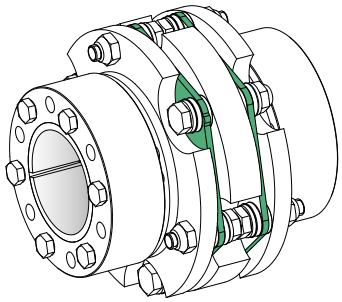
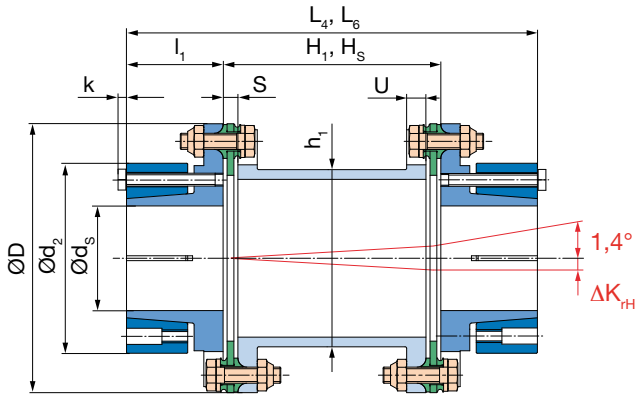


Fig. 18: Type 953.221

Double-jointed coupling with sleeve 1 or sleeve S (special length) and shrink disk hubs, external clamping



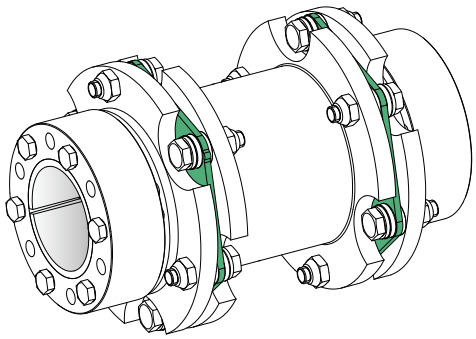


Fig. 19: Type 953.222 (Sleeve 1: H_1, L_4), Type 953.223 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 2 2 __ / __ / __ / __ / __

Sizes 16 to 160									
	Single-jointed coupling	2	Single-jointed coupling	0	**Bore* Hub 1 ø** (Dim. page18)	**Bore* Hub 2 ø** (Dim. page 18)	**Sleeve length H_S** [mm]	**Operating speed n_S** [rpm]
	Double-jointed coupling	3	Connecting plate	1				
			Sleeve 1	2				
			Sleeve S	3			for special sleeves S / GKR /CRP	
			Sleeve GKR (page 52)	4				
			Sleeve CRP (page 52)	5				

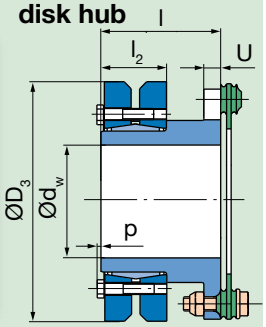
Example: 40 / 953.221 / Hub 1 – ø 30 H7 / Hub 2 – ø 30 H7

*Standard H7, other tolerances possible

Additional Option:

Size	d_w	D_3	l	l_2	p
16	28/30	72	40	27,5	2,5
	32	75	40	28,5	3,5
25	32/35	80	45	29,5	-
	38/40/42	90	45	31,5	1,5
40	42/45/48	100	55	34,5	-
64	50/55/60	115	65	34,5	-
100	55/60/65	138	75	38	-
160	65/70/75	155	85	44,5	-

External shrink disk hub



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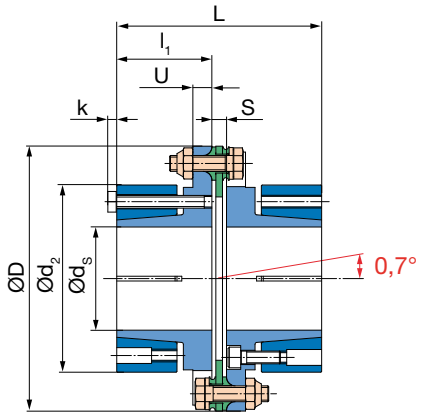
Single-jointed coupling with shrink disk hubs, external clamping and internal clamping



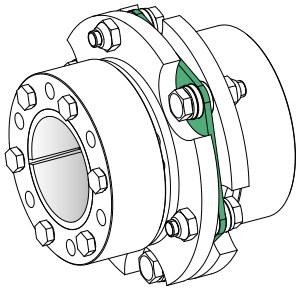


Fig. 20: Type 952.230

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	300	420	650	1100	1600	2600
Peak transient torque [2]			T_{KS}	[Nm]	450	630	975	1650	2400	3900
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore [3]			$d_{S\,min}$	[mm]	14	20	25	30	35	40
Maximum hub bore [3]			$d_{S\,max}$	[mm]	26	36	45	45	55	65
Maximum speed [4]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	0,8	0,9	1,1	1,3	1,5	1,7
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,2	0,2	0,25	0,3	0,3	0,35
		with sleeve 1	ΔK_{rH}	[mm]	0,7	0,8	1	1,25	1,45	1,5
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0122$					
Spring stiffness	torsion [8]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	180	290	320	1350	1900	2950
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [9]			[Nm/rad]	285	305	875	1285	2025	3260

Dimensions [mm]

Size	16	25	40	64	100	160
d_2	53	64	74	84	104	118
d_3	33	41	46	51	66	76
H_1	65	75,6	91,4	112,8	133,2	135,2
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
k	3,5	3,5	3,5	4	5,5	5,5
L	74,6	85	96,1	108	118,6	129,2
L_2	91,2	102	116,2	134	145,2	160,4
L_4	135	155,6	181,4	212,8	243,2	255,2
L_6	dependent on H_S					
l_1	35	40	45	50	55	60
S	4,6	5	6,1	8	8,6	9,2
U	7	7	8	10	10	12
U_1	21,2	22	26,2	34	35,2	40,4

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,13	0,30	0,81	1,36	3,43
Hub [11]	0,27	0,57	1,15	2,46	5,59	11,14
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

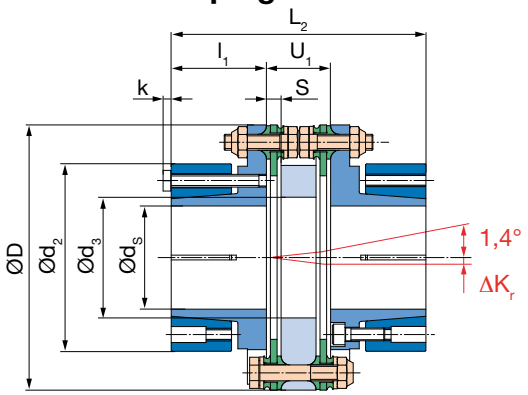
Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,09	0,16	0,32	0,39	0,71
Hub [11]	0,49	0,71	1,03	1,71	2,73	3,99
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 56.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for 1 disk pack.
11) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and shrink disk hubs, external clamping and internal clamping



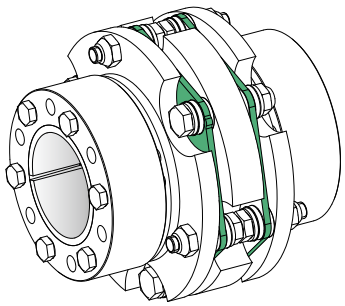
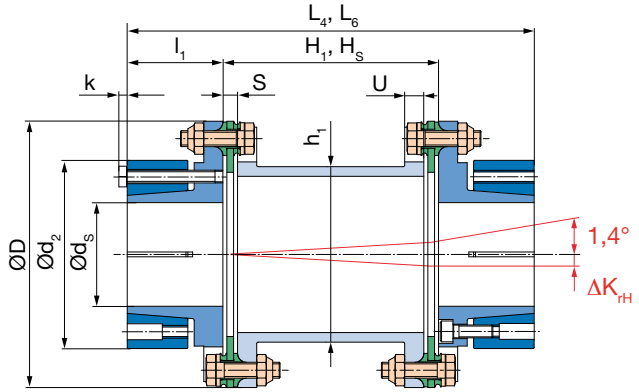


Fig. 21: Type 953.231

Double-jointed coupling with sleeve 1 or sleeve S (special length) and shrink disk hubs, external clamping and internal clamping



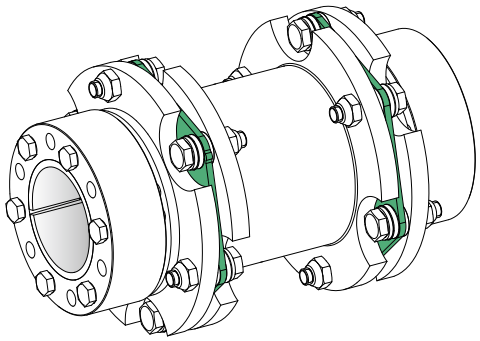


Fig. 22: Type 953.232 (Sleeve 1: H_1, L_4), Type 953.233 (Sleeve S: H_S, L_6)

Order Number

__	/	9	5	__	.	2	3	__	/	__	/	__	/	__	/	__
△				△				△		△		△		△		△

Sizes 16 to 160						**Bore*** Hub 1 ø (Dim. page 20)	**Bore*** Hub 2 ø (Dim. page 20)	**Sleeve length** H_s [mm] for special sleeves S / GKR / CRP	**Operating speed** n_s [rpm]
	Single-jointed coupling	**2**	Single-jointed coupling	**0**					
	Double-jointed coupling	**3**	Connecting plate	**1**					
			Sleeve 1	**2**					
			Sleeve S	**3**					
			Sleeve GKR (page 52)	**4**					
			Sleeve CRP (page 52)	**5**					

Example: 64 / 953.231 / Hub 1 – ø 35 H7 / Hub 2 – ø 40 H7

*Standard H7, other tolerances possible

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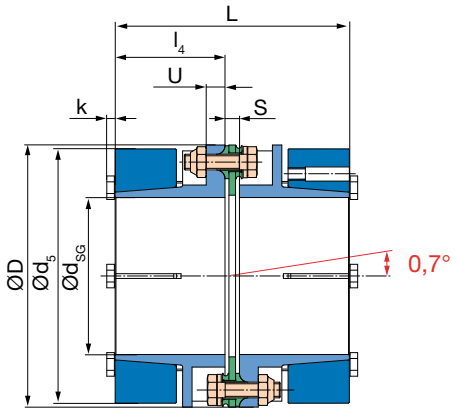
Single-jointed coupling with shrink disk hubs, large



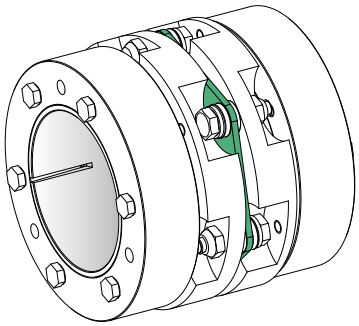


Fig. 23: Type 952.990

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	300	420	650	1100	1600	2600
Peak transient torque [2]			T_{KS}	[Nm]	450	630	975	1650	2400	3900
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore [3]			$d_{SG\ min}$	[mm]	25	32	40	45	55	65
Maximum hub bore [3]			$d_{SG\ max}$	[mm]	45	52	60	70	90	100
Maximum speed [4]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	0,8	0,9	1,1	1,3	1,5	1,7
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,2	0,2	0,25	0,3	0,3	0,35
		with sleeve 1	ΔK_{rH}	[mm]	0,7	0,8	1	1,25	1,45	1,5
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0122$					
Spring stiffness	torsion [8]	disk pack	$C_{T\ LP}$	[10^3 Nm/rad]	180	290	320	1350	1900	2950
		tube sleeve S	$C_{T\ H\ rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [9]			[Nm/rad]	285	305	875	1285	2025	3260

Dimensions [mm]

Size	16	25	40	64	100	160
d_3	33	41	46	51	66	76
d_5	77	82	100	115	143	162
H_1	65	75,6	91,4	112,8	133,2	135,2
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
k	3,5	3,5	3,5	4	5,5	5,5
L	84,6	95	106,1	118	128,6	149,2
L_2	101,2	112	126,2	144	155,2	180,4
L_4	145	165,6	191,4	222,8	253,2	275,2
L_6	dependent on H_S					
l_4	40	45	50	55	60	70
S	4,6	5	6,1	8	8,6	9,2
U	7	7	8	10	10	12
U_1	21,2	22	26,2	34	35,2	40,4

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,13	0,30	0,81	1,36	3,43
Hub [11]	0,78	1,23	2,88	5,81	13,77	27,35
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

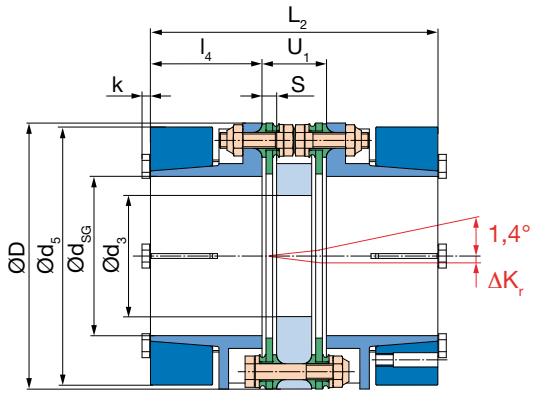
Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,09	0,16	0,32	0,39	0,71
Hub [11]	0,79	1,02	1,71	2,53	3,92	6,08
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 56.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\ tot.} = \frac{1}{\frac{2}{C_{T\ LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\ Hrel.}}}$$

9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for 1 disk pack.
11) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and shrink disk hubs, large



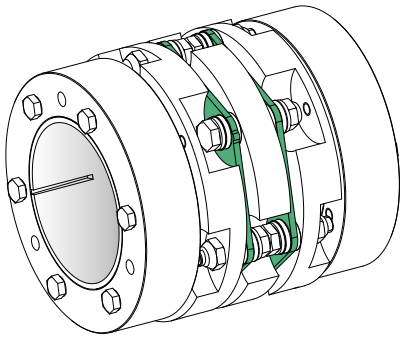
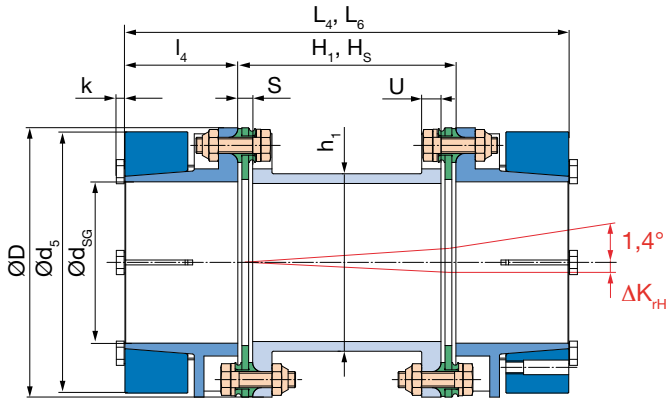


Fig. 24: Type 953.991

Double-jointed coupling with sleeve 1 or sleeve S (special length) and shrink disk hubs, large



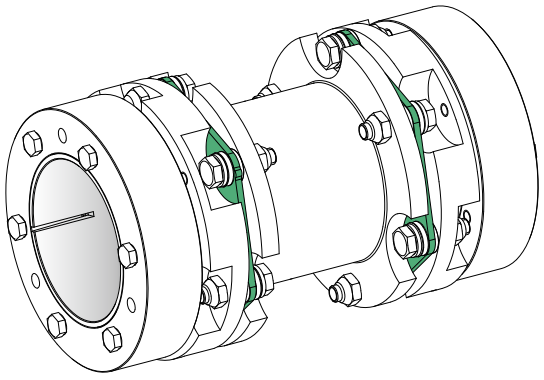


Fig. 25: Type 953.992 (Sleeve 1: H_1, L_4), Type 953.993 (Sleeve S: H_S, L_6)

Order Number

__	/	9	5	__	.	9	9	__	/	__	/	__	/	__	/	__
△				△				△		△		△		△		△

Sizes 16 to 160	Single-jointed coupling Double-jointed coupling	**2** **3**	Single-jointed coupling Connecting plate Sleeve 1 Sleeve S Sleeve GKR (page 52) Sleeve CRP (page 52)	**0** **1** **2** **3** **4** **5**	**Bore* Hub 1 ø** (Dim. page 22)	**Bore* Hub 2 ø** (Dim. page 22)	**Sleeve length H_s** [mm]	**Operating speed n_s** [rpm]
							for special sleeves S / GKR /CRP	

Example: 16 / 953.991 / Hub 1 – ø 35 H7 / Hub 2 – ø 35 H7

*Standard H7, other tolerances possible

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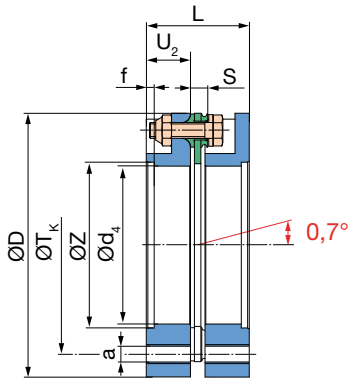
Single-jointed coupling with flanges



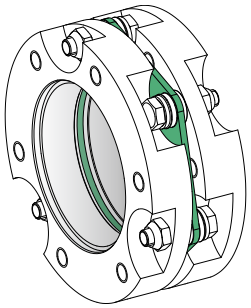


Fig. 26: Type 952.660

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	300	420	650	1100	1600	2600
Peak transient torque [2]			T_{KS}	[Nm]	450	630	975	1650	2400	3900
Outer diameter			D	[mm]	77	89	104	123	143	167
Centering bore			Z^{H7}	[mm]	45	55	65	75	92	105
Maximum speed [3]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignements [4]	permitted axial misalignment [5] [6]		ΔK_a	[mm]	0,8	0,9	1,1	1,3	1,5	1,7
	permitted radial misalignment [5]	with connecting plate	ΔK_r	[mm]	0,2	0,2	0,25	0,3	0,3	0,35
		with sleeve 1	ΔK_{rH}	[mm]	0,7	0,8	1	1,25	1,45	1,5
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0122$					
Spring stiffness	torsion [7]	disk pack	$C_{T\ LP}$	[10^3 Nm/rad]	180	290	320	1350	1900	2950
		tube sleeve S	$C_{T\ H\ rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [8]			[Nm/rad]	285	305	875	1285	2025	3260

Dimensions [mm]

Size	16	25	40	64	100	160
a	6 x M8	6 x M8	6 x M10	6 x M10	6 x M12	6 x M14
d_3	33	41	46	51	66	76
d_4	40	50	60	70	85	100
f	4	4	4	5	5	5
H_1	65	75,6	91,4	112,8	133,2	135,2
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L	34,6	35	42,1	48	48,6	65,2
L_2	51,2	52	62,2	74	75,2	96,4
L_4	95	105,6	127,4	152,8	173,2	191,2
L_6	dependent on H_S					
S	4,6	5	6,1	8	8,6	9,2
T_K	62	75	86	103	116	140
U	7	7	8	10	10	12
U_1	21,2	22	26,2	34	35,2	40,4
U_2	15	15	18	20	20	28

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,13	0,30	0,81	1,36	3,43
Flange	0,23	0,43	0,89	1,95	3,87	9,48
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

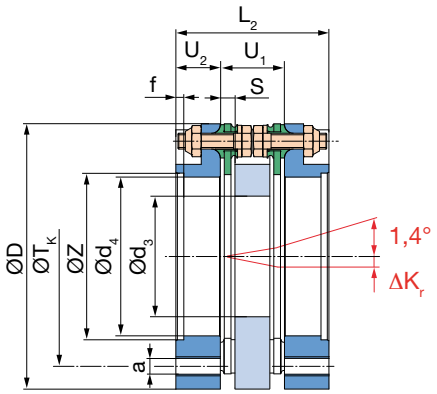
Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,09	0,16	0,32	0,39	0,71
Flange	0,26	0,34	0,52	0,82	1,16	2,10
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.
7) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\ tot} = \frac{1}{\frac{2}{C_{T\ LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\ Hrel.}}}$$

8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.

Double-jointed coupling with connecting plate and flanges



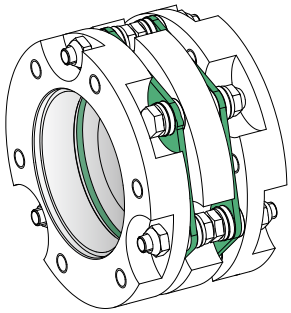
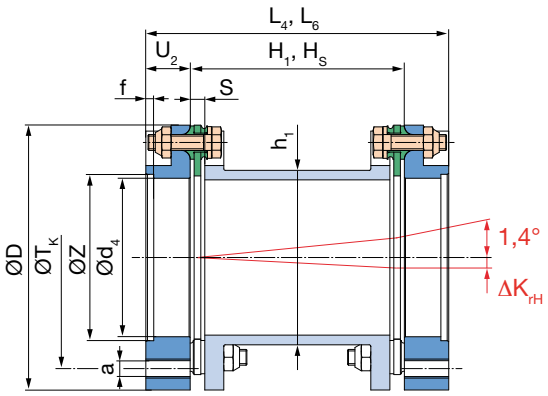


Fig. 27: Type 953.661

Double-jointed coupling with sleeve 1 or sleeve S (special length) and flanges



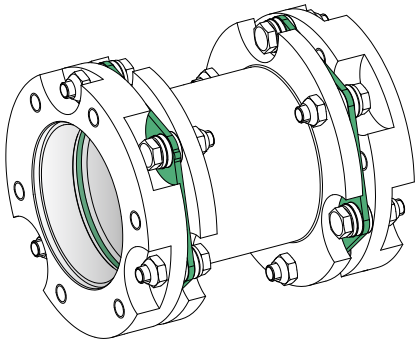


Fig. 28: Type 953.662 (Sleeve 1: H_1, L_4), Type 953.663 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 6 6 __ / __ / __						
Sizes 16 to 160	Single-jointed coupling Double-jointed coupling	**2** **3**	Single-jointed coupling Connecting plate Sleeve 1 Sleeve S Sleeve GKR (page 52) Sleeve CRP (page 52)	**0** **1** **2** **3** **4** **5**	**Sleeve length H_s** [mm] for special sleeves S / GKR /CRP	**Operating speed n_s** [rpm]

Example: 40 / 953.661

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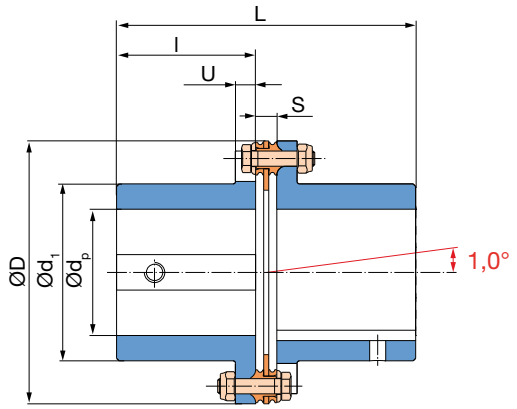
Single-jointed coupling with key hubs



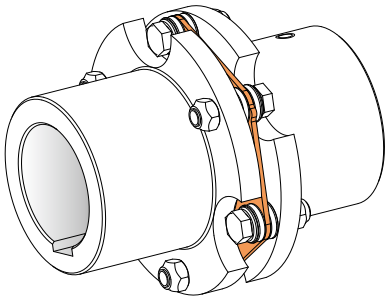


Fig. 29: Type 950.000

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	190	290	450	720	1000	1600
Peak transient torque [2]			T_{KS}	[Nm]	285	435	675	1080	1500	2400
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore			$d_{p\,min}$	[mm]	16	20	25	30	35	40
Maximum hub bore			$d_{p\,max}$	[mm]	32	40	50	55	70	80
Maximum speed [3]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [4]	permitted axial misalignment [5] [6]		ΔK_a	[mm]	1,1	1,3	1,5	1,8	2,1	2,5
	permitted radial misalignment [5]	with connecting plate	ΔK_r	[mm]	0,3	0,3	0,4	0,45	0,45	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,0	1,2	1,5	1,8	2,1	2,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$					
Spring stiffness	torsion [7]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	145	280	301	748	1135	1920
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [8]			[Nm/rad]	229	248	298	876	1089	1990

Dimensions [mm]

Size	16	25	40	64	100	160
d_1	50	60	70	80	100	115
d_3	33	41	46	51	66	76
H_1	70	80	96	116	136	140
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L	87,1	97,2	118,4	139,6	160	181,6
L_2	106,2	116,4	140,8	167,2	188	215,2
L_4	150	170	206	246	286	310
L_6	dependent on H_S					
l	40	45	55	65	75	85
S	7,1	7,2	8,4	9,6	10	11,6
U	7	7	8	10	10	12
U_1	26,2	26,4	30,8	37,2	38	45,2

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,12	0,26	0,74	1,19	3,27
Hub [10]	0,27	0,55	1,16	2,58	6,18	12,51
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

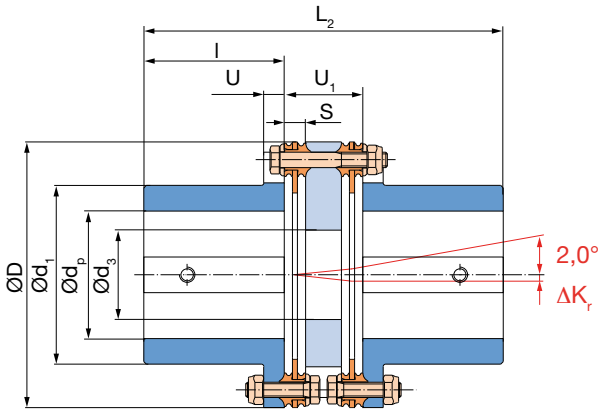
Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,09	0,15	0,29	0,35	0,67
Hub [10]	0,46	0,69	1,02	1,72	2,83	4,25
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.
7) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.
10) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and key hubs



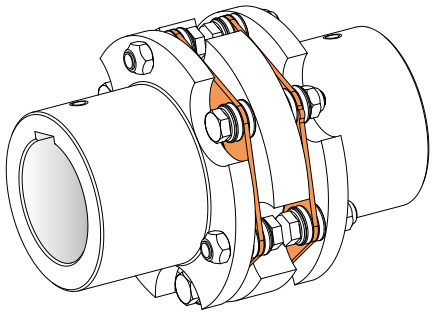
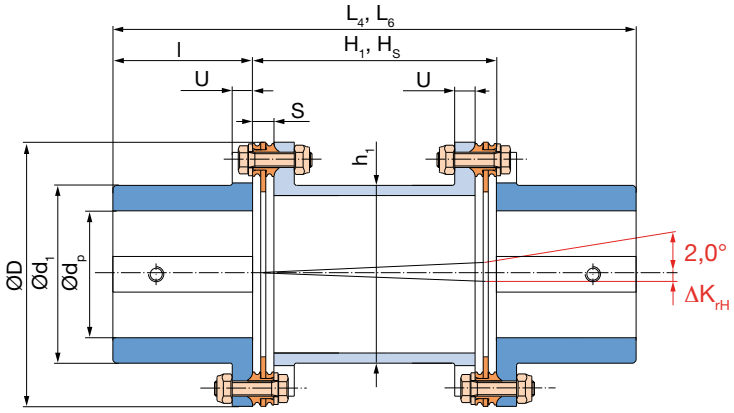


Fig. 30: Type 951.001

Double-jointed coupling with sleeve 1 or sleeve S (special length) and key hubs



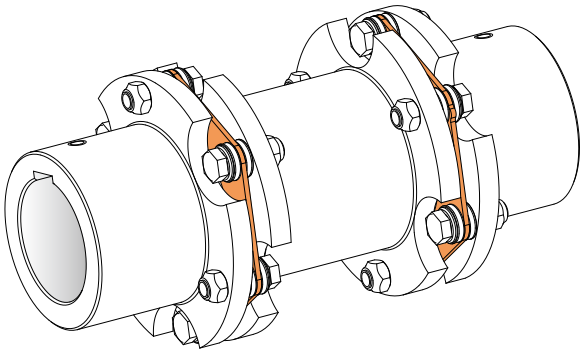


Fig. 31: Type 951.002 (Sleeve 1: H_1, L_4), Type 951.003 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 0 0 __ / __ / __ / __ / __

Sizes 16 to 160								
	Single-jointed coupling Double-jointed coupling	0 1	Single-jointed coupling Connecting plate Sleeve 1 Sleeve S Sleeve GKR (page 52) Sleeve CRP (page 52)	0 1 2 3 4 5	**Bore* Hub 1 ø** (Dim. page 26)	**Bore* Hub 2 ø** (Dim. page 26)	**Sleeve length H_s** [mm] for special sleeves S / GKR /CRP	**Operating speed n_s** [rpm]

Example: 16 / 951.001 / Hub 1 – ø 25 H7 / Hub 2 – ø 25 H7

*Standard H7, other tolerances possible

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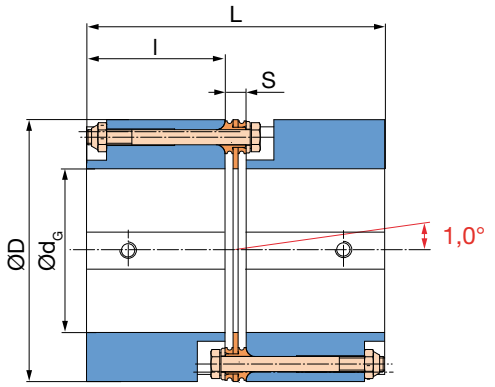
Single-jointed coupling with key hubs, large



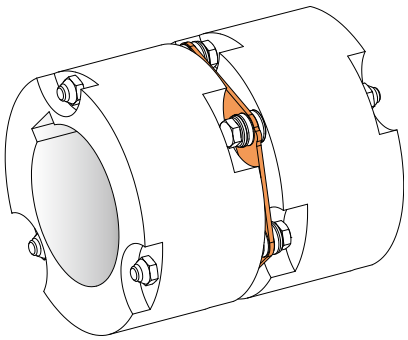


Fig. 32: Type 950.110

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	190	290	450	720	1000	1600
Peak transient torque [2]			T_{KS}	[Nm]	285	435	675	1080	1500	2400
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore			$d_{G\,min}$	[mm]	30	35	45	55	65	75
Maximum hub bore			$d_{G\,max}$	[mm]	45	55	65	75	95	110
Maximum speed [3]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [4]	permitted axial misalignment [5] [6]		ΔK_a	[mm]	1,1	1,3	1,5	1,8	2,1	2,5
	permitted radial misalignment [5]	with connecting plate	ΔK_r	[mm]	0,3	0,3	0,4	0,45	0,45	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,0	1,2	1,5	1,8	2,1	2,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$					
Spring stiffness	torsion [7]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	145	280	301	748	1135	1920
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [8]			[Nm/rad]	229	248	298	876	1089	1990

Dimensions [mm]

Size	16	25	40	64	100	160
d_3	33	41	46	51	66	76
H_1	70	80	96	116	136	140
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L	87,1	97,2	118,4	139,6	160	181,6
L_2	106,2	116,4	140,8	167,2	188	215,2
L_4	150	170	206	246	286	310
L_6	dependent on H_S					
l	40	45	55	65	75	85
S	7,1	7,2	8,4	9,6	10	11,6
U	7	7	8	10	10	12
U_1	26,2	26,4	30,8	37,2	38	45,2

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,12	0,26	0,74	1,19	3,27
Hub [10]	0,86	1,71	3,89	8,98	18,12	36,00
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

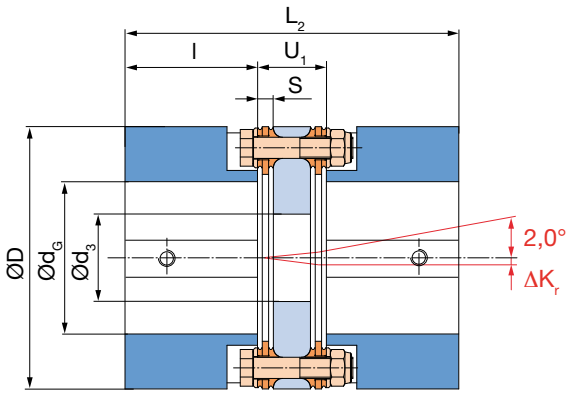
Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,09	0,15	0,29	0,35	0,67
Hub [10]	0,87	1,26	2,08	3,47	4,94	7,23
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.
7) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.
10) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and key hubs, large



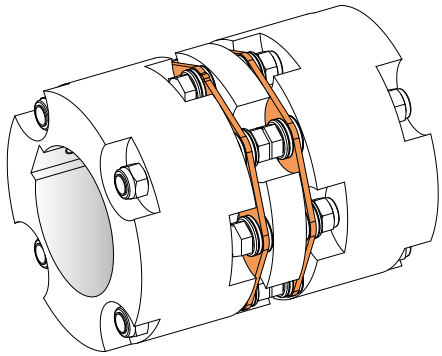
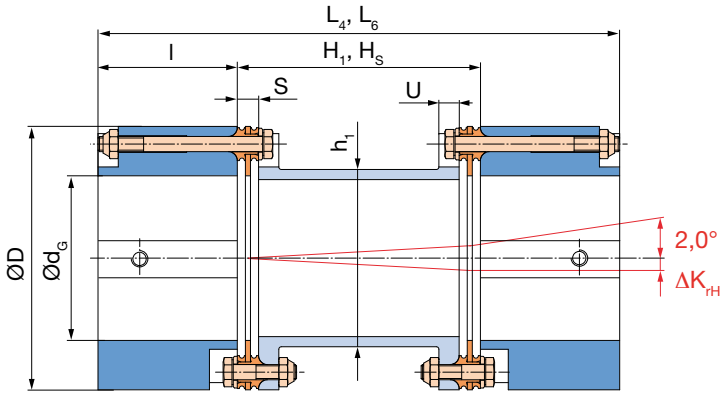


Fig. 33: Type 951.111

Double-jointed coupling with sleeve 1 or sleeve S (special length) and key hubs, large



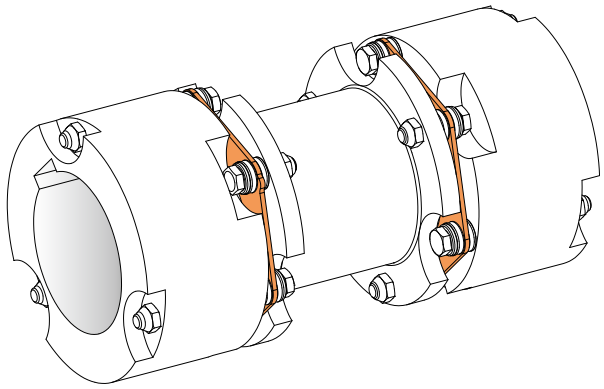


Fig. 34: Type 951.112 (Sleeve 1: H_1, L_4), Type 951.113 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 1 1 __ / __ / __ / __ / __

Sizes 16 to 160													
	Single-jointed coupling Double-jointed coupling	0 1		Single-jointed coupling Connecting plate Sleeve 1 Sleeve S Sleeve GKR (page 52) Sleeve CRP (page 52)	0 1 2 3 4 5	**Bore* Hub 1 ø** (Dim. page 28)	**Bore* Hub 2 ø** (Dim. page 28)	**Sleeve length H_S** [mm] for special sleeves S / GKR /CRP	**Operating speed n_S** [rpm]

Example: 25 / 950.110 / Hub 1 – ø 45 H7 / Hub 2 – ø 45 H7

*Standard H7, other tolerances possible

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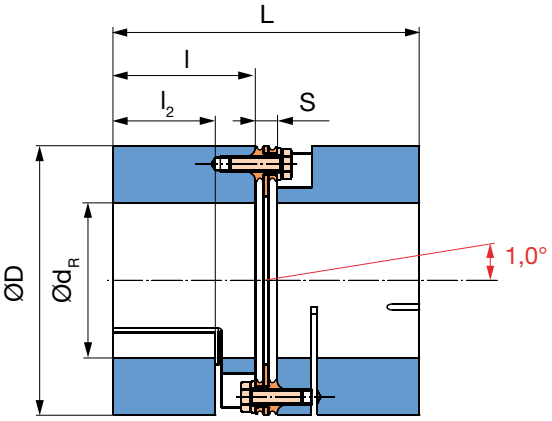
Single-jointed coupling with clamping hubs



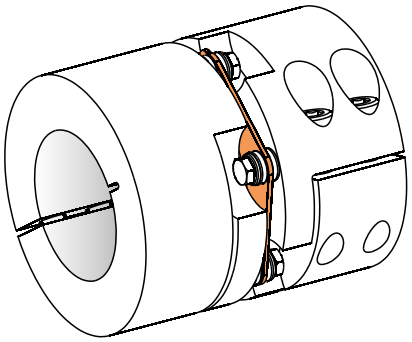


Fig. 35: Type 950.550

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	190	290	450	720	1000	1600
Peak transient torque [2]			T_{KS}	[Nm]	285	435	675	1080	1500	2400
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore [3]			$d_{R\,min}$	[mm]	20	22	25	28	32	40
Maximum hub bore [3]			$d_{R\,max}$	[mm]	48	55	60	70	95	110
Maximum speed [4]			n_{max}	[rpm]	9500	8200	7000	6000	5100	4300
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	1,1	1,3	1,5	1,8	2,1	2,5
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,3	0,3	0,4	0,45	0,45	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,0	1,2	1,5	1,8	2,1	2,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$					
Spring stiffness	torsion [8]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	145	280	301	748	1135	1920
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [9]			[Nm/rad]	229	248	298	876	1089	1990

Dimensions [mm]

Size	16	25	40	64	100	160
d_3	33	41	46	51	66	76
H_1	70	80	96	116	136	140
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L	87,1	97,2	118,4	139,6	160	181,6
L_2	106,2	116,4	140,8	167,2	188	216,2
L_4	150	170	206	246	286	310
L_6	dependent on H_S					
l	40	45	55	65	75	85
l_2	27	32,5	39,4	44,6	54,6	59
S	7,1	7,2	8,4	9,6	10	11,6
U	7	7	8	10	10	12
U_1	26,2	26,4	30,8	37,2	38	45,2

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,12	0,26	0,74	1,19	3,27
Hub [11]	0,74	1,49	3,64	8,42	16,94	34,32
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

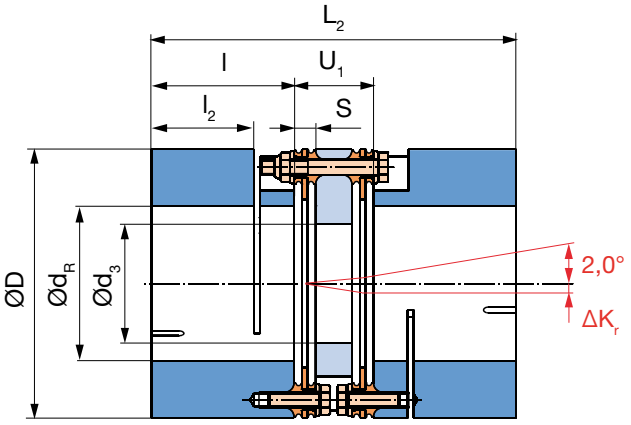
Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,09	0,15	0,29	0,35	0,67
Hub [11]	0,73	1,11	2,05	3,43	4,82	6,94
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 57.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,ges.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for 1 disk pack.
11) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and clamping hubs



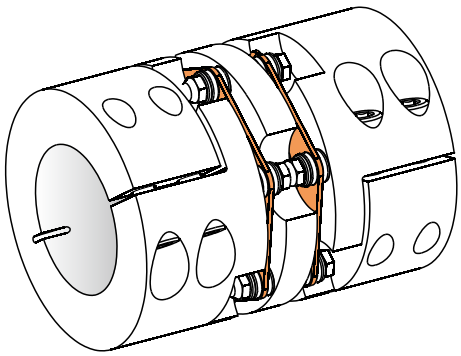
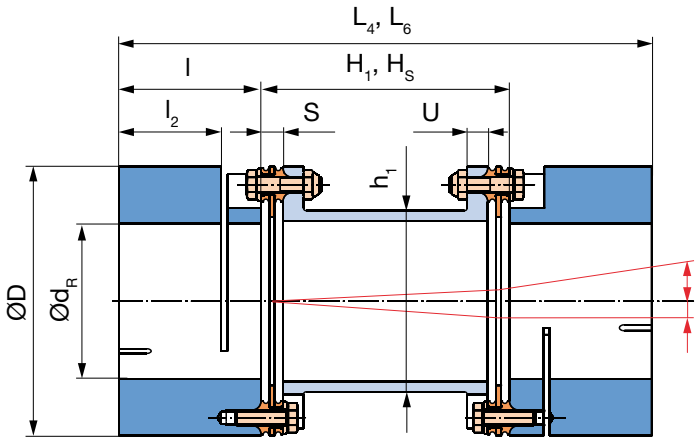


Fig. 36: Type 951.551

Double-jointed coupling with sleeve 1 or sleeve S (special length) and clamping hubs



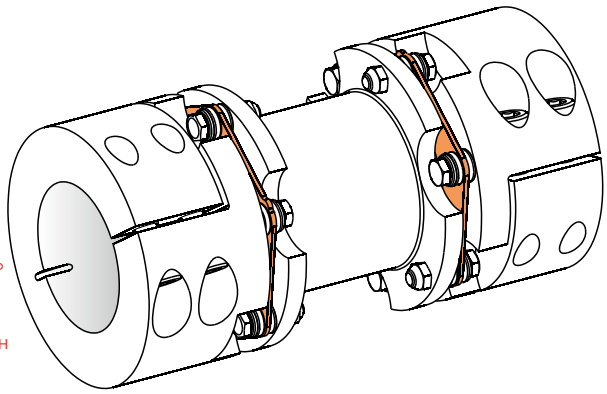


Fig. 37: Type 951.552 (Sleeve 1: H_1, L_4), Type 951.553 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 5 5 __ / __ / __ / __ / __

Sizes 16 to 160	Single-jointed coupling / Double-jointed coupling	0 / 1

Single-jointed coupling	0
Connecting plate	1
Sleeve 1	2
Sleeve S	3
Sleeve GKR (page 52)	4
Sleeve CRP (page 52)	5

Bore* Hub 1 ø (Dim. page 30)	Bore* Hub 2 ø (Dim. page 30)	Sleeve length H_s [mm] for special sleeves S / GKR / CFK	Operating speed n_s [rpm]

Example: 16 / 951.551 / Hub 1 – ø 45 H7 / Hub 2 – ø 45 H7

*Standard H7, other tolerances possible

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Single-jointed coupling with clamping ring hubs

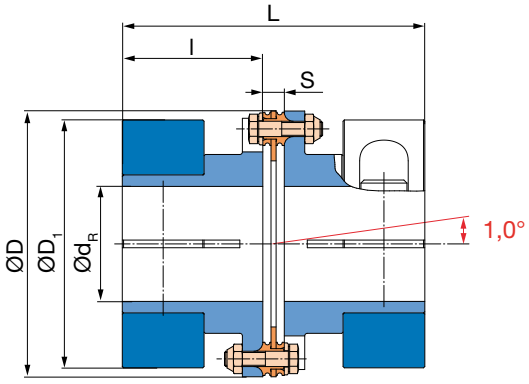
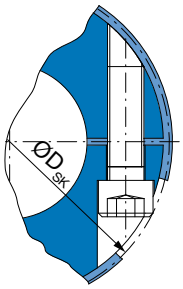
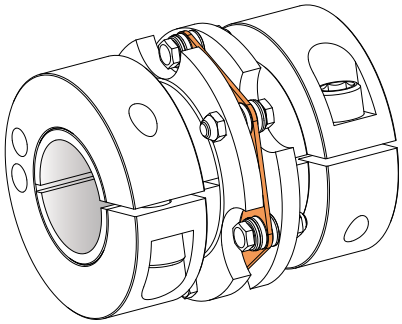


Fig. 38: Type 950.440



rotation circle diameter $ØD_{SK}$ of the clamping screws



Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	190	290	450	720	1000	1600
Peak transient torque [2]			T_{KS}	[Nm]	285	435	675	1080	1500	2400
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore [3]			$d_{R\,min}$	[mm]	20	22	25	28	32	40
Maximum hub bore [3]			$d_{R\,max}$	[mm]	35	40	45	55	68	80
Maximum speed [4]			n_{max}	[rpm]	9500	8200	7000	6000	5100	4300
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	1,1	1,3	1,5	1,8	2,1	2,5
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,3	0,3	0,4	0,45	0,45	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,0	1,2	1,5	1,8	2,1	2,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$					
Spring stiffness	torsion [8]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	145	280	301	748	1135	1920
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [9]			[Nm/rad]	229	248	298	876	1089	1990

Dimensions [mm]

Size	16	25	40	64	100	160
D_1	73	84	97	115	135	158
D_{SK}	77	89	103	122	143	167
d_3	33	41	46	51	66	76
H_1	70	80	96	116	136	140
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L	87,1	97,2	118,4	139,6	160	181,6
L_2	106,2	116,4	140,8	167,2	188	215,2
L_4	150	170	206	246	286	310
L_6	dependent on H_S					
l	40	45	55	65	75	85
S	7,1	7,2	8,4	9,6	10	11,6
U	7	7	8	10	10	12
U_1	26,2	26,4	30,8	37,2	38	45,2

Mass moments of Inertia J [10^{-3} kgm²]

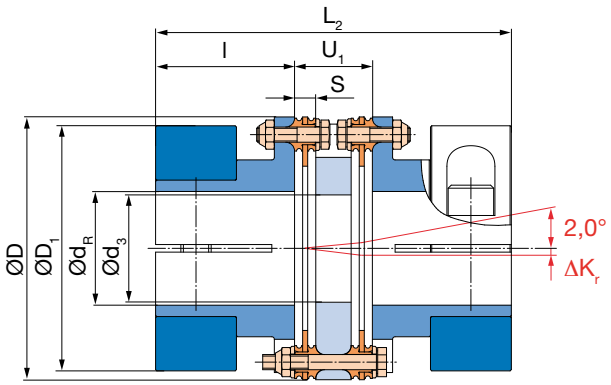
Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,12	0,26	0,74	1,19	3,27
Hub [11]	0,63	1,29	2,84	6,3	13,49	28,71
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,09	0,15	0,29	0,35	0,67
Hub [11]	0,76	1,20	2,00	3,17	4,90	7,61
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 57.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The C_T-value of a double-jointed coupling can be roughly calculated as follows: $C_{T\,tot.} = \dfrac{1}{\dfrac{2}{C_{T\,LP}} + \dfrac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$
9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for 1 disk pack.
11) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and clamping ring hubs



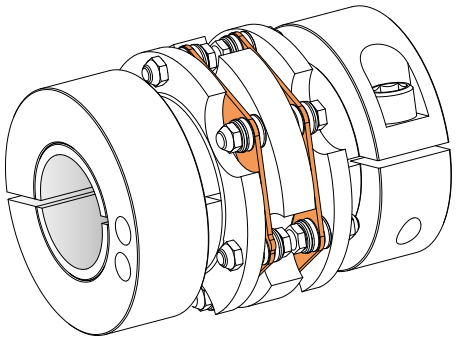
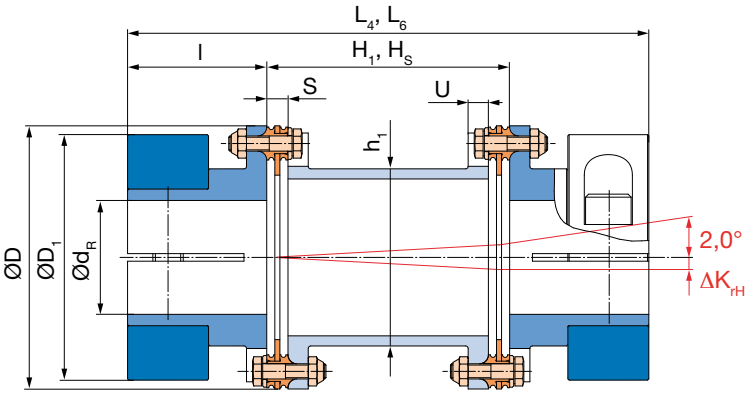


Fig. 39: Type 951.441

Double-jointed coupling with sleeve 1 or sleeve S (special length) and clamping ring hubs



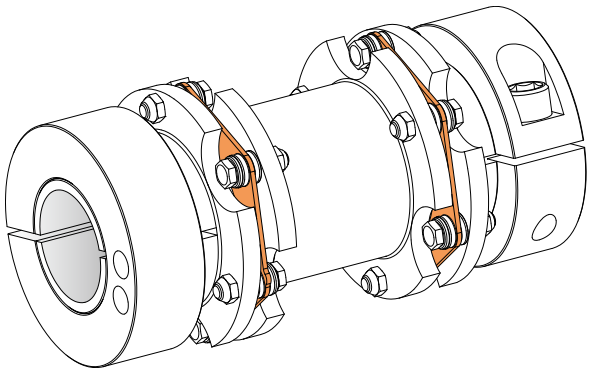


Fig. 40: Type 951.442 (Sleeve 1: H_1, L_4), Type 951.443 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 4 4	__ /	__ /	__ /	__ /	__
Sizes 16 to 160	**0** Single-jointed coupling **1** Double-jointed coupling	**0** Single-jointed coupling **1** Connecting plate **2** Sleeve 1 **3** Sleeve S **4** Sleeve GKR (page 52) **5** Sleeve CRP (page 52)	**Bore* Hub 1 ø** (Dim. page 32)	**Bore* Hub 2 ø** (Dim. page 32)	**Sleeve length H_s** [mm] for special sleeves S / GKR /CRP	**Operating speed n_s** [rpm]

Example: 16 / 951.441 / Hub 1 – ø 25 ^{H7} / Hub 2 – ø 25 ^{H7}

*Standard H7, other tolerances possible

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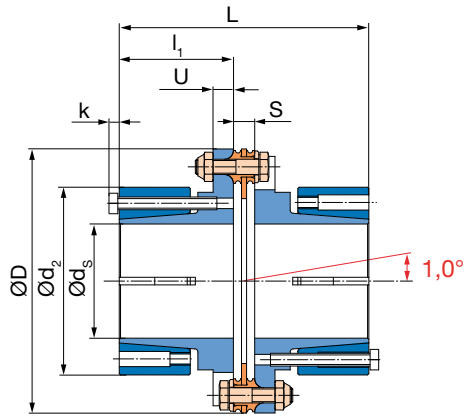
Single-jointed coupling with shrink disk hubs, external clamping



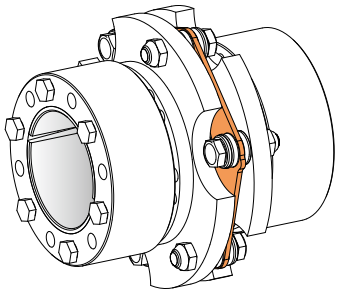


Fig. 41: Type 950.220

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	190	290	450	720	1000	1600
Peak transient torque [2]			T_{KS}	[Nm]	285	435	675	1080	1500	2400
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore [3]			$d_{S\,min}$	[mm]	14	20	25	30	35	40
Maximum hub bore [3]			$d_{S\,max}$	[mm]	26	36	45	45	55	65
Maximum speed [4]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	1,1	1,3	1,5	1,8	2,1	2,5
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,3	0,3	0,4	0,45	0,45	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,0	1,2	1,5	1,8	2,1	2,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$					
Spring stiffness	torsion [8]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	145	280	301	748	1135	1920
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [9]			[Nm/rad]	229	248	298	876	1089	1990

Dimensions [mm]

Size	16	25	40	64	100	160
d_2	53	64	74	84	104	118
d_3	33	41	46	51	66	76
H_1	70	80	96	116	136	140
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
k	3,5	3,5	3,5	4	5,5	5,5
L	77,1	87,2	98,4	109,6	120	131,6
L_2	96,2	106,4	120,8	137,2	148	165,2
L_4	140	160	186	216	246	260
L_6	dependent on H_S					
l_1	35	40	45	50	55	60
S	7,1	7,2	8,4	9,6	10	11,6
U	7	7	8	10	10	12
U_1	26,2	26,4	30,8	37,2	38	45,2

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,12	0,26	0,74	1,19	3,27
Hub [11]	0,27	0,57	1,15	2,46	5,59	11,14
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

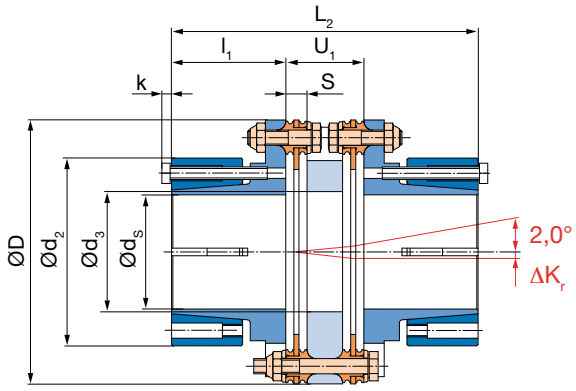
Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,09	0,15	0,29	0,35	0,67
Hub [11]	0,49	0,71	1,03	1,71	2,73	3,99
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 56.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for 1 disk pack.
11) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and shrink disk hubs, external clamping



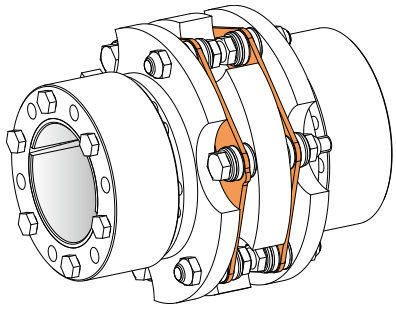
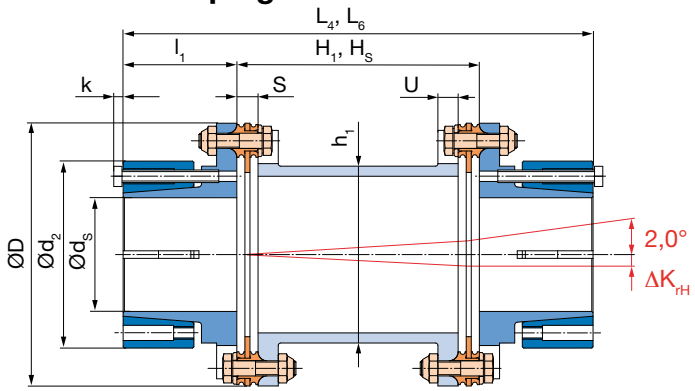


Fig. 42: Type 951.221

Double-jointed coupling with sleeve 1 or sleeve S (special length) and shrink disk hubs, external clamping



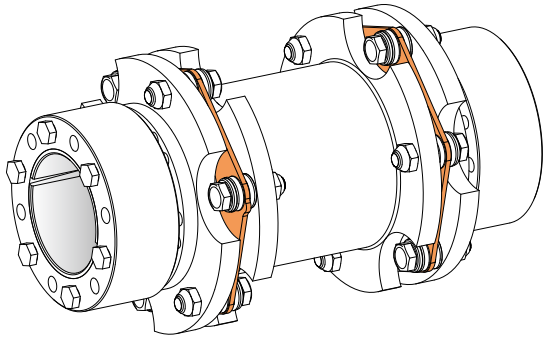


Fig. 43: Type 951.222 (Sleeve 1: H_1, L_4), Type 951.223 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 2 2 __ / __ / __ / __ / __

Sizes 16 to 160								
	Single-jointed coupling	0	Single-jointed coupling	0	**Bore* Hub 1 ø** (Dim. page 34)	**Bore* Hub 2 ø** (Dim. page 34)	**Sleeve length H_S** [mm]	**Operating speed n_S** [rpm]
	Double-jointed coupling	1	Connecting plate	1			for special sleeves S / GKR /CRP	
			Sleeve 1	2				
			Sleeve S	3				
			Sleeve GKR (page 52)	4				
			Sleeve CRP (page 52)	5				

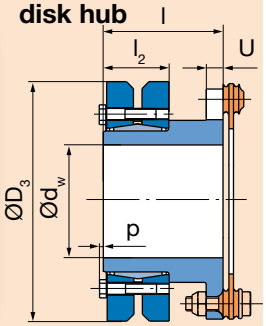
Example: 100 / 951.221 / Hub 1 – ø 45 H7 / Hub 2 – ø 45 H7

*Standard H7, other tolerances possible

Additional Option:

Size	d_w	D_3	l	l_2	p
16	24/25	60	40	25	-
	28/30	72	40	27,5	2,5
25	32/35	80	45	29,5	-
	38/40/42	90	45	31,5	1,5
40	42/45/48	100	55	34,5	-
64	50/55/60	115	65	34,5	-
100	55/60/65	138	75	38	-
160	65/70/75	155	85	44,5	-

External shrink disk hub



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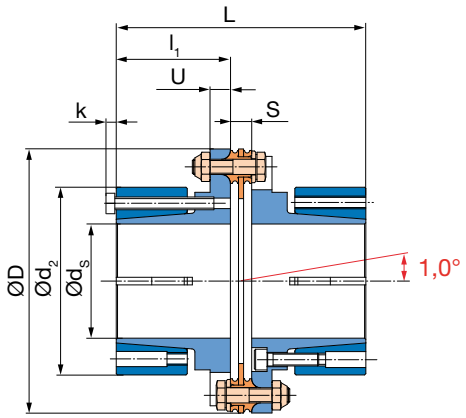
Single-jointed coupling with shrink disk hubs, external clamping and internal clamping



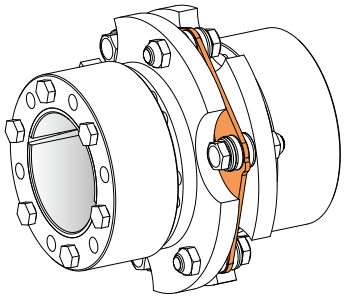


Fig. 44: Type 950.230

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	190	290	450	720	1000	1600
Peak transient torque [2]			T_{KS}	[Nm]	285	435	675	1080	1500	2400
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore [3]			$d_{S\,min}$	[mm]	14	20	25	30	35	40
Maximum hub bore [3]			$d_{S\,max}$	[mm]	26	36	45	45	55	65
Maximum speed [4]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	1,1	1,3	1,5	1,8	2,1	2,5
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,3	0,3	0,4	0,45	0,45	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,0	1,2	1,5	1,8	2,1	2,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$					
Spring stiffness	torsion [8]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	145	280	301	748	1135	1920
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [9]			[Nm/rad]	229	248	298	876	1089	1990

Dimensions [mm]

Size	16	25	40	64	100	160
d_2	53	64	74	84	104	118
d_3	33	41	46	51	66	76
H_1	70	80	96	116	136	140
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
k	3,5	3,5	3,5	4	5,5	5,5
L	77,1	87,2	98,4	109,6	120	131,6
L_2	96,2	106,4	120,8	137,2	148	165,2
L_4	140	160	186	216	246	260
L_6	dependent on H_S					
l_1	35	40	45	50	55	60
S	7,1	7,2	8,4	9,6	10	11,6
U	7	7	8	10	10	12
U_1	26,2	26,4	30,8	37,2	38	45,2

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,12	0,26	0,74	1,19	3,27
Hub [11]	0,27	0,57	1,15	2,46	5,59	11,14
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

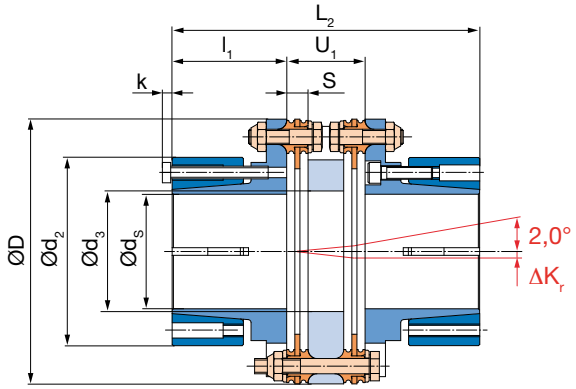
Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,09	0,15	0,29	0,35	0,67
Hub [11]	0,49	0,71	1,03	1,71	2,73	3,99
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 56.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for 1 disk pack.
11) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and shrink disk hubs, external clamping and internal clamping



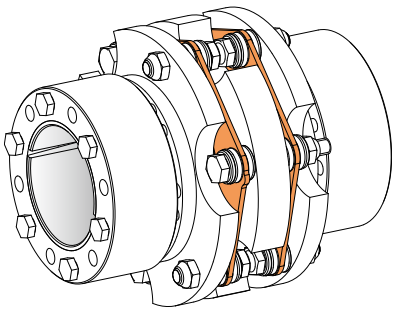
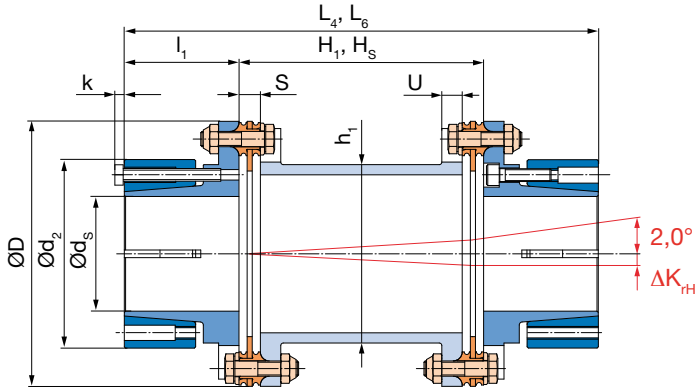


Fig. 45: Type 951.231

Double-jointed coupling with sleeve 1 or sleeve S (special length) and shrink disk hubs, external clamping and internal clamping



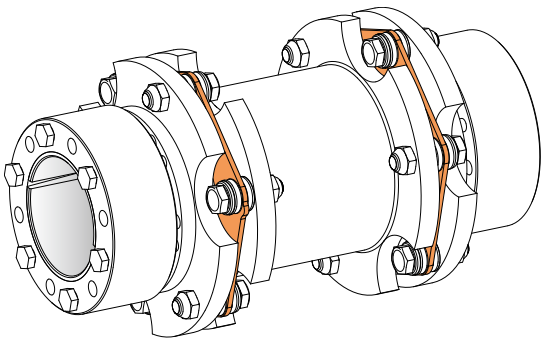


Fig. 46: Type 951.232 (Sleeve 1: H_1, L_4), Type 951.233 (Sleeve S: H_S, L_6)

Order Number

__	/	9	5	__	.	2	3	__	/	__	/	__	/	__	/	__
△				△				△		△		△		△		△

Sizes								
16 to 160	Single-jointed coupling	**0**	Single-jointed coupling	**0**	**Bore* Hub 1 ø** (Dim. page 36)	**Bore* Hub 2 ø** (Dim. page 36)	**Sleeve length H_S** [mm]	**Operating speed n_S** [rpm]
	Double-jointed coupling	**1**	Connecting plate	**1**				
			Sleeve 1	**2**				
			Sleeve S	**3**				
			Sleeve GKR (page 52)	**4**			for special sleeves S / GKR /CRP	
			Sleeve CRP (page 52)	**5**				

Example: 64 / 951.231 / Hub 1 – ø 35 H7 / Hub 2 – ø 40 H7

*Standard H7, other tolerances possible

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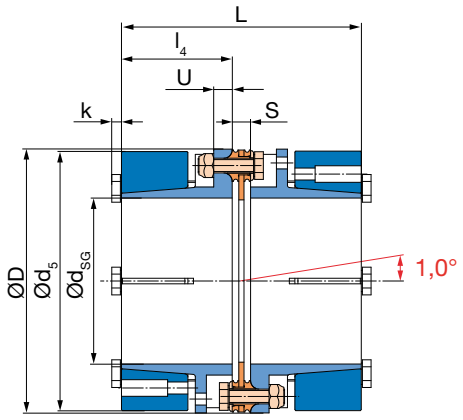
Single-jointed coupling with shrink disk hubs, large



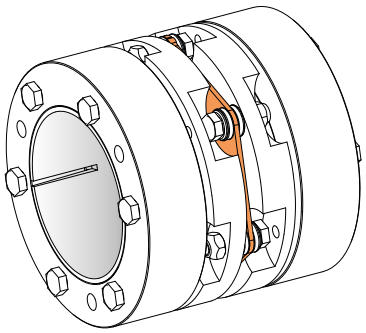


Fig. 47: Type 950.990

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	190	290	450	720	1000	1600
Peak transient torque [2]			T_{KS}	[Nm]	285	435	675	1080	1500	2400
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore			$d_{SG\ min}$	[mm]	25	32	40	45	55	65
Maximum hub bore			$d_{SG\ max}$	[mm]	45	52	60	70	90	100
Maximum speed [3]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [4]	permitted axial misalignment [5] [6]		ΔK_a	[mm]	1,1	1,3	1,5	1,8	2,1	2,5
	permitted radial misalignment [5]	with connecting plate	ΔK_r	[mm]	0,3	0,3	0,4	0,45	0,45	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,0	1,2	1,5	1,8	2,1	2,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$					
Spring stiffness	torsion [7]	disk pack	$C_{T\ LP}$	[10^3 Nm/rad]	145	280	301	748	1135	1920
		tube sleeve S	$C_{T\ H\ rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [8]			[Nm/rad]	229	248	298	876	1089	1990

Dimensions [mm]

Size	16	25	40	64	100	160
d_3	33	41	46	51	66	76
d_5	77	82	100	115	143	162
H_1	70	80	96	116	136	140
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
k	3,5	3,5	3,5	4	5,5	5,5
L	87,1	97,2	108,4	119,6	130	151,6
L_2	106,2	116,4	130,8	147,2	158	185,2
L_4	150	170	196	226	256	280
L_6	dependent on H_S					
l_4	40	45	50	55	60	70
S	7,1	7,2	8,4	9,6	10	11,6
U	7	7	8	10	10	12
U_1	26,2	26,4	30,8	37,2	38	45,2

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,12	0,26	0,74	1,19	3,27
Hub [10]	0,78	1,23	2,88	5,81	13,77	27,35
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

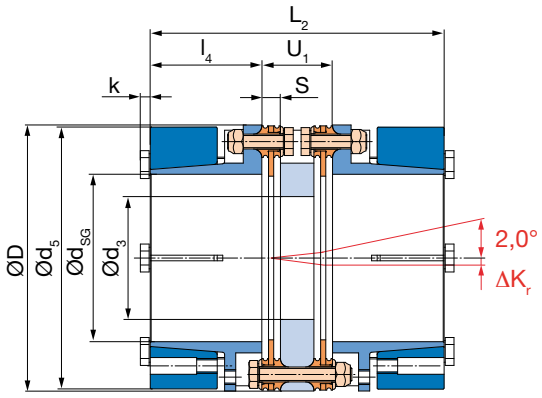
Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,09	0,15	0,29	0,35	0,67
Hub [10]	0,79	1,02	1,71	2,53	3,92	6,08
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.
7) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\ tot.} = \frac{1}{\frac{2}{C_{T\ LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\ Hrel.}}}$$

8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.
10) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with connecting plate and shrink disk hubs, large



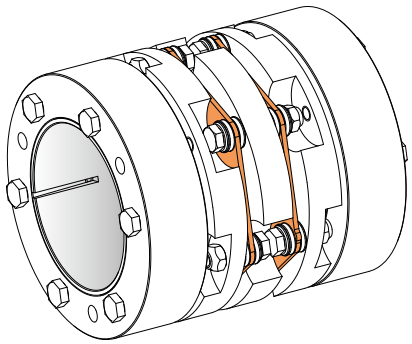
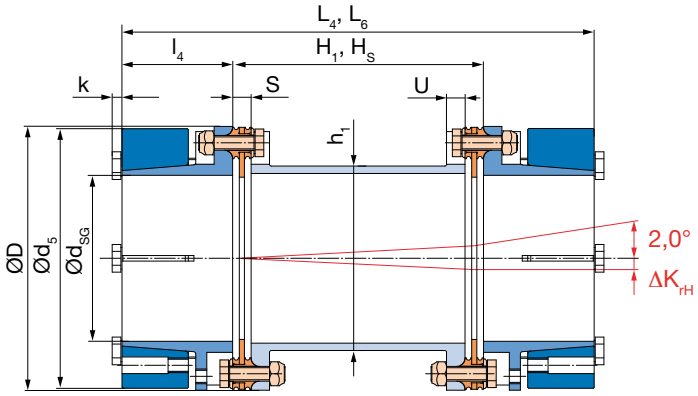


Fig. 48: Type 951.991

Double-jointed coupling with sleeve 1 or sleeve S (special length) and shrink disk hubs, large



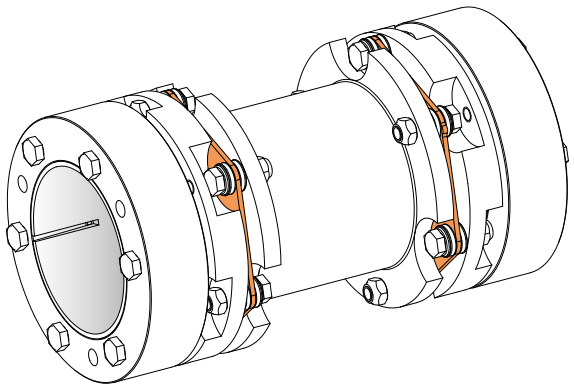


Fig. 49: Type 951.992 (Sleeve 1: H_1, L_4), Type 951.993 (Sleeve S: H_S, L_6)

Order Number

__	/	9	5	__	.	9	9	__	/	__	/	__	/	__	/	__
△				△				△		△		△		△		△

Sizes 16 to 160	Single-jointed coupling / Double-jointed coupling	0 / 1	Single-jointed coupling / Connecting plate / Sleeve 1 / Sleeve S / Sleeve GKR (page 52) / Sleeve CRP (page 52)	0 / 1 / 2 / 3 / 4 / 5	**Bore* Hub 1 ø** (Dim. page 38)	**Bore* Hub 2 ø** (Dim. page 38)	**Sleeve length H_s** [mm] for special sleeves S / GKR /CRP	**Operating speed n_s** [rpm]

Example: 16 / 951.991 / Hub 1 – ø 35 H7 / Hub 2 – ø 35 H7

*Standard H7, other tolerances possible

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Double-jointed coupling with connecting plate and split clamping hub

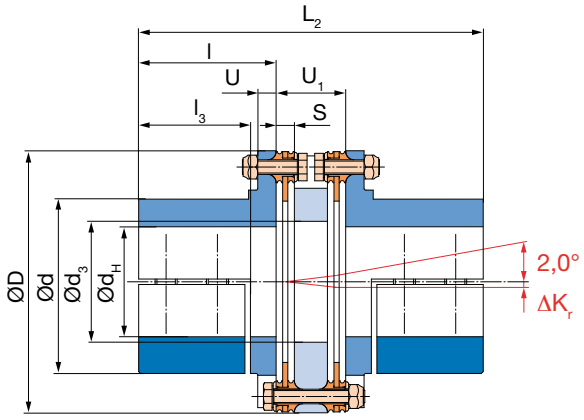
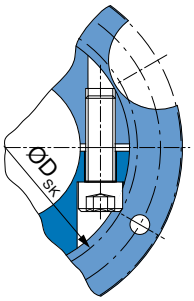
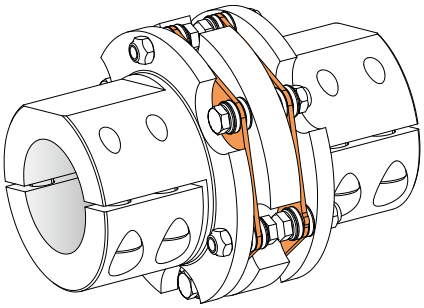


Fig. 50: Type 951.881



rotation circle diameter $ØD_{SK}$ of the clamping screws



Optional keyway design according to DIN 6885 possible

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	190	290	450	720	1000	1600
Peak transient torque [2]			T_{KS}	[Nm]	285	435	675	1080	1500	2400
Outer diameter			D	[mm]	77	89	104	123	143	167
Minimum hub bore [3]			$d_{H\,min}$	[mm]	18	22	25	30	35	40
Maximum hub bore [3]			$d_{H\,max}$	[mm]	28	32	40	45	60	75
Maximum speed [4]			n_{max}	[rpm]	9500	8200	7000	6000	5100	4300
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	1,1	1,3	1,5	1,8	2,1	2,5
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,3	0,3	0,4	0,45	0,45	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,0	1,2	1,5	1,8	2,1	2,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$					
Spring stiffness	torsion [8]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	145	280	301	748	1135	1920
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [9]			[Nm/rad]	229	248	298	876	1089	1990

Dimensions [mm]

Size	16	25	40	64	100	160
D_{SK}	55	67	76	87	108	122
d	50	60	70	80	100	115
d_3	33	41	46	51	66	76
H_1	70	80	96	116	136	140
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L_2	106,2	116,4	140,8	167,2	188	215,2
L_4	150	170	206	246	286	310
L_6	dependent on H_S					
l	40	45	55	65	75	85
l_3	31	35	43	51	61	69
l_A	25,7	30,8	40	51,2	56,6	58,6
S	7,1	7,2	8,4	9,6	10	11,6
U	7	7	8	10	10	12
U_1	26,2	26,4	30,8	37,2	38	45,2

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,12	0,26	0,74	1,19	3,27
Hub [11]	0,25	0,54	1,20	2,63	6,31	12,49
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

Size	16	25	40	64	100	160
Disk pack [10]	0,08	0,09	0,15	0,29	0,35	0,67
Hub [11]	0,47	0,76	1,21	1,96	3,17	4,45
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 56.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for 1 disk pack.
11) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with sleeve 1 or sleeve S (special length) and split clamping hubs

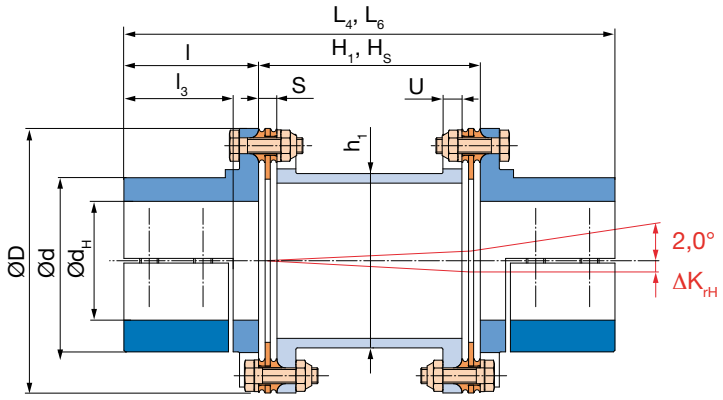
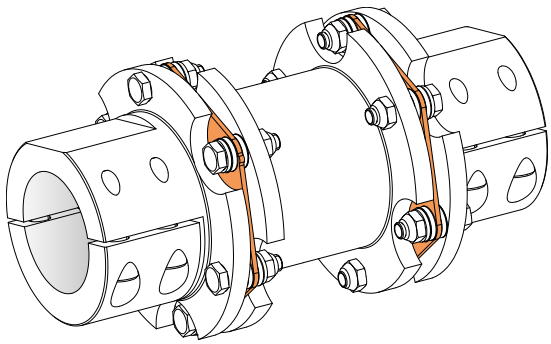


Fig. 51: Type 951.882 (Sleeve 1: H_1, L_4), Type 951.883 (Sleeve S: H_S, L_6)



Optional keyway design according to DIN 6885 possible

Installation coupling with split clamping hubs

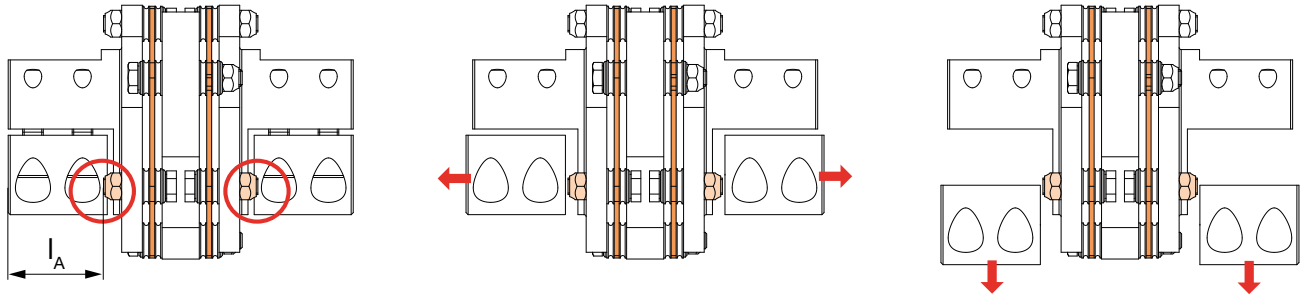


Fig. 52: Axial displacement of the split clamping hubs during radial installation/dismantling (only necessary on Type 951.881).

Order Number

__ / 9 5 1 . 8 8	__	/ __	/ __	/ __	/ __
Sizes 16 to 160	1 Connecting plate 2 Sleeve 1 3 Sleeve S 4 Sleeve GKR (page 52) 5 Sleeve CRP (page 52)	**Bore* Hub 1 ø** (Dim. page 40)	**Bore* Hub 2 ø** (Dim. page 40)	**Sleeve length H_s** [mm] for special sleeves S / GKR /CRP	**Operating speed n_s** [rpm]

Example: 100 / 951.881 / Hub 1 – ø 50 H7 / Hub 2 – ø 50 H7

*Standard H7, other tolerances possible

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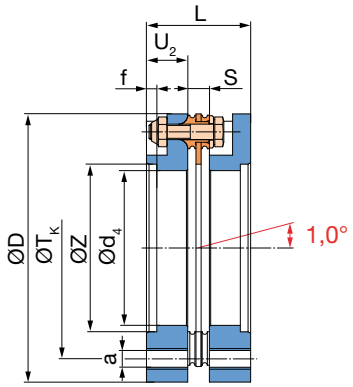
Single-jointed coupling with flanges



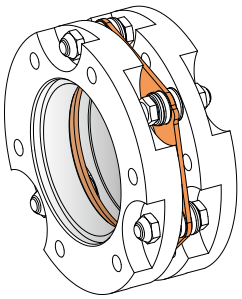


Fig. 53: Type 950.660

Technical Data and Main Dimensions					Size					
					16	25	40	64	100	160
Nominal torque [1]			T_{KN}	[Nm]	190	290	450	720	1000	1600
Peak transient torque [2]			T_{KS}	[Nm]	285	435	675	1080	1500	2400
Outer diameter			D	[mm]	77	89	104	123	143	167
Centering bore			Z^{H7}	[mm]	45	55	65	75	92	105
Maximum speed [3]			n_{max}	[rpm]	13600	11800	10100	8500	7300	6200
Permitted misalignments [4]	permitted axial misalignment [5] [6]		ΔK_a	[mm]	1,1	1,3	1,5	1,8	2,1	2,5
	permitted radial misalignment [5]	with connecting plate	ΔK_r	[mm]	0,3	0,3	0,4	0,45	0,45	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,0	1,2	1,5	1,8	2,1	2,2
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}0174$					
Spring stiffness	torsion [7]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	145	280	301	748	1135	1920
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	19	34	71	108	217	415
	angular spring stiffness [8]			[Nm/rad]	229	248	298	876	1089	1990

Dimensions [mm]

Size	16	25	40	64	100	160
a	6 x M8	6 x M8	6 x M10	6 x M10	6 x M12	6 x M14
d_3	33	41	46	51	66	76
d_4	40	50	60	70	85	100
f	4	4	4	5	5	5
H_1	70	80	96	116	136	140
H_S	acc. customer specifications					
h_1	50	60	70	80	100	110
L	37,1	37,2	44,4	49,6	50	67,6
L_2	56,2	56,4	66,8	77,2	78	101,2
L_4	100	110	132	156	176	196
L_6	dependent on H_S					
S	7,1	7,2	8,4	9,6	10	11,6
T_K	62	75	86	103	116	140
U	7	7	8	10	10	12
U_1	26,2	26,4	30,8	37,2	38	45,2
U_2	15	15	18	20	20	28

Mass moments of Inertia J [10^{-3} kgm²]

Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,12	0,26	0,74	1,19	3,27
Flange	0,23	0,43	0,89	1,95	3,87	9,48
Connecting plate	0,23	0,44	0,95	2,30	4,60	9,72
Sleeve 1	0,32	0,61	1,38	3,02	6,10	12,96
Sleeve S with H_S = 1000 mm	2,11	3,77	7,81	12,62	24,98	49,43
Sleeve S per 1000 mm tube	1,93	3,43	7,12	10,86	21,86	41,61

Weight [kg]

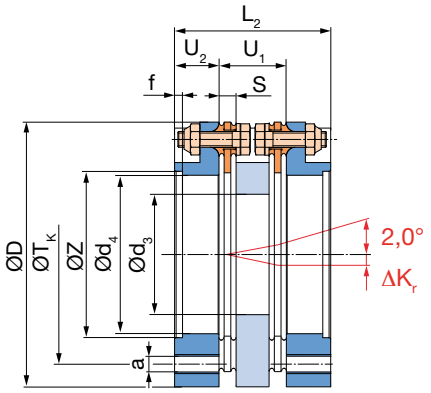
Size	16	25	40	64	100	160
Disk pack [9]	0,08	0,09	0,15	0,29	0,35	0,67
Flange	0,26	0,34	0,52	0,82	1,16	2,10
Connecting plate	0,31	0,43	0,68	1,19	1,96	2,96
Sleeve 1	0,39	0,54	0,93	1,46	2,04	3,38
Sleeve S with H_S = 1000 mm	3,63	4,42	6,82	8,09	10,22	16,83
Sleeve S per 1000 mm tube	3,48	4,22	6,51	7,50	9,47	15,34

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.
7) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.

Double-jointed coupling with connecting plate and flanges



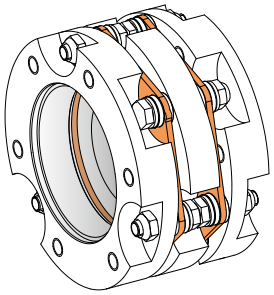
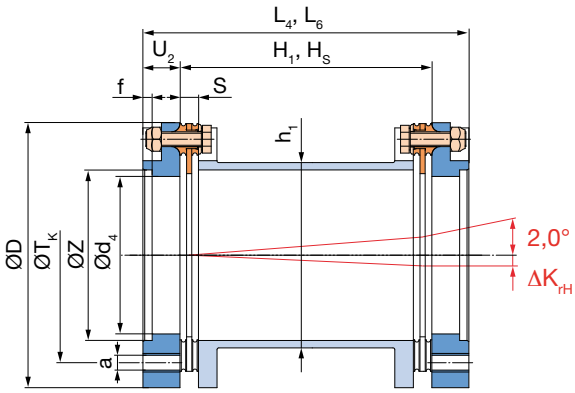


Fig. 54: Type 951.661

Double-jointed coupling with sleeve 1 or sleeve S (special length) and flanges



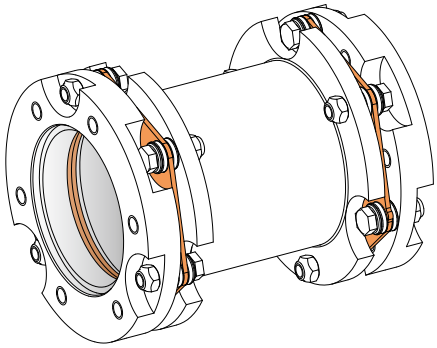


Fig. 55: Type 951.662 (Sleeve 1: H_1, L_4), Type 951.663 (Sleeve S: H_S, L_6)

Order Number

__ / 9 5 __ . 6 6 __ / __ / __							
Sizes 16 to 160	Single-jointed coupling	**0**	Single-jointed coupling	**0**	**Sleeve length H_S** [mm]	**Operating speed n_s** [rpm]
	Double-jointed coupling	**1**	Connecting plate	**1**	for special sleeves S / GKR /CRP	
			Sleeve 1	**2**		
			Sleeve S	**3**		
			Sleeve GKR (page 52)	**4**		
			Sleeve CRP (page 52)	**5**		

Example: 40 / 951.661

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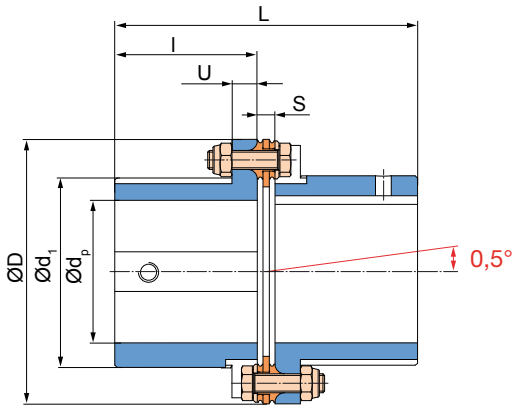
Single-jointed coupling with key hubs



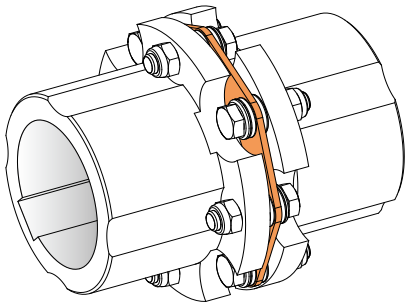


Fig. 56: Type 950.000

Technical Data and Main Dimensions					Size					
					180	300	500	850	1400	2200
Nominal torque [1]			T_{KN}	[Nm]	2100	3500	5800	9500	15000	24000
Peak transient torque [2]			T_{KS}	[Nm]	3150	5250	8700	14250	22500	36000
Outer diameter			D	[mm]	143	167	198	234	274	314
Minimum hub bore			$d_{p\,min}$	[mm]	40	45	55	65	75	90
Maximum hub bore			$d_{p\,max}$	[mm]	75	90	105	120	140	170
Maximum speed [3]			n_{max}	[rpm]	7300	6200	5200	4400	3800	3300
Permitted misalignments [4]	permitted axial misalignment [5] [6]		ΔK_a	[mm]	1,0	1,2	1,4	1,6	1,9	2,2
	permitted radial misalignment [5]	with connecting plate	ΔK_r	[mm]	0,25	0,25	0,35	0,4	0,5	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,2	1,25	1,35	1,7	2	2,6
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}00873$					
Spring stiffness	torsion [10]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	3000	3480	11900	20600	30150	46800
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	250	415	894	1690	2734	4961
	angular spring stiffness [7]			[Nm/rad]	3890	6980	11250	18580	26120	28520

Dimensions [mm]

Size	180	300	500	850	1400	2200
d_1	104	121	141	164	190	230
d_3	54	61	66	76	86	110
$d_{pi\,min}$	40	45	55	65	75	90
$d_{pi\,max}$	55	70	85	95	110	130
H_1	150	160	170	220	266	320
H_S	acc. customer specifications					
h_1	92,5	111	132	150	174	206
h_S	92	110	130	150	165	190
L	181,2	191,2	212	264	316	377,8
L_1	178	192	206	260	310	370
L_2	212,4	224,4	252	315	374	443,6
L_4	320	340	370	470	566	680
L_6	dependent on H_S					
l	85	90	100	125	150	180
S	11,2	11,2	12	14	16	17,8
U	14	16	18	20	22	25
U_1	42,4	44,4	52	65	74	83,6

Mass moments of Inertia J [10^{-3} kgm²]

Size	180	300	500	850	1400	2200
Disk pack [8]	2,64	5,60	14,58	36,85	83,86	132,19
Hub key [9]	6,45	13,14	28,21	63,01	134,49	323,57
Hub key: internal [9]	4,26	9,18	20,64	46,85	95,76	207,12
Connecting plate	3,91	8,60	21,54	53,27	114,26	241,16
Sleeve 1	6,85	14,22	29,94	67,40	149,09	341,78
Sleeve S with H_S = 1000 mm	28,41	51,24	109,74	210,27	364,62	705,89
Sleeve S per 1000 mm tube	25,08	41,61	89,57	169,22	273,78	496,68

Weight [kg]

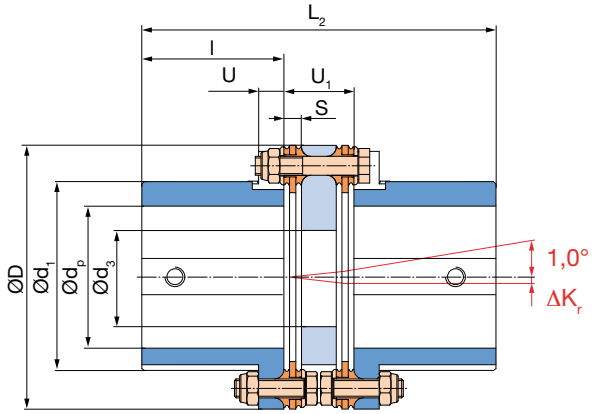
Size	180	300	500	850	1400	2200
Disk pack [8]	0,73	1,15	2,14	3,92	6,52	7,51
Hub key [9]	2,80	4,01	6,25	10,51	16,62	28,46
Hub key: internal [9]	2,38	3,32	5,36	9,00	14,44	23,26
Connecting plate	1,53	2,44	4,48	8,04	12,64	19,55
Sleeve 1	2,61	3,66	5,38	9,32	15,62	26,98
Sleeve S with H_S = 1000 mm	14,37	17,45	27,01	38,66	53,84	77,23
Sleeve S per 1000 mm tube	13,64	15,34	23,97	34,36	46,78	64,41

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.
7) The values refer to 1 disk pack.
8) Mass moments of inertia and weights are valid for 1 disk pack.
9) Mass moments of inertia and weights are valid for maximum bore.

10) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

Double-jointed coupling with connecting plate and key hubs



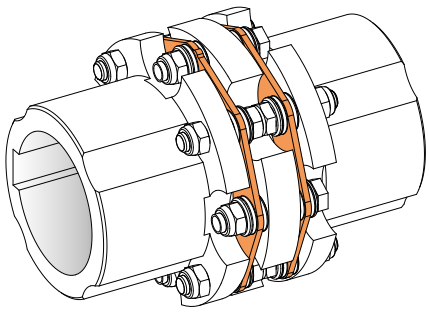


Fig. 57: Type 951.001

Double-jointed coupling with sleeve 1 or sleeve S (special length) and key hubs

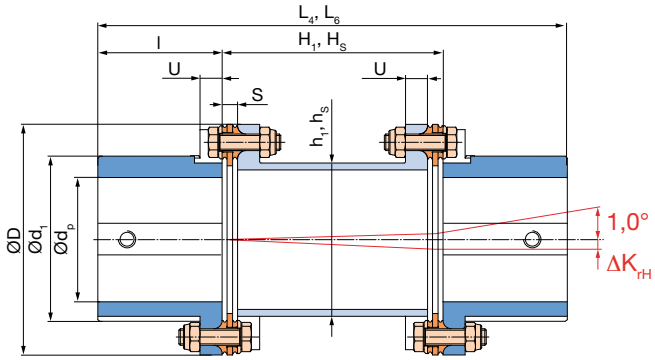


Fig. 58: Type 951.002 (Sleeve 1: H_1, h_1, L_4),
Type 951.003 (Sleeve S: H_S, h_S, L_6)

Double-jointed coupling with sleeve 1 and key hubs (internal/internal)

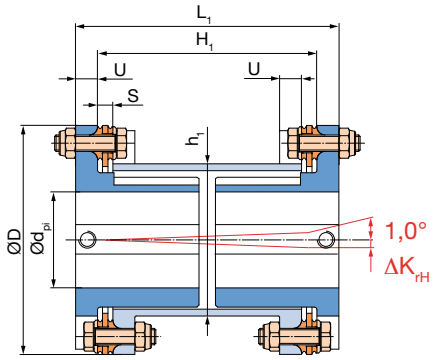


Fig. 59: Type 951.772 (Sleeve 1: H_1, L_1)

Order Number

	HUB 1	HUB 2	
Key hub Standard	0	0	Key hub Standard
Key hub internal (Fig. 59)	7	7	Key hub internal (Fig. 59)

__ / 9 5 __ . __ __ __ / __ / __ / __ / __

Sizes 180 to 2200												
	Single-jointed coupling	0	Single-jointed coupling	0	**Bore* Hub 1 ø** (Dim. page 44)	**Bore* Hub 2 ø** (Dim. page 44)	**Sleeve length H_S** [mm]	**Operating speed n_S** [rpm]
	Double-jointed coupling	1	Connecting plate	1				
			Sleeve 1	2				
			Sleeve S	3			for special sleeves S / GKR / CRP	
			Sleeve GKR (page 52)	4				
			Sleeve CRP (page 52)	5				

Example: 300 / 951.001 / Hub 1 – ø 50 H7 / Hub 2 – ø 60 H7

*Standard H7, other tolerances possible

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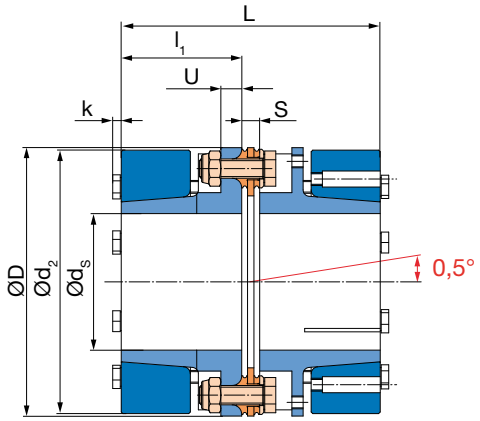
Single-jointed coupling with shrink disk hubs, external clamping



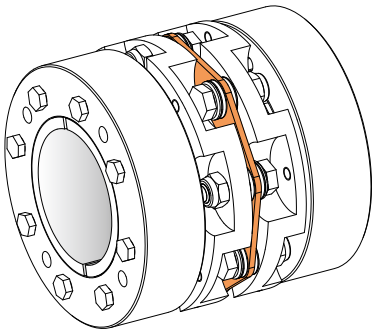


Fig. 60: Type 950.220

Technical Data and Main Dimensions					Size					
					180	300	500	850	1400	2200
Nominal torque [1]			T_{KN}	[Nm]	2100	3500	5800	9500	15000	24000
Peak transient torque [2]			T_{KS}	[Nm]	3150	5250	8700	14250	22500	36000
Outer diameter			D	[mm]	143	167	198	234	274	314
Minimum hub bore [3]			$d_{S\,min}$	[mm]	42	50	60	70	80	100
Maximum hub bore [3]			$d_{S\,max}$	[mm]	75	85	100	120	140	170
Maximum speed [4]			n_{max}	[rpm]	7300	6200	5200	4400	3800	3300
Permitted misalignments [5]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	1,0	1,2	1,4	1,6	1,9	2,2
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,25	0,25	0,35	0,4	0,5	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,2	1,25	1,35	1,7	2	2,6
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}00873$					
Spring stiffness	torsion [11]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	3000	3480	11900	20600	30150	46800
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	250	415	894	1690	2734	4961
	angular spring stiffness [8]			[Nm/rad]	3890	6980	11250	18580	26120	28520

Dimensions [mm]

Size	180	300	500	850	1400	2200
d_2	141	164	198	234	274	314
d_3	54	61	66	76	86	110
H_1	150	160	170	220	266	320
H_S	acc. customer specifications					
h_1	92,5	111	132	150	174	206
h_S	92	110	130	150	165	190
k	5,3	5,3	6,4	7,5	8,8	8,8
L	141,2	161,2	202	244	276	317,8
L_2	172,4	194,4	242	295	334	383,6
L_4	280	310	360	450	526	620
L_6	dependent on H_S					
l_1	65	75	95	115	130	150
S	11,2	11,2	12	14	16	17,8
U	10	13	18	20	22	25
U_1	42,4	44,4	52	65	74	83,6
U_H	14	16	18	20	22	25

Mass moments of Inertia J [10^{-3} kgm²]

Size	180	300	500	850	1400	2200
Disk pack [9]	2,64	5,60	14,58	36,85	83,86	132,19
Hub [10]	14,41	31,64	83,82	192,23	409,20	723,01
Connecting plate	3,91	8,60	21,54	53,27	114,26	241,16
Sleeve 1	6,85	14,22	29,94	67,40	149,09	341,78
Sleeve S with H_S = 1000 mm	28,41	51,24	109,74	210,27	364,62	705,89
Sleeve S per 1000 mm tube	25,08	41,61	89,57	169,22	273,78	496,68

Weight [kg]

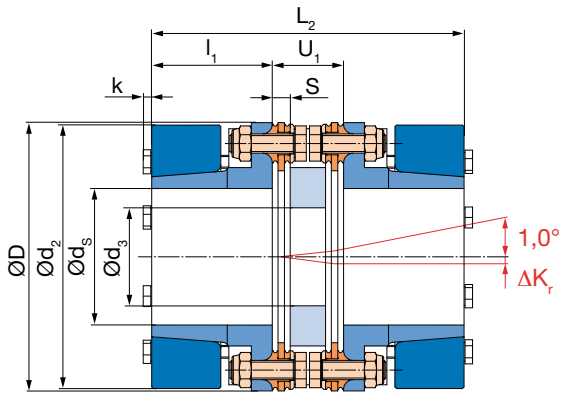
Size	180	300	500	850	1400	2200
Disk pack [9]	0,73	1,15	2,14	3,92	6,52	7,51
Hub [10]	4,65	7,61	14,12	23,00	35,72	49,20
Connecting plate	1,53	2,44	4,48	8,04	12,64	19,55
Sleeve 1	2,61	3,66	5,38	9,32	15,62	26,98
Sleeve S with H_S = 1000 mm	14,37	17,45	27,01	38,66	53,84	77,23
Sleeve S per 1000 mm tube	13,64	15,34	23,97	34,36	46,78	64,41

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Transmittable torques dependent on bore see page 56.
4) Not valid for coupling with sleeve S.
5) The permitted misalignments may not simultaneously reach their maximum values.
6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.
10) Mass moments of inertia and weights are valid for maximum bore.

11) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

Double-jointed coupling with connecting plate and shrink disk hubs, external clamping



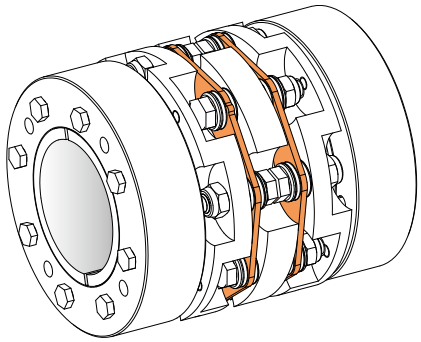
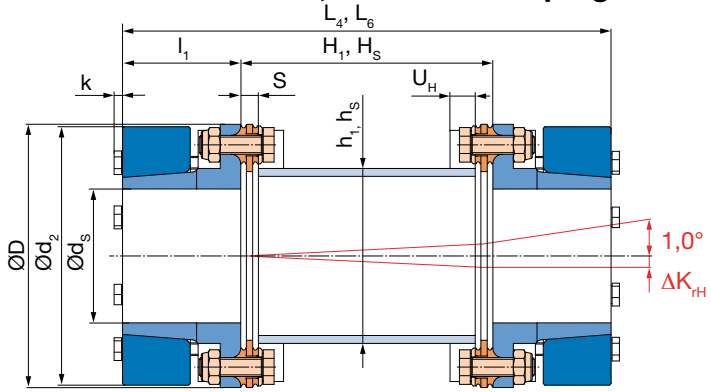


Fig. 61: Type 951.221

Double-jointed coupling with sleeve 1 or sleeve S (special length) and shrink disk hubs, external clamping



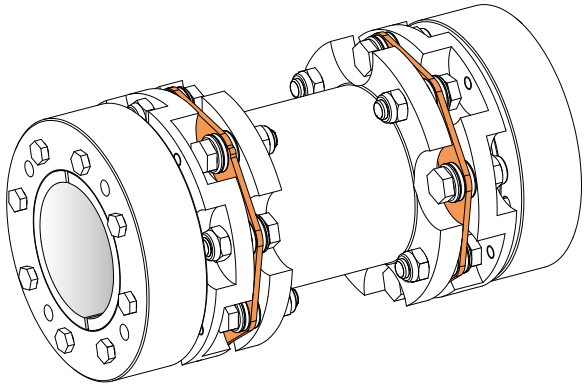


Fig. 62: Type 951.222 (Sleeve 1: H_1, h_1, L_4), Type 951.223 (Sleeve S: H_S, h_S, L_6)

Order Number

__ / 9 5 __ . 2 2 __ / __ / __ / __ / __

Sizes 180 to 2200														
	Single-jointed coupling	0	Single-jointed coupling	0	**Bore* Hub 1 ø** (Dim. page 46)	**Bore* Hub 2 ø** (Dim. page 46)	**Sleeve length H_S** [mm]	**Operating speed n_S** [rpm]
	Double-jointed coupling	1	Connecting plate	1				
			Sleeve 1	2				
			Sleeve S	3				
			Sleeve GKR (page 52)	4			for special sleeves S / GKR /CRP	
			Sleeve CRP (page 52)	5				

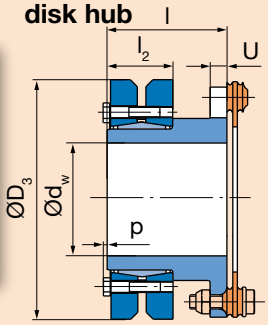
Example: 100 / 951.221 / Hub 1 – ø 45 H7 / Hub 2 – ø 45 H7

*Standard H7, other tolerances possible

Additional Option:

Size	d_w	D_3	l	l_2	p
180	65/70	145	85	39	-
300	75/80	170	90	50	-
500	80/85	185	100	57	-
850	95/100/105	230	125	82	4
1400	110/115	265	150	88	-
2200	130/135	300	180	98	-

External shrink disk hub



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Double-jointed coupling with connecting plate and split clamping hub

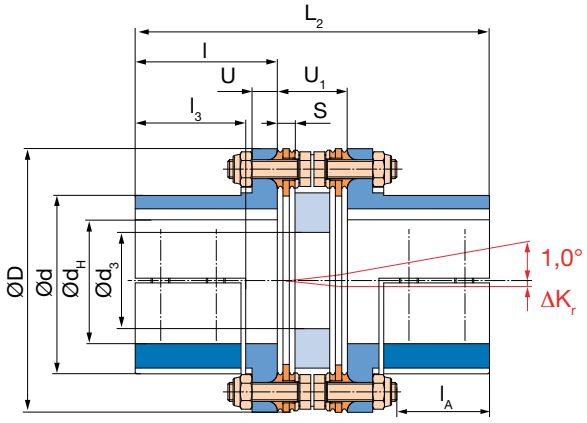
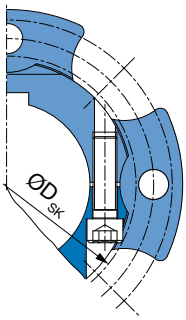
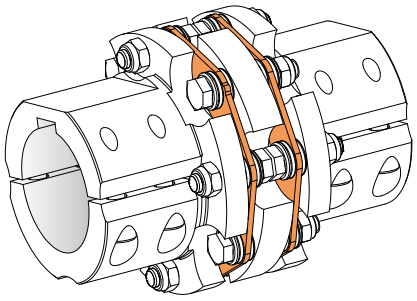


Fig. 63: Type 951.881



rotation circle diameter $ØD_{SK}$ of the clamping screws



Only available with keyway acc. DIN 6885!

Technical Data and Main Dimensions					Size					
					180	300	500	850	1400	2200
Nominal torque [1]			T_{KN}	[Nm]	2100	3500	5800	9500	15000	24000
Peak transient torque [2]			T_{KS}	[Nm]	3150	5250	8700	14250	22500	36000
Outer diameter			D	[mm]	143	167	198	234	274	314
Minimum hub bore			$d_{H\,min}$	[mm]	42	50	60	70	80	100
Maximum hub bore			$d_{H\,max}$	[mm]	65	80	95	110	120	150
Maximum speed [3]			n_{max}	[rpm]	5100	4300	3600	3100	2600	2300
Permitted misalignments [4]	permitted axial misalignment [6] [7]		ΔK_a	[mm]	1,0	1,2	1,4	1,6	1,9	2,2
	permitted radial misalignment [6]	with connecting plate	ΔK_r	[mm]	0,25	0,25	0,35	0,4	0,5	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,2	1,25	1,35	1,7	2	2,6
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}00873$					
Spring stiffness	torsion [5]	disk pack	$C_{T\,LP}$	[10^3 Nm/rad]	3000	3480	11900	20600	30150	46800
		tube sleeve S	$C_{T\,H\,rel.}$	[10^6 Nm mm/rad]	250	415	894	1690	2734	4961
	angular spring stiffness [8]			[Nm/rad]	3890	6980	11250	18580	26120	28520

Dimensions [mm]

Size	180	300	500	850	1400	2200
D_{SK}	107	128	150	173	200	-
d	102	121	141	164	190	230
d_3	54	61	66	76	86	110
H_1	150	160	170	220	266	320
H_S	acc. customer specifications					
h_1	92,5	111	132	150	174	206
h_S	92	110	130	150	165	190
L_2	212,4	224,4	252	315	374	443,6
L_4	320	340	370	470	566	680
L_6	dependent on H_S					
l	85	90	100	125	150	180
l_3	68	70	77	97	117	147
l_A	58,7	58,7	65,1	83,2	100,6	127,3
l_B	64,6	66,5	72	92,5	113	140
S	11,2	11,2	12	14	16	17,8
U	14	16	18	20	22	25
U_1	42,4	44,4	52	65	74	83,6

Mass moments of Inertia J [10^{-3} kgm²]

Size	180	300	500	850	1400	2200
Disk pack [9]	2,64	5,60	14,58	36,85	83,86	132,19
Hub [10]	6,61	14,02	30,01	65,69	146,71	352,20
Connecting plate	3,91	8,60	21,54	53,27	114,26	241,16
Sleeve 1	6,85	14,22	29,94	67,40	149,09	341,78
Sleeve S with H_S = 1000 mm	28,41	51,24	109,74	210,27	364,62	705,89
Sleeve S per 1000 mm tube	25,08	41,61	89,57	169,22	273,78	496,68

Weight [kg]

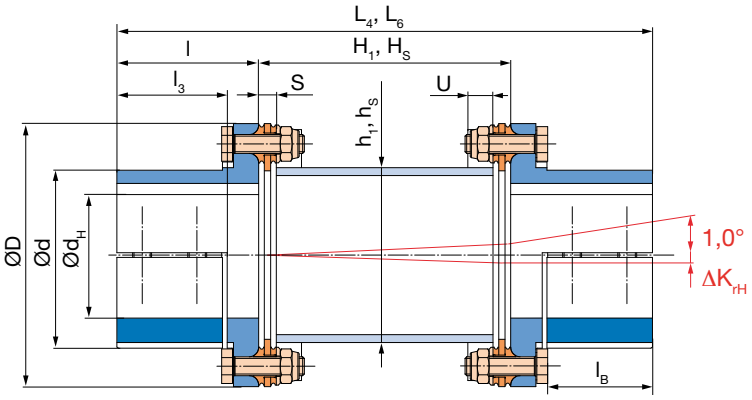
Size	180	300	500	850	1400	2200
Disk pack [9]	0,73	1,15	2,14	3,92	6,52	7,51
Hub [10]	3,19	4,66	7,20	11,70	20,26	33,95
Connecting plate	1,53	2,44	4,48	8,04	12,64	19,55
Sleeve 1	2,61	3,66	5,38	9,32	15,62	26,98
Sleeve S with H_S = 1000 mm	14,37	17,45	27,01	38,66	53,84	77,23
Sleeve S per 1000 mm tube	13,64	15,34	23,97	34,36	46,78	64,41

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\,tot.} = \frac{1}{\frac{2}{C_{T\,LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\,Hrel.}}}$$

6) The values refer to couplings with 2 disk packs.
7) Only permitted as a static or virtually static value.
8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.
10) Mass moments of inertia and weights are valid for maximum bore.

Double-jointed coupling with sleeve 1 or sleeve S (special length) and split clamping hubs



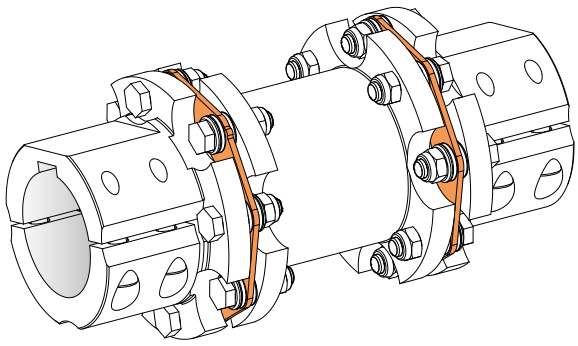


Fig. 64: Type 951.882 (Sleeve 1: H_1, h_1, L_4)
Type 951.883 (Sleeve S: H_S, h_S, L_6)

Only available with keyway acc. DIN 6885!

Installation coupling with split clamping hubs

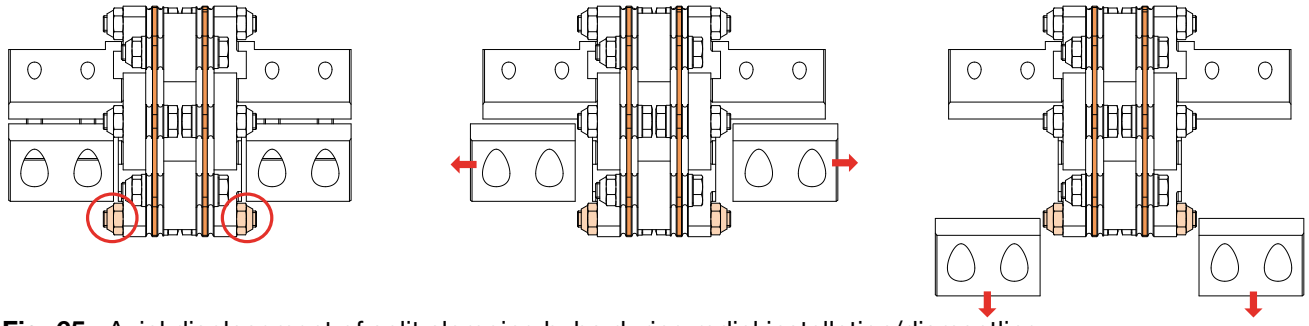


Fig. 65: Axial displacement of split clamping hubs during radial installation/dismantling
Please observe dimensions l_A and l_B!

Order Number

__ / 9 5 1 . 8 8 __ / __ / __ / __ / __

Sizes 180 to 2200	Connecting plate 1 Sleeve 1 2 Sleeve S 3 Sleeve GKR (page 52) 4 Sleeve CRP (page 52) 5	Bore* Hub 1 ø (Dim. page 48)	Bore* Hub 2 ø (Dim. page 48)	Sleeve length H_S [mm] for special sleeves S / GKR /CRP	Operating speed n_S [rpm]

Example: 100 / 951.881 / Hub 1 – ø 50 H7 / Hub 2 – ø 50 H7

*Standard H7, other tolerances possible

Please Observe! Only available with keyway acc. DIN 6885! The hubs transmit only 30 - 40 % of the value T_{KN} using frictional locking. Larger torques are transmitted via positive locking with the key.

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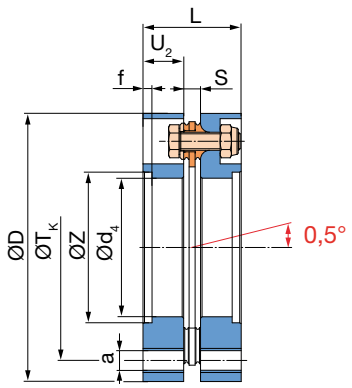
Single-jointed coupling with flanges



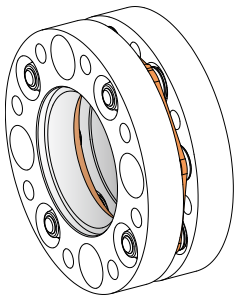


Fig. 66: Type 950.660

Technical Data and Main Dimensions					Size					
					180	300	500	850	1400	2200
Nominal torque [1]			T_{KN}	[Nm]	2100	3500	5800	9500	15000	24000
Peak transient torque [2]			T_{KS}	[Nm]	3150	5250	8700	14250	22500	36000
Outer diameter			D	[mm]	153	178	210	250	290	336
Centering bore			Z^{H7}	[mm]	85	100	120	140	160	180
Maximum speed [3]			n_{max}	[rpm]	7300	6200	5200	4400	3800	3300
Permitted misalignments [4]	permitted axial misalignment [5] [6]		ΔK_a	[mm]	1,0	1,2	1,4	1,6	1,9	2,2
	permitted radial misalignment [5]	with connecting plate	ΔK_r	[mm]	0,25	0,25	0,35	0,4	0,5	0,55
		with sleeve 1	ΔK_{rH}	[mm]	1,2	1,25	1,35	1,7	2	2,6
		with sleeve S	ΔK_{rH}	[mm]	$(H_S - S) \times 0{,}00873$					
Spring stiffness	torsion [7]	disk pack	$C_{T\ LP}$	[10^3 Nm/rad]	3000	3480	11900	20600	30150	46800
		tube sleeve S	$C_{T\ H\ rel.}$	[10^6 Nm mm/rad]	250	415	894	1690	2734	4961
	angular spring stiffness [8]			[Nm/rad]	3890	6980	11250	18580	26120	28520

Dimensions [mm]

Size	180	300	500	850	1400	2200
a	8 x M12	8 x M16	8 x M16	8 x M20	8 x M24	8 x M30
d_3	54	61	66	76	86	110
d_4	77	92	112	132	150	170
f	6	6	6	6	6	6
H_1	150	160	170	220	266	320
H_S	acc. customer specifications					
h_1	92,5	111	132	150	174	206
h_S	92	110	130	150	165	190
L	57,2	65,2	84	102	118	129,8
L_2	88,4	98,4	124	153	176	195,6
L_4	196	214	242	308	368	432
L_6	dependent on H_S					
S	11,2	11,2	12	14	16	17,8
T_K	125	150	175	210	240	275
U	14	16	18	20	22	25
U_1	42,4	44,4	52	65	74	83,6
U_2	23	27	36	44	51	56

Mass moments of Inertia J [10^{-3} kgm²]

Size	180	300	500	850	1400	2200
Disk pack [9]	2,64	5,60	14,58	36,85	83,86	132,19
Flange	6,26	13,08	34,04	79,39	162,60	359,24
Connecting plate	3,91	8,60	21,54	53,27	114,26	241,16
Sleeve 1	6,85	14,22	29,94	67,40	149,09	341,78
Sleeve S with H_S = 1000 mm	28,41	51,24	109,74	210,27	364,62	705,89
Sleeve S per 1000 mm tube	25,08	41,61	89,57	169,22	273,78	496,68

Weight [kg]

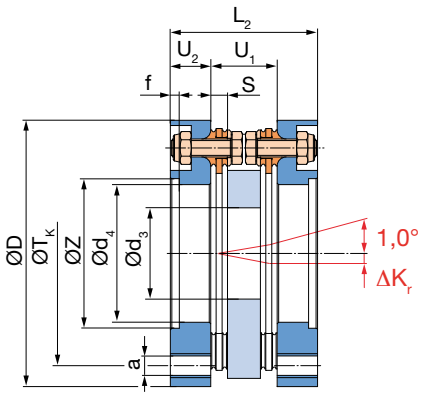
Size	180	300	500	850	1400	2200
Disk pack [9]	0,73	1,15	2,14	3,92	6,52	7,51
Flange	1,70	2,61	4,79	7,88	12,24	20,54
Connecting plate	1,53	2,44	4,48	8,04	12,64	19,55
Sleeve 1	2,61	3,66	5,38	9,32	15,62	26,98
Sleeve S with H_S = 1000 mm	14,37	17,45	27,01	38,66	53,84	77,23
Sleeve S per 1000 mm tube	13,64	15,34	23,97	34,36	46,78	64,41

1) Valid for alternating loads as well as max. permitted shaft misalignment.
2) Valid for one rotational direction, max. stress ≤ 10^5.
3) Not valid for coupling with sleeve S.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.
7) The C_T-value of a double-jointed coupling can be roughly calculated as follows:

$$C_{T\ tot.} = \frac{1}{\frac{2}{C_{T\ LP}} + \frac{H_S\,[mm] - 2\,S\,[mm]}{C_{T\ Hrel.}}}$$

8) The values refer to 1 disk pack.
9) Mass moments of inertia and weights are valid for 1 disk pack.

Double-jointed coupling with connecting plate and flanges



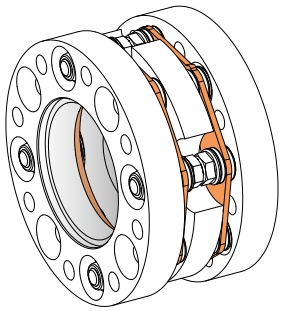
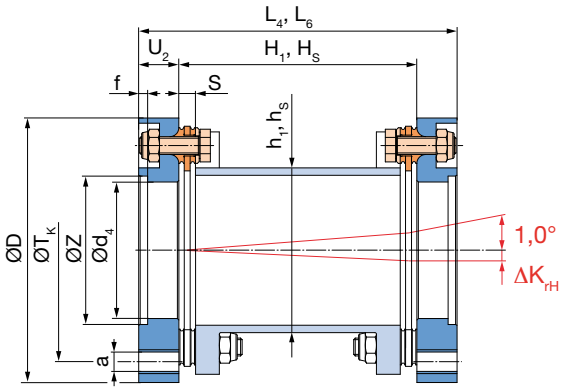


Fig. 67: Type 951.661

Double-jointed coupling with sleeve 1 or sleeve S (special length) and flanges



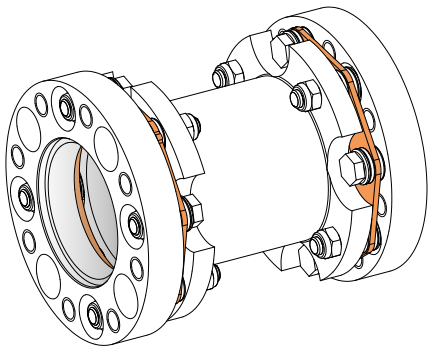


Fig. 68: Type 951.662 (Sleeve 1: H_1, h_1, L_4), Type 951.663 (Sleeve S: H_S, h_S, L_6)

Order Number

__ / 9 5 __ . 6 6 __ / __ / __

Sizes 180 to 2200								
	Single-jointed coupling	0	Single-jointed coupling	0	**Sleeve length H_S** [mm]	**Operating speed n_s** [rpm]		
	Double-jointed coupling	1	Connecting plate	1	for special sleeves S / GKR /CRP			
			Sleeve 1	2				
			Sleeve S	3				
			Sleeve GKR (page 52)	4				
			Sleeve CRP (page 52)	5				

Example: 40 / 950.661

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Variable Length Sleeves (Cardan Shaft Replacement)

The operational demands on variable length sleeves vary greatly. Using various sleeve construction shapes, the shaft coupling ROBA®-DS can offer the optimum solution for any problem. The product is able to fulfil the usual demands placed upon conventional cardan shafts. At the same time, the constructional shape all-steel coupling presents decided advantages:

- Backlash-free function
- Completely maintenance-free function
- Suitable for high speeds

By replacing conventional disk packs, the coupling misalignment capability can be enlarged by 2 - 3° / compensating level (please contact the manufacturers about availability and Technical Data).

Type Identification and Technical Comparison – Variable Length Sleeves

Standard design Type 951._ _3 / 953._ _3

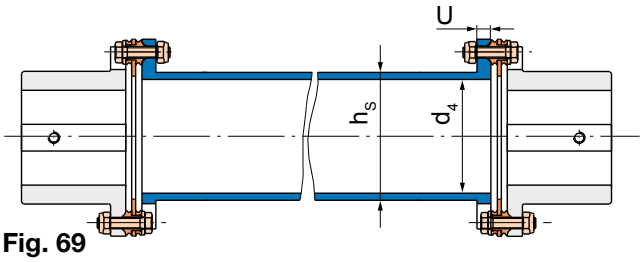

Fig. 69

Depressed tube (GKR) Type 951._ _4 / 953._ _4

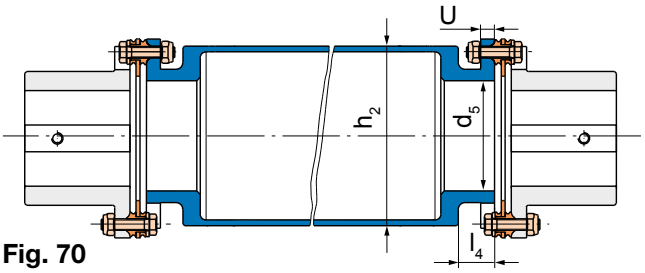

Fig. 70

CRP sleeve Type 951._ _5 / 953._ _5

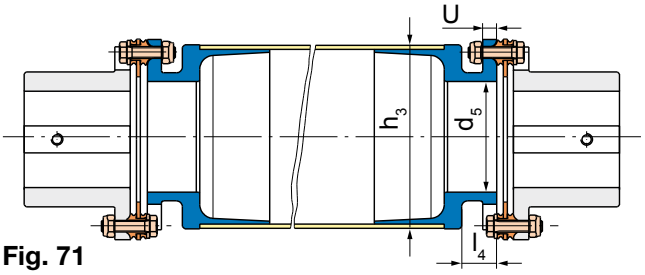

Fig. 71

Selection Aid: Variable Length Sleeves

Type	95_._ _3	95_._ _4	95_._ _5
Speed	+	++	+++
Torsional rigidity	++	+++	+
Weight	++	+++	+
Mass moment of inertia	++	+++	+
Corrosion-resistance	++	++	+++
Changes in length due to temperature	+++	+++	+
Costs	+	++	+++
Operational focuses	• con-ventional applications	• medium speeds • high torsional rigidity	• high speeds • low mass

+ = low, ++ = medium, +++ = high

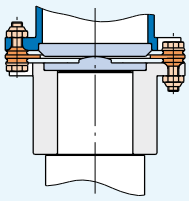

Fig. 72

Vertical support special sleeves
Warning!
On vertically installed ROBA®-DS couplings with long sleeves, it is necessary to provide a vertical support for absorbing the sleeve's own weight.

Dimensions [mm]

Size	16	25	40	64	100	160	180	300	500	850	1400	2200
d_4	43	54	62	71	92	98	79	95	111	127	137	157
d_5	45	48	58	68	88	95	75	90	110	123	144	167
h_S	50	60	70	80	100	110	92	110	130	150	165	190
h_2	x	x	x	x	x	155	130	155	170	220	250	x
h_3	73	86	96	118	138	160	138	160	192	224	266	315
l_4	15,5	15,5	20	24	24	30	32	36	40	48	54	61
U	7	7	8	10	10	12	14	16	18	20	22	25

x = Technical Data available on demand

ROBA®-DS with CRP sleeves

(Carbon-fibre reinforced plastic)

Sleeves made of CRP offer unique advantages and open up new application possibilities for torsionally rigid disk pack couplings.

- **Up to 80 % lower own weight**
- **Reduced mass inertia**
- **High speeds**
- **Wide bearing distances**
- **Low thermal expansion**
- **Corrosion resistance**
- **Low vibration**
- **Temperature resistance**

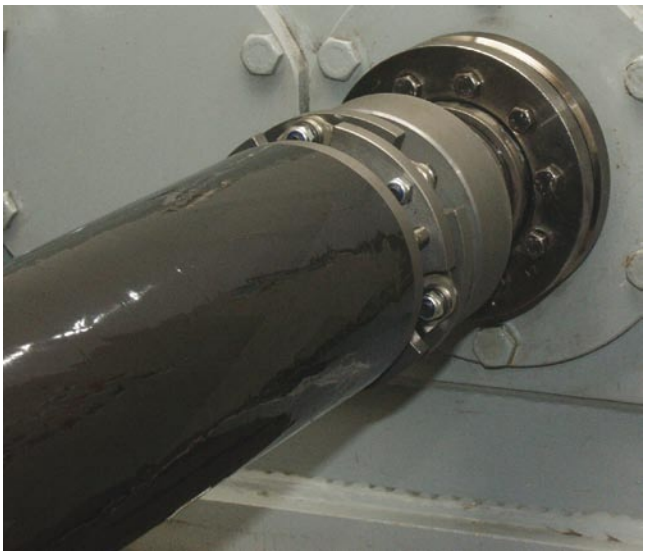

Fig. 73

Low weight

The lower own weight (up to 80 %) of CRP material in comparison to steel makes handling and installation much easier and safer.

Reduced inertia

The reduction in weight is combined with a large reduction in mass inertia. Braking and accelerating procedures are quicker or require lower drive performance.

Higher speeds

The optimum stiffness / weight ratio sets the bend-critical speed far higher than with conventional sleeves.

Wide bearing distances

Due to the high bend-critical speed, large bearing distances can be bridged without further intermediate bearings being necessary.

Low thermal expansion

CRP sleeves expand c. 90 % less than steel in response to temperature fluctuations. The disk packs are therefore placed under far less strain, especially when using long sleeves.

Corrosion resistance

Additional corrosion protection for hubs and sleeve parts ensure a very high corrosion resistance for the entire coupling.

Low vibration

The far higher self-damping capacity of CRP material minimises production of vibrations and damps existing vibrations more effectively.

Temperature resistance

Couplings with CRP sleeves can be used at temperatures of -20 °C up to +80 °C

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Options and Variants on Intermediate Shafts

Intermediate shafts

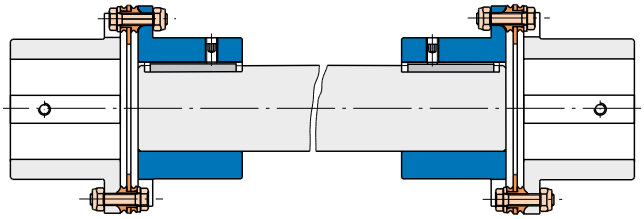

Fig. 74

Variable bridges over any shaft distances via adapted steel solid shafts, mounted between two standard hubs.

Please observe the bend-critical speeds!

GRP sleeves

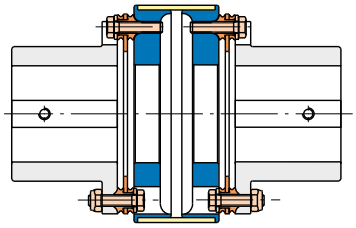

Fig. 75

Glass-fibre reinforced plastic sleeves for couplings in leakage current-isolated design.

Fulfils the highest demands on insulation quality (CTI 600).

Axial separable sleeves

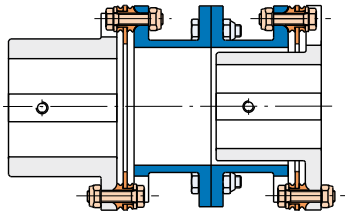

Fig. 76

This design allows radial dismantling of input and output without axial misalignment.

Preferred solution on large coupling in connection with inner key hubs

Poly-cardanic design

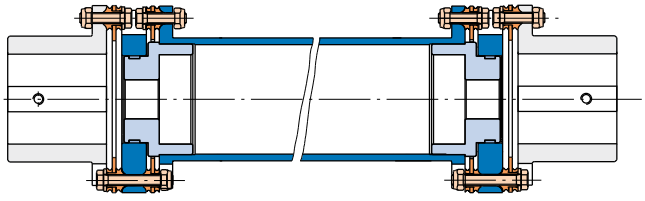

Fig. 77

For applications with large axial misalignment, e.g. caused by:

- Normal load or overload on the connected system parts
- Ground changes between the foundations
- Temperature differences
- Axial backlash due to wear on the bearing

Safe Against Overload Damage

Combination with EAS®-Compact®

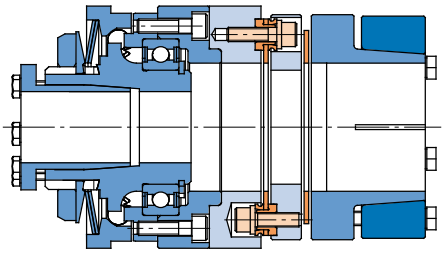

Fig. 78

- Safety clutches in the construction Types Ratchetting, Synchronous or Overload
- Flexible adaptation of construction length for connection of shafts with different shaft distances
- Perfectly suited for demands of high torsional rigidity or high speeds

Torque range	5 - 3000 Nm
Switch-off accuracy	± 5 %
Load disconnecting	
Number of overload occurrences	high
Time demand for repeat operation start-up	0
Danger of drive shaft damage	no

Combination with EAS®-element coupling

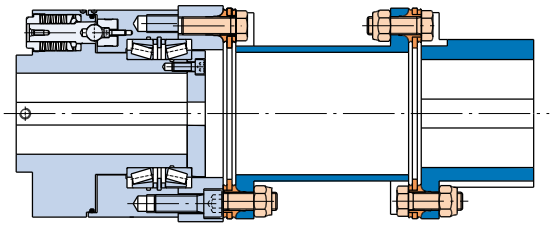

Fig. 79

- Complete separation of input and output on overload
- Particularly suitable for heavy, fast-running drives with large rotating masses
- Maximum torsional rigidity at highest performance density

Torque range	250 - 24000 Nm
Switch-off accuracy	± 5 %
Load disconnecting	
Number of overload cases	high
Time demand for repeat operation start-up	1 minute
Danger of drive shaft damage	no

Combination with ROBA®-slip hub

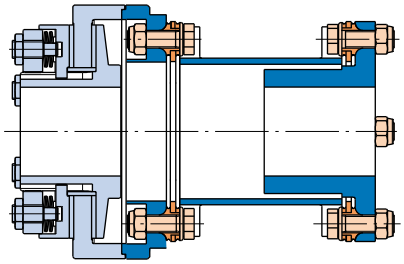

Fig. 80

- Overload protection with load holding function
- Compensation of individual dynamic peaks (resonances, start-up peaks) without operational interruptions
- Slip control recommended for protection against thermic overload

Torque range	2 - 24000 Nm
Switch-off accuracy	± 20 %
Load holding	
Number of overload cases	very high
Time demand for repeat operation start-up	0
Danger of drive shaft damage	no

Shrink disk hub with integrated overload protection

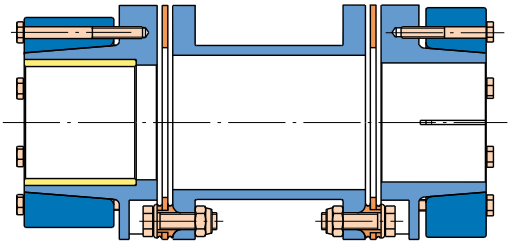

Fig. 81

- Modified shrink disk hub with integrated slip bushing
- Suitable for protection against individual, very short dynamic torque peaks
- Not suitable for longer slipping times / high slipping speeds

Torque range	190 - 24000 Nm
Switch-off accuracy	± 20 % [1]
Load holding	
Number of overload cases	very low
Time demand for repeat operation start-up	dismantling and installation of coupling
Danger of drive shaft damage	yes

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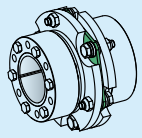
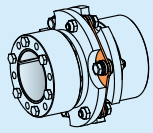
1) Tolerance only in limited application conditions – please contact the manufacturer.

Shrink disk hubs



Frictionally-locking transmittable torques
Shrink disk hubs

Suitable for H7/g6

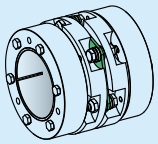


T_R [Nm]

Bore	Size 16	25	40	64	100	160	180	300	500	850	1400	2200
Ø14	157	-	-	-	-	-	-	-	-	-	-	-
Ø16	179	-	-	-	-	-	-	-	-	-	-	-
Ø20	240	280	-	-	-	-	-	-	-	-	-	-
Ø22	269	308	-	-	-	-	-	-	-	-	-	-
Ø25	312	375	438	-	-	-	-	-	-	-	-	-
Ø28	-	428	491	-	-	-	-	-	-	-	-	-
Ø30	-	468	526	708	-	-	-	-	-	-	-	-
Ø32	-	509	600	756	-	-	-	-	-	-	-	-
Ø35	-	568	669	826	1090	-	-	-	-	-	-	-
Ø38	-	-	741	960	1184	-	-	-	-	-	-	-
Ø40	-	-	796	1031	1246	1794	-	-	-	-	-	-
Ø42	-	-	852	1104	1320	1884	1817	-	-	-	-	-
Ø45	-	-	932	1206	1500	2019	2281	-	-	-	-	-
Ø50	-	-	-	-	1692	2400	2881	3505	-	-	-	-
Ø55	-	-	-	-	1889	2680	3150	3855	-	-	-	-
Ø60	-	-	-	-	-	2967	3488	4500	5844	-	-	-
Ø65	-	-	-	-	-	3263	3835	5177	6331	-	-	-
Ø68	-	-	-	-	-	-	4072	5658	6623	-	-	-
Ø70	-	-	-	-	-	-	4255	6334	7500	10723	-	-
Ø75	-	-	-	-	-	-	4627	7348	8156	11719	-	-
Ø80	-	-	-	-	-	-	-	8453	8830	12750	17942	-
Ø85	-	-	-	-	-	-	-	9652	9523	13750	19444	-
Ø90	-	-	-	-	-	-	-	-	10234	14777	21000	-
Ø100	-	-	-	-	-	-	-	-	11542	16665	23683	29323
Ø110	-	-	-	-	-	-	-	-	-	18607	26442	32609
Ø120	-	-	-	-	-	-	-	-	-	20603	29279	35896
Ø130	-	-	-	-	-	-	-	-	-	-	32195	39471
Ø140	-	-	-	-	-	-	-	-	-	-	35191	43144
Ø150	-	-	-	-	-	-	-	-	-	-	-	46920
Ø160	-	-	-	-	-	-	-	-	-	-	-	50798
Ø170	-	-	-	-	-	-	-	-	-	-	-	54783

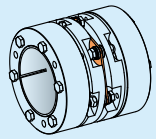
Please Observe!
Please observe permitted peak transient torques for selected coupling size and Type

Shrink disk hubs, large



Frictionally-locking transmittable torques
Shrink disk hubs, large

Suitable for H7/g6



T_R [Nm]

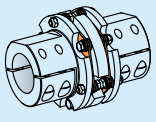
Bore	Size 16	25	40	64	100	160
Ø25	339	-	-	-	-	-
Ø28	404	-	-	-	-	-
Ø30	448	-	-	-	-	-
Ø32	492	526	-	-	-	-
Ø35	558	602	-	-	-	-
Ø38	620	679	-	-	-	-
Ø40	659	730	873	-	-	-
Ø42	694	780	937	-	-	-
Ø45	738	851	1036	1268	-	-
Ø48	-	913	1132	1394	-	-
Ø50	-	948	1195	1480	-	-
Ø52	-	978	1255	1565	-	-
Ø55	-	-	1338	1691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

Please Observe!
Please observe permitted peak transient torques for selected coupling size and Type

Split clamping hubs

Frictionally-locking transmittable torques
Split clamping hubs

Suitable for H7/g6



T_R [Nm]

Bore	Size 16	25	40	64	100	160
Ø18	130	-	-	-	-	-
Ø20	144	-	-	-	-	-
Ø22	158	198	-	-	-	-
Ø25	180	225	326	-	-	-
Ø28	202	252	365	-	-	-
Ø30	-	270	391	623	-	-
Ø32	-	288	418	665	-	-
Ø35	-	-	457	727	897	-
Ø38	-	-	496	790	973	-
Ø40	-	-	522	831	1025	1218
Ø42	-	-	-	873	1076	1279
Ø45	-	-	-	935	1153	1370
Ø50	-	-	-	-	1281	1522
Ø55	-	-	-	-	1409	1675
Ø60	-	-	-	-	1537	1827
Ø65	-	-	-	-	-	1979
Ø68	-	-	-	-	-	2071
Ø70	-	-	-	-	-	2131
Ø75	-	-	-	-	-	2284

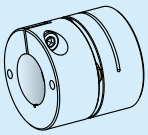
Please Observe!
Please observe permitted peak transient torques for selected coupling size and Type

Clamping hubs (Size 3 – 15)

Frictionally-locking transmittable torques
Clamping hubs

Suitable for a temperature range of -20°C to +40°C, at temperatures over 40°C, reduce frictionally-locking transmittable torques by 10 % / 10°C.

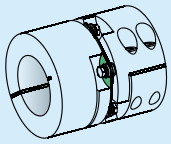
Suitable for H7/k6



T_R [Nm]

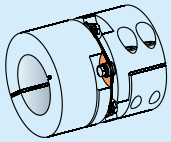
Bore	Size 3	6	10	15
Ø10	27	-	-	-
Ø12	32	-	-	-
Ø14	37	46	-	-
Ø15	39	51	-	-
Ø16	42	56	-	-
Ø18	47	65	-	-
Ø19	49	70	99	-
Ø20	52	74	105	-
Ø22	-	84	116	-
Ø24	-	92	128	-
Ø25	-	95	135	143
Ø28	-	107	151	163
Ø30	-	-	162	177
Ø32	**Please Observe!**	-	173	191
Ø35	Please observe permitted peak-transient-torques		189	211
Ø38	for selected coupling size and Type		-	229
Ø40				241
Ø42	-	-	-	253

Clamping hubs (Size 16 – 160)



Frictionally-locking transmittable torques
Clamping hubs

Suitable for H7 / h6



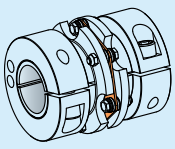
T_R [Nm]

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	**Please Observe!**	-	-	-	2755	3679
Ø85	Please observe permitted peak-transient-torques				2927	3909
Ø90	for selected coupling size and Type				3100	4139
Ø95					-	4369
Ø100	-	-	-	-	-	4599

Clamping ring hubs

Frictionally-locking transmittable torques
Clamping ring hubs

Suitable for H7/h6



T_R [Nm]

Bore	Size 16	25	40	64	100	160
Ø20	126	-	-	-	-	-
Ø22	138	199	-	-	-	-
Ø25	168	226	327	-	-	-
Ø28	201	253	366	523	-	-
Ø30	216	290	420	561	-	-
Ø32	230	325	470	598	785	-
Ø35	251	355	515	700	859	-
Ø38	-	386	559	798	932	-
Ø40	-	406	588	840	1050	1256
Ø45	-	-	661	945	1240	1413
Ø50	-	-	-	1050	1378	1680
Ø55	-	-	-	1155	1516	1940
Ø60	**Please Observe!**	-	-	-	1654	2117
Ø65	Please observe permitted peak-transient-torques				1792	2293
Ø68	for selected coupling size and Type				1874	2399
Ø70					-	2470
Ø80	-	-	-	-	-	2822

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Installation Examples

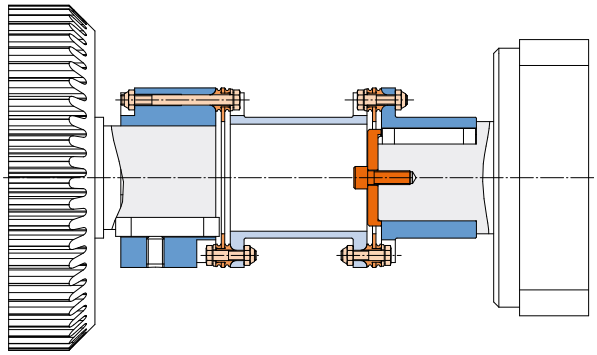

Fig. 82

Axial securement of key hubs via press cover

When using key hubs with transition tolerance and backlash tolerance, additional securement of the hubs is necessary. A positive-locking, extremely robust securement is achieved via press cover and clamping screws.

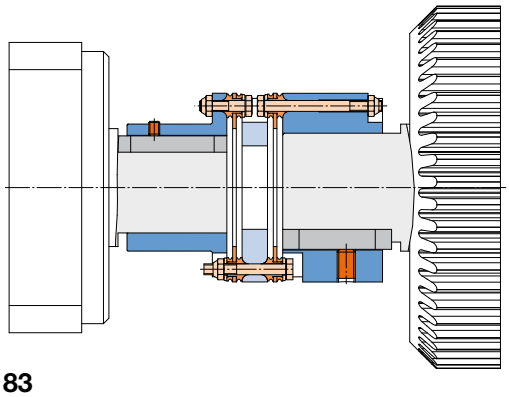

Fig. 83

Axial securement of key hubs via adjusting screw

When using adjusting screws, radial force is achieved on the key via positive locking. This securement is of advantage in particular for partly assembled couplings and limited space conditions.

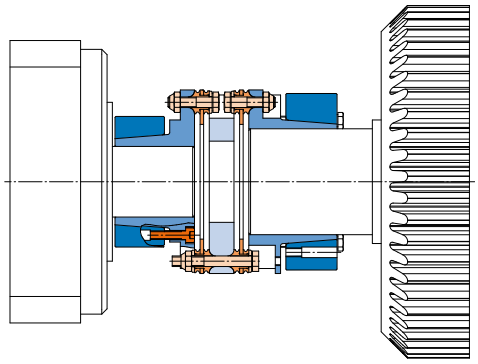

Fig. 84

Hub installation directly next to the housing wall with internally-clamping shrink disk hub

The ROBA®-DS coupling can be installed directly next to the housing wall by using an internally-clamping shrink disk hub. For this, a backlash-free shaft/hub connection is achieved in very limited space conditions.

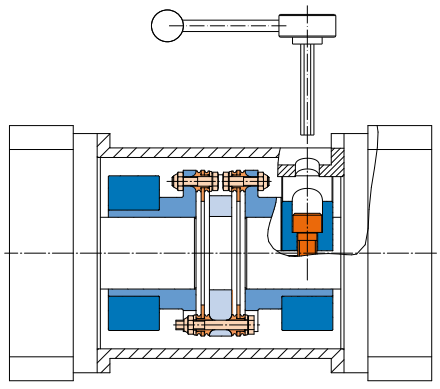

Fig. 85

Coupling installation in closed housing

By using clamping ring hubs, ROBA®-DS couplings can even be installed in areas very difficult to reach. A positive-locking connection to the shaft is achieved via a radial socket set screw. An opening in the gear bell housing is to be designed for the Allen wrench.

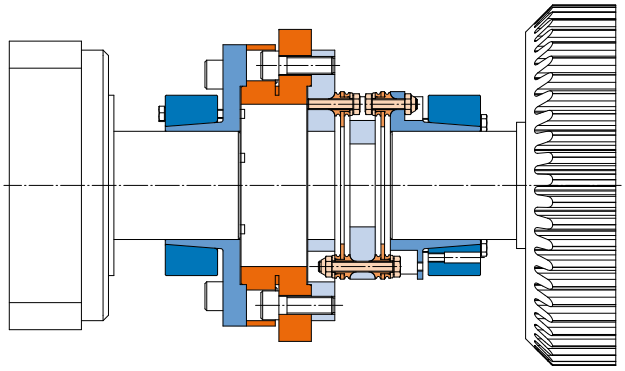

Fig. 86

Integration of measuring flange with adapting flanges

By using special adapting flanges, different measuring flanges (for torque measurement) can be integrated into ROBA®-DS couplings.

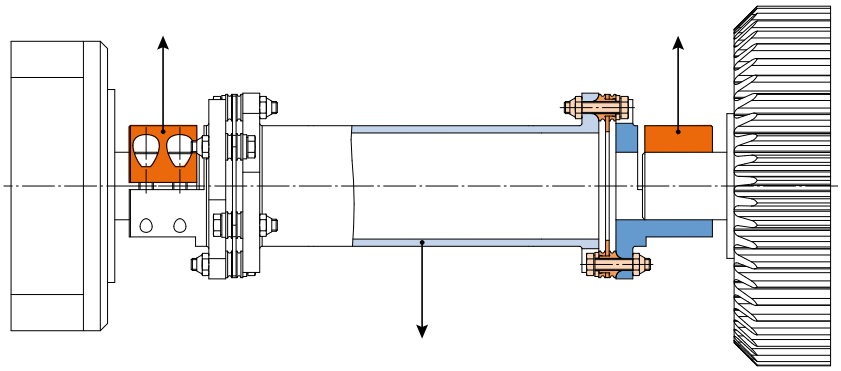

Fig. 87

Radial installation/dismantling with split clamping hubs

By using split clamping hubs, it is possible to install or dismantle ROBA®-DS couplings radially without misaligning the motor or gear box.

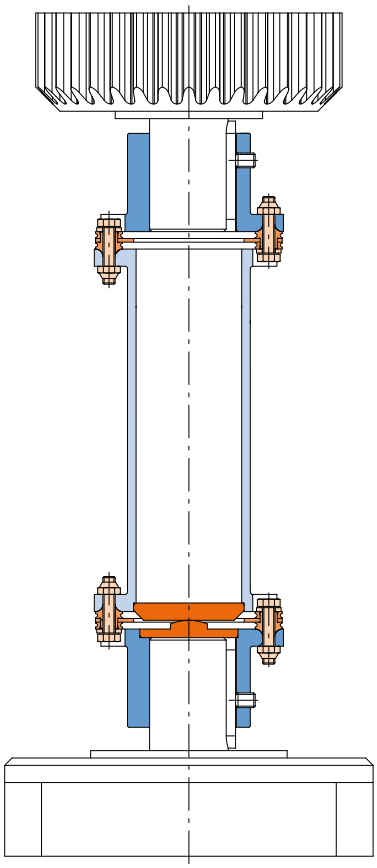

Fig. 88

Vertical support for special sleeve

For vertical or sloping installation of ROBA®-DS couplings with long intermediate sleeves, a “vertical support” is required. Using this device, the sleeve weight force is transferred directly from the sleeve onto the hub instead of via the disk packs onto the hub.

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Compact and Robust Torque Measurement Coupling

- **Integrated in proved and tested backlash-free shaft misalignment compensation couplings**
- **Simple electrical and mechanical installation**
- **Robust and reliable machine element**
- **Completely maintenance-free**

Application fields
- Process control
- Quality management
- Machine monitoring
- Test stands

Rotary signal transmitter
- Takes over energy and signal transmission
- Can be added radially
- Completely maintenance and wear-free

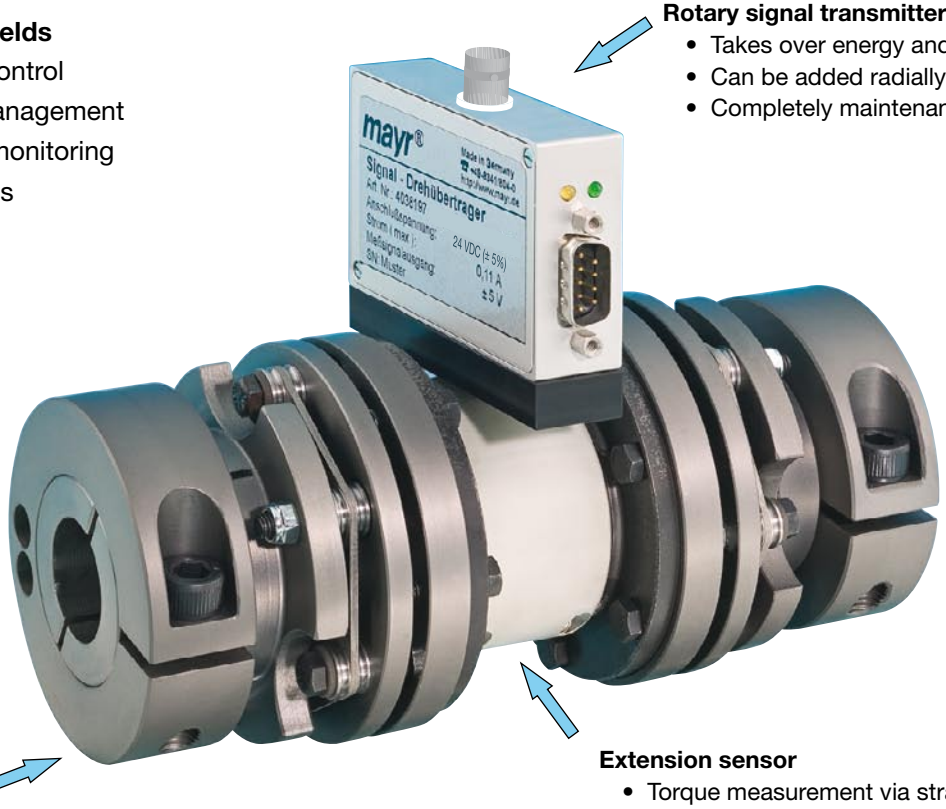

Fig. 89

ROBA®-DS
- Compensation of shaft misalignments
- High torsional rigidity
- High permitted alternating torques
- High flexibility with reference to hub/shaft connection

Extension sensor
- Torque measurement via strain gauge
- Torque-proportional output signal

Order Number

	HUB 1	HUB 2	
Key hub standard (page 26)	0	0	Key hub standard (page 26)
Key hub large (page 28)	1	1	Key hub large (page 28)
Shrink disk hub/external clamping (page 34)	2	2	Shrink disk hub/external clamping (page 34)
Clamping ring hub (page 32)	4	4	Clamping ring hub (page 32)
Clamping hub (page 30)	5	5	Clamping hub (page 30)
Flange (page 42)	6	6	Flange (page 42)
Shrink disk hub large (page 38)	9	8	Split clamping hub (page 40)
		9	Shrink disk hub large (page 38)

__ / 9 7 1 . __ __ 4 / __ / __

Sizes
16
40
160

Bore*
Hub 1 ø
(see dimensions pages 26 to 42)

Bore*
Hub 2 ø
(see dimensions pages 26 to 42)

Example: 16 / 971.004 / Hub 1 – ø 25 H7 / Hub 2 – ø 30 H7

*Standard H7, other tolerances possible

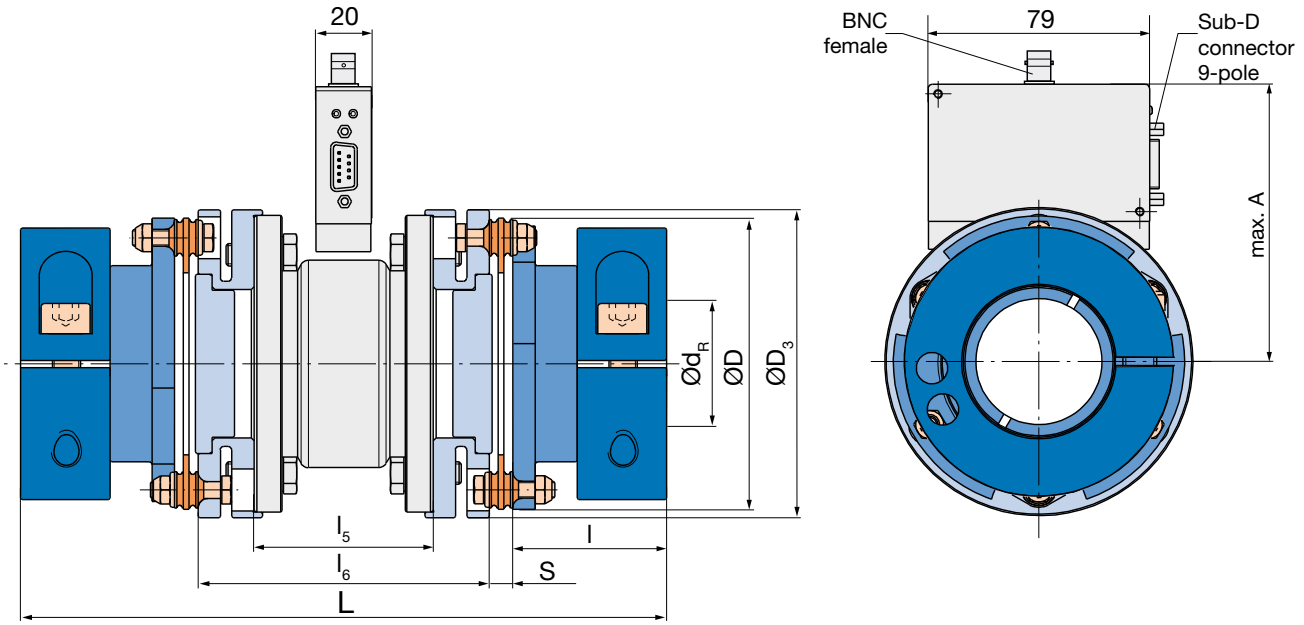

Fig. 90: Type 971.444 (for other shaft/hub connections possibilities, please see pages 26 - 42)

Technical Data and Main Dimensions				Size		
				16	40	160
Nominal torque [1) 2)]		T_{KN}	[Nm]	190	450	1600
Peak transient torque [3)]		T_{KS}	[Nm]	285	675	2400
Minimum hub bore Type 971.444 (Figs. 89 and 90) [4) 5)]		$d_{R\,min}$	[mm]	20	25	40
Maximum hub bore Type 971.444 (Figs. 89 and 90) [4) 5)]		$d_{R\,max}$	[mm]	35	45	80
Maximum speed		n_{max}	[rpm]	9500	7000	4300
Permitted misalignments [6)]	permitted axial misalignment [7) 8)]	ΔK_a	[mm]	0,8	1,0	1,7
	permitted angular misalignment [9)]	ΔK_w	[mm]	0,7	0,7	0,7
	permitted radial misalignment [7)]	ΔK_r	[mm]	1,1	1,3	1,8
Spring stiffnesses	total torsional stiffness		[10^3 Nm/rad]	36,2	114,3	585
	angular spring stiffness [9)]		[Nm/rad]	229	298	1990

Dimensions [mm]

Size	16	40	160
A	93	101	125
D	77	104	167
D_3	82	110	175
l [5)]	40	55	85
l_5	54	64	78
l_6	84	104	136
L [5)]	178,2	230,8	329,2
S	7,1	8,4	11,6

Mass moments of Inertia J [10^{-3}kgm²]

Size	16	40	160
Clamping ring hub [5) 10)]	0,63	2,84	28,71
Disk pack	0,08	0,26	3,27
Adapting flange	0,38	1,67	15,36
Strain gauge	0,51	2,21	20,04

Weight [kg]

Size	16	40	160
Clamping ring hub [5) 10)]	0,76	2,00	7,61
Disk pack	0,08	0,15	0,67
Adapting flange	0,43	1,11	3,89
Strain gauge	0,58	1,34	4,27

Technical Data for measuring system

- Supply voltage: 24 VDC (±5 %)
- Max. current consumption: 0,11 A
- Measuring signal output: 0 ... ±5 V (dependent on rotational direction, 5 V refers to T_{KN})
- Nominal temperature range: 0...+70 °C
- Temperature drift zero point: 0,04 % / K
- Temperature drift measurement value: 0,03 % / K
- Band: 0...1 kHz (-3 dB)
- Max. data transmission distance: 3 mm
- Protection: IP 54
- Max. dyn. load capability: 100 % of T_{KN}
- Connection: Sub-D connection, 9-pole
- Permitted speed: 0 - n_{max}
- Max. total errors: 1 % von T_{KN}

1) Other torques and construction size available on request.
2) Valid for alternating loads as well as max. permitted shaft misalignment.
3) Valid for one rotational direction, max. stress ≤10^5.
4) Transmittable torques dependent on bore see page 57.
5) For Technical Data for alternative hub connections please see pages 26 - 42.
6) The permitted misalignments may not simultaneously reach their maximum values.
7) The values refer to couplings with 2 disk packs.
8) Only permitted as a static or virtually static value.
9) The values refer to 1 disk pack.
10) Mass moments of inertia and weights are valid for maximum bore.

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Size Selection

Coupling size selection

1. Direct coupling selection

If the user knows all the torques affecting the coupling during operation and if temperatures do not rise above 175°C (100°C on sizes 3 to 15), a coupling should be selected whose nominal torque lies above the maximum in-operation torques according to the catalogue.

If shaft misalignment is present, no further limitations are necessary.

For ROBA®-DS couplings from size 16 onwards, no further limitations are necessary if alternating torques are present.

Please observe the alternating torques shown on page 4 for coupling sizes 3 to 15.

Please also observe the level and torsional direction of the start-up torque. This may be maximum 1.5 x the permitted coupling nominal torque. The torsional direction should remained unchanged, the maximum permitted amount of stress must be smaller than 1 x 10^5.

2. Calculation for coupling selection using drive performance and service factor f_B

If the user knows the application data of his drive line, we recommend dimensioning using performance and speed of the main engine as well as the service and temperature factors.

$$T_{KN} \geq \frac{9550 \times P \times f_B \times f_t}{n}$$

Term definitions:

T_{KN} [Nm]	Coupling nominal torque
P [kW]	Main engine nominal performance
f_B	Service factor according to Table 2, page 63
f_t	Temperature factor according to Fig. 91, page 62
n [rpm]	Drive machine nominal speed

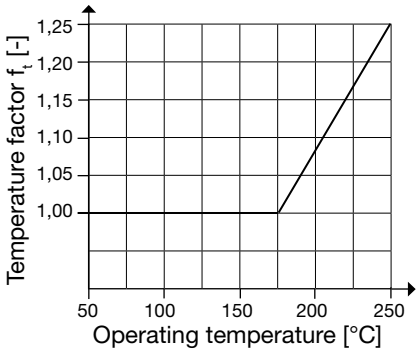

Fig. 91: Temperature factor f_t

Calculation Example

The ROBA®-DS coupling is to be dimensioned for a piston pump drive run via an electromotor. The following application data is available:

Main engine:	**Electromotor**
Nominal capacity	P = 13 kW
Nominal speed	n = 1450 rpm
Max. start-up torque	T_{Amax} = 2,5 x the motor nominal torque

Main engine: **Piston pump**

Maximum ambient temperature 60 °C

=> Required coupling nominal torque T_{KN}:

$$T_{KN} \geq \frac{9550 \times 13 \times 1{,}9 \times 1{,}0}{1450}$$

T_{KN} ≥ 162,7 Nm

Load class from Table 1, page 63: *III*
Service factor f_B from Table 2, page 63: *1,9*
Temperature factor f_t from Fig. 91, page 62: *1,0*

=> Required coupling peak transient torque T_{KS}:

$$T_{Nom} = \frac{9550 \times 13}{1450}$$

T_{Nom} = 85,6 Nm

T_{Amax} = 2,5 × T_{Nom}

Max. start-up torque: T_{Amax} = 2,5 x the motor nominal torque

T_{KS} ≥ T_{Amax} ≥ **214,1 Nm**

=> Selected coupling size:
ROBA®-DS 16 with a nominal torque **T_{KN}** of **190 Nm** and a peak transient torque **T_{KS}** of **285 Nm**.

Classification of Work Machines into Load Classes	
Construction machinery	
- Concrete blenders	II
- Chain conveyors	III
- Chain carriages	III
- Crushers	III
Chemical industry	
- Mixers (thick fluids)	II
- Mixers (thin fluids)	I
- Centrifuges	II
- Blenders	II
Fans/vents	II
Generators/convertors	
- Frequency convertors	I
- Generators	II
Foodstuffs machines	
- Kneading machines	II
- Mills	III
- Packaging machines	II
Paper machines	III
Compressors	II
Conveyor systems	
- Conveyor belts	II
- Sloping elevators	III
- Goods elevators	II
- Passenger elevators	II
Wood/plastic processing	
- Planing machines	II
- Reciprocating saws	III
- Extruders	II
- Blenders	II
Crane systems	II
Metal processing	
- Punching/Pressing	III
- Machine tools	II
Pumps	
- Centrifugal pump (thin fluids)	I
- Centrifugal pump (thick fluids)	II
- Pistons/plunger pumps	III
Textile machines	II
Washing machines	II

Table 1: Load Classes

Service factor f_B		Work Machine Load Class I	II	III
Main engine	**Electromotor, turbine, hydraulic motor**	1,1	1,4	1,9
	Piston machine with more than 3 cylinders	1,4	1,7	2,2
	Piston machine with up to 3 cylinders	1,7	2,0	2,5

Table 2: Service factor f_B

Technical Explanations

Permitted shaft misalignments

- ROBA®-DS single-jointed couplings (Type 950._ _ _ and Type 952._ _ _) compensate for angular and axial shaft misalignments.
- ROBA®-DS double-jointed couplings (Type 951._ _ _ and Type 953._ _ _) compensate for angular, radial and axial shaft misalignments (Fig. 92).
- If more than one misalignment type occurs simultaneously, they affect each other. The permitted misalignment values are dependent on one another, see Fig. 93. The sum of the actual misalignments – in percent of the maximum value – may not exceed 100 %.

Example (see Table on page 26 and Fig. 93):

ROBA®-DS, size 40, Type 951.002

=> **Axial misalignment** occurrence: ΔK_a = 0,6 mm, which is **40 %** of the permitted maximum value ΔK_a = 1,5 mm

=> **Angular misalignment** occurrence**:** in disk pack: ΔK_w = 0,3°, which is **30 %** of the permitted maximum value ΔK_w = 1,0°

=> **Permitted radial misalignment**: ΔK_r = **30 %** of the permitted maximum value ΔK_r = 1,5 mm => ΔK_r = 0,45 mm

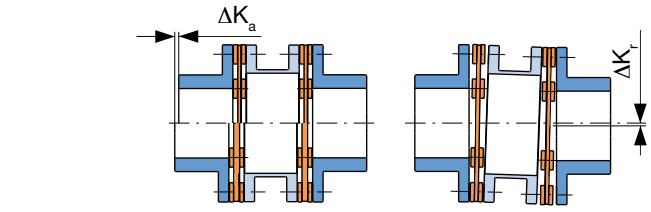

Fig. 92

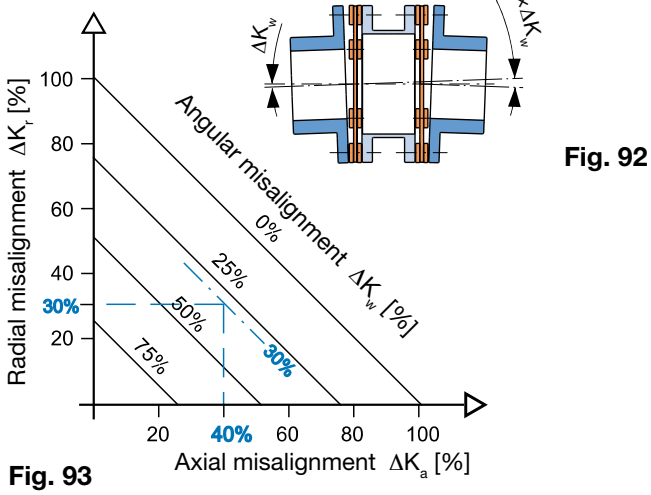

Fig. 93

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Permitted Speeds (Bend-critical Speeds) on Sleeve S, GKR Sleeve and CRP Sleeve (Figs. 94, 95, 96)

Permitted speed on special sleeve ROBA®-DS Type 95_._ _ 3 (Sleeve S)

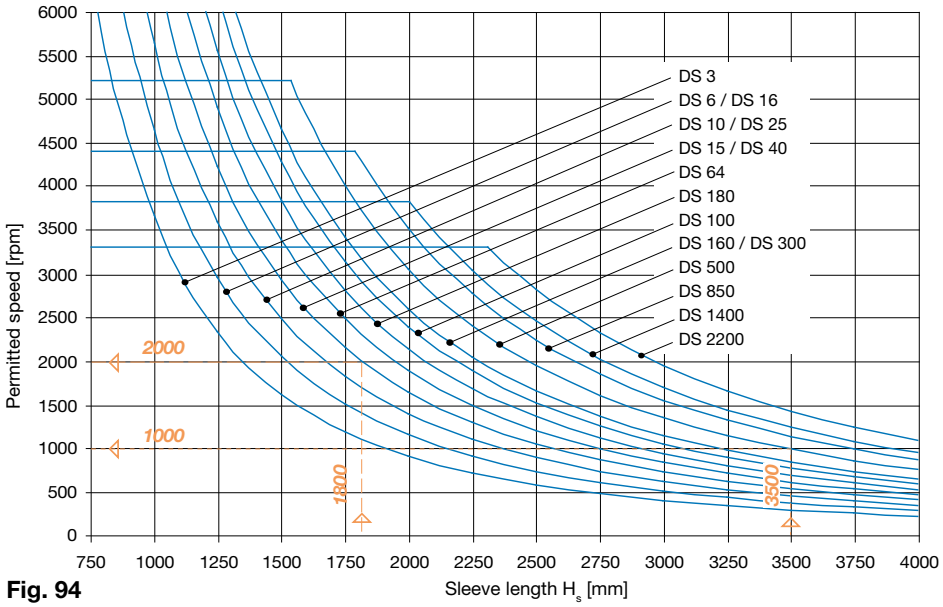

Fig. 94

Examples (Fig. 94)

- ROBA®-DS, Size 40:

Sleeve length: **H_s = 1800 mm**
= > permitted speed:
2000 rpm

- ROBA®-DS, Size 500:

Sleeve length: **H_s = 3500 mm**
= > permitted speed:
1000 rpm

Permitted speed on special sleeve ROBA®-DS Type 95_._ _ 4 (Sleeve GKR)

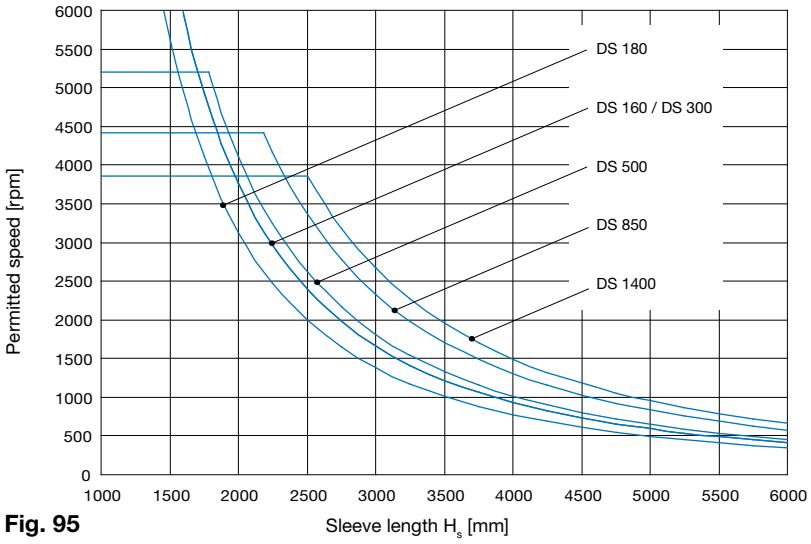

Fig. 95

Permitted speed on special sleeve ROBA®-DS Type 95_._ _ 5 (Sleeve CFK)

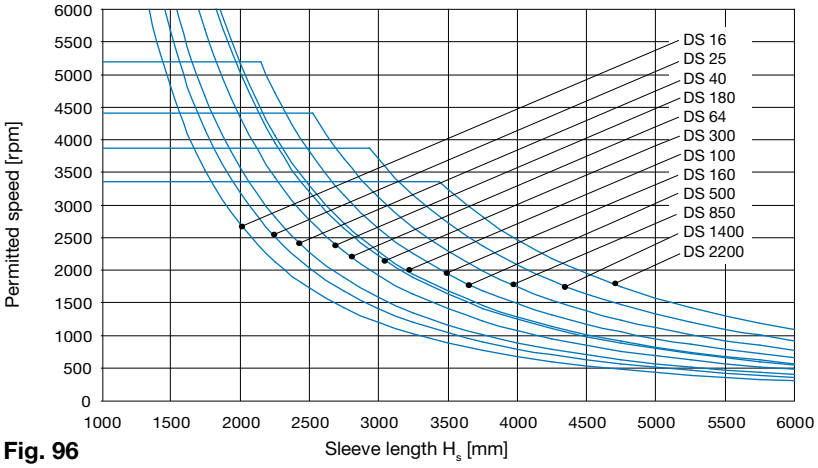

Fig. 96

Using the coupling at high speeds

- Please keep to the maximum speeds defined in the catalogue. Higher speeds are only permitted after contacting the manufacturers.
- Please operate designs with sleeve S, GKR sleeves and CRP sleeves at sub-critical levels (see Figs. 94, 95 and 96).
- Both hub variants clamping hub/clamping ring hub and split clamping hub may only be used within a limited speed range. At very high speeds, shrink disk hubs and key hubs (press tolerance) should be used.
- We recommend balancing the coupling in individual parts or complete.
- Shafts misalignments should be kept as low as possible for smoother system running.
- When using double cardanic shafts, axial animation of the middle coupling part is possible due to operating speed and misalignment. In order to avoid this animation, please minimise the shaft misalignment.
- When connecting very high mass inertias via ROBA®-DS couplings (in particular double-jointed couplings with long sleeves), the torsion-critical natural frequency and speeds must be observed.

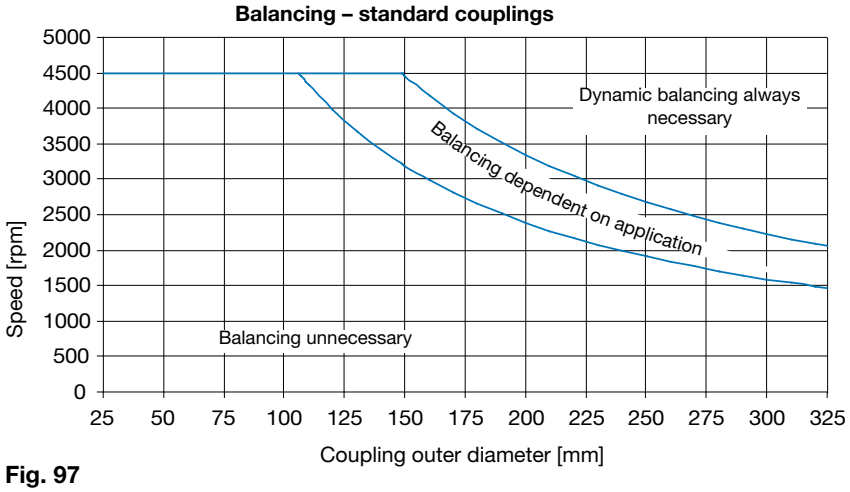

Fig. 97

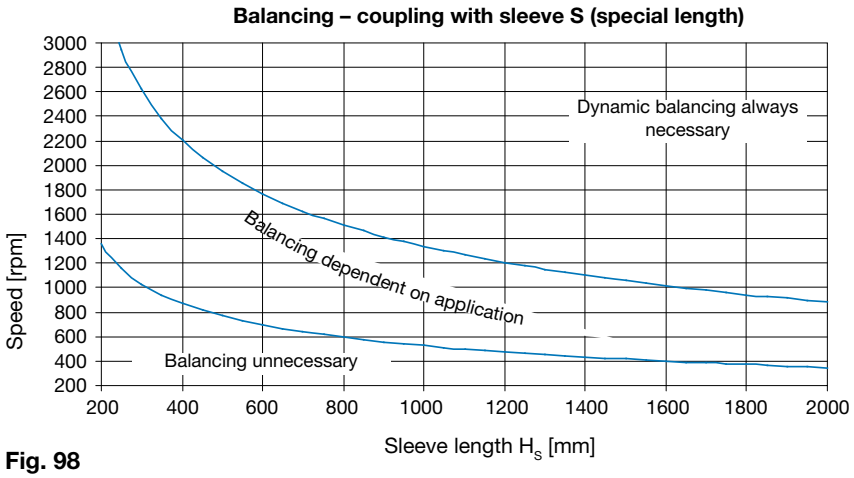

Fig. 98

Balancing the Coupling

- Not necessary for most applications.
- For a decision whether balancing must take place, please evaluate the following points:
  - Coupling circumferential speed (Fig. 97)
  - Length of special sleeve (Fig. 98)
  - Necessary balance quality
- The smooth running of a machine is not only maintained due to the balance quality of the coupling, but also, to at least the same extent, to parameters such as:
  - stiffness and distance from the adjacent bearing,
  - sensitivity and mass of the whole system

  Figs. 97 or 98 only show reference values as recommendations for balancing.
- All parts of the ROBA®-DS couplings, except for the sleeve S are machined on all sides. They are therefore in the range G 6.3 according to ISO DIN 1940 at medium speeds.
- When ordering the coupling with a special sleeve, please always state the coupling operating speed.
- When there are higher demands on the balance quality, balancing individual parts of the complete installed coupling is possible. The hubs should be designed with a finish bore.

State of Delivery

- Delivery in partly assembled parts and /or individual parts
- Corrosion protection: phosphation, disk pack made of rustproof steel.
- Hub designs: pilot bored or finish bored.
- Bore: tolerance H7 (other tolerances possible)
- Shaft run-out and axial run-out tolerances: 0,03 mm (Fig. 99)
- Key hub: keyway according to DIN 6885 pages 1 or 3

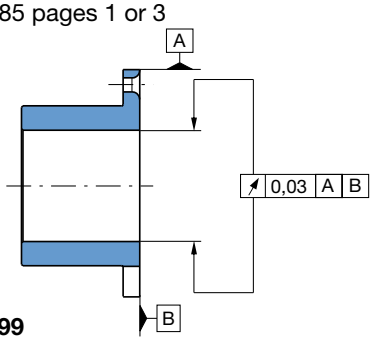

Fig. 99

Temperature Resistance

- Temperature resistant in range -40 °C up to +250 °C (-20 °C up to +100 °C for sizes 3 to 15).
- At temperatures above +120 °C, the self-locking hexagon nuts should be replaced by self-locking all-steel nuts according to EN ISO 7042.
- Couplings with CRP sleeves can be used at temperatures of -20 °C up to +80 °C

Installation Position

- Horizontal installation
- On vertical or sloping installations and when using long sleeves, we recommend using vertical supports (Fig. 88, page 59).
- The vertical support and the hub centerings in the hub and the sleeve are produced manufacturer-side.

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Short Description – Hub Installation

Please find a detailed installation description in the Installation and Operational Instructions for the product.

Hub installation 95_.0_ _ or 95_.1_ _ (hubs with keyway, Fig. 100)

- Mount the hubs onto the shaft using a suitable device.
- Axial securement:
  - a set screw (adjusting screw) presses radially onto the key,
  - a press cover and screw are screwed into the shaft threaded centre hole.
- The shaft tolerance should be adapted to the application:
  - alternating rotational direction: press tolerance,
  - operation in one direction: transition tolerance or backlash tolerance

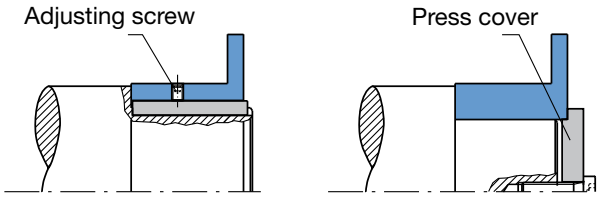

Fig. 100

Hub installation 95_.2_ _ / 95_.3_ _ / 95_.9 _ _ (Hubs with shrink disk) 95_.4_ _ (hubs with clamping ring)

- Mount the hubs onto the shafts using a suitable installation device and bring them into the correct position.
- Tighten the clamping screws one after the other in 3 to max. 6 tightening turns using a torque wrench.

  Guidelines!
  - The contact surfaces between the shrink disk and the hub and the clamping ring and hub have been greased manufacturer-side.
  - The hub bores and shaft ends are grease-free.
  - Greasy or oily bores or shafts do not transmit the maximum coupling torque!
  - The shaft must not have a keyway.
  - Shaft surface: finely turned or ground (Ra = 0,8 µm).
  - Shaft material: yield point at least 350 N/mm², e.g. St60, St70, C45, C60.
  - Recommended shaft tolerance:

    Dependent on application and hub Type. See Table of frictionally-locking torques on pages 56/57.

Hub or coupling installation Type 95_.8_ _ (Split clamping hubs)

- Partly assemble the coupling, observing the Point “Coupling Installation” (page 66).
- Loosen the partly assembled split shells from the hub.
- Place the coupling from above onto the shafts and partly assemble with the split shells (Fig. 101).
- Tighten the clamping screws crosswise in several procedures. Please ensure that the gap “X” on both sides of the hub is the same (Fig. 102).

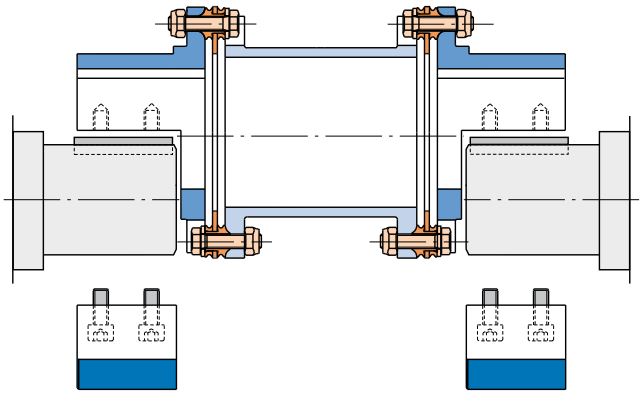

Fig. 101

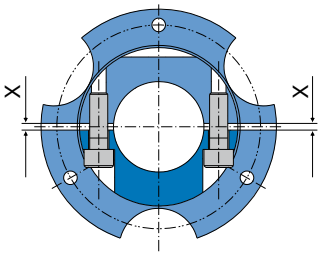

Fig. 102

Short Description – Coupling Installation

Please find a detailed installation description in the Installation and Operational Instructions for the product. The following installation description is for the ROBA®-DS couplings from size 16.

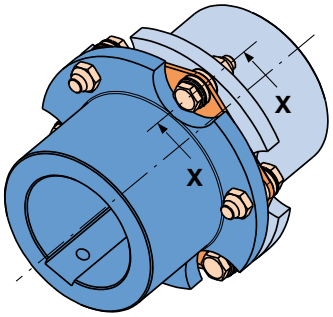

Fig. 103

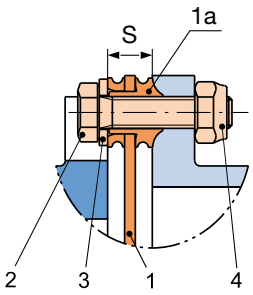

Fig. 104 Detail „X“

- Screw the disk packs (1, Bild 104) over lightly-oiled hexagon head screws (2), washers (3) and hexagon nuts (4) alternately with the sleeve and the hubs.
- Producing the pre-tension force on the disk pack (1) usually takes place* via the hexagon nut (4). Please avoid twisting the disk pack (1) (secure screw (2) against turning).
- The hexagon nuts (4) or hexagon head screws (2) must be tightened crosswise and in several sequences to the full tightening torque M_a. For the appropriate tightening torques for each sequence, please see the appropriate Installation and Operational Instructions.

Please Observe!
The radius of the collar bushings (Part 1a, Fig. 104, Detail “X”) must lie in the hub and sleeve grooves.

*The head of the hexagon head screw (2) with the washer (3) must always lie against the disk pack (1).

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You can find the complete address for the representative responsible for your area under www.mayr.de in the internet.

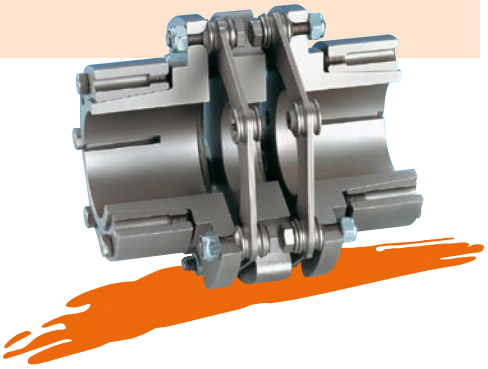
your reliable partner

Product Summary

Safety Clutches/Overload Clutches

- **EAS®-Compact®/EAS®-NC**
  Positive locking and completely backlash-free torque limiting clutches
- **EAS®-smartic®**
  Cost-effective torque limiting clutches, quick installation
- **EAS®-element clutch/EAS®-elements**
  Load-disconnecting protection against high torques
- **EAS®-axial**
  Exact limitation of tensile and compressive forces
- **EAS®-Sp/EAS®-Sm/EAS®-Zr**
  Load-disconnecting torque limiting clutches with switching function
- **ROBA®-slip hub**
  Load-holding, frictionally locked torque limiting clutches
- **ROBA®-contitorque**
  Magnetic continuous slip clutches

Shaft Couplings

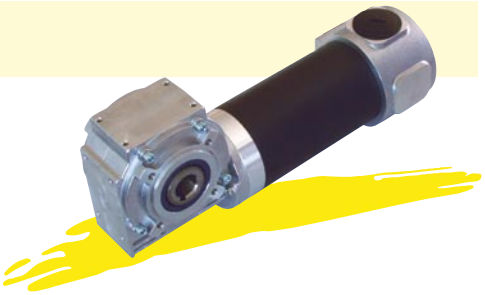


- **smartflex®**
  Perfect precision couplings for servo and stepping motors
- **ROBA®-ES**
  Backlash-free and damping for vibration-sensitive drives
- **ROBA®-DS/ROBA®-D**
  Backlash-free, torsionally rigid all-steel couplings
- **EAS®-control-DS**
  Cost-effective torque-measuring couplings

Electromagnetic Brakes/Clutches

- **ROBA-stop® standard**
  Multifunctional all-round safety brakes
- **ROBA-stop®-M motor brakes**
  Robust, cost-effective motor brakes
- **ROBA-stop®-S**
  Water-proof, robust monoblock brakes
- **ROBA-stop®-Z/ROBA-stop®-silenzio®**
  Doubly safe elevator brakes
- **ROBA®-diskstop®**
  Compact, very quiet disk brakes
- **ROBA®-topstop®**
  Brake systems for gravity loaded axes
- **ROBA®-linearstop**
  Backlash-free brake systems for linear motor axes
- **ROBATIC®/ROBA®-quick/ROBA®-takt**
  Electromagnetic clutches and brakes, clutch brake units

DC Drives



- **tendo®-PM**
  Permanent magnet-excited DC motors
- **tendo®-SC**
  1 quadrant and 4 quadrant transistor controllers

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