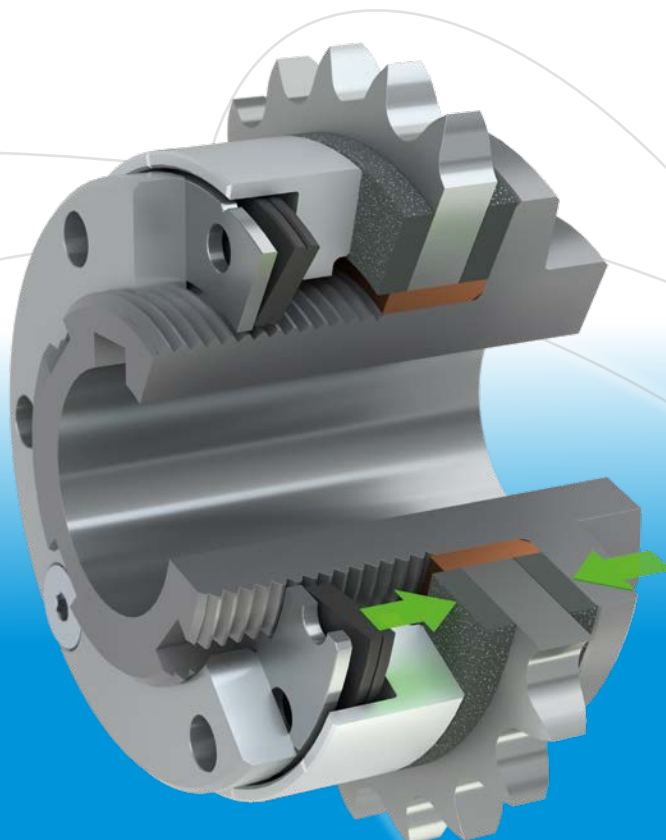




your reliable partner



ROBA®-slip hubs

K.123.V14.EN

www.mayr.com

ROBA[®] – a Well-known Trade Name

ROBA[®]-slip hub the load-holding, frictionally-locking safety clutch

ROBA[®] is a trade name which has been the symbol of quality and experience in clutch construction for decades. A comprehensive range of torque limiters has originated from the robust jaw clutch (ROBA[®]-safety slip clutch).

ROBA[®]-slip hub devices are simple to use. The torque table makes it possible to set the torque according to a scale and offers considerably simplified installation. ROBA[®]-slip hub devices are reasonably-priced drive elements which protect machinery and equipment against costly damage, and against downtimes resulting from time-consuming repairs.

As a result of their high-strength materials and careful manufacture with optimum utilisation of space, ROBA[®]-slip hub devices are smaller than similar clutches on the market. Twelve different designs and combinations are available. We have a solution for all drive units. However, if any of your wishes remain unanswered, please contact us.

ROBA[®] stands for: trust in safety.

Design

Despite their simple construction, ROBA[®]-slip hub devices are high-quality machine components. The ROBA[®]-slip hub is fully machined and phosphated and, therefore, protected against rust. It is a fully enclosed construction, so that dirt is prevented from reaching internal components.

The ROBA[®]-slip hub, which is a rotating component, fits very easily into all drive systems as a result of its smooth construction. It is particularly suitable for attachment to the outside of machines and for those systems which must be kept clean easily, e.g. in the food industry.

ROBA[®]-slip hub devices are designed in such a way that they can be adapted very easily to the most varied of working conditions, e.g. high slipping frequency and low torque or low friction work and extremely high torque, as well as all intermediate stages of torque and friction work, and the desired lifetime.

Application

ROBA[®]-slip hub devices are used as overload protection for machine drives with chain sprockets, toothed wheels or pulleys. The ROBA[®]-slip hub is used wherever expensive and sensitive motors, gearboxes or machinery components need to be protected against overloads. If overload occurs, the drive element slips and, therefore, limits the torque.

ROBA[®]-slip hub devices are used in packing machines, transport systems and equipment, construction machinery, textile machinery, agricultural machinery, mechanical handling equipment, feed units, loading systems, in equipment for the chemical industry and in machinery and equipment in general industrial engineering.

Asbestos-free friction linings with a large surface area and a low wear rate ensure a long lifetime.

The bearing bushing width can be shortened to suit the width of the drive element.

The short, robust hub ensures compact overall dimensions for the complete slip hub, together with easy assembly and fitting.

The set screw applies pressure onto the keyway of the shaft, preventing axial movement of the slip hub.

A speed monitor (available on request) prevents excessively long drive element slippage or serves on the output to monitor the chain drive against breakage.

Positive-locking torque adjustment securement via the lock washer and the locking screw to prevent the adjusting nut loosening

Four wide claws engage in the keyways of the hub and guarantee reliable torque transmission even under impact loads or reversing load conditions.

Adjusting nut together with a graduation scale for simple torque adjustment and wear re-adjustment

Cup springs with low characteristic curve keep torque reduction due to wear low. Alternative spring layerings ensure a wide torque range per size.

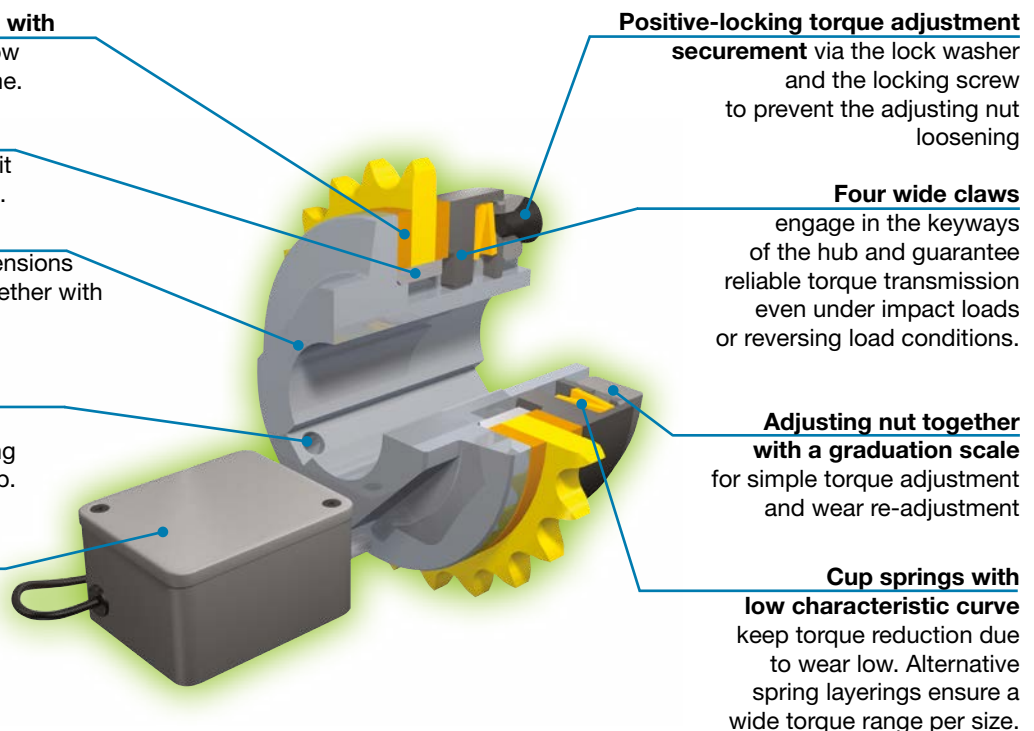
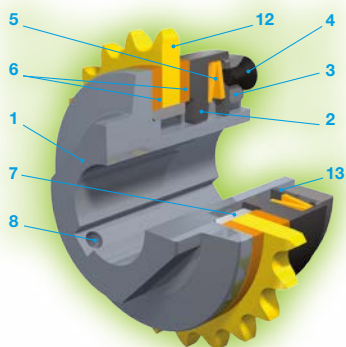


Fig. 1 Type 100.110

Functional Description

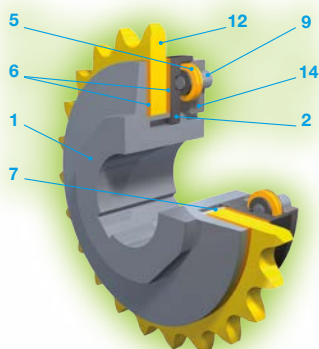
Part List Sizes 0 – 5



1. Hub
2. Thrust washer
3. Adjusting nut 0
4. Locking screw
5. Cup springs
6. Friction linings
7. Bearing bushing
8. Adjusting screw
12. Chain sprocket
13. Lock washer

Fig. 2 Type 100.110, Sizes 0 – 5

Part List Sizes 6 – 12



1. Hub
2. Thrust washer
5. Cup springs
6. Friction linings
7. Bearing bushing
9. Cup spring supporting bolt
12. Chain sprocket
14. Adjusting nut 0

Fig. 3 Type 100.110, Sizes 6 – 12

Function

The drive element (12) (chain sprocket or V-belt disk) is placed on the bushing (7) as shown in Figure 2 and clamped between the friction linings (6) with the aid of the thrust washer (2), the cup springs (5) and the adjusting nut (3) with the lock washer (13). The more powerfully the cup springs (5) are compressed by the adjusting nut (3), the higher the torque at which the drive element (12) slips. The precise torque adjustment operation is described on page 21.

Contents

ROBA®-slip hubs

Torque range: 2 to 50.000 Nm

in special design up to 200.000 Nm

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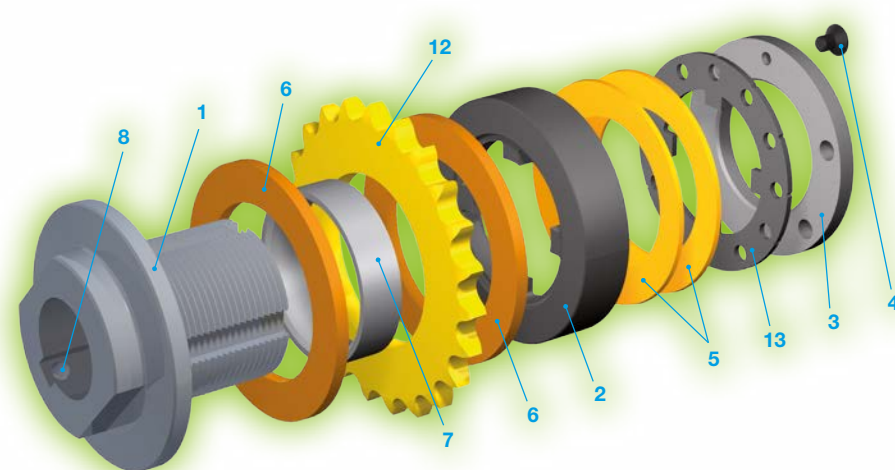


Fig. 4 Type 100.110, Sizes 0 – 5

It should also be noted that the difference in torque after friction lining wear is lowest with single cup spring layering and highest with triple cup spring layering. In addition, a torque adjustment in the uppermost quarter of the maximum torques gives a particularly even adjustment (the spring characteristic curve has its smallest increase in this area). Other friction linings are also available for special applications (see further details on page 19).

The ROBA®-slip hub is available for three different torque ranges.

Rule of thumb:

ROBA®-slip hub for **high friction work and low torque** (single-layer cup springs, single contact force).

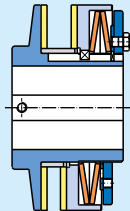
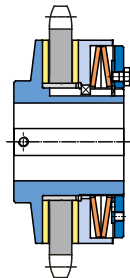
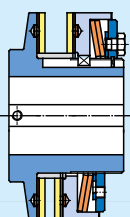
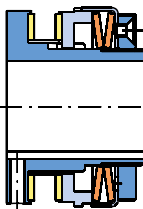
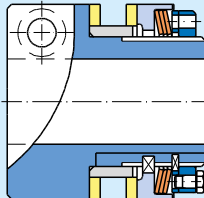
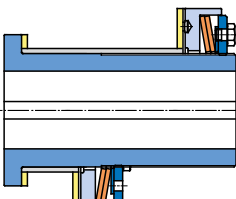
ROBA®-slip hub for **medium friction work and higher torque** (double-layer cup springs, double contact force).

ROBA®-slip hub for **low friction work and very high torque** (triple-layer cup springs, triple contact force).

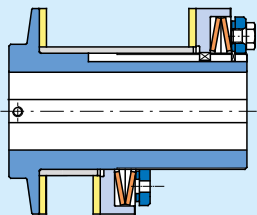
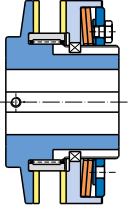
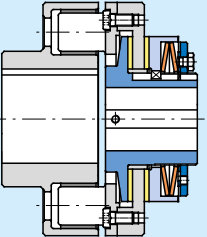
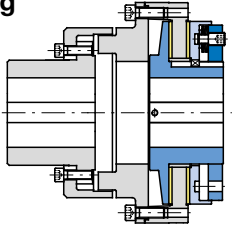
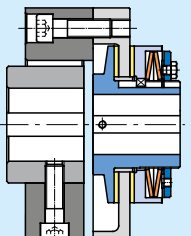
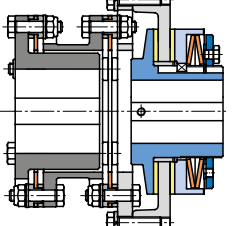


Please observe the operating speed or slipping speed (see Explanation on page 19)!

ROBA[®]-slip hubs Summary of Constructional Designs

ROBA®- slip hub standard		Torque: 2 to 50.000 Nm Sizes 0 to 12 Type 100._ _ _	Safety clutch for machine drives requiring protection against overload. When the preset overload torque is reached, the drive element slips, preventing damage to the drive system.	Page 6				
ROBA®-slip hub with standard chain sprocket		Torque: 6 to 1.400 Nm Sizes 01 to 5 Type 100._ _ _	Slip hub complete with chain sprocket as a reasonably-priced drive element with a high safety factor for all chain drives	Page 8				
ROBA®-slip hub with rustproof friction linings		Torque: 6 to 2.400 Nm Sizes 01 to 6 Type 100._2_	For drives in open air installations, particularly wet ambient conditions or for long downtimes	Page 9				
ROBA®-Co-Pro®		Torque: 5 to 1.500 Nm Sizes 30 to 50 Type 1000._1000 Type 1010._1000	Compact, high performance safety clutch Hub designs: <table><tr><td>Design M</td><td>Type 1000._1000</td></tr><tr><td>Design L</td><td>Type 1010._1000</td></tr></table>	Design M	Type 1000._1000	Design L	Type 1010._1000	Page 10
Design M	Type 1000._1000							
Design L	Type 1010._1000							
ROBA®-clamp		Torque: 2 to 400 Nm Sizes 0 to 2 Type 106._ _ _	- For shaft ends without a keyway. Enables easy and fast shaft installation. - The keyless slip hub is better suited to larger shafts than the standard design.	Page 11				
ROBA®-min		Torque: 8 to 1.100 Nm Sizes 1 to 5 Type 121._ _ _ Type 123._ _ _	- For drive elements with particularly small diameters and very large installation widths - Larger installation width than Type 100, but only capable of transmitting lower torques Hub designs: <table><tr><td>short hub</td><td>Type 121._ _ _</td></tr><tr><td>long hub</td><td>Type 123._ _ _</td></tr></table>	short hub	Type 121._ _ _	long hub	Type 123._ _ _	Page 12
short hub	Type 121._ _ _							
long hub	Type 123._ _ _							

ROBA®-slip hubs Summary of Constructional Designs

ROBA®-max 	Torque: 2 to 2.100 Nm Sizes 0 to 5 Type 170.____	For drive elements (chain sprockets, toothed wheels etc.) with particularly large installation widths (e.g. double-row chain sprockets). Same product width as Type 123, but is capable of transmitting higher torques.	Page 13
ROBA®-slip hub with needle bearing 	Torque: 9 to 1.260 Nm Sizes 1 to 5 Type 160.____	For drive elements with larger radial loads, a higher slipping frequency and increased shaft run-out accuracy (e.g. toothed wheels)	Page 14
ROBA®-lastic - torsionally flexible 	Torque: 2 to 1.400 Nm Sizes 0 to 5 Type 135.____	- Torsionally flexible safety clutch for connection of two shafts - The flexible coupling component is designed as a simple plug-in coupling.	Page 15
ROBA®-lastic - positive-locking 	Torque: 240 to 50.000 Nm Sizes 6 to 12 Type 132.____0	- Positive-locking, torsionally flexible safety clutch for connection of two shafts - Flexible coupling component is designed as a torsionally flexible plug-in coupling.	Page 16
ROBA®-lastic - highly flexible 	Torque: 2 to 2.400 Nm Sizes 0 to 6 Type 131.____	- Highly flexible safety clutch for connection of two shafts - Flexible coupling component with high damping characteristics	Page 17
ROBA®-LD - torsionally rigid 	Torque: 14 to 6.800 Nm Sizes 1 to 8 Type 133.____ Type 134.____	- Torsionally rigid safety clutch for connection of two shafts - Flexible coupling component is designed as a torsionally rigid flexible all-steel coupling. Type 133 is designed with a short, torsionally rigid coupling. Type 134 is designed with a long, torsionally rigid coupling. Sleeve Designs: short sleeve long sleeve Type 133.____ Type 134.____	Page 18

ROBA®-slip hub standard

Type 100.____
Sizes 0 to 12

Sizes 0 to 5

Types 100.1____, 100.2____ and 100.3____

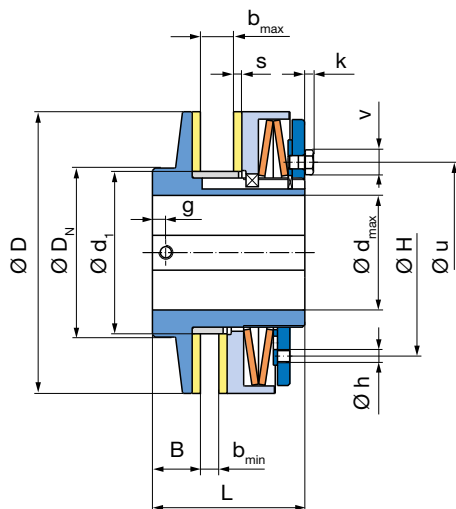
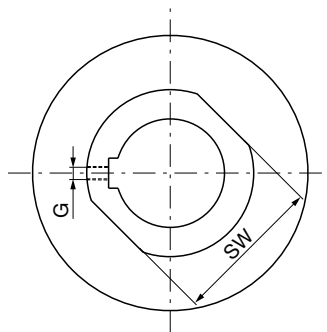


Fig. 5
Type 100.110



Sizes 6 to 12

Types 100.1____ and 100.2____

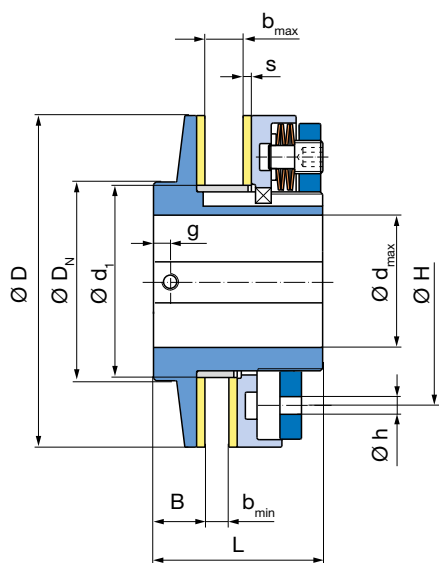
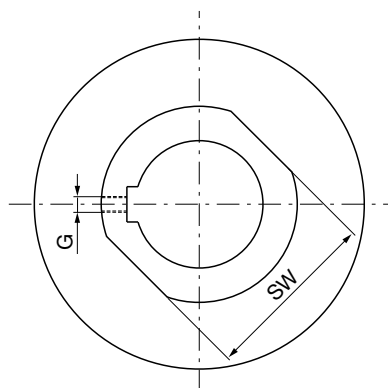


Fig. 6
Type 100.110



ROBA®-slip hub standard

We reserve the right to make dimensional and constructional alterations.

Technical Data (Sizes 0 to 5)				Size						
				0	01	1	2	3	4	5
Limit torques for overload	Type 100.11_	M _G	[Nm]	2 – 10	6 – 30	14 – 70	26 – 130	50 – 250	110 – 550	140 – 700
	Type 100.21_	M _G	[Nm]	10 – 20	30 – 60	70 – 130	130 – 250	250 – 550	550 – 1100	700 – 1400
	Type 100.3_	M _G	[Nm]	18 – 30	60 – 90	130 – 200	250 – 400	-	-	-
	Type 100.3_2	M _G	[Nm]	-	-	-	-	550 – 800	1100 – 1600	1400 – 2100
Operating speed ¹⁾		n _{max}	[rpm]	8500	6600	5600	4300	3300	2700	2200
Weight (pilot bored)			[kg]	0,3	0,6	0,9	1,6	3,1	5,4	9,0

Technical Data (Sizes 6 to 12)				Size						
				6	7	8	9	10	11	12
Limit torques for overload	Type 100.11_	M _G	[Nm]	240–1200	400–2000	680–3400	1200–6000	2000–10000	3400–17000	5000–25000
	Type 100.21_	M _G	[Nm]	1200–2400	2000–4000	3400–6800	6000–12000	10000–20000	17000–34000	25000–50000
Operating speed ¹⁾		n _{max}	[rpm]	1900	1600	1300	1100	920	780	690
Weight (pilot bored)			[kg]	12.4	21.2	30.7	79	125	179	278

Dim. [mm]	B	b _{min}	b _{max}	D	D _N	d ₁ ^{H8/8)}	d _{min}	d _{max}	G	g	H	h	k	L	SW	s	u	v
0	8,5	2	6	45	45	35	7	20 ²⁾	M4	3	37	3	- ⁷⁾	33	-	2,5	37	2 ⁷⁾
01	16	3	8	58	40	40	12	22	3)	4	46	5	- ⁷⁾	45	32	3	46	2,5 ⁷⁾
1	17	3	10	68	45	44	12	25	4)	5	50	5	1,3 ⁷⁾	52	41	3	50	3 ⁷⁾
2	19	4	12	88	58	58	15	35	5)	5	67	6	3	57	50	3	67	10
3	21	5	15	115	75	72	19	45	6)	5	84	6	5,5	68	65	4	84	13
4	23	6	18	140	90	85	25	55	M8	6	104	7	5,5	78	80	4	97	13
5	29	8	20	170	102	98	30	65	M8	8	125	8	5,5	92	90	5	109	13
6	31	8	23	200	120	116	40	80	M8	8	150	10	-	102	105	5	-	-
7	33	8	25	240	150	144	48	100	M10	8	185	10	-	113	135	5	-	-
8	35	8	25	285	180	170	60	120	M10	8	230	10	-	115	165	5	-	-
9	53	12	28	350	225	237	57	140	M12	9	290	10	-	162	220	6	-	-
10	60	15	35	415	255	270	80	160	M12	9	340	10	-	185	250	6	-	-
11	73	20	45	490	285	305	90	180	M16	11	400	10	-	222	280	7	-	-
12	79	25	55	555	315	335	100	200	M16	11	450	10	-	250	310	7	-	-

Order Number

Adjusting nut standard with radial adjustment ¹⁰⁾ for triple layering (for high torque range: Sizes 3 to 5)					0 1 2	Bore Hub Ø d ^{H7}	Keyway acc. DIN 6885-1 DIN 6885-3
— / 1 0 0 . — — — / — / — / —							
Sizes 0 to 12	Torque range ⁹⁾ low 1 medium 2 high ¹⁰⁾ 3				1 4 5	Friction lining standard for oil running ¹¹⁾ special low-friction material ¹¹⁾	Width of drive element b Dependent on size: if not specified, we deliver the bearing bushing for maximum installation width b _{max} . For narrower drive elements, the bearing bushing is shortened, see page 20.

Example: Order Number 4 / 100.210 / 50 / 6885-1 / 15

1) See Explanations page 19

2) Size 0: up to Ø 19 keyway acc. DIN 6885-1
over Ø 19 keyway acc. DIN 6885-3

3) Size 01: up to Ø 12 M4, over Ø 12 M5

4) Size 1: up to Ø 12 M4, over Ø 12 up to Ø 17 M5, over Ø 17 M6

5) Size 2: up to Ø 17 M5, over Ø 17 M6

6) Size 3: up to Ø 22 M6, over Ø 22 M8

7) Hexagon socket countersunk screw to ISO 10642/DIN 7991

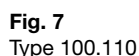
8) Tolerance value H8 refers to output element bore.

9) See Technical Data, limit torque for overload M_G

10) Only Sizes 0 to 5

11) For available torques, see Table 1, page 19

Type 100. _ _ _
Sizes 01 to 5



All available chain sprockets can be used with this design, observing the installation dimensions for the ROBA®-slip hub.

On order, please state the number of teeth 'z' and the data of the chain sprocket disk. For data of the standard chain sprocket disk, please see the Table.

Technical Data				Size					
				01	1	2	3	4	5
Limit torques for overload	Type 100.11_	M _G	[Nm]	6 – 30	14 – 70	26 – 130	50 – 250	110 – 550	140 – 700
	Type 100.21_	M _G	[Nm]	30 – 60	70 – 130	130 – 250	250 – 550	550 – 1100	700 – 1400
Operating speed ¹⁾		n _{max}	[rpm]	6600	5600	4300	3300	2700	2200
Weight (pilot bored)			[kg]	0,7	1,1	1,9	3,8	6,9	11,2

Dim. [mm]		B ₁	C	D	D _N	d ^{H7}		d ₀	d _k	G	g	H	h	k	L	SW	u	v
						d _{min}	d _{max}											
Size	01	5,0	18,5	58	40	12	22	69,95	74	2)	4	46	5	- 6)	45	32	46	2,5 6)
	1	7,0	20,5	68	45	12	25	89,24	95	3)	5	50	5	1,3 6)	52	41	50	3 6)
	2	7,0	22,5	88	58	15	35	109,40	115	4)	5	67	6	3	57	50	67	10
	3	10,7	26,25	115	75	19	45	133,86	142,5	5)	5	84	6	5,5	68	65	84	13
	4	15,8	30,65	140	90	25	55	170,43	182	M8	6	104	7	5,5	78	80	97	13
	5	15.8	36.65	170	102	30	65	194.59	206	M8	8	125	8	5.5	92	90	109	13

Dimensions			Size					
			01	1	2	3	4	5
Standard chain sprocket	number of teeth standard min. for chains DIN 8187		23	22	27	22	21	24
			23	20	25	22	20	24
			3/8" x 7/32"	1/2" x 5/16"	1/2" x 5/16"	3/4" x 7/16"	1" x 17 mm	1" x 17 mm

Adjusting nut standard with radial adjustment				0 1	Bore Hub Ø d ^{H7}	Keyway acc. DIN 6885-1	Number of teeth z
— / 1 0 0 . — — — / — / — / — / — / — ▲ ▲ ▲ ▲							
Sizes 01 to 5	Torque range ⁷⁾ low 1 medium 2			Friction lining 1 standard friction lining 2 rustproof friction pairing 4 friction lining for oil running ⁸⁾ 5 special low-friction material ⁸⁾		Chain for standard chain sprocket	

- 1) See Explanations page 19
- 2) Size 01: up to Ø 12 M4, over Ø 12 M5
- 3) Size 1: up to Ø 12 M4, over Ø 12 up to Ø 17 M5, over Ø 17 M6
- 4) Size 2: up to Ø 17 M5, over Ø 17 M6

- 5) Size 3: up to Ø 22 M6, over Ø 22 M8
- 6) Hexagon socket countersunk screw to ISO 10642/DIN 7991
- 7) See Technical Data, limit torque for overload M_G
- 8) For available torques, see Table 1, page 19

ROBA®-slip hub with rustproof friction lining

Type 100.2_
Sizes 01 to 6

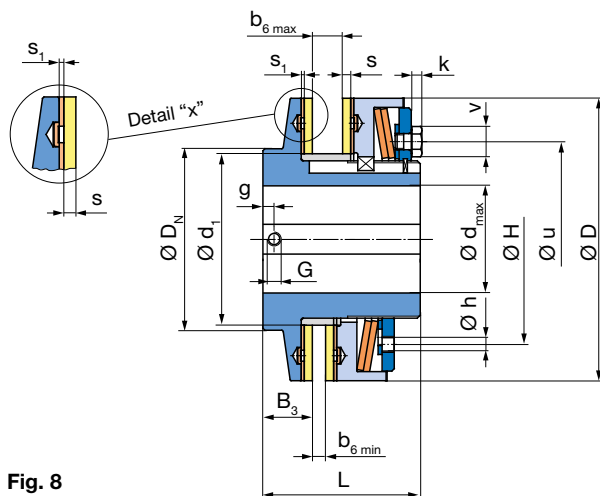


Fig. 8
Type 100.220

Used in conjunction with cast iron and steel surfaces, the friction linings can form a rust compound which increases the friction value and therefore the torque considerably. However, a high increase in torque makes the machine unsafe.

For this reason, ROBA®-slip hubs can be equipped with disks made of stainless steel, which do not stick to the friction lining and do not form rust compounds.

ROBA®-slip hubs with rustproof friction linings offer higher security on drives operating in open air conditions, in particularly wet conditions or those which are subject to long downtimes.

We reserve the right to make dimensional and constructional alterations.

Technical Data				Size							
				01	1	2	3	4	5	6	
Limit torques for overload	Type 100.12	M_G	[Nm]	6 – 30	14 – 70	26 – 130	50 – 250	110 – 550	140 – 700	240 – 1200	
	Type 100.22	M_G	[Nm]	30 – 60	70 – 130	130 – 250	250 – 550	550 – 1100	700 – 1400	1200 – 2400	
Operating speed ¹⁾		$n_{\max}$	[rpm]	6600	5600	4300	3300	2700	2200	1900	
Weight (pilot bored)			[kg]	0,6	0,9	1,7	3,2	5,5	9,2	12,9	

Dim. [mm]		B ₃	b ₆		D	D _N	d ₁ ^{H8 2)}	d ^{H7}		G	g	H	h	k	L	s	s ₁	u	v
			b _{6 min}	b _{6 max}				d _{min}	d _{max}										
Size	01	17	1	6	58	40	40	12	22	3)	4	46	5	7)	45	3	1	46	2,5 7)
	1	18	1	8	68	45	44	12	25	4)	5	50	5	1,3 7)	52	3	1	50	3 7)
	2	20	2	10	88	58	58	15	35	5)	5	67	6	3	57	3	1	67	10
	3	22	3	13	115	75	72	19	45	6)	5	84	6	5,5	68	4	1	84	13
	4	24,5	3	15	140	90	85	25	55	M8	6	104	7	5,5	78	4	1,5	97	13
	5	30,5	5	17	170	102	98	30	65	M8	8	125	8	5,5	92	5	1,5	109	13
	6	32,5	5	20	200	120	116	40	80	M8	8	150	10	-	102	5	1,5	-	-

Order Number

Adjusting nut standard with radial adjustment ⁹⁾				Bore Hub $\varnothing d^{H7}$		Keyway acc. DIN 6885-1	
0 1							
— / 1 0 0 . — 2 — / — / — / —							
Sizes 01 to 6		Torque range ⁹⁾ low 1 medium 2		Friction lining rustproof friction pairing		Width of drive element b_6 Dependent on size: if not specified, we deliver the bearing bushing for maximum installation width $b_{6 \max}$. For narrower drive elements, the bearing bushing is shortened, see page 20.	

Example: Order Number 4 / 100.220 / 50 / 6885-1 / 12

1) See Explanations page 19

2) Tolerance value H8 refers to output element bore.

3) Size 01: up to $\varnothing 12$ M4, over $\varnothing 12$ M5

4) Size 1: up to $\varnothing 12$ M4, over $\varnothing 12$ up to $\varnothing 17$ M5, over $\varnothing 17$ M6

5) Size 2: up to $\varnothing 17$ M5, over $\varnothing 17$ M6

6) Size 3: up to $\varnothing 22$ M6, over $\varnothing 22$ M8

7) Hexagon socket countersunk screw to ISO 10642/DIN 7991

8) See Technical Data, limit torque for overload M_G

9) Only Sizes 01 to 5

ROBA®-Co-Pro®

Types 1000._1000 and 1010._1000 Sizes 30 to 50

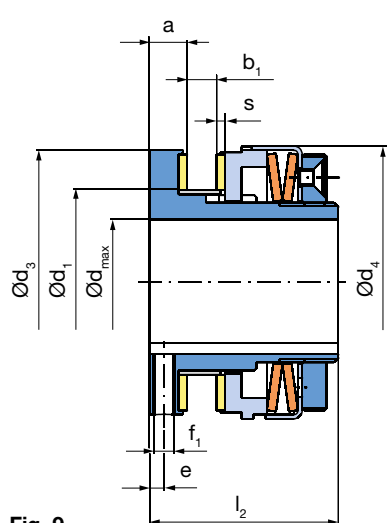


Fig. 9
Type 1000.11000

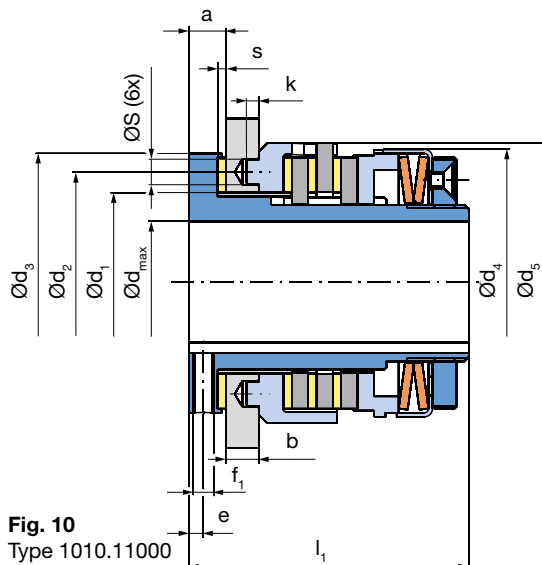


Fig. 10
Type 1010.11000

ROBA®-Co-Pro® is a compact, high-performance safety clutch.

On design M (Type 1000), the drive element is clamped spring-pretensioned between two friction linings.

The optimised performance capability of the clutch design L (Type 1010) is achieved via a second pair of friction linings. Knobs are provided in the transmission flange for torque transmission onto the drive element. These knobs grip via positive locking into the bores in the drive element (drive element not included in delivery).

We reserve the right to make dimensional and constructional alterations.

Technical Data				Size		
				30	40	50
Limit torques for overload	Type M	Type 1000.11000	M_G [Nm]	50 – 100	100 – 200	200 – 400
		Type 1000.21000	M_G [Nm]	100 – 200	200 – 400	400 – 800
	Type L	Type 1010.11000	M_G [Nm]	100 – 200	200 – 400	400 – 800
		Type 1010.21000	M_G [Nm]	200 – 400	400 – 800	800 – 1600
Operating speed ¹⁾			n_{max} [rpm]	1500	1500	1500
Weight	Type M	Type 1000._1000	[kg]	0,6	1,5	2,8
	Type L	Type 1010._1000	[kg]	1,4	2,3	4,3

Dim. [mm]	a	b _{min}	b _{max}	b _{1min}	b _{1max}	Pilot bore	d _{max}	d ₁	d ₂	d ₃	d ₄	d ₅	f ₁	l ₁	l ₂	k	s	S
30	9	8	16	7	11	15	30 ^{H7/2)}	44	54	63	65	68	M5	68	45	3	2	6
40	11	8	16	15	19	20	40	64	75	85	87	90	M5	80	60	3	3	6
50	13	12	20	19	25	25	50	80	94	108	110	113	M6	95	75	3	3	10

Order Number

Design														Bore Hub		Keyway ²⁾	
M	0											Ø d ^{H7}		acc. DIN 6885-1 DIN 6885-3			
L	1																
														</			

ROBA®-clamp

Type 106. _ _ _
Sizes 0 to 2

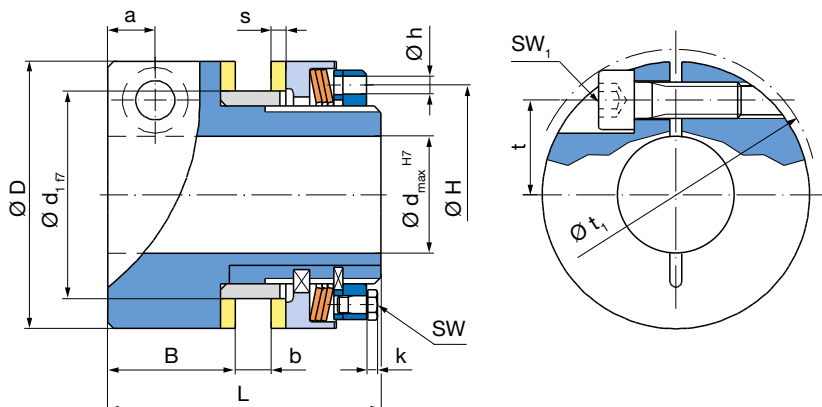


Fig. 11
Type 106.310

ROBA®-clamp devices are used to provide overload protection in machine drives with shaft ends without a keyway.

The frictionally-locking, backlash-free clamping hub is attached to the shaft by tightening one single screw. This means that axial attachment using a shaft collar, adjusting screws or a press cover are unnecessary.

The ROBA®-clamp is used in packing machines, transport machines and devices, construction machinery, textile machinery, agricultural machinery, conveyor systems, feed devices, loading systems, in chemical industry machines as well as in devices and systems for general mechanical engineering.

We reserve the right to make dimensional and constructional alterations.

Technical Data				Size			
				0	01	1	2
Limit torques for overload	Type 106.11_	M_G	[Nm]	2 – 10	6 – 30	14 – 70	26 – 130
	Type 106.21_	M_G	[Nm]	10 – 20	30 – 60	70 – 130	130 – 250
	Type 106.31_	M_G	[Nm]	18 – 30	60 – 90	130 – 200	250 – 400
Operating speed ¹⁾	n_{max}	[rpm]		8500	6600	5600	4300
	max. differential speed	[rpm]		500	500	500	500
Weight (pilot bored)		[kg]		0,5	0,85	1,25	2,3
Tightening torque for clamping screw	SW_1	[Nm]		16	41	83	145

Dim. [mm]	a	B	b		D	d ₁ ^{H8 2)}	d ^{H7}		d _{max}	H	h	k	L	SW	SW ₁	s	t	t ₁	
			b _{min}	b _{max}			d _{min} ³⁾	d _{max} ⁴⁾											
Size	0	8	21,5	2	6	45	35	7	12	22	37	3	-	46	2	5	2,5	16	50
	01	10	26	3	8	58	40	-	12	25	46	5	-	55	2,5	6	3	19	62
	1	12	30	3	10	68	44	12	20	28	50	5	1,3	65	3	8	3	22	74
	2	14	34	4	12	88	58	15	20	40	67	6	3	72	10 ⁶⁾	10	3	30	93

Order Number

Adjusting nut standard with radial adjustment						0 1		Bore Hub Ø d ^{H7}			
— / 1 0 6 . — — — / — / —											
▲		▲		▲						▲	
Sizes 0 to 2		Torque range ⁷⁾ low 1 medium 2 high 3				Friction lining standard 1 for oil running ⁸⁾ 4 special low-friction material ⁹⁾ 5		Width of drive element b Dependent on size: if not specified, we deliver the bearing bushing for maximum installation width b _{max} For narrower drive elements, the bearing bushing is shortened, see page 20.			

ROBA®-min

Types 121. _ _ _ and 123. _ _ _ Sizes 1 to 5

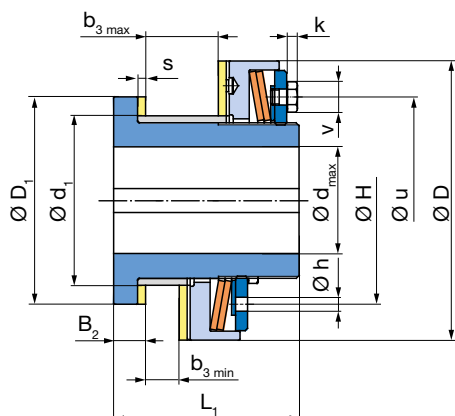


Fig. 12
Type 121.210

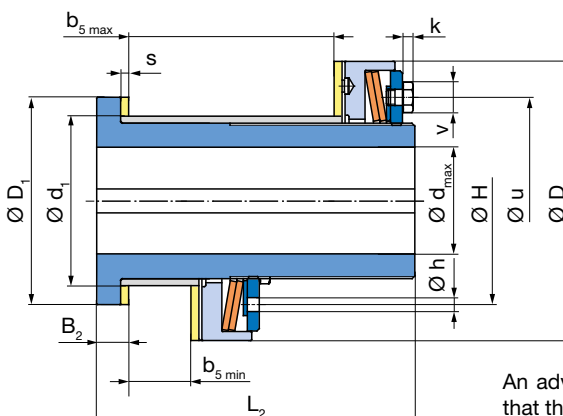


Fig. 13
Type 123.210

ROBA®-min Types 121 and 123 are slip hubs for drive elements, chain sprockets or toothed wheels with especially small diameters. ROBA®-min devices are used in particular for high transmission ratios or also for double or triple-row chain sprockets or wide toothed wheels.

When compared with the standard Type 100, the ROBA®-min Types 121 and 123 transmit lower torques.

An advantage of Types 121 and 123 is that the drive element comes very close to the shaft bearing as a result of the short hub collar.

We reserve the right to make dimensional and constructional alterations.

Technical Data				Size				
				1	2	3	4	5
Limit torque for overload	Type 12_11_	M_G	[Nm]	8 – 40	16 – 80	40 – 200	80 – 400	110 – 550
	Type 12_21_	M_G	[Nm]	40 – 80	80 – 160	200 – 400	400 – 800	550 – 1100
Operating speed ¹⁾		n_{max}	[rpm]	2800	2200	1600	1400	1100
Weight (pilot bored)	Type 121_ _ _		[kg]	0,8	1,6	3,2	5,7	9,1
	Type 123_ _ _		[kg]	1,0	2,2	4,2	7,9	13,5

Dim. [mm]	B_2	b_3	b_3	b_5	b_5	D	D_1	$d_1^{H8\ 2)}$	d^{H7}	H	h	k	L_1	L_2	s	u	v
		$b_{3\ min}$	$b_{3\ max}$	$b_{5\ min}$	$b_{5\ max}$			d_{min}	d_{max}								
Size	1	8	10	15	15	43	68	59	44	12	25	50	5	1,3 ³⁾	48	76	3 ³⁾
	2	10	12	19,5	19,5	53,5	88	77	58	15	35	67	6	3	56	90	3
	3	13,5	15	27	27	62	115	89,5	72	19	45	84	6	5,5	73	108	4
	4	16	18	38	38	91,5	140	104	85	25	55	104	7	5,5	93	146,5	4
	5	18	20	44	44	126	170	119,5	98	30	65	125	8	5,5	107	188,5	5

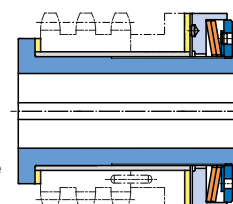
Order Number

Hub short hub long hub		1 3	Adjusting nut standard with radial adjustment		0 1	Bore Hub Ø d ^{H7}	
— / 1 2 — . — — — / — / — ▲ ▲ ▲ ▲							
Sizes 1 to 5		Torque range ⁴⁾ low medium		1 2	Friction lining standard for oil running ⁵⁾		Width of drive element b₃ or b₅ Dependent on size: if not specified, we deliver the bearing bushing for maximum installation width b _{3 max} or b _{5 max} . For narrower drive elements, the bearing bushing is shortened, see page 20.

Example: Order Number 2 / 123.210 / 30 / 6885-1 / 50

- 1) See Explanations page 19
- 2) Tolerance value H8 refers to output element bore.
- 3) Hexagon socket countersunk screw to ISO 10642/DIN 7991
- 4) See Technical Data, limit torque for overload M_G
- 5) For available torques, see Table 1, page 19

Fig. 14
Installation Example
Type 123.210



ROBA®-max

Type 170. _ _ _ Sizes 0 to 5

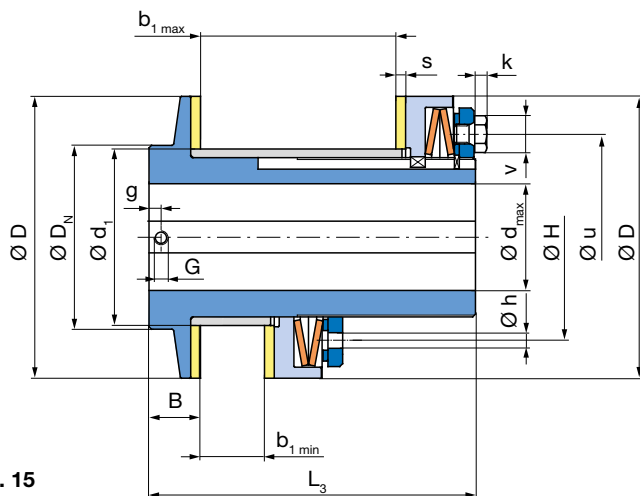


Fig. 15
Type 170.110

ROBA®-slip hubs are used to provide overload protection in machine drives with chain sprockets, V-belt pulleys or toothed wheels. Type 170 has a longer hub than the standard Type 100. As a result, Type 170 is particularly suitable for wide drive elements. The permitted limit torques and the diameter correspond to the standard model. ROBA®-max Type 170 can transmit a higher torque than a ROBA®-min Type 123 with the same installation width.

Type 170 can be used for all mechanical engineering applications.

We reserve the right to make dimensional and constructional alterations.

Technical Data				Size						
				0	01	1	2	3	4	5
Limit torque for overload	Type 170.11_	M _G	[Nm]	2 – 10	6 – 30	14 – 70	26 – 130	50 – 250	110 – 550	140 – 700
	Type 170.21_	M _G	[Nm]	10 – 20	30 – 60	70 – 130	130 – 250	250 – 550	550 – 1100	700 – 1400
	Type 170.31_	M _G	[Nm]	18 – 30	60 – 90	130 – 200	250 – 400	-	-	-
	Type 170.312	M _G	[Nm]	-	-	-	-	550 – 800	1100 – 1600	1400 – 2100
Operating speed ¹⁾		n _{max}	[rpm]	8500	6600	5600	4300	3300	2700	2200
Weight (pilot bored)			[kg]	0,4	0,8	1,2	2,4	4,6	8,5	14,9

Dim. [mm]	B	b ₁		D	D _N	d ₁ ^{H8 2)}	d ^{H7}		G	g	H	h	k	L ₃	s	u	v	
		b _{1 min}	b _{1 max}				d _{min}	d _{max} ³⁾										
Size	0	8,5	9	25	45	45	35	10	20 ³⁾	M4	3	37	3	- ⁸⁾	50	2,5	37	2 ⁸⁾
	01	16	12	33	58	40	40	12	22	⁴⁾	4	46	5	- ⁸⁾	70	3	46	2,5 ⁸⁾
	1	17	15	43	68	45	44	12	25	⁵⁾	5	50	5	1,3 ⁸⁾	85	3	50	3 ⁸⁾
	2	19	19,5	53,5	88	58	58	15	35	⁶⁾	5	67	6	3	99	3	67	10
	3	21	27	62	115	75	72	20	45	⁷⁾	5	84	6	5,5	115,5	4	84	13
	4	23	38	91,5	140	90	85	25	55	M8	6	104	7	5,5	153,5	4	97	13
	5	29	44	126	170	102	98	30	65	M8	8	125	8	5,5	199,5	5	109	13

Order Number

Adjusting nut				Bore		Keyway	
standard				Hub		acc.	
with radial adjustment				Ø d ^{H7}		DIN 6885-1	
for triple layering (for high torque range: Sizes 3 to 5)						DIN 6885-3	

ROBA®-slip hub with needle bearing

Type 160. _ _ _
Sizes 1 to 5

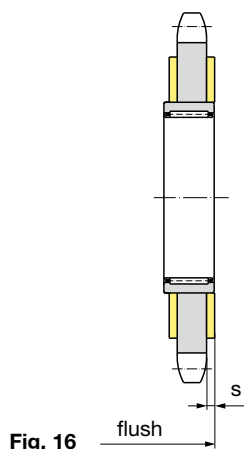


Fig. 16

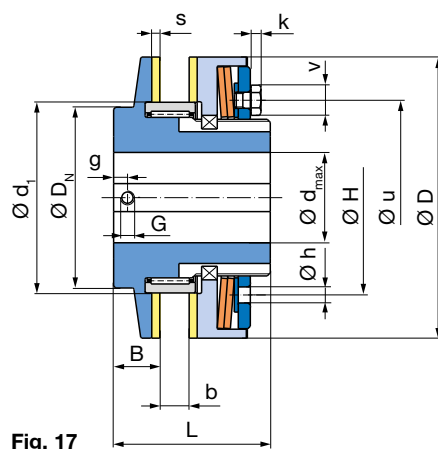


Fig. 17
 Type 160.210

ROBA®-slip hubs are used to provide overload protection in machine drives with chain sprockets, V-belt disks or toothed wheels. The difference between Type 160 and the standard Type 100 is that the former has a needle bearing instead of a bearing bushing. As a result, Type 160 is particularly suitable for applications with high radial loads, high slipping frequencies and increased shaft run-out accuracy (toothed wheels).

The drive element is pressed onto the needle bearing as shown in Fig. 16. Please ensure that the right-hand side of the needle bearing is flush with the right-hand side of the friction lining. The needle bearing with the drive element and the two friction linings are then pushed onto the hub.

Type 160 can be used throughout the mechanical engineering industry.

We reserve the right to make dimensional and constructional alterations.

Technical Data				Size				
				1	2	3	4	5
Limit torque for overload	Type 160.11_	M_G	[Nm]	14 – 70	26 – 130	50 – 250	110 – 550	140 – 700
	Type 160.21_	M_G	[Nm]	70 – 130	130 – 250	250 – 550	550 – 1100	700 – 1400
Operating speed ¹⁾		n_{max}	[rpm]	4200	3200	2400	2000	1600
Weight (pilot bored)			[kg]	0,9	1,7	3,2	5,5	9,2

Dim. [mm]		B	b ±0,5	D	D _N	d ₁ ^{N7 2)}	G	g	H	h	k	L	s	u	v
Size	1	17	7	68	45	47	3)	5	50	5	1,3 5)	52	3	50	3 5)
	2	19	10,3	88	75	63	4)	5	67	6	3	57	3	67	10
	3	21	12,5	115	89,5	78	M6	5	84	6	5,5	68	4	84	13
	4	23	16	140	90	95	M8	6	104	7	5,5	78	4	97	13
	5	29	18	170	102	110	M8	8	125	8	5.5	92	5	109	13

Order Number

Adjusting nut standard with radial adjustment				0 1		Bore Hub Ø d ^{H7}		Keyway acc. DIN 6885-1	

ROBA®-lastic - torsionally flexible

Type 135. _ _ _

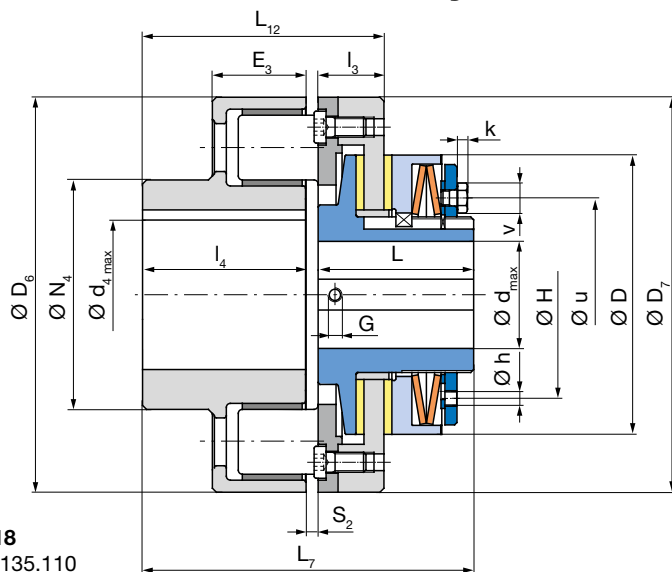
Sizes 0 to 5


Fig. 18
Type 135.110

ROBA®-lastic Type 135 is a flexible safety clutch with adjustable torque for connecting two shafts. The flexible coupling part is designed as a simple plug-in coupling.

The torque is transmitted via flexible rubber buffers made of wear and oil-resistant plastic material insensitive to temperature changes.

We reserve the right to make dimensional and constructional alterations.

Technical Data				Size						
				0	01	1	2	3	4	5
Limit torque for overload	Type 135.11_	M _G	[Nm]	2 – 10	6 – 30	14 – 70	26 – 130	50 – 250	110 – 550	140 – 700
	Type 135.21_	M _G	[Nm]	10 – 20	30 – 60	70 – 130	130 – 250	250 – 550	550 – 1100	700 – 1400
Operating speed ¹⁾	n _{max}	[rpm]		7000	6500	5600	4300	3300	2700	2200
Weight (pilot bored)		[kg]		1,3	3,0	3,2	6,5	10,1	19,5	23,4
Permitted misalignments	axial	x	[mm]	± 1,0	± 1,0	± 1,0	± 1,0	± 1,0	± 1,0	± 1,0
	radial	y	[mm]	0,5	0,5	0,5	0,5	0,5	0,5	0,5
	angular	α	[°]	0,5	0,5	0,5	0,5	0,5	1,0	1,0

Dim. [mm]		D	D ₆	D ₇	d ^{H7}		d ₄ ^{H7}		E ₃	G	H	h	k	L	L ₇	L ₁₂	I ₃	I ₄	N ₄	S ₂	u	v
		d _{min}	d _{max}	d _{4min}	d _{4max}																	
Size	0	45	80	80	7	20 ²⁾	11	30	23	M4	37	3	– ⁷⁾	33	66	48	14	30	50 _{h11}	4	37	2 ⁷⁾
	01	58	105	105	12	22	11	42	32	³⁾	46	5	– ⁷⁾	45	91	68	22	42	65 _{h11}	4	46	2,5 ⁷⁾
	1	68	105	105	12	25	11	42	32	⁴⁾	50	5	1,3 ⁷⁾	52	98	69	23	42	65 _{h11}	4	50	3 ⁷⁾
	2	88	135	135	15	35	13	60	36	⁵⁾	67	6	3	57	116	86	27	55	85 _{h11}	4	67	10
	3	115	160	160	19	45	25	60	38	⁶⁾	84	6	5,3	68	129	92	31	55	90	6	84	13
	4	140	198	198	25	55	30	75	47	M8	104	7	5,3	78	166	121	33	82	115	6	97	13
	5	170	198	208	30	65	50	75	47	M8	125	8	5,3	92	180	127	39	82	115	6	109	13

Order Number

Adjusting nut standard with radial adjustment				Bore Hub Ø d ^{H7}		Bore Hub Ø d ₄ ^{H7}	
0 1							
1				3		5	
5				.		.	
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ROBA®-lastic - positive-locking

Type 132._0 Sizes 6 to 12

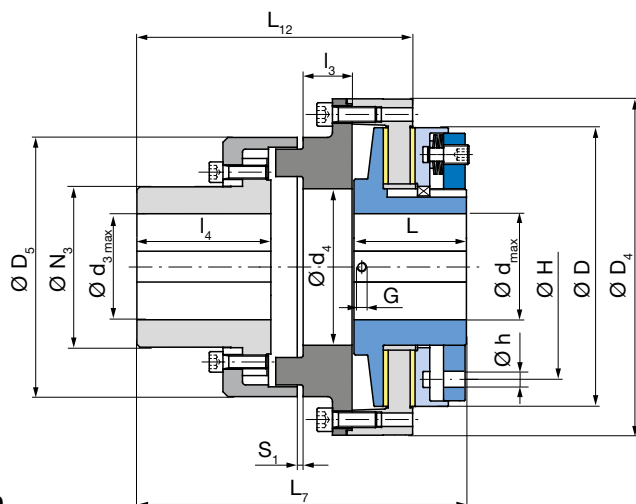


Fig. 19
Type 132.110

ROBA®-lastic Type 132 is a positive-locking, flexible safety clutch with adjustable torque for connecting two shafts. The flexible coupling component is designed as a positive-locking claw coupling.

The input and output can be disconnected without dismantling the clutch.

The torque is transmitted via a replaceable, flexible intermediate ring made of highly-damping, oil-resistant material insensitive to temperature changes.

We reserve the right to make dimensional and constructional alterations.

Technical Data				Size							
				6	7	8	9	10	11	12	
Limit torque for overload	Type 132.11_	M _G	[Nm]	240 – 1200	400 – 2000	680 – 3400	1200 – 6000	2000 – 10000	3400 – 17000	5000 – 25000	
	Type 132.21_	M _G	[Nm]	1200 – 2400	2000 – 4000	3400 – 6800	6000 – 12000	10000 – 20000	17000 – 34000	25000 – 50000	
Operating speed ¹⁾		n _{max}	[rpm]	1900	1600	1300	1100	920	780	690	
Weight (pilot bored)			[kg]	48	70	98	200	330	506	738	
Permitted misalignments	axial	x	[mm]	± 2,0	± 2,0	± 2,5	± 2,5	± 2,5	± 2,5	± 2,5	
	radial	y	[mm]	0,3	0,3	0,3	0,3	0,3	0,3	0,3	
	angular	α	[°]	0,08	0,07	0,06	0,05	0,04	0,03	0,03	

Dim. [mm]		D	D ₄	D ₅	d ^{H7}		d ₃ ^{H7}		d ₄	G	H	h	L	L ₇	L ₁₂	I ₃	I ₄	N ₃	S ₁
		d _{min}	d _{max}	d _{3 min}	d _{3 max}														
Size	6	200	274	214	40	80	50	95	130	M8	150	10	102	267	216	42	107	135,5	3,5
	7	240	314	240	48	100	50	100	145	M10	185	10	113	307	247	45	117	146	3,5
	8	285	344	265	60	120	60	115	160	M10	230	10	115	337	282	50	137	164	4
	9	350	430	330	57	140	70	135	200	M12	290	10	162	416	332	56	156	208	8
	10	415	500	415	80	160	85	180	270	M12	340	10	185	478	383	65	196	275	8
	11	490	615	480	90	180	85	190	320	M16	400	10	222	537	423	65	220	289	8
	12	555	692	575	100	200	110	240	400	M16	450	10	250	585	454	65	240	368	8

Order Number

Adjusting nut standard				Bore Hub Ø d ^{H7}		Bore Hub Ø d ₃ ^{H7}	
0				0		0	
1	3	2	.	0	/	/	/
Torque range ²⁾ low 1 medium 2				Friction lining 1 standard 2 rustproof friction pairing ³⁾ 4 for oil running ⁴⁾ 5 special low-friction material ⁴⁾		Keyway acc. DIN 6885-1	
Keyway acc. DIN 6885-1				Keyway acc. DIN 6885-1		Keyway acc. DIN 6885-1	

Example: Order Number 6 / 132.210 / 60 / 6885-1 / 80 / 6885-1

1) See Explanations page 19

2) See Technical Data, limit torque for overload M_G

3) Rustproof friction pairing only for Size 6

4) For available torques, see Table 1, page 19

ROBA®-lastic - highly flexible

Type 131. _ _ _ Sizes 0 to 6

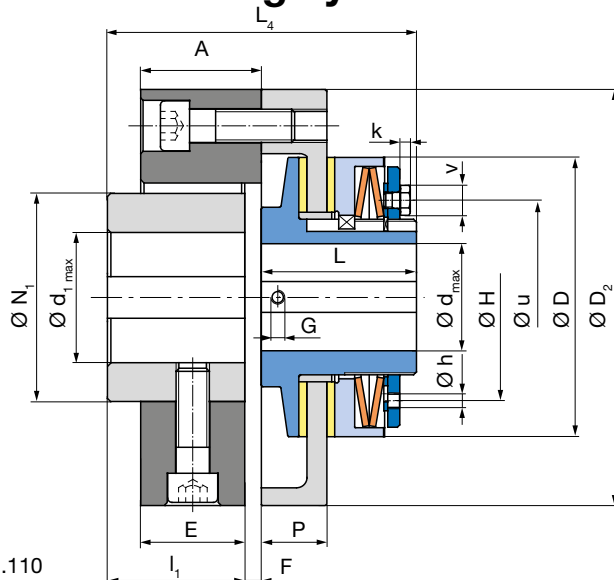


Fig. 20
Type 131.110

ROBA®-lastic Type 131 is a highly flexible safety clutch with adjustable torque for connecting two shafts. The polygon-shaped rubber element on the flexible coupling has a considerable misalignment compensation capability and damps torsional vibrations and impacts.

We reserve the right to make dimensional and constructional alterations.

Technical Data				Size						
				0	1	2	3	4	5	6
Limit torque for overload	Type 131.11_	M _G	[Nm]	2 – 10	14 – 70	26 – 130	50 – 250	110 – 550	140 – 700	240 – 1200
	Type 131.21_	M _G	[Nm]	10 – 20	70 – 130	130 – 250	250 – 550	550 – 1100	700 – 1400	1200 – 2400
Operating speed ¹⁾		n _{max}	[rpm]	8500	5600	4300	3300	2700	2200	1900
Weight (pilot bored)			[kg]	1,0	3,0	5,1	12,6	25,5	29,5	55,4
Permitted misalignments	axial	x	[mm]	± 1,5	± 2	± 2,5	± 2,5	± 2,5	± 2,5	± 2,5
	radial	y	[mm]	1,5	2	2	2	2	2	2
	angular	α	[°]	3	3	3	3	2	2	2

Dim. [mm]		A	D	D ₂	d ^{H7}		d ₁ ^{H7}		E	F	G	H	h	k	L	L ₄	I ₁	N ₁	P	u	v
					d _{min}	d _{max}	d _{1 min}	d _{1 max}													
Size	0	24	45	85	7	20 ²⁾	10	26	20	4	M4	37	3	- ⁶⁾	33	65	28	40	14,3	37	2 ⁶⁾
	1	32	68	120	12	25	12	38	28	4	³⁾	50	5	1,3 ⁶⁾	52	98	42	60	24	50	3 ⁶⁾
	2	42	88	150	15	35	15	48	36	6	⁴⁾	67	6	3	57	113	50	70	26	67	10
	3	58	115	200	19	45	20	65	50	8	⁵⁾	84	6	5,5	68	142	66	100	31,5	84	13
	4	70	140	260	25	55	30	85	62	8	M8	104	7	5,5	78	166	80	125	38,3	97	13
	5	70	170	260	30	65	30	85	62	8	M8	125	8	5,5	92	180	80	125	44,3	109	13
	6	85	200	340	40	80	40	115	77	8	M8	150	10	-	102	210	100	160	49	-	-

Order Number

Adjusting nut standard with radial adjustment ⁷⁾			Bore Hub Ø d ^{H7}			Bore Hub Ø d ₁ ^{H7}		
0 1								
— / 1 3 1 . — — — / — / — / — / — / —								
SIZES 0 to 6			Torque range ⁸⁾ low 1 medium 2			Friction lining 1 standard 2 rustproof friction pairing ⁹⁾ 4 for oil running ¹⁰⁾ 5 special low-friction material ¹⁰⁾		
						Keyway acc. DIN 6885-1 DIN 6885-3		
						Keyway acc. DIN 6885-1		

Example: Order Number 3 / 131.210 / 45 / 6885-1 / 60 / 6885-1

1) See Explanations page 19

2) Size 0: up to Ø 19 keyway acc. DIN 6885-1, over Ø 19 keyway acc. DIN 6885-3

3) Size 1: up to Ø 12 M4, over Ø 12 up to Ø 17 M5, over Ø 17 M6

4) Size 2: up to Ø 17 M5, over Ø 17 M6

5) Size 3: up to Ø 22 M6, over Ø 22 M8

6) Hexagon socket countersunk screw to ISO 10642/DIN 7991

7) Only Sizes 0 to 5

8) See Technical Data, limit torque for overload M_G

9) Only Sizes 1 to 6

10) For available torques, see Table 1, page 19

Type 133. _ _ _ and 134. _ _ _
Sizes 1 to 8

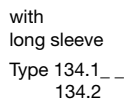


Fig. 21
Type 13₄³.110

We reserve the right to make dimensional and constructional alterations.

Dim. [mm]		C	D	D ₆	d ^{H7} d _{min} d _{max}		d _s ^{H7} d _{s min} d _{s max}		G	H	h	k	L	L ₈	L ₉	L ₁₀	L ₁₁	I	I ₅	I ₆	R	S	u	v	x	x _i
Size	1	28	68	102	12	25	25	45 ²⁾	3)	50	5	1,3 ⁶⁾	52	150	146	119	115	45	64	33	135	8 ± 0,2	50	3 ⁶⁾	4	29
	2	28	88	128	15	35	25	55	4)	67	6	3	57	176,5	171	140,5	135	55	74	38	168	11 ± 0,3	67	10	5,5	37,5
	3	37	115	145	19	45	30	65	5)	84	6	5,5	68	204,5	199	158,5	153	65	94	48	185	11 ± 0,3	84	13	5,5	37,5
	4	40	140	180	25	55	35	80	M8	104	7	5,5	78	245	237	191	183	80	110	56	230	15 ± 0,4	97	13	8	53
	5	48	170	200	30	65	40	85	M8	125	8	5,5	92	264	254	210	200	80	110	56	270	15 ± 0,4	109	13	10	60
	6	51	200	215	40	80	45	90	M8	150	10	-	102	298	288	239	229	90	120	61	290	20 ± 0,4	-	-	10	65
	7	60	240	250	48	100	50	100	M10	185	10	-	113	332	319	271	258	100	124	63	335	23 ± 0,5	-	-	13	83
	8	55	285	300	60	120	60	115	M10	230	10	-	115	373	358	301	286	115	146	74	400	27 ± 0,6	-	-	15	95

Sleeve short 3 long 4		Adjusting nut standard 0 with radial adjustment ⁷⁾ 1		Bore Hub Ø d ^{H7}		Bore Hub Ø d ₅ ^{H7}	
— / 1 3 — . — — / — / — / — / — / — ▲ ▲ ▲ ▲ ▲							
Sizes 1 to 8		Torque range ⁸⁾ low 1 medium 2		Friction lining standard 1 rustproof friction pairing ⁹⁾ 2 for oil running ¹⁰⁾ 4 special low-friction material ¹⁰⁾ 5		Keyway acc. DIN 6885-1	
						Keyway acc. DIN 6885-1 DIN 6885-3	

- 1) See Explanations page 19
- 2) Size 1: up to Ø 42 keyway acc. DIN 6885-1, over Ø 42 keyway acc. DIN 6885-3
- 3) Size 1: up to Ø 12 M4, over Ø 12 up to Ø 17 M5, over Ø 17 M6
- 4) Size 2: up to Ø 17 M5, over Ø 17 M6
- 5) Size 3: up to Ø 22 M6, over Ø 22 M8

6) Hexagon socket countersunk screw to ISO 10642/DIN 7991
7) Only Size 1 to 5
8) See Technical Data, limit torque for overload M_G
9) Rustproof friction pairing only for Sizes 1 to 6
10) For available torques, see Table 1, page 19

Technical Explanations

Torques – Cup Spring Layering

The cup spring layering in Figs. 22 – 24 show our ROBA®-slip hub standard design. Each layering results in a different spring characteristic curve or spring force (torque). A rule of thumb when using ROBA®-slip hubs is:

ROBA®-slip hub for high friction work and low torque; single-layer cup spring.

ROBA®-slip hub for medium friction work and larger torques; double-layer cup springs.

ROBA®-slip hub for low friction work and very high torques; triple-layer cup springs.

single-layer
cup spring



Sizes 0 – 12
Fig. 22

double-layer
cup springs



Sizes 0 – 12
Fig. 23

triple-layer
cup springs



Sizes 0 – 5
Fig. 24

The torque behaviour of the ROBA®-slip hub on friction lining wear is clearly shown in Figs. 25 and 26. With single cup spring layering, the torque reduction on wear is very low (Fig. 25). With double cup spring layering, the change in torque is larger (Fig. 26), and with triple cup spring layering, the torque reduction is highest. However, the cup springs are designed with a relatively flat characteristic curve so that large wear paths can occur without larger drops in torque.

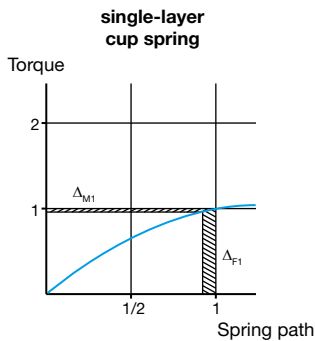


Fig. 25

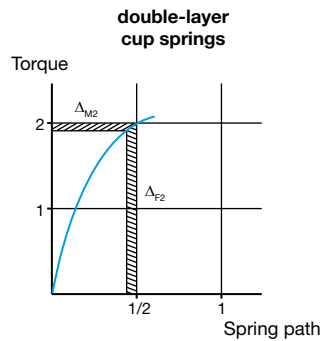


Fig. 26

For special applications, weaker cup springs are available for the individual slip hub sizes, with which the minimum torques can be under-run.

Other cup spring layerings can be produced (e.g. combinations of double and single-layering) individually for special applications. In Figs. 25 and 26 it is shown that a torque adjustment in the uppermost quarter of the spring characteristic curve (torque) produces a particularly even torque, as the spring characteristic curve has its smallest increase in this area.



The torques stated in the Table “Technical Data” refer to drive elements made of steel or cast iron!

During the start-up phase (matching the friction surfaces), after long downtimes and during or after long slipping occurrences, the friction lining wear pattern and the friction coefficients may change. This can lead to changes in torque.

Friction Linings

As shown in Table 1 below, four different friction linings are available. The torque and the speed values in the slip hub catalogue are applicable for the standard friction lining during dry running. For other friction linings, please find the correct values in Table 1 or ask the manufacturers for special application values.

Friction lining number	Application	Available torque from M_{max}
1	standard for dry running	100 %
2	rustproof friction pairing	100 %
4	bronze friction lining for oil running	30 %
5	special low-friction material (only for single-layer cup spring layering and with reduced friction)	50 %

Table 1

Speeds

The ROBA®-slip hub is thermally loaded depending on the slipping speed, slip time and the set torque.

To make sure that the ROBA®-slip hub friction linings are not overheated or destroyed, the specified friction parameters must not be exceeded.

The recommended values in the Reference Values Diagram (Diagram 1) show the maximum slipping speed limits of the standard friction linings in dry running.

These speed limits refer to a maximum slip time of 1 second.

For longer slip times, the slipping speed must be reduced.

If in doubt, please carry out the friction work calculations for the respective application.



If the permitted slipping duration is exceeded, the ROBA®-slip hub will be overloaded.
=> Destruction of the friction linings

A speed monitor prevents the drive elements slipping for an excessively long time. Please ask the manufacturers for devices adapted to your application.

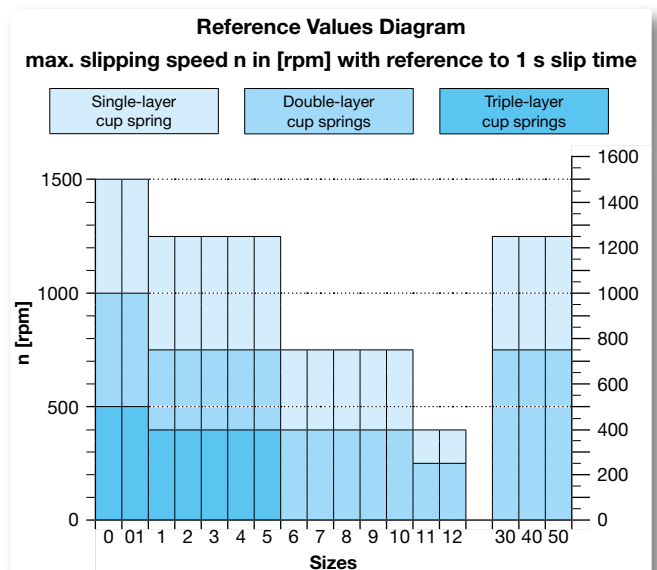


Diagram 1

Technical Explanations

Adjusting Nuts

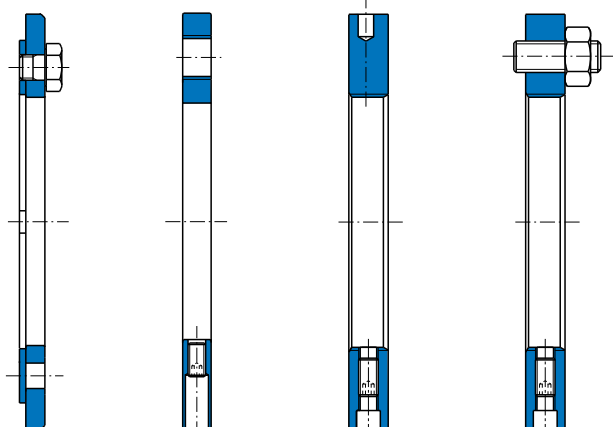


Fig. 27 Adjusting Nut 0
Sizes 0 – 5

Fig. 28 Adjusting Nut 0
Sizes 6 – 12

Fig. 29 Adjusting Nut 1
Sizes 0 – 5

Fig. 30 Adjusting Nut 2
Sizes 3 – 5

The **standard adjusting nut for Sizes 0 – 5** (adjusting nut 0, Fig. 27) is adjusted using a face wrench (Fig. 31). The adjusting nut is secured using a lock washer with four projections as well as a hexagon head screw which is screwed through the adjusting nut into the lock washer bores.

The **standard adjusting nut for Sizes 6 – 12** (adjusting nut 0, Fig. 28) has no lock washer. It is secured against twisting with a radial set screw.

Additionally, we provide an **adjusting nut for radial adjustment** for Sizes 0 – 5. Adjustment takes place here using a hook wrench (Fig. 32). On this design (adjusting nut 1, Fig. 29), the thrust washer must be shortened. The device is additionally secured against twisting using a radial screw-in set screw, which is pressed into one of the four hub keyways.

For triple-layering on the ROBA®-slip hub Sizes 0 – 2, the adjusting nut 0 or 1 is used. On Sizes 3 – 5, the adjusting nut 2 is used (Fig. 30). The adjusting nut 2 for the ROBA®-slip hub varies from the adjusting nut 0 or 1 for the ROBA®-slip hub as it has six axial set screws for torque adjustment. As with adjusting nut 1, it is secured using a radial set screw.

For high torque adjustments, it may be necessary to lengthen the lever on the face wrench or hook wrench (e.g. extension using a pipe).

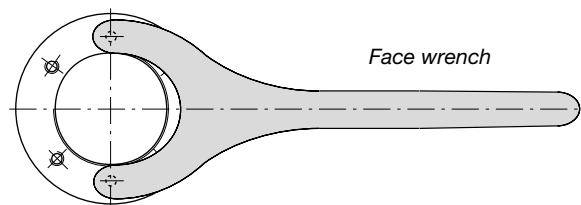


Fig. 31

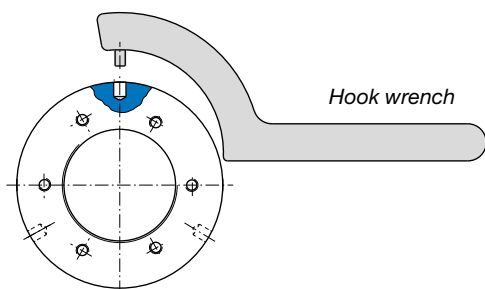


Fig. 32

Bearing Bushing

If the drive element installation width is not specified on order, we deliver the bearing bushing (Fig. 33) for the maximum installation width (b_{max}). If a smaller installation width is required, the bearing bushing must be shortened accordingly on the end without the inner chamfer, see the Example below. The bearing bushing is to be installed with the inner chamfer facing forwards, see Fig. 33.

Example for shortening the bearing bushing: *

ROBA®-slip hub, Size 3, Type 100.210 (see page 7)

Drive element = chain sprocket disk $3/4" \times 1/2"$, $z = 23$,
chain sprocket width $B_1 = 12,7$ mm

Bearing bushing width l [mm] according to the formula below:

$$l = b + 1,5 \cdot s + 0,5$$

$$l = 12,7 + 1,5 \cdot 4 + 0,5$$

$$l = 19,2_{-0,2} \text{ mm}$$

* The total length of the clutch is not affected.

Bearing bushing width:

$$l = b + 1,5 \cdot s + 0,5 \quad [\text{mm}] \quad \text{for standard friction pairing Type 100_10}$$

$$l_1 = b + 1,5 \cdot s + 2 \cdot s_1 + 0,5 \quad [\text{mm}] \quad \text{for rustproof friction pairing Type 100_20}$$

$$l = b + 2 \cdot s + f \quad [\text{mm}] \quad \text{for Type 10_0_1000}$$

l [mm] = bearing bushing width (Tolerance – 0,2 mm)

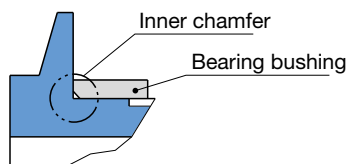
l_1 [mm] = bearing bushing width for slip hubs with rustproof friction linings (see page 9)

b [mm] = maximum installation width for drive elements (nominal dimension + tolerance)

s [mm] = Friction lining strength (see page 7 for Type 100_0, see page 10 for Type 10_0_1000)

s_1 [mm] = Strength of rustproof disk (see page 9)

f [mm] = Dimension for Type 10_0_1000 (see Table 2)



Size	f	
	Type 1000	Type 1010
30	-0,5	+5,5
40	-1,5	+4,5
50	-1,5	+4,5

Fig. 33

Table 2

For high radial load and high slipping frequency, we recommend the ROBA®-slip hub with needle bearing Type 160 (page 14).

Maintenance – Installation

Due to its smooth construction, the ROBA®-slip hub is easy to clean. As the friction linings wear down, the ROBA®-slip hub must be re-adjusted or, if they are very worn, the friction linings must be replaced. Apart from this, the ROBA®-slip hub needs no maintenance.

During installation, please ensure that no grease or oil comes into contact with the friction surfaces. In the area of the friction surfaces, the drive element surface must be finely polished and have exactly plane parallel surfaces (see Fig. 34 and Table 3).

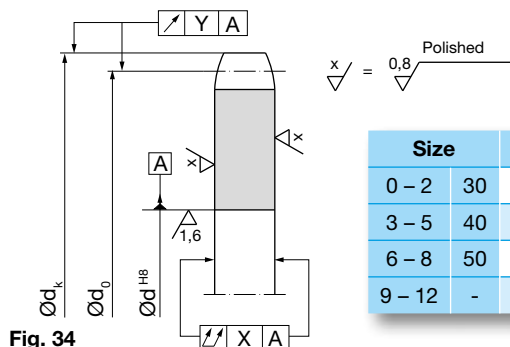


Fig. 34

Table 3

Size	X	Y
0 – 2	30	0,05
3 – 5	40	0,08
6 – 8	50	0,10
9 – 12	-	0,30

Torque Adjustment

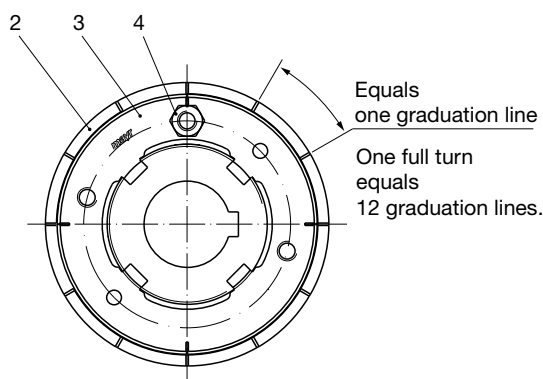


Fig. 35
Sizes 0 – 5

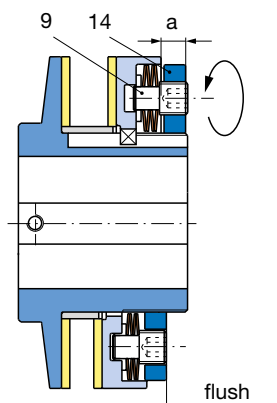
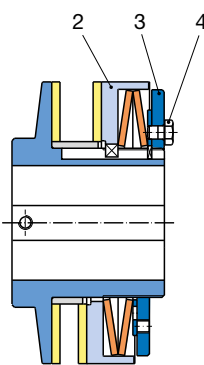


Fig. 36
Sizes 6 – 12

On the ROBA®-slip hub devices Sizes 1 – 5, the rear side of the thrust washer (Item 2) is engraved with 12 markings (24 markings on Size 0), and the adjusting nut (Item 3) is engraved with four markings (see Fig. 35).

The adjusting nut with locking washer is adjusted by hand up to the contact on the cup springs. The four notches on the adjusting nut and the notches on the thrust washer must align. Then the adjusting nut should be turned by the number of graduation lines which equal the required torque.

An Adjustment Table (Fig. 37) is adhered to the clutch, from which the number of graduation lines necessary for the required torque can be read off. If a required torque value lies between two graduation lines, please adjust to the smaller value (positive spring force tolerance). After the torque adjustment has been made, please secure the adjusting nut by turning the locking screw (Item 4).

On ROBA®-slip hub devices Sizes 6 – 12, the dimension “a” (see Fig. 36) can be found in the adhered Table (Fig. 38) and can be adjusted accordingly (see Fig. 36) using the adjusting nut (Item 14).

Finally, the cup spring supporting bolts (Item 9) should be turned stepwise evenly approx. 1/4 turn until they are flush with the adjusting nut (Item 14).

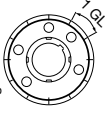
mayr® power transmission D-87665 Mauerstetten Made in Germany	ROBA®-slip hub Size 3 Surface-ground chain sprocket for friction lining No. 1, run-in condition	Turn the nut up to the CS contact, then count the grads. 12 grads = 1 turn		Single CS 	Torque	Nm	50	62	80	100	130	150	200	235	250
					Graduation lines	GL	9	10	12	14	16	18	20	22	24
				Double CS 	Torque	Nm	250	295	340	375	420	450	480	520	550
					Graduation lines	GL	10	11	12	13	14	15	16	17	18

Fig. 37

mayr® power transmission D-87665 Mauerstetten Made in Germany	ROBA®-slip hub Size 6	 Spring bolt flush	Single Cup Spring	M [Nm]	240	300	420	540	660	780	900	1020	1140	1200
	a =		14,9	14,8	14,4	14,0	13,6	13,2	12,7	12,2	11,7	11,4		
	Double Cup Spring		M [Nm]		600	840	1080	1320	1560	1800	2040	2280	2400	
	a =			12,6	12,4	12,2	12,0	11,8	11,6	11,4	11,1	10,9		

Fig. 38

The ROBA®-slip hub with triple cup spring layering has no Adjustment Table adhered to it.

Torque adjustment is carried out in the following way:

Please tighten the adjusting nut without using a lot of force. Then adjust the individual screws in the adjusting nut evenly in approx. 1/4 turns to the specified dimensions “b” or “a” shown in the Adjustment Diagram (if necessary, please order the Table from the manufacturers). In this way the required torque is obtained.

For initial adjustment, the ROBA®-slip hub should slip several times at 50 % of the torque specified in the Catalogue, in order to achieve a clean wear pattern on the friction lining.

Depending on the slipping frequency, occasional re-adjustment is necessary due to friction lining wear.

The ROBA®-slip hub can of course be delivered complete with a drive element at extra cost, pre-adjusted to the set torque.



For clutch Types with no adhered Adjustment Table, feel free to ask the manufacturers for Adjustment Diagrams.

Installation Examples

ROBA®-slip hub standard

Type 100.110

Features

Simple, robust and reasonably priced torque limitation for protection against overload damages.

Application

Protection of drives with narrow drive elements, e.g. single chain sprocket.

Technical Details

Axial attachment onto the shaft is carried out via a press cover and a screw, screwed into the central thread of the shaft. Slip monitoring is carried out by a speed monitor (available on request) with an external initiator.

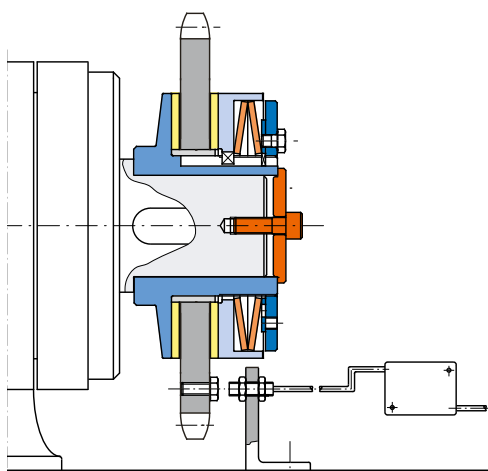


Fig. 39

ROBA®-slip hub with rustproof friction lining

Type 100.220

Features

Slip hub with disks made of stainless steel to prevent the friction linings rusting.

Application

Overload protection for machines operating in open air conditions, in particularly wet conditions or machines subject to long down-times.

Technical Details

The slip hub is held on the shaft via a set screw which applies pressure onto the keyway. The rustproof disks do not adhere to the friction lining and do not form rust compounds. A speed monitor (available on request) prevents excessively long slippage on overload.

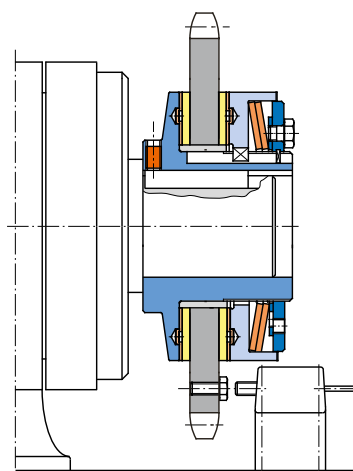


Fig. 40

ROBA®-slip hub with needle bearing

Type 160.210

Features

Needle bearing in place of the standard bearing bushing; suitable for continuous slipping at low speeds and torques.

Application

Drives with high radial loads, high slipping frequency and increased shaft run-out accuracy.

Technical Details

Axial attachment onto the shaft is carried out via a set screw and a press cover, or, as indicated in the drawing, via a locking ring.

The width of the drive element is not variable due to the fixed needle bearing length.

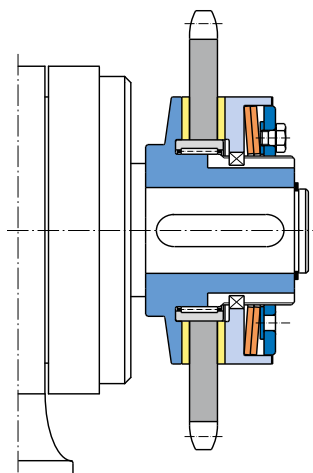


Fig. 41

ROBA®-min

Type 121.210

Features

Slip hub with a standard friction lining and a small bronze friction lining on the hub collar side.

Application

For drive elements with very small outer diameters and large installation widths.

Technical Details

The hub collar and a friction lining are significantly reduced.

On the side with the standard friction lining, an intermediate flange is additionally attached between lining and drive element and pinned to the drive element.

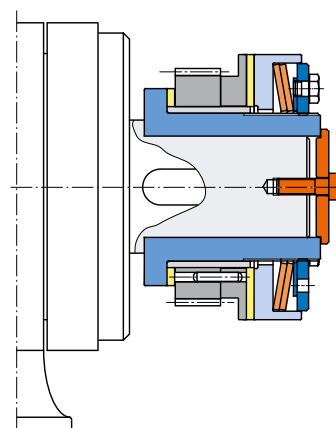


Fig. 42

Installation Examples

ROBA[®]-max

Type 170.110

Features

Slip hub with a long hub, the transmittable torques correspond to the standard ROBA[®]-slip hub.

Application

For very wide drive elements, e.g. multiple-row-chain sprockets.

Technical Details

The ROBA[®]-max can take drive elements with a large width range. The bearing bushing is modified to the required installation width. Attachment onto the shaft is carried out via a set screw which applies pressure onto the keyway.

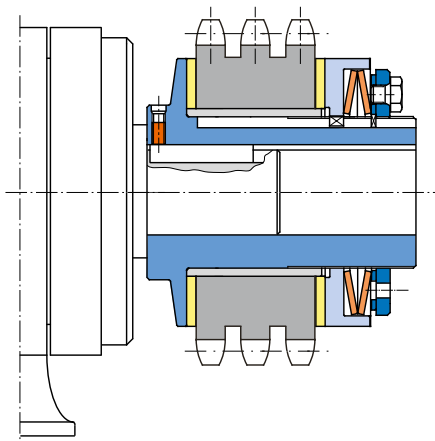


Fig. 43

ROBA[®]-lastic

Type 131.110

Features

Slip hub for connection of two shafts with polygon-shaped, highly flexible rubber elements.

Application

Overload protection, connection of two shafts in drives with large shaft misalignments, impacts and torsional vibrations.

Technical Details

The slip hub is attached onto the shaft using a press cover. The flexible coupling hub sits without attachment frictionally-locked on the shaft. Torque transmission takes place via a rubber element which has a high misalignment compensation capability and damps torsional vibrations and impacts.

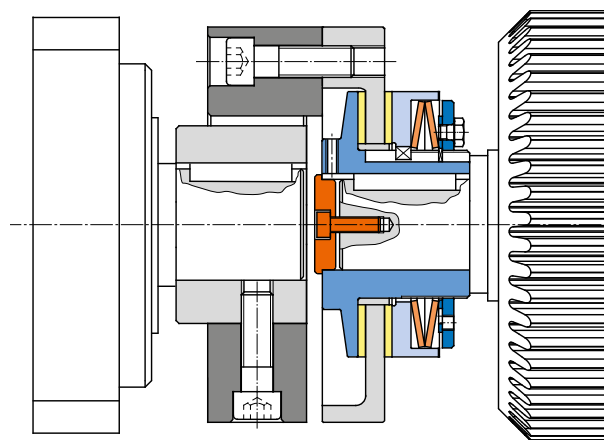


Fig. 44

ROBA[®]-LD - torsionally rigid

Type 134.110

Features

Slip hub combined with a torsionally rigid flexible all-steel coupling (ROBA[®]-D coupling).

Application

Overload protection, connection of two shafts and shaft misalignment compensation with low torsional backlash torque transmission.

Technical Details

The slip hub is attached using a press cover. The ROBA[®]-D hub is attached using a set screw onto the shaft. The ROBA[®]-D coupling transmits the torque backlash-free. Low torsional backlash results from the thrust washer jaw backlash in the slip hub outer keyways.

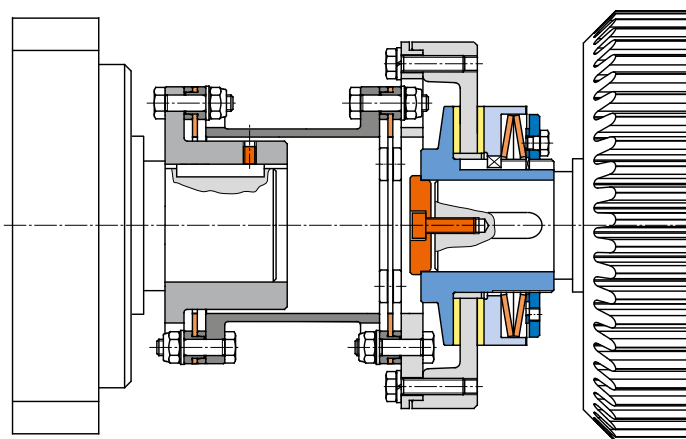


Fig. 45



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16/01/2017 GC/SC

