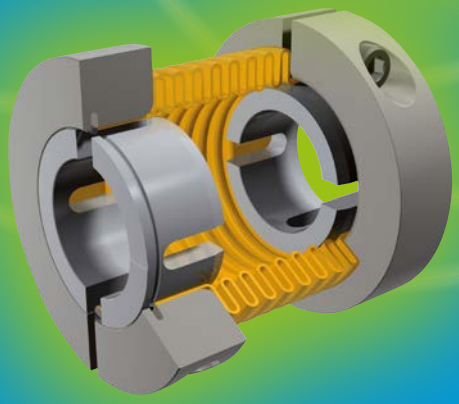
mayr®

your reliable partner

Shaft Couplings

Backlash-free Torque Transmission
Compensation of Shaft Misalignment



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www.mayr®.com

mayr® -your reliable partner

What is your definition of reliability?

We define reliability as the highest product quality and competent service from the initial contact right up to the after-sale service

- ❑ Largest variety in selection of standard products
- ❑ Market leader's competence arising from decades of experience in the development, production and application of power transmission products
- ❑ Optimum product selection due to our expertise in design and calculation
- ❑ Reliable component dimensioning
- ❑ Intelligent platform (modular construction)
- ❑ High flexibility for individual requests and customer-tailored solutions
- ❑ Quality-inspected suppliers
- ❑ Modern, highly robust materials
- ❑ 100% quality control
- ❑ Certified according to DIN EN ISO 9001:2000
- ❑ Personal supervision from the first contact right up to the after-sale service
- ❑ Worldwide local service network
- ❑ CAD-files available online to save time and costs during construction
- ❑ 24-hour delivery service for preferred products
- ❑ Short delivery times and on-time delivery
- ❑ Unlimited replacement part availability worldwide

A Worldwide Presence

Our Sales and Service network is constantly expanding. We guarantee you and your customers almost all over the world local representation. With eight branch firms in France, Switzerland, Italy, England, Poland, the USA, Singapore and China as well as around 30 representatives and eight subsidiaries in Germany, we provide local service for our customers in all important industrial areas.

Total Quality Management

Product Quality

Every delivery which leaves our firm has been subjected to a careful quality inspection, meaning that you are able to rely 100 % on *mayr*® products. If required, we pre-adjust our clutches and brakes accurately to the requested values and confirm the product characteristics with an Inspection Report.

Quality Management

mayr® uses the term quality to describe its products and services. Certification of our quality management confirms the quality-consciousness of our colleagues at every level of the company.

Our integrated management system is certified according to **DIN EN ISO 9001:2000 (Quality)** and **DIN EN ISO 14001 (Environment)** and complies with the **OHSAS 18001/OHRIS (Occupational Health and Safety)** demands.

Individual and Flexible Logistics

Flexible and optimally qualified colleagues ensure that your order is delivered according to schedule and with the most appropriate delivery method. We take into account your individual packaging and dispatch regulations as a matter of course. Our modern high rack warehouse has a permanently available stock of our wide standard product selection.

And if you are really in a hurry, simply use our uniquely-quick basic product delivery service!

Construction and Development

Innovations for Your Success

With our innovative and economical solutions, we are able to set new records in the field of power transmission. Our many worldwide patents prove our constant ambition of developing better and technologically superior products.

Highly qualified engineers, high-performance 3D-CAD-systems and the most up-to-date FEM calculation aids used in our Development and Construction departments mean that our business is perfectly equipped to offer our customers effective solutions.

Experts for all Power Transmission Questions

Exploit our know-how, gained by decades of experience in the development, production and application of drive technology products. Our experts in Construction and Development are happy to advise you personally and competently when selecting and dimensioning the drive solution you require.

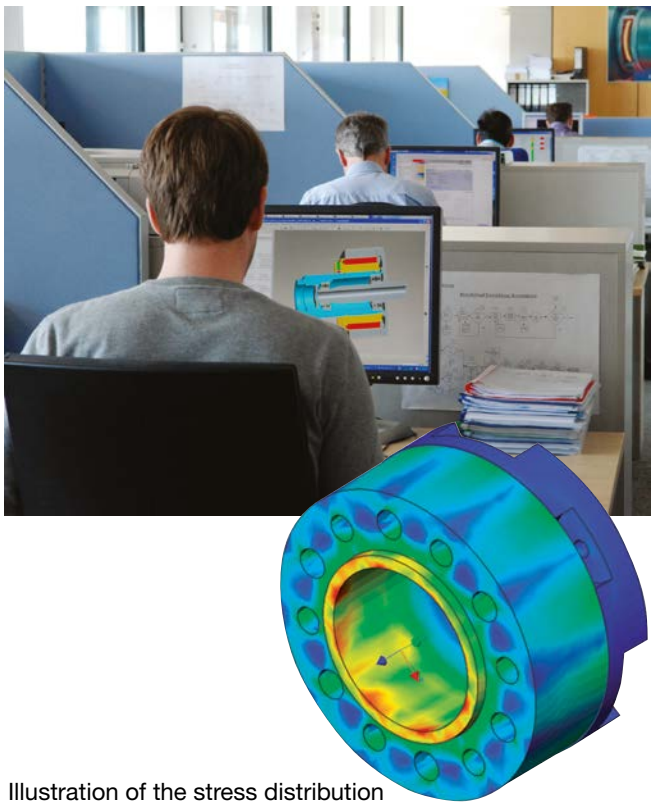


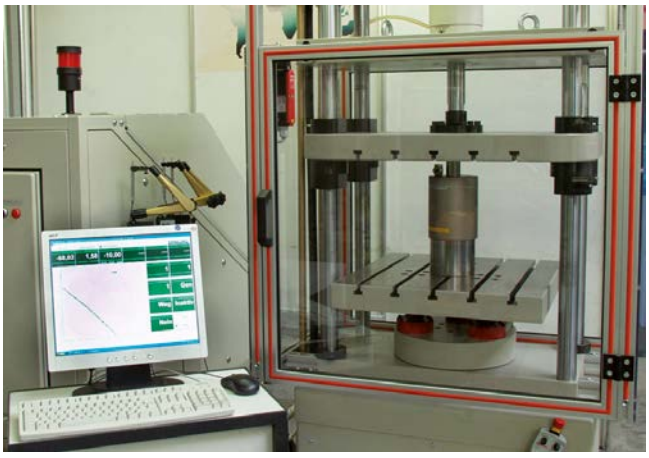
Illustration of the stress distribution in a backlash-free shaft connection

From Prototype to Finished Product

No mayr® product is released onto the market until it has proved its functional capabilities and reliability in extreme, long-term tests.

The spectrum of test stands is as varied as our range of products:

- ❑ Friction work test stands
- ❑ Wear test stands
- ❑ Noise measurement room with highly accurate noise measurement inspection devices
- ❑ Torque inspection stands up to 200.000 Nm
- ❑ Impact and alternating load test stands
- ❑ Force test stands
- ❑ Linear movement test stands
- ❑ Continuous performance test stands
- ❑ Magnetic flux measurement test stands
- ❑ High-speed test stands up to 20.000 rpm
- ❑ Misalignment and angular misalignment test stands
- ❑ Load and measurement test stands for DC motors



Product Data: Our 24-hour Service

Our website offers you detailed information 24 hours per day, 365 days per year with no delays. Here you can find not only the latest catalogues and technical documentation but also CAD-files for cost-saving construction of our products.

Unsurpassed - Our Standard Programme

For safety clutches, safety brakes, backlash-free shaft couplings and high-quality DC drives, we offer you a complete product range with market and branch optimised constructions and designs.

The Optimum Shaft Coupling for every Drive

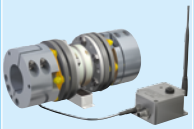
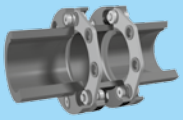
Each drive has its own specific characteristics and therefore places different demands on the couplings which transmit the torque from one shaft to the second and which compensate for the resulting shaft misalignments. In most cases only backlash-free couplings are able to meet the requirements for high-speed, dynamic or reversing precision drives.

mayr® power transmission has three of the most established and most attractive backlash-free shaft couplings in its programme:

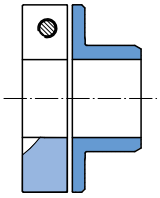
- **Disk pack couplings**,
- **Steel bellows couplings** and
- **Elastomer couplings**

Therefore, *mayr*® offers an optimum solution for many different drives.

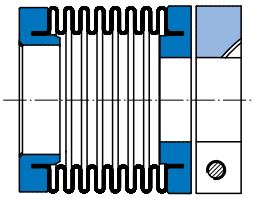
Overview: Backlash-free Shaft Couplings Types, Designs, Characteristics

primeflex® Steel bellows couplings Page 6	**ROBA®-DS** Servo couplings Page 8	**smartflex®** Steel bellows couplings Page 10	**ROBA®-ES** Elastomer couplings Page 12	**ROBA®-DS** All-steel couplings Page 14	**ROBA®-DSM** Torque measure-ment coupling Page 16	**ROBA®-DS** All-steel couplings Page 18
						
Flexible element						
Steel bellows	Disk pack	Steel bellows	Plastic element	Disk pack	Disk pack	Disk pack
Nominal torque range in Nm						
24 – 120	35 – 150	16 – 700	4 – 1250	190 – 24000	190 – 1600	22000 – 110000
Max. permitted speed in rpm						
8000	22500	10000	28000	13600	9500	3600
Shaft diameter in mm						
10 – 45	10 – 45	8 – 85	6 – 80	14 – 170	14 – 110	on request
Max. permanent operation temp. in °C						
120	100	120	100	250	70	250
Torsionally rigid						
x	x	x		x	x	x
Torsionally flexible						
			x			
Vibration damping						
			x			
Can be combined with safety clutch						
x	x	x	x	x		x
Can be integrated with torque measurement						
				x		x
Distance between shaft ends						
graduated	variable	graduated	fixed	variable	fixed	variable
Single-joint design						
	x		x	x		x
• Shaft misalignment compensation axial						
	x		x	x		x
• Shaft misalignment compensation radial						
			x			
• Shaft misalignment compensation angular						
	x		x	x		x
Double-joint design						
x	x	x		x	x	x
• Shaft misalignment compensation axial						
x	x	x		x	x	x
• Shaft misalignment compensation radial						
x	x	x		x	x	x
• Shaft misalignment compensation angular						
x	x	x		x	x	x
ATEX design acc. 94/9 EC						
	x		x	x		
Product catalogue						
P.933.V_ _._ _	K.950.V_ _._ _	K.932.V_ _._ _	K.940.V_ _._ _	K.950.V_ _._ _	K.950.V_ _._ _	K.950.V_ _._ _

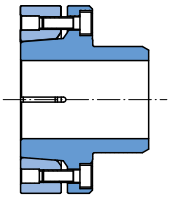
primeflex® – steel bellows couplings
Modular Structure



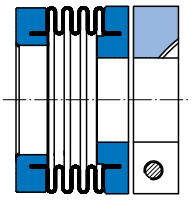
plug-in clamping hub
(if required with keyway)



long steel bellows
with clamping hub
(if required with keyway)



plug-in shrink disk hub
(if required with keyway)



short steel bellows
with clamping hub
(if required with keyway)

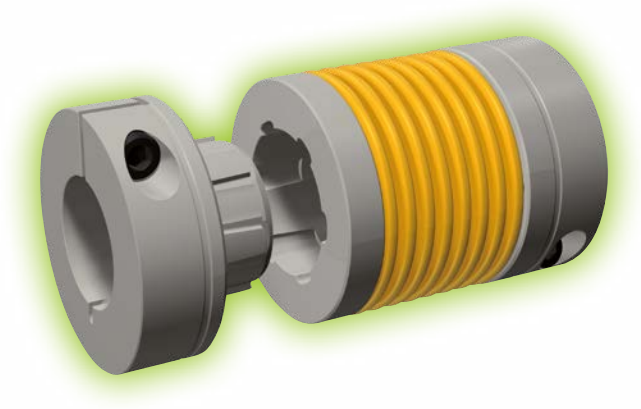
According to German notation, decimal points in this catalogue are represented with a comma (e.g. 0,5 instead of 0.5).
We reserve the right to make dimensional and constructional alterations.

For detailed information, detailed technical data and dimensions, please see our product catalogue P.933.V_ _._ _
This catalogue is also available for download as a pdf file on our website www.mayr.com.

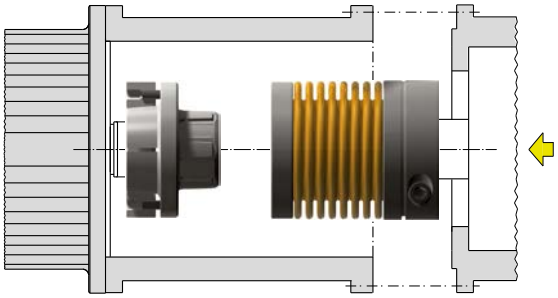
primeflex® – steel bellows couplings

Characteristics and Advantages

- Plug-in connection
- Backlash-free
- Can be de-installed even after longer operating periods without damaging the steel bellows
- Extremely compact and very high performance density
- Easy to install via clamping or shrink disk connections
- Frictionally-locking and positive-locking shaft-hub connections
- Excellent misalignment compensation capability
- Can be variably dimensioned via the modular system
- Cost-effective



Installation Example

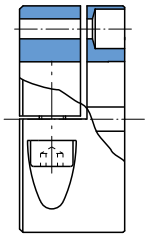


The primeflex®-steel bellows coupling transmits the torque backlash-free between the motor shaft and the gear shaft. By applying plug-in shrink disk hubs (see Installation Example) or plug-in clamping hubs, the primeflex®-steel bellows couplings can be mounted in areas which are difficult to access.

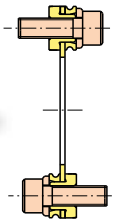
Technical Data, Dimensions					Size 1	Size 2	Size 3
Nominal torque			T_{KN}	[Nm]	24	60	120
Outer diameter				[mm]	47	60	79
Clamping hub	**Minimum bore**			[mm]	12	19	25
	Maximum bore			[mm]	25	35	45
	Maximum speed		n_{max}	[rpm]	8000	6000	4000
	Length	long steel bellows		[mm]	77	93	117
		short steel bellows		[mm]	62	74	92
Permitted misalignments [1]	Axial displacement	long steel bellows	ΔK_a	[mm]	0,2	0,25	0,25
		short steel bellows	ΔK_a	[mm]	0,1	0,15	0,15
	Radial misalignment	long steel bellows	ΔK_r	[mm]	0,2	0,3	0,3
		short steel bellows	ΔK_r	[mm]	0,1	0,1	0,1
	Angular misalignment	long steel bellows	ΔK_w	[°]	1	1	1
		short steel bellows	ΔK_w	[°]	1	1	1
Torsional spring rigidity		long steel bellows	C_T	$[10^3 \frac{Nm}{rad}]$	9	22	50
		short steel bellows	C_T	$[10^3 \frac{Nm}{rad}]$	18	44	100

1) The permitted misalignments may not simultaneously reach their maximum value.

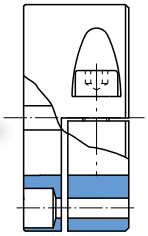
ROBA®-DS – servo couplings
Modular Structure



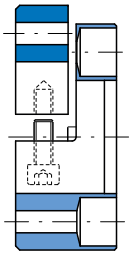
Clamping hub
(if required with keyway)



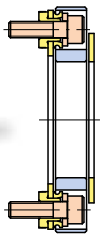
Single-jointed coupling



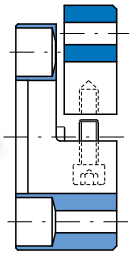
Clamping hub
(if required with keyway)



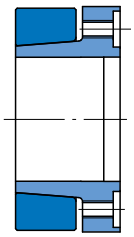
Split clamping hub
(if required with keyway)



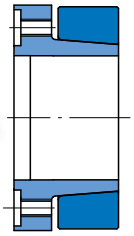
Double-jointed coupling with connection plate



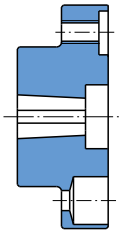
Split clamping hub
(if required with keyway)



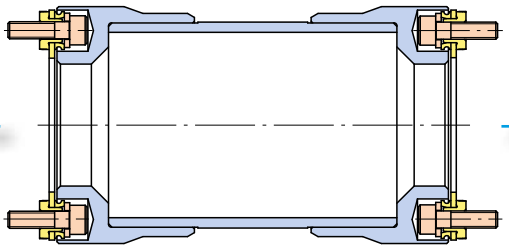
Shrink disk hub



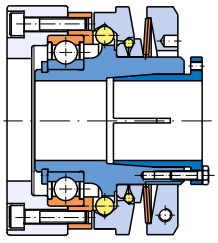
Shrink disk hub



Hub with
tapered bore
(only sizes 3 and 6)



Double-jointed coupling with sleeve S



EAS®-safety clutch
available as an option

Also available in ATEX design according to the directive 94/9 EC (ATEX 95).

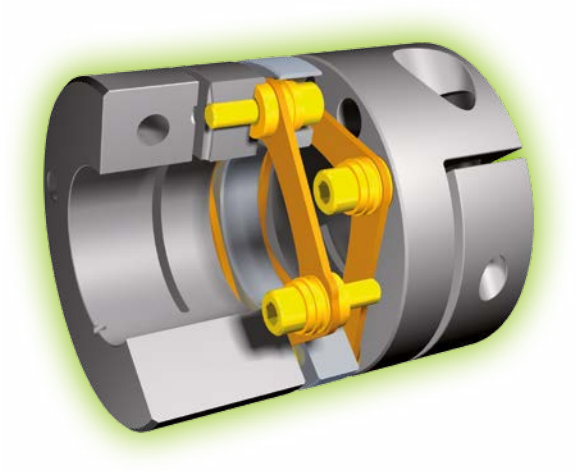
For detailed information, detailed technical data and dimensions, please see our product catalogue K.950.V_ _._ _

This catalogue is also available for download as a pdf file on our website www.mayr.com.

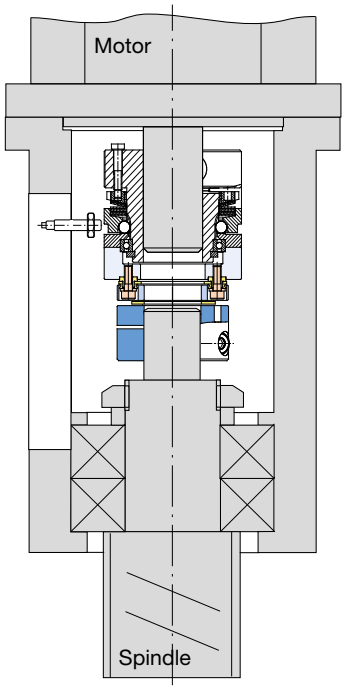
ROBA®-DS – servo couplings

Characteristics and Advantages

- ROBA®-DS servo couplings are made of steel and high-strength aluminium alloys – the basis of these extremely compact designs.
- Due to their high performance density, they transmit high torques at comparably low volumes.
- Their low mass moment of inertia also predestines ROBA®-DS servo couplings for highly dynamic drive systems with high speeds.
- The flexible disk pack compensates for shaft misalignments and transmits the torque backlash-free with a high torsional rigidity.
- ROBA®-DS servo couplings are absolutely wear-free and maintenance-free.



Installation Example

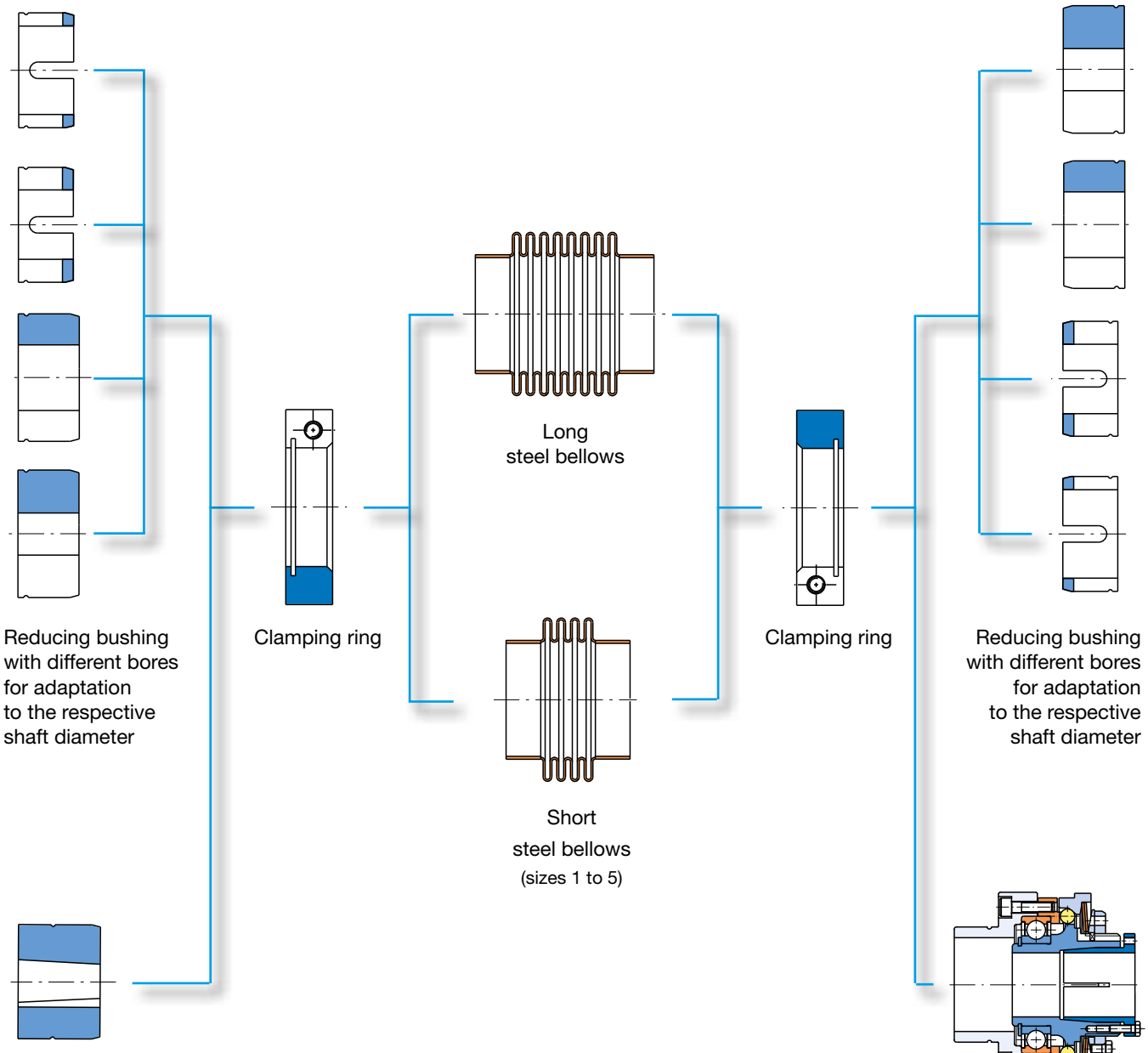


ROBA®-DS shaft coupling combined with an EAS®-safety clutch. Backlash-free and torsionally rigid torque transmission between the motor shaft and the spindle shaft. Compensation of axial, radial and angular misalignments.

Technical Data, Dimensions					Size			
					3	6	10	15
Nominal torque [1]			T_{KN}	[Nm]	35	60	100	150
Peak torque [2]			T_{KS}	[Nm]	52	90	150	225
Alternating torque			T_{KW}	[Nm]	21	36	60	90
Outer diameter				[mm]	45	56	69	79
Clamping hub	**Minimum bore**			[mm]	10	14	19	25
	Maximum bore			[mm]	20	28	35	42
	Maximum speed [3]		n_{max}	[rpm]	13500	10800	9000	7800
	Length single-jointed coupling			[mm]	48,5	52,6	67	69,9
	Min. length double-jointed coupling			[mm]	59	64,7	79,5	82,8
Permitted misalignments [4]	Axial displacement [5] [6]		ΔK_a	[mm]	0,5	0,7	0,9	1,1
	Radial misalignment [5]	with connection plate	ΔK_r	[mm]	0,15	0,15	0,2	0,2
		with special sleeve	ΔK_{rH}	[mm]	Please contact the manufacturer.			
	Angular misalignment per disk pack		ΔK_w	[°]	1,0	1,0	1,0	1,0
Torsional spring rigidity		disk pack	$C_{T\ LP}$	$[10^3 \frac{Nm}{rad}]$	17	35	60	145

1) Valid for max. permitted shaft misalignments.
2) Valid for unchanging load direction, max. load cycles ≤ 10^5.
3) Not valid for coupling with special sleeve.
4) The permitted misalignments may not simultaneously reach their max. value.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.

smartflex® – steel bellows couplings
Modular Structure



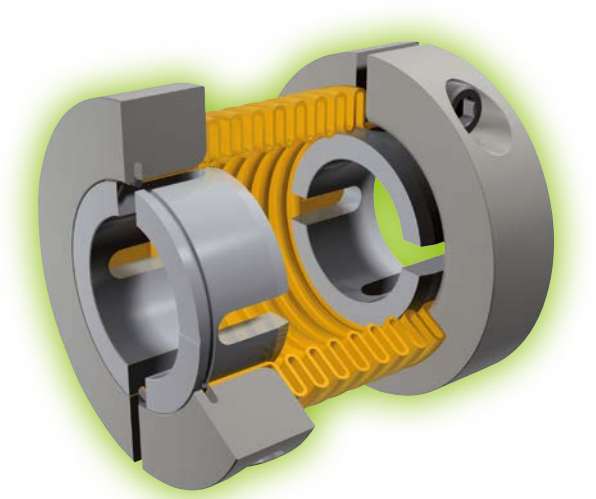
For detailed information, detailed technical data and dimensions, please see our product catalogue K.932.V_ _._ _

This catalogue is also available for download as a pdf file on our website www.mayr.com.

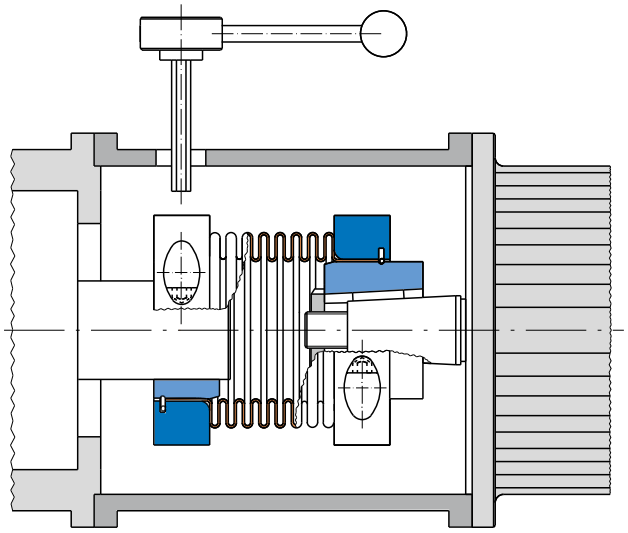
smartflex® – steel bellows couplings

Characteristics and Advantages

- smartflex®-steel bellows couplings compensate for axial, angular and radial shaft misalignments.
- Backlash-free shaft attachment, backlash-free torque transmission and high torsional rigidity provide high precision in the drive line.
- The easy and fast shaft attachment saves installation time.
- Due to the ingeniously simple set-up, the price-performance ratio is extremely advantageous.
- On radial shaft misalignment, the misalignment compensation capability of smartflex®-couplings is up to three times higher than the misalignment compensation capability of common steel bellows couplings.
- The high misalignment compensation capability eliminates the most common accident cause on previous generations of steel bellows.
- A flexible modular system minimises storage and provides high availability.



Installation Example

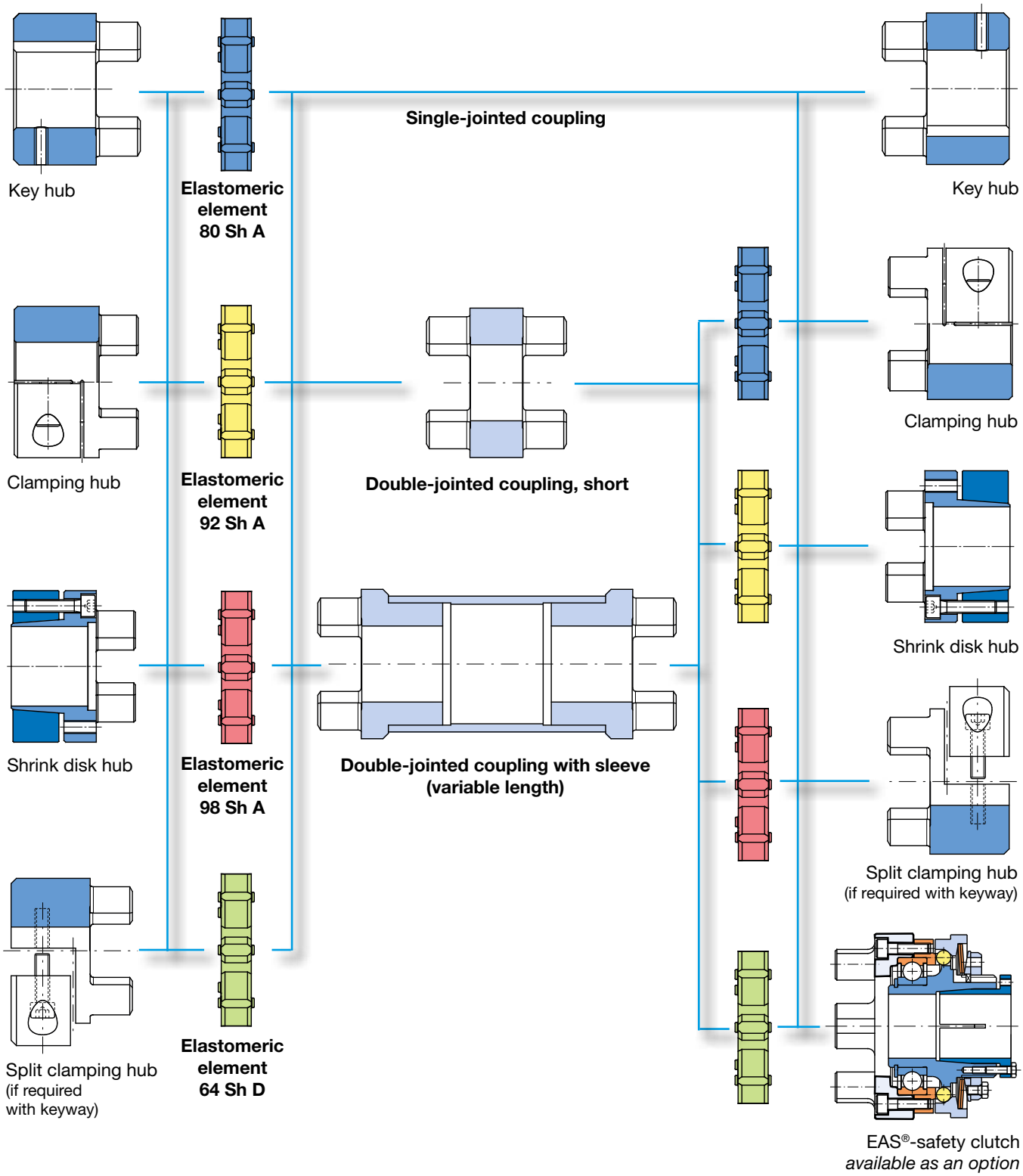


By applying clamping ring hubs, the smartflex®-steel bellows couplings can be mounted in areas which are difficult to access. Please provide an opening in the bell housing for the Allen wrench as depicted in the example.

Technical Data, Dimensions					Size					
					0	1	2	3	4	5
Nominal torque			T_{KN}	[Nm]	16	40	100	200	400	700
Outer diameter				[mm]	46	57	72	94	118	146
Reducing bushing	**Minimum bore**			[mm]	8	11	16	18	30	40
	Maximum bore			[mm]	19	25	36	50	62	85
	Maximum speed		n_{max}	[rpm]	10000	8000	6000	4000	3000	2500
	Length	long steel bellows		[mm]	49,5	59,3	72	90,3	115	124
		short steel bellows		[mm]	-	43,7	52,5	65,6	87	98
Permitted [1] misalignments	Axial displacement	long steel bellows	ΔK_a	[mm]	0,4	0,6	0,8	0,8	0,8	0,6
		short steel bellows	ΔK_a	[mm]	-	0,3	0,4	0,4	0,6	0,6
	Radial misalignment	long steel bellows	ΔK_r	[mm]	0,3	0,4	0,5	0,5	0,5	0,5
		short steel bellows	ΔK_r	[mm]	-	0,1	0,1	0,1	0,1	0,1
	Angular misalignment	long steel bellows	ΔK_w	[°]	3	3	3	3	1,5	1,0
		short steel bellows	ΔK_w	[°]	-	1,5	1,5	1,5	1,2	1,0
Torsional spring rigidity		long steel bellows	C_T	$[10^3 \frac{Nm}{rad}]$	4	9	22	50	125	305
		short steel bellows	C_T	$[10^3 \frac{Nm}{rad}]$	-	18	44	100	168	380

1) The permitted misalignments may not simultaneously reach their maximum value.

ROBA®-ES – elastomer couplings
Modular Structure



Also available in ATEX design according to the directive 94/9 EC (ATEX 95).

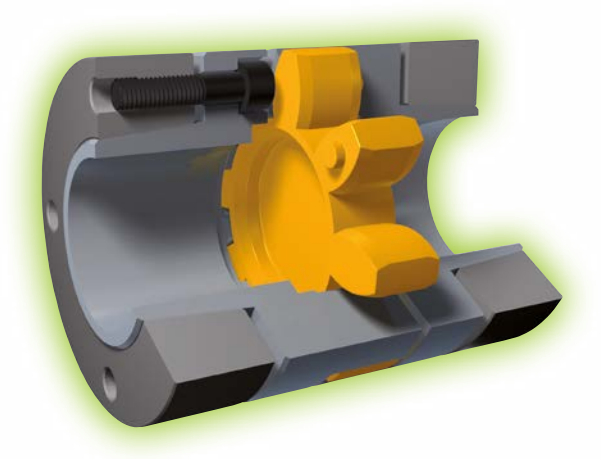
For detailed information, detailed technical data and dimensions, please see our product catalogue K.940.V_ _._ _

This catalogue is also available for download as a pdf file on our website www.mayr.com.

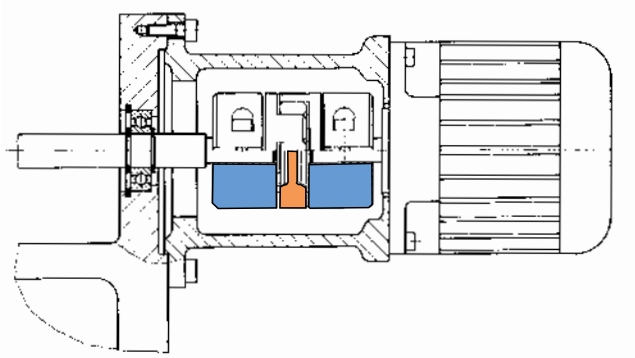
ROBA®-ES – elastomer couplings

Characteristics and Advantages

- ROBA®-ES couplings transmit the torque backlash-free via pre-tensioned elastomer elements and compensate for shaft misalignments.
- Rigidity and damping behaviour are variable due to four elastomeric elements per size in different Shore hardnesses.
- ROBA®-ES elastomer couplings are insertable and are, therefore, also suitable for blind assembly.
- The couplings are maintenance-free, media-resistant and temperature-resistant. This guarantees the highest operational safety.
- ROBA®-ES couplings are torsionally flexible within narrow areas. However, in comparison to the toothed belt drive, their rigidity is still 2 to 4 times higher.



Installation Example



The ROBA®-ES shaft coupling transmits the torque backlash-free between the motor shaft and the output shaft. It also compensates for axial, radial and angular shaft misalignments.

Technical Data, Dimensions					Size								
					14	19	24	28	38	42	48	55	65
Nominal torque	Elastomeric element hardness 98 Sh A		T_{KN}	[Nm]	13	17	60	160	325	450	525	685	1040
Peak torque	Elastomeric element hardness 98 Sh A		T_{KS}	[Nm]	26	34	120	320	650	900	1050	1370	2080
Alternating torque	Elastomeric element hardness 98 Sh A		T_{KW}	[Nm]	See coupling dimensioning in the current ROBA®-ES catalogue.								
Outer diameter				[mm]	30	40	55	65	80	95	105	120	135
Shrink disk hub	Minimum bore			[mm]	6	10	15	19	20	28	35	40	45
	Maximum bore			[mm]	14	20	28	38	45	50	60	70	75
	Maximum speed		n_{max}	[rpm]	28000	21000	15500	13200	10500	9000	8000	6300	5600
	Length			[mm]	50	66	78	90	114	126	140	160	185
Elast. element hardness 98 Sh A	Permitted misalignment 1)	axial	ΔK_a	[mm]	1,0	1,2	1,4	1,5	1,8	2,0	2,1	2,2	2,6
		radial	ΔK_r	[mm]	0,09	0,06	0,1	0,11	0,12	0,14	0,16	0,17	0,18
		angular	ΔK_w	[°]	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9
	Torsional spring rigidity	static	$C_{T\,stat.}$	$[10^3 \frac{Nm}{rad}]$	0,12	0,9	3,7	4,2	7,4	13,8	15,1	20,5	32,8
		dynamic	$C_{T\,dyn.}$	$[10^3 \frac{Nm}{rad}]$	0,3	2,2	7,6	10,1	19,9	31,1	44,9	48,2	67,4

1) The permitted misalignments may not simultaneously reach their maximum value.

ROBA®-DS – backlash-free all-steel couplings
Modular Structure

Key hub

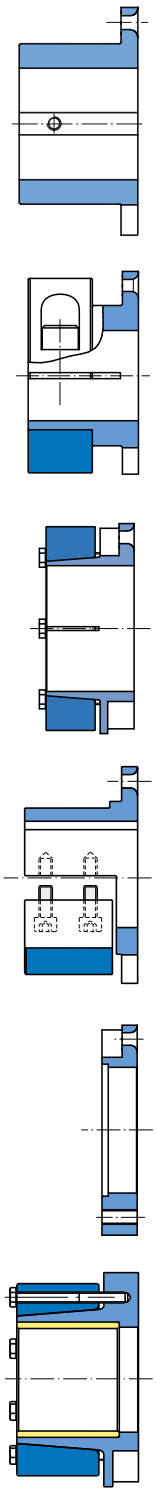
Clamping ring hub

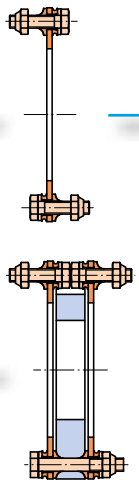
Shrink disk hub

Split clamping hub

Flange

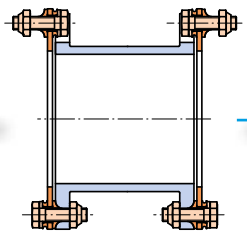
Shrink disk hub with integrated overload protection





Single-jointed coupling

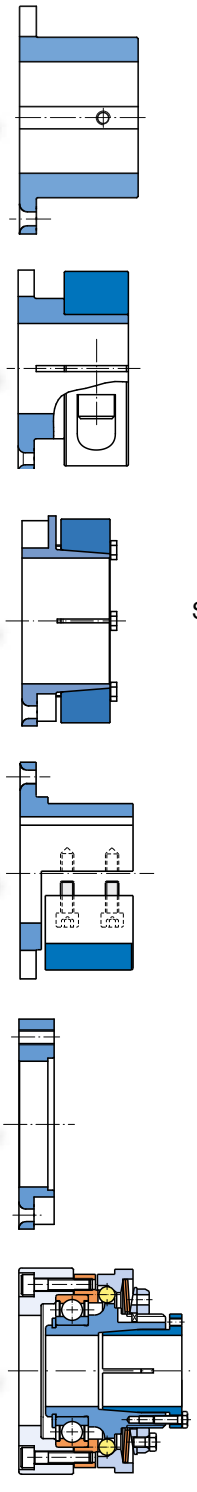
Double-jointed coupling with connection plate



Double-jointed coupling with sleeve

Sleeve variants:

- Sleeve 1
- Special sleeve with variable length
- Cranked tube
- CFRP sleeve
- GRP sleeve
- Axially separable sleeve
- Sleeve with integrated torque measurement



Key hub

Clamping ring hub

Shrink disk hub

Split clamping hub

Flange

EAS®-safety clutch
available as an option

Also available in ATEX design according to the directive 94/9 EC (ATEX 95).

Also available in rustproof design.

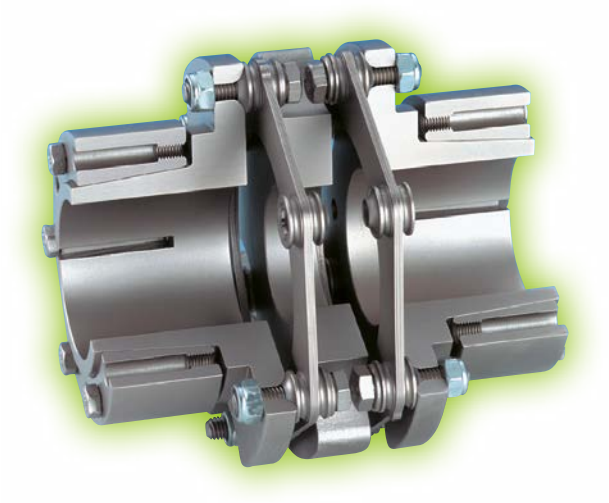
For detailed information, detailed technical data and dimensions, please see our product catalogue K.950.V_ _._ _

This catalogue is also available for download as a pdf file on our website www.mayr.com.

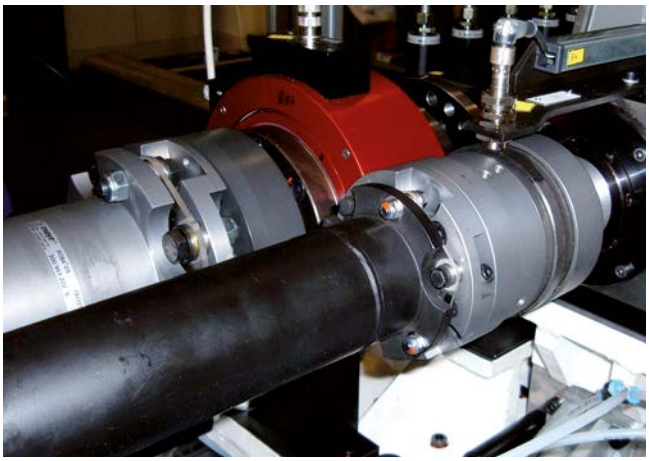
ROBA®-DS – backlash-free all-steel couplings

Characteristics and Advantages

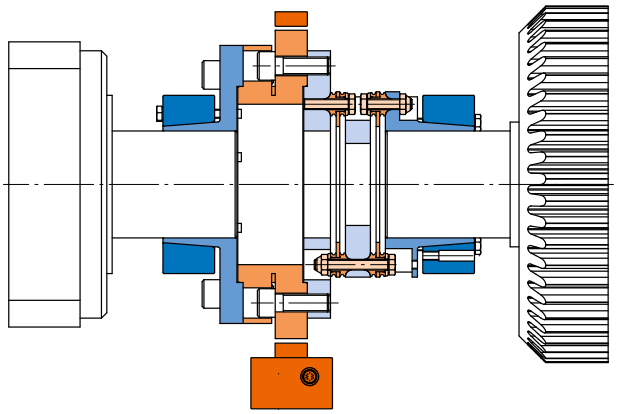
- ROBA®-DS couplings are not sensitive to alternating loads up to the full nominal torque.
- Due to their high performance density, they have a low mass moment of inertia.
- ROBA®-DS disk pack couplings transmit the torque absolutely backlash-free and with a constantly high torsional rigidity up to the nominal torque.
- On ROBA®-DS couplings, the full nominal torque can be used, even on alternating torques and shaft misalignments.
- They have a high misalignment compensation capability with low restoring forces.
- ROBA®-DS couplings are extremely robust and can therefore be used even under difficult conditions.
- The high variant variety permits optimum coupling configuration.



Installation Example



ROBA®-DS shaft coupling combined with an EAS®-safety clutch in a gear test stand manufactured by the company EGM (Entwicklungsgesellschaft für Montagetechnik GmbH, Hannover).

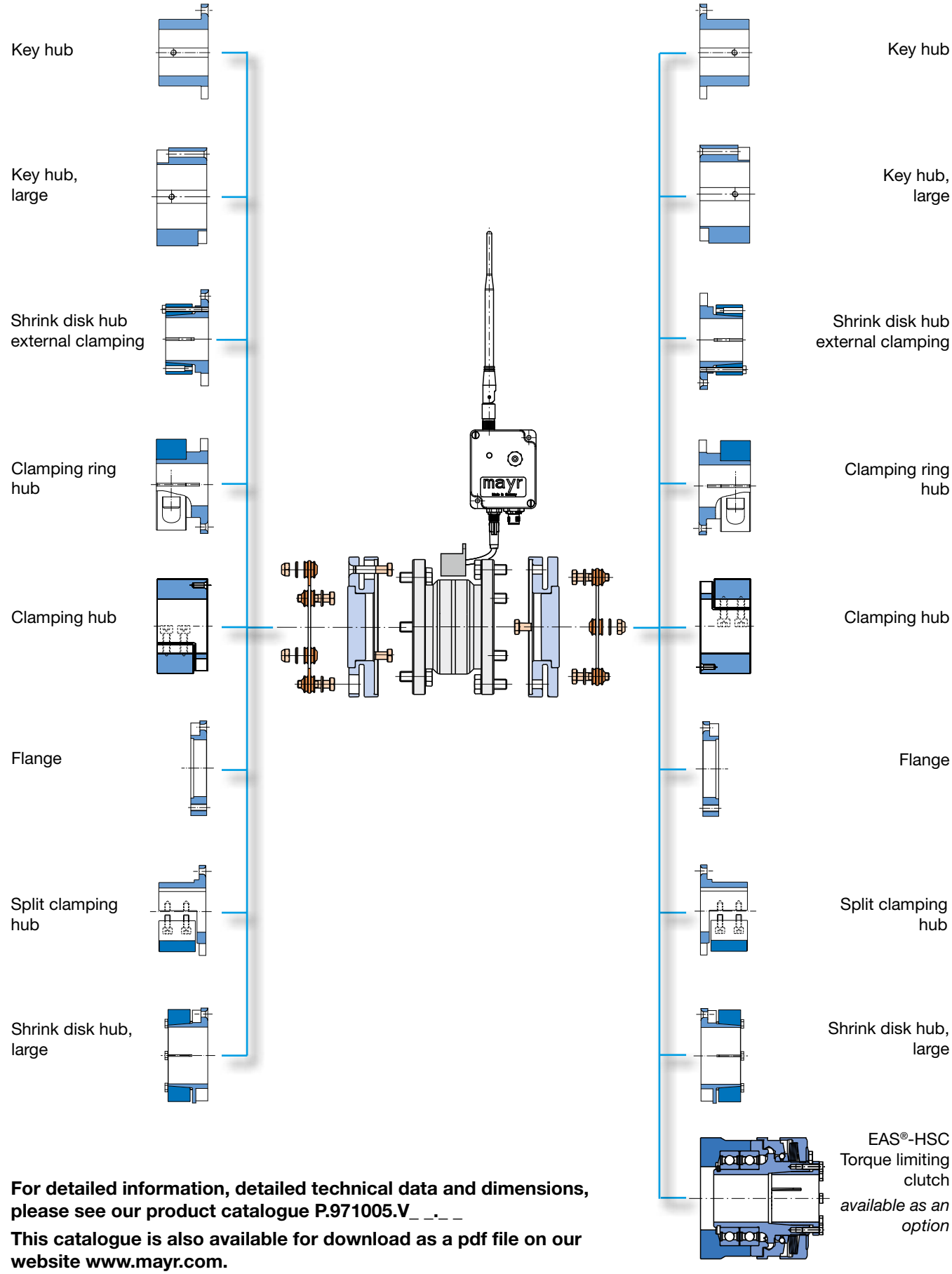


By using special adaptor flanges, different measuring flanges (for torque measurement) can be integrated into ROBA®-DS couplings.

Technical Data, Dimensions					Size											
					16	25	40	64	100	160	180	300	500	850	1400	2200
Nominal torque [1]		T_{KN}	[Nm]		190	290	450	720	1000	1600	2100	3500	5800	9500	15000	24000
Peak torque [2]		T_{KS}	[Nm]		285	435	675	1080	1500	2400	3150	5250	8700	14250	22500	36000
Outer diameter			[mm]		77	89	104	123	143	167	143	167	198	234	274	314
Shrink disk hub	**Minimum bore**		[mm]		14	20	25	30	35	40	42	50	60	70	80	100
	Maximum bore		[mm]		45	52	60	70	90	100	75	85	100	120	140	170
	Maximum speed [3]	n_{max}	[rpm]		13600	11800	10100	8500	7300	6200	7300	6200	5200	4400	3800	3300
	Min. length single-jointed coupling		[mm]		77,1	87,2	98,4	109,6	120	131,6	141,2	161,2	202	244	276	317,8
	Min. length double-jointed coupling		[mm]		96,2	106,4	120,8	137,2	148	165,2	172,4	194,4	242	295	334	383,6
Permitted misalignments [4]	Axial displacement [5] [6]	ΔK_a	[mm]		1,1	1,3	1,5	1,8	2,1	2,5	1,0	1,2	1,4	1,6	1,9	2,2
	Radial misalignment [5] with connection plate	ΔK_r	[mm]		0,3	0,3	0,4	0,45	0,45	0,55	0,25	0,25	0,35	0,4	0,5	0,55
	Radial misalignment [5] with sleeve 1	ΔK_{rH}	[mm]		1,0	1,2	1,5	1,8	2,1	2,2	1,2	1,25	1,35	1,7	2	2,6
	Radial misalignment [5] with special sleeve	ΔK_{rH}	[mm]		Please contact the manufacturer.											
	Angular misalignment per disk pack	ΔK_w	[°]		1,0	1,0	1,0	1,0	1,0	1,0	0,5	0,5	0,5	0,5	0,5	0,5
Torsional spring rigidity	disk pack	$C_{T\ LP}$	$[10^3 \frac{Nm}{rad}]$		145	280	301	748	1135	1920	3000	3480	11900	20600	30150	46800

1) Valid for changing load direction and max. permitted shaft misalignments.
2) Valid for unchanging load direction, max. load cycles ≤ 10^5.
3) Not valid for coupling with special sleeve.
4) The permitted misalignments may not simultaneously reach their max. value.
5) The values refer to couplings with 2 disk packs.
6) Only permitted as a static or virtually static value.

ROBA®-DSM – Modular Structure



For detailed information, detailed technical data and dimensions, please see our product catalogue P.971005.V_ _._ _

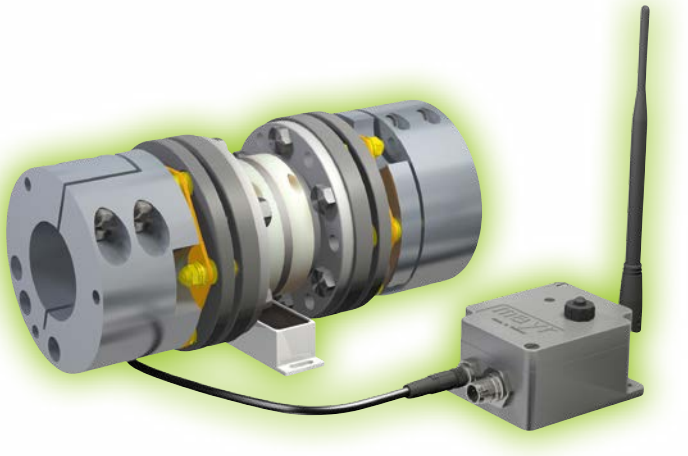
This catalogue is also available for download as a pdf file on our website www.mayr.com.

ROBA®-DSM – the measuring machine element

The areas of application for this torque measurement coupling range from test stand construction through use in serial production machines right up to condition monitoring. The system permits uncomplicated condition monitoring of machines and systems.

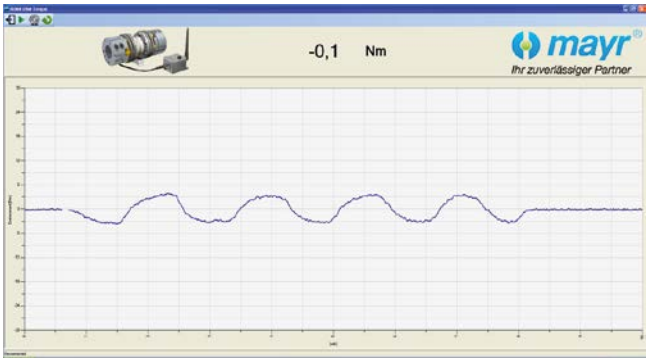
Valuable Data for Maximum Productivity

- Machine performance data
- Unpermitted operating conditions lying outside the specifications (in case of a defect or reclaim)
- Utilisation or runtime of the machine
- Current operating conditions and condition changes to the machine for preventative maintenance purposes
- Dynamic maintenance intervals dependent on the utilisation



Highlights and System Advantages

- Direct PC connection possible (USB connection)
- Software for visualisation of the measured values available as an option
- Use without bearings
- Simple installation and set-up
- Low space requirements on the drive line, no torque support required
- Resistant to vibrations and distance changes on the energy transmitter
- Housing and plug-in connector suitable for industrial purposes (protected against water spray)
- High measuring rate of 7000 measurements per second permits the recording of highly-dynamic loads
- Operation of strain sensor without battery via contactless power supply



Technical Data, Dimensions				Size			
				16	40	100	160
Nominal torque [1) 2)]		T_{KN}	[Nm]	190	450	800	1600
Peak torque [3)]		T_{KS}	[Nm]	285	675	1200	2400
Ultimate torque		T_{KB}	[Nm]	570	1350	2400	4800
Clamping hub	**Minimum bore**	$d_{K\,min}$	[mm]	20	25	32	40
	Maximum bore	$d_{K\,max}$	[mm]	45	60	90	100
	Maximum speed	n_{max}	[rpm]	9500	7000	5100	4300
	Length torque measurement coupling		[mm]	178,2	230,8	292	329,2
Permitted misalignments [4)]	Permitted axial displacement [5) 6)]	ΔK_a	[mm]	0,8	1,1	1,5	1,7
	Permitted angular misalignment [7)]	ΔK_w	[mm]	0,7	0,7	0,7	0,7
	Permitted radial misalignment [5)]	ΔK_r	[mm]	1,1	1,3	1,6	1,8
Spring rigidities	Total torsional rigidity		[10^3 Nm/rad]	36,2	114,3	320	585
	Angular spring rigidity [7)]		[Nm/rad]	229	298	1089	1990

Technical Data for Measuring System	
Supply voltage	24 VDC (±10 %)
Max. current consumption	1 A
Measuring signal output (rotational direction right positive, 10V refers to T_{KN})	0 ... ±10 V
Nominal temperature range	-20 °C to +70 °C
Temperature drift, zero point	0,04 % of final value/K
Temperature drift, measured value	0,03 % of final value/K

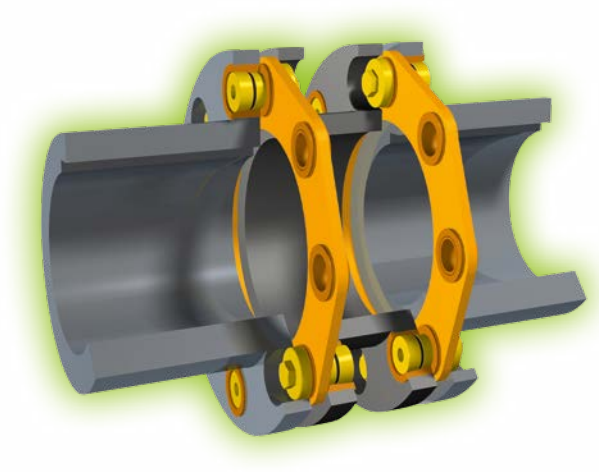
Technical Data for Measuring System	
Max. total error	< 1 % of final value (< 0,5 % via USB)
Bandwidth	3 kHz (-3 dB)
Max. dyn. load	100 % of T_{KN}
Protection	Receiver/stator IP65 Strain sensor IP52
Permitted speed	0 ... n_{max}
Connection	M12 plug, 4-pole

1) Other torques and construction sizes available on request.
2) Valid for changing load direction as well as for max. permitted shaft misalignment.
The following applies for split clamping hubs: Valid for unchanging load direction as well as for max. permitted shaft misalignment. When the load direction changes, max. 60% of the stated nominal torque is permitted.
3) Valid for unchanging load direction, max. load cycles ≤ 10^5.
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.

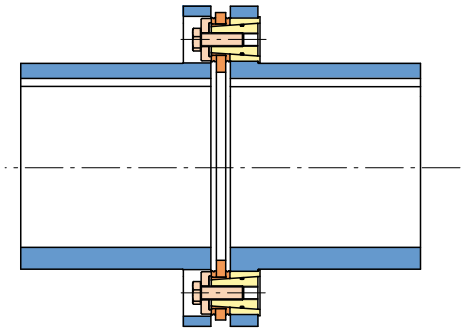
ROBA®-DS – backlash-free couplings for high torques

Characteristics and Advantages

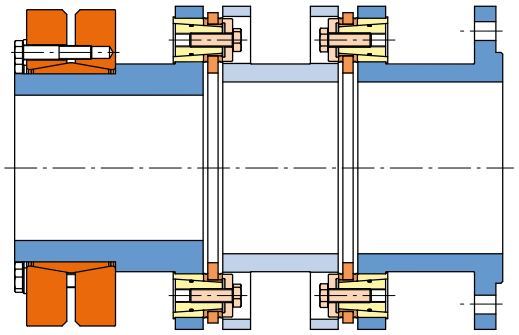
- Low screw tightening torques
- Can be installed / de-installed radially
- Easy and quick installation / de-installation
- No hydraulic installation tools required; can be installed with a torque wrench
- Backlash-free torque transmission
- FEM-optimized disk shape
- High torsional rigidity
- High performance density
- Compensation of axial, angular and radial misalignments
- Wear and maintenance-free
- High flexibility through customer-specific hubs and sleeves



Design Examples



Single-jointed coupling with key hubs



Double-jointed coupling
with shrink disk hub and flange

The design of the hubs and sleeves is carried out according to the customers requirements.

Technical Data, Dimensions				Size				
				2200	3300	5000	7300	11000
Alternating torque [1]		T_{KW}	[Nm]	14700	22000	33300	48700	73300
Nominal torque [2]		T_{KN}	[Nm]	22000	33000	50000	73000	110000
Peak torque [3]		T_{KS}	[Nm]	44000	66000	100000	146000	220000
Outer diameter			[mm]	290	332	378	431	492
Maximum speed		n_{max}	[rpm]	3600	3100	2700	2400	2100
Permitted misalignments [4]	perm. axial displacement [5]	ΔK_a	[mm]	1,6	1,7	2,1	2,3	2,3
	perm. radial misalignment with special sleeve	ΔK_{rH}	[mm]	Please contact the manufacturer.				
	perm. angular misalignment per disk pack	ΔK_w	[°]	0,4	0,4	0,4	0,4	0,3

1) Valid for changing load direction as well as for max. permitted shaft misalignment.
2) Valid for unchanging load direction as well as for max. permitted shaft misalignment.
3) Valid for unchanging load direction, max. load cycles $\leq 10^5$.
4) The permitted misalignments may not simultaneously reach their maximum values.
5) The values refer to couplings with 2 disk packs.

For detailed information, detailed technical data and dimensions, please see our product catalogue K.950.V_ _._ _

This catalogue is also available for download as a pdf file on our website www.mayr.com.

System solution for wind power plants

ROBA®-DS *Wind power module*

The *mayr*® company's decades of experience in shaft couplings and overload systems for all areas of mechanical engineering forms a strong basis for our wind power module. The wind power module has the following characteristics:

● Safe overload protection

An integrated ROBA®-slip bushing produced from a specially-developed bushing material ensures reliable overload protection against short-circuit torques due to its minimal torque tolerance.

● Electrical insulation

The electrical insulation through the sleeve made of glass fibre-reinforced plastic prevents damage to bearings and toothing.

● Compensation of shaft misalignments

Specially-developed rustproof steel disks allow compensation of extremely high axial, radial and angular shaft misalignments. This means that only low restoring forces are generated.

● Integrated brake disk

A brake disk can be integrated into the wind power module according to customer-specific requirements.

● Ease of installation

The disk packs and the intermediate sleeve can be mounted and de-installed radially without axial displacement of the hub being required.
It is possible to install the disk packs with low tightening torques by using special clamping nuts.

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

10/10/2014 GC/SC