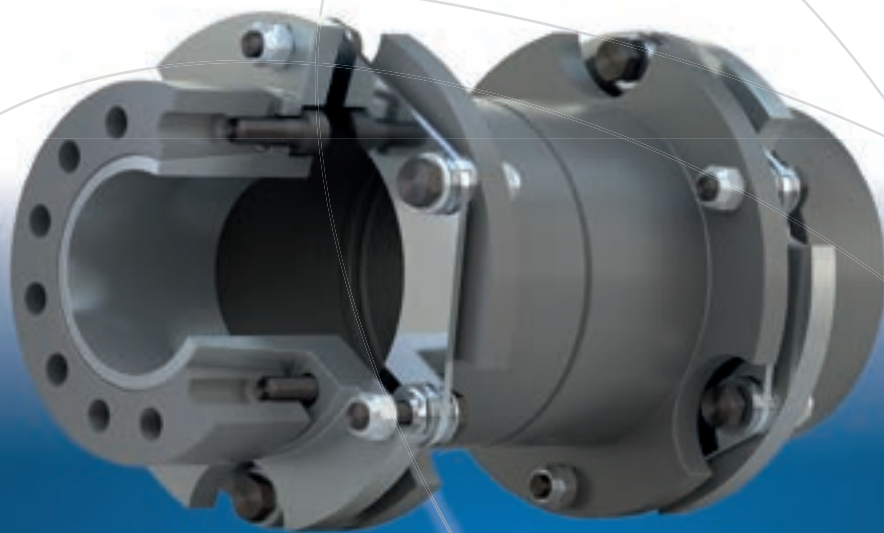




your reliable partner

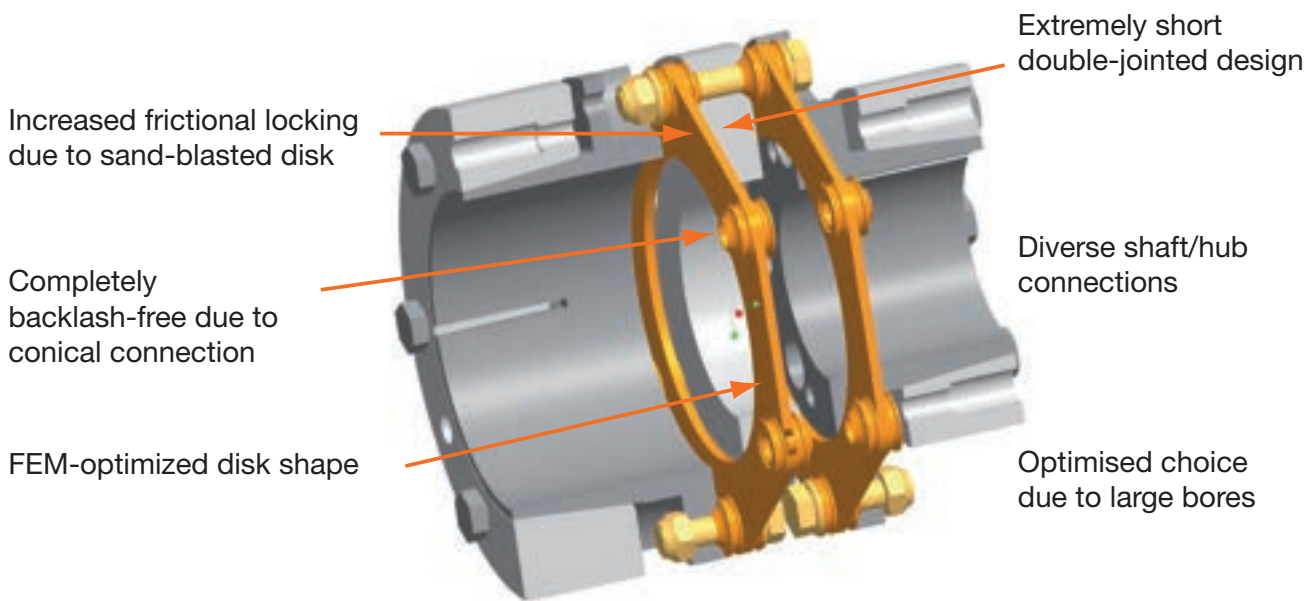


ROBA®-DS Heavy Duty

ROBA[®]-DS

Technologically superior

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



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

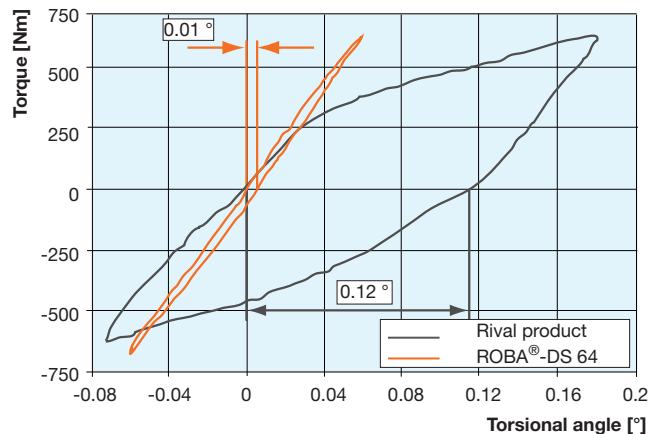


Diagram: A ROBA[®]-DS coupling rigidity characteristic curve in comparison to a typical rival product with frictionally-locking/positively-locking torque transmission.



ROBA[®]-DS couplings are also available in ATEX design according to the directive 2014/34/EU.



ROBA[®]-DS couplings are also available in rustproof design.

Backlash-free Servo Couplings (Aluminium)

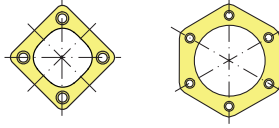
Sizes 3 to 15


Nominal torques
35 to 150 Nm

Bores
10 to 45

Angular misalignment **1°**

Disk pack-Servo
with 4x divisions and 6x divisions



Page 8 

Backlash-free All-steel Couplings

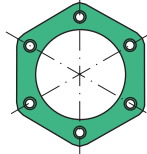
Sizes 16 to 160

Nominal torques
300 to 2600 Nm

Bores
14 to 110

Angular misalignment **0.7°**

Disk pack-HT
with 6x divisions



Shaft connection

Page 14 

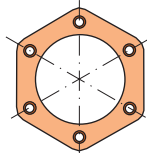
Sizes 16 to 160

Nominal torques
190 to 1600 Nm

Bores
14 to 110

Angular misalignment **1°**

Disk pack-HT
with 6x divisions



Shaft connection

Page 28 

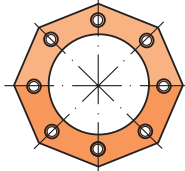
Sizes 180 to 2200

Nominal torques
2100 to 24000 Nm

Bores
40 to 170

Angular misalignment **0.5°**

Disk pack
with 8x divisions



Shaft connection

Page 46 

Heavy Load Couplings

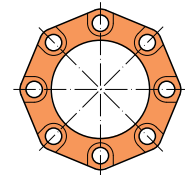
Sizes 2200 to 11000

Nominal torques
22 to 110 kNm

Bores
140 to 240

Angular misalignment **0.4°**

Disk pack
with 8x divisions



Shaft connection

Customer-specific adaptations
e. g.:
key hub, shrink disk hub, flange

Page 54 

Integrated Torque Measurement

Page 60 

Variable Length Sleeve S/Sleeve CFRP/Options and Variants on Intermediate Shafts

Page 64 

Safe Against Overload

Page 67 

Installation Examples

Page 68 

Dimensioning, Size Selection

Page 70 

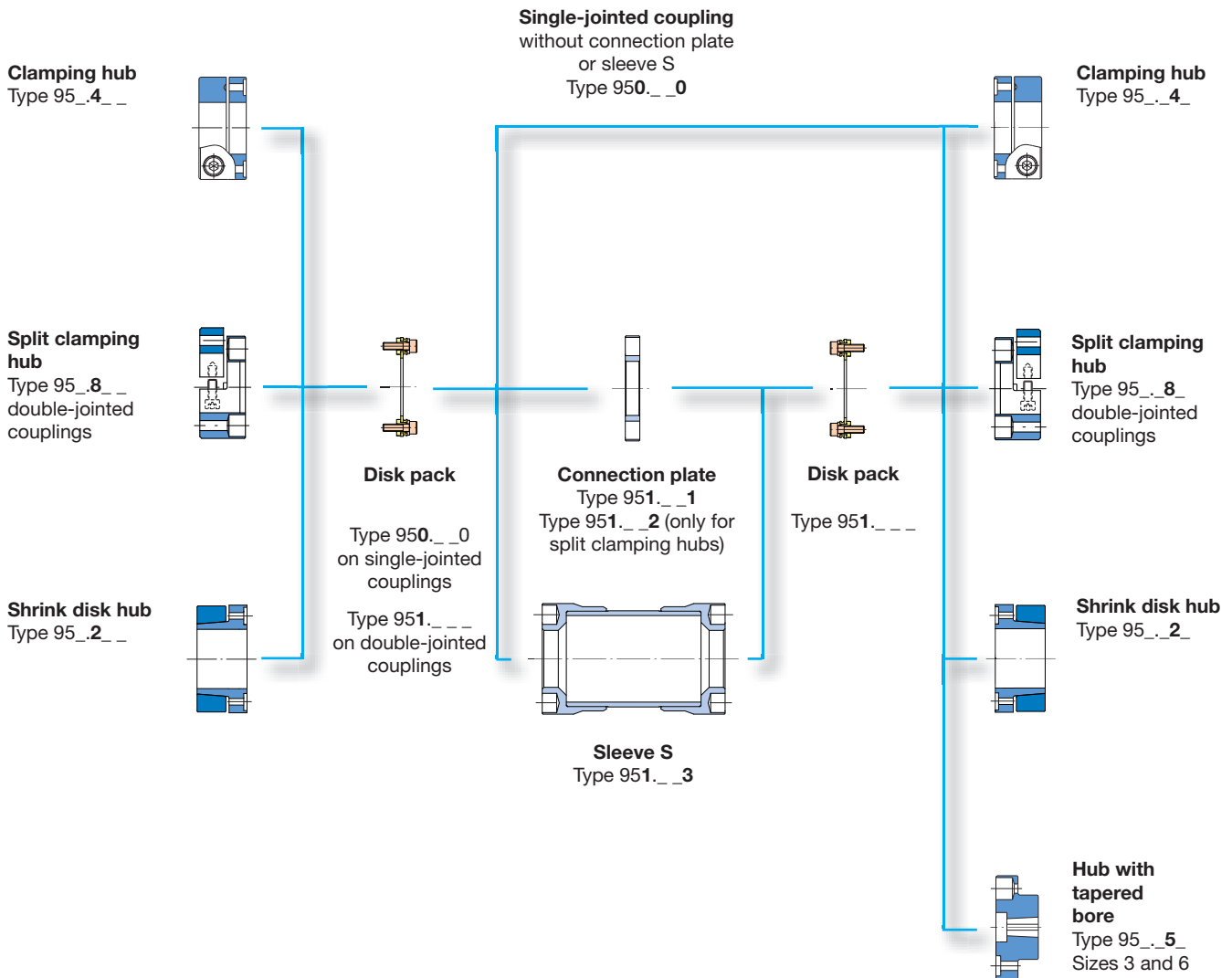
Technical Explanations

Page 71 

Transmittable Torques on Shrink Disk, Split Clamping, Clamping Ring, Clamping and Key Hubs 

ROBA[®]-DS Backlash-free Servo Couplings

Configuration Possibilities/Standard Designs



ROBA[®]-DS for High Torques - Sizes 2200 to 11000

ROBA[®]-DS with conical connection



On the ROBA[®]-DS with conical connection, the disk pack is connected via positive locking with the hubs, the flanges or the sleeves. Externally conical bolts are pulled into conical bores in the attachment parts and the collar bushings of the disk packs by tensioning screws. The conical shape produces forces which widen the collar bushings and the attachment parts radially elastically, thus guaranteeing a backlash-free connection of the disk pack.

For this backlash-free, positive locking connection, far lower screw tightening torques are required in comparison to standard frictionally locking connections. This makes installation substantially easier.

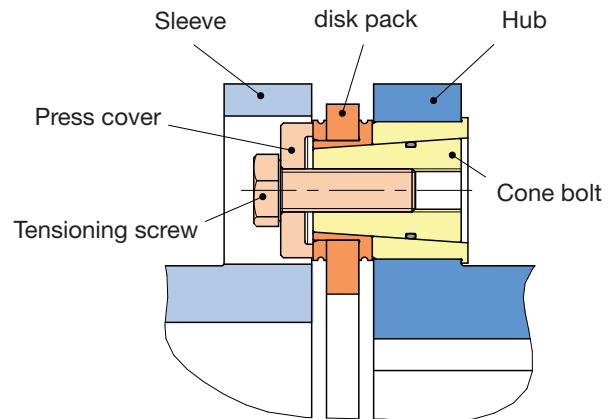
The disk packs and the sleeves can be installed and de-installed radially without having to move the respective aggregates.

- ☐ 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



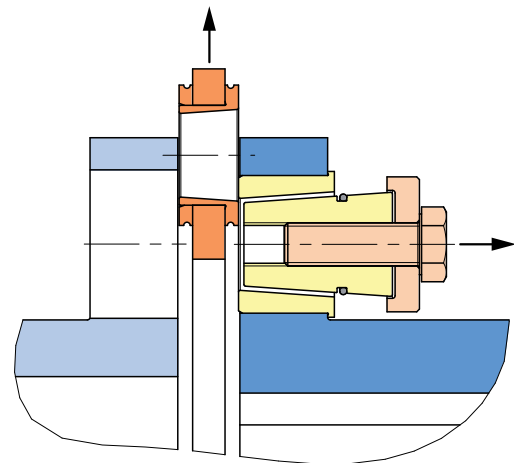
Easy installation and de-installation

When installed, the cone bolt is pulled by the tensioning screw into the conical core.



Conical connection in installed condition

For de-installation of the disk pack, the tensioning screw is screwed out and together with the press cover screwed into the cone bolt on the opposite side. This loosens the cone bolt and it can be pulled back axially. In this way, the disk pack and the sleeve can be de-installed radially.



De-installation

The ROBA[®]-DS disk pack couplings by *mayr*[®] power transmission are robust, reliable and temperature-resistant. They are therefore particularly suitable for use in extreme ambient conditions. In addition, the ROBA[®]-DS couplings are wear-free, meaning that they reduce the required maintenance effort to a minimum.

mayr[®] power transmission has equipped the large ROBA[®]-DS disk pack couplings for high torques, i.e. with a nominal torque range from 22,000 to 110,000 Nm, with an installation-friendly, positive locking conical connection. This conical connection acts as a power transmission and reduces the screw tightening torques to a fraction of their amount in comparison to conventional frictional-locking designs. This makes

installation and de-installation substantially easier. In addition, the drive units such as the motor and gears need not be displaced in order to install and deinstall the coupling.

The ROBA[®]-DS disk pack couplings by *mayr*[®] power transmission simultaneously unite high performance density with absolute backlash-free function: They transmit torques up to the nominal torque backlash-free and with a constant, high torsional rigidity. The specified shaft misalignments can be 100 % utilized without affecting the transmittable torque. The disk pack couplings compensate for the radial, axial and angular misalignments on shafts, and thus protect the bearings against inadvertent loads and therefore unnecessary failure times and costs.

ROBA[®]-DS for High Torques - Sizes 2200 to 11000

Single-jointed coupling with key hubs

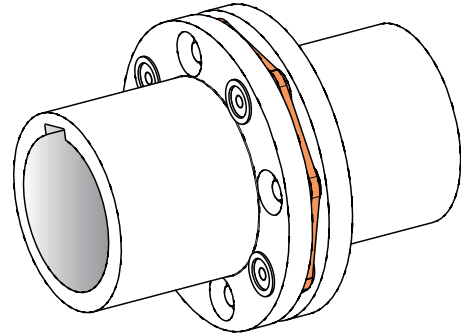
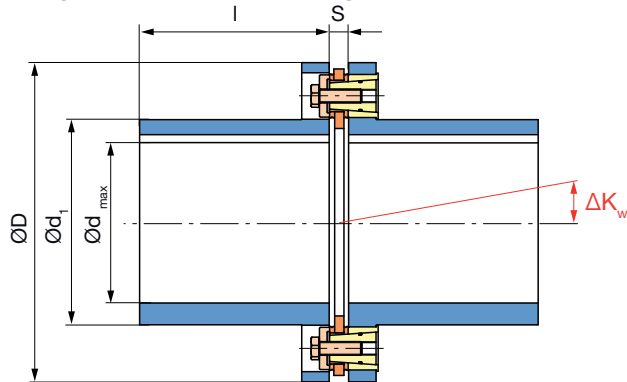


Fig. 71

Double-jointed coupling with sleeve and key hubs

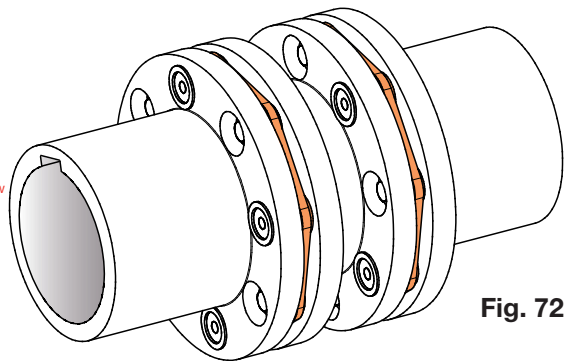
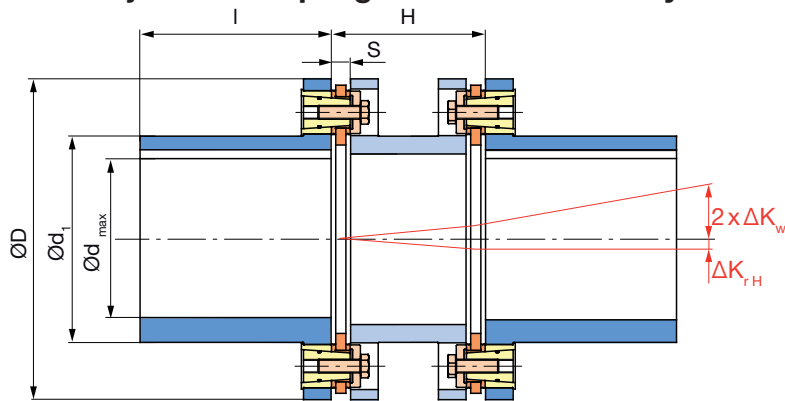


Fig. 72

Backlash-free shaft-hub connection with a shrink disk is possible.

Technical Data and Main Dimensions				Size				
				2200	3300	5000	7300	11000
Alternating torque ¹⁾		T _{KW}	[Nm]	14 700	22 000	33 300	48 700	73 300
Nominal torque ²⁾		T _{KN}	[Nm]	22 000	33 000	50 000	73 000	110 000
Peak torque ³⁾		T _{KS}	[Nm]	44 000	66 000	100 000	146 000	220 000
Outer diameter		D	[mm]	290	332	378	431	492
Maximum hub bore ⁶⁾		d _{max}	[mm]	140	160	180	210	240
Maximum speed		n _{max}	[rpm]	3600	3100	2700	2400	2100
Hub		d ₁	[mm]	186	215	243	279	321
		l	[mm]	175	200	225	265	310
Minimum sleeve length		H _{min}	[mm]	156	166	182	208	223
Distance dimension		S	[mm]	17.8	19	23	24.2	26.5
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]	(H - S) x 6.98 x 10 ⁻³			(H - S) x 5.24 x 10 ⁻³	
	perm. angular misalignment	ΔK _w	[°]	0.4	0.4	0.4	0.4	0.3
Spring rigidity	torsion ⁷⁾	C _T	[10 ³ Nm/rad]	18100	24100	26000	51200	80400
	angular spring rigidity ⁷⁾	C _w	[Nm/rad]	56800	102000	121000	177000	263000

- 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.
 6) Transmittable torques dependent on bore, see page 76.
 7) The values refer to 1 disk pack.

Order Number

— / 9 5 6 . —

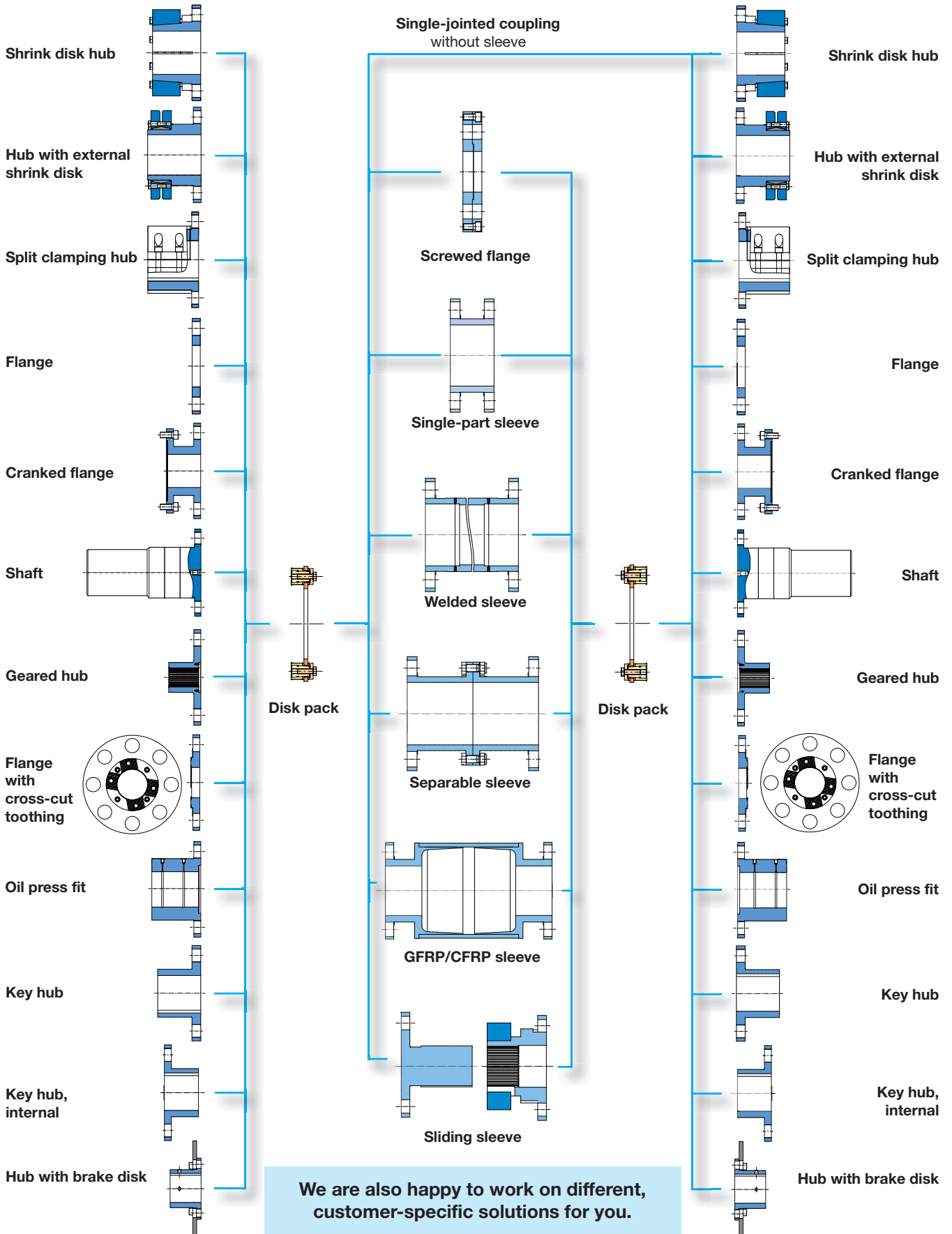


Sizes
2200
to
11000

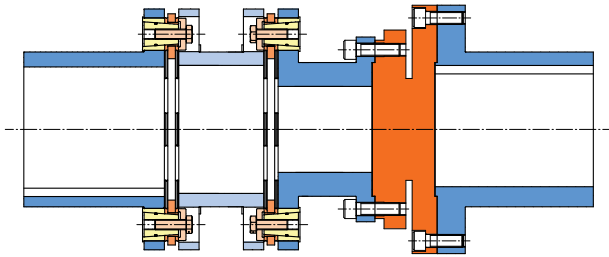
The design of the hubs and sleeves is carried out
according to the customers requirements.
Please contact the manufacturer.

ROBA[®]-DS – Heavy Load Couplings

Configuration possibilities

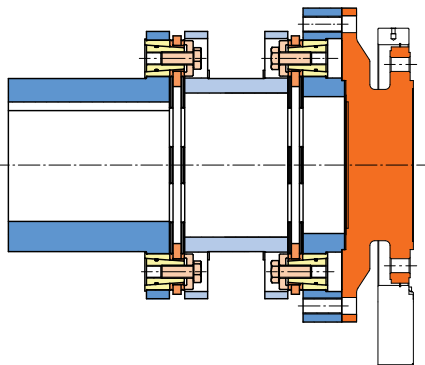


ROBA[®]-DS – Heavy Load Couplings, Measurement Flange Variants



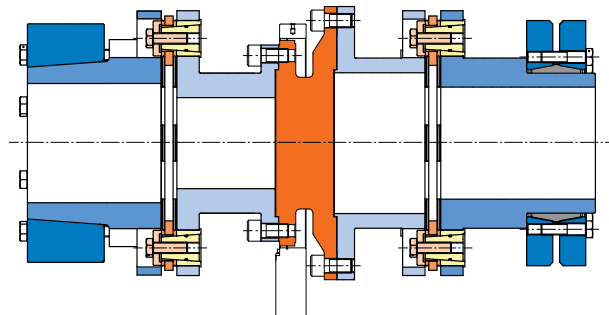
Classic design for applications with measurement flange. The screw connection on the measurement flange is accessible from the outside. The measurement flange is tied rigidly to the hub.

Fig. 73



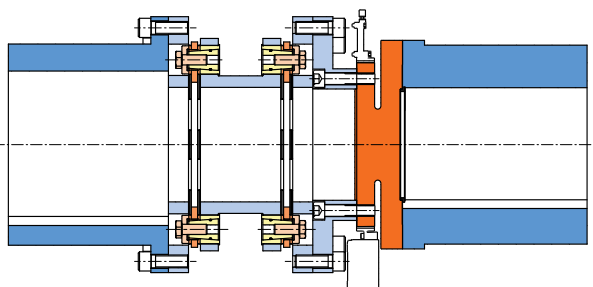
Direct installation of the measurement flange onto the input or output. This produces a very rigid connection.

Fig. 74



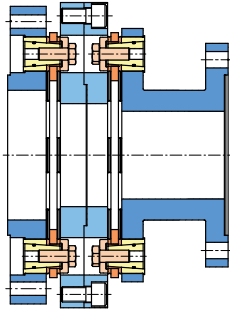
The measurement flange is positioned between the two disk packs. This way, the measurement flange can be de-installed radially with the sleeve, for example for calibration, without de-installing the hubs. Backlash-free shaft-hub connection via shrink disk hub or hub with external shrink disks ensures maximum precision.

Fig. 75



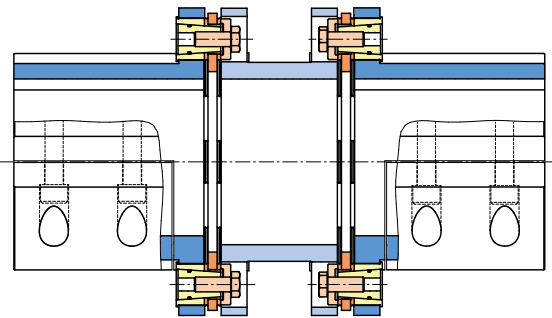
Many different connection variants can be implemented through externally bolted flange hubs or internally bolted measurement flanges, e.g. combinations of very different shaft diameters / measurement flange sizes.

ROBA[®]-DS – Heavy Load Couplings, Application Examples



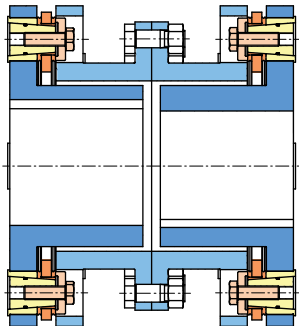
By using two flanges which are screwed together as an intermediate element, very short double-jointed designs can be realized. In contrast to the single-jointed coupling, this design can be used to compensate for radial misalignment.

Fig. 77



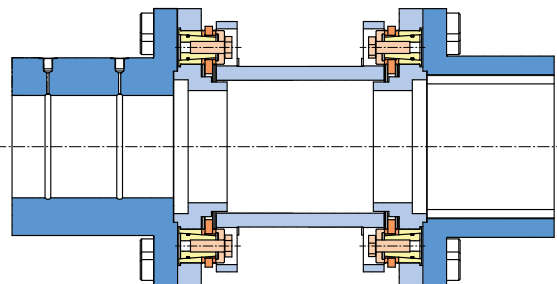
Split clamping hubs make it possible to assemble and disassemble the coupling radially without axial displacement of input and output. This is an advantage when the aggregates cannot be moved axially. Very fast assembly possible.

Fig. 78



The key hubs on the inside make a minimum shaft distance possible. The separable sleeve allows radial disassembly of input and output without axial displacement.

Fig. 79



Thanks to the flanges protruding into the sleeve, the sleeve is additionally trapped independently of the disk pack. Different hub types can be mounted onto the flanges, e.g. hubs for oil press fit, key hubs, etc.

Fig. 80

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