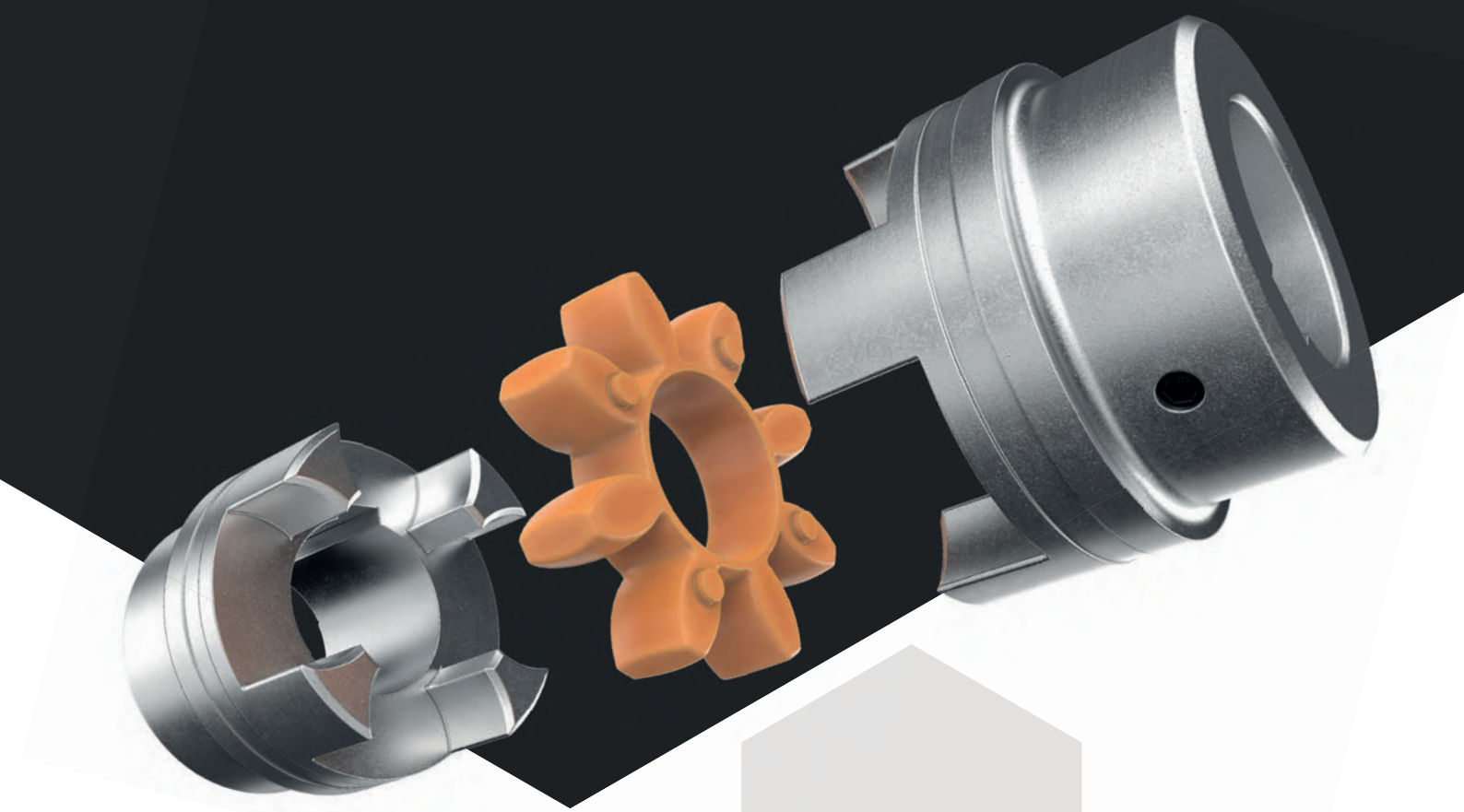
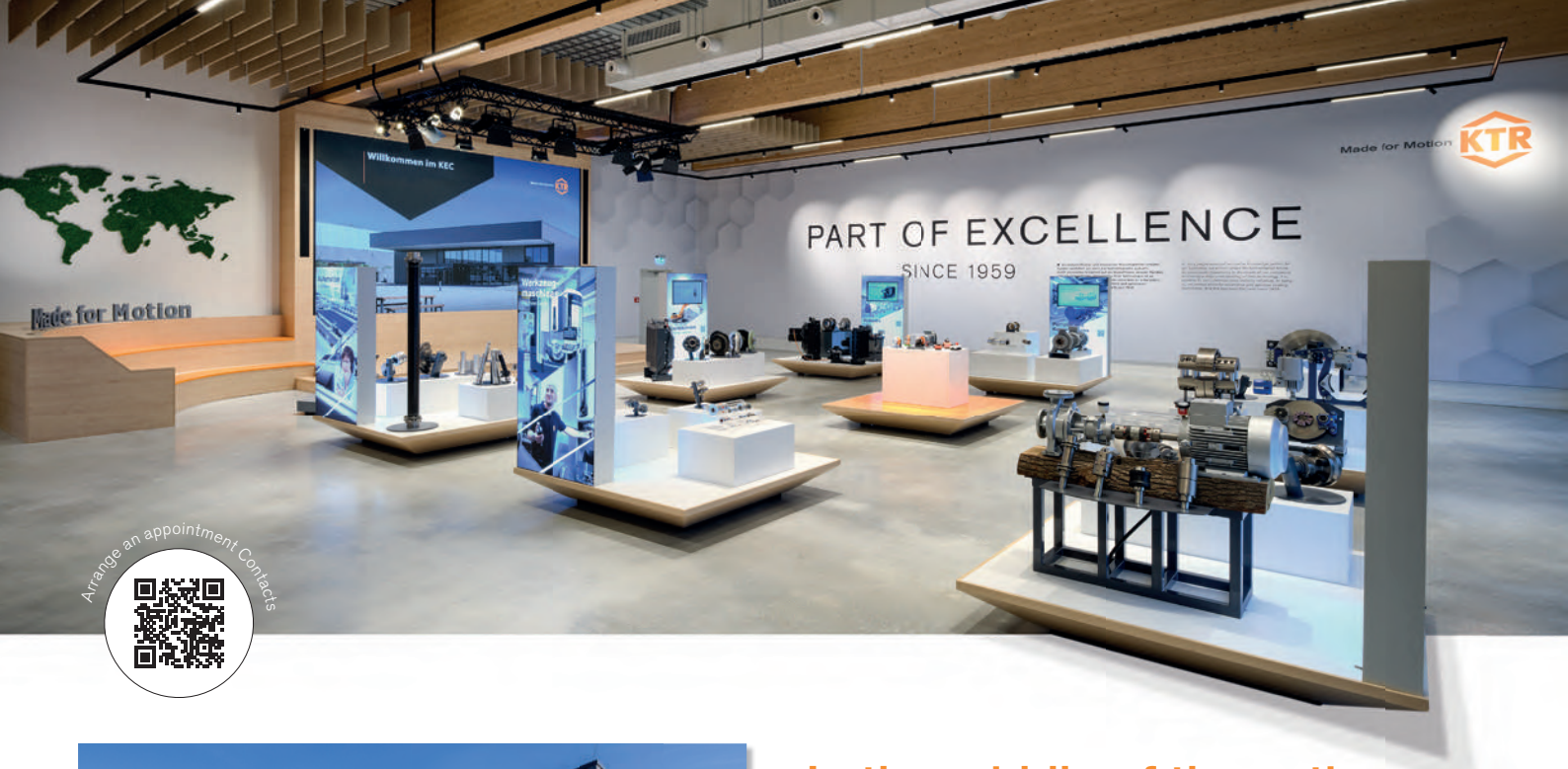
Made for Motion KTR



Drive Technology

Couplings
Torque limiters
Clamping elements
Torque measuring systems

2024/25
www.ktr.com



Arrange an appointment Contacts

In the middle of the action: the KEC

In September 2023 we opened the "KTR Exhibition Center", in brief KEC, at our headquarters in Rheine. The generously glazed building with a surface of about 750 square metres is to be used in a variety of ways: as an exhibition space for KTR products, for customer and information events, workshops and trainings, but also as a meeting point for the KTR staff providing a kiosk and a terrace. KTR's CEO Nicola Warning: „The KEC is a multifunctional building providing a new platform for digital and analogue communication with customers, staff and stakeholders – whilst giving the staff a fancy meeting point that increases the attractiveness of their work location."

Discover more on ktr.com

Corporate Responsibility at KTR

Together for sustainable transformation:

With the new Corporate Responsibility department we meet the growing requirements of the market environment and regulatory specifications: The task of our team of HSE, Compliance and ESG officials is to ensure legal compliance (Compliance), strengthen the commitment for environment, social issues and governance (ESG) and improve the standards for health, safety and environment (HSE) in KTR Systems GmbH and its supply chain. Within the framework of reports, certifications, audits and ratings we make our progress measurable and will announce it to the public on our website in the future.

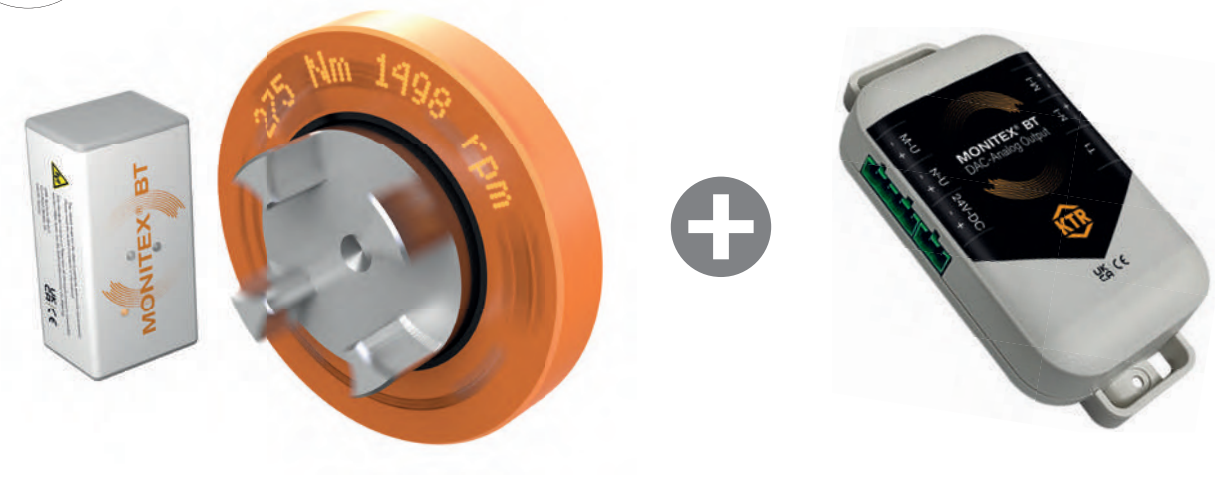
Do you have any questions about the subjects of compliance, occupational safety, environmental protection, carbon footprint, Supply Chain Due Diligence Act or sustainability reporting/CSRD?

Please contact our Corporate Responsibility team at:
responsibility@ktr.com

NEWS

Discover more on ktr.com

Torque measuring coupling hub



MONITEX® BT

- Torque and speed measurement with ROTEX® coupling hub
- Easy assembly
- Permanent power supply by inductive head
- Outputs as Bluetooth and analog signal, rotating display
- Free app for IOS, Android and Windows
- Low-cost solution

(see page 362)

DAC – analog output

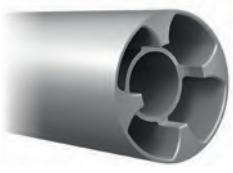
- Analog gateway for MONITEX® BT
- Analog outputs for controls and data collections
- 4 simultaneous analog outputs for torque and speed
- Voltage output: -10...10 V, current output: 4...20 mA
- Connects fully automatically with each MONITEX® BT
- Automatic scaling, no settings required

(see page 364)

Discover more on ktr.com

Backlash-free intermediate shaft coupling

Individually cut to size



Internal geometry machined tailor-made for elastomer

ROTEX® GS ZRS

- Backlash-free type
- Available in the sizes ROTEX® GS 19 to 38
- Compatible with all ROTEX® GS hubs
- DBSE from 100 mm to 4000 mm
- Maintenance-free
- One-piece spacer made of aluminium continuous casting
- Short delivery times
- Finishing by the customer possible

(see page 144)

Those who value KTR as a manufacturer will love us as a partner.

KTR provides the mechanical and plant engineering with an extensive portfolio of high-quality drive and hydraulic components as well as braking and cooling systems. We are pleased to be at your service during the designing stage and develop tailor-made solutions for you. Perfectly organized logistics, global presence via 24 subsidiary companies and more than 90 distribution partners along with an international network consisting of 7 production sites are the prerequisite for quick delivery. When it comes to service we ensure short distances along with competent and personal support.

„Innovation and tradition are the key components of our product portfolio and KTR's corporate culture.“

Nicola Warning, CEO of KTR

Wherever motion is essential, we have the right answer.

Drive technology and shaft connections

Mechanical components are and will remain essential in drive technology. The industry's demands on components grow continuously: energy efficiency, power density, ease of servicing and electronification. Our portfolio includes couplings and torque limiters, clamping sets and universal joints as well as torque measuring shafts.

Brake Systems

Our hydraulic and electromechanical brake systems are globally used in various industries. Customer preference and parameters of the application decide upon the selection of the right brake.

Hydraulic components

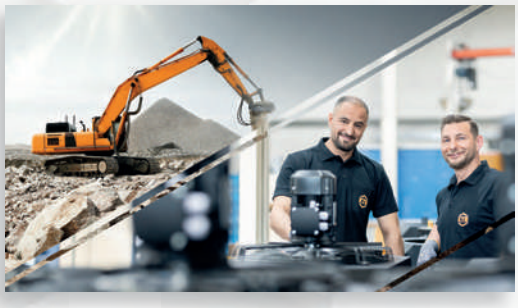
For almost 50 years we have provided the industry with a continuously growing range of hydraulic components from our in-house development and manufacturing: accurate selection, high-quality processing, quick availability.

Cooling systems

As a customised product or standard solution, multimedium or oil/air cooler, for mobile machines or stationary hydraulics, optionally available as a marine or ATEX version, powerful and efficient.

PART OF EXCELLENCE

Wind power



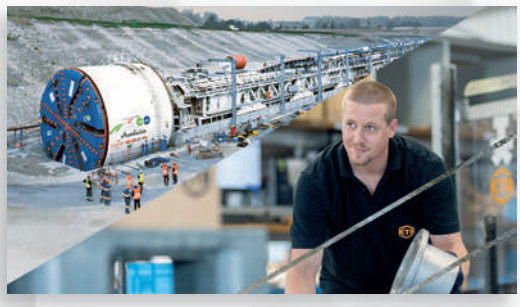
Construction machinery

Agriculture

Pumps and compressors

Automation

Machine tools



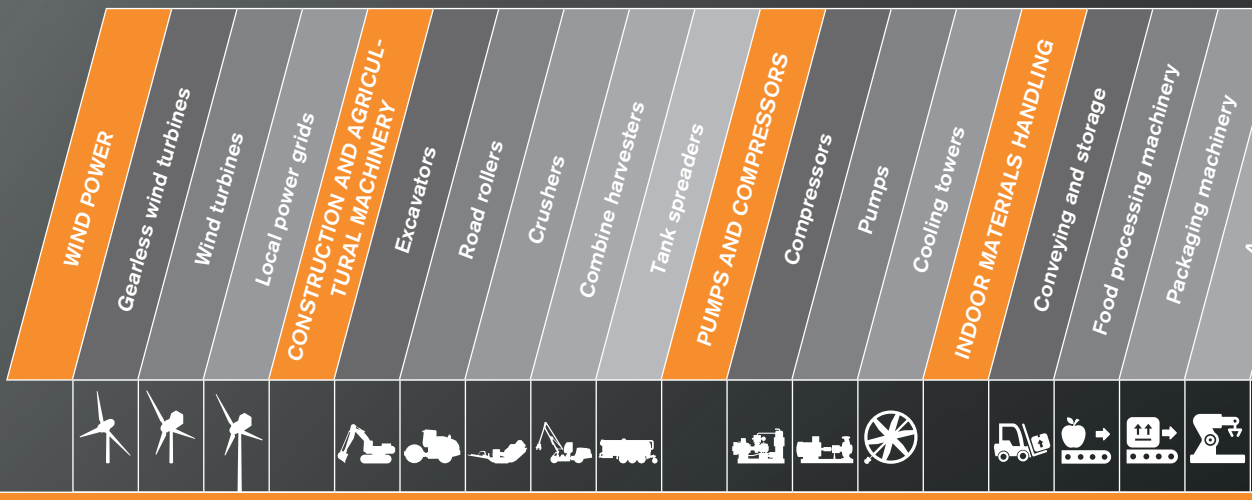
Hydraulics

General drive technology

Marine

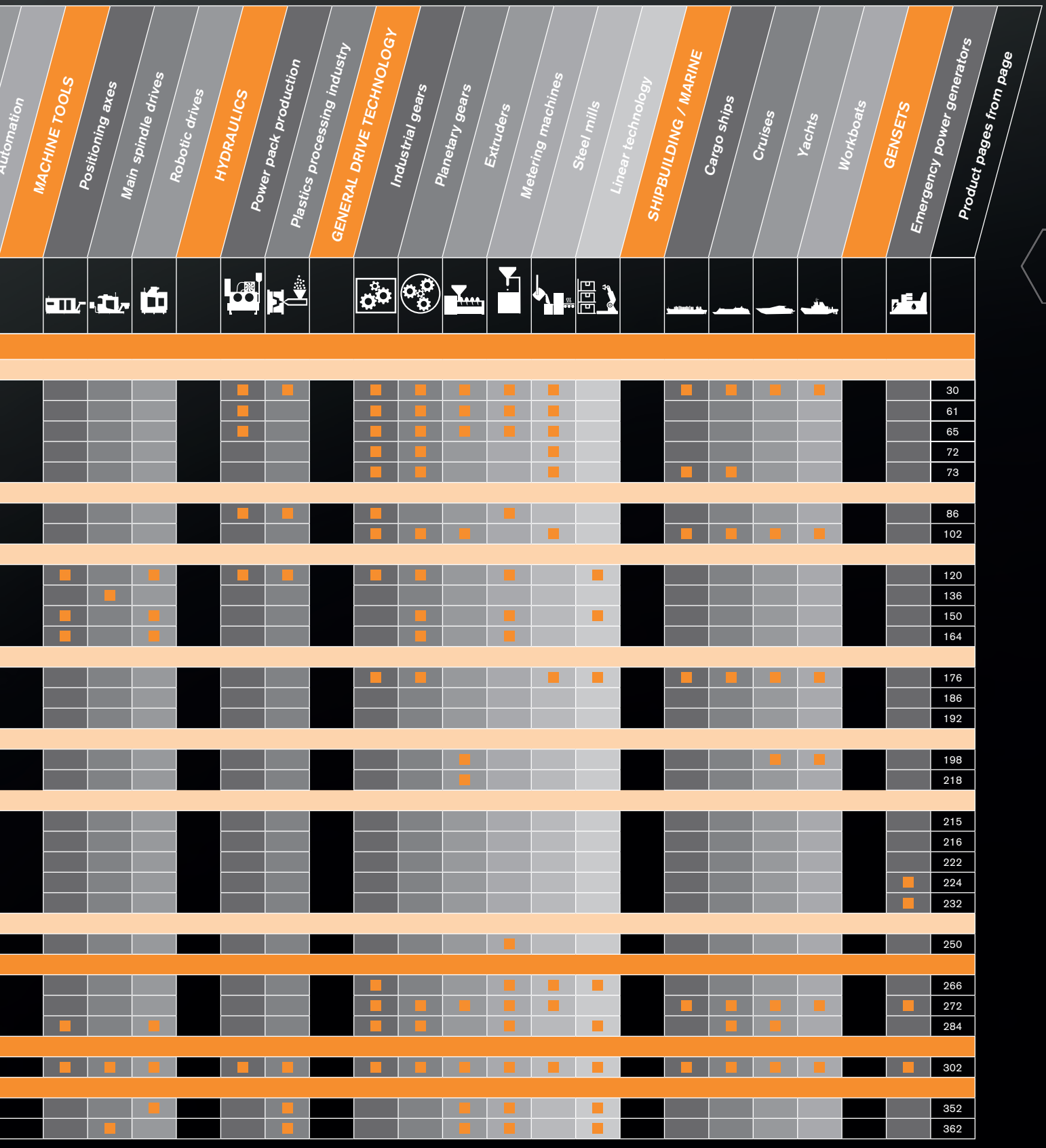
Gensets

SUMMARY OF PRODUCTS/INDUSTRIES



	WIND POWER				CONSTRUCTION AND AGRICULTURAL MACHINERY					PUMPS AND COMPRESSORS				INDOOR MATERIALS HANDLING			
	Gearless wind turbines	Wind turbines	Local power grids		Excavators	Road rollers	Crushers	Combine harvesters	Tank spreaders	Compressors	Pumps	Cooling towers		Conveying and storage	Food processing machinery	Packaging machinery	
COUPLINGS																	
Flexible jaw and pin & bush couplings																	
ROTEX®		■			■	■	■	■	■	■	■	■		■	■	■	■
ROFLEX®										■	■	■					
POLY-NORM®										■	■	■					
POLY-NORM®-M							■										
REVOLEX® KX-D							■				■						
Gear couplings																	
BoWex®						■					■				■	■	■
GEARex®											■			■	■	■	■
Backlash-free servo couplings																	
ROTEX® GS	■	■	■			■								■	■	■	■
ROTEX® GS P / HP																	
TOOLFLEX®		■												■	■	■	■
RADEX®-NC														■	■	■	■
Steel laminae couplings																	
RADEX®-N		■								■	■	■		■	■	■	■
RIGIFLEX®-N										■	■						
RIGIFLEX®-HP										■	■						
Highly flexible shaft couplings																	
EVOLASTIC®					■	■	■	■	■	■	■	■					
BoWex® HEW Compact										■	■						
Flange couplings for I. C.-engines																	
Pump mounting flanges					■	■	■	■						■			
BoWex® FLE-PA / FLE-PAC					■	■	■	■						■			
MONOLASTIC®					■	■	■	■						■			
BoWex-ELASTIC®					■	■	■	■		■	■						
SINULASTIC®					■	■	■	■		■	■						
Magnetic couplings																	
MINEX®-S										■	■			■	■	■	■
TORQUE LIMITERS																	
RUFLEX®						■	■	■						■	■	■	■
KTR SI/KTR SI Compact							■			■	■			■	■	■	■
SYNTEX®/SYNTEX®-NC														■	■	■	■
CLAMPING SETS																	
CLAMPEX®		■			■	■	■	■	■	■	■	■		■	■	■	■
TORQUE MEASURING TECHNOLOGY																	
DATAFLEX®		■	■		■	■	■	■		■	■				■	■	■
MONITEX® BT		■			■	■	■	■	■	■	■				■	■	■

For continuously updated data refer to our online catalogue at www.ktr.com


Automation
MACHINE TOOLS
Positioning axes
Main spindle drives
Robotic drives
HYDRAULICS
Power pack production
Plastics processing industry
GENERAL DRIVE TECHNOLOGY
Industrial gears
Planetary gears
Extruders
Metering machines
Steel mills
Linear technology
SHIPBUILDING / MARINE
Cargo ships
Cruises
Yachts
Workboats
GENSETS
Emergency power generators
Product pages from page
30
61
65
72
73
86
102
120
136
150
164
176
186
192
198
218
215
216
222
224
232
250
266
272
284
302
352
362

SUMMARY OF PRODUCTS / SPECIFICATIONS

	Max. torque [Nm]	Max. circumferential speed [m/s]	Max. bore diameter [mm]	Torsionally stiff	Flexible	Highly torsionally flexible	Backlash-free	Maintenance-free	Fail-safe	Shear type	Compact dimensions	Double-cardanic	Single-cardanic	High
COUPLINGS														
Flexible jaw and pin & bush couplings														
ROTEX®	35,000	60	200		■			■	■		■	■	■	■
ROFLEX®	5,000	35	120		■			■	■		■		■	
POLY-NORM®	67,000	35	280		■			■	■		■		■	
POLY-NORM®-M	5,500,000	35	900		■			■	■		■		■	■
REVOLEX® KX-D	1,350,000	60	650		■		■	■	■		■		■	■
Gear couplings														
BoWex®	2,500	30	125	■				■		■	■	■	■	
GEARex®	2,750,000	–	520	■					■		■	■		■
Backlash-free servo couplings														
ROTEX® GS	5,850	80	110		■		■	■	■		■	■	■	■
KTR-STOP® NC														
TOOLFLEX®	600	40	65	■			■	■		■	■	■		
RADEX®-NC	300	35	55	■			■	■			■	■	■	
Steel laminae couplings														
RADEX®-N	280,000	65	330	■			■	■			■	■	■	
RIGIFLEX®-N	280,000	100	400	■			■	■			■	■		
RIGIFLEX®-HP	330,000	200	380	■			■	■			■	■		
Highly flexible shaft couplings														
EVOLASTIC®	5,600	60	140			■	■	■	■		■	■	■	■
BoWex® HEW Compact	8,400		125			■		■		■	■		■	
Flange couplings for I. C.-engines														
BoWex® FLE-PA / FLE-PAC	6,600	50	125	■				■		■	■		■	
MONOLASTIC®	1,850	50	60		■			■		■	■		■	
BoWex-ELASTIC®	70,000		275			■		■		■	■		■	
SINULASTIC®	25,000		240			■	■	■		■	■		■	
Magnetic couplings														
MINEX®-S	1,000		90		■			■						
TORQUE LIMITERS														
RUFLEX®	12,000		140								■			■
KTR-SI	8,200		100											
KTR-SI FRE	60,000		200											
KTR-SI FRA	2,600		80											
SYNTEX®	400		50				■				■			
SYNTEX®-NC	550		60				■				■			■
KTR-SI Compact	3,100		80				■							
CLAMPING SETS														
CLAMPEX®	7,394,000		1,000				■	■			■			■
TORQUE MEASURING TECHNOLOGY														
DATAFLEX®	500,000	–	–	■	■		■	■			■	■	■	
MONITEX® BT	800				■		■	■			■	■	■	

For legend of certificate refer to flapper on the cover

...gh power density	Axial plug-in	All-steel	Contactless	Friction coupling	Ratchet coupling	Self-centering	Not self-centering	MARINE: ATEX	MARINE: GOST R/GOST TR	MARINE: Bureau Veritas	MARINE: American Bureau of Shipping	MARINE: DNV/GL	MARINE: ClassNK	Coupling selection acc. to DIN 740 part II (page 14 et seqq.)	Coupling selection based on operating factors (page 18 et seqq.)	Coupling selection acc. to DIN 740 part II with spec. factors (page 22 et seqq.)	Product pages from page
■								■	■	■	■	■	■	■			30
■								■	■					■			61
■								■	■					■			65
■															■		72
■								■	■	■	■	■			■		73
■								■	■	■		■		■			86
	■							■		■	■	■	■		■		102
■								■								■	120
																	136
■	■															■	150
								■								■	164
	■							■	■	■	■	■			■		176
	■							■	■	■	■	■			■		186
	■								■	■	■	■			■		192
■														■			198
■								■	■	■		■		■			218
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	■			■													283
				■													284
				■													294
	■			■													297
					■	■			■			■					302
■		■															352
■		■															362

INDEX OF SUBJECTS

Summary of Products

COUPLING SELECTION ACCORDING TO DIN 740 PART II

Coupling types

Flexible jaw couplings

ROTEX®

Flexible coupling **(see page 30)**

– Flexible
– Maintenance-free
– Fail-safe
– Compact dimensions
– Axial plug-in

ROFLEX®

Flexible coupling (see page 61)

– Flexible
– Maintenance-free
– Fail-safe
– Axial plug-in

POLY-NORM®

Flexible coupling (see page 65)

– Flexible
– Maintenance-free
– Fail-safe
– Compact dimensions
– Axial plug-in

Gear couplings

BoWex®

Torsionally stiff curved-tooth gear coupling® **(see page 86)**

– Torsionally stiff
– Maintenance-free
– Shear type
– Compact dimensions
– Single-cardanic or double-cardanic
– Axial plug-in

Highly flexible shaft couplings

EVOLASTIC®

Highly flexible coupling (see page 198)

– Highly flexible
– Maintenance-free
– Fail-safe
– Axial plug-in
– Backlash-free

BoWex® HEW Compact

Highly flexible shaft coupling **(see page 210)**

– Highly flexible
– Maintenance-free
– Shear type
– Compact dimensions
– Single-cardanic
– Axial plug-in

Flange couplings for I. C.-engines

BoWex-ELASTIC®

Highly flexible flange coupling **(see page 224)**

– Flexible to highly flexible
– Maintenance-free
– Shear type
– Compact dimensions
– Single-cardanic
– Axial plug-in

SINULASTIC®

Highly flexible flange coupling (see page 232)

– Highly flexible
– Maintenance-free
– Shear type
– Damping vibrations
– Very compact dimensions
– Axial plug-in

MONOLASTIC®

One-piece, flexible flange coupling **(see page 222)**

– Flexible
– Maintenance-free
– Shear type
– Compact dimensions
– Single-cardanic
– Axial plug-in

BoWex® FLE-PA/-PAC

Torsionally stiff flange coupling **(see page 216/218)**

– Torsionally stiff
– Maintenance-free
– Shear type
– Compact dimensions
– Single-cardanic
– Axial plug-in

COUPLING SELECTION ACCORDING TO DIN 740 PART II

Terminology of coupling selection

Description	Symbol	Definition resp. explanation
Rated torque of coupling [Nm]	T_{KN}	Torque that can be continuously transmitted over the entire permissible speed range
Maximum torque of coupling [Nm]	$T_{K\,max}$	Torque that can be transmitted as dynamic load ≥ 10^5 times respectively $5 \cdot 10^4$ as vibratory load over the entire service life of the coupling
Vibratory torque of coupling [Nm]	T_{KW}	Torque amplitude of the permissible periodical torque fluctuation with a frequency of 10 Hz and a basic load of T_{KN} respectively dynamic load up to T_{KN}.
Damping power of coupling [W]	P_{KW}	Permissible damping power with an ambient temperature of +30 °C
Rated torque of machine [Nm]	T_N	Stationary rated torque on the coupling
Rated torque of driving side [Nm]	T_{AN}	Rated torque of machine, calculated on the basis of rated power and rated speed
Rated torque of load side [Nm]	T_{LN}	Maximum figure of the load torque calculated on the basis of power and speed
Peak torque of machine [Nm]	T_S	Peak torque on the coupling
Peak torque of driving side [Nm]	T_{AS}	Peak torque with torque shock on driving side, e. g. tilting moment of the electric motor
Peak torque of load side [Nm]	T_{LS}	Peak torque with torque shock on load side, e. g. braking
Vibratory torque of machine [Nm]	T_W	Amplitude of the vibratory torque effective on the coupling

Description	Symbol	Definition resp. explanation
Damping power of machine [W]	P_W	Damping power which is effective on the coupling due to the load generated by the vibratory torque
Engine power [kW]	P	Rated power of drive
Speed [rpm]	n	Rated speed of the motor
Rotational inertia coefficient of driving side	M_A	Factor considering the mass distribution with shocks and vibrations generated on the driving or load side
Rotational inertia coefficient of load side	M_L	
Mass moment of inertia of driving side [kgm²]	J_A	Total of moments of inertia existing on the driving or load side referring to the coupling speed
Mass moment of inertia of load side [kgm²]	J_L	
Mass moment of inertia of coupling [kgm²]	J_{KA}	Mass mom. of inertia of the coupl. half on drive side
	J_{KL}	Mass mom. of inertia of the coupl. half on load side
Start-up factor	S_Z	Factor considering the additional load caused by the starting frequency per hour
Shock factor on driving side	S_A	Factor considering the shocks arising depending on the application (e. g. starting shocks)
Shock factor on load side	S_L	
Temperature factor	S_t	Factor considering the lower loading capacity resp. larger deformation of an elastomer part under load particularly in case of increased temperatures
Operating factor	S_B	Factor considering the different demands on the coupling dependent on the application
Screw tightening torque [Nm]	T_A	Tightening torque of screw

Temperature factor S_t

	-40 °C/+30 °C	≤ +40 °C	≤ +50 °C	≤ +60 °C	≤ +70 °C	≤ +80 °C	≤ +90 °C	≤ +100 °C	≤ +110 °C	≤ +120 °C
ROTEX®										
T-PUR®	1.00	1.00	1.20	1.30	1.45	1.60	1.80	2.10	2.50	3.00
PUR	1.00	1.00	1.30	1.40	1.55	1.80	2.20	–	–	–
PA	1.00	1.00	1.00	1.00	1.2	1.40	1.60	–	–	–
EVOLASTIC®										
NR	1.00	1.00	1.00	1.25	1.40	1.60	–	–	–	–
POLY-NORM®/ROFLEX®										
NBR 78 Shore A	1.00	1.20	1.30	1.40	1.60	1.80	–	–	–	–
POLY										
NBR (cuboid)	1.00	1.20	1.30	1.40	1.60	1.80	–	–	–	–
BoWex®										
PA 6.6	1.00	1.00	1.00	1.00	1.20	1.40	1.60	1.80	–	–
PA-CF	1.00	1.00	1.00	1.00	1.10	1.20	1.40	1.60	1.90	2.20
BoWex® HEW Compact	1.00	1.00	1.00	1.00	1.10	1.40	1.70	–	–	–
BoWex-ELASTIC®										
NR	1.00	1.00	1.00	1.00	1.10	1.40	1.70	–	–	–
SINULASTIC®										
NR	1.00	1.00	1.00	1.25	1.40	1.60	–	–	–	–
EPDM	–	–	–	1.20	1.20	1.30	1.40	1.60	–	–
SI	–	–	–	1.30	1.30	1.30	1.30	1.30	1.40	1.60
MONOLASTIC®										
NR	1.00	1.00	1.00	1.00	1.10	1.40	1.70	–	–	–
BoWex® FLE-PA/-PAC										
PA 6 GF	1.00	1.00	1.00	1.00	1.00	1.00	1.20	1.40	1.60	1.80
PA-CF	1.00	1.00	1.00	1.00	1.10	1.20	1.40	1.60	1.90	2.20

For the selection with PEEK spider a temperature factor is not necessary. For temperature factors for PA spiders see page 32.
With temperatures below -40 °C consult with KTR.

Start-up factor S_Z

ROTEX®, POLY-NORM®, POLY, BoWex®, BoWex® HEW Compact, EVOLASTIC®				
Start-up frequency per hour	< 100	< 200	< 400	< 800
S_Z	1.0	1.2	1.4	1.6
BoWex-ELASTIC®, SINULASTIC®				
Start-up frequency per hour	< 10	< 60	< 120	> 120
S_Z	1.0	1.5	2.0	On request

Shock factor S_A/S_L

ROTEX®, POLY-NORM®, POLY, BoWex®, BoWex® HEW Compact, BoWex-ELASTIC®, EVOLASTIC®, SINULASTIC®	S_A/S_L
Moderate shocks	1.5
Medium shocks	1.8
Heavy shocks	2.5

Operating factor S_B

Hydrostatic drives for BoWex® FLE-PA, FLE-PAC, MONOLASTIC®	
Applications	S_B
Wheel loaders	1.6
Compact loaders	1.6
Hydraulic excavators	1.4
Mobile cranes	1.6
Graders	1.5
Vibration rollers	1.4
Forklift trucks	1.6
Concrete mixer trucks	1.3
Concrete pumps	1.4
Asphalt finishers	1.4
Concrete cutters	1.4
Road milling machines	1.4

Permissible load on feather keyway of the coupling hubs

The shaft-hub-connection needs to be verified by the customer.

Permissible surface pressure according to DIN 6892 (method C)			
Cast iron (GJL)	225 N/mm²	Sintered steel	180 N/mm²
Nodular iron (GJS)	225 N/mm²	Aluminium diecast (Al-D)	110 N/mm²
Steel	250 N/mm²	Aluminium wrought products (Al-H)	200 N/mm²
Polyamide	30 N/mm² (up to +40 °C)	For other steel materials $p_{perm.}$	0.9 • R_e ($R_{p0.2}$)

COUPLING SELECTION ACCORDING TO DIN 740 PART II

Coupling selection

The coupling selection is based on DIN 740 part 2. The coupling has to be dimensioned in that the permissible coupling load is not exceeded during any operating condition. For this purpose the actual loads have to be compared to the permissible coupling parameters. The torques specified $T_{KN}/T_{K\ max}$ refer to the couplings. The shaft-hub-connection needs to be verified by the customer.

1. Drives without periodical torsional vibrations

For example centrifugal pumps, fans, screw compressors, etc. The coupling selection is based on reviewing the rated torque T_{KN} and the maximum torque $T_{K\ max}$.

1.1 Loading generated by rated torque

Considering the ambient temperature the permissible rated torque T_{KN} of the coupling must at least equal the rated torque of the machine T_N.

$$T_N\,[Nm] = 9550 \bullet \frac{P\,[kW]}{n\,[rpm]}$$

$$T_{KN} \geq T_N \bullet S_t$$

1.2 Loading generated by torque shocks

The permissible maximum torque of the coupling $T_{K\ max}$ must at least equal the total of the peak torque T_S and rated torque of the machine T_N taking into account the shock frequency S_Z and the ambient temperature S_t. This applies in case if the rated torque of the machine T_N is superimposed by a shock process. Knowing the mass distribution, direction and kind of shock it is possible to calculate the peak torque T_S. For drives with A. C. motors and big masses on the load side we recommend to run a calculation of the peak starting torque by our simulation program.

$$T_{K\ max} \geq T_S \bullet S_Z \bullet S_t + T_N \bullet S_t$$

Shock on drive side

$$T_S = T_{AS} \bullet M_A \bullet S_A$$

Shock on load side

$$T_S = T_{LS} \bullet M_L \bullet S_L$$

$$M_A = \frac{J_L}{(J_A + J_L)}$$

$$M_L = \frac{J_A}{(J_A + J_L)}$$

2. Drives with periodical torsional vibrations

For drives subject to torsional vibrations, e. g. diesel engines, piston compressors, piston pumps, generators etc. it is necessary to perform a torsional vibration calculation for a selection ensuring safe operation. If requested, we will perform the torsional vibration calculation and the coupling selection in our company. For the necessary details refer to KTR standard 20004.

2.1 Loading generated by rated torque

Considering the ambient temperature the permissible rated torque T_{KN} of the coupling must at least equal the rated torque of the machine T_N.

$$T_{KN} \geq T_N \bullet S_t$$

2.2 Passing through the resonance range

Considering the temperature the peak torque T_S arising when passing through the resonance range must not exceed the maximum torque $T_{K\ max}$ of the coupling.

$$T_{K\ max} \geq T_S \bullet S_t$$

2.3 Loading generated by vibratory torque shocks

Considering the ambient temperature the permissible vibratory torque T_{KW} of the coupling must not be exceeded by the biggest periodical vibratory torque T_W with operating speed. With higher operating frequencies f > 10 Hz the heat generated by damping in the elastomer is considered as damping power P_W. The permissible damping power P_{KW} of the coupling depends on the ambient temperature and must not be exceeded by the damping power generated.

$$T_{KW} \geq T_W \bullet S_t$$

$$P_{KW} \geq P_W$$

With torsionally stiff couplings the damping power can be ignored.

Coupling selection of BoWex® FLE-PA, MONOLASTIC® and EVOLASTIC®

1. Loading generated by rated torque

For drives with small mass moments of inertia on the load side (hydrostatic drives) the selection can be simplified using operating factors.

$$T_{KN} \geq T_N \bullet S_B \bullet S_t$$

Please note:

For drives subject to torsional vibrations, e. g. diesel engines, piston compressors, piston pumps, generators etc. it is necessary to perform a torsional vibration calculation for a selection ensuring a safe operation. This applies in particular with large mass moments of inertia on the load side. If requested, we will perform the torsional vibration calculation and the coupling selection in our company.

COUPLING SELECTION ACCORDING TO DIN 740 PART II

Example of calculation

Requested: Axial plug-in coupling damping vibrations → ROTEX®

Applications: Connection of IEC standard motor and screw compressor

→ Coupling selection following page 16, item 1: Drives without periodical torsional vibrations

Given: Details of driving side

A. C. motor:	Size 315 L	→ S_A =1.8 (see page 15)
Motor power:	P = 160 kW	
Speed:	n = 1485 rpm	
Moment of inertia of driving side:	J_{Motor} = 2.9 kgm²	
Starting frequency:	6 times per hour	→ S_Z =1.0 (see page 15)
Ambient temperature:	+70 °C	→ S_t =1.45 using T-PUR® (see page 15)
Peak torque (starting torque) T_{AS}	= 2 • T_{AN}	

Given: Details of load side

Screw compressor:	
Rated torque of load side:	T_{LN} = 930 Nm
Moment of inertia of load side:	$J_{Compressor}$ = 6.8 kgm²

Calculation

1.1 Loading generated by rated torque

- Rated torque of drive T_{AN}

$$T_{AN} = 9550 \bullet \frac{P\,[kW]}{n\,[rpm]} \rightarrow 9550 \bullet \frac{160\ kW}{1485\ rpm} = \underline{1029\ Nm}$$

- Rated torque of load side T_{LN}

$$T_{KN} \geq T_{LN} \bullet S_t \rightarrow 930\ Nm \bullet 1.45 = 1348.5\ Nm \rightarrow T_{KN} \geq \underline{1348.5\ Nm}$$

- Coupling selection

ROTEX® size 90 - spider 92 Shore A with:	Mass moments of inertia of page 59
T_{KN} = 2400 Nm	J_{KA} = 0.0673 kgm²
$T_{K\,max}$ = 4800 Nm	J_{KL} = 0.0673 kgm²

1.2 Loading generated by torque shocks

- Shock on driving side without load torque being superimposed

$T_{K\,max} \geq T_S \bullet S_Z \bullet S_t + T_N \bullet S_t$ → $T_N = 0$

Shock on drive side $T_S = T_{AS} \bullet M_A \bullet S_A$

$$M_A = \frac{J_L}{(J_A + J_L)} \rightarrow \frac{6.8673\ kgm^2}{2.9673\ kgm^2 + 6.8673\ kgm^2} \rightarrow M_A = \underline{0.7}$$

$J_A = J_{Motor} + J_{KA}$ → 2.9 kgm² + 0.0673 kgm² → J_A = 2.9673 kgm²

$J_L = J_{Compressor} + J_{KL}$ → 6.8 kgm² + 0.0673 kgm² → J_L = 6.8673 kgm²

Start-up torque $T_{AS} = 2 \bullet T_{AN}$ → 2 • 1029 Nm= 2058 Nm

→ Shock on drive side T_S = 2058 • 0.7 • 1.8 = 2593.1 Nm

→ $T_{K\,max} \geq 2593.1\ Nm \bullet 1 \bullet 1.45 = \underline{3760\ Nm}$

$T_{K\,max}$ with 4800 Nm ≥ 3760 Nm ✓

Result

The coupling is sufficiently dimensioned.

Please note:

The shaft-hub-connection has to be separately verified by the customer!

COUPLING SELECTION BASED ON OPERATING FACTORS

Coupling types

Laminae couplings

RADEX®-N

Steel laminae coupling **(see page 176)**

– Torsionally stiff
– Backlash-free
– Maintenance-free
– Compact dimensions
– Single-cardanic or double-cardanic
– All-steel

RIGIFLEX®-N

Steel laminae coupling **(see page 186)**

– Torsionally stiff
– Backlash-free
– Maintenance-free
– Double-cardanic
– All-steel
– Coupling in accordance with API 610, API 671 optionally

RIGIFLEX®-HP

High-performance steel laminae coupling **(see page 192)**

– Torsionally stiff
– Backlash-free
– Maintenance-free
– Double-cardanic
– All-steel
– Coupling design as per API 671

Pin & bush couplings

REVOLEX® KX-D

Flexible pin & bush coupling **(see page 73)**

– Flexible
– Maintenance-free
– Fail-safe
– Compact dimensions
– Axial plug-in

Gear couplings

GEARex®

All-steel gear coupling (see page 102)

– Torsionally stiff
– Fail-safe
– Compact dimensions
– Double-cardanic
– High power density
– All-steel

Flexible couplings

POLY-NORM®-M

Flexible coupling **(see page 72)**

– Flexible
– Maintenance-free
– Fail-safe
– Compact dimensions
– Axial plug-in

Terminology of coupling selection

Description	Symbol	Definition resp. explanation
Rated torque of coupling [Nm]	T_{KN}	Torque that can be continuously transmitted over the entire permissible speed range
Maximum torque of coupling [Nm]	$T_{K\ max}$	Torque that can be transmitted as dynamic load ≥ 10^5 times respectively $5 \cdot 10^4$ as vibratory load over the entire service life of the coupling
Vibratory torque of coupling [Nm]	T_{KW}	Torque amplitude of the permissible periodical torque fluctuation with a frequency of 10 Hz and a basic load of T_{KN} respectively dynamic load up to T_{KN}.
Rated torque of machine [Nm]	T_N	Stationary rated torque on the coupling
Peak torque of machine [Nm]	T_S	Peak torque on the coupling

Description	Symbol	Definition resp. explanation
Engine power [kW]	P	Rated power of drive
Speed [rpm]	n	Rated speed of the motor
Start-up factor	S_Z	Factor considering the additional load caused by the starting frequency per hour
Direction factor	S_R	Considers the torsional direction
Temperature factor	S_t	Factor considering the lower loading capacity particularly in case of increased temperatures
Operating factor	S_B	Factor considering the different demands on the coupling dependent on the application

COUPLING SELECTION BASED ON OPERATING FACTORS

Factors

Temperature factor S_t								
	-30 °C/ +30 °C	≤ +40 °C	≤ +60 °C	≤ +80 °C	≤ +150 °C	≤ +200 °C	≤ +230 °C	≤ +270 °C
REVOLEX® KX-D / POLY-NORM®-M	1.0	1.2	1.4	1.8	–	–	–	–
GEARex®	1.0	1.0	1.0	1.0	–	–	–	–
RADEX®-N, RIGIFLEX®-N, RIGIFLEX®-HP	1.0	1.0	1.0	1.0	1.0	1.10	1.25	1.43

Start-up factor S_Z			
Start-up frequency per hour	< 10	< 25	< 50
S_Z	1.0	1.2	1.4

Direction factor S_R	
Same torsional direction	1.0
Alternating torsional direction	1.7

Operating factor S_B			
Application		**Application**	
Construction machinery		**Mixers**	
Manoeuvre hoists	1.50 - 2.00	Constant density	1.75 - 2.25
Swing gears	1.50 - 2.00	Variable density	2.00 - 2.50
Miscellaneous winches	1.50 - 2.00	**Grinders**	
Filters, cable winches	1.75 - 2.25	Centrifugal mills	1.75 - 2.00
Multi-bucket excavators	1.75 - 2.25	Beater mills	1.75 - 2.00
Running gears (caterpillar)	1.75 - 2.25	Autogenous mills	1.75 - 2.00
Impellers	1.75 - 2.25	Hammer and ball mills	2.00 - 2.50
Cutter drives	2.00 - 2.50	**Food industry**	
Elevators	1.50 - 2.00	Sugarcane harvesters	1.25 - 1.50
Conveyors		Sugar-beet harvesters	1.25 - 1.50
Bucket elevators	1.50 - 2.00	Sugar-beet washing	1.25 - 1.50
Elevators	1.75 - 2.25	Kneading machines	1.75 - 2.00
Hauling winches	1.50 - 2.00	Sugarcane breakers	1.75 - 2.00
Apron conveyors	1.25 - 1.75	Sugarcane mills	1.75 - 2.00
Rubber belt conveyors (bulk)	1.25 - 1.75	**Oil industry**	
Boom plate bucket conveyors	1.25 - 1.75	Filter presses for paraffin	1.50 – 2.00
Rotary conveyors	1.50 - 1.75	Rotary furnaces	1.75 – 2.00
Steel plate conveyors	1.50 - 1.75	**Paper machines**	
Worm conveyors	1.25 - 1.50	Couch rolls	1.75 - 2.25
Steel belt conveyors	1.75 - 2.00	Calanders	1.75 - 2.25
Conveyors	1.75 - 2.00	Wet presses	1.75 - 2.25
Rubber belt conveyors (bulk)	1.75 - 2.00	**Pumps**	
Inclined lifts	1.75 - 2.00	Radial pumps	1.25 - 1.75
Shaking slides	2.00 - 2.25	Centrifugal pumps (light liquid)	1.50 - 2.00
Generators		Centrifugal pumps (viscous liquid)	2.25 - 2.50
Frequency converters	1.75 - 2.00	Gear and vane pumps	1.50 - 1.75
Generators	1.50 - 2.00	Piston pumps, plunger pumps and press pumps	2.00 - 2.50
Rubber & nylon industry		**Agitators**	
Rubber calanders and rolling mills	1.25 - 2.00	Light liquid	1.25 - 1.50
Mixers	1.25 - 2.00	Viscous liquid	1.50 - 1.75
Extruders	1.25 - 2.00	Liquid with constant density	1.25 - 1.50
Lifters/cranes		Liquid with variable density	1.50 - 2.00
Bridge cranes for steel industry	2.00 - 2.25	**Textile industry**	
Cranes (heavy load operation)	2.00 - 2.25	Winders	1.25 - 1.75
Running gears	1.75 - 2.25	Printing and dyeing machines	1.25 - 1.75
Lifting gears	1.75 - 2.25	Shredders	1.50 - 2.00
Woodworking machinery		**Fans, ventilators and blowers**	
Planing machines	1.50 - 1.75	Light-weight fans	1.25 - 1.75
Barking machines	1.75 - 2.00	Large fans	1.75 - 2.50
Saw frames	1.75 - 2.00	Centrifugal fans	1.25 - 1.50
Compressors		Industrial fans	1.25 - 1.50
Centrifugal compressors	1.50 - 2.00	Rotary blowers	1.25 -1.75
Rotary compressors	1.50 - 2.00	Fans (axial/radial)	1.25 -1.75
Turbo compressors	2.00 - 2.50	Fans for cooling towers	1.50 - 2.00
Piston compressors	2.50 - 3.00	**Wastewater treatment plants**	
Metal industry		Rakes	1.25 - 1.50
Wire pulls	1.25 - 1.50	Worm pumps	1.25 - 1.50
Winders	1.25 - 1.50	Concentrators	1.25 - 1.50
Winding drums	1.50 - 2.00	Mixers	1.25 - 1.75
Wire drawing machines	2.00 - 2.50	Aerators	1.75 - 2.00
Plate shears	2.00 - 2.50	**Machine tools**	
Block pushers	2.00 - 2.50	Scissors	1.50 - 2.00
Blooming and slabbing	2.00 - 2.50	Dressing rollers	1.50 - 2.00
De-scalers	2.00 - 2.50	Bending machines	1.50 - 2.00
Hot-rolling mills	2.00 - 2.50	Hole punching machines	1.75 - 2.50
Cold-rolling mills	2.00 - 2.50	Levelling machines	1.75 - 2.50
Billet shears	2.00 - 2.50	Hammers	1.75 - 2.50
Plugging machines	2.00 - 2.50	Presses	1.75 - 2.50
Continuous casting machines	2.00 - 2.50	Forging presses	1.75 - 2.50
Shifting devices	2.00 - 2.50	**Other**	
Application	2.00 - 2.50	Equipment for transport of persons	2.00 - 2.50
Roller tables (heavy-weight)	2.00 - 2.50	Rock crushers	2.50 - 3.00
		Rolling mill drives	2.00 - 2.50

COUPLING SELECTION BASED ON OPERATING FACTORS

Coupling selection

The coupling selection is based on operating factors. The coupling has to be dimensioned in that the permissible coupling load is not exceeded during any operating condition. For this purpose the actual loads have to be compared to the permissible coupling parameters. The shaft-hub-connection needs to be verified by the customer.

1. Drives without periodical torsional vibrations

For example centrifugal pumps, fans, screw compressors, etc. The coupling selection is based on reviewing the rated torque T_{KN} and the maximum torque $T_{K\,max}$.

1.1 Loading generated by rated torque

Considering the operating factor, the ambient temperature and the torsional direction, the permissible rated torque T_{KN} of the coupling must at least equal the rated torque of the machine T_N.

$$T_N\,[Nm] = 9550 \bullet \frac{P\,[kW]}{n\,[rpm]}$$

$$T_{KN} \geq T_N \bullet S_B \bullet S_t \bullet S_R$$

1.2 Loading generated by torque shocks

Taking into account all relevant factors, the permissible maximum torque of the coupling $T_{K\,max}$ must at least equal the total of the peak torque T_S and rated torque of the machine T_N. This applies if the rated torque of the machine T_N is superimposed by a shock process. For drives with A. C. motors and big masses on the load side we recommend to run a calculation of the peak starting torque by our simulation program.

$$T_{K\,max} \geq (T_N + T_S) \bullet S_Z \bullet S_t \bullet S_R$$

2. Drives with periodical torsional vibrations

For drives subject to torsional vibrations, e. g. diesel engines, piston compressors, piston pumps, generators etc. it is necessary to perform a torsional vibration calculation for a selection ensuring a safe operation. If requested, we will perform the torsional vibration calculation and the coupling selection in our company. For the necessary details refer to KTR standard 20004.

COUPLING SELECTION BASED ON OPERATING FACTORS

Example of calculation

Requested: Double-cardanic steel laminae coupling for bridging a shaft distance dimension → RADEX®-N

Applications: Connection of IEC standard motor and radial pump

→ **Coupling selection following page 20, item 1: Drives without periodical torsional vibrations**

Given: Details of driving side

A. C. motor:	Size 315 L	
Motor power:	P = 200 kW	
Speed:	n = 1500 rpm	
Starting frequency:	6 times per hour	→ S_Z =1.0 (see page 19)
Ambient temperature:	+65 °C	→ S_t =1.0 (see page 19)
Peak torque (starting torque) T_{AS}	= 2 • T_{AN}	
Diameter of motor shaft:	80 mm	

Given: Details of load side

Radial pump		→ S_B =1.5 (see page 19)
Rated torque of load side:	T_{LN} = 930 Nm	
Diameter of pump shaft:	75 mm	
Distance dimension of motor shaft - pump shaft (DBSE)	= 250 mm	
Direction of torque:	same	→ S_R =1.0 (see page 19)

Calculation

1.1 Loading generated by rated torque

- Rated torque of drive T_{AN}

$$T_{AN} = 9550 \bullet \frac{P\,[kW]}{n\,[rpm]} \rightarrow 9550 \bullet \frac{200\ kW}{1500\ rpm} = \underline{1273\ Nm}$$

- Loading generated by rated torque

$$T_{KN} \geq T_{AN} \bullet S_B \bullet S_t \bullet S_R \rightarrow 1273\ Nm \bullet 1.5 \bullet 1 \bullet 1 = 1348.5\ Nm \rightarrow T_{KN} \geq \underline{1909.5\ Nm}$$

1.2 Loading generated by torque shocks

- Shock on driving side without load torque being superimposed

$$T_{K\,max} \geq (T_N + T_S) \bullet S_Z \bullet S_t \bullet S_R \rightarrow T_N = 0$$

$$\text{Start-up torque } T_{AS} = 2 \bullet T_{AN} \rightarrow 2 \bullet 930\ Nm = \underline{1860\ Nm}$$

→ $T_{K\,max} \geq 1860\ Nm \bullet 1 \bullet 1 \bullet 1 = \underline{1860\ Nm}$

- Coupling selection

T_{KN} = 2400 Nm

$T_{K\,max}$ = 4800 Nm

Result

The coupling is sufficiently dimensioned.

Please note:

The shaft-hub-connection has to be separately verified by the customer!

COUPLING SELECTION ACCORDING TO DIN 740 PART II WITH SPECIFIC FACTORS

Coupling types

Backlash-free servo couplings

ROTEX® GS

Backlash-free, flexible jaw coupling **(see page 120)**

– Backlash-free and flexible
– Maintenance-free
– Fail-safe
– Compact dimensions, high power density
– Single-cardanic or double-cardanic
– Axial plug-in
– High speeds

TOOLFLEX®

Backlash-free, torsionally stiff metal bellow-type coupling **(see page 150)**

– Backlash-free and torsionally stiff
– Maintenance-free
– Shear type
– Compact dimensions
– Double-cardanic
– Axial plug-in (as an option)
– All-metal coupling

RADEX®-NC

Backlash-free, torsionally stiff servo laminae coupling **(see page 164)**

– Backlash-free and torsionally stiff
– Maintenance-free
– Compact dimensions
– Single-cardanic or double-cardanic
– All-metal coupling

ROTEX® GS HP

Backlash-free high-speed coupling (see page 136)

– Backlash-free and flexible
– Maintenance-free
– Compact dimensions
– Axial plug-in
– Severely high speeds

Terminology of coupling selection

Description	Symbol	Definition resp. explanation
Rated torque of coupling [Nm]	T_{KN}	Torque which can be continuously transmitted over the entire permissible speed range, taking into account the factors
Maximum torque of coupling [Nm]	$T_{K\,max}$	Torque which can be transmitted over the entire service life of the coupling as dynamic load ≥ 10^5 or vibratory load $5 \cdot 10^4$ taking into account the factors
Rated torque of machine [Nm]	T_N	Stationary rated torque on the coupling
Rated torque of driving side [Nm]	T_{AN}	Constantly occuring driving torque as per the data indicated by the motor manufacturer
Peak torque [Nm]	T_S	Peak torque on the coupling
Peak torque of driving side [Nm]	T_{AS}	Peak torque with torque shock on driving side, e. g. starting torque of the servo motor as per the data specified by the motor manufacturer
Peak torque of load side [Nm]	T_{LS}	Peak torque with torque shock on load side, e. g. braking
Screw tightening torque [Nm]	T_A	Tightening torque of screw
Friction torque [Nm]	T_R	Torque that can be transmitted through the frictionally engaged shaft-hub-connection

Description	Symbol	Definition resp. explanation
Rotational inertia coefficient of driving side	M_A	Factor considering the mass distribution with shocks and vibrations generated on the driving or load side
Rotational inertia coefficient of load side	M_L	
Mass moment of inertia of driving side [kgm²]	J_A	Total of moments of inertia existing on the driving or load side referring to the coupling speed
Mass moment of inertia of load side [kgm²]	J_L	
Mass moment of inertia of coupling [kgm²]	J_{KA}	Mass mom. of inertia of the coupl. half on drive side
	J_{KL}	Mass mom. of inertia of the coupl. half on load side
Mass moment of inertia [kgm²]	$J_{Mot}/J_{Sp}/J_{HS}$	Mass moment of inertia of the motor/mass moment of inertia of the spindle/mass moment of inertia of the main spindle
Temperature factor	S_t	Factor considering the lower loading capacity or larger deformation of an elastomer part under load particularly with increased temperatures
Operating factor	S_B	Factor considering the different demands on the coupling dependent on the application

COUPLING SELECTION ACCORDING TO DIN 740 PART II WITH SPECIFIC FACTORS

Factors

Temperature factor S_t														
	-50 °C	-40 °C	-30 °C	-20 °C/ +30 °C	≤ +40 °C	≤ +50 °C	≤ +60 °C	≤ +70 °C	≤ +80 °C	≤ +90 °C	≤ +100 °C	≤ +110 °C	≤ +120 °C	≤ +200 °C
ROTEX® GS														
Polyurethane 80 ShA-GS	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.55	1.8	-	-	-	-	-
Polyurethane 92 ShA-GS	-	1.0	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-	-	-	-
Polyurethane 98 ShA-GS	-	-	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-	-	-	-
Polyurethane 57 ShD-GS	-	-	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-	-	-	-
Polyurethane 64 ShD-GS	-	-	-	1.0	1.2	1.3	1.4	1.55	1.8	2.2	3.0	3.0	-	-
Polyurethane 72 ShD-GS	-	-	-	1.0	1.2	1.3	1.4	1.55	1.8	2.2	3.0	3.0	-	-
PUR 52 ShD-S-GS	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-
Hytrel 64 ShD-H-GS	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.5	1.6	1.8	2.0	2.3	2.8	-
Hytrel 72 ShD-H-GS	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.5	1.6	1.8	2.0	2.3	2.8	-
TOOLFLEX®														
Size 5 to 12	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	-	-
Size 16 to 65	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1
RADEX-NC®														
EK and DK	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1
ROTEX® GS HP														
Polyurethane 98 ShA-GS	-	-	1.0	1.0	1.2	1.3	1.4	1.55	1.8	2.2	-	-	-	-

Operating factor S_B		
ROTEX® GS*		
Backlash-free drives		
Main spindle drive of machine tools		2.0 - 5.0
Moderate shocks	Grinders, small milling machines/drills	1.5 - 2.5
Medium shocks	Milling machines/drills with interrupted cut	2.0 - 3.0
Heavy shocks	Milling machines etc.	2.5 - 3.5
Positioning drives		
Ball screw drive/toothed belt drive		2.5 - 4.0
Gearbox	i 3 - ≤ 5	8.0
	i > 5 - ≤ 7	5.0
	i > 7	3.0
Servo-hydraulic drives		
With pulsating load [1]		1.2 - 1.3
With vibratory load [2]		1.3 - 1.5
TOOLFLEX®, RADEX®-NC		
Uniform motion		1.5
Irregular motion		2.0
Shock motion		2.5 - 4.0
For drives on machine tools (servo motors) values from 1.5 - 2.0 must be applied.		
ROTEX® GS HP		
Main spindle drive		2.0 - 3.0

Start-up factor S_Z	
Starting frequency per minute	
< 20	1.0
< 60	1.2
< 120	1.4
< 180	1.6
< 240	1.8
> 240	2.0

* When using the spider 64 ShD-GS or 72 ShD-GS a minimum factor of 4 or steel hubs have to be used.
[1] With pulsating load the use of aluminium is permissible.
[2] With vibratory load make use of steel hubs.

Shaft encoder drives: Subject to the low torques to be transmitted the coupling size for shaft encoder drives is selected according to the shaft diameters to be connected.

Coupling selection

The coupling selection of the backlash-free servo couplings is based on DIN 740 part 2, but with specific factors. The coupling has to be dimensioned in that the permissible coupling load is not exceeded during any operating condition. For this purpose the actual loads have to be compared to the permissible coupling parameters. The shaft-hub-connection needs to be verified by the customer.
The size of the coupling must be selected such that the following conditions are met.

1. Backlash-free drives

$T_{KN} \geq T_N \bullet S_t \bullet S_B$ and $T_{KN} \geq T_S \bullet S_t \bullet S_B$

In case of load torque: $T_{KN} \geq T_S \bullet S_t \bullet S_B + T_N \bullet S_t$

Considering the ambient temperature and the operating factor, the permissible rated torque T_{KN} of the coupling must at least equal the rated torque of the machine T_N.
Considering the ambient temperature and the operating factor, the permissible rated torque T_{KN} of the coupling must at least equal the peak torque arising.
The following applies for the peak torque T_S:

Shock on drive side $T_S = T_{AS} \bullet M_A \bullet S_Z$ → $M_A = \frac{J_L}{(J_A + J_L)}$

2. Servo-hydraulic drives

$T_{KN} \geq T_{AS} \bullet S_t \bullet S_B$

Considering the ambient temperature and the operating factor, the permissible rated torque T_{KN} of the coupling must at least equal the peak torque of the driving side T_{AS}.

$S_t \bullet S_B$ with use of aluminium at least 1.5.

Please note:
For general applications (not backlash-free applications) observe coupling selection according to DIN 740 part 2 (page 14 et seqq.).

COUPLING SELECTION ACCORDING TO DIN 740 PART II WITH SPECIFIC FACTORS

Example of calculation for positioning drives

Requested: Backlash-free coupling damping vibrations → ROTEX® GS

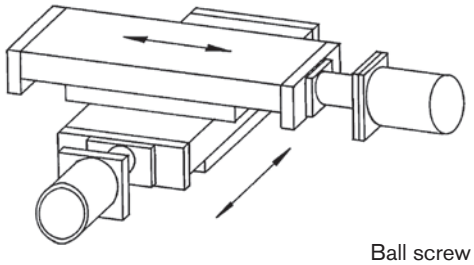
Applications: Connecting servo motor and ball screw drive for backlash-free positioning

→ Coupling selection following page 23, item 1: Backlash-free drives

Given: Details of driving side

Servo motor

Rated torque T_{AN}:	43 Nm	
Max. driving torque T_{AS}:	144 Nm	
Moment of inertia J_{Mot}:	0.0108 kgm²	
Diameter of motor shaft:	32 k6 without feather keyway	
Ambient temperature:	+40 °C	→ S_t = 1.2 (see page 23)
Starts per minute:	15	→ S_Z = 1.0 (see page 23)



Ball screw

Given: Details of machine on driven side

Ball spindle J_{SP}:	0.0038 kgm²	
Spindle pitch s:	10 mm	
Diameter of spindle shaft:	30 k6 without feather keyway	
Mass of slide + workpiece m_{Sl}:	1030 kg	
No load torque available		
Required:	High torsional stiffness	→ S_B = 4 (see page 23)

Calculation

1. Backlash-free drives

- Loading by rated torque (pre-selection)

$T_{KN} \geq T_{AN} \bullet S_t \bullet S_B$ → 43 Nm • 1.2 • 4 → $T_{KN} \geq 206.4$ Nm

- Coupling selection (pre-selection)

ROTEX® GS 38

Spider 98 Shore A with clamping ring hubs 6.0 light:

T_{KN} = 325 Nm

$T_{K\,max}$ = 650 Nm

Mass moments of inertia of page 138

J_{KA} = 0.000517 kgm²

J_{KL} = 0.000517 kgm²

- Load by maximum driving torque, not including load torque

$T_{KN} \geq T_S \bullet S_t \bullet S_B$

Shock on drive side $T_S = T_{AS} \bullet M_A \bullet S_Z$ → = 144 Nm • 0.379 • 1.0 → T_S = 54.58 Nm

$M_A = \frac{J_L}{(J_A + J_L)}$ → = $\frac{0.006917\ kgm^2}{(0.011317\ kgm^2 + 0.006917\ kgm^2)}$ → M_A = 0.379

$J_L = J_{Sp} + J_{Sl} + J_{KL}$ → 0.0038 kgm² + 0.0026 kgm² + 0.000517 kgm² → J_L = 0.006917 kgm²

$J_{Sl} = m_{Sl} \bullet \left(\frac{s}{2 \bullet \pi}\right)^2$ → 1030 kg • $\left(\frac{0.01}{2 \bullet \pi}\right)^2$ → J_{Sl} = 0.0026 kgm²

$J_A = J_{Mot} + J_{KA}$ → 0.0108 kgm² + 0.000517 kgm² → J_A = 0.011317 kgm²

→ $T_{KN} \geq 54.58$ Nm • 1.2 • 4 → $T_{KN} \geq 261.9$ Nm

T_{KN} with 325 Nm ≥ 261.9 Nm

- Review of shaft-hub-connection: Friction torque for clamping ring hubs type 6.0 light

The coupling has to be dimensioned in that the permissible friction torque is not exceeded during any operating condition.

$T_R \geq T_{AS}$ values T_R see page 138

Friction torque of ROTEX® GS 38 clamping ring hub 6.0 light Ø30 H7/k6 T_R = 656 Nm > 144 Nm

Result

The coupling is sufficiently dimensioned.

COUPLING SELECTION ACCORDING TO DIN 740 PART II WITH SPECIFIC FACTORS

Example of calculation for main spindle drives

Requested: Backlash-free, axial plug-in coupling for high speeds → ROTEX® GS

Applications: Connecting servo motor and main spindle in grinding machine

→ Coupling selection following page 23, item 1: Backlash-free drives

Given: Details of driving side

Servo motor

Max. continuous torque with machining T_{AN}:	130 Nm	
Max. driving torque T_{AS}:	190 Nm	
Max. speed:	6000 rpm	
Moment of inertia J_{Mot}:	0.316 kgm²	
Diameter of motor shaft:	38 k6 without feather keyway	
Ambient temperature:	+60 °C	→ S_t = 1.4 (see page 23)
Starting factor S_Z:	< 20 rpm	→ S_Z = 1.0 (see page 23)

Given: Details of machine on driven side

Moment of inertia of load side J_{HS}:	0.1094 kgm²	
Diameter of main spindle shaft:	30 k6 without feather keyway	
No load torque available		
Required:	Medium shocks	→ S_B = 2.4 (see page 23)

Calculation

1. Backlash-free drives

- Loading by rated torque (machining torque)

$T_{KN} \geq T_{AN} \bullet S_t \bullet S_B$ → 130 Nm • 1.4 • 2.4 → $T_{KN} \geq$ 436.8 Nm

- Coupling selection

  ROTEX® GS 42

  Spider 98 Shore A with clamping ring hubs 6.0 light:

  T_{KN} = 450 Nm

  $T_{K\,max}$ = 900 Nm

  Mass moments of inertia of page 138

  J_{KA} = 0.001117 kgm²

  J_{KL} = 0.001117 kgm²

- Loading by maximum driving torque, without load torque (acceleration of spindle)

$T_{KN} \geq T_S \bullet S_t \bullet S_B$

Shock on drive side $T_S = T_{AS} \bullet M_A \bullet S_Z$ → = 190 Nm • 0.258 • 1.0 → T_S = 49.02 Nm

$M_A = \frac{J_L}{(J_A + J_L)}$ → = $\frac{0.110517\ kgm^2}{(0.317117\ kgm^2 + 0.110517\ kgm^2)}$ → M_A = 0.258

$J_L = J_{HSt} + J_{KL}$ → 0.1094 kgm² + 0.001117 kgm² → J_L = 0.110517 kgm²

$J_A = J_{Mot} + J_{KL}$ → 0.316 kgm² + 0.001117 kgm² → J_A = 0.317117 kgm²

$T_{KN} \geq$ 49.02 Nm • 1.4 • 2.4 → $T_{KN} \geq$ 164.7 Nm

T_{KN} with 450 Nm ≥ 164.7 Nm

- Review of shaft-hub-connection: Friction torque for clamping ring hubs type 6.0 light

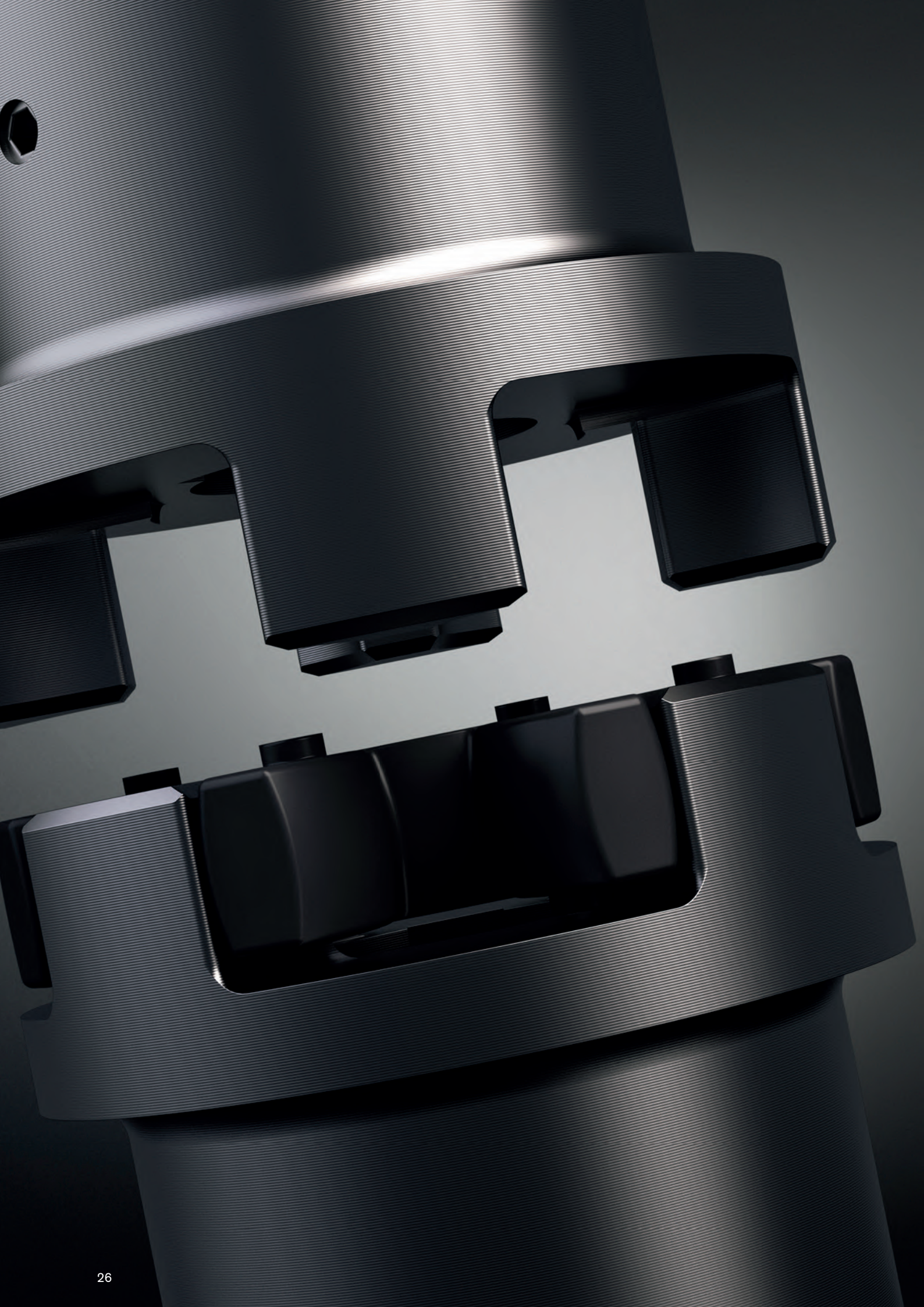
The coupling has to be dimensioned in that the permissible friction torque is not exceeded during any operating condition.

$T_R \geq T_{AS}$ values T_R see page 138

Friction torque of ROTEX® GS 42 clamping ring hub 6.0 light Ø30 H7/k6 T_R = 752 Nm > 190 Nm

Result

The coupling is sufficiently dimensioned.



Flexible jaw and pin & bush couplings

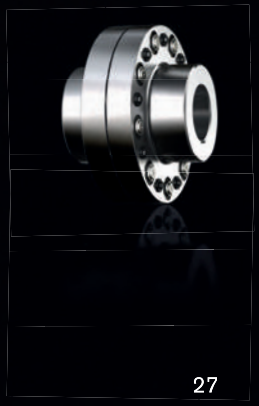
ROTEX®

ROFLEX®

POLY-NORM®

POLY-NORM®-M

REVOLEX®



FLEXIBLE JAW AND PIN & BUSH COUPLINGS
TYPES AND OPERATING DESCRIPTION

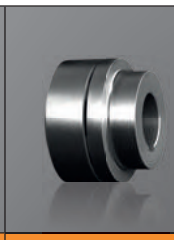
Properties of flexible jaw and pin & bush couplings

					
Product	**ROTEX®**	**ROFLEX®**	**POLY-NORM®**	**POLY-NORM®-M**	**REVOLEX®**
Type	Torsionally flexible jaw coupling				Torsionally flexible pin & bush coupling
Properties					
Torsionally flexible	●	●	●	●	●
Damping vibrations	●	●	●	●	●
Maintenance-free	●	●	●	●	●
Axial plug-in	●	●	●		●
Shear type				●	
Fail-safe	●	●	●	●	●
Compensating for misalignment	●	●	●	●	●
Types					
Variant diversity	very high	medium	medium	medium	high
Special features	extensive basic programme available from stock while customised solutions can be realized	basic programme available from stock	basic programme available from stock	Basic programme available from stock, ideal for customised solutions, for applications with high performances	extensive programme, ideal for customised solutions, for applications with high performance ranges
Applications / core industries	manifold applications, applicable in all industries	pump industry, industrial gearboxes	pump industry, industrial gearboxes	heavy mechanical engineering, mills, conveyors, crushers, industrial gearboxes	industrial gearboxes, conveyor systems, industrial fans, cableways, agitators, generators, ...
surface	allover machining, very good dynamic properties	shell surface machined	shell surface machined	shell surface machined	allover machining, good dynamic properties
Torque range T_{KN} [Nm]					
Min.	1	65	40	100,000	4300
Max.	35,000	5,000	67,000	5,500,000	1,350,000
Max. circumferential speed v [m/s]					
Cast EN-GJL (dynamic balancing)	35	35	35		35
Steel + cast EN-GJS (dynamic balancing)	60			35	60
Hub materials available					
Steel (semi-finished product) » customised solutions available	●			●	●
Cast iron (GJL) » subject to mould	●	●[1)]	●		●
Nodular iron (GJS) » subject to mould	●		○	●	○
Aluminium wrought products (Al-H) » customised solutions available	●				
Aluminium diecast (Al-D)	●				
Stainless steel	●				
Corrosion-protected types	●		○	●	●
Spiders / elastomers					
Material	T-PUR®, PA, PEEK, Hytrel, ...	T-PUR® (size 68) NBR (from size 80)	NBR (up to size 180) T-PUR® (from size 200)	NBR, NBR electrically insulating	NR, NBR, NBR electrically insulating
Degree of hardness	flexible to torsionally stiff	flexible	flexible	flexible	flexible
Temperature range in °C, min. / max. (standard)	-40 / +120	-30 / +80	-30 / +80	-30 / +80	-30 / +80
Temperature range in °C, min. / max. (special)	-40 / +250	-30 / +80	-30 / +80	-30 / +80	-50 / +80

● ≈ Standard
○ ≈ On request
[1)] Size 68 made of sintered steed

FLEXIBLE JAW AND PIN & BUSH COUPLINGS
TYPES AND OPERATING DESCRIPTION

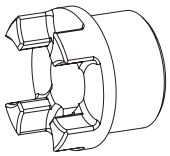
Product finder of jaw and pin & bush couplings

					
Product	**ROTEX®**	**ROFLEX®**	**POLY-NORM®**	**POLY-NORM®-M**	**REVOLEX®**
Type	Torsionally flexible jaw coupling				Torsionally flexible pin & bush coupling
Geometries					
Design	compact	short	short	short	short
Mass moment of inertia	low	medium	medium	high	medium
Shaft distance dimension	low / average	low	low	low	low
Types (extract)					
Elastomers can be radially disassembled » without displacing driving/driven side	AFN, AH, SH, ZR, DF, DFN, CF-H	SH	ADR, ADR-SB	AFN, A	Standard
Intermediate shaft types » bridging larger shaft distances	ZR, ZWN	–	–	–	customised
Standard spacers 100 mm to 250 mm	ZS-DKM-SH	–	AZR	–	customised
shaft-to-shaft connection	Standard	N	Standard	Standard	Standard
flange-to-shaft connection	CF, CFN	–	–	A	customised
Flange-to-flange connection » particularly short mounting length	DF, DNF	–	–	–	customised
Double-cardanic » compensating for big displacements, lower restoring forces	ZS-DKM-H, ZR, ZWN	–	–	–	–
Certifications / type examinations					
ATEX	●	●	●	○	●
UL-listed	●				
DNV/GL	●			○	●
ABS	●			○	○
Bureau Veritas	●			○	○
LR	●				○
RS CLASS	○				○
CCS	○				○
ClassNK	●				○
Korean Register	●				○

● ≈ Standard
○ ≈ On request

Types of hubs

Since ROTEX® is used on many different applications and mounting conditions, this coupling system is available with various hub types. These types mainly differ in that they provide either positive or frictionally engaged (backlash-free) connections, but mounting situations like, for example, gear shafts with integrated transmission cams or similar applications are covered, too.



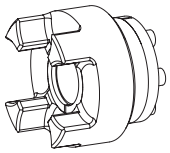
Type 1.0 hub
with feather keyway and setscrew

Positive-locking power transmission, permissible torque depending on the permissible surface pressure. Not suitable for backlash-free power transmission with heavily reversing operation.

Type 1.1 hub
without feather keyway, with setscrew

Non-positive torque transmission for crimping connections and adhesive bonds. (No ATEX approval)

Type 1.3 hub
with spline bore (see page 37)

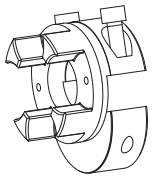


Type 4.2 hub
for CLAMPEX® clamping set KTR 250

Frictionally engaged, backlash-free shaft-hub-connection for transmitting average torques.

Type 4.1 for CLAMPEX® clamping set KTR 200
Type 4.3 for CLAMPEX® clamping set KTR 400

Frictionally engaged, backlash-free shaft-hub-connection for the transmission of high torques.

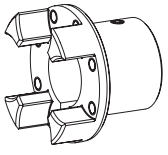


Type 7.6 clamping hub type DH
with feather keyway for double-cardanic connection

Positive-locking power transmission with additional friction fit for radial assembly of coupling. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.

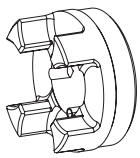
Type 7.5 clamping hub type DH
without feather keyway for double-cardanic connection

Frictionally engaged, backlash-free shaft-hub-connection for radial assembly of coupling. Transmittable torques depending on bore diameter. (For ATEX category 3 only)



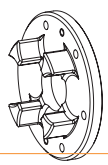
FNN hub

Coupling hub to be connected to an attachment such as brake drum, brake disk and fan.



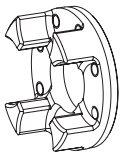
TB1 hub/TB2 hub

Coupling hub for taper clamping sleeves TB1 screwed on cam side. TB2 screwed externally.



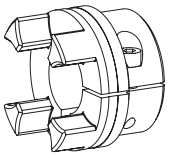
Driving flange type 3b

Driving flange to connect to customer's component.
For dimensions see page 48.



Driving flange type 3Na

Driving flange to connect to customer's component.
For dimensions see page 48.



Type 2.3 clamping hub
with spline bore

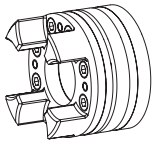
For splines see page 37. Positive-locking power transmission. The friction fit avoids resp. reduces reverse backlash.

Type 2.0 clamping hub
single slot without feather keyway

Frictionally engaged, backlash-free shaft-hub-connection. Transmittable torques depending on bore diameter (see page 44). (For ATEX category 3 only)

Type 2.1 clamping hub
single slot with feather keyway

Positive-locking power transmission with additional friction fit. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.

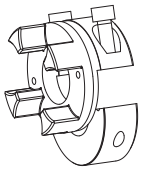


Type 6.0 clamping ring hub
(see ROTEX® GS series)

Integrated frictionally engaged shaft-hub-connection for the transmission of higher torques. Screwing on elastomer side. For details about torque and dimensions see page 43. Suitable for high speeds.

Type 6.5 clamping ring hub
(see ROTEX® GS series)

Design like 6.0, except for clamping screws externally. For instance for radial disassembly of intermediate pipe (special design).

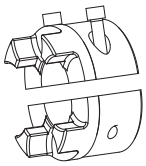


Type 7.9 clamping hub type H
with feather keyway

Positive-locking power transmission with additional friction fit for radial assembly of coupling. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.

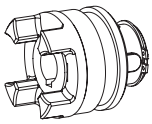
Type 7.8 clamping hub type H
without feather keyway

Frictionally engaged, backlash-free shaft-hub-connection for radial assembly of coupling. Transmittable torques depending on bore diameter. (For ATEX category 3 only)



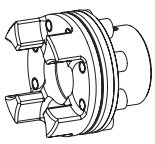
Type 7.1 SPLIT hub
with feather keyway

Split hub made of cast iron. Positive-locking power transmission with additional friction fit. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.



SD hub shifting hub

Coupling hub for separating resp. switching on the driving/driven machine with downtime of the machine. Can be combined with slip ring and shiftable linkage.



Type 3Na and 4N
Driving flange with flange type K

For type AFN and BFN.
With type AFN the spider can be replaced when installed without having to disassemble the driving and driven side.

Speeds

Maximum speeds of hub versions/types

ROTEX® size	Maximum speed [rpm]													Maximum speed [rpm] depending on outside Ø of brake drum/disk			
	1.0 / 1.1 / 1.3			2.0 / 2.1 / 2.3 / 7.5 / 7.6 / 7.8 / 7.9	6.0	7.1	TB1 / TB2	FNN	FNN with fan	SD (with shiftable linkage)	3b / 3Na / 4N	DKM / ZS-DKM	ZR	ZRS	Brake drum (steel)		Brake disk (steel)	
	Steel, GJS, Al-H	GJL, sinter metal	Al-D												Outside Ø [mm]	[rpm]	Outside Ø [mm]	[rpm]
14	10000	10000	3600	-		-	-	-		-	-	-			160	6000	200	8600
19	10000	10000	3600	10000		-	-	-		-	-	3600			200	4800	250	6850
24	10000	10000	3600	8600		10000	10000	-		-	10000	3600			250	3800	315	5500
28	10000	10000	3600	7300		8800	10000	10000		-	10000	3600			315	3000	355	4850
38	9500	8300	3600	6000		7200	8300	8800		3200	9500	3600			400	2400	400	4300
42	8000	7000	3600	5000		6000	7000	7200		3200	8000	3600			500	1900	450	3800
48	7200	6300	3600	4500		5500	6300	6000		2500	7200	3600			630	1500	500	3500
55	6300	5500	-	4000		4800	5500	5500		2100	6300	3600			630	1500	560	3050
65	5600	4900	-	3600		4200	4900	4800		2100	5600	3600			710	1350	630	2700
75	4700	4200	-	3000		3600	4200	4200		1700	4700	3600			710	1350	710	2400
90	3800	3600	-	2400		3000	3600	3600		1300	3800	3000			800	1200	800	2150
100	3600	-	-	2100		-	2900	2900		1300	3600	-					900	1900
110	3000	-	-	1900		-	2600	-		1300	3000	-					1000	1700
125	2600	-	-	1800		-	2300	-		1200	2600	-						
140	2400	-	-	1500		-	2000	-		-	2400	-						
160	2000	-	-	1300		-	-	-		-	2000	-						
180	1800	-	-	1150		-	-	-		-	1800	-						
Balancing necessary from a circumferential speed of	v = 30 m/s	v = 30 m/s	On request	v = 20 m/s		v = 30 m/s	v = 30 m/s	v = 30 m/s	v = 30 m/s	v = 30 m/s	v = 30 m/s	On request	On request	On request	v = 30 m/s		v = 30 m/s	

see ROTEX® GS

The permissible speed depends on the fan. Please consult with KTR.

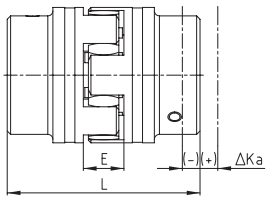
Depending on the application (observe critical bending speed on page 51).

Depending on the application (observe critical bending speed on page 50).

Depending on the application, balancing may also be required with lower circumferential speeds.
Higher speeds possible on request.

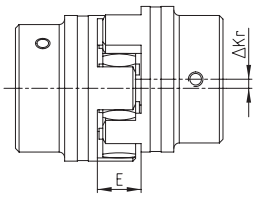
Displacements

Axial displacement ΔK_a

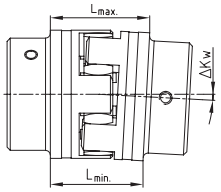


$L_{max.} = L + \Delta K_a$

Radial displacement ΔK_r



Angular displacement ΔK_W [degree]



ΔK_W [mm] = $L_{max} - L_{min}$

Displacements for spider 92 and 98 Shore A

ROTEX® size	14	19	24	28	38	42	48	55	65	75	90	100	110	125	140	160	180
Max. axial displacement ΔK_a [mm]	-0.5 +1.0	-0.5 +1.2	-0.5 +1.4	-0.7 +1.5	-0.7 +1.8	-1.0 +2.0	-1.0 +2.1	-1.0 +2.2	-1.0 +2.6	-1.5 +3.0	-1.5 3.4	-1.5 +3.8	-2.0 +4.2	-2.0 +4.6	-2.0 +5.0	-2.5 +5.7	-3.0 +6.4
Max. radial displacement with n=1500 rpm ΔK_r [mm]	0.17	0.20	0.22	0.25	0.28	0.32	0.36	0.38	0.42	0.48	0.50	0.52	0.55	0.60	0.62	0.64	0.68
Max. angular displacement with n=1500 rpm ΔK_W [degree]	1.2	1.2	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.2	1.2	1.2
ΔK_W [mm]	0.67	0.82	0.85	1.05	1.35	1.70	2.00	2.30	2.70	3.30	4.30	4.80	5.60	6.50	6.60	7.60	9.00

Displacements for spider 64 Shore D

ROTEX® size	14	19	24	28	38	42	48	55	65	75	90	100	110	125	140	160	180
Max. axial displacement ΔK_a [mm]	-0.5 +1.0	-0.5 +1.2	-0.5 +1.4	-0.7 +1.5	-0.7 +1.8	-1.0 +2.0	-1.0 +2.1	-1.0 +2.2	-1.0 +2.6	-1.5 +3.0	-1.5 +3.4	-1.5 +3.8	-2.0 +4.2	-2.0 +4.6	-2.0 +5.0	-2.5 +5.7	-3.0 +6.4
Max. radial displacement with n=1500 rpm ΔK_r [mm]	0.11	0.13	0.15	0.18	0.21	0.23	0.25	0.27	0.30	0.34	0.36	0.37	0.40	0.43	0.45	0.46	0.49
Max. angular displacement with n=1500 rpm ΔK_W [degree]	1.1	1.1	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.1	1.1
ΔK_W [mm]	0.57	0.76	0.76	0.90	1.25	1.40	1.80	2.00	2.50	3.00	3.80	4.30	5.30	6.00	6.10	7.10	8.00

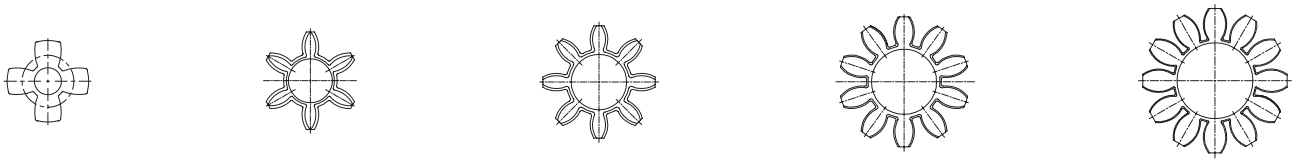
Displacements for spider PA, PEEK

ROTEX® size	14	19	24	28	38	42	48	55	65	75	90	100	110	125	140
Max. axial displacement ΔK_a [mm]	-0.5 +1.0	-0.5 +1.2	-0.5 +1.4	-0.7 +1.5	-0.7 +1.8	-1.0 +2.0	-1.0 +2.1	-1.0 +2.2	-1.0 +2.6	-1.5 +3.0	-1.5 +3.4	-1.5 +3.8	-2.0 +4.2	-2.0 +4.6	-2.0 +5.0
Max. radial displacement with n=1500 rpm ΔK_r [mm]	0.08	0.10	0.11	0.12	0.14	0.16	0.18	0.19	0.21	0.24	0.25	0.26	0.27	0.30	0.31
Max. angular displacement with n=1500 rpm ΔK_W [degree]	0.60	0.45	0.45	0.50	0.50	0.55	0.55	0.55	0.60	0.60	0.60	0.60	0.65	0.65	0.60
ΔK_W [mm]	0.33	0.41	0.42	0.52	0.67	0.85	1.00	1.15	1.35	1.65	2.15	2.40	2.80	3.25	3.30

The specified permissible displacement figures of the flexible ROTEX® couplings are standard values taking into account the load of the coupling up to the rated torque T_{KN} and an operating speed n = 1500 rpm along with an ambient temperature of +30 °C.
The displacement figures may only be used one by one, if they appear simultaneously, they must be limited in proportion. Care should be taken to accurately maintain the distance dimension E in order to allow for axial clearance of the coupling while in operation. For detailed mounting instructions refer to our homepage www.ktr.com.

Properties of standard spiders

ROTEX® 14 | ROTEX® 19 | ROTEX® 24 - 65 | ROTEX® 75 - 160 | ROTEX® 180



Degree of hardness

Spider type (Shore hardness)	92 Shore A (T-PUR®)	92 Shore A
	 T-PUR®	
Size	14 to 180	14 to 90
Material	T-PUR®	Polyurethane (PUR)
Permissible temperature range Permanent temperature Short-term temperature	 -40 °C to +120 °C -40 °C to +150 °C	 -40 °C to +90 °C -40 °C to +120 °C
Properties	– significantly higher service life expectancy – very good temperature resistance – improved damping of vibrations – good damping, medium flexibility – suitable for all hub materials	– good damping, medium flexibility – suitable for all hub materials

Spider type (Shore hardness)	98 Shore A (T-PUR®)	98 Shore A
	 T-PUR®	
Size	14 to 180	14 to 90
Material	T-PUR®	Polyurethane (PUR)
Permissible temperature range Permanent temperature Short-term temperature	 -40 °C to +120 °C -40 °C to +150 °C	 -30 °C to +90 °C -40 °C to +120 °C
Properties	– significantly higher service life expectancy – very good temperature resistance – improved damping of vibrations – transmission of high torques with medium damping – recommended hub material: steel, GJL and GJS	– transmission of high torques with medium damping – recommended hub material: steel, GJL and GJS

Spider type (Shore hardness)	64 Shore D (T-PUR®)
	 T-PUR®
Size	14 to 180
Material	T-PUR®
Permissible temperature range Permanent temperature Short-term temperature	 -40 °C to +120 °C -40 °C to +150 °C
Properties	– significantly higher service life expectancy – very good temperature resistance – improved damping of vibrations – transmission of very high torques with low damping – recommended hub material: steel and GJS

Technical data of standard spiders

92 Shore A spider made of T-PUR® and PUR

ROTEX® size	Torsion angle ϕ with		Torque [Nm]				Damping power P_{KW} [W] 3)	Relative damping ψ	Resonance factor V_R	Torsion spring stiffness C dyn. [Nm/rad]			
			DIN 740 1)			$T_{K\,max}$ 2)							
	T_{KN}	$T_{K\,max}$	Rated T_{KN}	Max. $T_{K\,max}$	Vibratory T_{KW}					1.0 T_{KN}	0.75 T_{KN}	0.5 T_{KN}	0.25 T_{KN}
14	6.4°	10°	7.5	15	2.0	22.5	–			0.38x10³	0.31x10³	0.24x10³	0.14x10³
19			10	20	2.6	30	4.8			1.28x10³	1.05x10³	0.8x10³	0.47x10³
24			35	70	9.1	105	6.6			4.86x10³	3.98x10³	3.01x10³	1.79x10³
28			95	190	25	285	8.4			10.9x10³	8.94x10³	6.76x10³	4.01x10³
38			190	380	49	570	10.2			21.05x10³	17.26x10³	13.05x10³	7.74x10³
42			265	530	69	795	12.0			23.74x10³	19.47x10³	14.72x10³	8.73x10³
48			310	620	81	930	13.8			36.7x10³	30.09x10³	22.75x10³	13.49x10³
55			410	820	107	1230	15.6			50.7x10³	41.59x10³	31.45x10³	18.64x10³
65	3.2°	5°	625	1250	163	1875	18.0	0.80	7.90	97.1x10³	79.65x10³	60.2x10³	35.7x10³
75			1280	2560	333	3840	21.6			113.3x10³	92.9x10³	70.3x10³	41.65x10³
90			2400	4800	624	7200	30.0			190.1x10³	155.9x10³	117.9x10³	69.9x10³
100			3300	6600	858	9900	36.0			253.1x10³	207.5x10³	156.9x10³	93x10³
110			4800	9600	1248	14400	42.0			415.5x10³	336.9x10³	257.6x10³	177.4x10³
125			6650	13300	1729	19950	48.0			647.7x10³	537.3x10³	412.2x10³	277.5x10³
140			8550	17100	2223	25650	54.6			813.4x10³	670.2x10³	519.7x10³	351.7x10³
160			12800	25600	3328	38400	75.0			1298x10³	1104x10³	901.9x10³	655.7x10³
180			18650	37300	4849	55950	78.0			2327x10³	1981x10³	1618x10³	1176x10³

98 Shore A spider made of T-PUR® and PUR

ROTEX® size	Torsion angle ϕ with		Torque [Nm]				Damping power P_{KW} [W] 3)	Relative damping ψ	Resonance factor V_R	Torsion spring stiffness C dyn. [Nm/rad]			
			DIN 740 1)			$T_{K\,max}$ 2)							
	T_{KN}	$T_{K\,max}$	Rated T_{KN}	Max. $T_{K\,max}$	Vibratory T_{KW}					1.0 T_{KN}	0.75 T_{KN}	0.5 T_{KN}	0.25 T_{KN}
14	6.4°	10°	12.5	25	3.3	37.5	–			0.56x10³	0.46x10³	0.35x10³	0.21x10³
19			17	34	4.4	51	4.8			2.92x10³	2.39x10³	1.81x10³	1.07x10³
24			60	120	16	180	6.6			9.93x10³	8.14x10³	6.16x10³	3.65x10³
28			160	320	42	480	8.4			26.77x10³	21.95x10³	16.6x10³	9.84x10³
38			325	650	85	975	10.2			48.57x10³	39.83x10³	30.11x10³	17.85x10³
42			450	900	117	1350	12.0			54.5x10³	44.69x10³	33.79x10³	20.03x10³
48			525	1050	137	1575	13.8			65.3x10³	53.54x10³	40.48x10³	24x10³
55			685	1370	178	2055	15.6			95x10³	77.9x10³	58.88x10³	34.9x10³
65	3.2°	5°	940	1880	244	2820	18.0	0.80	7.90	129.5x10³	106.2x10³	80.3x10³	47.6x10³
75			1920	3840	499	5760	21.6			197.5x10³	162x10³	122.5x10³	72.6x10³
90			3600	7200	936	10800	30.0			312.2x10³	256x10³	193.6x10³	114.7x10³
100			4950	9900	1287	14850	36.0			383.3x10³	314.3x10³	237.6x10³	140.9x10³
110			7200	14400	1872	21600	42.0			805.9x10³	663.1x10³	515.3x10³	360.5x10³
125			10000	20000	2600	30000	48.0			1207x10³	1003x10³	787.6x10³	552.5x10³
140			12800	25600	3328	38400	54.6			1549x10³	1283x10³	979.8x10³	674.1x10³
160			19200	38400	4992	57600	75.0			2481x10³	2137x10³	1781x10³	1275x10³
180			28000	56000	7280	84000	78.0			4220x10³	3635x10³	3031x10³	2170x10³

64 Shore D spider made of T-PUR®

ROTEX® size	Torsion angle ϕ with		Torque [Nm]				Damping power P_{KW} [W] 3)	Relative damping ψ	Resonance factor V_R	Torsion spring stiffness C dyn. [Nm/rad]			
			DIN 740 1)			$T_{K\,max}$ 2)							
	T_{KN}	$T_{K\,max}$	Rated T_{KN}	Max. $T_{K\,max}$	Vibratory T_{KW}					1.0 T_{KN}	0.75 T_{KN}	0.5 T_{KN}	0.25 T_{KN}
14	4.5°	7.0°	16	32	4.2	48	9.0			0.76x10³	0.62x10³	0.47x10³	0.28x10³
19			21	42	5.5	63	7.2			5.35x10³	4.39x10³	3.32x10³	1.97x10³
24			75	150	19.5	225	9.9			15.11x10³	12.39x10³	9.37x10³	5.55x10³
28			200	400	52	600	12.6			27.52x10³	22.57x10³	17.06x10³	10.12x10³
38			405	810	105	1215	15.3			70.15x10³	57.52x10³	43.49x10³	25.78x10³
42			560	1120	146	1680	18.0			79.9x10³	65.5x10³	49.52x10³	29.35x10³
48			655	1310	170	1965	20.7			95.5x10³	78.3x10³	59.22x10³	35.1x10³
55			825	1650	215	2475	23.4			107.9x10³	88.5x10³	66.9x10³	39.66x10³
65	2.5°	3.6°	1175	2350	306	3525	27.0	0.75	8.50	151.1x10³	123.9x10³	93.7x10³	55.53x10³
75			2400	4800	624	7200	32.4			248.2x10³	203.5x10³	153.9x10³	91.2x10³
90			4500	9000	1170	13500	45.0			674.5x10³	553.1x10³	418.2x10³	247.9x10³
100			6185	12370	1608	18555	54.0			861.2x10³	706.2x10³	533.9x10³	316.5x10³
110			9000	18000	2340	27000	63.0			1230x10³	1001x10³	773.1x10³	531.4x10³
125			12500	25000	3250	37500	72.0			1749x10³	1436x10³	1149x10³	832.1x10³
140			16000	32000	4160	48000	81.9			2312x10³	1929x10³	1521x10³	1082x10³
160			24000	48000	6240	72000	112.5			3415x10³	2961x10³	2471x10³	1830x10³
180			35000	70000	9100	105000	117.0			5670x10³	4917x10³	4103x10³	3038x10³

1) see catalogue page 15
2) ≤ 1000 load cycles
3) with +30 °C

Temperature factor S_t

	-40 °C +30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C
T-PUR®	1.0	1.0	1.2	1.3	1.45	1.6	1.8	2.1	2.5	3.0
PUR	1.0	1.0	1.3	1.4	1.55	1.8	2.2	–	–	–

With temperatures below -40 °C consult with KTR.
Unless the Shore hardness of spider is explicitly specified in your order, we will supply spiders with Shore hardness 92 Shore A T-PUR®.
For circumferential speeds exceeding v = 30 m/s dynamic balancing is required. For circumferential speeds exceeding v = 35 m/s only steel or nodular iron.

Technical data and properties of special spiders

		
Description	PA	PEEK
Material	Polyamide	Polyetheretherketone
Permissible temperature range Permanent temperature Short-term temperature	 -40 °C to +100 °C [1] -40 °C to +120 °C [1]	 up to +180 °C up to +250 °C
Properties	– small twisting angle and high torsion spring stiffness – transmission of very high torques with very low damping – good resistance to chemicals [1] – recommended hub material: steel – high restoring forces with displacements	– small twisting angle and high torsion spring stiffness – transmission of very high torques with very low damping – highly temperature-resistant, resistant to hydrolysis – good resistance to chemicals – recommended hub material: steel – high restoring forces with displacements

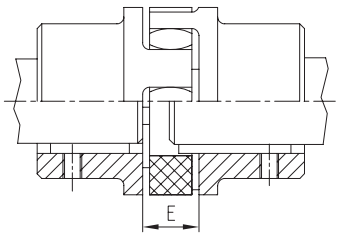
[1] different properties depending on compound

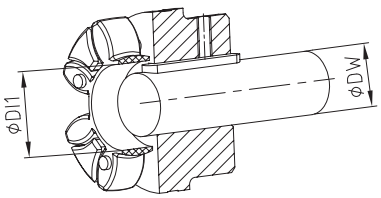
Torques			
ROTEX® size	PA, PEEK		
	T_{KN} [Nm]	$T_{K\,max}$ [Nm]	T_{KW} [Nm]
14	22	44	5.5
19	30	60	8.0
24	105	210	27.5
28	280	560	73
38	565	1130	147
42	785	1570	204
48	915	1830	238
55	1200	2400	312
65	1645	3290	427
75	2560	5130	667
90	6300	12600	1640
100	8650	17300	2250
110	10500	21000	2730
125	13000	26000	3380

Temperature factor S_t										
	-40 °C +30 °C	+40 °C	+50 °C	+60 °C	+70 °C	+80 °C	+90 °C	+100 °C	+110 °C	+120 °C
PA	1.0	1.0	1.0	1.0	1.2	1.4	1.6	–	–	–
PEEK	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

With temperatures below -40 °C consult with KTR.

Installation of spider



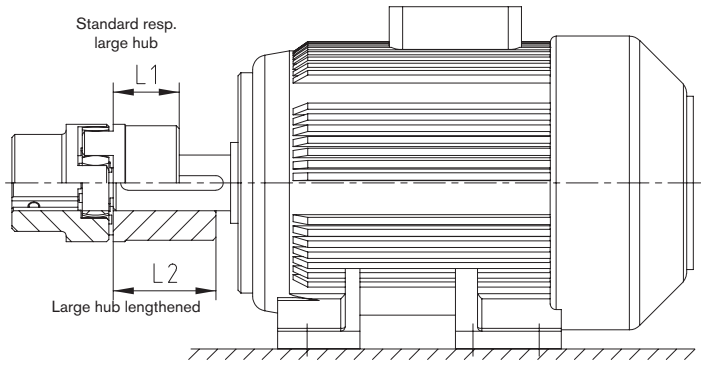


Shaft ØDW with feather key (acc. to DIN 6885 sheet 1) protruding into the spider ØDI1

Mounting dimensions																	
ROTEX® size	14	19	24	28	38	42	48	55	65	75	90	100	110	125	140	160	180
Distance dimension E	13	16	18	20	24	26	28	30	35	40	45	50	55	60	65	75	85
Dimension DI1	10	18	27	30	38	46	51	60	68	80	100	113	127	147	165	190	220
Dimension DW [2]	7	12	20	22	28	36	40	48	55	65	80	95	100	120	135	160	185

[2] If the shaft diameter is smaller than or equal to dimension DI1, one shaft end or both shaft ends may protrude with the feather keyway into the spider.

Selection of standard IEC motors



ROTEX® couplings for standard IEC motors, protection class IP 54/IP 55 (spider 92 Shore A)

A. C. motor 50 Hz														
Size	Shaft end DWxLW [mm]		Motor power n= 3000 rpm 2 poles		ROTEX® coupling size	Motor power n= 1500 rpm 4 poles		ROTEX® coupling size	Motor power n= 1000 rpm 6 poles		ROTEX® coupling size	Motor power n= 750 rpm 8 poles		ROTEX® coupling size
	2 poles	4, 6, 8 poles	Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]	
56	9 x 20		0.09	0.32	9 [1]	0.06	0.43	9 [1]	0.037	0.43	9 [1]			
			0.12	0.41		0.09	0.64		0.045	0.52				
63	11 x 23		0.18	0.62		0.12	0.88		0.06	0.7				
			0.25	0.86	14	0.18	1.3	14	0.09	1.1	14			
71	14 x 30		0.37	1.3		0.25	1.8		0.18	2		0.09	1.4	14
			0.55	1.9		0.37	2.5		0.25	2.8		0.12	1.8	
80	19 x 40		0.75	2.5		0.55	3.7		0.37	3.9		0.18	2.5	
			1.1	3.7	19	0.75	5.1	19	0.55	5.8	19	0.25	3.5	19
90S	24 x 50		1.5	5		1.1	7.5		0.75	8		0.37	5.3	
90L			2.2	7.4		1.5	10		1.1	12		0.55	7.9	
100L	28 x 60		3	9.8		2.2	15		1.5	15		0.75	11	
					24	3	20	24			24	1.1	16	24
112M			4	13		4	27		2.2	22		1.5	21	
132S	38 x 80		5.5	18		5.5	36		3	30		2.2	30	
			7.5	25	28			28			28			28
132M						7.5	49		4	40		3	40	
									5.5	55				
160M	42 x 110		11	36		11	72		7.5	75		4	54	
			15	49	38			38			38	5.5	74	38
160L			18.5	60		15	98		11	109		7.5	100	
180M	48 x 110		22	71		18.5	121							
180L						22	144	42	15	148	42	11	145	42
200L	55 x 110		30	97	42	30	196		18.5	181		15	198	
			37	120					22	215				
225S	55 x 110	60 x 140				37	240	48				18.5	244	48
225M			45	145		45	292	55	30	293	55	22	290	55
250M	60 x 140	65 x 140	55	177	48	55	356		37	361	65 [2]	30	392	65
280S		75 x 140	75	241	55	75	484	65 [2]	45	438		37	483	65 [2]
280M			90	289		90	581		55	535		45	587	75
315S		80 x 170	110	353		110	707	75	75	727	75	55	712	
315M	65 x 140		132	423	65	132	849		90	873		75	971	
			160	513		160	1030		110	1070		90	1170	90
315L			200	641		200	1290	90	132	1280	90	110	1420	
					75				160	1550		132	1710	
315		85 x 170	250	802		250	1600		200	1930		160	2070	
			315	1010		315	2020		250	2410	100	200	2580	100
			355	1140		355	2280	100						
355	75 x 140	95 x 170	400	1280	90	400	2570		315	3040	110	250	3220	110
			500	1600		500	3210	110	400	3850	125	315	4060	125
			560	1790		560	3580	125	450	4330		355	4570	
400	80 x 170	110 x 210	630	2020		630	4030		500	4810		400	5150	140
			710	2270	100	710	4540		560	5390	140	450	5790	
			800	2560		800	5120	140	630	6060		500	6420	
450	90 x 170	120 x 210	900	2880	110	900	5760		710	6830	160	560	7190	160
			1000	3200		1000	6400	160	800	7690		630	8090	

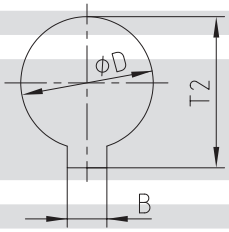
The coupling selection is based on an ambient temperature of up to +30 °C. The selection is based on a minimum safety factor of 2 to the max. coupling torque ($T_{K\ max}$). A detailed selection is possible according to catalogue page 14 et seqq. Drives with periodical torque curves must be selected according to DIN 740 part 2. If requested, KTR will perform the selection. Torque T = rated torque according to Siemens catalogue M 11 · 1994/95.

[1] For dimensions see ROTEX® GS series

[2] For motor hub made of steel see page 40

Cylindrical bores and inch bores

Bore ØD		Width of keyway B		Keyway depth T2	KTR code Inch bore	ROTEX® basic bores, available from stock Hub material aluminium●; hub material steel●; hub material EN-GJL●									
						ROTEX® sizes									
ØD [mm]	ØD [inch]	B [mm]	B [inch]	T2 [mm]		14	19	24	28	38	42	48	55	65	75	90
Ø6 H7 +0.012		2 JS9 ±0.0125		7 +0.1		●										
Ø8 H7 +0.015		2 JS9 ±0.0125		9 +0.1		●●	●●									
Ø9 H7 +0.015		3 JS9 ±0.0125		10.4 +0.1		●●	●									
Ø9.525 +0.0254	3/8	3.175 +0.051	1/8	10.972 +0.381	Tb											
Ø10 H7 +0.015		3 JS9 ±0.0125		11.4 +0.1		●●	●●	●●								
Ø11 H7 +0.018		4 JS9 ±0.015		12.8 +0.1		●●	●●	●								
Ø11.112 +0.0254	7/16	2.382 +0.051	3/32	12.293 +0.381	DNB											
Ø12 H7 +0.018		4 JS9 ±0.015		13.8 +0.1		●●	●●	●●								
Ø12.7 +0.0254	1/2	3.175 +0.051	1/8	14.224 +0.381	Ta		●	●								
Ø12.7 +0.0254	1/2	4.762 +0.051	3/16	14.757 +0.381	T											
Ø13.495 +0.0254	17/32	3.175 +0.051	1/8	15.011 +0.381	DNC											
Ø14 H7 +0.018		5 JS9 ±0.015		16.3 +0.1		●●	●●	●●	●●							
Ø14.287 +0.0254	9/16	3.175 +0.051	1/8	15.824 +0.381	Do											
Ø15 H7 +0.018		5 JS9 ±0.015		17.3 +0.1		●●	●●	●●	●							
Ø15.875 +0.0254	5/8	3.175 +0.051	1/8	17.424 +0.381	E											
Ø15.875 +0.0254	5/8	3.968 +0.051	5/32	17.729 +0.381	Es		●	●	●							
Ø15.875 +0.0254	5/8	4.762 +0.051	3/16	18.008 +0.381	Ed		●	●								
Ø16 H7 +0.018		5 JS9 ±0.015		18.3 +0.1		●●	●●	●●	●●							
Ø17 H7 +0.018		5 JS9 ±0.015		19.3 +0.1			●●	●●	●							
Ø17.462 +0.0254	11/16	4.762 +0.051	3/16	19.634 +0.381	DNH											
Ø18 H7 +0.018		6 JS9 ±0.015		20.8 +0.1			●●	●●	●●	●						
Ø19 H7 +0.021		6 JS9 ±0.015		21.8 +0.1			●●	●●	●●	●						
Ø19.05 +0.0254	3/4	3.175 +0.051	1/8	20.624 +0.381	Ad											
Ø19.05 +0.0254	3/4	4.762 +0.051	3/16	21.259 +0.381	A		●	●	●	●						
Ø20 H7 +0.021		6 JS9 ±0.015		22.8 +0.1			●●	●●	●●	●●	●					
Ø22 H7 +0.021		6 JS9 ±0.015		24.8 +0.1			●	●●	●●	●	●					
Ø22.225 +0.0254	7/8	4.762 +0.051	3/16	24.485 +0.381	G		●	●	●	●	●					
Ø22.225 +0.0254	7/8	6.35 +0.051	1/4	25.069 +0.381	F			●	●	●	●					
Ø23.812 +0.0254	15/16	6.35 +0.051	1/4	26.695 +0.381	Gf											
Ø24 H7 +0.021		8 JS9 ±0.018		27.3 +0.2			●●	●●	●●	●●	●					
Ø25 H7 +0.021		8 JS9 ±0.018		28.3 +0.2			●	●●	●●	●●	●●	●	●			
Ø25.4 +0.0254	1	4.762 +0.051	3/16	27.686 +0.381	H											
Ø25.4 +0.0254	1	6.35 +0.051	1/4	28.295 +0.381	Hs			●	●	●	●					
Ø26.987 +0.0254	1 1/16	4.762 +0.051	3/16	29.286 +0.381	R											
Ø28 H7 +0.021		8 JS9 ±0.018		31.3 +0.2				●●	●●	●●	●●	●				
Ø28.575 +0.0254	1 1/8	6.35 +0.051	1/4	31.521 +0.381	Sb			●	●	●						
Ø28.575 +0.0254	1 1/8	7.937 +0.051	5/16	32.105 +0.381	Sd											
Ø30 H7 +0.021		8 JS9 ±0.018		33.3 +0.2				●	●●	●●	●●	●●	●			
Ø31.75 +0.0254	1 1/4	6.35 +0.051	1/4	34.721 +0.381	Js					●						
Ø31.75 +0.0254	1 1/4	7.937 +0.051	5/16	35.331 +0.381	K				●	●	●	●	●	●		
Ø32 H7 +0.025		10 JS9 ±0.018		35.3 +0.2				●●	●●	●●	●●	●●	●●	●		
Ø34.925 +0.0254	1 3/8	7.937 +0.051	5/16	38.557 +0.381	Ma				●	●						
Ø34.925 +0.0254	1 3/8	9.525 +0.0635	3/8	39.141 +0.381	RH1											
Ø35 H7 +0.025		10 JS9 ±0.018		38.3 +0.2				●●	●●	●●	●●	●●	●●	●		
Ø36.512 +0.0254	1 7/16	9.525 +0.0635	3/8	40.767 +0.381	Cb											
Ø38 H7 +0.025		10 JS9 ±0.018		41.3 +0.2				●●	●●	●●	●●	●●	●●	●	●	
Ø38.1 +0.0254	1 1/2	7.937 +0.051	5/16	41.783 +0.381	Ca											
Ø38.1 +0.0254	1 1/2	9.525 +0.0635	3/8	42.392 +0.381	C					●	●	●	●	●	●	
Ø40 H7 +0.025		12 JS9 ±0.0215		43.3 +0.2					●	●●	●●	●●	●●	●●	●●	
Ø41.275 +0.0254	1 5/8	9.525 +0.0635	3/8	45.618 +0.381	Nb					●	●					
Ø42 H7 +0.025		12 JS9 ±0.0215		45.3 +0.2						●●	●●	●●	●	●●	●	
Ø44.45 +0.0254	1 3/4	9.525 +0.0635	3/8	48.818 +0.381	Ls											
Ø44.45 +0.0254	1 3/4	11.112 +0.0635	7/16	49.428 +0.381	L											
Ø45 H7 +0.025		14 JS9 ±0.0215		48.8 +0.2						●●	●●	●●	●●	●●	●●	
Ø47.625 +0.0254	1 7/8	12.7 +0.0635	1/2	53.238 +0.381	Lu						●					
Ø48 H7 +0.025		14 JS9 ±0.0215		51.8 +0.2						●●	●●	●●	●●	●●	●●	
Ø49.212 +0.0254	1 15/16	12.7 +0.0635	1/2	54.864 +0.381	Da											
Ø50 H7 +0.025		14 JS9 ±0.0215		53.8 +0.2							●●	●●	●●	●●	●●	●
Ø50.8 +0.0254	2	12.7 +0.0635	1/2	56.464 +0.381	Ds											
Ø53.975 +0.0381	2 1/8	12.7 +0.0635	1/2	59.69 +0.381	Pa						●					
Ø55 H7 +0.03		16 JS9 ±0.0215		59.3 +0.2							●●	●●	●●	●●	●●	●
Ø57.15 +0.0381	2 1/4	12.7 +0.0635	1/2	62.915 +0.381	U											
Ø60 H7 +0.03		18 JS9 ±0.0215		64.4 +0.2								●●	●●	●●	●●	●●
Ø60.325 +0.0381	2 3/8	15.875 +0.076	5/8	67.335 +0.381	Ub											
Ø65 H7 +0.03		18 JS9 ±0.0215		69.4 +0.2									●●	●●	●●	●
Ø70 H7 +0.03		20 JS9 ±0.026		74.9 +0.2									●	●●	●●	●●
Ø75 H7 +0.03		20 JS9 ±0.026		79.9 +0.2									●	●●	●●	●●
Ø80 H7 +0.03		22 JS9 ±0.026		85.4 +0.2										●	●●	●●
Ø85 H7 +0.035		22 JS9 ±0.026		90.4 +0.2											●	●
Ø85.725 +0.0381	3 3/8	22.225 +0.076	7/8	95.504 +0.381	Wd											
Ø90 H7 +0.035		25 JS9 ±0.026		95.4 +0.2											●	●●
Ø92.075 +0.0381	3 5/8	22.225 +0.076	7/8	101.955 +0.381	Wf											
Ø100 H7 +0.035		28 JS9 ±0.026		106.4 +0.2												●



Spline bores

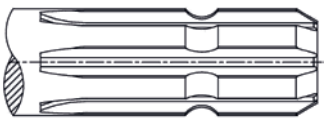
Basic programme of SAE involute splines											
Spline code	Size	Pitch circle	pitch	No. of teeth	Angle	Spline code	Size	Pitch circle	pitch	No. of teeth	Angle
PH-S	5/8"	14.28	16/32	9	30°	**PS-S**	1 1/2"	35.98	12/24	17	30°
PI-S	3/4"	17.46	16/32	11	30°	**PD-S**	1 1/2"	36.51	16/32	23	30°
PB-S	7/8"	20.63	16/32	13	30°	**PE-S**	1 3/4"	42.86	16/32	27	30°
PB-BS	1"	23.81	16/32	15	30°	**PK-S**	1 3/4"	41.275	8/16	13	30°
PJ	1 1/8"	26.98	16/32	17	30°	**PT-C** [1]	2"	47.625	8/16	15	30°
PC-S	1 1/4"	29.63	12/24	14	30°	**PQ-C** [1]	2 1/4"	53.975	8/16	17	30°
PA-S	1 3/8"	33.33	16/32	21	30°						

Basic programme of spline bores acc. to DIN 5482									
Size	Pitch circle	Module	No. of teeth	Profile correction	Size	Pitch circle	Module	No. of teeth	Profile correction
A 17 x 14	14.40	1.6	9	+0.600 [2]	**A 35 x 31**	31.50	1.75	18	+0.676
A 20 x 17	19.20	1.6	12	-0.200	**A 40 x 36**	38.00	1.9	20	+0.049
A 25 x 22	22.40	1.6	14	+0.550	**A 45 x 41**	44.00	2	22	+0.181
A 28 x 25	26.25	1.75	15	+0.302	**A 50 x 45**	48.00	2	24	+0.181
A 30 x 27	28.00	1.75	16	+0.327					

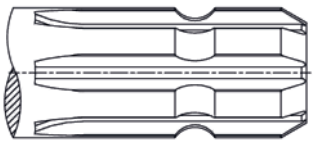
Basic programme of spline bores acc. to DIN 5480							
Spline code	Pitch circle	Module	No. of teeth	Spline code	Pitch circle	Module	No. of teeth
20 x 1 x 18 x 8H	18.0	1	18	**40 x 2 x 18 x 8H**	36.0	2	18
20 x 1.25 x 14 x 8H	17.5	1.25	14	**45 x 2 x 21 x 8H**	41.0	2	21
25 x 1.25 x 18 x 8H	22.5	1.25	18	**48 x 2 x 22 x 9H**	44.0	2	22
28 x 1.25 x 21 x 8H	26.25	1.25	21	**50 x 2 x 24 x 8H**	48.0	2	24
30 x 2 x 14 x 8H	26.0	2	14	**60 x 2 x 28 x 8H**	56.0	2	28
32 x 2 x 14 x 8H	28.0	2	14	**75 x 3 x 24 x 8H**	72.0	3	24
35 x 2 x 16 x 8H	32.0	2	16	**80 x 3 x 25 x 8H**	75.0	3	25

Basic programme of spline bores acc. to DIN 9611 - ISO 500 (p.t.o. shaft connection)				
Size	Width of keyway	No. of teeth	Tip circle	Root circle
1 3/8"	8.69	6	34.93	29.65
1 3/8"	–	21	34.95	34.80 [3]
1 3/4"	11.07	6	44.45	37.74
1 3/4"	–	20	45.20	40.20

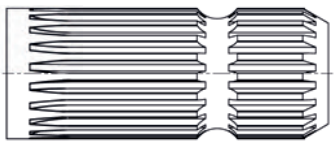
1 3⁄8", 6 teeth



1 3⁄4", 6 teeth



1 3⁄4 ", 20 teeth



Spline clamping hubs are often adapted to the shafts of hydraulic pump/hydraulic motor shafts. Please contact us for the respective hub length of the spline code!

[1] For clamping hubs only, with plug-in hubs use code PT or PQ.

[2] Profile correction different from DIN

[3] Similar to code PA-S

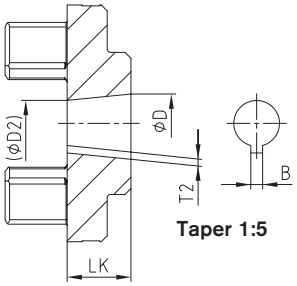
Taper bores

Basic programme taper 1:8					
Code	$D^{+0.05}$	(D2)	B^{JS9}	$T2^{+0.1}$	LK
N/1	9.7	7.575	$2.4^{+0.05}$	10.85	17.0
N/1c	11.6	9.5375	3^{JS9}	12.90	16.5
N/1e	13.0	10.375	$2.4^{+0.05}$	13.80	21.0
N/1d	14.0	11.813	3^{JS9}	15.50	17.5
N/1b	14.3	11.8625	$3.2^{+0.05}$	15.65	19.5
N/2	17.287	14.287	$3.2^{+0.05}$	18.24	24.0
N/2a	17.287	14.287	4^{JS9}	18.94	24.0
N/2b	17.287	14.287	3^{JS9}	18.34	24.0
N/3	22.002	18.502	4^{JS9}	23.40	28.0
N/4	25.463	20.963	$4.78^{+0.05}$	27.83	36.0
N/4b	25.463	20.963	5^{JS9}	28.23	36.0
N/4a	27.0	22.9375	$4.78^{+0.05}$	28.80	32.5
N/4g	28.45	23.6375	6^{JS9}	29.32	38.5
N/5	33.176	27.676	$6.38^{+0.05}$	35.39	44.0
N/5a	33.176	27.676	7^{JS9}	35.39	44.0

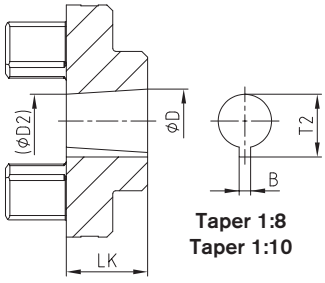
With code N/6 and N/6a keyway in parallel with taper.

Basic programme of taper 1:10					
Code	$D^{+0.05}$	(D2)	B^{JS9}	$T2^{+0.1}$	LK
CX	19.95	16.75	5^{JS9}	22.08	32
DX	24.95	20.45	6^{JS9}	26.68	45
EX	29.75	24.75	8^{JS9}	31.88	50

Basic programme taper 1:5					
Code	$D^{+0.05}$	(D2)	B^{JS9}	$T2^{+0.1}$	LK
A-10	9.85	7.55	2^{JS9}	1.0	11.5
B-17	16.85	13.15	3^{JS9}	1.8	18.5
C-20	19.85	15.55	4^{JS9}	2.2	21.5
Cs-22	21.95	17.65	3^{JS9}	1.8	21.5
D-25	24.85	19.55	5^{JS9}	2.9	26.5
E-30	29.85	23.55	6^{JS9}	2.6	31.5
F-35	34.85	27.55	6^{JS9}	2.6	36.5
G-40	39.85	32.85	6^{JS9}	2.6	35.0

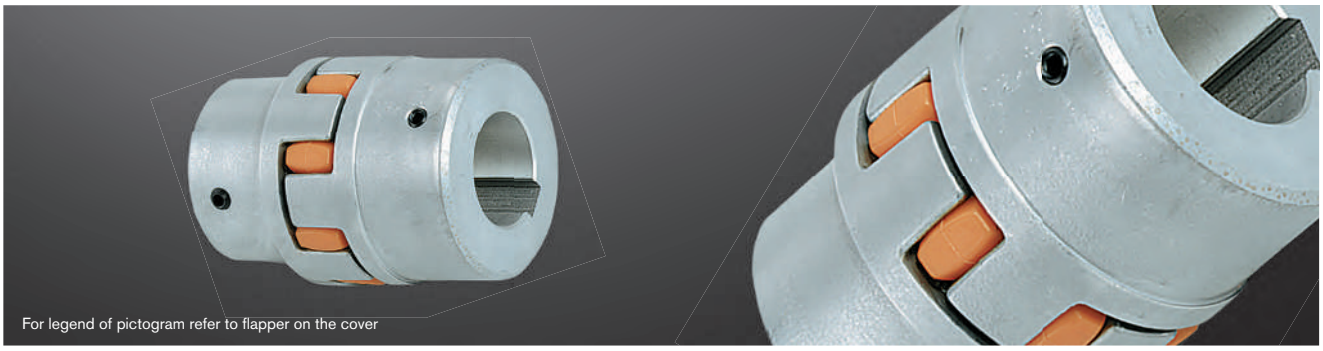


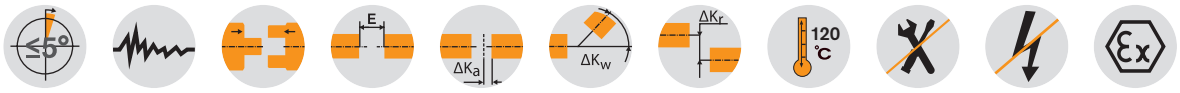
Taper 1:5



Taper 1:8
Taper 1:10

Materials: aluminium + cast + sinter material





ROTEX® Sintered steel (Sint)																		
Size	Compo-nent	Spider [1] (component 2) Rated torque [Nm]			Finish bore D (min. - max.)	Dimensions [mm]												
						General									Setscrew			
		92 ShA	98 ShA	64 ShD		L	L1, L2	E	B1	S	DH	DI1	DN	N	G	T	T_A [Nm]
14	1a	7.5	12.5	—	0-16	35	11	13	10	1.5	30	10	30	–	M4	5	1.5
19	1a	10	17	—	0-25	66	25	16	12	2.0	40	18	40	–	M5	10	2
24	1a	35	60	—	0-35	78	30	18	14	2.0	56	27	56	–	M5	10	2
ROTEX® Aluminium diecast (Al-D)																		
19	1	10	17	—	0-19	66	25	16	12	2	41	18	32	20	M5	10	2
	1a				19-24								41				
24	1	35	60	—	0-24	78	30	18	14	2	56	27	40	24	M5	10	2
	1a				22-28								56				
28	1	95	160	—	0-28	90	35	20	15	2.5	66	30	48	28	M8	15	10
	1a				28-38								66				
ROTEX® Aluminium (Al-H)																		
14	1a	7.5	12.5	16	0-16	35	11	13	10	1.5	30	10.5	-	-	M4	5	1.5
19	1a	10	17	26	0-24	66	25	16	12	2.0	40	18	-	-	M5	10	2
24	1a	35	60	75	0-28	78	30	18	14	2.0	55	27	-	-	M5	10	2
28	1a	95	160	200	0-38	90	35	20	15	2.5	65	30	-	-	M8	15	10
38	1a	190	325	405	0-45	114	45	24	18	3.0	80	38	-	-	M8	15	10
42	1a	265	450	560	0-55	126	50	26	20	3.0	95	46	-	-	M8	20	10
48	1a	310	525	655	0-62	140	56	28	21	3.5	105	51	-	-	M8	20	10

The coupling is provided with a ROTEX® GS spider as a standard (ROTEX® standard spider available, if requested).

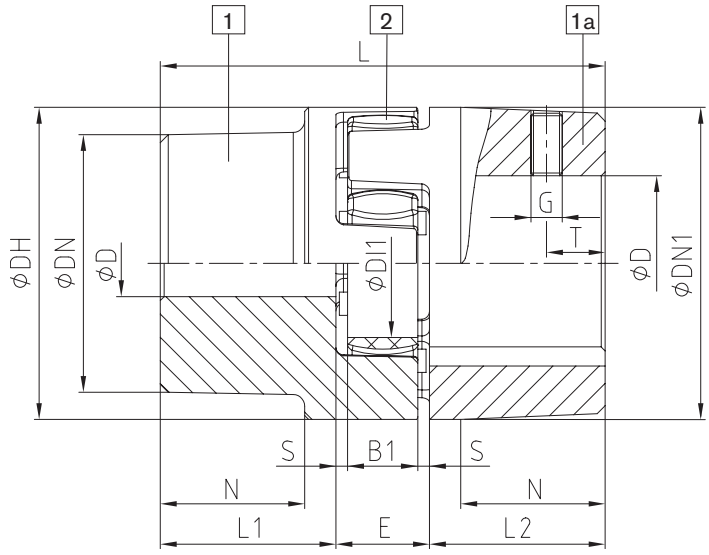
ROTEX® Cast iron (GJL)																	
38	1	190	325	405	12-40	114	45	24	18	3	80	38	66	37	M8	15	10
	1a				38-48								78				
	1b				12-48	164	70							62			
42	1	265	450	560	14-45	126	50	26	20	3	95	46	75	40	M8	20	10
	1a				42-55								94				
	1b				14-55	176	75							65			
48	1	310	525	655	15-52	140	56	28	21	3.5	105	51	85	45	M8	20	10
	1a				48-62								104				
	1b				15-62	188	80							69			
55	1	410	685	825	20-60	160	65	30	22	4	120	60	98	52	M10	20	17
	1a				55-74								118				
65	1	625	940	1175	22-70	185	75	35	26	4.5	135	68	115	61	M10	20	17
75	1	1280	1920	2400	30-80	210	85	40	30	5	160	80	135	69	M10	25	17
90	1	2400	3600	4500	40-100	245	100	45	34	5.5	200	100	160	81	M12	30	40
ROTEX® Nodular iron (GJS)																	
100	1	3300	4950	6185	50-115	270	110	50	38	6	225	113	180	89	M12	30	40
110	1	4800	7200	9000	60-125	295	120	55	42	6.5	255	127	200	96	M16	35	80
125	1	6650	10000	12500	60-145	340	140	60	46	7	290	147	230	112	M16	40	80
140	1	8550	12800	16000	60-160	375	155	65	50	7.5	320	165	255	124	M20	45	140
160	1	12800	19200	24000	80-185	425	175	75	57	9	370	190	290	140	M20	50	140
180	1	18650	28000	35000	85-200	475	195	85	64	10.5	420	220	325	156	M20	50	140

■ =Unless any material is specified in the order, it is defined with the calculation/order.
[1] Maximum torque of the coupling $T_{K\,max}$ = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

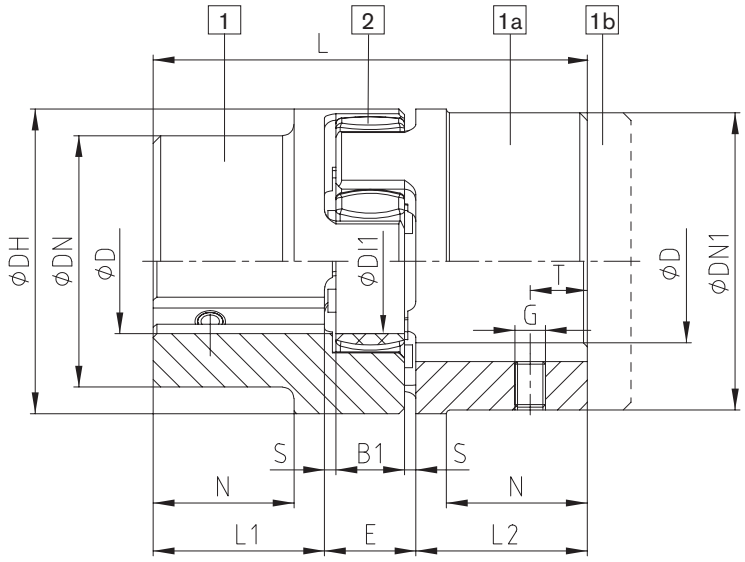
Ordering example:

ROTEX® 38	GJL	92 ShA	1a	Ø45	1	Ø25
Coupling size	Material	Spider hardness	Component	Finish bore	Component	Finish bore

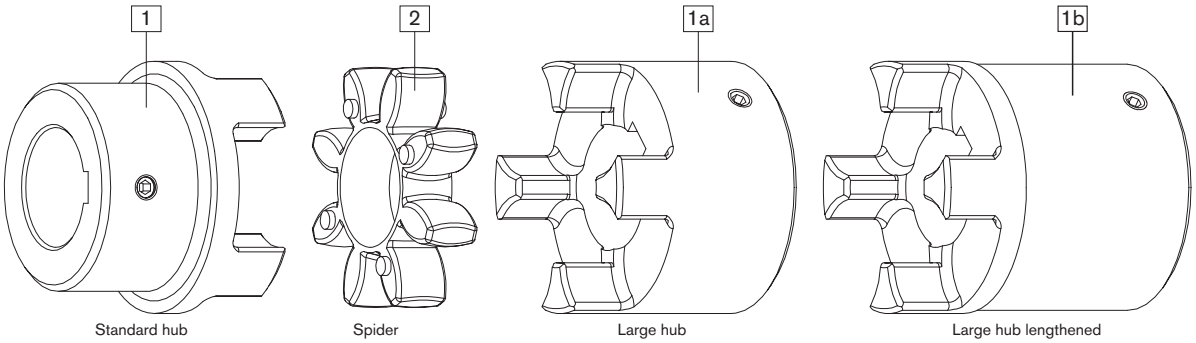
Components



AI-D (thread opposite the keyway)

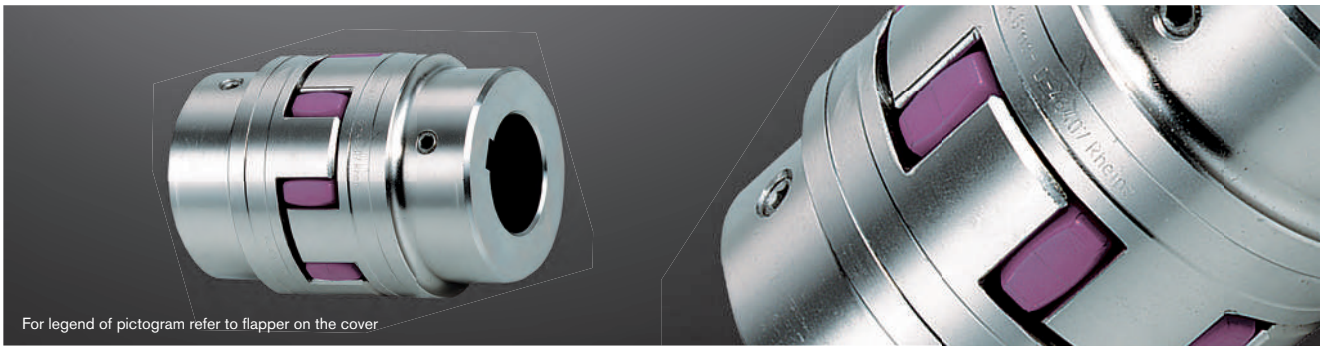


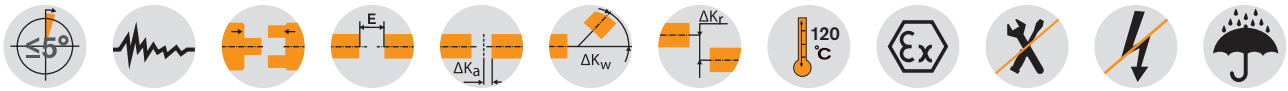
GJL / GJS (thread on the keyway)



ROTEX® Standard
Flexible jaw couplings

Material steel/stainless steel





ROTEX® Steel (St)

Size	Compo-nent	Spider [1] (component 2) Rated torque [Nm]			Finish bore D (min. - max.)	Dimensions [mm]											
						General									Setscrew		
		92 ShA	98 ShA	64 ShD		L	L1, L2	E	B1	S	DH	DI1	DN	N	G	T	T_A [Nm]
14	1a	7.5	12.5	16	0-16	35	11	13	10	1.5	30	10	30	—	M4	5	1.5
	1b					50	18.5										
19	1a	10	17	21	0-25	66	25	16	12	2	40	18	40	—	M5	10	2
	1b					90	37										
24	1a	35	60	75	0-35	78	30	18	14	2	55	27	55	—	M5	10	2
	1b					118	50										
28	1a	95	160	200	0-40	90	35	20	15	2.5	65	30	65	—	M8	15	10
	1b					140	60										
38	1	190	325	405	0-48	114	45	24	18	3	80	38	70	27	M8	15	10
	1b					164	70						80	—			
42	1	265	450	560	0-55	126	50	26	20	3	95	46	85	28	M8	20	10
	1b					176	75						95	—			
48	1	310	525	655	0-62	140	56	28	21	3.5	105	51	95	32	M8	20	10
	1b					188	80						105	—			
55	1	410	685	825	0-75	160	65	30	22	4	120	60	110	37	M10	20	17
	1b					210	90						120	—			
65	1	625	940	1175	0-80	185	75	35	26	4.5	135	68	115	47	M10	20	17
	1b					235	100						135	—			
75	1	1280	1920	2400	0-95	210	85	40	30	5	160	80	135	53	M10	25	17
	1b					260	110						160	—			
90	1	2400	3600	4500	0-110	245	100	45	34	5.5	200	100	160	62	M12	30	40
	1b					295	125						200	—			
100	1	3300	4950	6185	0-115	270	110	50	38	6	225	113	180	89	M12	30	40
110	1	4800	7200	9000	0-125	295	120	55	42	6.5	255	127	200	96	M16	35	80
125	1	6650	10000	12500	60-145	340	140	60	46	7	290	147	230	112	M16	40	80
140	1	8550	12800	16000	60-160	375	155	65	50	7.5	320	165	255	124	M20	45	140
160	1	12800	19200	24000	80-185	425	175	75	57	9	370	190	290	140	M20	50	140
180	1	18650	28000	35000	85-200	475	195	85	64	10.5	420	220	325	156	M20	50	140

■ =Unless any material is specified in the order, it is defined with the calculation/order.
[1] Maximum torque of the coupling $T_{K\,max}$ = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

ROTEX® Stainless steel

Size	Material	Spider (component 2) Rated torque [Nm]			Finish bore D (min. - max.)	Dimensions [mm]											
						General									Setscrew		
		92 ShA	98 ShA	64 ShD		L	L1, L2	E	B1	S	DH	DI1	DN	N	G	T	T_A [Nm]
19	1.4305	10	17	21	0-25	66	25	16	12	2	40	18	40	-	M5	10	2
24	1.4305	35	60	75	0-35	78	30	18	14	2	55	27	55	-	M5	10	2
28	1.4305	95	160	200	0-40	90	35	20	15	2.5	65	30	65	-	M8	15	10
38	1.4305	190	325	405	0-48	114	45	24	18	3	80	38	70	27	M8	15	10
42	1.4305	265	450	560	0-55	126	50	26	20	3	95	46	85	28	M8	20	10
48	1.4305	310	525	655	0-62	140	56	28	21	3.5	105	51	95	32	M8	20	10

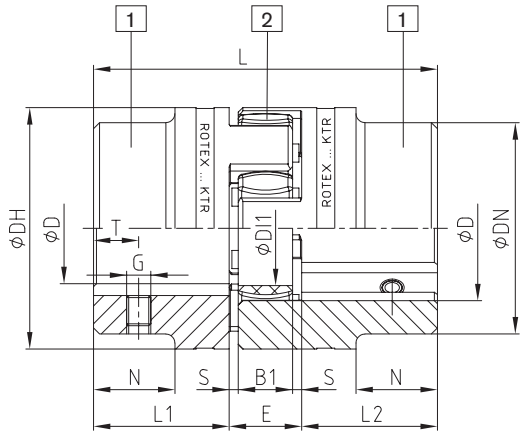
Material 1.4571 on request.

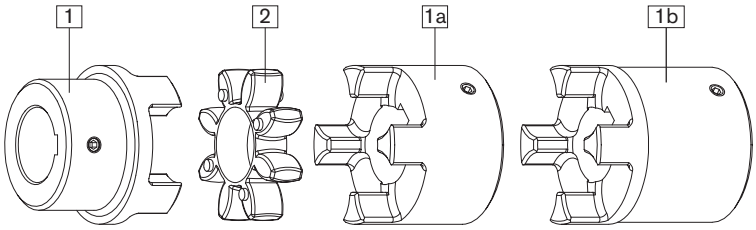
Ordering example:

ROTEX® 38	1.4305	92 ShA	1 - Ø45		1 - Ø25	
Coupling size	Material	Spider hardness	Component	Finish bore	Component	Finish bore

DIN EN 10204 - 3.1 and 3.2 material test certificate

Components





Steel (thread on the keyway)

ROTEX® Coupling hubs with test certificate [1]				
Size	Component	Material [2]	Inspection certificate acc. to DIN EN 10204	Notch impact strength
19	1a	S355 [2]	3.1	>=27 J
24	1a	S355 [2]	3.1	>=27 J
28	1a	S355 [2]	3.1	>=27 J
38	1a	S355 [2]	3.1	>=27 J
42	1	S355 [2]	3.1	>=27 J
48	1	S355 [2]	3.1	>=27 J
55	1	S355 [2]	3.1	>=27 J
65	1	S355 [2]	3.1	>=27 J
75	1	S355 [2]	3.1/3.2	>=27 J
		42CrMoS4+QT [3]		
90	1	S355 [2]	3.1/3.2	>=27 J
		42CrMoS4+QT [3]		
100	1	S355 [2]	3.1/3.2	>=27 J
		42CrMoS4+QT [3]		
110	1	S355 [2]	3.1/3.2	>=27 J
		42CrMoS4+QT [3]		
120	1	S355 [2]	3.1/3.2	>=27 J
		42CrMoS4+QT [3]		
140	1	S355 [2]	3.1/3.2	>=27 J
		42CrMoS4+QT [3]		
160	1	S355 [2]	3.1/3.2	>=27 J
		42CrMoS4+QT [3]		
180	1	S355 [2]	3.1/3.2	>=27 J
		42CrMoS4+QT [3]		

[1] S355 suitable for feather key connections, 42CrMoS4+QT for oil press-fits
[2] Notch impact strength with -40 °C
[3] Notch impact strength with -20 °C

Marine programme:
Hub materials S355J2+N and 42CrMo4+QT acc. to DIN EN 10204 - 3.1+3.2, size 75 - 180 available from stock.

UL

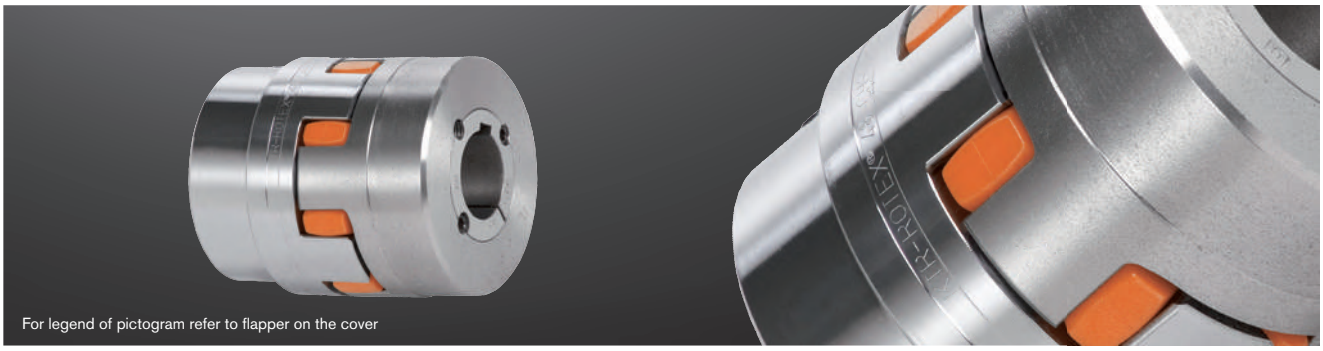
Use in fire pumps
ROTEX® couplings comply with the specifications of NFPA 20 standards for the installation of stationary pumps for fire protection and due to completion of the endurance tests required they also comply with the specifications of UL 448A, flexible couplings and connection shafts for stationary fire pumps.

Sizes available:

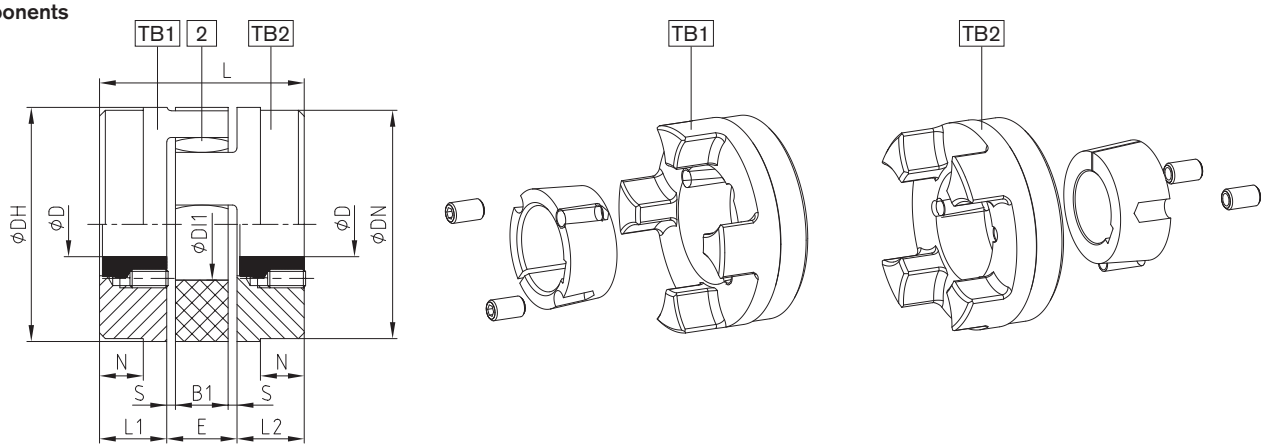
ROTEX® UL Listed								
Size	Compo-nent	Material	Spider (component 2) Rated torque [Nm]	Dimensions [mm]				
			92 ShA	Finish bore D (min. - max.)	L	L1, L2	E	DH
42	1	St	265	18-55	126	50	26	95
55	1	St	410	24-74	160	65	30	120
65	1	St	625	24-80	185	75	35	135
75	1	St	1280	24-95	210	85	40	160
90	1	St	2400	30-110	245	100	45	200

* for complete dimensions see table on page 40

Taper clamping sleeve



Components



ROTEX® Shaft coupling for taper clamping sleeve														
Size	Taper clamping sleeve	Dimensions [mm]									Fastening screws for taper clamping sleeves			
		L1, L2	E	B1	S	L	N	DH	DN	DI1	Size [Inch] [1]	Length [mm]	Number	T_A [Nm]
24	1008	22	18	14	2.0	62	–	55	55	27	1/4"	13	2	5.7
28	1108	23	20	15	2.5	66	–	65	65	30	1/4"	13	2	5.7
38	1108	23	24	18	3.0	70	15	80	78	38	1/4"	13	2	5.7
42	1610	26	26	20	3.0	78	16	95	94	46	3/8"	16	2	20
48	1615	39	28	21	3.5	106	28	105	104	51	3/8"	16	2	20
55	2012	33	30	22	4.0	96	20	120	118	60	7/16"	22	2	31
65	2012	33	35	26	4.5	101	19	135	115	68	7/16"	22	2	31
75	2517	52	40	30	5.0	144	36	160	158	80	1/2"	25	2	49
	• 3020										5/8"	32		92
90	3020	52	45	34	5.5	149	33	200	160	100	5/8"	32	2	92
100	3535	90	50	38	6.0	230	69	225	180	113	1/2"	49	3	113
125	4545	114	60	46	7.0	288	86	290	230	147	3/4"	49	3	192

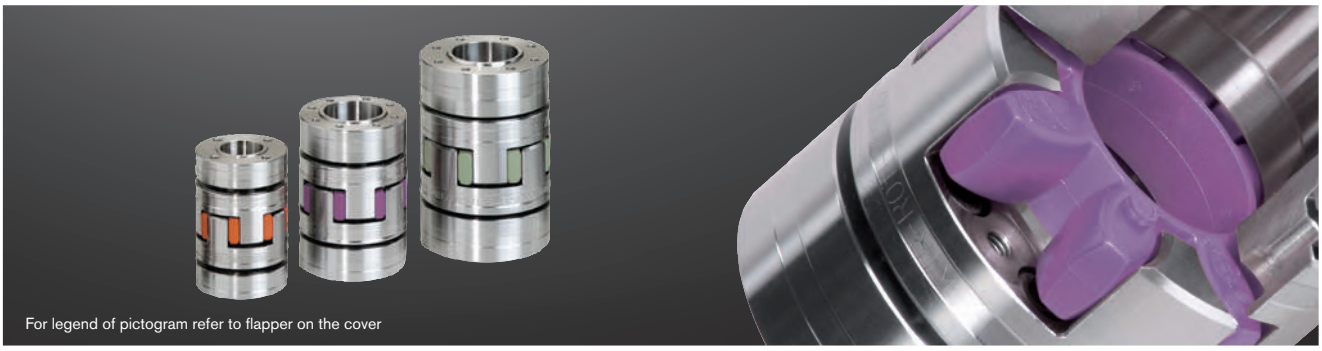
Taper clamping sleeve																			
Size	Summary of bore dimensions D [mm], H7 fit - feather keyway acc. to DIN 6885 sheet 1																		
1008	Ø10	Ø11	Ø12	Ø14	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25								
1108	Ø10	Ø11	Ø12	Ø14	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28 [2]							
1610	Ø14	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42 [2]				
1615	Ø14	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42 [2]				
2012	Ø14	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	
2517	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60
3020	Ø25	Ø28	Ø30	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø75				
3535	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø75	Ø80	Ø85	Ø90				
4545	Ø55	Ø60	Ø65	Ø70	Ø75	Ø80	Ø85	Ø90	Ø95	Ø100	Ø105	Ø110							

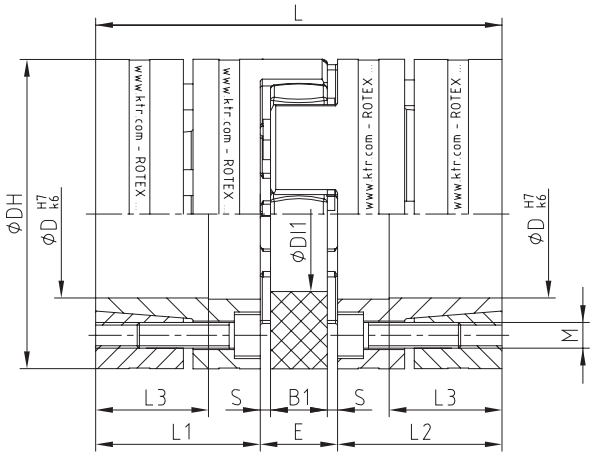
• Available for type TB2 only
[1] 1. BSW thread
Coupling type TB1/TB2, TB1/TB1 and TB2/TB2 possible.
Please order our separate dimension sheet (M373054).
[2] Bores with feather keyway (flat design) acc. to DIN 6885 sheet 3

Ordering example:

ROTEX® 38	92 ShA	1108	TB1 - Ø24		TB2 - Ø22	
Coupling size	Spider hardness	Taper clamping sleeve	Hub type	Finish bore	Hub type	Finish bore

Clamping ring hubs





Extraction thread M1 between clamping screws.

Clamping ring hubs steel

Size	Torques [Nm] 1)				Dimensions [mm]								Clamping screws				Weight per hub with max. bore [kg]	Mass moment of inertia per hub with max. bore [kgm²]
	92 ShA		98 ShA															
	T_{KN}	$T_{K\,max}$	T_{KN}	$T_{K\,max}$	DH 2)	DI1	L	L1, L2	L3	E	B1	S	M	Z = number	T_A [Nm]	M1		
19	10.0	20	17	34	40	18	66	25	18	16	12	2.0	M4	6	4.1	M4	0.179	0.44 x 10^{-4}
24	35.0	70	60	120	55	27	78	30	22	18	14	2.0	M5	4	8.5	M5	0.399	1.91 x 10^{-4}
28	95.0	190	160	320	65	30	90	35	27	20	15	2.5	M5	8	8.5	M5	0.592	4.18 x 10^{-4}
38	190.0	380	325	650	80	38	114	45	35	24	18	3.0	M6	8	14	M6	1.225	12.9 x 10^{-4}
42	265	530	450	900	95	46	126	50	35	26	20	3.0	M8	4	41	M8	2.30	31.7 x 10^{-4}
48	310	620	525	1050	105	51	140	56	41	28	21	3.5	M10	4	69	M10	3.08	52.0 x 10^{-4}
55	375	750	685	1370	120	60	160	65	45	30	22	4.0	M10	4	69	M10	4.67	103.0 x 10^{-4}
65	—	—	940	1880	135	68	185	75	55	35	26	4.5	M12	4	120	M12	6.70	191.0 x 10^{-4}
75	—	—	1920	3840	160	80	210	85	63	40	30	5.0	M12	5	120	M12	9.90	396.8 x 10^{-4}
90	—	—	3600	4500	200	104	245	100	75	45	34	5.5	M16	5	295	M16	17.70	1136 x 10^{-4}

Bore D and the respective transmittable friction torques T_R of clamping ring hub in [Nm] 1)

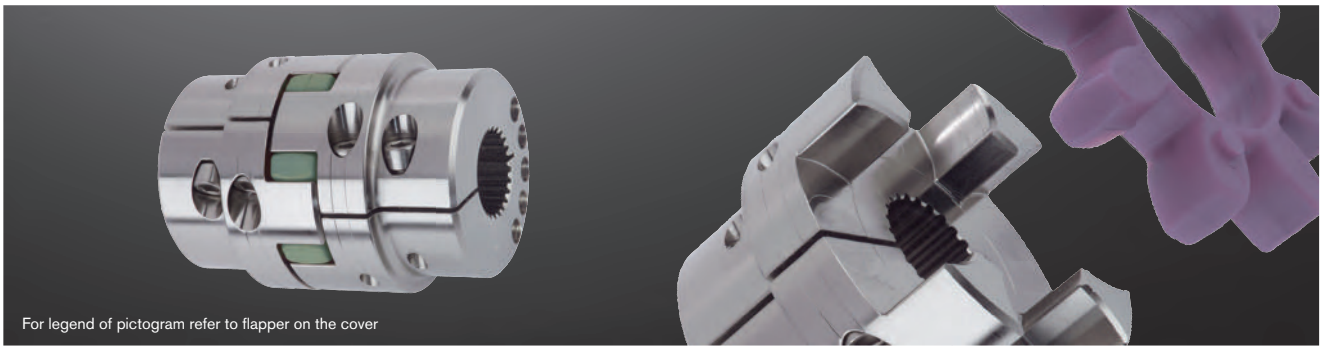
Size	Ø10	Ø11	Ø14	Ø15	Ø16	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55*	Ø60*	Ø65*	Ø70*	Ø80*	Ø90*	Ø95*	Ø100*	Ø105*
19	27	32	69	84	57	94	110																					
24			70	87	56	97	114	116	133	192																		
28				108	131	207	148	253	285	315	382	330	433	503														
38							208	353	395	439	531	463	603	593	689	793	776											
42									445	495	595	526	678	671	775	718	872	1043	1061									
48											616	704	899	896	1030	962	1160	1379	1222	1543								
55													863	856	991	918	1119	1110	1247	1277	1665	1605	2008					
65															1446	1355	1637	1635	1827	1887	2429	2368	2930					
75																1710	2053	2059	2294	2384	3040	2983	3664	4293				
90																			3845	4249	4794	5858	5900	7036	8047	9247	9575	10845

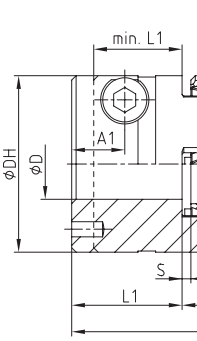
1) For selection see page 14 et seqq.
2) ØDH + 2 mm with high speeds for expansion of spider
The transmittable torques of the clamping connection consider the max. clearance with shaft clearance k6/bore H7, from Ø55 G7/m6. The torque is reduced with bigger clearance. For the strength calculation of shaft/hollow shaft see KTR standard 45510 on our homepage www.ktr.com.

Ordering example:

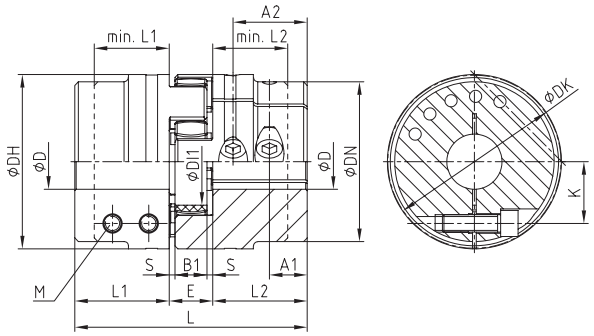
ROTEX® GS 24	98 ShA	6.0 steel	Ø24	6.0 steel	Ø20
Coupling size	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

Clamping hubs





ROTEX® 19 - 28

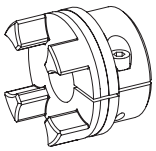


ROTEX® 38 - 90

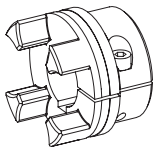
ROTEX® as clamping hubs																
Size	Dimensions [mm]														Screw DIN EN ISO 4762	
	Max. finish bore D	L	L1, L2	min. L1, min. L2	E	B1	S	DH	DN	DI1	DK	A1	A2	K	M	T_A [Nm]
19	20 [1]	66	25	20	16	12	2.0	40	-	18	46.0	12	—	14.5	M6	14
24	28	78	30	25	18	14	2.0	55	-	27	57.5	12	—	20.0	M6	14
28	38	90	35	30	20	15	2.5	65	-	30	73.0	14 [2]	—	25.0	M8	35
38	42	114	45	35	24	18	3.0	80	70	38	77.5	19	—	26.5	M8	35
42	50	126	50	42	26	20	3.0	95	85	46	93.5	18 [2]	—	32.0	M10	69
48	55	140	56	46	28	21	3.5	105	95	51	105.0	21 [2]	—	36.0	M12	120
55	68	160	65	50	30	22	4.0	120	110	60	119.5	26	51 [2]	42.5 [3]	M12	120
65	70	185	75	55	35	26	4.5	135	115	68	132.5	33	61 [2]	50.0 [3]	M12	120
75	80	210	85	65	40	30	5.0	160	135	80	158.0	36	68 [2]	57.0 [3]	M16	295
90	90	245	100	80	45	34	5.5	200	160	100	197.0	40	80 [2]	72.0 [3]	M20	580

Bore D and the respective transmittable friction torques T_R [Nm] of ROTEX® clamping hubs type 2.0																														
Size	Ø8	Ø10	Ø11	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø75	Ø80	Ø85	Ø90
19	44	46	47	51	52	53	55	57	58																					
24		59	60	64	65	66	68	70	71	73	76	77	80																	
28				139	141	144	148	150	152	157	161	163	170	174	178	185	191													
38					163	165	170	172	174	178	183	185	192	196	200	207	213	217	222											
42									291	297	304	308	318	325	332	342	353	360	367	377	387	394								
48									466	476	486	491	506	516	526	542	557	567	577	592	607	618	643							
55															1185	1215	1245	1266	1286	1316	1347	1367	1417	1468	1519					
65																1316	1347	1367	1387	1417	1448	1468	1519	1569	1620	1671				
75																			2869	2926	2983	3022	3117	3213	3309	3404	3500	3595		
90																			5220	5310	5400	5460	5610	5760	5910	6060	6210	6360	6510	6660

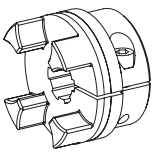
[1] With type 2.1 $D_{max.}$ Ø17 mm
[2] With reduced hubs dimension A1 varies resp. the number of screws changes from 2-off to 1-off
[3] A1 and A2 have a different dimension K



Type 2.0
Clamping hub single slot without feather keyway



Type 2.1
Clamping hub single slot with feather keyway

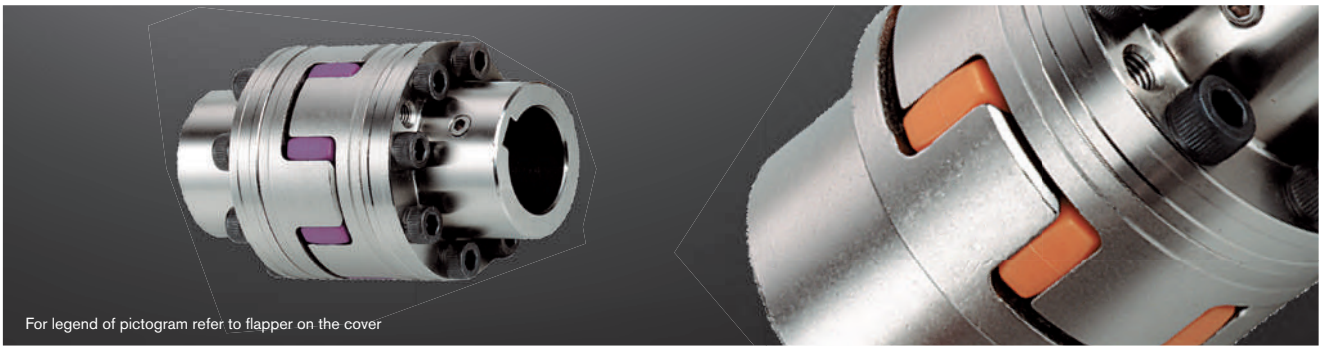


Type 2.3
Clamping hub with spline bore (For a selection of our programme of spline bores see page 37)

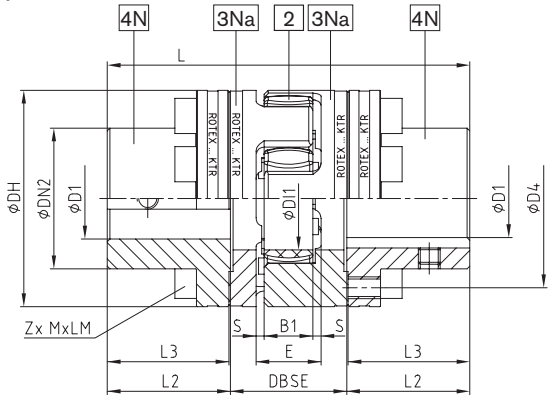
Ordering example:

ROTEX® 24	98 ShA	2.1	Ø24	2.0	Ø20
Coupling size	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

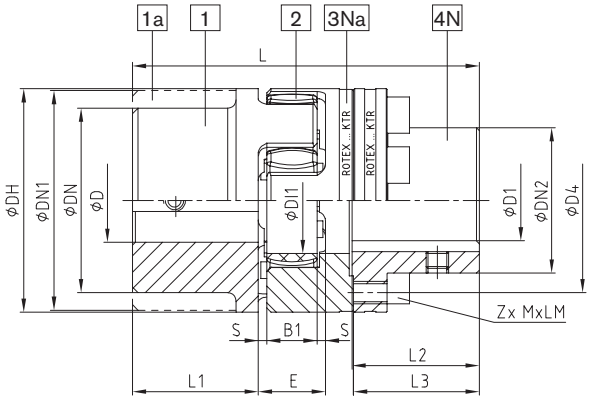
Flange programme



Components



Type AFN



Type BFN

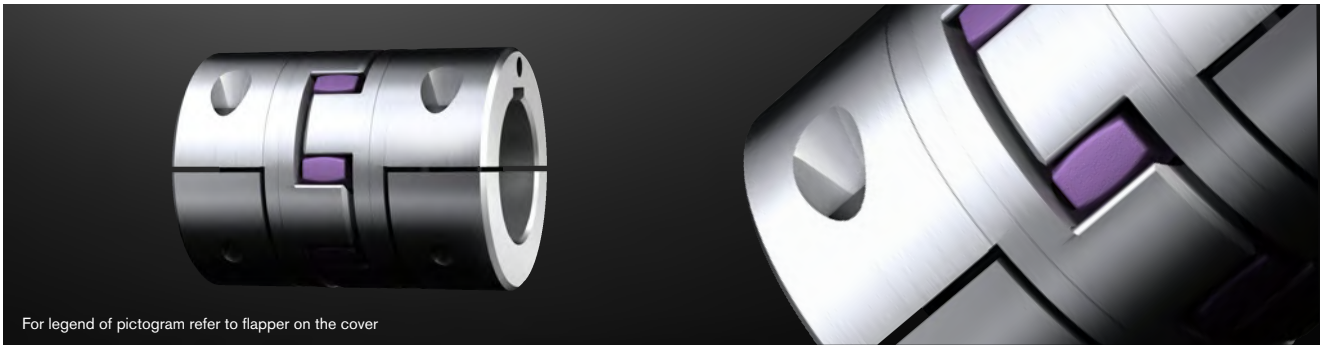
ROTEX® Type AFN and BFN																		
Size	Pilot bore D	Dimensions [mm]												Cap screws [3] DIN EN ISO 4762 - 12.9			
		Component 4N max. finish bore D1	DH	DN2	D4	DI1	DBSE	L1, L2	E	B1	S	L3	L AFN	L BFN	MxLM	Z	pitch [2]	T_A [1] [Nm]
24		24	55	36	45	27	33	30	18	15	2.0	30.5	94	86	M5x16	8		10
28		28	65	42	54	30	39	35	20	15	2.5	35.5	110	100	M6x20	8	8x45°	17
38	Jaw coupling: page 38 to 40 Stock programme: page 36 and 37	38	80	52	66	38	43	45	24	18	3.0	45.5	134	124	M8x22	8		41
42		44	95	62	80	46	48	50	26	20	3.0	51.0	150	138	M8x25	12	16x22.5°	41
48		50	105	70	90	51	50	56	28	21	3.5	57.0	164	152	M8x25	12		41
55		60	120	80	102	60	60	65	30	22	4.0	66.0	192	176	M10x30	8	8x45°	83
65		70	135	94	116	68	65	75	35	26	4.5	76.0	217	201	M10x30	12	16x22.5°	83
75		80	160	108	136	80	75	85	40	30	5.0	86.5	248	229	M12x40	15		120
90		105	200	142	172	100	82	100	45	34	5.5	101.5	285	265	M16x40	15		295
100		115	225	158	195	113	97	110	50	38	6.0	111.5	320	295	M16x50	15		295
110		130	255	178	218	127	103	120	55	42	6.5	122.0	347	321	M20x50	15	20x18°	580
125		150	290	206	252	147	116	140	60	46	7.0	142.0	400	370	M20x60	15		580
140		170	320	235	282	165	128	155	65	50	7.5	157.5	443	409	M20x60	15		580
160		200	370	270	325	190	146	175	75	57	9.0	177.5	501	463	M24x70	15		1000
180		230	420	315	375	220	159	195	85	64	10.5	198.0	555	515	M24x80	18	24x15°	1000

[1] Screw tightening torque T_A [Nm].
[2] Thread in the driving flange between the cams.
[3] Coupling is delivered not assembled.

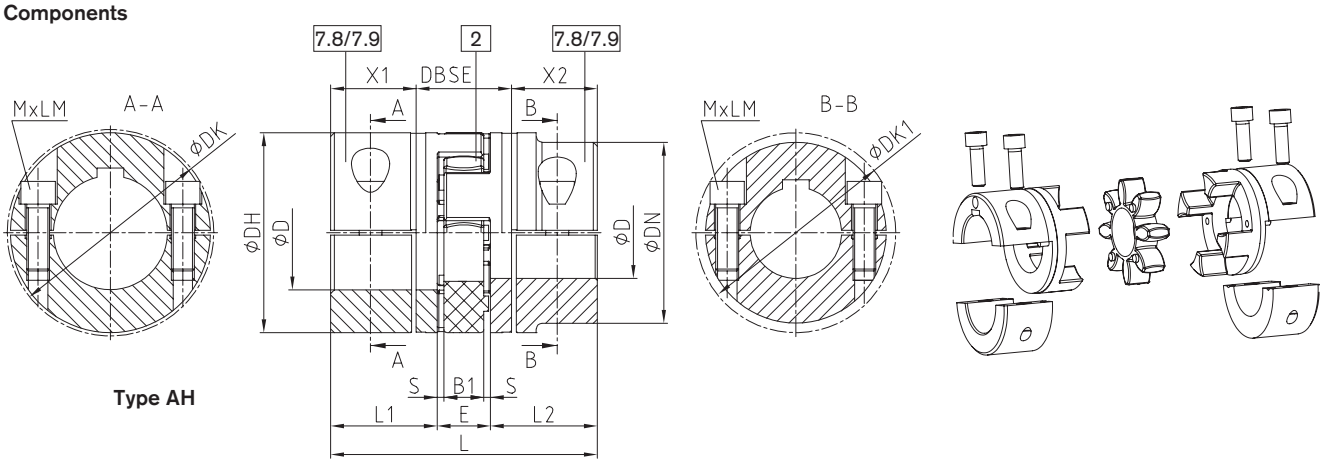
Ordering example:

ROTEX® 24	AFN	92 ShA	4N	Ø38	4N	Ø35
Coupling size	Type	Spider hardness	Component	Finish bore	Component	Finish bore

Drop-out center design coupling



Components



Type AH

ROTEX® Type AH														
Size	Dimensions [mm]												Cap screws DIN EN ISO 4762	
	Max. finish bore D	L	L1, L2	E	B1	S	DH	DN	DK	DK1	X1, X2	DBSE	MxLM	Tightening torque T_A [Nm]
19	20	66	25	16	12	2.0	40	—	46.0	—	17.5	31	M6x16	14
24	28	78	30	18	14	2.0	55	—	57.5	—	22.5	33	M6x20	14
28	38	90	35	20	15	2.5	65	—	73.0	—	25.5	39	M8x25	35
38	45	114	45	24	18	3.0	80	—	83.5	—	35.5	43	M8x30	35
42	50	126	50	26	20	3.0	95	85	—	93.5	39.0	48	M10x30	69
	55							—	97.0	—			M10x35	
48	55	140	56	28	21	3.5	105	95	—	105.0	45.0	50	M12x35	120
	60							—	108.5	—			M12x40	
55	65	160	65	30	22	4.0	120	110	—	119.5	50.0	60	M12x40	120
	70							—	122.0	—			M12x45	
65	70	185	75	35	26	4.5	135	115	—	123.5	60.0	65	M12x40	120
	80							—	132.5	—			M12x45	
75	80	210	85	40	30	5.0	160	135	—	147.5	67.5	75	M16x50	295
	90							—	158.0	—				
90	90	245	100	45	34	5.5	200	160	—	176.0	81.5	82	M20x60	580
	110							—	197.0	—				
100 [1]	110	270	110	50	38	6.0	225	180	—	185.5	84.0	102	M16x50	295
110 [1]	120	295	120	55	42	6.5	255	200	—	208.0	90.0	115	M20x60	580
125 [1]	140	340	140	60	46	7.0	290	230	—	242.5	105.0	130	M24x70	1000

CAUTION:
With maximum bore the feather keyways are offset to each other by approx. 5°!
Hub material up to size 90: steel, from size 100: GJS

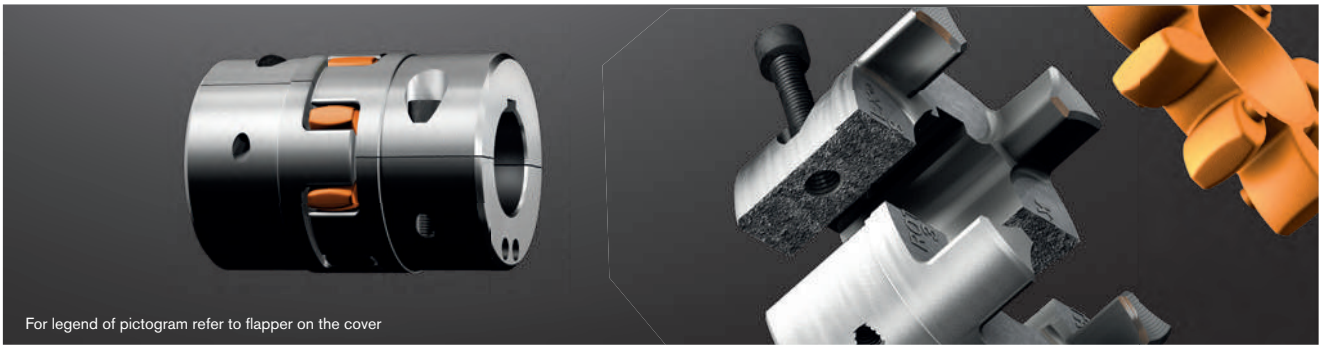
7.8 = Half shell clamping hub without feather keyway max. circumferential speed of v = 35 m/s.
From a circumferential speed of v = 25 m/s dynamic balancing is necessary; from a circumferential speed of v = 25 m/s the frictional torque of shaft/hub has to be reviewed. Please consult with KTR.
7.9 = Half shell clamping hub with feather keyway max. circumferential speed of v = 35 m/s. From a circumferential speed of v = 25 m/s dynamic balancing is required.

Speed: max. circumferential speed of 25 m/s on the outside diameter DH of the coupling
[1] From size 100: 4 clamping screws for each clamping hub

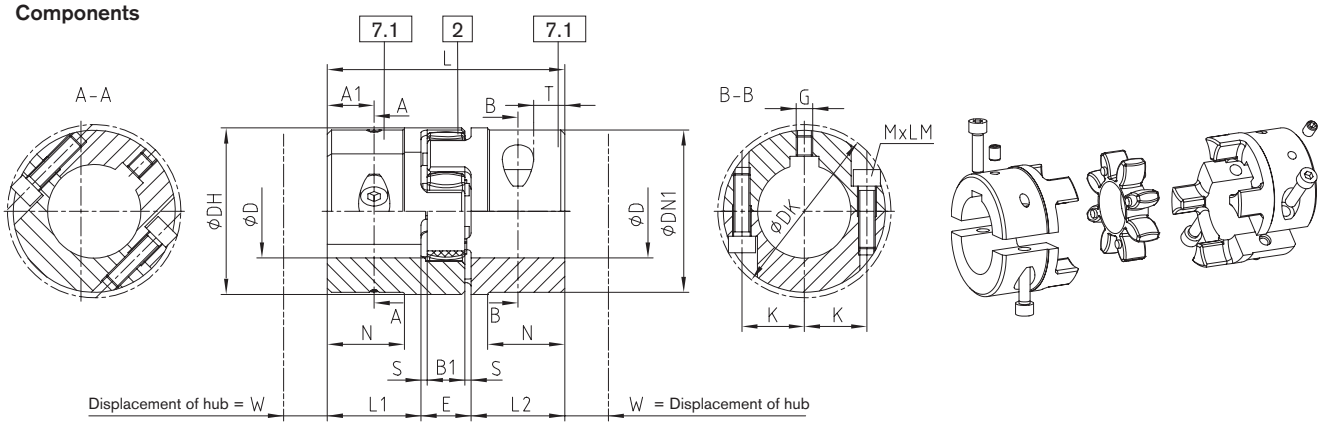
Ordering example:

ROTEX® 38	AH	98 ShA	7.9	Ø38	7.9	Ø30
Coupling size	Type	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

Drop-out center design coupling with SPLIT hubs



Components



Type SH

ROTEX® Type SH Sintered steel (Sinter)																		
Size	Finish bore D		Dimensions [mm]														Cap screws DIN EN ISO 4762	
	min.	Max.	L	L1, L2	E	B1	S	DH	DN1	DK	N	K	A1	T	G	W	MxLM	Tightening torque T_A [Nm]
19	0	24	66	25	16	12	2.0	40	-	44	-	15.5	12.5	10	M5	-	M4x14	4.1
24	0	28	78	30	18	14	2.0	55	-	57.5	-	20	15	10	M5	12	M6x20	14
28	0	38	90	35	20	15	2.5	65	-	73	-	25	17.5	15	M8	12	M8x25	34

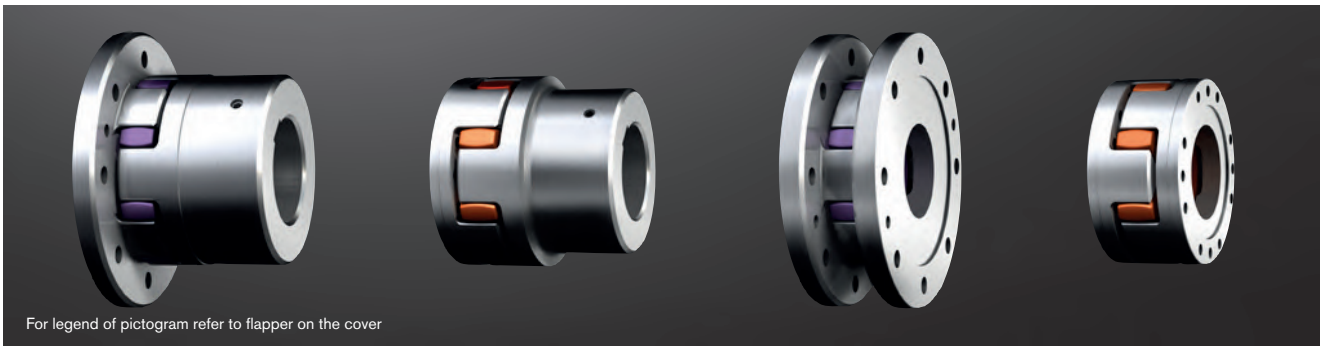
ROTEX® Type SH Cast iron (GJL)																		
Size	Finish bore D		Dimensions [mm]														Cap screws DIN EN ISO 4762	
	min.	Max.	L	L1, L2	E	B1	S	DH	DN1	DK	N	K	A1	T	G	W	MxLM	Tightening torque T_A [Nm]
38	24	48	114	45	24	18	3.0	80	78	83.5	37	30	22.5	15		15	M8x30	34
42	24	55	126	50	26	20	3.0	95	94	97	40	30	25		M8	15	M10x35	67
48	24	60	140	56	28	21	3.5	105	104	108.5	45	35	28			15	M12x40	115
55	24	70	160	65	30	22	4.0	120	118	122	52	40	32.5	20		15	M12x45	115
65	28	70	185	75	35	26	4.5	135	115	123.5	61	45	37.5			15	M12x40	115
	70	80							135	132.5		50			M10		M12x45	
75	40	80	210	85	40	30	5.0	160	135	147	69	51	42.5	25		20	M16x50	290
	80	90							160	158		57						
90	40	90	245	100	45	34	5.5	200	160	176	81	60	50	30	M12	30	M20x60	560
	90	110							200	197		72						

7.1 = SPLIT hub with feather keyway

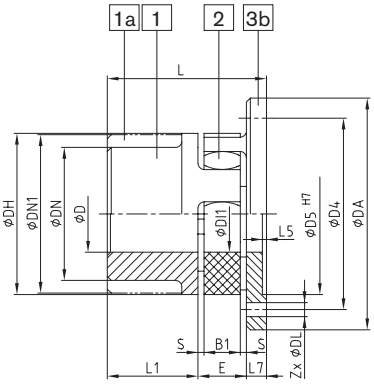
Ordering example:	ROTEX® 38	SH	98 ShA	7.1	Ø38	7.1	Ø30
	Coupling size	Type	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

ROTEX® CF, CFN, DF and DFN
Flexible jaw couplings

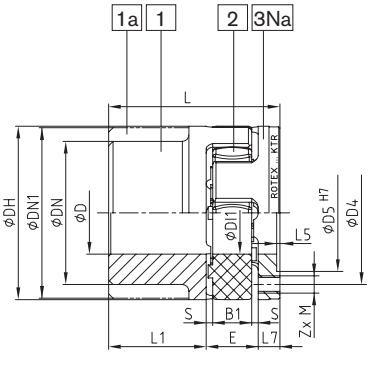
Flange programme



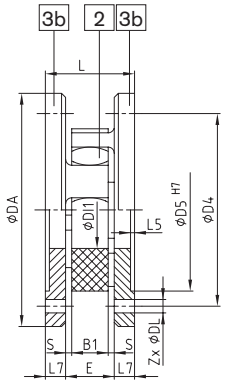
Components



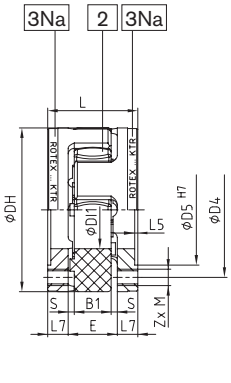
Type CF



Type CFN



Type DF

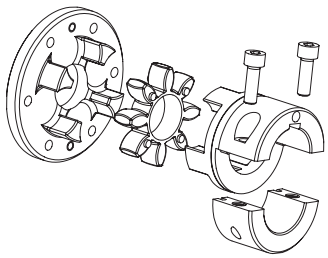


Type DFN

ROTEX® Type CF, CFN and DF, DFN																							
Size	D, DN, DN1	Dimensions general [mm]								Dimensions CF and DF [mm]					L		Dimensions CFN and DFN [mm]					L	
		DH	DI1	L1	E	B1	S	L5	L7	DA	D4	D5	Z	DL	CF	DF	D4	D5	M	Z	pitch	CFN	DFN
24	Jaw coupling: page 38 to 40 Stock programme: page 36 and 37	55	27	30	18	14	2.0	1.5	8	80	65	55	5	4.5	56	34	45	36	M5	8		56	34
28		65	30	35	20	15	2.5	1.5	10	100	80	65	6	6.6	65	40	54	44	M6	8	8x45°	65	40
38		80	38	45	24	18	3.0	1.5	10	115	95	80	6	6.6	79	44	66	54	M8	8		79	44
42		95	46	50	26	20	3.0	2.0	12	140	115	95	6	9.0	88	50	80	65	M8	12	16x22.5°	88	50
48		105	51	56	28	21	3.5	2.0	12	150	125	105	8	9.0	96	52	90	75	M8	12		96	52
55		120	60	65	30	22	4.0	2.0	16	175	145	120	8	11.0	111	62	102	84	M10	8	8x45°	111	62
65		135	68	75	35	26	4.5	2.0	16	190	160	135	10	11.0	126	67	116	96	M10	12	16x22.5°	126	67
75		160	80	85	40	30	5.0	2.5	19	215	185	160	10	13.5	144	78	136	112	M12	15		144	78
90		200	100	100	45	34	5.5	3.0	20	260	225	200	12	13.5	165	85	172	145	M16	15		165	85
100		225	113	110	50	38	6.0	4.0	25	285	250	225	12	13.5	185	100	195	165	M16	15		185	100
110		255	127	120	55	42	6.5	4.0	26	330	290	255	12	17.5	201	107	218	180	M20	15	20x18°	201	107
125		290	147	140	60	46	7.0	5.0	30	370	325	290	16	17.5	230	120	252	215	M20	15		230	120
140		320	165	155	65	50	7.5	5.0	34	410	360	320	16	22.0	254	133	282	245	M20	15		254	133
160		370	190	175	75	57	9.0	5.0	38	460	410	370	16	22.0	288	151	325	280	M24	15		288	151
180		420	220	195	85	64	10.5	5.5	40	520	465	420	16	26.0	320	165	375	330	M24	18	24x15°	320	165

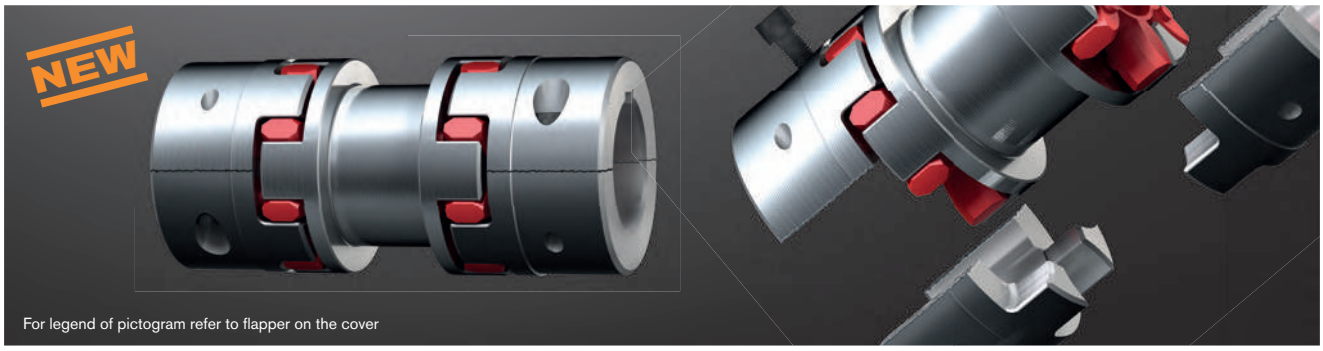
For other flange programmes see page 45.

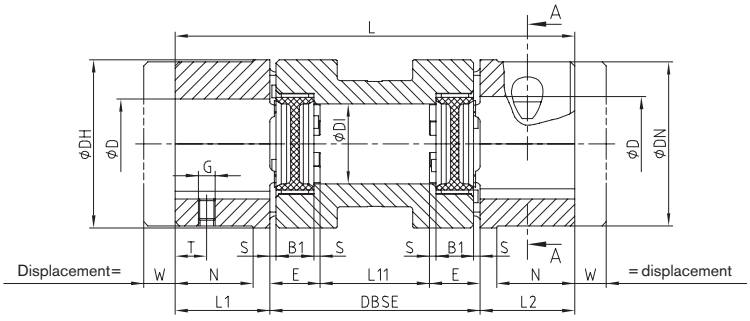
Other types: ROTEX® CF-H
Flange drop-out center design coupling
Please order our separate dimension sheet (M412069).

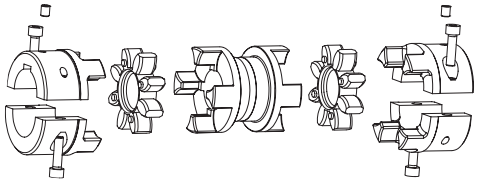


Ordering example:	ROTEX® 38	CF	92 ShA	1	GJL	Ø20
	Coupling size	Type	Spider hardness	Hub side, component	Material	Finish bore

Double-cardanic shaft coupling with SPLIT hubs







ROTEX® type ZS-DKM-SH

Size [3]	Spider 98 ShA-GS T_{KN} [Nm] [1] [2]	Dimensions [mm]															Screws DIN EN ISO 4762		Max. displacements				
		Drop-out center length DBSE	Finish bore D		DH	DN	DK	DI	L1, L2	L11	E	B1	S	L	G	W			Axial [mm]	with n = 1500 rpm		with n = 3000 rpm	
			min.	Max.													MxLM	T_A [Nm]		Radial [mm]	Angular [°]	Radial [mm]	Angular [°]
19	10	42 [5]	0	24	40	-	-	18	25	10	16	12	2.0	92	-	-	-	-	1.2	0.45		-	
		52 [5]								16				112						0.59		-	
24	35	100	0	28	55	-	57.5	27	30	64	18	14	2.0	160	M5	12	M6x20	14	1.4	1.43		1.07	
		140								104				200						2.13		1.60	
		58 [5]								18				128						0.66		-	
28	95	100	0	38	65	-	73	30	35	60	20	15	2.5	170	M8	12	M8x25	34	1.5	1.40		1.05	
		140								100				210						2.10		1.57	
		68 [5]								20				158						0.77		-	
38	190	100	24	45	80	78	83.5	38	45	52	24	18	3.0	190	M8	15	M8x30	34	1.8	1.33		0.99	
		140								92				230						2.02		1.52	
		74 [5]								22				174						0.84		-	
42	265	100	24	55	95	94	97	46	50	48	26	20	3.0	200	M8	15	M10x35	67	2.0	1.29		0.97	
		140								88				240						2.00		1.49	
		80 [5]								24				192						0.91		-	
48	310	100	24	60	105	104	108.5	51	56	44	28	21	3.5	212	M8	15	M12x40	115	2.1	1.26		0.94	
		140								84				252						1.95	1	1.47	0.75
		88 [5]								28				218						1.01		-	
		100								40				230						1.22		0.92	
55	410	140	24	70	120	118	122	60	65	80	30	22	4.0	270	M10	15	M12x45	115	2.2	1.92		1.44	
		180								120				310						2.62		1.96	
		200								140				330						2.97		2.22	
		102 [5]								32				252						1.17		-	
65	625	140	24	80	135	135 [6]	132.5 [6]	68	75	70	35	26	4.5	290	M10	15	M12x40	115	2.6	1.83		1.37	
		180								110				330						2.53		1.90	
		116 [5]								36				286						1.33		-	
		140								60				310						1.75		1.31	
75	1280	180	40	90	160	160 [6]	158 [6]	80	85	100	40	30	5.0	350	M10	20	M16x50	290	3.0	2.44		1.83	
		200								120				370						2.79		2.09	
		250								170				420						3.67		2.75	
		130 [5]								40				330						1.48		-	
90	2400	180	40	110	200	200 [6]	197 [6]	100	100	90	45	34	5.5	380	M12	30	M20x60	560	3.4	2.36		1.76	
		250								160				450						3.58		2.68	

[1] Maximum torque of coupling $T_{K\,max}$ = rated torque of coupling T_{KN} x 2
[2] Mathematically transmittable torque with double-cardanic types acc. to 92 ShA-GS using the higher quality spiders 98 ShA-GS
[3] ROTEX®-SPLIT hub material sizes 24 and 28 = sintered steel; hub material sizes 38 to 90 = EN-GJL
[4] Hub type 7.1 = SPLIT hub with feather keyway and thread for setscrews
[5] Material spacer Al-H
[6] ØDN and ØDK depending on finish bore ØD, see page 36/37

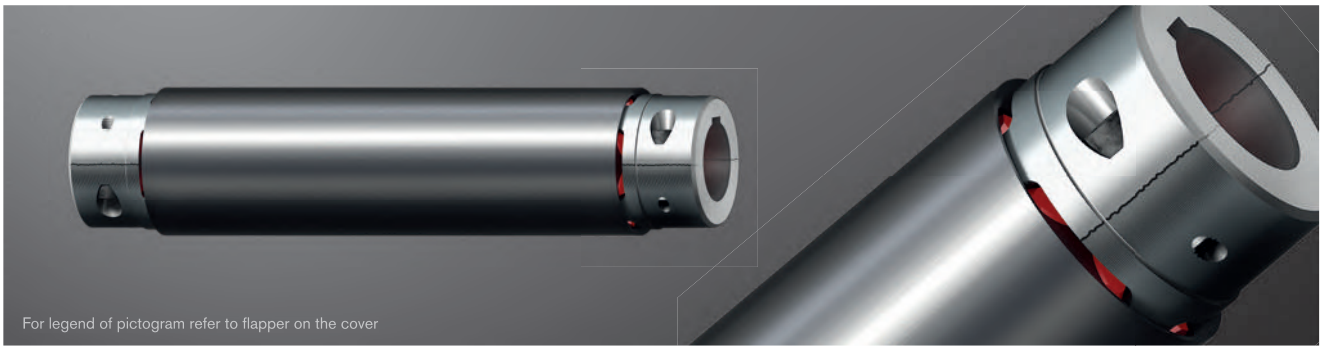
The max. permissible circumferential speed for double-cardanic ROTEX® DKM and ZS-DKM-SH couplings is 20m/s, with higher speeds please consult with KTR.
Spiders ROTEX® 98 ShA-GS and 64 ShD-GS applicable, while the transmittable torque [T_{KN}; T_{Kmax}] of the 92 ShA-GS spider must not be exceeded.

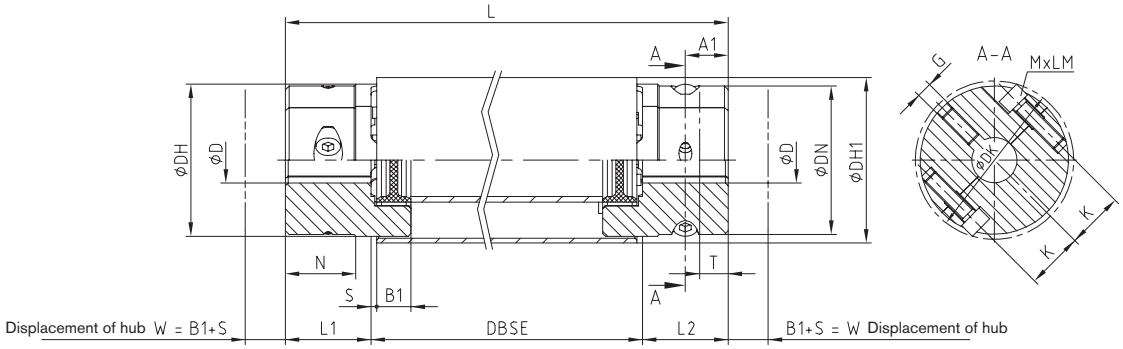
Ordering example:

ROTEX® 38	ZS-DKM-SH	140	98 ShA-GS	7.1 [4]	Ø 38	7.1 [4]	Ø30
Coupling size	Type	Shaft distance dimension DBSE	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

ROTEX® ZRS
Flexible / backlash-free intermediate shaft coupling

Intermediate shaft programme

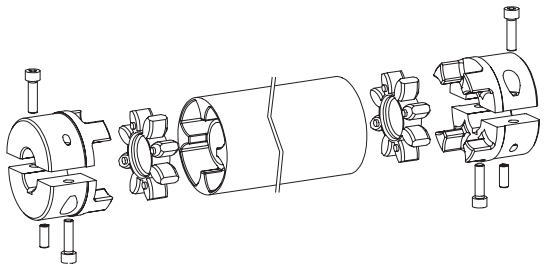




ROTEX® type ZRS																	
Size	Dimensions [3] [mm]															Clamping screw DIN EN ISO 4762		Intermediate pipe Torsion spring stiffness C [2] [Nm/rad]
	Finish bore D		DH	DN	L1, L2	N	B1	S	G	T	A1	K	DK	DH1	Min. DBSE	L [1]	MxLM	Tightening torque T_A [Nm]	
	min.	Max.																	
19	0	20	40	-	25	-	12	2.0	M5	10	8.0	14.5	46.0	45	33		M4x14	4.1	3800
24	0	24	55	-	30	-	14	2.0	M5	10	15.0	20.0	57.5	60	37	L =	M6x20	14	11100
28	0	38	65	-	35	-	15	2.5	M8	15	17.5	25.0	73.0	72	40	DBSE + L1	M8x25	34	23600
38	24	45	80	78	45	37.0	18	3.0	M8	15	22.5	30.0	83.5	87	49	+ L2	M8x30	34	43800
42	24	55	95	94	50	40.0	20	3.0	M8	20	25.0	30.0	97.0	103	53		M10x35	67	82600

[1] With inquiries and orders please specify the shaft distance dimension DBSE along with the maximum speed to review the critical bending speed.
Maximum DBSE = 4000 mm (different lengths on request).
[2] Torsion spring stiffness with an intermediate pipe length of 1 m
[3] Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9]

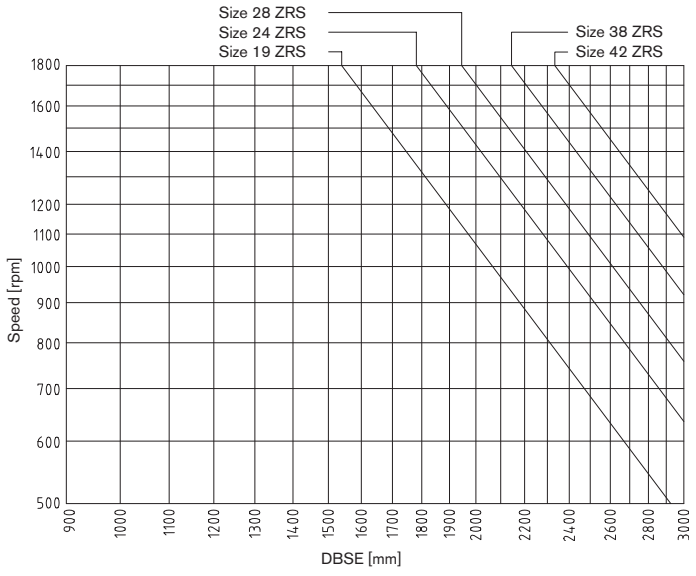
Mathematically transmittable torque with double-cardanic types acc. to 92 ShA-GS using the higher quality spiders 98 ShA-GS



7.1 = SPLIT hub with feather keyway

Displacements			
Size	Axial displacement [mm]	Radial displacement [mm] per 1m of pipe length	Angular displacement [degree]
19	1.2	15.7	0.9
24	1.4	15.7	0.9
28	1.5	15.7	0.9
38	1.8	17.5	1.0
42	2.0	17.5	1.0

Diagramme for coupling selection:

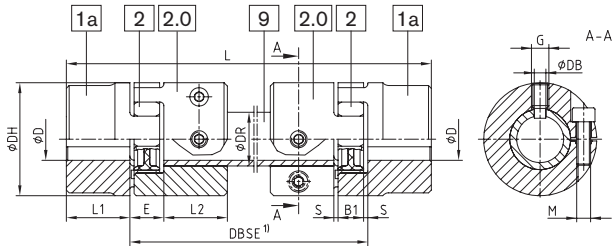


Ordering example:

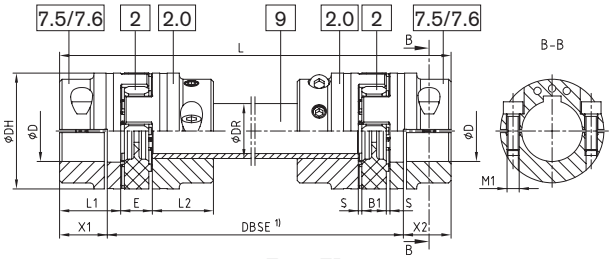
ROTEX® 38	ZRS	1200	98 ShA-GS	7.1	Ø30	7.1	Ø30
Coupling size	Type	Shaft distance dimension DBSE	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

Intermediate shaft programme

Components



Type ZR
(with GS spider) 3)



Type ZR
(with GS spider and clamping hubs type DH for a double-cardanic connection 7.5 or 7.6) 3)

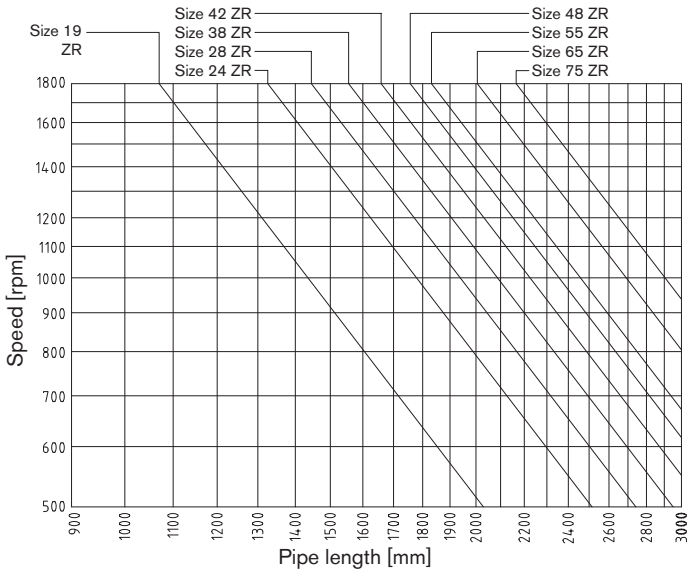
ROTEX® Type ZR

Size	Dimensions [mm]																				Intermediate pipe Torsional stiffness/m		Locking screw G	Pin hole DB [mm]	Axial displacement [mm]	Angular displacement [degree]
	Max. finish bore D		DH	L1, L2	X1, X2	E	B1	S	L		min. DBSE		Clamping screw component 2.0		Clamping screw component 7.5/7.6											
	Component 1a	Component 7.5/7.6							Component 1a	Component 7.5/7.6	Component 1a	Component 7.5/7.6	M	T_A [Nm]	M1	T_A [Nm]					DR	C 2) [Nm²/rad]				
19	25	20	40	25	17.5	16	12	2.0			82	97	M6	14	M6	10					Ø20x3	954.9	M6	4.0	1.2	0.9
24	35	28	55	30	22.5	18	14	2.0			96	111	M6	14	M6	14					Ø30x4	4522	M8	5.5	1.4	0.9
28	40	38	65	35	25.5	20	15	2.5	L = DBSE + 2 • L1	L = DBSE + 2 • X1/X2	110	128	M8	35	M8	35					Ø35x4	7611	M10	7.0	1.5	0.9
38	48	45	80	45	35.5	24	18	3.0			138	157	M8	25	M8	35					Ø40x4	11870	M12	8.5	1.8	1.0
42	55	55	95	50	39.0	26	20	3.0			152	174	M10	49	M10	69					Ø45x4	17487	M12	8.5	2.0	1.0
48	62	60	105	56	45.0	28	21	3.5			168	190	M12	86	M12	120					Ø50x4	24648	M16	12	2.1	1.1
55	74	70	120	65	50.0	30	22	4.0			190	220	M12	120	M12	120					Ø55x4	33544	M16	12	2.2	1.1
65	80	80	135	75	60.0	35	26	4.5			220	250	M12	120	M12	120					Ø65x5	68329	M16	12	2.6	1.2
75	95	90	160	85	67.5	40	30	4.0			250	285	M16	295	M16	295					Ø75x5	108000	M16	12	3.0	1.2

1) With inquiries and orders please specify the shaft distance dimension DBSE along with the maximum speed to review the critical bending speed.
2) Torsion spring stiffness with 1 m length of intermediate pipe finish bore acc. to ISO fit H7, feather keyway acc. to DIN 6885 sheet 1 [JS9]. Friction torques of clamping hubs have to be considered. Please order dimension sheet M583613.
3) Mathematically transmittable torque with double-cardanic types acc. to 92 ShA-GS using the higher quality spiders 98 ShA-GS

Not permissible for crane and hoist drives

Diagramme for coupling selection:

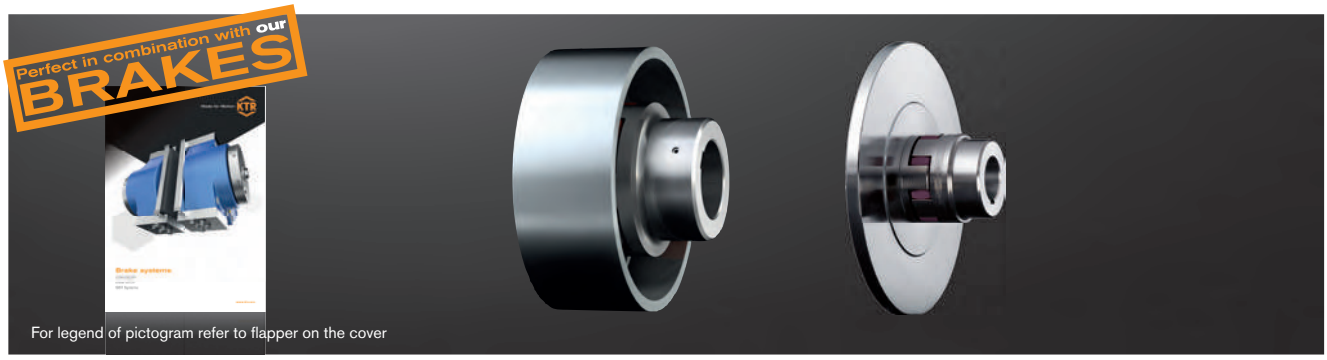


Ordering example:

ROTEX® 38	ZR	1200	98 ShA-GS	7.5	Ø38	7.5	Ø30
Coupling size	Type	Shaft distance dimension DBSE	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

ROTEX® BTAN and SBAN
Flexible jaw couplings

With brake drum/with brake disk



ROTEX® Type BTAN and SBAN

Size	Pilot bore, D, DN, DN1	Max. finish bore D1		Dimensions [mm]										
		GJS	Steel	L	DH	DI1	D4	D5	Z	pitch [1]	M	T_A [Nm]	L1, L2	E
38	Jaw coupling: page 38 to 40 Stock programme: page 36 and 37	–	35	114	80	38	66	50	8	8 x 45°	M8	35	45	24
42		–	42	126	95	46	80	60	12	16 x 22.5°	M8	41	50	26
48		–	48	140	105	51	90	68	12		M8	41	56	28
55		–	55	160	120	60	102	78	8	8 x 45°	M10	83	65	30
65		–	68	185	135	68	116	92	12	16 x 22.5°	M10	83	75	35
75		–	78	210	160	80	136	106	15		M12	120	85	40
90		–	104	245	200	100	172	140	15		M16	295	100	45
100		100	–	270	225	113	195	156	15	20 x 18°	M16	295	110	50
110		110	–	295	255	127	218	176	15		M20	580	120	55
125		130	–	340	290	147	252	204	15		M20	580	140	60

Type BTAN

Brake drum	ROTEX® BTAN dimension "AB"										Speed rpm [V] (30 m/s)
	38	42	48	55	65	75	90	100	110	125	
160x60	14										3550
200x75	9	12	17	24							2800
250x95	1	4	9	16	25	33					2240
315x118		-5	0	7	16	24	36				1800
400x150		-18	-13	-6	3	11	23	31	38		1400
500x190					-12	-4	8	16	23	39	1120
630x236						-22	-10	-2	5	21	900
710x265								-13	-6	10	800
800x300										-4	710

Type SBAN

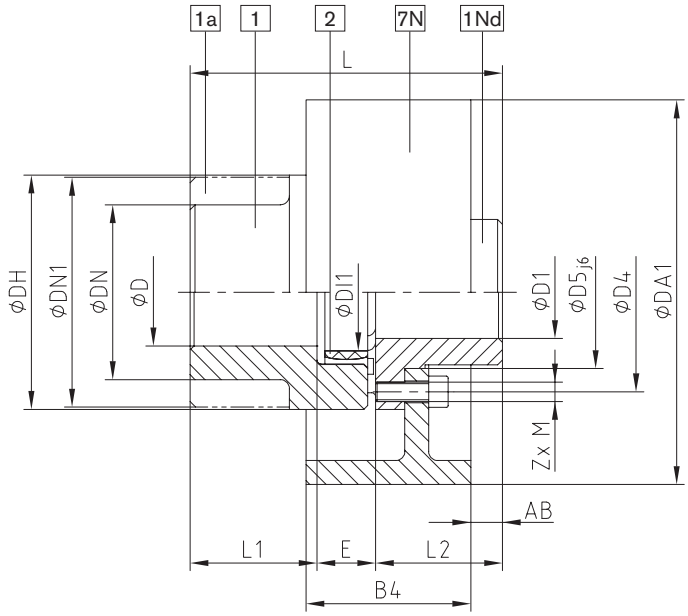
Brake disk	ROTEX® SBAN dimension "AS"										Speed rpm [V] (30 m/s)
	38	42	48	55	65	75	90	100	110	125	
200x12.5	31.25										2800
250x12.5	31.25	34.25	39.25								2240
315x16		32.5	37.5	44.5	53.5	61.5					1800
400x16			37.5	44.5	53.5	61.5	73.5	81.5	88.5		1400
500x16				44.5	53.5	61.5	73.5	81.5	88.5	104.5	1120
630x20					51.5	59.5	71.5	79.5	86.5	102.5	900
710x20					51.5	59.5	71.5	79.5	86.5	102.5	800
800x25							69	77	84	100	710
900x25									84	100	630

[1] Thread in the hub between the cams.
Other sizes on request according to dimension sheet:
BTAN: M380821
SBAN straight: M380822; cranked: M 370065
FNN hub: M 380823
Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9].

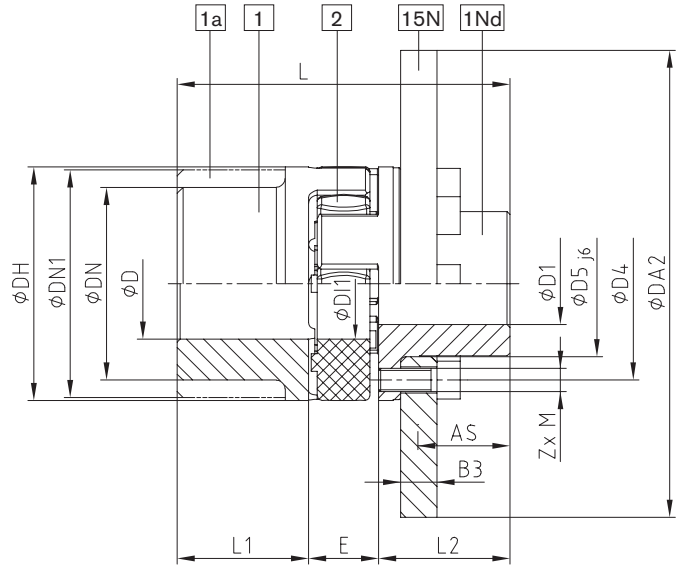
Ordering example:

ROTEX® 38	BTAN	Ø200x75	98 ShA	1Nd	Ø34	1	Ø30
Coupling size	Type	Brake drum Ø x width	Spider hardness	Component	Finish bore	Component	Finish bore

Components



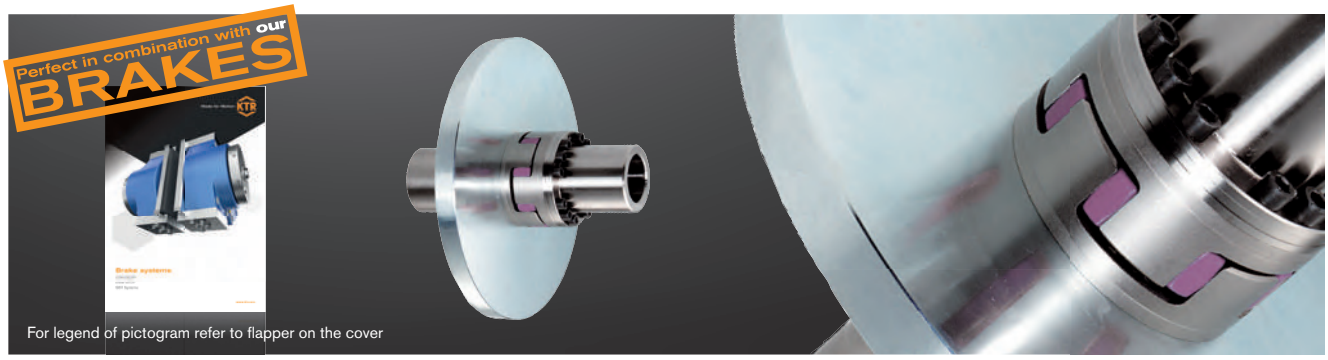
Brake drum
Type BTAN



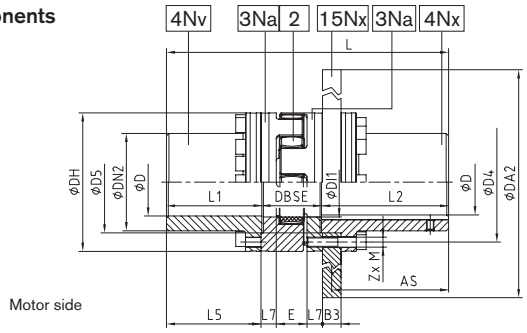
Brake disk
Type SBAN

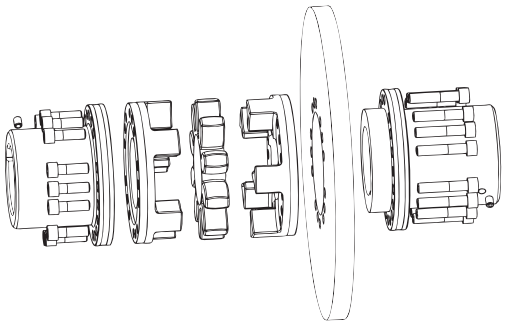
ROTEX® AFN-SB special
Flexible jaw couplings

Drop-out center design coupling with brake disk



Components





ROTEX® Type AFN-SB special

Size	Finish bore D		Dimensions [mm]										
	min.	Max.	DH	DN2	D4	D5 H7/h7	DI1	DBSE	E	M	Z	pitch	T_A [Nm]
65	22	70	135	94	116	96	68	65	35	M10	12	16x22.5°	83
75	30	80	160	108	136	112	80	75	40	M12	15		120
90	40	105	200	142	172	145	100	82	45	M16	15		295
100	46	115	225	158	195	165	113	97	50	M16	15		295
110	60	130	255	178	218	180	127	103	55	M20	15	20x18°	580
125	60	150	290	206	252	215	147	116	60	M20	15		580
140	60	170	320	235	282	245	165	128	65	M20	15		580
160	80	200	370	270	325	280	190	146	75	M24	15		1000
180	85	230	420	315	375	330	220	159	85	M24	18	24x15°	1000

ROTEX® Type AFN-SB special

Size	Torque with 98 ShA [1]		Max. speed [rpm]	Max. braking torque [2] [Nm]	Dimensions [mm]					
	T_{KN}	$T_{K\,max}$			L1	L2	L5	L7	AS	L
65	940	1880	3450	1880	113.5	166.0	112.5	16	150	344.5
75	1920	3840	3250	3840	133.0	166.5	131.5	19	150	374.5
90	3600	7200	3000	7200	165.5	206.5	164.0	20	190	454.0
100	4950	9900	2800	9900	155.0	206.5	153.5	25	190	458.5
110	7200	14400	2600	14400	203.5	212.0	201.5	26	195	518.5
125	10000	20000	2250	20000	200.5	212.0	198.5	30	195	528.5
140	12800	25600	1800	25600	247.0	252.5	244.5	34	235	627.5
									230 [3]	
160	19200	38400	1500	38400	229.0	252.5	226.5	38	235	627.5
									230 [3]	
180	28000	56000	1350	56000	198.0	252.5	195.0	40	235	609.5

ROTEX® Selection of coupling/brake disk

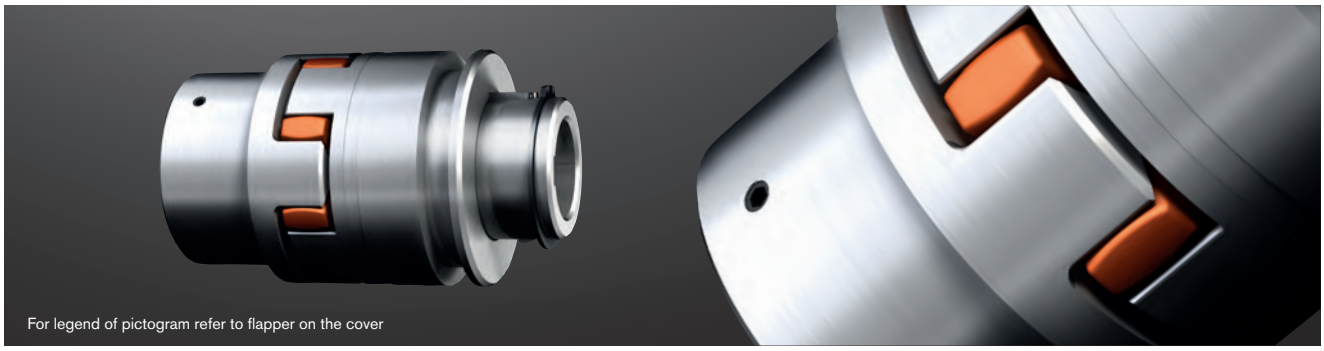
Size	Brake disk ØDA2 x B3										
	355x30	400x30	450x30	500x30	560x30	630x30	710x30	800x30	900x30	900x40	1000x40
65	x	x	x								
75		x	x	x							
90			x	x	x	x					
100				x	x	x					
110				x	x	x	x				
125						x	x	x			
140							x	x	x	x	x
160							x	x	x	x	x
180							x	x	x	x	x

[1] For selection see page 14 et seqq. [2] The maximum braking torque must not exceed the maximum torque of the coupling. [3] Dimensions with a width of brake disk B3 of 40 mm.

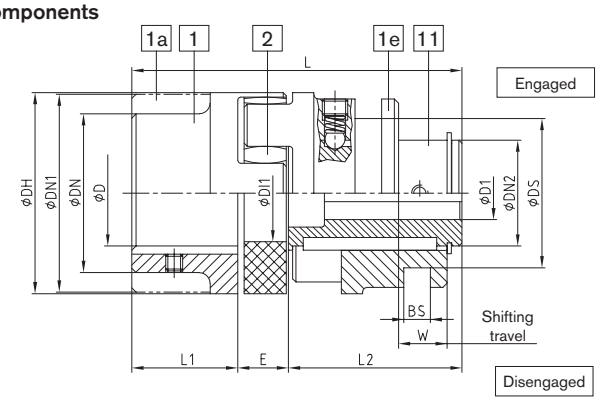
Ordering example:

ROTEX® 90	AFN-SB special	Ø450x30	98 ShA	4Nv	Ø90	4Nx	Ø90
Coupling size	Type	Brake disk Ø x width	Spider hardness	Component	Finish bore	Component	Finish bore

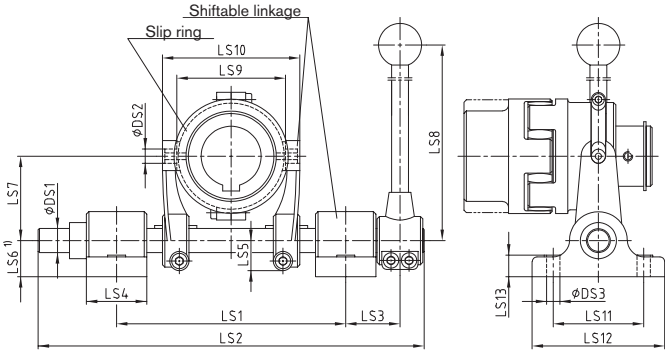
Shiftable coupling shiftable at standstill



Components



Type SD



Type SD with slip ring and shiftable linkage

Upon request: Shiftable linkage available with locking pin, locking device and retrieval of shift position.

ROTEX® Type SD

Size	D, DN, DN1	Dimensions [mm]												Shifting force set [N]	Slip ring size	Shiftable linkage size
		Finish bore D1		DH	DI1	DN2	DS±0.1	L	L1	L2	L6±0.1	E	W			
		min.	Max.													
24	Jaw coupling: page 38 to 40 Stock programme: page 36 and 37	8	20	55	27	30	41	98	30	51.5	6.0	16.5	16.0	110	-	-
28		10	24	65	30	36	58	113	35	60.0	8.0	18.0	17.5	130	-	-
38		12	30	80	38	45	70.5	140	45	73.0	12.5	22.0	21.0	150	1.1	1
42		14	35	95	46	50	70.5	156	50	82.0	12.5	24.0	23.0	180	1.1	1
48		15	42	105	51	60	89.5	172	56	90.5	17.5	25.5	24.5	200	2.2	2
55		18	50	120	60	70	112.5	195	65	103.0	18.0	27.0	26.0	250	3.3	3
65		20	55	135	68	80	112.5	227	75	120.0	18.0	32.0	30.5	280	3.3	3
75		25	65	160	80	95	130.5	257	85	135.0	20.5	37.0	35.0	350	4.4	3
90		28	75	200	100	110	164.5	293	100	152.0	25.5	41.0	39.5	350	5.5	4
100		30	80	225	113	115	164.5	325	110	169.0	25.5	46.0	44.0	380	5.5	4
110		35	85	255	127	125	164.5	355	120	184.0	25.5	51.5	48.5	450	5.5	4
125		40	100	290	147	145	210.5	404	140	208.5	30.5	55.5	53.0	500	6.6	5

Slip ring and shiftable linkage

Size	Size of shiftable linkage	Dimensions [mm]																Max. speed [rpm] of slip ring
		DS1	DS2	DS3	LS1		LS2	LS3	LS4	LS5	LS6	LS7	LS8	LS9	LS10	LS11	LS12	LS13	
					min.	Max.													
38	1	20	12	11	180	190	320	55	50	25	30	70	400	90	114	75	110	18	3200
42	1																		
48	2	25	17	13.5	240	270	430	60	60	27	40	97.5	450	111	151	100	140	25	2500
55	3	30			280	310	490	70		32.5		120	600	140	180				2100
65	3																		
75	3													170	210				1700
90	4																		
100	4	35	21		321	365	565			37.5	50	147.5	750	200	244	120	160		1300
110	4																		
125	5	40	25		365	410	630	80		46		190	1085	250	300				1200

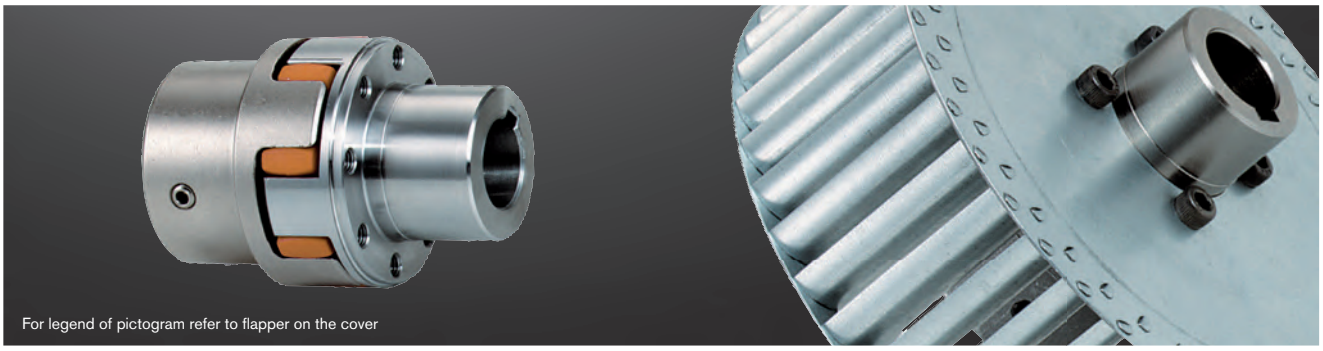
[1] With a through base plate, dimension „LS6“ of the shiftable linkage size 5 is to be increased by at least 10 mm.
Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9].

Ordering example:

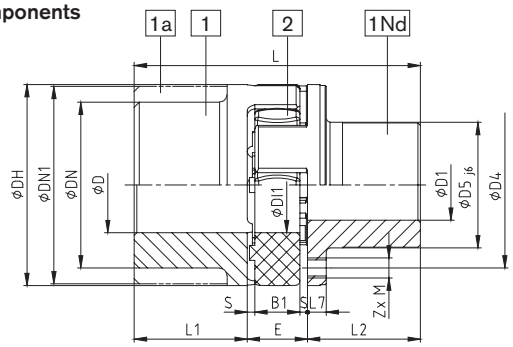
ROTEX® 38	SD	With 1.1 and 1	98 ShA	1	Ø38	11	Ø28
Coupling size	Type	With slip ring 1.1 and shiftable linkage 1	Spider hardness	Component	Finish bore	Component	Finish bore

ROTEX® FNN
Flexible jaw couplings

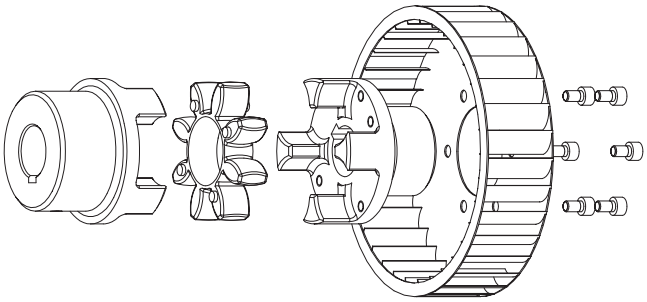
For mounting of fan



Components



Type FNN



Type FNN with fan (type 1)

ROTEX® Type FNN															
Size	D, DN, DN1	Max. finish bore D1	Dimensions [mm]												
			L	DH	Dl1	D4	D5	E	B1	S	L1, L2	L7	M	Z	pitch
28	Jaw coupling: page 38 to 40 Stock programme: page 36 and 37	28	90	65	30	54	40	20	15	2.5	35	6.5	M6	8	8x45°
38		35	114	80	38	66	50	24	18	3.0	45	7.5	M8	8	
42		42	126	95	46	80	60	26	20	3.0	50	9.5	M8	12	16x22.5°
48		48	140	105	51	90	68	28	21	3.5	56	10.5	M8	12	
55		55	160	120	60	102	78	30	22	4.0	65	12.5	M10	8	8x45°
65		68	185	135	68	116	92	35	26	4.5	75	13.5	M10	12	16x22.5°
75		78	210	160	80	136	106	40	30	5.0	85	15.5	M12	15	20x18°
90		104	245	200	100	172	140	45	34	5.5	100	18.5	M16	15	

Other sizes on request.

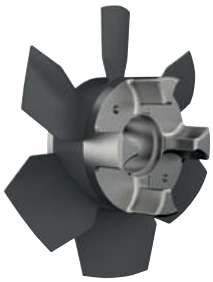
Dimensioning of fans is customer-specific and depends on the coupling selection. Please advise all necessary details for dimensioning of your fan. For that purpose you may use the KTR questionnaire acc. to KTR-N 20008 sheet 1.

Type 1: Fan screwed on

The ROTEX® hub can be supplied with the fan screwed on. Customised connection dimensions such as pitch circle of threads, size of threads and number or centering of fans must be specified in your inquiry.

Type 2: Fan injection-moulded

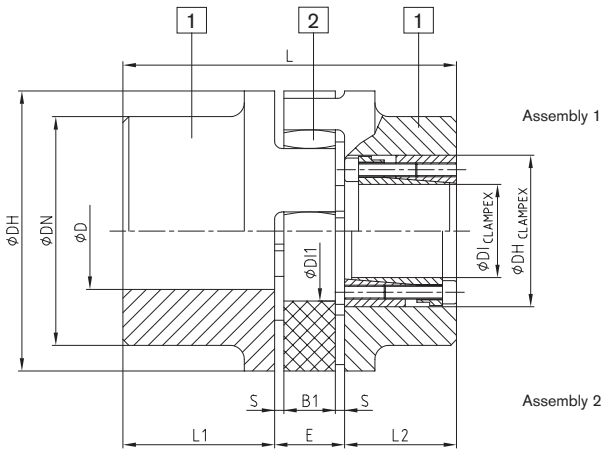
Low prices due to optimisation of production with bigger volumes.



Ordering example:	ROTEX® 38	FNN	92 ShA	1	Ø38	1Nd	Ø30
	Coupling size	Type	Spider hardness	Component	Finish bore	Component	Finish bore

Other types with clamping sets

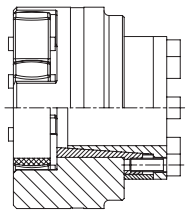
Components



ROTEX® with clamping set CLAMPEX® KTR 200

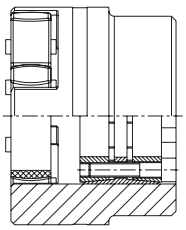
Size	D, DN	Hub material	CLAMPEX® KTR 200			Dimensions [mm]								
			Max. size of KTR clamping set DlxDH	Transmittable torque and axial force										
				T [Nm]	F_{AX} [kN]	L1	L2	E	B1	S	DH	DN	Dl1	L
42	Jaw coupling: page 38 to 40 Stock programme: page 36	Steel Component 1	30x55	790	53	50	48	26	20	3.0	95	—	46	Length = L1 + E + L2 (clamping set)
48			35x60	1300	74	56	48	28	21	3.5	105	—	51	
55			45x75	2200	98	65	59	30	22	4.0	120	—	60	
65			45x75	2200	98	75	59	35	26	4.5	135	115	68	
75			50x80	3330	132	85	59	40	30	5.0	160	135	80	
90			65x95	4300	132	100	59	45	34	5.5	200	160	100	
100		GJS Component 1	65x95	4300	132	110	59	50	38	6.0	225	180	113	
110			70x110	7500	214	120	70	55	42	6.5	255	200	127	
125			80x120	8500	213	140	70	60	46	7.0	290	230	147	
140			95x135	12600	265	155	70	65	50	7.5	320	255	165	
160			110x155	16500	300	175	80	75	57	9.0	370	290	190	
180			120x165	22500	375	195	80	85	64	10.5	420	325	220	

ROTEX® hub combined with CLAMPEX® KTR 250



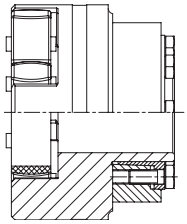
Frictionally engaged and backlash-free transmission of medium torques. CLAMPEX® KTR 250 is particularly suitable for thin-walled hubs and/or those made of aluminium or cast material. Please contact the KTR engineering department for any further details.

ROTEX® hub combined with CLAMPEX® KTR 400



Frictionally engaged and backlash-free transmission of high torques. Compared to all other CLAMPEX® internal clamping sets, CLAMPEX® KTR 400 transmits the highest torques. Please contact the KTR engineering department for any further details.

ROTEX® hub combined with CLAMPEX® KTR 620



Frictionally engaged and backlash-free transmission of torques immediately between shaft and hub. Since CLAMPEX® KTR 620 is positioned outside on the hub, the hub is in direct contact with the shaft. This results in significantly higher concentricity compared to the combinations with CLAMPEX® KTR 250 or CLAMPEX® KTR 400. Please contact the KTR engineering department for any further details.

For CLAMPEX® programme see pages 280 to 315.

Other types with torque limiter

ROTEX® BKN - Overload coupling, type BKN

- Torsionally flexible coupling ROTEX® with shear pins
- Load-separating with blockage/overload
- Easy replacement of shear pin
- Fracture torque to be individually defined depending on the application

Customer variant from the stock programme.
Please specify the fracture torques with your order!
For further details see dimension sheet No. 5020/000/009-760313

ROTEX® - RUFLEX® - Overload coupling

- High power density
- Large wear volume with long service life
- Easy assembly and torque setting

For further details see catalogue page 270

ROTEX® - KTR-SI - Overload coupling

- Available in a ratchet, synchronous, idle rotation and fail-safe design
- High response accuracy, even after a long operating period
- Maintenance-free

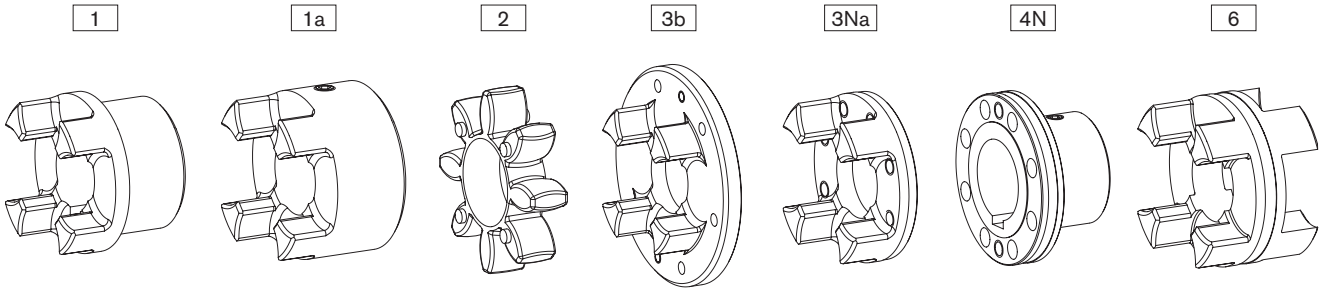
For further details see catalogue page 277

ROTEX® - KTR-SI FRE - idle rotation overload coupling

- Idle rotation overload system for high torques
- High repeatability
- Intelligent further development of the shear pin coupling and hydraulic clamping sets

For further details see catalogue page 279

Weights and mass moments of inertia

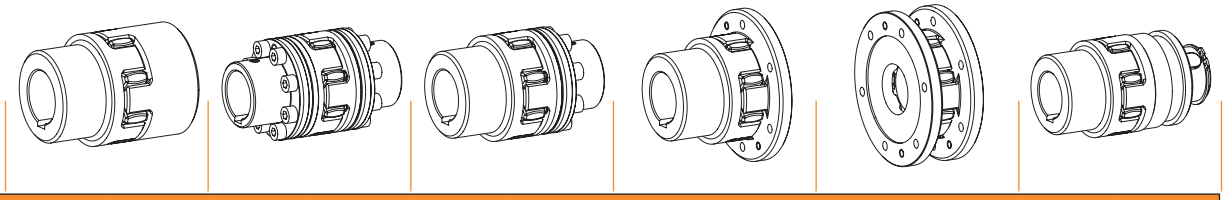


ROTEX® individual components

Size	Standard hub				Large hub			Spider	Driving flange			Coupling flange	DKM spacer
	Component 1				Component 1a			Compo-nent 2	Component 3b	Component 3Na		Component 4N	Compo-nent 6
	Aluminium [kg] [kgm²]	GJL [kg] [kgm²]	GJS [kg] [kgm²]	St [kg] [kgm²]	Aluminium [kg] [kgm²]	GJL [kg] [kgm²]	St [kg] [kgm²]	Polyurethane (Vulkollan) [kg] [kgm²]	GJS [kg] [kgm²]	St [kg] [kgm²]	GJS [kg] [kgm²]	St [kg] [kgm²]	Aluminium [kg] [kgm²]
14	—	—	—	—	0.020	—	—	0.0044	—	—	—	—	—
	—	—	—	—	0.000003	—	—	0.0000005	—	—	—	—	—
19	0.064	—	—	—	0.074	—	0.25	0.0057	—	—	—	—	—
	0.00001	—	—	—	0.00002	—	0.00006	0.000001	—	—	—	—	—
24	0.123	—	—	—	0.174	—	0.55	0.014	0.028	0.145	—	0.30	0.14
	0.00004	—	—	—	0.00008	—	0.00023	0.000006	0.00023	0.00007	—	0.00009	0.00006
28	0.200	—	—	—	0.264	—	0.89	0.024	0.54	0.232	—	0.49	0.22
	0.00010	—	—	—	0.00019	—	0.00053	0.00001	0.0007	0.00017	—	0.0002	0.00013
38	0.44	1.16	—	1.6	0.470	1.32	1.74	0.042	0.73	—	0.313	0.87	0.35
	0.00033	0.00086	—	0.00151	0.00046	0.00135	0.00155	0.00004	0.001	—	0.00038	0.0005	0.00035
42	0.69	1.75	—	2.44	0.772	2.05	2.74	0.065	1.26	—	0.608	1.4	0.47
	0.00067	0.00178	—	0.00281	0.00111	0.00291	0.00343	0.00008	0.0032	—	0.00089	0.0011	0.00068
48	0.80	2.44	—	3.34	1.01	2.78	3.72	0.086	1.45	—	0.755	1.92	0.62
	0.0012	0.00308	—	0.00473	0.00174	0.00484	0.00570	0.00013	0.0043	—	0.001358	0.0018	0.0011
55	—	3.68	—	5.05	—	4.08	5.57	0.11	2.58	—	1.243	2.93	0.90
	—	0.00615	—	0.00948	—	0.00926	0.01193	0.00023	0.0105	—	0.002920	0.0037	0.0021
65	—	5.67	—	6.79	—	6.04	8.22	0.17	3.10	—	1.635	4.36	1.31
	—	0.01240	—	0.01516	—	0.01789	0.02079	0.00043	0.0149	—	0.004891	0.0069	0.0039
75	—	8.72	—	10.5	—	9.53	14.3	0.32	4.46	—	2.511	6.80	1.97
	—	0.02644	—	0.03269	—	0.03946	0.05069	0.001166	0.0281	—	0.01050	0.0151	0.0082
90	—	14.8	—	18.7	—	18.2	24.0	0.57	6.94	—	4.151	12.84	3.45
	—	0.06730	—	0.08742	—	0.15086	0.13151	0.00326	0.0651	—	0.02723	0.0448	0.0224
100	—	—	19.7	—	—	—	—	0.82	10.2	—	6.350	16.16	—
	—	—	0.11694	—	—	—	—	0.00592	0.1165	—	0.05273	0.0798	—
110	—	—	27.4	—	—	—	—	1.14	—	—	8.578	21.35	—
	—	—	0.20465	—	—	—	—	0.01048	—	—	0.09121	0.2824	—
125	—	—	42.3	—	—	—	—	1.56	—	—	12.598	34.33	—
	—	—	0.40727	—	—	—	—	0.01878	—	—	0.17469	0.3229	—
140	—	—	58.1	—	—	—	—	2.02	—	—	17.271	48.69	—
	—	—	0.67739	—	—	—	—	0.02989	—	—	0.29247	0.4917	—
160	—	—	84.2	—	—	—	—	3.08	—	—	26.305	71.08	—
	—	—	1.31729	—	—	—	—	0.06049	—	—	0.59436	0.9693	—
180	—	—	118.5	—	—	—	—	5.04	—	—	33.076	109.43	—
	—	—	2.30835	—	—	—	—	0.13295	—	—	0.97394	1.9650	—

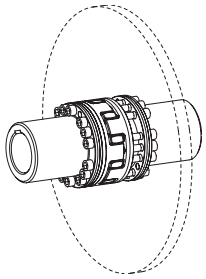
Weight and mass moment of inertia each refer to the average finish bore without feather keyway.

Weights and mass moments of inertia



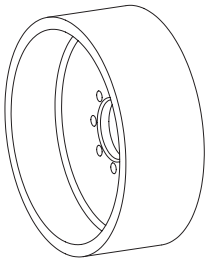
ROTEX® Complete coupling types

Size	Standard		AFN		BFN		CF		DF		SD	
	Weight [kg]	Mass moment of inertia J [kgm²]	Weight [kg]	Mass moment of inertia J [kgm²]	Weight [kg]	Mass moment of inertia J [kgm²]	Weight [kg]	Mass moment of inertia J [kgm²]	Weight [kg]	Mass moment of inertia J [kgm²]	Weight [kg]	Mass moment of inertia J [kgm²]
19	0.51	0.000121	—	—	—	—	0.44	0.00016	0.38	0.00020	0.42	0.00008
24	1.1	0.000466	0.98	0.00036	1.1	0.00041	0.84	0.00047	0.57	0.00047	1.1	0.00046
28	1.8	0.00107	1.6	0.00083	1.7	0.00095	1.5	0.00124	1.1	0.00141	1.9	0.00106
38	2.5	0.00171	2.8	0.00209	2.6	0.00193	1.9	0.00217	1.5	0.00259	3.0	0.00435
42	3.9	0.00476	4.5	0.00472	4.1	0.00419	3.1	0.00513	2.6	0.00662	4.4	0.00804
48	5.3	0.00805	5.9	0.00736	5.5	0.00684	3.9	0.00755	3.0	0.00881	6.2	0.00223
55	7.9	0.01564	8.9	0.01480	8.3	0.01369	6.4	0.01692	5.3	0.02131	9.8	0.0166
65	11.9	0.03071	12.9	0.0266	12.3	0.0259	8.9	0.02780	6.4	0.003037	14.9	0.0326
75	18.6	0.06706	20.6	0.0601	19.3	0.0572	13.5	0.0557	9.2	0.05741	23.2	0.0706
90	33.6	0.22139	37.8	0.1718	34.2	0.1551	22.3	0.1356	14.5	0.1333	40.5	0.1891
100	40.2	0.23976	49.6	0.3068	45.2	0.2737	30.9	0.2401	21.2	0.2394	46.7	0.2467
110	56.0	0.42027	67.5	0.5385	61.7	0.4793	42.9	0.4324	29.8	0.4446	61.5	0.4186
125	86.2	0.83426	102.6	1.0485	94.4	0.9413	64.4	0.8187	42.2	0.8031	96.8	0.8497
140	118.3	1.38607	141.2	1.743	129.7	1.564	90.4	1.4221	62.5	1.4580	127.8	1.368
160	171.6	2.69781	210.3	3.517	190.9	3.107	127.6	2.589	83.6	2.4805	190.3	2.723
180	242.25	4.75449	306.6	6.582	274.4	5.668	175.1	4.448	107.9	4.141	262.2	4.810



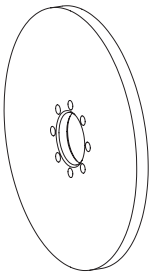
AFN-SB spec. without brake disk

Size	Weight [kg]	Mass moment of inertia J [kgm²]
65	13.7	0.03126
75	21	0.06828
90	39	0.20132
100	53	0.34637
110	74	0.61684
125	101	1.12844
140	145	1.95075
160	200	3.67846
180	262	6.41621



Brake drum for BTAN

Brake drum $ØD_B$ x B	Weight [kg]	Mass moment of inertia J [kgm²]
160 x 60	2.1	0.01
200 x 75	3.5	0.03
250 x 95	6.9	0.08
315 x 118	15.0	0.28
400 x 150	31	0.89
500 x 190	60,	2.70
630 x 236	112	8.01
710 x 265	161	14.9
800 x 300	202	27.2



Brake disk for SBAN / AFN-SB spec.

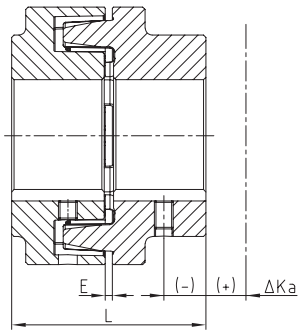
Brake disk ØA x G_S	Weight [kg]	Mass moment of inertia J [kgm²]
200 x 12.5	2.9	0.01537
250 x 20	7.7	0.05913
250 x 30	11.5	0.08869
250 x 12.5	4.7	0.03758
315 x 16	8.6	0.11183
315 x 20	12.3	0.15117
315 x 30	18.5	0.22601
355 x 20	15.5	0.23376
355 x 30	23.5	0.36432
400 x 16	15.2	0.31521
400 x 20	20	0.39058
400 x 30	30	0.57652
450 x 20	25	0.62101
450 x 30	38	0.93169
500 x 16	24	0.76996
500 x 20	31	0.93714
500 x 30	47	1.40607
560 x 20	39	1.50479
560 x 30	59	2.25145
630 x 20	48	2.38081
630 x 30	74	3.45018
710 x 20	61	3.90652
710 x 30	93	5.52149
800 x 25	95	7.87899
800 x 30	114	9.40746
900 x 25	119	12.60909
900 x 30	150	14.84302
900 x 40	200	20.15384
1000 x 25	148	19.23494
1000 x 30	185	22.79405
1000 x 40	246	30.35531
1250 x 30	290	56.25377
1250 x 40	385	75.00507

Technical data

ROFLEX® Technical data													
Size	Torque [Nm] DIN 740 [1]		Max. speed [rpm]	Torsion spring stiffness Ct dyn. [Nm/rad]				Max. perm. displacement ΔK_w [mm] with n = 1500 rpm			Max. perm. displacement ΔK_w [mm] with n = 3000 rpm		
	Rated torque T_{KN}	Maximum torque $T_{K\,max}$	with v = 35 m/s	1.0 T_{KN}	0.75 T_{KN}	0.5 T_{KN}	0.3 T_{KN}	Axial ΔK_a	Radial ΔK_r	Angular ΔK_w (1°)	Axial ΔK_a	Radial ΔK_r	Angular ΔK_w (0.5°)
68	65	180	8500	$3.48x10^3$	$2.66x10^3$	$2.24x10^3$	$2.01x10^3$	± 1.00	0.20	0.20	± 1.00	0.14	0.14
80	80	220	7500	$7.73x10^3$	$4.72x10^3$	$2.74x10^3$	$1.97x10^3$	± 1.00	0.23	0.23	± 1.00	0.16	0.16
95	125	345	6800	$1.43x10^4$	$8.99x10^3$	$5.36x10^3$	$3.81x10^3$	± 1.00	0.23	0.23	± 1.00	0.16	0.16
110	205	565	6500	$2.30x10^4$	$1.39x10^4$	$7.40x10^3$	$4.80x10^3$	± 1.25	0.25	0.25	± 1.25	0.18	0.18
125	315	865	5800	$3.48x10^4$	$2.05x10^4$	$1.12x10^4$	$7.20x10^3$	± 1.25	0.28	0.28	± 1.25	0.20	0.20
140	450	1240	5400	$5.52x10^4$	$3.01x10^4$	$1.38x10^4$	$9.50x10^3$	± 1.25	0.30	0.30	± 1.25	0.21	0.21
160	790	2170	4800	$1.41x10^5$	$8.61x10^4$	$4.25x10^4$	$2.48x10^4$	± 1.75	0.35	0.35	± 1.75	0.25	0.25
180	1150	3160	4350	$2.26x10^5$	$1.30x10^5$	$7.11x10^4$	$4.97x10^4$	± 1.75	0.35	0.35	± 1.75	0.25	0.25
200	1800	4950	3950	$4.27x10^5$	$2.54x10^5$	$1.29x10^5$	$8.06x10^4$	± 1.75	0.38	0.38	± 1.75	0.27	0.27
225	2100	5775	3600	$3.74x10^5$	$2.22x10^5$	$1.32x10^5$	$9.03x10^4$	± 2.50	0.43	0.43	± 2.50	0.30	0.30
250	3550	9765	3000	$7.15x10^5$	$4.23x10^5$	$2.44x10^5$	$1.60x10^5$	± 2.75	0.48	0.48	± 2.75	0.34	0.34
280	5000	13750	3000	$1.04x10^6$	$6.19x10^5$	$3.24x10^5$	$1.96x10^5$	± 2.75	0.50	0.50	± 2.75	0.36	0.36

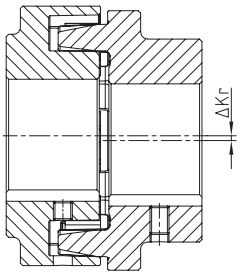
If requested, coupling is dynamically balanced. For circumferential speeds exceeding v = 20 m/s dyn. balancing is recommended.

Axial displacement ΔK_a

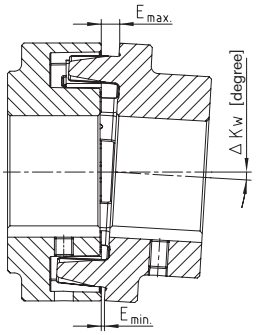


$L_{max./min.} = L + \Delta K_a$ [mm]

Radial displacement ΔK_r



Angular displacement ΔK_w

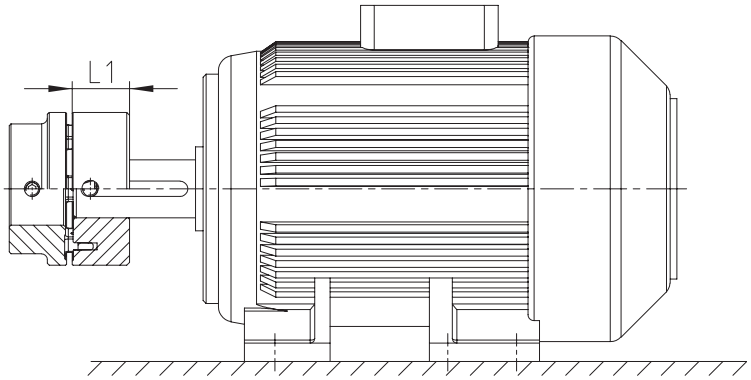


$\Delta K_w = E_{max.} - E_{min.}$ [mm]

Advice for assembly

With assembly the coupling halves must be mounted in that coupling and shaft are flush. Alignment must be made in that radial and angular displacement is as small as possible. The service life of coupling and bearings is extended by accurate alignment. Steps must be taken to ensure that the alignment condition does not change during any operating condition. Inevitable shaft displacements should not exceed the figures specified in the table. Angular and radial displacement may occur simultaneously. See KTR assembly instructions, KTR standard 49310 on our homepage www.ktr.com.

Selection of standard IEC motors



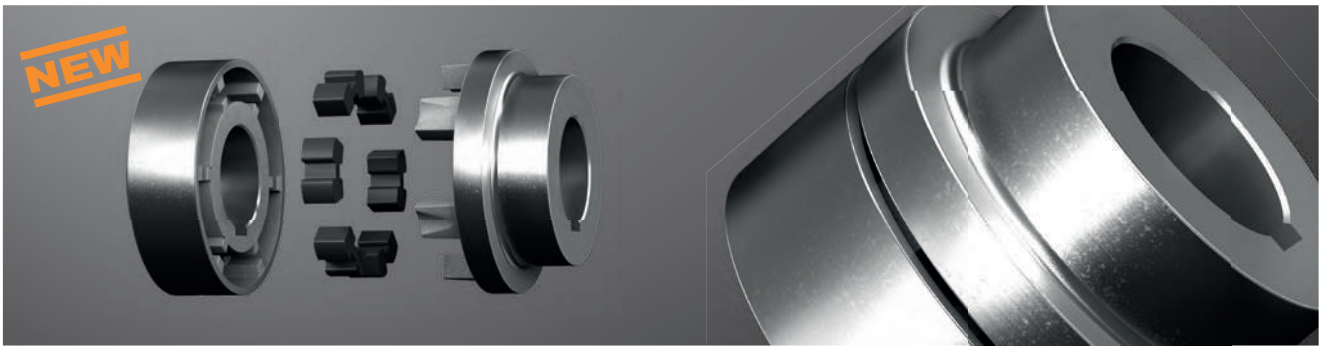
ROFLEX® couplings for standard IEC motors, protection class IP 54/IP 55 (elastomer ring 78 Shore A)

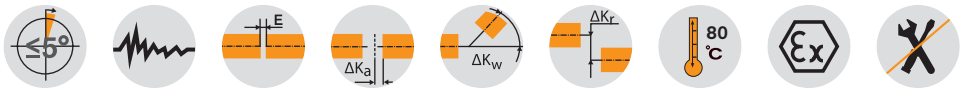
A. C. motor 50 Hz			Motor power n= 3000 rpm 2 poles		ROFLEX® coupling size	Motor power n= 1500 rpm 4 poles		ROFLEX® coupling size	Motor power n= 1000 rpm 6 poles		ROFLEX® coupling size	Motor power n= 750 rpm 8 poles		ROFLEX® coupling size
Size	Shaft end DWxLW [mm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]	
	2 poles	4, 6, 8 poles												
56	9 x 20		0.09	0.32		0.06	0.43		0.037	0.43				
			0.12	0.41		0.09	0.64		0.045	0.52				
63	11 x 23		0.18	0.62		0.12	0.88		0.06	0.7				
			0.25	0.86		0.18	1.3		0.09	1.1				
71	14 x 30		0.37	1.3		0.25	1.8		0.18	2		0.09	1.4	
			0.55	1.9		0.37	2.5		0.25	2.8		0.12	1.8	
80	19 x 40		0.75	2.5		0.55	3.7		0.37	3.9		0.18	2.5	
			1.1	3.7		0.75	5.1		0.55	5.8		0.25	3.5	
90S	24 x 50		1.5	5	68	1.1	7.5	68	0.75	8	68	0.37	5.3	
90L			2.2	7.4		1.5	10		1.1	12		0.55	7.9	
100L	28 x 60		3	9.8		2.2	15		1.5	15		0.75	11	68
						3	20					1.1	16	
112M			4	13		4	27		2.2	22		1.5	21	
132S	38 x 80		5.5	18		5.5	36		3	30		2.2	30	
			7.5	25										
132M						7.5	49		4	40		3	40	
									5.5	55	80			
160M	42 x 110		11	36		11	72		7.5	75	95	4	54	80
			15	49	80			95				5.5	74	95
160L			18.5	60		15	98		11	109		7.5	100	
180M	48 x 110		22	71	95	18.5	121	110			110			110
180L						22	144		15	148		11	145	
200L	55 x 110		30	97		30	196		18.5	181	125	15	198	
			37	120	110			125	22	215				125
225S	55 x 110	60 x 140				37	240				140	18.5	244	
225M			45	145		45	292	140	30	293		22	290	140
250M	60 x 140	65 x 140	55	177	125	55	356	160	37	361	160	30	392	160
280S		75 x 140	75	241	140	75	484		45	438		37	483	
280M			90	289		90	581	180	55	535	160	45	587	180
315S		80 x 170	110	353		110	707		75	727		55	712	
315M	65 x 140		132	423	160	132	849		90	873		75	971	200
			160	513		160	1030		110	1070	200	90	1170	
315L			200	641		200	1290	200	132	1280		110	1420	225
					180				160	1550	225	132	1710	250
315		85 x 170	250	802		250	1600	225	200	1930	250	160	2070	
			315	1010		315	2020		250	2410		200	2580	
			355	1140	200	355	2280					250	3220	
355	75 x 140	95 x 170	400	1280		400	2570		315	3040		315	4060	
			500	1600	225	500	3210		400	3850				
			560	1790		560	3580		450	4330		355	4570	
400	80 x 170	110 x 210	630	2020		630	4030		500	4810		400	5150	
			710	2270		710	4540		560	5390		450	5790	
			800	2560		800	5120		630	6060		500	6420	
450	90 x 170	120 x 200	900	2880		900	5760		710	6830		560	7190	
			1000	3200		1000	6400		800	7690		630	8090	

The coupling selection is based on an ambient temperature of up to +30 °C. The selection is based on a minimum safety factor of 2 to the max. coupling torque ($T_{K\ max}$). A detailed selection is possible according to catalogue page 15 et seqq. Drives with periodical torque curves must be selected according to DIN 740 part 2. If requested, KTR will perform the selection.
Torque T = rated torque according to Siemens catalogue M 11 · 1994/95.

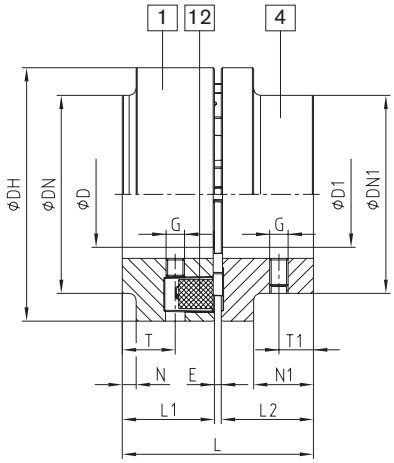
ROFLEX® N
Flexible jaw couplings

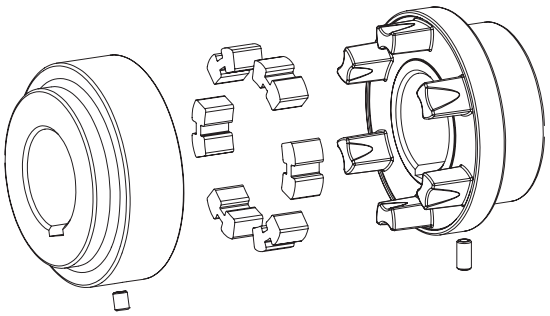
Two-part





Components



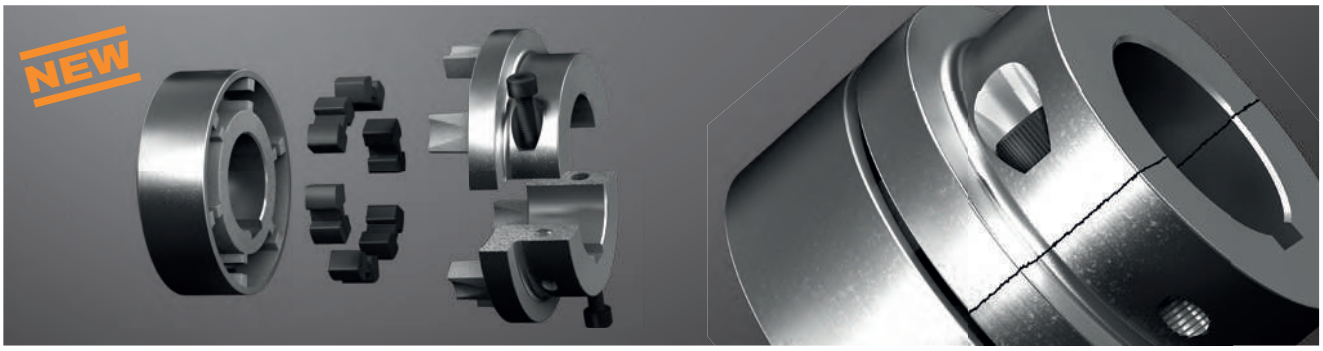


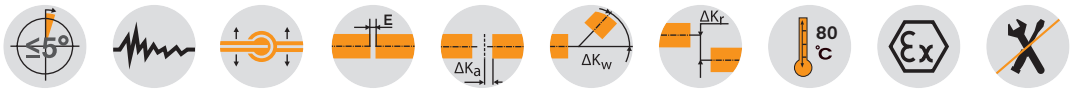
ROFLEX® type N																			
Size	Torque DIN 740 [1]		Max. speed [rpm]	Dimensions														Mass moment of inertia J1 [kgm²] [2]	Mass moment of inertia J4 [kgm²] [2]	Weight [kg] [2]
				Max. finish bore		General								Thread for setscrews						
	T_{KN} [Nm]	T_K max [Nm]		D	D1	L	L1, L2	E	DH	DN	DN1	N	N1	G	T	T1	TA [Nm]			
68	65	180	8500	28	38	43	20	3	68	-	-	-	-	M5	8.5	8	2	0.00016	0.00029	0.6
80	80	220	7500	35	45	63	30	3	80	-	68	-	20	M8	20.5	12	10	0.00059	0.00055	1.2
95	125	345	6800	45	48	73	35	3	95	76	76	5	23	M8	22	15	10	0.00116	0.00120	1.9
110	205	565	6500	50	55	83	40	3	110	86	86	6	26	M8	24	18	10	0.0024	0.0024	2.9
125	315	865	5800	60	65	103	50	3	125	100	100	14	32	M8	32	20	10	0.0046	0.0052	4.5
140	450	1240	5400	70	65	113	55	3	140	100	100	21	35	M10	13	22	17	0.0062	0.0077	5.3
160	790	2170	4800	75	70	124	60	4	160	108	108	21	40	M10	13	25	17	0.014	0.013	8.1
180	1150	3160	4350	85	80	144	70	4	180	125	125	28	50	M10	16	32	17	0.021	0.023	11.0
200	1800	4950	3950	90	90	164	80	4	200	140	140	33	56	M12	20	40	40	0.038	0.044	16.3
225	2100	5775	3600	100	100	184	90	4	225	150	150	38	72	M12	22	40	40	0.06	0.06	20.4
250	3550	9765	3000	110	110	205.5	100	5.5	250	165	165	40	82	M16	24	45	80	0.11	0.10	28.2
280	5000	13750	3000	120	120	225.5	110	5.5	280	180	180	45	90	M16	28	45	80	0.19	0.16	38.1

[1] see catalogue page 15
[2] Mass moments of inertia J1 and J4 as well as the total weight refer to the maximum bore diameters

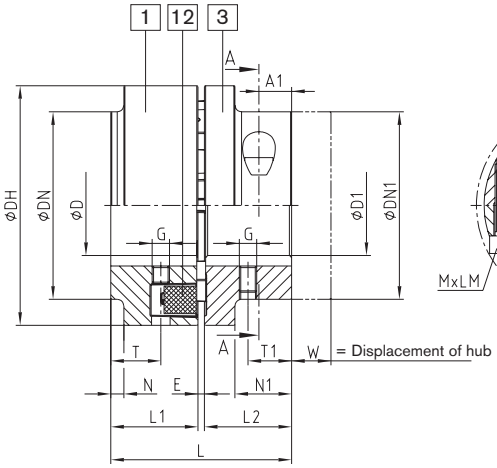
Ordering example:	ROFLEX® 110	N	ØD = 50	ØD1 = 55
	Coupling size	Type	Finish bore	Finish bore

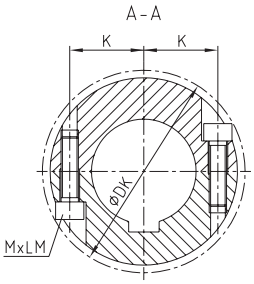
Coupling with SPLIT hub

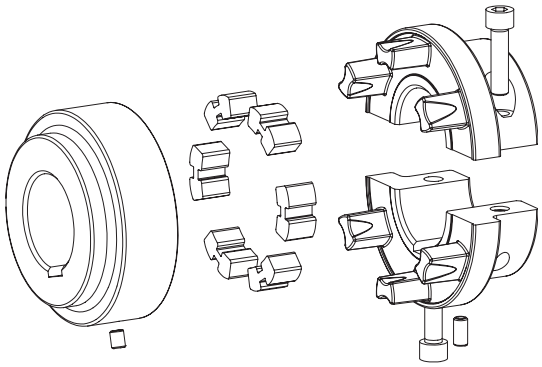




Components







ROFLEX® type SH																												
Size	Torque DIN 740 [1]		Max. speed [rpm]	Dimensions																							Mass moment of inertia J1 [kgm²] [2]	Mass moment of inertia J3 [kgm²] [2]	Weight [kg] [2]
				Max. finish bore		General										Thread for setscrews				Cap screws								
	T_{KN} [Nm]	$T_{K\,max}$ [Nm]		D	D1	L	L1	L2	E	DH	DN	DN1	N	N1	W	G	T	T1	T_A [Nm]	MxLM	DK	K	A1	A2	T_A [Nm]			
80	80	220	7500	35	38	63	30	30	3	80	80	68	-	20	15.5	M8	20.5	12	10	M8x25	75	25	11	-	34	0.00059	0.00058	1.3
95	125	345	6800	45	42	73	35	35	3	95	76	76	5	23	18	M8	22	15	10	M8x30	82	28.5	13	-	34	0.00116	0.00123	2.0
110	205	565	6500	50	48	83	40	40	3	110	86	86	6	26	21	M8	24	18	10	M8x35	94	31.5	15	-	34	0.0024	0.0025	3.1
125	315	865	5800	60	55	103	50	50	3	125	100	100	14	32	23.5	M8	32	20	10	M10x40	108	38.5	20	-	67	0.0046	0.0052	4.5
140	450	1240	5400	70	60	113	55	55	3	140	100	100	21	35	25	M10	13	22	17	M10x35	108	39.0	10.5	25.5	67	0.0062	0.0080	5.7
160	790	2170	4800	75	65	124	60	60	4	160	108	108	21	40	30	M10	13	25	17	M12x35	118	42.5	12	29	115	0.014	0.014	8.5
180	1150	3160	4350	85	75	144	70	70	4	180	125	125	28	50	32	M10	16	32	17	M12x40	135	50	15	35	115	0.021	0.024	11.6
200	1800	4950	3950	90	85	164	80	80	4	200	140	140	33	56	34	M12	20	40	40	M16x50	153	54	17	40	290	0.038	0.044	17.8
225	2100	5775	3600	100	90	184.0	90	90	4.0	225	150	150	38	73	39.0	M12	22	40	40	M20x50	170	58	22	30	560	0.06	0.06	20.4
250	3550	9765	3000	110	100	205.5	100	100	5.5	250	165	165	40	82	44.5	M16	24	40	80	M20x55	182	63	25	35	560	0.11	0.1	28.2
280	5000	13750	3000	120	120	225.5	110	110	5.5	280	180	180	45	90	50.0	M16	28	45	80	M16x60	194	72	17	29	290	0.19	0.16	38.1

[1] see catalogue page 15
[2] Mass moments of inertia J1 and J3 as well as the total weight refer to the maximum bore diameters

Ordering example:	ROFLEX® 110	SH	ØD = 42	ØD1 = 48
	Coupling size	Type	Finish bore	Finish bore

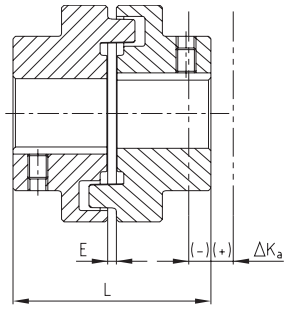
Technical data

POLY-NORM® Technical data

Size	Torque [Nm] DIN 740 [1]			Max. speed [rpm] with v = 35 m/s	Torsion angle with		Torsion spring stiffness C dyn. [Nm/rad]				Max. perm. displacement [mm] [2]		
	Rated torque T_{KN}	Maximum torque $T_{K\,max}$	Vibratory torque T_{KW}		T_{KN}	$T_{K\,max}$	1.0 T_{KN}	0.75 T_{KN}	0.5 T_{KN}	0.25 T_{KN}	Axial ΔK_a	Radial ΔK_r	Angular ΔK_w
28	40	80	16	9650			$0.52x10^4$	$0.332x10^4$	$0.187x10^4$	$0.09x10^4$	± 1.0	0.20	1.2
32	60	120	24	8550	4.5	6.0	$0.782x10^4$	$0.499x10^4$	$0.282x10^4$	$0.135x10^4$	± 1.0	0.25	1.4
38	90	180	36	7650			$1.35x10^4$	$0.864x10^4$	$0.489x10^4$	$0.234x10^4$	± 1.0	0.25	1.5
42	150	300	60	6950			$2.63x10^4$	$1.68x10^4$	$0.947x10^4$	$0.453x10^4$	± 1.0	0.25	1.7
48	220	440	88	6300			$2.99x10^4$	$1.91x10^4$	$1.08x10^4$	$0.516x10^4$	± 1.5	0.30	1.8
55	300	600	120	5650			$3.85x10^4$	$2.46x10^4$	$1.39x10^4$	$0.664x10^4$	± 1.5	0.30	2.0
60	410	820	164	5150	4.0	5.5	$6.76x10^4$	$4.31x10^4$	$2.32x10^4$	$1.17x10^4$	± 1.5	0.30	2.2
65	550	1100	220	4750			$8.18x10^4$	$5.22x10^4$	$2.7x10^4$	$1.41x10^4$	± 1.5	0.35	2.4
75	850	1700	340	4200			$12.29x10^4$	$7.84x10^4$	$4.06x10^4$	$2.12x10^4$	± 1.5	0.40	2.7
85	1350	2700	540	3650			$24.31x10^4$	$15.51x10^4$	$7.49x10^4$	$4.19x10^4$	± 1.5	0.40	3.0
90	2000	4000	800	3300			$36.16x10^4$	$23.07x10^4$	$11.14x10^4$	$6.24x10^4$	± 1.5	0.45	3.4
100	2900	5800	1160	2950			$54.82x10^4$	$34.98x10^4$	$16.89x10^4$	$9.46x10^4$	± 3.0	0.50	3.9
110	3900	7800	1560	2650			$79.23x10^4$	$50.55x10^4$	$24.4x10^4$	$13.67x10^4$	± 3.0	0.60	4.3
125	5500	11000	2200	2350	2.5	3.5	$102.3x10^4$	$65.28x10^4$	$31.52x10^4$	$17.65x10^4$	± 3.0	0.60	4.8
140	7200	14400	2880	2100			$164x10^4$	$104.7x10^4$	$50.85x10^4$	$28.3x10^4$	± 3.0	0.60	5.5
160	10000	20000	4000	1900			$209.1x10^4$	$133.4x10^4$	$64.82x10^4$	$36.07x10^4$	± 3.0	0.65	6.1
180	13400	26800	5360	1650			$267.1x10^4$	$170.4x10^4$	$82.79x10^4$	$46.07x10^4$	± 3.0	0.65	6.0
200	19000	38000	7600	1450			$159.5x10^4$	$126.2x10^4$	$96.24x10^4$	$60.2x10^4$	± 4.0	0.65	7.8
220	30000	60000	12000	1300			$218.8x10^4$	$174x10^4$	$128.7x10^4$	$77.84x10^4$	± 4.0	0.70	8.7
240	43000	86000	17200	1200	1.5	2.1	$567.9x10^4$	$438.3x10^4$	$301.6x10^4$	$161.9x10^4$	± 4.0	0.70	9.6
260	55000	110000	22000	1000			$663.8x10^4$	$539.4x10^4$	$382.2x10^4$	$195.5x10^4$	± 4.0	0.85	11.3
280	67000	134000	26800	950			$773.1x10^4$	$628.1x10^4$	$467.9x10^4$	$266.2x10^4$	± 4.0	0.95	12.2

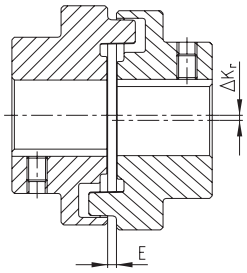
[1] see catalogue page 15
[2] Displacement with n = 1500 rpm
Radial and angular displacements may occur simultaneously. The combined sum of displacements must not exceed the values listed in the table. If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with 1500 rpm). For circumferential speeds exceeding v = 20 m/s dyn. balancing is recommended.

Axial displacement ΔK_a

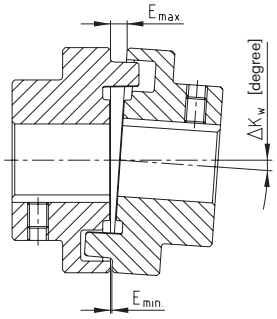


$L_{max./min.} = L + \Delta K_a$ [mm]

Radial displacement ΔK_r



Angular displacement ΔK_w



$\Delta K_w = E_{max.} - E_{min.}$ [mm]

Advice for assembly

With assembly the coupling halves must be mounted in that coupling and shaft are flush. Alignment must be made in that radial and angular displacement is as small as possible. The service life of coupling and bearings is extended by accurate alignment. Steps must be taken to ensure that the alignment condition does not change during any operating condition. Inevitable shaft displacements should not exceed the figures specified in the table. Angular and radial displacement may occur simultaneously. The combined sum of displacements must not exceed the values listed in the table above. See KTR assembly instructions, KTR standard 49510 on our homepage www.ktr.com.

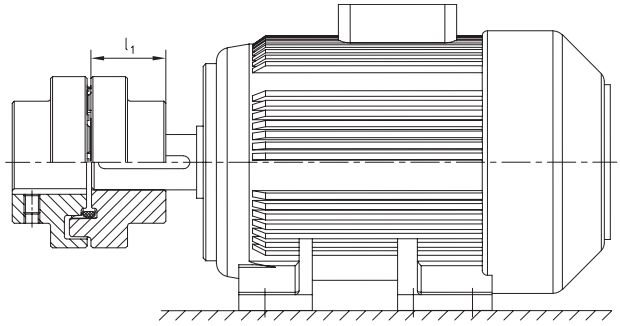
General information about the elastomer

Material/hardness	Perbunan [NBR]/78 Shore A
Permanent temperature range [°C]	-30 to +80
Max. temperature (short time) [°C]	-50 to +120
Operating range	General engineering
	Pump industry
	ATEX applications
	Chemical industry
	Standard applications with medium elasticity
Resistant to	Gasoline, diesel
	Acids, bases
	Use in the tropics
	(Salt) water (hot/cold)
	Oils, greases
	Propane, butane
	Natural gas, city gas

Elastomer ring NBR 78 Shore A

Elastomer ring Viton [FKM] 60 Shore A for the high-temperature range on request.

Selection of standard IEC motors



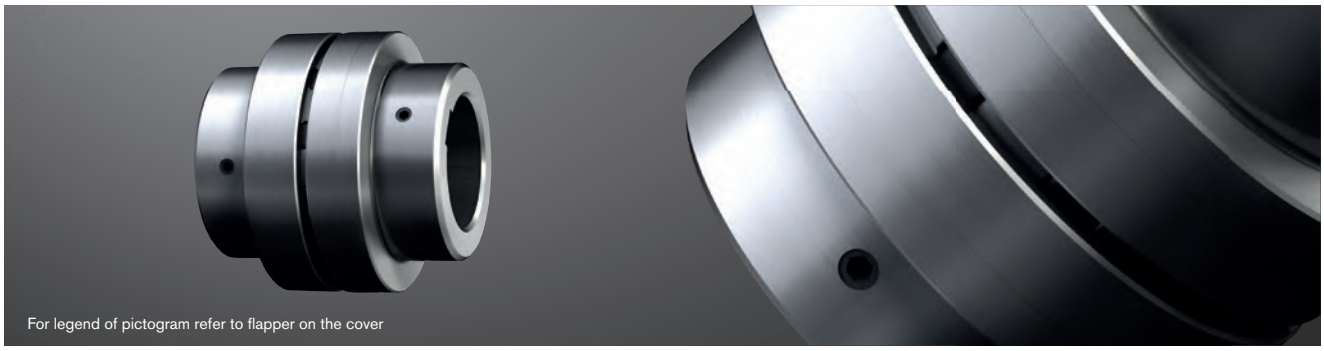
POLY-NORM® couplings for standard IEC motors, protection class IP 54/IP 55 (elastomer ring 78 Shore A)

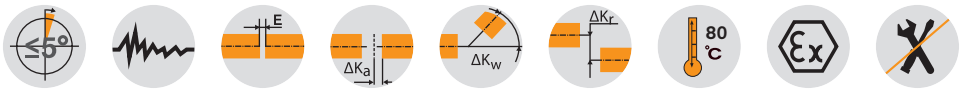
A. C. motor 50 Hz			Motor power n= 3000 rpm 2 poles		POLY-NORM® coupling size	Motor power n= 1500 rpm 4 poles		POLY-NORM® coupling size	Motor power n= 1000 rpm 6 poles		POLY-NORM® coupling size	Motor power n= 750 rpm 8 poles		POLY-NORM® coupling size
Size	Shaft end dxl [mm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]		Power P [kW]	Torque T [Nm]	
	2 poles	4, 6, 8 poles												
56	9 x 20		0.09	0.32		0.06	0.43		0.037	0.43				
			0.12	0.41		0.09	0.64		0.045	0.52				
63	11 x 23		0.18	0.62		0.12	0.88		0.06	0.7				
			0.25	0.86		0.18	1.3		0.09	1.1				
71	14 x 30		0.37	1.3		0.25	1.8		0.18	2		0.09	1.4	
			0.55	1.9		0.37	2.5		0.25	2.8		0.12	1.8	
80	19 x 40		0.75	2.5	28/32	0.55	3.7	28/32	0.37	3.9	28/32	0.18	2.5	28/32
			1.1	3.7		0.75	5.1		0.55	5.8		0.25	3.5	
90S	24 x 50		1.5	5		1.1	7.5		0.75	8		0.37	5.3	
90L			2.2	7.4		1.5	10		1.1	12		0.55	7.9	
100L	28 x 60		3	9.8		2.2	15		1.5	15		0.75	11	
						3	20					1.1	16	
112M			4	13		4	27		2.2	22		1.5	21	
132S	38 x 80		5.5	18	38	5.5	36	38	3	30	38	2.2	30	38
			7.5	25										
132M						7.5	49		4	40		3	40	
									5.5	55				
160M	42 x 110		11	36	42	11	72	42	7.5	75	42	4	54	42
			15	49								5.5	74	
160L			18.5	60		15	98		11	109		7.5	100	
180M	48 x 110		22	71	48	18.5	121	48			48			48
180L						22	144		15	148		11	145	
200L	55 x 110		30	97	55	30	196	55	18.5	181	55	15	198	55
			37	120					22	215				
225S	55 x 110	60 x 140				37	240	60			60	18.5	244	60
225M			45	145		45	292		30	293		22	290	
250M	60 x 140	65 x 140	55	177	60	55	356	65	37	361	65	30	392	65
280S	65 x 140	75 x 140	75	241		75	484	75	45	438	75	37	483	75
280M			90	289	65	90	581		55	535		45	587	
315S		80 x 170	110	353		110	707	85	75	727	85	55	712	85
315M			132	423	75	132	849		90	873		75	971	
			160	513		160	1030		110	1070	90	90	1170	90
315L			200	641		200	1290	90	132	1280		110	1420	
		85 x 170			85				160	1550	100	132	1710	100
315			250	802		250	1600	100	200	1930		160	2070	
			315	1010		315	2020		250	2410	110	200	2580	110
355	75 x 140	95 x 170	355	1140	90	355	2280	110	315	3040	125	250	3220	125
			400	1280		400	2570		400	3850		315	4060	
			500	1600		500	3210	125			140			140
400	80 x 170	110 x 210	560	1790	100	560	3580		450	4330		355	4570	
			630	2020		630	4030		500	4810		400	5150	
			710	2270	110	710	4540	140	560	5390	160	450	5790	160
450	90 x 170	120 x 200	800	2560		800	5120	160	630	6060		500	6420	
			900	2880	125	900	5760		710	6830	180	560	7190	180
			1000	3200		1000	6400		800	7690		630	8090	

The coupling selection is based on an ambient temperature of up to +30 °C. The selection is based on a minimum safety factor of 2 to the max. coupling torque ($T_{K\ max}$). A detailed selection is possible according to catalogue page 15 et seqq. Drives with periodical torque curves must be selected according to DIN 740 part 2. If requested, KTR will perform the selection.
Torque T = rated torque according to Siemens catalogue M 11 · 1994/95.

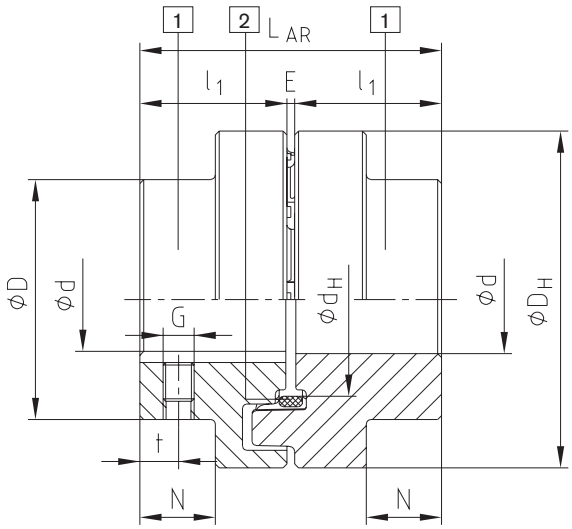
POLY-NORM® AR
Flexible couplings

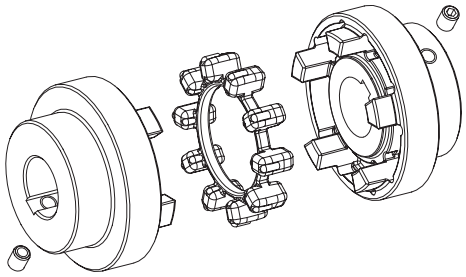
Two-part



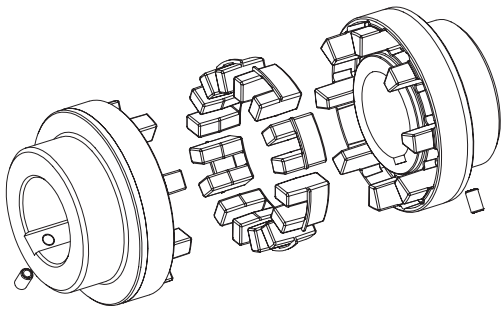


Components





Size 28 - 125



Size 140 - 280

Components of type AR:
1 = Standard hub (GJL)
2 = Elastomer ring (up to size 180: NBR 78 ShA; from size 200: T-PUR® 84 ShA)

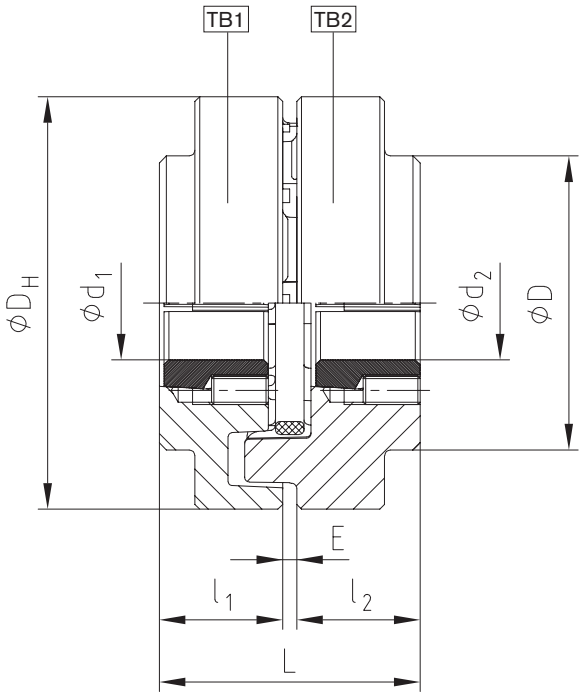
POLY-NORM® Type AR

Size	Elastomer ring [1] component [2] Torque [Nm]		Max. finish bore d [2]	Dimensions [mm]									Mass moment of inertia [3] [kgm²]	Weight [3] [kg]
				General							Setscrew [2]			
	T_{KN}	$T_{K\,max}$		L_{AR}	l1	E	DH	D	d_H	N	G	t		
28	40	80	12-30	59	28	3	69	46	36.5	12	M5	7	0.0004	0.9
32	60	120	12-35	68	32	4	78	53	41.5	14	M8	7	0.0008	1.4
38	90	180	19-40	80	38	4	87	62	50	19.5	M8	10	0.0016	2.0
42	150	300	19-45	88	42	4	96	69	55.5	20	M8	10	0.0026	2.7
48	220	440	19-50	101	48	5	106	78	64	24	M8	15	0.0042	3.7
55	300	600	19-60	115	55	5	118	90	73	29	M8	14	0.0070	5.5
60	410	820	19-65	125	60	5	129	97	81	33	M8	15	0.0112	6.9
65	550	1100	19-70	135	65	5	140	105	86	36	M10	20	0.0174	8.8
75	850	1700	32-80	155	75	5	158	123	100	42.5	M10	20	0.028	13.5
85	1350	2700	32-90	175	85	5	182	139	116	48.5	M10	25	0.052	19.5
90	2000	4000	32-95	185	90	5	200	148	128	49	M12	25	0.090	23.2
100	2900	5800	42-110	206	100	6	224	165	143	55	M12	25	0.160	31.9
110	3900	7800	50-120	226	110	6	250	185	158	60	M16	30	0.317	38.0
125	5500	11000	55-140	256	125	6	280	210	178	70	M16	35	0.570	55.2
140	7200	14400	65-155	286	140	6	315	235	216	76.5	M20	35	1.030	92.6
160	10000	20000	75-175	326	160	6	350	265	246	94.5	M20	45	1.746	126.9
180	13400	26800	75-200	366	180	6	400	300	290	111.5	M20	50	3.239	181.8
200	19000	38000	85-200	408	200	8	450	335	-	126	M24	50	5.728	263.7
220	30000	60000	95-220	448	220	8	500	370	-	140	M24	50	9.489	355.9
240	43000	86000	105-240	488	240	8	550	405	-	154	M24	50	14.963	466.3
260	55000	110000	115-260	530	260	10	650	440	-	158	M24	60	29.504	672.2
280	67000	134000	125-280	570	280	10	700	475	-	172	M24	60	42.451	836.6

[1] Standard material Perbunan [NBR] 78 Shore A, size 140 - 280 double tooth elastomers, for selection see page 14 et seqq.
[2] Bores H7 with keyway to DIN 6885 sheet 1 [JS9] and setscrew on the keyway
[3] Referring to medium bore

For taper clamping sleeve

Components



POLY-NORM® for taper clamping sleeve

Size	Taper clamping sleeve	Dimensions [mm]		Fastening screws [1] for taper clamping sleeve				Size	Taper clamping sleeve	Dimensions [mm]		Fastening screws [1] for taper clamping sleeve			
		Max. d_1, d_2	l_1, l_2	Size [Inch]	Length [mm]	SW [mm]	T_A [Nm]			Max. d_1, d_2	l_1, l_2	Size [Inch]	Length [mm]	SW [mm]	T_A [Nm]
32	1108	25	25.5	1/4"	13	3	5.7	75	2517	60	52.5	1/2"	25	6	49
42	1210	32	31.0	3/8"	16	5	20	85	2517	60	46.5	1/2"	25	6	49
48	1610	40	30.0	3/16"	16	5	20		3030	75	82	5/8"	32	8	90
	1615	40	42.5	3/8"	16	5	20	90	3020	75	52.0	5/8"	32	8	92
60	2012	50	38.5	7/16"	22	6	31	100	3535	90	98.0	1/2"	38	10	115
65	2517	60	62.5	1/2"	25	6	49	125	4040	100	111.5	5/8"	45	12	172

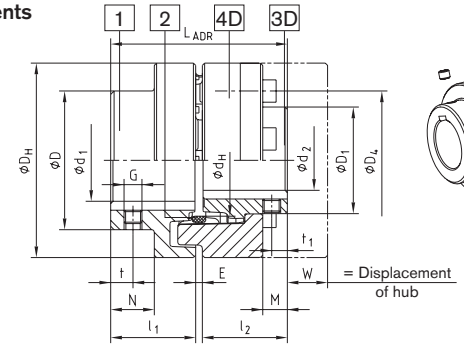
[1] Each 2 fastening screws, with 3535/4040 3-off
For coupling type TB1 screw connection on cam side - TB2 screw connection on collar side
Combination possible! Please order our separate dimension sheet (M407045).

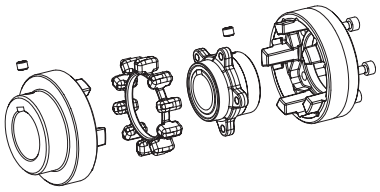
Ordering example:	POLY-NORM® 32 AR TB1 / TB1	AR	Ø38	Ø30
	Coupling size	Type	Finish bore	Finish bore

POLY-NORM® ADR
Flexible couplings

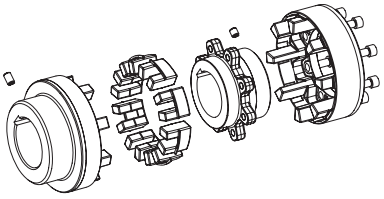
Three-part

Components





Size 38 - 125



Size 140 - 280

Components of type ADR (three-part):
1 = Standard hub* (GJL)
2 = Elastomer ring (up to size 180: NBR 78 ShA; from size 200: T-PUR® 84 ShA)
3D = Flange hub (GJS); 4D = Cam ring (GJL)
* To be preferably used on driving side

POLY-NORM® Type ADR

Size	Elastomer ring [1] (component 2) Torque [Nm]		Dimensions [mm]															
			Max. finish bore [2]		General										Setscrew			
	T_{KN}	$T_{K\,max}$	d_1	d_2	L_{ADR}	l_1, l_2	E	DH	D	D_1	d_H	N	M	W	G	t	t1	T_A [Nm]
38	90	180	40	34	80	38	4	87	62	48	50	19.5	11.0	12	M8	10	7	10
42	150	300	45	38	88	42	4	96	69	54	55.5	20	12.0	16	M8	10	7	10
48	220	440	50	44	101	48	5	106	78	62	64	24	13.7	16	M8	15	7	10
55	300	600	60	50	115	55	5	118	90	72	73	29	18.7	15	M8	14	14	10
60	410	820	65	56	125	60	5	129	97	80	81	33	22.2	14	M8	15	15	10
65	550	1100	70	60	135	65	5	140	105	86	86	36	26.7	11	M10	20	20	17
75	850	1700	80	68	155	75	5	158	123	98	100	42.5	27.8	16	M10	20	20	17
85	1350	2700	90	78	175	85	5	182	139	112	116	48.5	33.7	18	M10	25	25	17
90	2000	4000	95	85	185	90	5	200	148	122	128	49	31.5	26	M12	25	25	40
100	2900	5800	110	95	206	100	6	224	165	136	143	55	37.5	28	M12	25	25	40
110	3900	7800	50-120	105	226	110	6	250	185	150	158	60	39.5	30	M16	30	30	80
125	5500	11000	55-140	115	256	125	6	280	210	168	178	70	48.0	35	M16	35	35	80
140	7200	14400	65-155	55-135	286	140	6	315	235	195	216	76.5	47.0	59	M20	35	35	140
160	10000	20000	75-175	65-155	326	160	6	350	265	225	246	94.5	65.0	43	M20	45	45	140
180	13400	26800	75-200	65-175	366	180	6	400	300	255	290	111.5	79.0	33	M20	50	50	140
200	19000	38000	85-200	73-200	408	200	8	450	335	290	320	126	95	7	M24	50	50	240
220	30000	60000	95-220	83-220	448	220	8	500	370	320	354	140	103	8	M24	50	50	240
240	43000	86000	105-240	93-240	488	240	8	550	405	350	388	154	119	1	M24	50	50	240
260	55000	110000	115-260	103-260	530	260	10	650	440	380	445	158	109	34	M24	60	60	240
280	67000	134000	125-280	113-280	570	280	10	700	475	410	478	172	109	29	M24	60	60	240

Selection of cap screws DIN EN ISO 4762 - 12.9

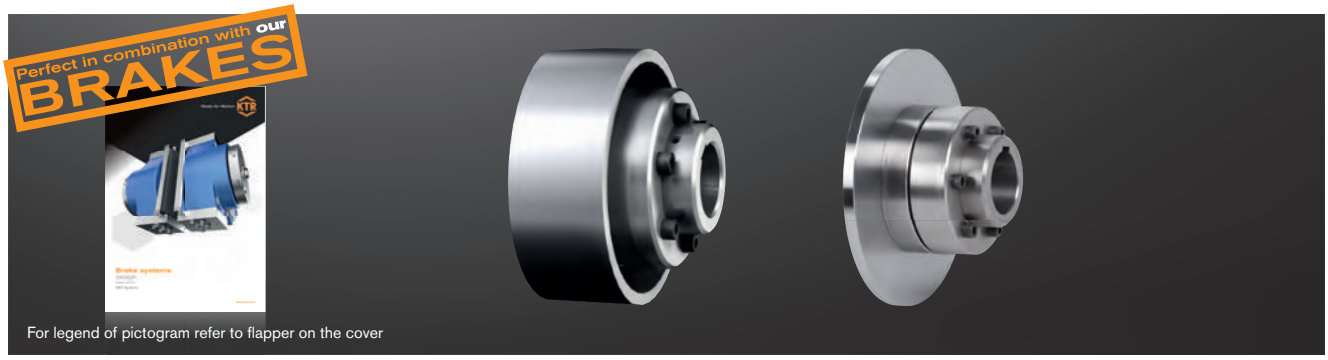
Size	M x l [mm]	z = number	Pitch z x angle	D_4 [mm]	T_A [Nm] [3]	Size	M x l [mm]	z = number	Pitch z x angle	D_4 [mm]	T_A [Nm] [3]
38	M6x16	5	5x72	62	10	110	M16x40	8	8x45	183	210
42	M8x16	5	5x72	69	25	125	M20x40	8	8x45	202	410
48	M8x20	6	6x60	78	25	140	M20x50	8	8x45	237	410
55	M8x20	6	6x60	88	25	160	M20x55	9	9x40	267	410
60	M8x20	6	6x60	98	25	180	M20x60	10	10x36	304	410
65	M10x20	6	6x60	104	49	200	M20x60	10	10x36	342	580
75	M10x25	6	6x60	120	49	220	M24x70	10	10x36	378	1000
85	M12x25	6	6x60	138	86	240	M27x70	10	10x36	416	1500
90	M16x30	6	6x60	149	210	260	M30x90	10	10x36	480	2000
100	M16x30	6	6x60	163	210	280	M30x90	10	10x36	520	2000

[1] Standard material Perbunan [NBR] 78 Shore A, size 140 - 280 double tooth elastomers, for selection see page 14 et seqq.
[2] Bores H7 with keyway to DIN 6885 sheet 1 [JS9] and setscrew [3] Screw tightening torques acc. to 8.8

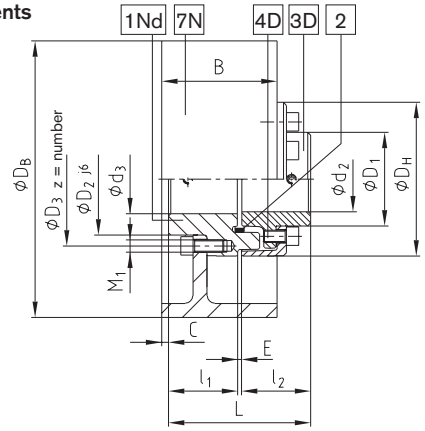
Ordering example:

POLY-NORM® 65	ADR	d_1 = Ø55	d_2 = Ø60
Coupling size	Type	Finish bore	Finish bore

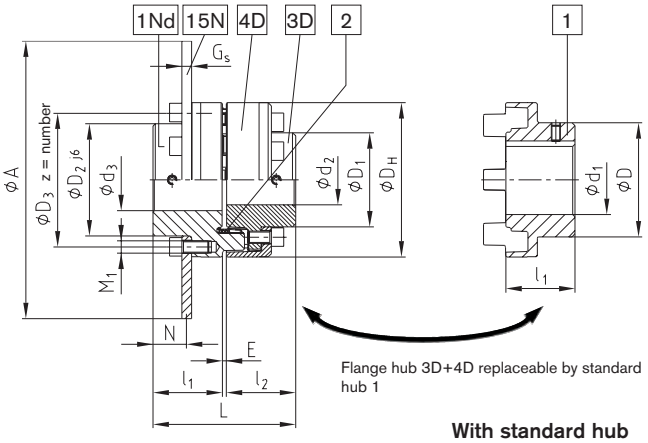
With brake drum/brake disk for brake stop



Components



Brake drum type ADR-BTA



Flange hub 3D+4D replaceable by standard hub 1

Brake disk type ADR-SBA

With standard hub type AR-BTA or AR-SBA

POLY-NORM® Type AR-BTA, AR-SBA, ADR-BTA and ADR-SBA

Size	Elastomer ring [1] (component 2) Torque [Nm]		Dimensions [mm]											
	T_{KN}	$T_{K\,max}$	D, D_1	Max. finish bore d_1	Max. finish bore d_2	Max. finish bore d_3	DH	D_2	D_3	z	M_1	l_1, l_2	E	L
38	90	180	For dimensions D, D1 refer to our company catalogue on page 67 and 69	40	34	38	87	61	75	5 x 72°	M6	38	4	80
42	150	300		45	38	42	96	68	82	5 x 72°	M8	42	4	90
48	220	440		50	44	48	106	77	92	6 x 60°	M8	48	5	101
55	300	600		60	50	55	118	88	104	6 x 60°	M8	55	5	115
60	410	820		65	56	60	129	96	114	6 x 60°	M8	60	5	125
65	550	1100		70	60	65	140	104	122	6 x 60°	M10	65	5	135
75	850	1700		80	68	75	158	121	140	6 x 60°	M10	75	5	155
85	1350	2700		90	78	85	182	137	160	6 x 60°	M12	85	5	175
90	2000	4000		95	85	90	200	146	174	6 x 60°	M16	90	5	185
100	2900	5800		110	95	100	224	164	195	6 x 60°	M16	100	6	206
110	3900	7800		50-120	105	50-110	250	184	218	8 x 45°	M16	110	6	226
125	5500	11000		55-140	115	55-125	280	208	245	8 x 45°	M20	125	6	256
140	7200	14400		65-155	55-135	65-140	315	233	276	8 x 45°	M20	140	6	286
160	10000	20000		75-175	65-155	75-160	350	263	308	9 x 40°	M20	160	6	326
180	13400	26800		75-200	65-175	75-180	400	298	349	10 x 36°	M20	180	6	366

POLY-NORM® Type BTA

POLY-NORM® size	38	42	48	55	60	65	75	85	90	100	110	125	140	160	180	Max. speed [rpm] with v = 60 m/s [3]
ØDBxB Brake drum [2]	Dimensions C [mm]															
160x60	4															7150
200x75	9	8	4													5725
250x95	17	16	20	7	3	0										4575
315x118		25	21	16	12	9	2.5	-3.5								3625
400x150			34	28	25	22	15.5	9.5	9	3						2850
500x190										18	12	-2				2275
630x236												20	13	-4		1800
710x265													24	7	-11	1600

POLY-NORM® Type SBA

POLY-NORM® size	38	42	48	55	60	65	75	85	90	100	110	125	140	160	180	Max. speed [rpm] with v = 60 m/s [3]
ØAxG Brake disk [2]	Dimensions N [mm]															
200x12.5	13.75															5725
250x12.5	13.75	14.75	18.75													4575
315x16		13	17	22	26	29	35.5									3625
400x16			17	22	26	29	35.5	41.5	42	48						2850
500x16				22	26	29	35.5	41.5	42	48	54	64				2275
630x20										46	52	62	69	86		1800
710x20										46	52	62	69	86	104	1600
800x25										43.5	49.5	59.5	66.5	83.5	101.5	1425
900x25											49.5	59.5	66.5	83.5	101.5	1250

[1] Standard material Perbunan [NBR], for selection see page 14 et seqq.
[2] Steel
[3] Dynamic balancing required

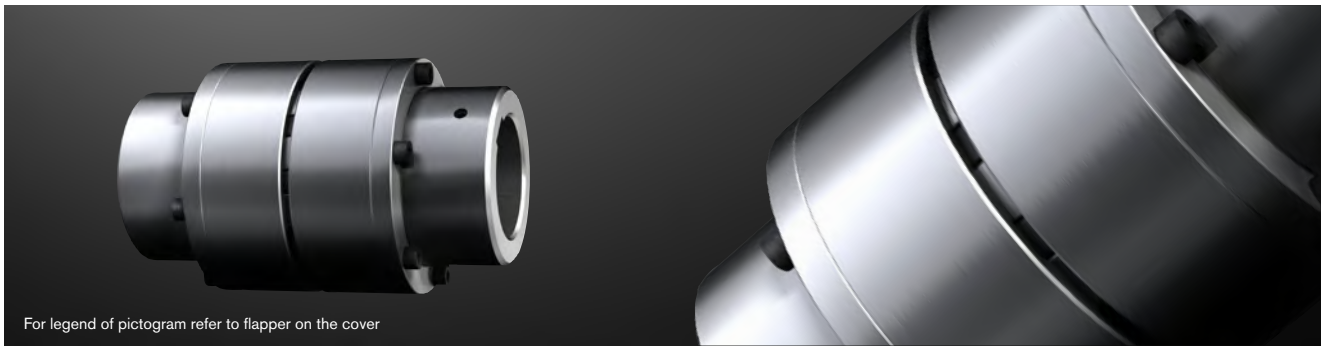
Other sizes on request

Ordering example:

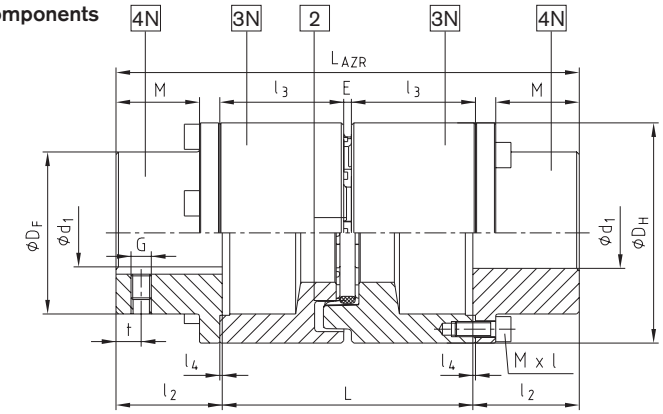
POLY-NORM® 38	ADR-BTA	Ø200 x 75	d_2 = Ø32 NnD	d_3 = Ø25 NnD
Coupling size	Type	Brake drum Ø	Component with finish bore	Component with finish bore

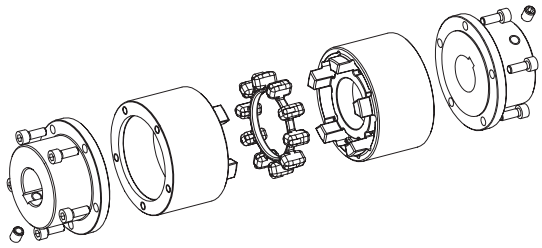
POLY-NORM® AZR
Flexible couplings

Standard drop-out center design coupling



Components





Components of type AZR:
2 = Elastomer ring (NBR 78 ShA)
3N = Driving flange (GJL)
4N= Coupling flange (steel)

POLY-NORM® Type AZR

Size	Drop-out center design length* L	Elastomer ring [1] (component 2) Torque [Nm]		Max. finish bore d_1 [2]	Dimensions [mm]												Mass moment of inertia [3] [kgm²]	Weight [3] [kg]
					General										Setscrew			
	[mm]	T_{KN}	$T_{K\,max}$		L_{AZR}	l2	l3	E	l4	DH	D_F	M	Mxl	T_A [Nm]	G	t		
28	100	40	80	32	170	35	49.5	3	1	69	46	26	M6x18	14	M5	7	0.0020	2.4
32	100	60	120	38	170	35	49	4	1	78	53	26	M6x18	14	M8	7	0.0042	3.2
	140				210		69										0.0062	3.9
38	100	90	180	45	184	42	49	4	1	87	62	33	M6x20	14	M8	10	0.0048	4.3
	140				224		69										0.0068	5.1
42	100	150	300	50	190	45	49	4	1	96	69	35	M6x20	14	M8	10	0.0094	5.1
	140				230		69										0.0128	6.0
48	100	220	440	55	204	52	49	5	1.5	106	78	41.5	M6x20	14	M8	15	0.0170	6.6
	140				244		69										0.0216	7.5
55	100	300	600	65	210	55	49	5	1.5	118	88	43.5	M8x25	35	M8	14	0.0188	9.4
	140				250		69										0.0240	10.8
	180				290		89										0.0232	12.2
60	100	410	820	70	220	60	49	5	1.5	129	97	47.5	M8x25	35	M8	15	0.0326	11.2
	140				260		69										0.0414	13.0
	180				300		89										0.0504	14.6
65	100	550	1100	75	230	65	49	5	1.5	140	105	51.5	M8x25	35	M10	20	0.0564	14.0
	140				270		69										0.0730	15.8
	180				310		89										0.0894	17.5
75	140	850	1700	90	290	75	69	5	1.5	158	123	60.5	M10x30	69	M10	20	0.0824	23.2
	180				330		89										0.1008	25.6
	250				400		124										0.1332	29.8
85	140	1350	2700	100	310	85	69	5	1.5	182	139	69.5	M10x30	69	M10	25	0.1570	32.1
	180				350		89										0.1658	35.2
	250				420		124										0.1812	40.7
90	140	2000	4000	110	320	90	69	5	1.5	200	148	73.5	M12x35	120	M12	25	0.2466	38.2
	180				360		89										0.2880	42.2
	250				430		124										0.3566	49.3
100	140	2900	5800	120	340	100	69	6	2	224	165	83	M12x35	120	M12	25	0.3988	50.0
	180				380		89										0.4450	54.8
	250				450		124										0.5465	63.2

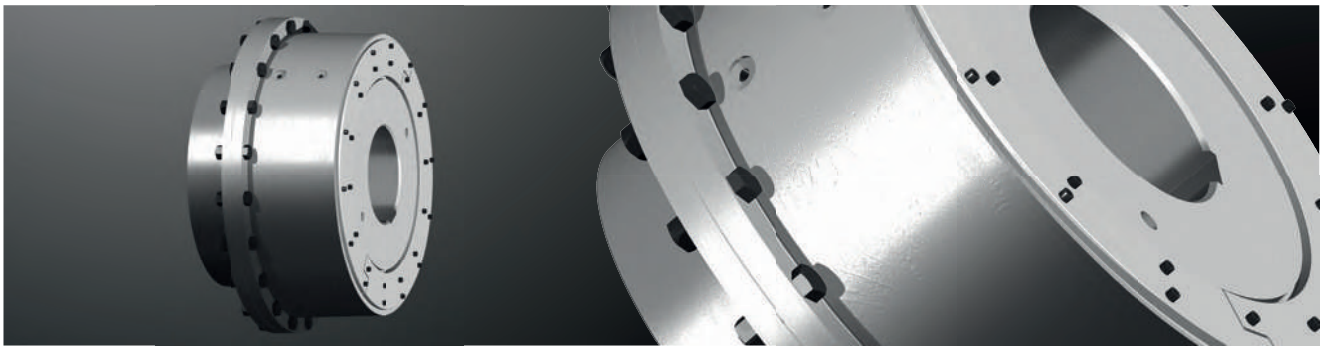
[1] Standard material Perbunan [NBR] 78 Shore A, for selection see page 14 et seqq.
[2] Bores H7 with keyway to DIN 6885 sheet 1 [JS9] and setscrew on the keyway
[3] Referring to medium bore
*For other extendable lengths (L = 120/160/195/215) it is possible to combine two driving flanges 3N with various lengths. As an example: driving flanges of POLY-NORM® 85 for extendable length 140 and 250 give an extendable length of 195 mm (140 mm + 250 mm = 390 mm; 390 mm/2 = 195 mm)

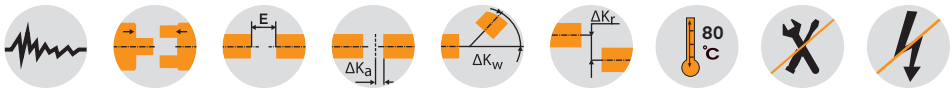
Ordering example:

POLY-NORM® 42	AZR	140	Ø38	Ø42
Coupling size	Type	Drop-out center design length L	Finish bore	Finish bore

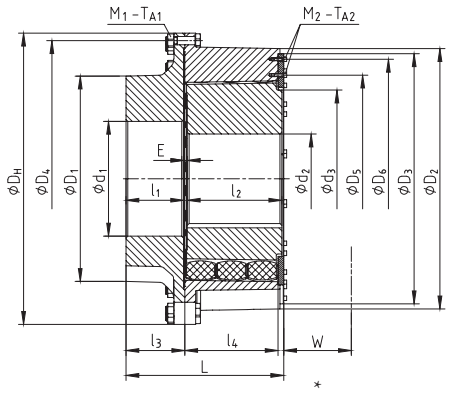
POLY-NORM®-M Type AFN
Flexible couplings

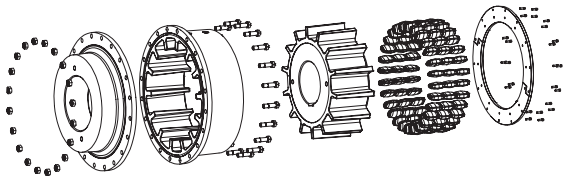
Three-part





Components





POLY-NORM®-M Type AFN																											
Size	Torque[1] [kNm]		Dimensions [mm]																	Dowel screw (10.9)			Screws DIN EN ISO 4762			Approx. weight[2] [kg]
			Max. finish bore Ød		General																						
	T_{KN}	$T_{Kmax.}$	d_1[3]	d_2	L[3]	l_1[3]	l2	l_3[3]	l4	DH	D_1	D_2	D_3	D_4	D_5	D_6	d_3	E[3]	W	z	M_1	T_{A1} [Nm]	z	M_2	T_{A2} [Nm]	
202	100	200	350	200	425	195	215	200	218	640	500	552	530	600	360	480	300	12	150	24	M24	970	16	M16	290	430
252	140	280	355	250	438	208	215	213	218	720	550	635	610	680	460	570	360	12	150	30	M24	970	18	M16	290	590
302	200	400	380	300	464	203	247	209	255	770	600	682	660	730	510	625	430	13	175	20	M24	970	24	M16	290	730
402	400	800	480	400	580	224	335	230	350	1000	760	885	860	945	650	800	530	14	250	18	M30	1950	20	M16	290	1750
502	650	1300	650	500	654	228	407	234	360	1200	1000	1080	1050	1140	830	990	700	19	250	24	M30	1950	24	M16	290	2240
503	950	1900	650	500	777	228	530	234	505	1200	1000	1075	1340	1140	830	990	700	19	415	24	M30	1950	24	M16	290	3090
703	1500	3000	700	700	845	309	507	315	500	1560	1100	1395	1340	1480	1110	1280	950	19	360	20	M42	3600	28	M16	290	5150
803	2400	4800	1000	800	1030	406	600	416	530	1800	1600	1630	1550	1720	1250	1450	110	24	390	24	M48	5450	28	M24	970	9300
903	3300	6600	1000	900	982	406	541	412	550	2060	1400	1865	1800	1975	1500	1730	1300	25	390	24	M48	5450	32	M24	970	9800
905	5500	11000	1000	900	1377	406	857	417	920	2060	1650	1865	1800	1975	1500	1730	1300	114	715	40	M48	5450	32	M24	970	14800

* Drop-out center design dimension required

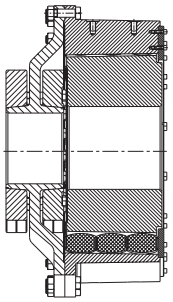
[1] Standard material Perbunan [NBR] 80 Shore A, electrically insulating available on request, for selection see page 18 et seqq.

[2] Referring to max. bore

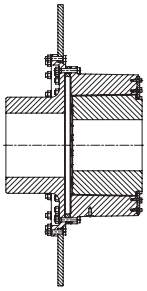
[3] Variable according to customer's request. Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9]. If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with speed as specified by the customer). For circumferential speeds exceeding v = 20 m/s dyn. balancing is recommended.

Other types

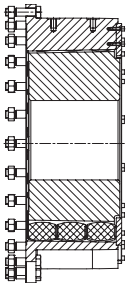
Type AFN with clamping ring hub



Type AFN with brake disk



Bauart A with flange connection



Ordering example:	POLY-NORM®-M	Type	d_1 Ø500	d_2 Ø450
	Coupling size	AFN	Finish bore	Finish bore

REVOLEX®
Flexible pin & bush coupling

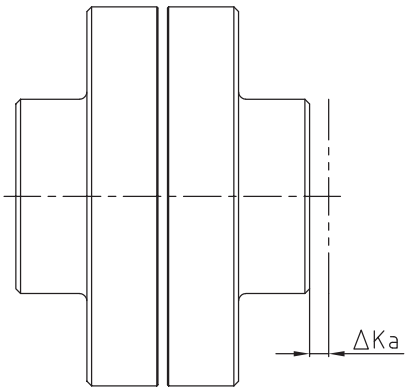
Technical data

REVOLEX® KX-D Technical data												
Size	Torque [Nm] NBR 80 ShA DIN 740 [1]				Cast iron		Steel		Torsion spring stiffness C dyn. [Nm/rad]			
	Rated T_{KN}	Max. $T_{K\,max}$	Vibratory T_{KW}	$T_{K\,max}$ [2]	Max. speed [rpm] with v = 35 m/s	Max. bore [mm]	Max. speed [rpm] with v = 60 m/s	Max. bore [mm]	0.25 T_{KN}	0.50 T_{KN}	0.75 T_{KN}	1.00 T_{KN}
KX-D 75	4300	8600	1720	12900	–	–	4500	100	$3.60x10^5$	$5.70x10^5$	$1.06x10^6$	$1.58x10^6$
KX-D 85	5500	11000	2200	16500	–	–	4175	110	$4.68x10^5$	$7.42x10^5$	$1.38x10^6$	$2.06x10^6$
KX-D 95	7200	14400	2880	21600	–	–	3845	125	$6.05x10^5$	$9.58x10^5$	$1.78x10^6$	$2.65x10^6$
KX-D 105	9400	18800	3760	28200	2000	110	3475	130	$7.88x10^5$	$1.25x10^6$	$2.32x10^6$	$3.46x10^6$
KX-D 120	15200	30400	6080	45600	1800	125	3100	150	$2.14x10^6$	$2.97x10^6$	$4.18x10^6$	$5.62x10^6$
KX-D 135	20000	40000	8000	60000	1600	140	2725	170	$2.87x10^6$	$3.99x10^6$	$5.61x10^6$	$7.55x10^6$
KX-D 150	25000	50000	10000	75000	1450	160	2500	190	$3.57x10^6$	$4.96x10^6$	$6.97x10^6$	$9.38x10^6$
KX-D 170	41000	82000	16400	123000	1250	180	2150	220	$4.63x10^6$	$6.66x10^6$	$9.92x10^6$	$1.64x10^7$
KX-D 190	54000	108000	21600	162000	1100	205	1900	245	$6.10x10^6$	$8.78x10^6$	$1.31x10^7$	$2.16x10^7$
KX-D 215	67500	135000	27000	202500	1000	230	1725	275	$7.70x10^6$	$1.11x10^7$	$1.65x10^7$	$2.73x10^7$
KX-D 240	98000	196000	39200	294000	900	250	1550	310	$8.10x10^6$	$1.15x10^7$	$1.57x10^7$	$2.68x10^7$
KX-D 265	134000	268000	53600	402000	800	285	1375	350	$1.12x10^7$	$1.59x10^7$	$2.17x10^7$	$3.70x10^7$
KX-D 280	170000	340000	68000	510000	720	315	1225	385	$1.45x10^7$	$2.06x10^7$	$2.82x10^7$	$4.81x10^7$
KX-D 305	205000	410000	82000	615000	675	330	1150	405	$1.74x10^7$	$2.47x10^7$	$3.37x10^7$	$5.76x10^7$
KX-D 330	265000	530000	106000	795000	625	355	1075	435	$2.29x10^7$	$3.25x10^7$	$4.43x10^7$	$7.56x10^7$
KX-D 355	350000	700000	140000	1050000	575	380	975	450	$4.26x10^7$	$8.99x10^7$	$1.37x10^8$	$1.85x10^8$
KX-D 370	430000	860000	172000	1290000	535	450	900	530	$4.92x10^7$	$1.04x10^8$	$1.59x10^8$	$2.14x10^8$
KX-D 470	520000	1040000	208000	1560000	–	–	855	520	$6.25x10^7$	$1.33x10^8$	$2.03x10^8$	$2.74x10^8$
KX-D 520	810000	1620000	324000	2430000	–	–	740	According to customer specification	$9.83x10^7$	$2.08x10^8$	$3.18x10^8$	$4.28x10^8$
KX-D 590	1000000	2000000	400000	3000000	–	–	660		$1.21x10^8$	$2.56x10^8$	$3.91x10^8$	$5.26x10^8$
KX-D 650	1350000	2700000	540000	4050000	–	–	590		$1.63x10^8$	$3.47x10^8$	$5.30x10^8$	$7.14x10^8$

[1] see catalogue page 15
[2] ≤ 1000 load cycles

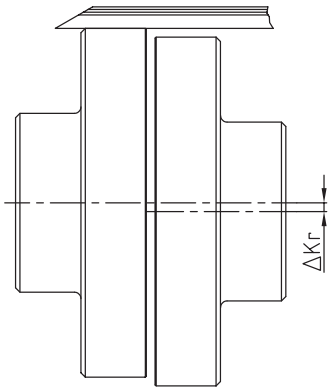
If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with speed as specified by the customer). For circumferential speeds exceeding v = 30 m/s dyn. balancing is recommended.

Axial displacement ΔK_a

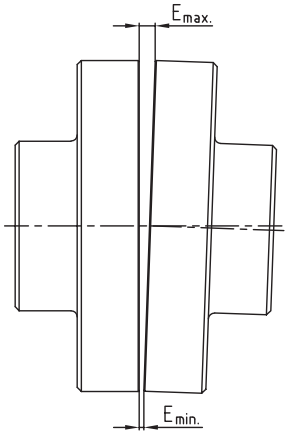


$L_{max./min.} = L + \Delta K_a$ [mm]

Radial displacement ΔK_r



Angular displacement ΔK_w



$\Delta K_w = E_{max.} - E_{min.}$ [mm]

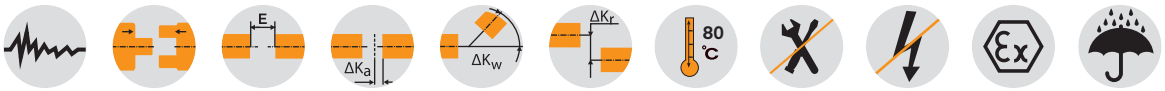
Displacements																						
Size (KX and KX-D)		75	85	95	105	120	135	150	170	190	215	240	265	280	305	330	355	370	470	520	590	650
Max. axial displacement ΔK_a [mm]		±1.5	±1.5	±1.5	±2	±2	±2	±2	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±2.5	±4	±4	±4	±4	±4	±4	±4
Max. radial displacement ΔK_r [mm] or max. angular displacement ΔK_w [mm] with speed n	250 rpm	0.95	1.1	1.1	1.2	1.3	1.4	1.5	1.7	1.9	2.0	2.2	2.5	2.7	2.9	3.1	3.3	3.5	3.8	4.4	4.9	5.4
	500 rpm	0.70	0.80	0.80	0.9	0.9	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.9	2.0	2.2	2.3	2.5	2.8	3.1	3.5	3.8
	750 rpm	0.60	0.65	0.65	0.7	0.8	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.8	1.9	2.0	2.2	2.4	–	–
	1000 rpm	0.50	0.55	0.55	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.1	1.2	1.4	1.4	1.5	1.7	1.8	–	–	–	–
	1500 rpm	0.40	0.45	0.45	0.5	0.5	0.6	0.6	0.7	0.8	0.8	0.9	1.0	–	–	–	–	–	–	–	–	–
	2000 rpm	0.35	0.40	0.40	0.4	0.5	0.5	0.5	0.6	0.7	–	–	–	–	–	–	–	–	–	–	–	–
	3000 rpm	0.30	0.35	0.35	0.4	0.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Advice for assembly

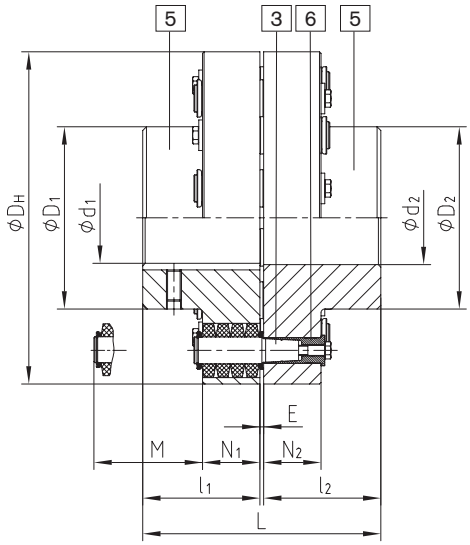
The permissible displacement figures of the flexible REVOLEX® KX couplings specified are general standard values taking into account the load of the coupling up to the rated torque T_{KN} of the coupling and an ambient temperature of +30 °C. The displacement figures may only be used one by one, if they appear simultaneously, they must be limited in proportion. Care should be taken to accurately maintain the distance dimension E in order to allow for axial clearance of the coupling while in operation. See KTR assembly instructions, KTR standard 49410 on our homepage www.ktr.com.

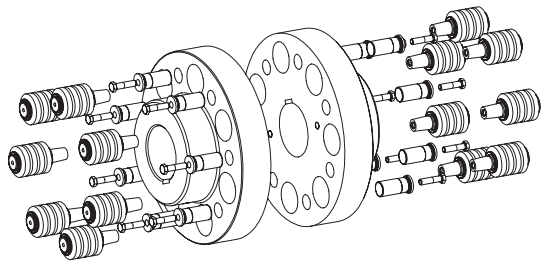
REVOLEX® KX-D
Flexible pin & bush coupling

Material cast



Components





Components of type KX-D:
5 = Hub part 5
3 = Pins complete
6 = KX-D sleeve (hardened and corrosion-protected)

REVOLEX® Type KX-D

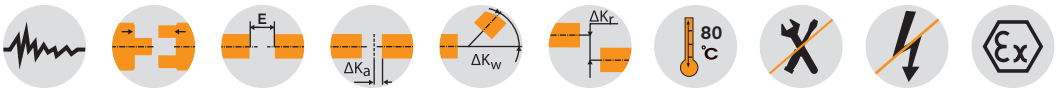
Size	Torque [1] [Nm]		Max. speed [2] [rpm]	Finish bore (min. - max.)	Dimensions [mm]							Mass moment of inertia [3] [kgm²]	Weight [3] [kg]
	T_{KN}	$T_{K\,max}$		d_1, d_2	L	l_1, l_2	E	DH	D_1, D_2	N_1, N_2	M*		
KX-D 105	9400	18800	2000	38-110	237	117	3	330	180	56	76	0.907	68
KX-D 120	15200	30400	1800	45-125	270	132	6	370	206	76	100	1.867	108
KX-D 135	20000	40000	1600	75-140	300	147	6	419	230	76	100	3.144	145
KX-D 150	25000	50000	1450	85-160	336	165	6	457	256	76	100	4.573	180
KX-D 170	41000	82000	1250	95-180	382	188	6	533	292	92	130	10.259	291
KX-D 190	54000	108000	1100	110-205	428	211	6	597	330	92	130	16.601	385
KX-D 215	67500	135000	1000	125-230	480	237	6	660	368	92	130	25.495	498
KX-D 240	98000	196000	900	140-250	534	264	6	737	407	122	170	50.147	760
KX-D 265	134000	268000	800	160-285	590	292	6	826	457	122	170	80.796	997
KX-D 280	170000	340000	720	180-315	628	311	6	927	508	122	170	129.979	1301
KX-D 305	205000	410000	675	180-330	654	324	6	991	533	122	170	170.016	1509
KX-D 330	265000	530000	625	200-355	666	330	6	1067	572	122	170	227.451	1755
KX-D 355	350000	700000	575	225-380	721	356	9	1156	610	164	220	415.259	2263
KX-D 370	430000	860000	535	225-450	773	382	9	1250	720	164	220	586.686	2701

* Drop-out center design dimension required
[1] Standard material Perbunan [NBR] 80 Shore A, for selection see page 18 et seqq.
[2] Higher speeds on request.
[3] Referring to max. bore
Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9].
If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with speed as specified by the customer). For circumferential speeds exceeding v = 30 m/s dyn. balancing is recommended.
■ = Pilot bored available from stock

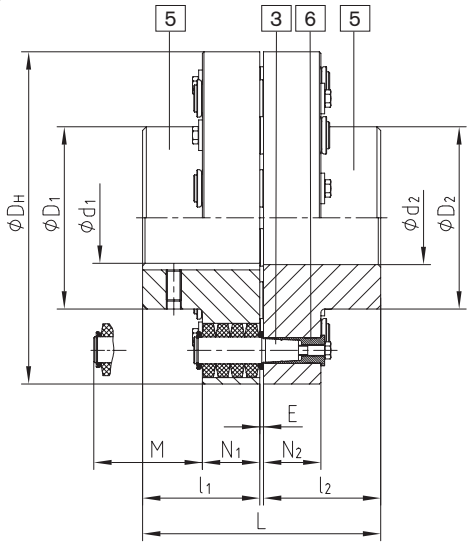
Ordering example:	REVOLEX® KX-D 170	GJL	Ø120	Ø150
	Type and size of coupling	Material	Finish bore	Finish bore

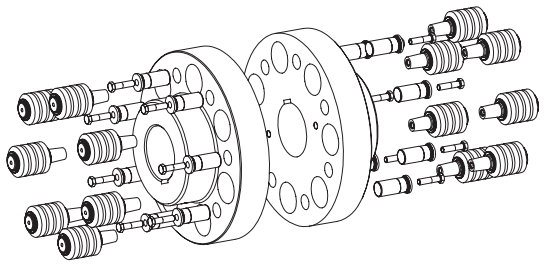
REVOLEX® KX-D
Flexible pin & bush coupling

Material steel



Components





Components of type KX-D:
5 = Hub part 5
3 = Pins complete
6 = KX-D sleeve (hardened and corrosion-protected)

REVOLEX® Type KX-D

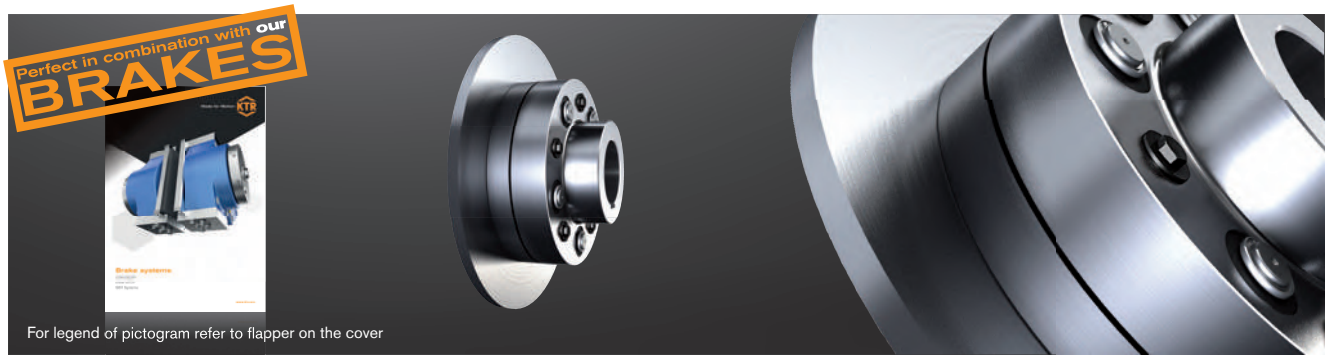
Size	Torque [1] [Nm]		Max. speed [2] [rpm]	Finish bore (min. - max.)	Dimensions [mm]							Mass moment of inertia [3] [kgm²]	Weight [3] [kg]
	T_{KN}	$T_{K\,max}$		d_1, d_2	L	l_1, l_2	E	DH	D_1, D_2	N_1, N_2	M*		
KX-D 75	4300	8600	4500	0-100	193	95	3	255	136	56	76	0.325	39
KX-D 85	5500	11000	4175	0-110	213	105	3	274	152	56	76	0.440	46
KX-D 95	7200	14400	3825	0-125	227	112	3	298	168	56	76	0.624	56
KX-D 105	9400	18800	3475	0-130	237	117	3	330	180	56	76	0.907	80
KX-D 120	15200	30400	3100	0-150	270	132	6	370	206	76	100	1.867	124
KX-D 135	20000	40000	2725	75-170	300	147	6	419	230	76	100	3.144	165
KX-D 150	25000	50000	2500	85-190	336	165	6	457	256	76	100	4.573	205
KX-D 170	41000	82000	2150	95-220	382	188	6	533	292	92	130	10.259	322
KX-D 190	54000	108000	1900	110-245	428	211	6	597	330	92	130	16.601	431
KX-D 215	67500	135000	1725	125-275	480	237	6	660	368	92	130	25.495	559
KX-D 240	98000	196000	1550	140-310	534	264	6	737	407	122	170	50.147	833
KX-D 265	134000	268000	1375	160-350	590	292	6	826	457	122	170	80.796	1099
KX-D 280	170000	340000	1225	180-385	628	311	6	927	508	122	170	129.979	1436
KX-D 305	205000	410000	1150	180-405	654	324	6	991	533	122	170	170.016	1669
KX-D 330	265000	530000	1075	200-435	666	330	6	1067	572	122	170	227.451	1954
KX-D 355	350000	700000	975	225-450	721	356	9	1156	610	164	220	415.259	2451
KX-D 370	430000	860000	900	225-530	773	382	9	1250	720	164	220	584.686	2925
KX-D 470	520000	1040000	855	240-520 [4]	969 [4]	480 [4]	9	1340	705 [4]	164	220	785.489	3631
KX-D 520	810000	1620000	760	240-520 [4]	1089 [4]	540 [4]	9	1540	780 [4]	164	220	1264.725	5155
KX-D 590	1000000	2000000	680	260-590 [4]	1212 [4]	600 [4]	12	1735	885 [4]	164	220	2081.885	6895
KX-D 650	1350000	2700000	610	280-650 [4]	1332 [4]	660 [4]	12	1935	975 [4]	164	220	3228.297	8893

* Drop-out center dimension required [1] Standard material Perbunan [NBR] 80 Shore A, for selection see page 18 et seqq.
[2] Higher speeds on request. [3] Referring to max. bore [4] Variable according to customer's requests
Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9]. If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with speed as specified by the customer). For circumferential speeds exceeding v = 30 m/s dyn. balancing is recommended.
■ = Pilot bored available from stock

Ordering example:	REVOLEX® KX-D 170	Steel	Ø120	Ø150
	Type and size of coupling	Material	Finish bore	Finish bore

REVOLEX® KX-D SB
Flexible pin & bush coupling

With brake disk



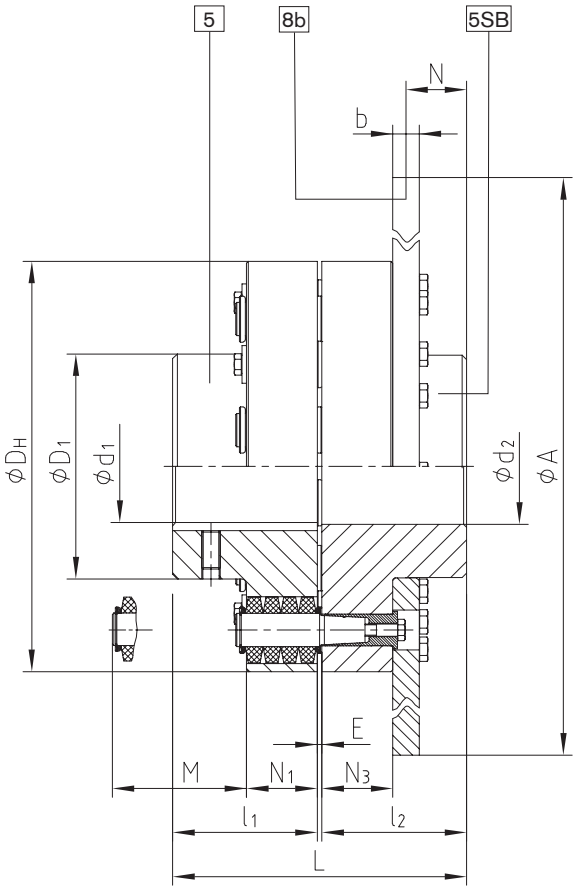
REVOLEX® KX-D Type SB													
Size	Torque [1] [Nm] KX-D		Finish bore KX-D (min. - max.)		Dimensions [mm]								
	T_{KN}	$T_{K\,max}$	GJL d_1, d_2	Steel d_1, d_2	L	l_1, l_2	E	DH	D_1	N_1	N_2	N_3	M*
105	9400	18800	34-110	0-130	237	117	3	330	180	56	29	55	76
120	15200	30400	50-125	0-150	270	132	6	370	206	76	45	75	100
135	20000	40000	70-140	70-170	300	147	6	419	230	76	45	75	100
150	25000	50000	82-160	82-190	336	165	6	457	256	76	45	75	100
170	41000	82000	95-180	95-220	382	188	6	533	292	92	62	91	130
190	54000	108000	110-205	110-245	428	211	6	597	330	92	62	91	130
215	67500	135000	125-230	125-275	480	237	6	660	368	92	62	91	145
240	98000	196000	140-250	140-310	534	264	6	737	407	122	75	121	167

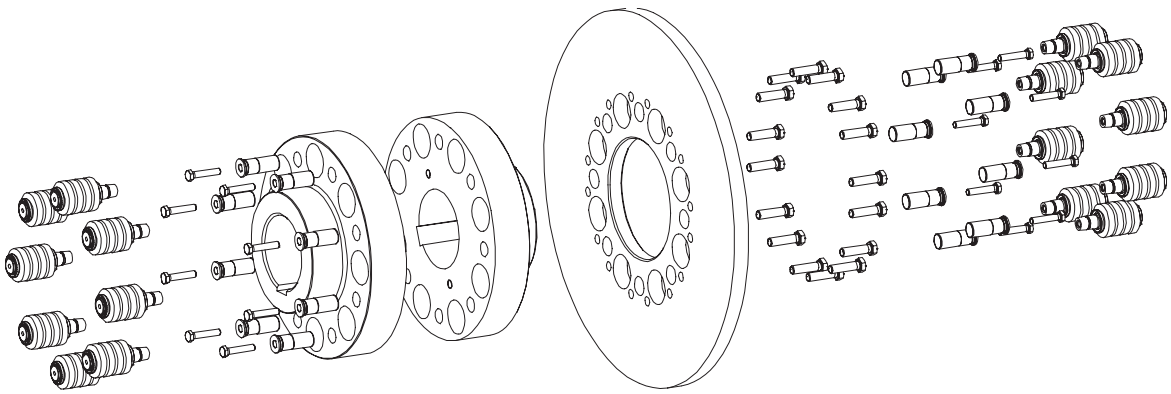
Selection of coupling/brake disk dimension N						
Size	Brake disk ØA x b [2]					
	Ø560x30	Ø630x30	Ø710x30	Ø800x30	Ø900x30	Ø1000x30
	KX-D	KX-D	KX-D	KX-D	KX-D	KX-D
105	47	47				
120	42	42				
135		57	57			
150			75	75		
170			82	82		
190				105	105	
215				131	131	131
240				128	128	128

* Drop-out center design dimension required
[1] Standard material Perbunan [NBR] 80 Shore A, for selection see page 18 et seqq.
[2] Maximum circumferential speed v = 60 m/s referring to the maximum outside diameter.
Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9].
If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with speed as specified by the customer). For circumferential speeds exceeding v = 30 m/s dynamic balancing is recommended (referring to outside diameter ØA).

Ordering example:	REVOLEX® KX 170	SB	Ø710 x 30	1 - Ø120	2SB - Ø150
	Type and size of coupling	Type	Brake disk	Finish bore	Finish bore

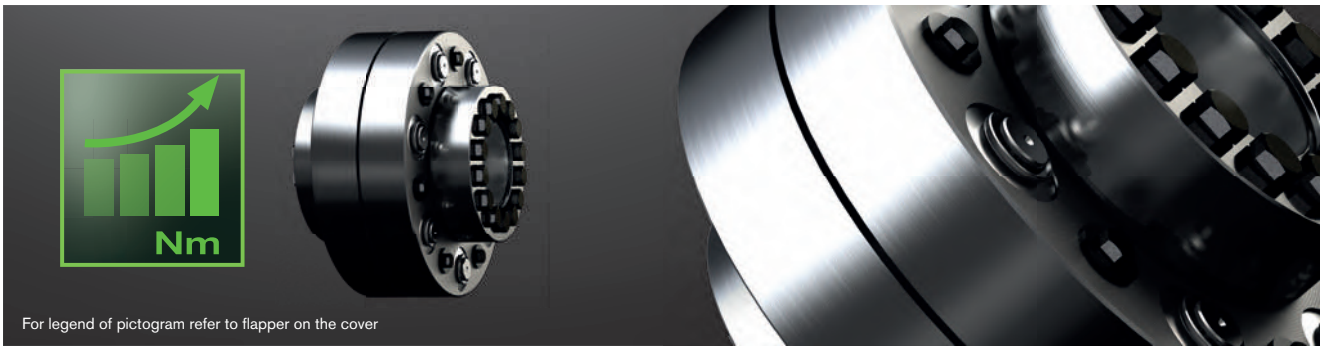
Components





REVOLEX® KX-D with KTR 650 clamping set
Flexible pin & bush coupling

Material steel



REVOLEX® KX-D						CLAMPEX® KTR 650						
Size	DH	L1, L2	N	E	T_{KN} [1] [Nm]	Dimensions [mm]		Screws				Transmittable torque T [Nm]
						Max. perm. size d x D	T_K	Size	Length	Number	T_A [Nm]	
105	330	123	56	3	9400	100 x 197	156	M16	75	14	250	18800
120	370	149	76	6	15200	110 x 215	166	M20	90	10	490	22400
135	419	157	76	6	20000	120 x 230	186	M20	90	14	490	35200
150	457	168	76	6	25000	140 x 290	216	M20	100	16	490	46700
170	533	205	92	6	41000	180 x 340	276	M24	130	16	840	85800
190	597	214	92	6	54000	220 x 405	320	M27	140	18	1250	148600
215	660	232	92	6	67500	260 x 460	356	M27	160	21	1250	192900
240	737	254	122	6	98000	240 x 430	340	M27	150	20	1250	175400
265	826	280	122	6	134000	320 x 550	402	M27	180	24	1250	248900
280	927	313	122	6	170000	390 x 630	486	M30	200	24	1700	368300
305	991	321	122	6	205000	440 x 700	534	M30	220	28	1700	472100
330	1067	321	122	6	265000	440 x 700	534	M30	220	28	1700	472100

= Years of experience with applications at customer sites and additional test series in the KTR test field in Rheine enabled us to determine potentials allowing for an increase of the rated and maximum torques with some sizes of this series.

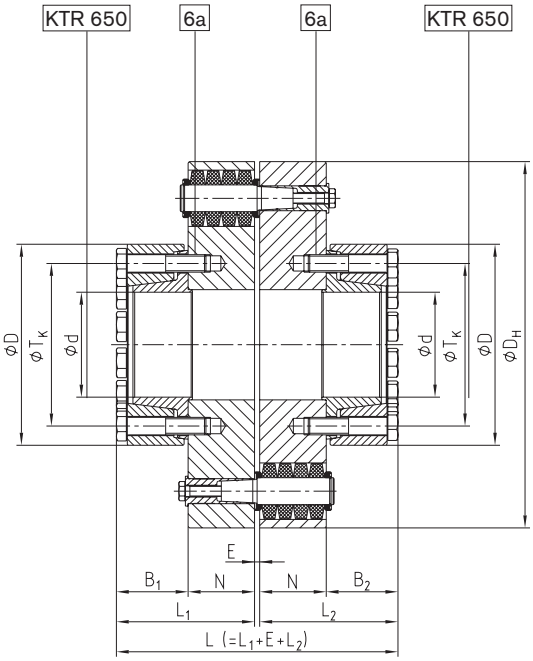
[1] Standard material Perbunan [NBR] 80 Shore A, for selection see page 18 et seqq.
If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with speed as specified by the customer). For circumferential speeds exceeding v = 30 m/s dynamic balancing is recommended (referring to outside diameter ØA).

CLAMPEX® KTR 650							
d x D	Dimensions [mm]		Screws				Transmittable torque T [Nm]
	B1/B2	T_K	Size	Length	Number	T_A [Nm]	
100 x 215	73	166	M20	90	10	490	22400
110 x 230	81	186	M20	90	14	490	33600
120 x 290	92	216	M20	100	16	490	42100
130 x 290	92	216	M20	100	16	490	46700
140 x 320	102	234	M24	110	14	840	63600
150 x 320	102	234	M24	110	14	840	63600
160 x 340	113	276	M24	130	16	840	85800
170 x 340	113	276	M24	130	16	840	85800
180 x 370	117	290	M27	140	16	1,250	119700
190 x 370	117	290	M27	140	16	1,250	119700
200 x 405	122	320	M27	140	18	1,250	148600
210 x 405	122	320	M27	140	18	1,250	148600
220 x 430	132	340	M27	150	20	1,250	175400
230 x 430	132	340	M27	150	20	1,250	175400
240 x 460	140	356	M27	160	21	1,250	192900
250 x 460	140	356	M27	160	21	1,250	192900
260 x 485	147	360	M27	180	21	1,250	195000
270 x 485	147	360	M27	180	21	1,250	195000
280 x 520	150	380	M27	180	21	1,250	205900
290 x 520	150	380	M27	180	21	1,250	205900
300 x 550	158	402	M27	180	24	1,250	248900
310 x 550	158	402	M27	180	24	1,250	248900
320 x 570	164	424	M27	180	24	1,250	262500
330 x 570	164	424	M27	180	24	1,250	262500
340 x 610	171	454	M30	190	24	1,700	344000
350 x 610	171	454	M30	190	24	1,700	344000

Ordering example:

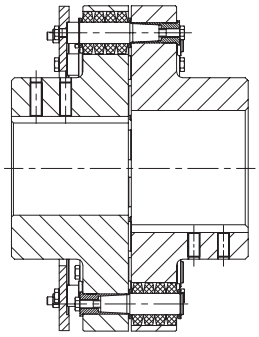
REVOLEX® KX-D 170	Steel	KTR 650 Ø120	KTR 650 Ø150
Type and size of coupling	Material	KTR 650 for shaft diameter	KTR 650 for shaft diameter

Components

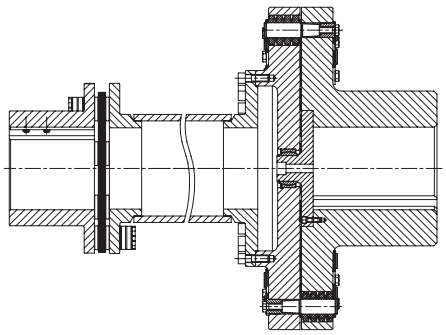


Other types

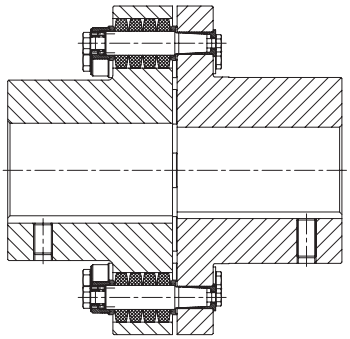
Type AB with limitation of axial backlash



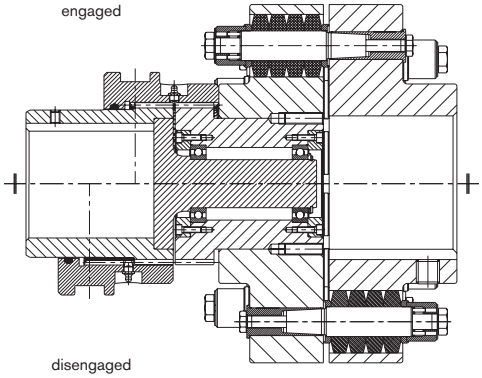
Intermediate shaft type with RADEX®-N



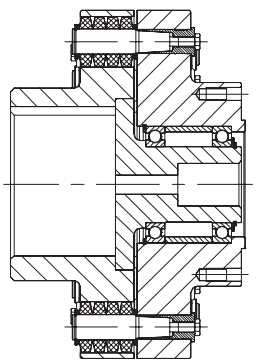
Backlash-free type



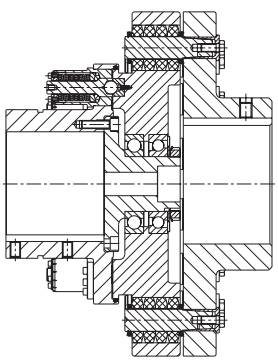
Type KX-D SD
shiftable with shiftable linkage



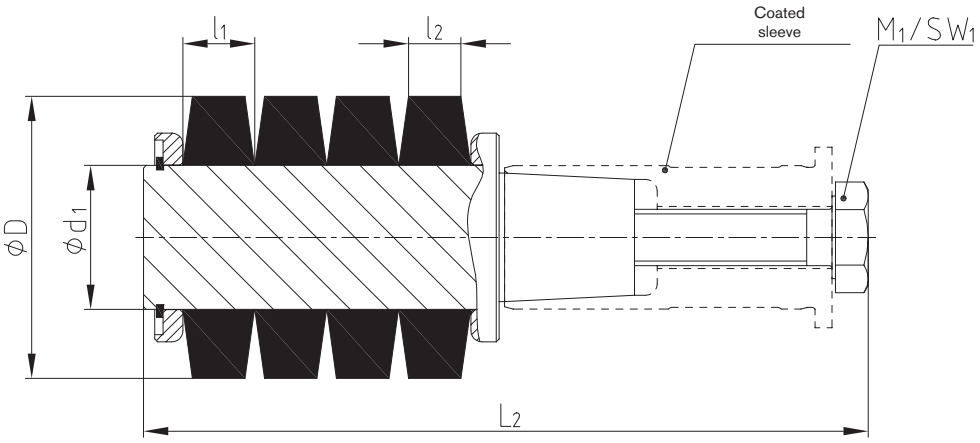
Type KX-D
with cardan shaft connection



Type KX-D
with KTR-SI FRE



Technical data of pins



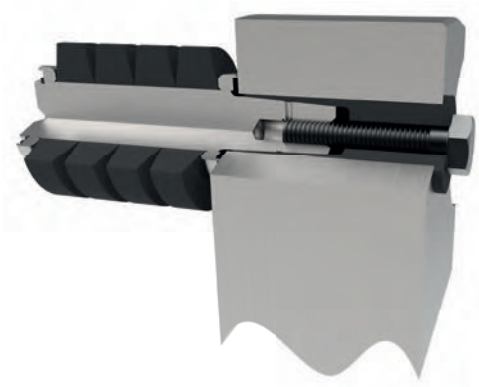
Taper pin design B

KX-D

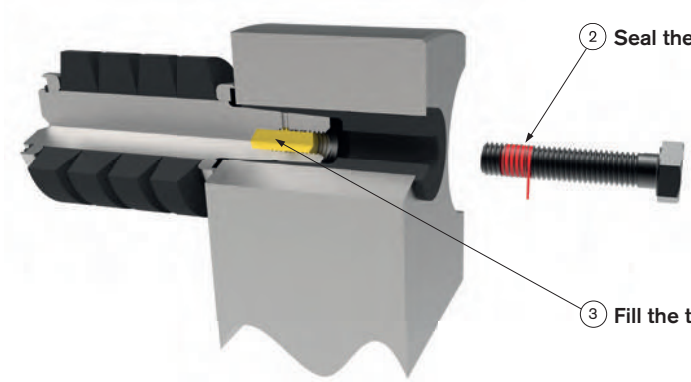
Technical data										
Size	Pin		Elastomer ring NBR 80 Shore A			Pin		Screw DIN EN ISO 4014/4017		Tightening torque T_A [Nm]
	Size	Number								
		KX-D	D	l1	l2	d_1	L_2	M_1	SW_1	
75		10								
85	3	12	50	12.7	9.3	25.5	129	M10	16	67
95		14								
105		16								
120		14								
135	4	16	63	17.8	12.5	30.7	178	M12	18	115
150		18								
170		14								
190	5	16	85.5	23.1	15.3	43.2	220	M16	24	290
215		18								
240		14								
265		16								
280	6	18	113.7	30.5	20.3	58.4	290	M24	36	970
305		20								
330		24								
355		16								
370	7	20	150	41.5	29	75	393	M30	46	1350
470		22								
520		18								
590	8	20	209.5	55.5	35	95	523	M36	55	2250
650		24								

General information on the elastomer rings			
Material	Perbunan [NBR]	Natural rubber [NR]	Perbunan [NBR]
Hardness	80 Shore A	80 Shore A	80 Shore A
Permanent temperature range [°C]	-30 to +80	-50 to +70	-30 to +80
Max. temperature (short time) [°C]	-50 to +120	–	–
Colour	black	black	blue
Operating range	STANDARD	sub-zero temperatures	electrically insulating and backlash-free, e. g. cableway drives
			

Assembly/disassembly

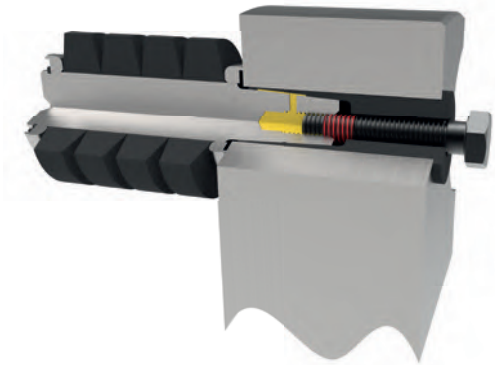


1 Unscrew screw

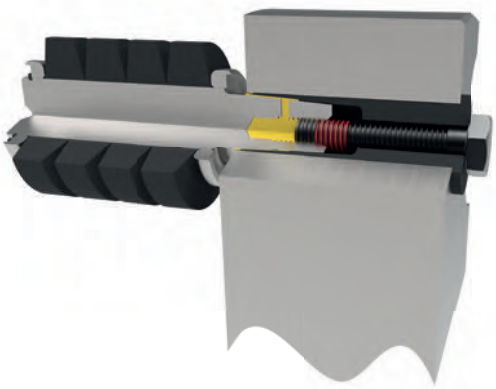


2 Seal the screw in this area with sealing tape (e. g. Loctite® 55)

3 Fill the tapped hole with standard grease for 3/4



4 Screw in the screw (no special tools required)



5 The hydraulic pressure is transmitted to the pin pressing it out of the taper fit.

Gear couplings

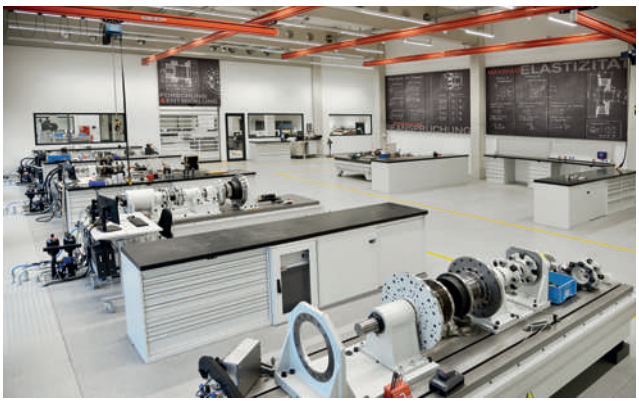
BoWex®

GEARex®

Properties of gear couplings


Product	BoWex®	GEARex®
Type	Curved-tooth gear coupling®	All-steel gear coupling
Properties		
AGMA		●
Torsionally stiff	●	●
Damping vibrations	HEW Compact	
Maintenance-free	●	
Axial plug-in	●	
Compensating for misalignment	●	●
Fail-safe		●
Shear type	●	
Electrical insulation	●	O
Special features		
Variation	very high extensive basic programme available from stock while customised solutions can be realized	medium extensive basic programme available from stock while customised solutions can be realized
Applications / core industries	pump drives, general mechanical engineering & hydraulics, food industry, …	heavy engineering transport, logistics, cement industry, …
Torque range T_{KN} [Nm]		
Max.	2,500	2,750,000
Speed range n [rpm] *		
Max.	14,000	8,500
Hub materials available		
Nylon	●	
Quality steel (C45)	Size 65 - 125	up to size 85
Alloyed Q & T steel (42CrMo4V)		from size 90
Sintered steel » subject to mould	Size 14 - 65	
Stainless steel	●	
Other special materials possible	●	●
Corrosion-protected types	O	O
Sleeve (standard and special)		
Material	Polyamide/polyamide with carbon fibre reinforcement	–
Temperature range [°C] min./max.		
Standard	-40/+100	-20/+80
Special	-50/+120	-40/+120

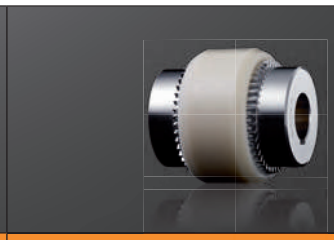
● ≈ Standard
O ≈ On request
* ≈ Depending on size



In KTR's Power Transmission Center the performance of our products is subjected to testing. Great emphasis is put on quality assurance.

GEAR COUPLINGS
TYPES AND OPERATING DESCRIPTION

Product finder of gear couplings

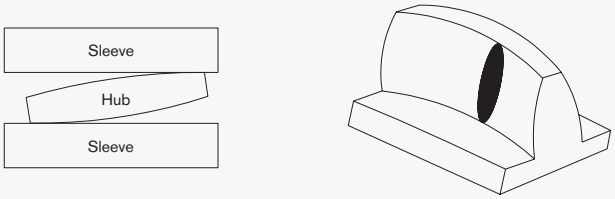



Product	BoWex®	GEARex®
Type	Curved-tooth gear coupling®	All-steel gear coupling
Geometries		
Design	compact	short/compact
Mass moment of inertia	low	medium
Shaft distance dimension	very low	very low
Types (extract)		
Shiftable coupling type	SD, SD-1, SD-D, SD-D3	SD
Flange type	-	FA, FB, FAB, FH, FR, FBR
Cover type	-	DA, DB, DAB, DH, DR, DBR
Suitable for horizontal assembly	Standard	Standard
Suitable for vertical assembly	Standard	VD
Sleeve can be radially disassembled » without displacing driving/driven side	GT	–
Intermediate shaft types » bridging larger shaft distances	ZR	FH, DH
Single-cardanic	–	FR, DR
Double-cardanic » compensating for big displacements » lower restoring forces	Standard	Standard
Certifications/type examinations		
ATEX	●	●
DNV/GL	●	●
Bureau Veritas	●	
ABS		●
GOST R/GOST TR	●	
Curved-tooth gear principle	●	●

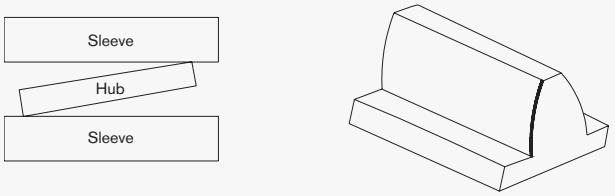
● ≈ Standard

Details on spline

Hub with crowned spline (BoWex® and GEARex®)



Hub with spur toothing



Based on the operating principle of the renowned crowned gear technology, edge pressure in the spline is avoided with angular and radial displacements.

BoWex®:
The smooth and hard surface of the BoWex® sleeve (crystalline structure) and the high thermal stability and resistance to lubricants, fuels, hydraulic liquids, solvents, etc. make polyamide an ideal material for components stressed by sliding, particularly for coupling manufacture.

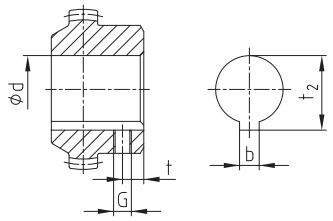
GEARex®:
In order to ensure regular and controlled lubrication in assembled condition, two connections for hydraulics are arranged opposite to each other radially on each coupling sleeve. Accordingly a complete GEARex® coupling has four connections offset to each other by 90°.

Technical data

Power, torque and speed					
Type and size		Torque [Nm]			Max. speed [rpm]
		T_{KN}	$T_{K\ max.}$	T_{KW}	
Type plug-in coupling/ junior M	junior 14 / M-14	5	10	2.5	
	junior 19 / M-19	8	16	4	6000
	junior 24 / M-24	12	24	6	
Type M I AS Spec.-I SG SSR	14	10	30	5	14000
	19	16	48	8	11800
	24	20	60	10	10600
	28	45	135	23	8500
	32	60	180	30	7500
	38	80	240	40	6700
	42	100	300	50	6000
	45 / 48	140	420	70	5600
	65	380	1140	190	4000
	80	700	2100	350	3150
	100	1200	3600	600	3000
	125	2500	7500	1250	2120
Type M...C GT	14	15	45	7.5	14000
	19	24	72	12	11800
	24	30	90	15	10600
	28	70	210	35	8500
	32	90	270	45	7500
	38	120	360	60	6700
	48	200	600	100	5600
	65	560	1680	280	4000
	80	1000	3000	500	3150

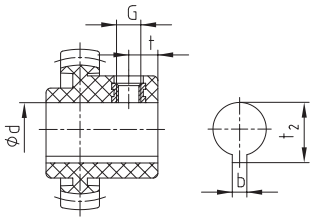
Setscrews

Thread dimensions for setscrews, BoWex® coupling hubs with cylindrical bore.



Position of the thread for setscrew BoWex® M-14 to M-24 opposite the keyway

BoWex® M-28 to I-125 on the keyway



Position of thread with BoWex® junior plug-in coupling and junior M coupling

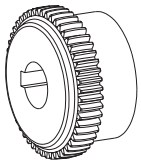
BoWex® coupling hubs							
Size Dimensions	14 19 24	28 32 38	42 45 48	65	80	100	125
Thread G	M5	M8		M10	M10	M12	M16
Distance t	6	10		15 [1] 20	20	30	40
Tightening torque T_A [Nm]	2	10		17	17	40	80

BoWex® junior coupling hubs			
Size Dimensions	14	19	24
Thread G	M5	M5	M5
Hub 1b - Distance t	6	6	6
Plug-in sleeve 2b - Distance t	8	10	10
Tightening torque T_A [Nm]	1.4	1.4	1.4

[1] Length of hub 55 mm t = 15 mm, 70 mm t = 20 mm

BoWex®
Curved-tooth gear coupling®

Types of hubs



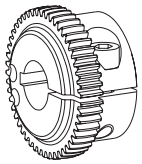
Type 1.0 hub
with feather keyway and setscrew

Positive-locking power transmission, permissible torque depending on the permissible surface pressure. Not suitable for backlash-free power transmission with heavily reversing operation.

Type 1.1 hub
without feather keyway, with setscrew

Non-positive torque transmission for crimp connections and adhesive bonds. (No ATEX approval)

Type 1.3 hub
with spline bore (see page 101)



Type 2.0 clamping hub
single slot without feather keyway

Frictionally engaged, backlash-free shaft-hub-connection. Transmittable torques depending on bore diameter.

Type 2.1 clamping hub
single slot with feather keyway

Positive-locking power transmission with additional friction fit. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the feather key connection is reduced.

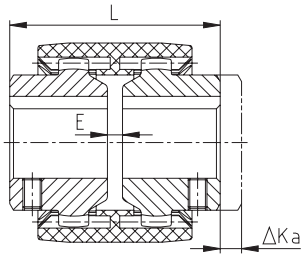
Type 2.3 clamping hub
with spline bore (see page 101)

Other hub types on request.

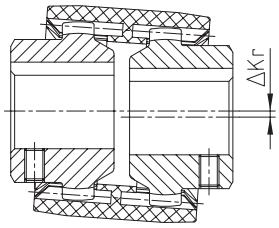
Displacements

BoWex® couplings are double-cardanic compensating for axial, radial and angular shaft displacements in addition to transmitting the power so that damage on the driving or driven machine is prevented.

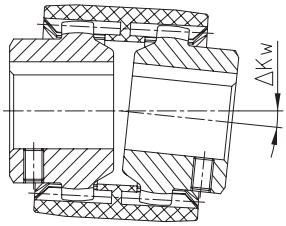
Axial displacement



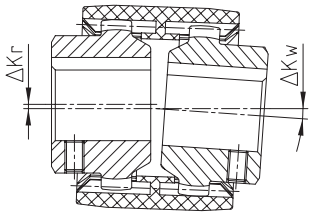
Radial displacement



Angular displacement



Radial and angular displacement



Displacements – type junior couplings						
BoWex® size	Type junior plug-in coupling			Type junior M		
	14	19	24	14	19	24
Max. axial displacement ΔK_a [mm]	± 1	± 1	± 1	± 1	± 1	± 1
Max. radial displacement with n=1500 rpm ΔK_r [mm]	± 0.1	± 0.1	± 0.1	± 0.3	± 0.3	± 0.4
Max. radial displacement with n=3000 rpm ΔK_r [mm]	± 0.1	± 0.1	± 0.1	± 0.3	± 0.3	± 0.4
Max. angular displacement with n=1500 rpm ΔK_w [degree]	± 1.0	± 1.0	± 0.9	± 1.0	± 1.0	± 0.9
Max. angular displacement with n=3000 rpm ΔK_w [degree]	± 0.7	± 0.7	± 0.6	± 0.7	± 0.7	± 0.6

Displacements – type M, M..C, I, AS, Spec.-I, SG and SSR												
BoWex® size	14	19	24	28	32	38	42	48	65	80	100	125
Max. axial displacement ΔK_a [mm]	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1	± 1
Max. radial displacement with n=1500 rpm ΔK_r [mm]	± 0.30	± 0.30	± 0.35	± 0.35	± 0.35	± 0.40	± 0.40	± 0.40	± 0.45	± 0.45	± 0.45	± 0.45
Max. radial displacement with n=3000 rpm ΔK_r [mm]	± 0.20	± 0.20	± 0.23	± 0.23	± 0.23	± 0.25	± 0.25	± 0.25	± 0.28	± 0.28	± 0.28	± 0.28
Max. angular displacement with n=1500 rpm ΔK_w [degree]	± 1.0	± 1.0	± 0.9	± 0.9	± 0.9	± 0.9	± 0.9	± 0.9	± 0.7	± 0.6	± 0.6	± 0.4
Max. angular displacement with n=3000 rpm ΔK_w [degree]	± 0.7	± 0.7	± 0.6	± 0.6	± 0.6	± 0.6	± 0.6	± 0.6	± 0.5	± 0.4	± 0.4	± 0.3

	Displacements – type GT				Displacements – type HEW Compact														
BoWex® size	28	38	48	65	42-130			65-180			80-225			100-305			125-365		
Elastomer hardness [Shore A]					T50	T65	T70	T50	T65	T70	T50	T65	T70	T50	T65	T70	T40	T52	T65
Max. axial displacement ΔK_a [mm]	± 1	± 1	± 1	± 1	± 2			± 2			± 2			± 2			± 2		
Max. radial displacement with n=1500 rpm ΔK_r [mm]	± 1	± 1	± 1.4	± 1.4	± 1.1	± 1	± 0.5	± 1.6	± 1.5	± 0.7	± 1.8	± 1.7	± 0.8	± 2.2	± 2	± 1	± 2.5	± 2.3	± 1.1
Max. radial displacement with n=3000 rpm ΔK_r [mm]	± 0.6	± 0.6	± 1	± 1	± 0.55	± 0.5	± 0.25	± 0.8	± 0.75	± 0.35	± 0.9	± 0.85	± 0.9	± 1.1	± 1	± 0.5	± 1.25	± 1.15	± 0.55
Max. angular displacement with n=1500 rpm ΔK_w [degree]	± 1	± 1	± 0.9	± 0.9	± 1	± 0.75	± 0.5	± 1	± 0.75	± 0.5	± 1	± 0.75	± 0.4	± 1	± 0.75	± 0.5	± 1	± 0.75	± 0.5
Max. angular displacement with n=3000 rpm ΔK_w [degree]	± 0.7	± 0.7	± 0.6	± 0.6	± 0.5	± 0.4	± 0.25	± 0.5	± 0.4	± 0.25	± 0.5	± 0.4	± 0.5	± 0.5	± 0.25	± 0.25	± 0.5	± 0.4	± 0.25

The permissible displacement figures of the BoWex® couplings specified are general standard values taking into account the load of the coupling up to the rated torque T_{KN} of the coupling.
With different operating conditions please order our data sheet for displacements of BoWex® KTR-N 20140.
The displacement figures may only be used one by one, if they appear simultaneously, they must be limited in proportion. Care should be taken to maintain the distance dimension E accurately in order to allow for axial clearance of the coupling while in operation. Detailed mounting instructions are shown on our homepage www.ktr.com.

For cylindrical bores, taper/inch bores see selection of standard IEC motors

Stock programme of cylindrical finish bores [mm] H7 feather keyway acc. to DIN 6885 sheet 1 [JS9] and setscrew

BoWex® Size	un/pilot bored	Ø8	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø75
14	●■	●	●	●	●	●	●																							
19	●■		●	●	●	●	●	●	●	●	●■	●																		
24	●■		●	●	●	●■	●	●	●	●	●■	●■	●	●■	●															
28	●■				●	●	●	●	●	●	●	●	●	●	●	●■														
32	●■							●		●	●	●	●	●	●	●	●	●												
38	●■							●		●	●	●	●	●	●	●	●	●	●	●■										
42	●■									●	●	●	●	●	●	●	●	●	●	●	●	●								
48	●■											●			●	●	●	●	●	●	●	●■	●	●■						
65	●■																●■	●	●■	●	●■	●■	●■	●■	●■	●■	●■	●■		
80	●																						●		●	●	●	●	●	●

● Standard length ■ Standard lengthened

Taper and inch bores

	Taper 1:5					Taper 1:8					Inch bores								
Code d +0.05 b JS9 t +0.2	**A-10** 9.85 2	**B-17** 16.85 3	**C-20** 19.85 4	**D-25** 24.85 5	**E-30** 29.85 6	**N/1** 9.7 2.4	**N1d** 14 3	**N/2** 17.28 3.2	**N/2a** 17.28 4	**N/3** 22 3.99	**Ta** 12.7 3.17 14.3	**DNC** 13.45 3.17 14.9	**Ed** 15.87 4.75 18.1	**A** 19.05 4.78 21.3	**G** 22.22 4.75 24.7	**F** 22.22 6.38 25.2	**Bs** 25.38 6.37 28.3	**Hs** 25.4 6.35 28.7	**K** 31.75 7.93 35.4
14	●					●							●						
19		●				●							●						
24	●	●				●		●	●		●			●	●				
28	●	●				●	●	●	●	●				●					
32		●																●	
38		●						●	●					●					
42		●		●				●	●	●				●		●	●		
48																			
65																			●

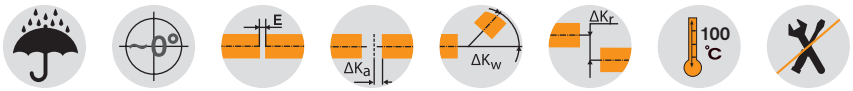
Other dimensions on request.
● Standard length

BoWex® couplings for standard IEC motors, protection class IP 54/IP 55

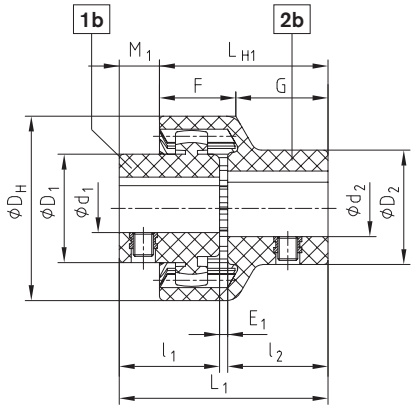
A. C. motor Size	Engine power with 50 Hz n = 3000 [rpm]			Engine power with 50 Hz n = 1500 [rpm]			Engine power with 50 Hz n = 1000 [rpm]			Cylindrical shaft ends d x l [mm]	
	kW	T [Nm]	BoWex® coupling	kW	T [Nm]	BoWex® coupling	kW	T [Nm]	BoWex® coupling	3000 ≤ 1500	
56	0.09	0.32		0.06	0.43		0.037	0.43		9 x 20	
	0.12	0.41		0.09	0.64		0.045	0.52			
63	0.18	0.62	14	0.12	0.88	14	0.06	0.72	14	11 x 23	
	0.25	0.86		0.18	1.3		0.09	1.1			
71	0.37	1.3		0.25	1.8		0.18	2.0		14 x 30	
	0.55	1.9		0.37	2.5		0.25	2.7			
80	0.75	2.5	19	0.55	3.7	19	0.37	3.9	19		
	1.1	3.7		0.75	5.1		0.55	5.8		19 x 40	
90 S	1.5	5.0	24	1.1	7.5	24	0.75	8.0	24	24 x 50	
90 L	2.2	7.4		1.5	10		1.1	12			
100 L	3	9.8	28	2.2	15	28	1.5	15	28	28 x 60	
				3	20						
112 M	4	13		4	27		2.2	22			
132 S	5.5	18	38	5.5	36	38	3	30	38	38 x 80	
	7.5	25									
132 M				7.5	49		4	40			
							5.5	55			
160 M	11	36	42	11	72	42	7.5	75	42	42 x 110	
	15	49									
160 L	18.5	60		15	98		11	108			
180 M	22	71	48	18.5	121	48			48	48 x 110	
180 L				22	144		15	148			
200 L	30	97		30	196		18.5	181		55 x 110	
	37	120					22	215			
225 S			65	37	240	65			65	55 x 110	60 x 140
225 M	45	145		45	292		30	293			
250 M	55	177		55	356		37	361		60 x 140	65 x 140
280 S	75	241		75	484		45	438			75 x 140
280 M	90	289	80	90	581	80	55	535	80		
315 S	110	353		110	707		75	727			
315 M	132	423		132	849		90	873			80 x 170
315 L	160	513	80	160	1030	100	110	1070	100	65 x 140	
	200	641		200	1290		132	1280			
							160	1550			
315	250	801		250	1610		200	1930	125		85 x 170
	315	1010	100	315	2020	125	250	2420			
355	355	1140		355	2280		315	3040	-	75 x 140	95 x 170
	400	1280	125	400	2560						

Torque T ≙ rated torque according to Siemens catalogue.

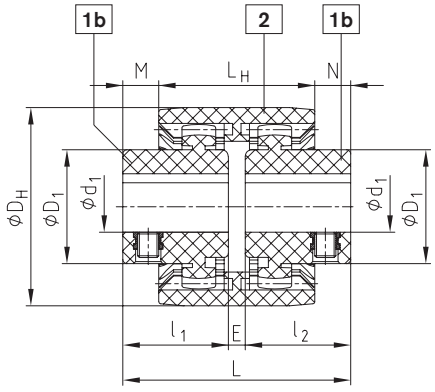
Plug-in coupling made of nylon (two-part and three-part)



Components



Type junior plug-in coupling (two-part)



Type junior M coupling (three-part)

BoWex® junior plug-in coupling (two-part) and BoWex® junior M (three-part)

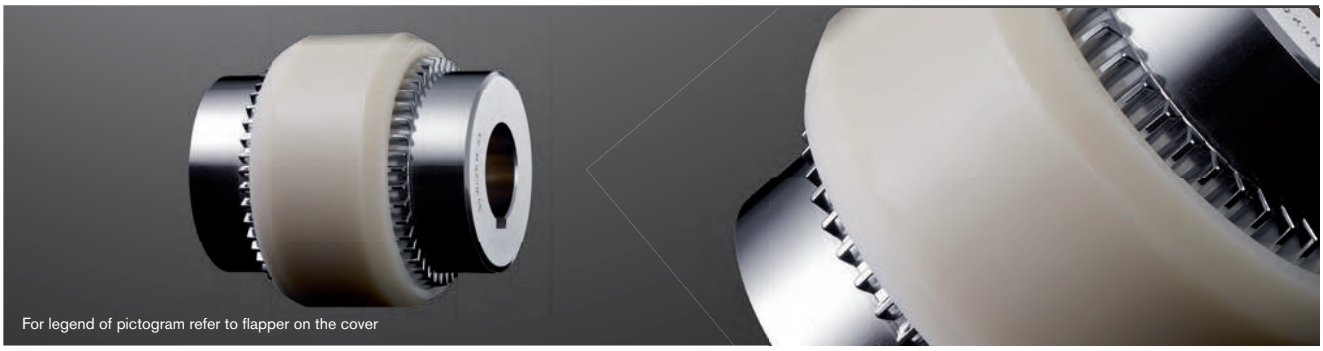
Size	Torque [Nm]		Finish bore				Dimensions [mm]												Max. speed [rpm]
			Hub Component 1b [1]		Plug-in sleeve Component 2b [1]		DH	l_1, l_2	E_1	L_1	L_{H1}	M_1	F	G	E	L	L_H	M, N	
	T_{KN}	$T_{K\,max.}$	d_1 [1]	D_1	d_2 [1]	D_2													
14 M-14	5	10	Ø6, Ø7, Ø8, Ø9	22	Ø6, Ø7, Ø8	22	40	23	2	48	40	8	18.5	21.5	4	50	37	6.5	6000
			Ø10, Ø11	25	Ø10, Ø11	25													
			Ø12, Ø14	26	Ø12, Ø14	26													
19 M-19	8	16	Ø10, Ø11, Ø12, Ø14	27	Ø12, Ø14,	29	47	25	2	52	42	10	19.0	23.0	4	54	37	8.5	6000
			Ø15, Ø16	30	Ø15, Ø16														
			Ø19	32	Ø19	35													
24 M-24	12	24	Ø10, Ø11, Ø12	26	Ø14, Ø16	32	53	26	2	54	45	9	21.5	23.5	4	56	41	7.5	6000
			Ø14, Ø15, Ø16	32															
			Ø18, Ø19, Ø20	36	Ø19, Ø20	36													
			Ø24	38	Ø24	40													

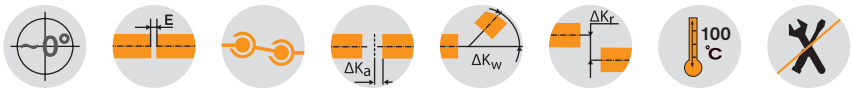
[1] Finish bores with tolerance +0.05/-0.1; feather keyway ±0.08

Ordering example:	BoWex® junior 19	d_1 Ø19	d_2 Ø14
	Coupling size of two-part type or BoWex® junior M-19 three-part type	Finish bore	Finish bore

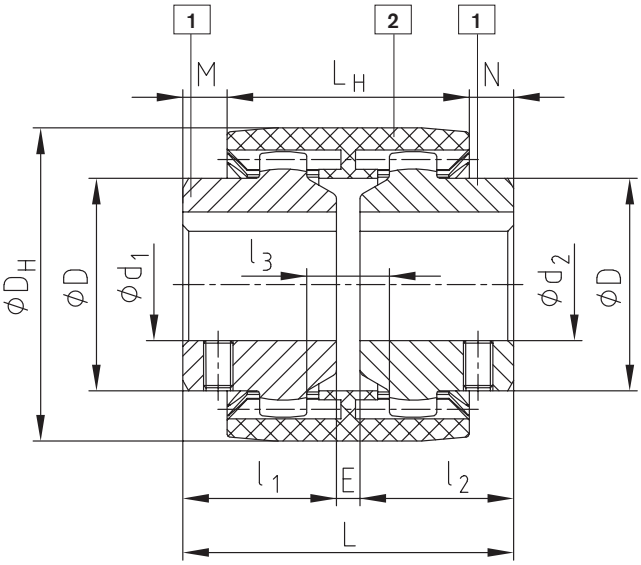
BoWex® M, I
Curved-tooth gear coupling®

Compact and maintenance-free

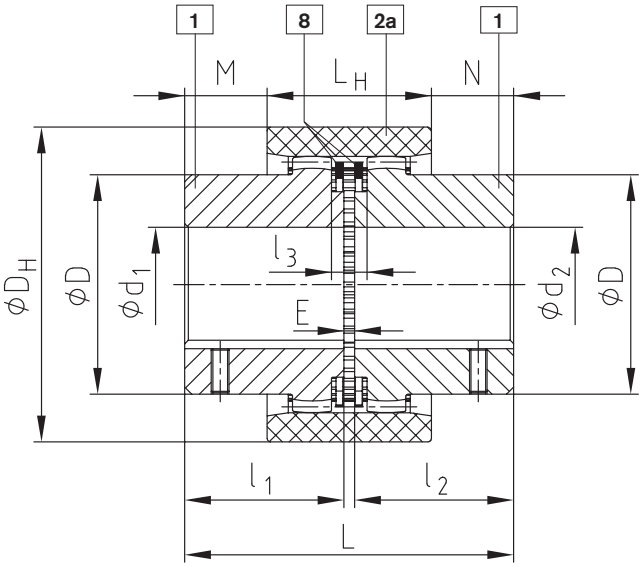




Components



Type M



Type I

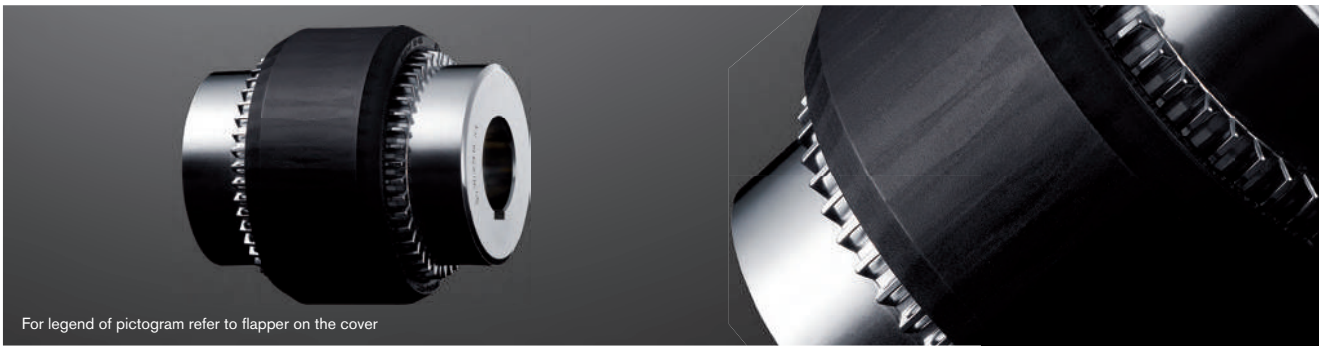
BoWex® type M, type I																						
Size	Torque [Nm]			Finish bore d1, d2		Dimensions [mm]											Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm²]		
	T_{KN}	$T_{K\,max.}$	T_{KW}	Pilot bored	Max.	l_1, l_2	E	L	L_H	M, N	l3	D	DH	Tip circle $ØD_Z$ hub	Number of teeth	Hub lengthened max. l_1, l_2	Sleeve	Hub	Total	Sleeve	Hub	Total
M-14	10	30	5	-	15	23	4	50	37	6.5	10	25	40	33	20	40	0.03	0.07	0.1	0.08	0.09	0.26
M-19	16	48	8	-	20	25	4	54	37	8.5	10	32	47	39	24	40	0.03	0.1	0.23	0.15	0.16	0.47
M-24	20	60	10	-	24	26	4	56	41	7.5	14	36	53	45	28	50	0.04	0.14	0.32	0.21	0.36	0.93
M-28	45	135	23	-	28	40	4	84	46	19	13	44	65	54	34	55	0.08	0.33	0.74	0.65	1.22	3.09
M-32	60	180	30	-	32	40	4	84	48	18	13	50	75	63	40	55	0.09	0.43	0.95	1.14	2.17	5.48
M-38	80	240	40	-	38	40	4	84	48	18	13	58	83	69	44	60	0.13	0.55	1.23	1.58	3.55	8.68
M-42	100	300	50	-	42	42	4	88	50	19	13	65	92	78	50	60	0.14	0.68	1.5	2.32	5.98	14.28
M-48	140	420	70	-	48	50	4	104	50	27	13	68	95	78	50	60	0.23	0.79	1.81	3.9	7.22	18.34
M-65	380	1140	190	21	65	55	4	114	68	23	16	96	132	110	42	70	0.55	1.9	4.35	21.2	31.8	84.8
I-80	700	2100	350	31	90	90	6	186	93	46.5	20	124	178	145	46	-	1.13	5.2	11.53	68.9	150.8	370.5
I-100	1200	3600	600	38	100	110	8	228	102	63	22	152	210	176	48	-	1.78	9.37	20.52	158.6	401.3	961.2
I-125	2500	7500	1250	45	125	140	10	290	134	78	30	192	270	225	54	-	3.88	19.44	42.76	562.9	1362.3	3287.5

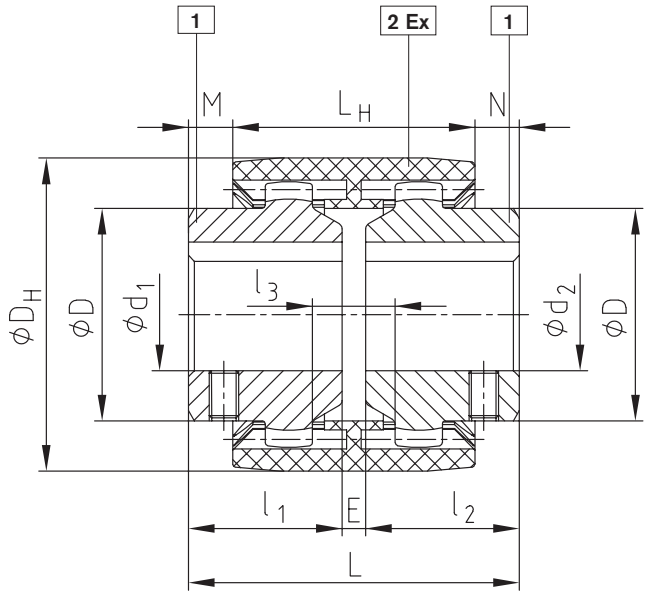
Ordering example:

BoWex® M-28	d_1 Ø20	d_2 Ø28
Size and type of coupling	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

BoWex® M...C
Curved-tooth gear coupling®

Compact and maintenance-free





Type M...C Ex

BoWex® Type M...C Ex

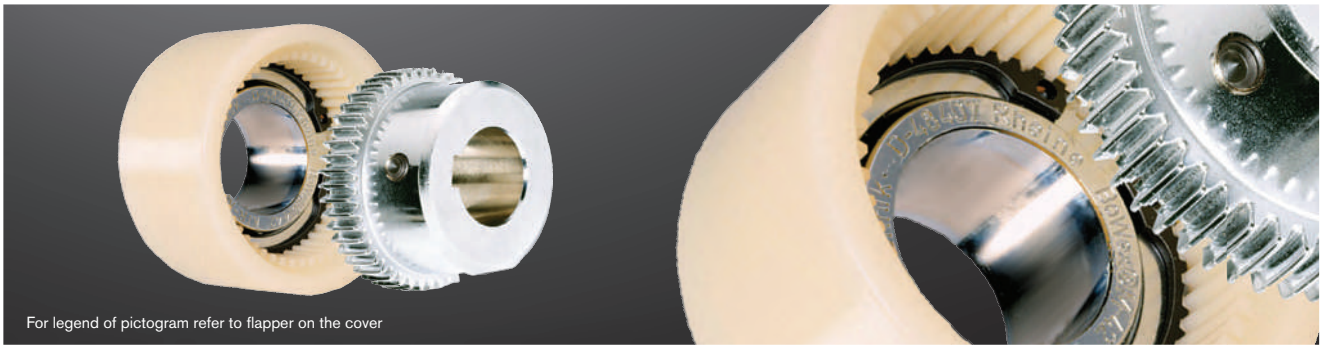
Size	Torque [Nm]			Finish bore d1, d2		Dimensions [mm]											Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm²]		
	T_{KN}	$T_{K\ max.}$	T_{KW}	Pilot bored	Max.	l_1, l_2	E	L	L_H	M, N	l3	D	DH	Tip circle $ØD_Z$ hub	Number of teeth	Hub lengthened max. l_1, l_2	Sleeve	Hub	Total	Sleeve	Hub	Total
M-14C	15	45	7.5	-	15	23	4	50	37	6.5	10	25	40	33	20	40	0.03	0.07	0.1	0.08	0.09	0.26
M-19C	24	72	12	-	20	25	4	54	37	8.5	10	32	47	39	24	40	0.03	0.1	0.23	0.15	0.16	0.47
M-24C	30	90	15	-	24	26	4	56	41	7.5	14	36	53	45	28	50	0.04	0.14	0.32	0.21	0.36	0.93
M-28C	70	210	35	-	28	40	4	84	46	19	13	44	65	54	34	55	0.08	0.33	0.74	0.65	1.22	3.09
M-32C	90	270	45	-	32	40	4	84	48	18	13	50	75	63	40	55	0.09	0.43	0.95	1.14	2.17	5.48
M-38C	120	360	60	-	38	40	4	84	48	18	13	58	83	69	44	60	0.13	0.55	1.23	1.58	3.55	8.68
M-48C	200	600	100	-	48	50	4	104	50	27	13	68	95	78	50	60	0.23	0.79	1.81	3.9	7.22	18.34
M-65C	560	1680	280	21	65	55	4	114	68	23	16	96	132	110	42	70	0.55	1.9	4.35	21.2	31.8	84.8
M-80C	1000	3000	500	31	90	90	6	186	93	46.5	20	124	178	145	46	-	1.13	5.2	11.53	68.9	150.8	370.5

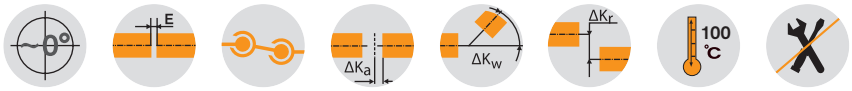
Ordering example:

BoWex® M-28C	d_1 Ø20	d_2 Ø28
Size and type of coupling	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

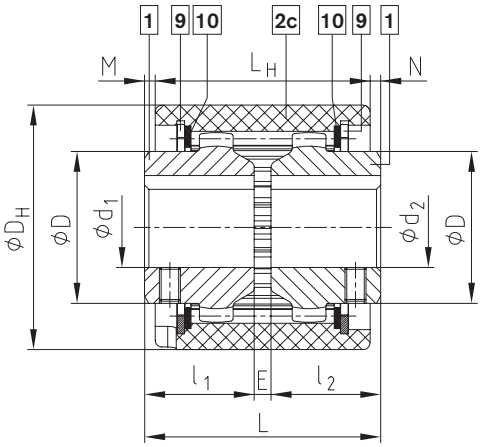
BoWex® AS and Spec.-I
Curved-tooth gear coupling®

Compact and maintenance-free

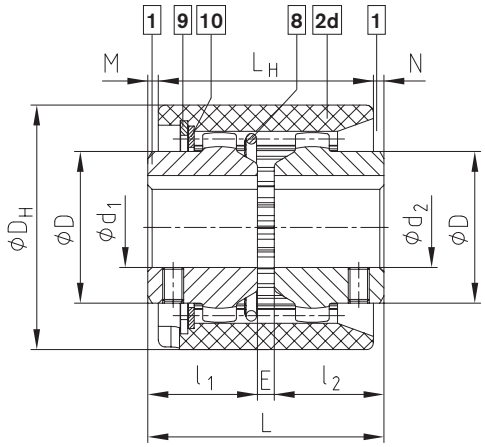




Components



Type AS



Type Spec.-I

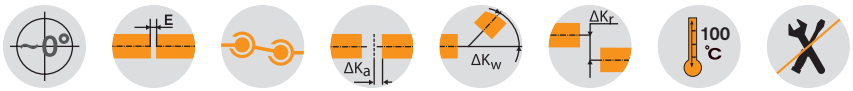
BoWex® Type AS and type Spec.-I

Size	Pilot bore		Finish bore d_1, d_2		Dimensions [mm]								Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm²]		
	Unbored	Pilot bored		Max.	l_1, l_2	E	L	L_H	M, N	D	DH	Hub length. max. l_1, l_2	Sleeve	Hub	Total	Sleeve	Hub	Total
24	x	-	For finish bores see stock programme	24	26	4	56	51	2.5	36	58	50	0.11	0.14	0.39	0.38	0.36	1.10
28	x	-		28	40	4	84	56	14	44	70	55	0.16	0.33	0.82	1.54	1.22	3.98
32	x	-		32	40	4	84	58	13	50	84	55	0.21	0.43	1.07	2.75	2.17	7.09
45	x	-		45	42	4	88	60	14	65	100	60	0.27	0.63	1.53	5.49	5.66	16.81
65	-	21		65	55	4	114	84	15	96	140	70	0.84	2.10	5.00	29.83	43.96	117.8
80	-	31		90	90	6	186	93	46.5	124	178	-	1.30	5.20	11.70	83.20	150.8	384.8
100	-	38		100	110	8	228	102	63	152	210	-	2.05	9.40	20.80	184.4	401.3	987.0
125	-	45		125	140	10	290	134	78	192	270	-	4.32	19.44	43.10	620.0	1362.3	3344.6

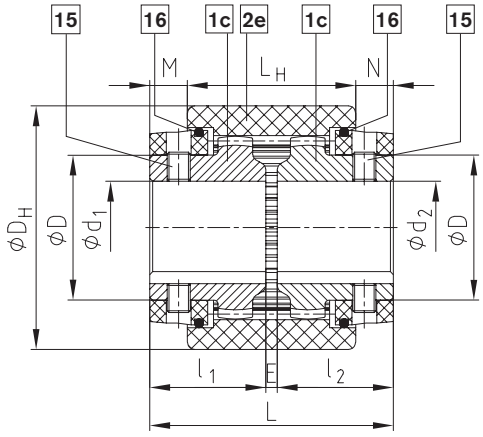
For performance data see page 86.

Ordering example:	BoWex® 32 AS	d_1 Ø32	d_2 Ø32
	Size and type of coupling AS or Spec.-I	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

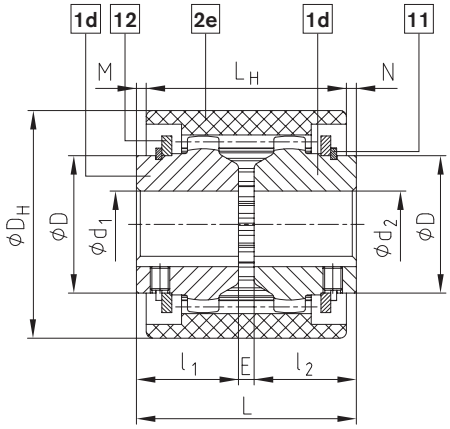
Other coupling types



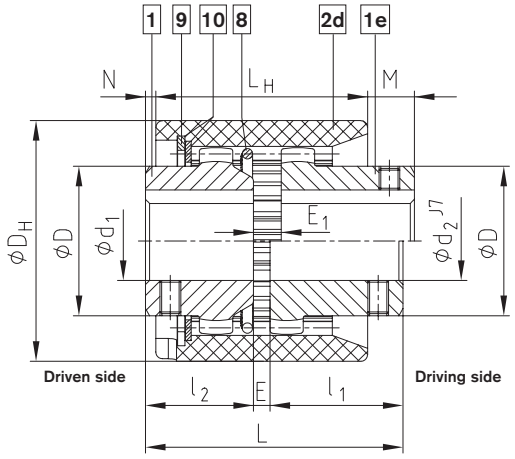
Components



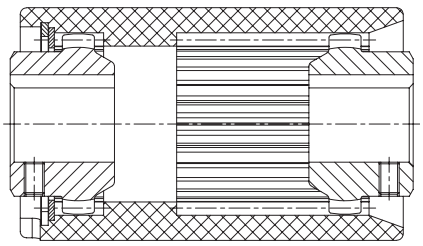
BoWex® Type SG with dust protection circlips



BoWex® Type SSR with Seeger circlips



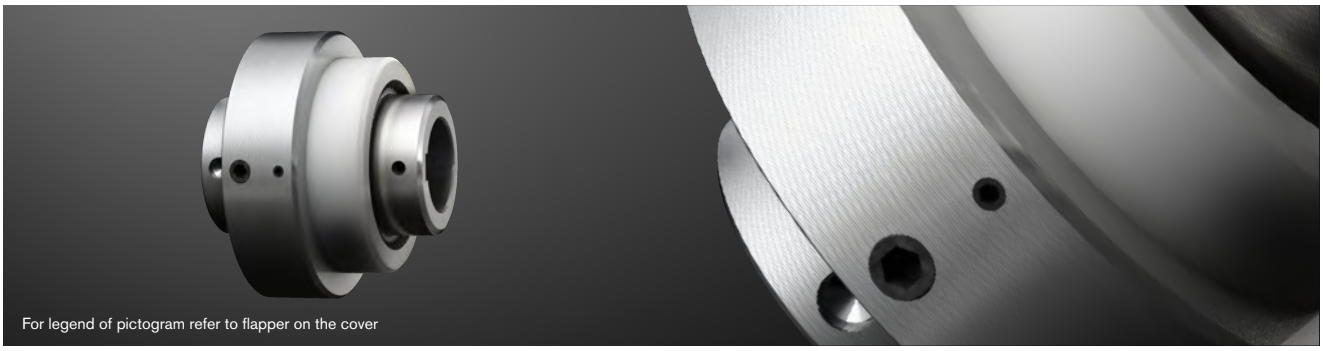
BoWex® Type Spec.-I/CD

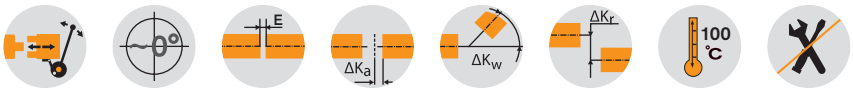


Type Spec.-I with a long PA-sleeve

BoWex® SD/SD-D
Curved-tooth gear coupling®

Shiftable coupling (at standstill)





BoWex® Type SD

Size	Pilot bore		Finish bore d_1, d_2			Dimensions [mm]												Weight with max. bore [kg]		Mass moment of inertia J with max. bore [kgcm²]		Shifting force [N]
	Un-bored	Pilot bored	d_1	d_1 max.	d_2 max.	E	l1	l2	L	L_H	l3	M	W	N	D	DH	D_A	Shifting hub with sleeve	Driving hub	Shifting hub with sleeve	Driving hub	
24 SD	x	-	For finish bores see stock programme on page 88	24	24	4	26	50	80	52	31	10	19	18	36	58	78	1.08	0.14	8.23	0.36	140
28 SD	x	-		28	28	4	40	55	99	57	33	21.5	21.5	20.5	44	70	88	1.50	0.33	15.62	1.22	180
32 SD	x	-		32	32	4	40	55	99	58	33	20.5	21.5	20.5	50	84	100	1.85	0.43	22.87	2.17	180
45 SD	x	-		45	45	4	42	60	106	63	37	21.5	22.5	21.5	65	100	125	2.56	0.68	46.07	5.66	250
				48			50		114			29.5							0.79			
65 SD	-	26		65	65	4	55	70	129	77	37	28	25	24	95	140	156	5.07	2.30	158.99	43.96	350
80 SD	-	31		90	90	6	90	90	186	96	47	56	35	34	124	175	195	10.60	5.20	523.7	150.8	350
100 SD	-	38		100	100	8	110	110	228	113	55	72	43	43	152	210	235	18.87	9.37	1350	401.3	400
125 SD	-	45		125	125	10	140	140	290	149	70	89	52	52	192	270	298	40.40	9.44	4919	1362.3	450

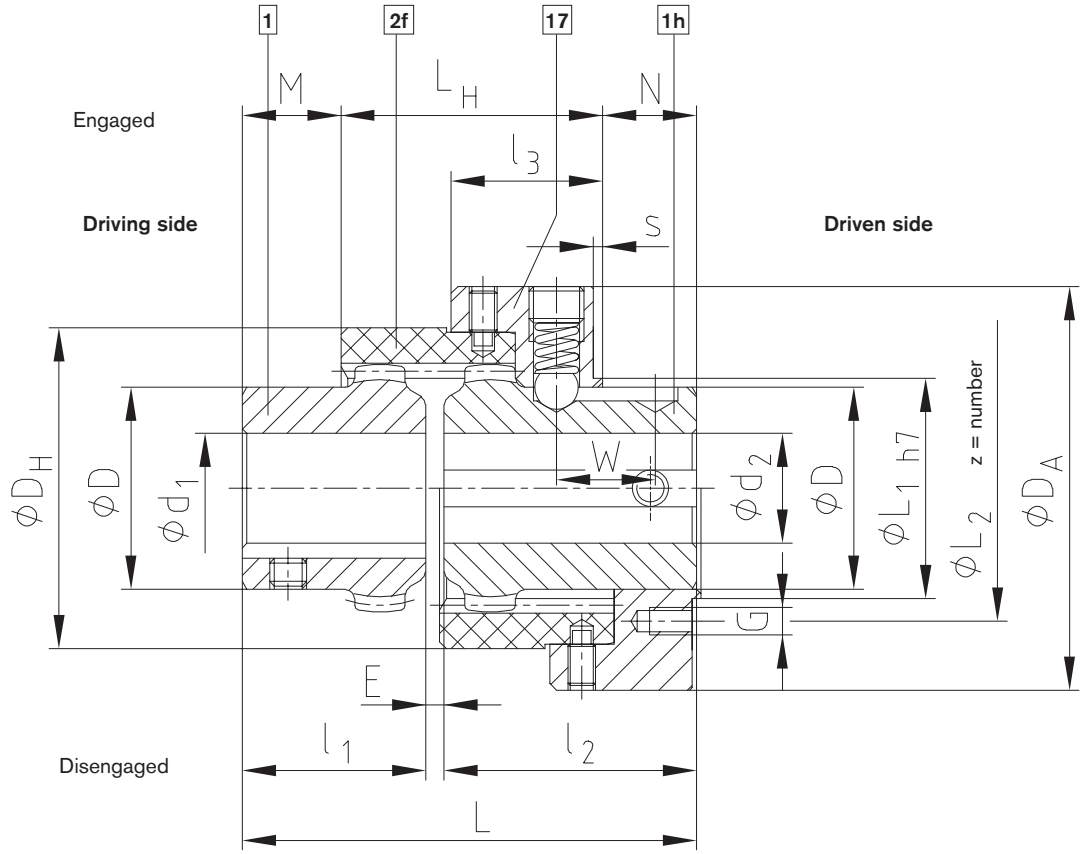
Connection dimensions of BoWex® SD shifting ring (comp. 17) for mounting of: slip ring SD1 (s. catalogue on p. 89), shifting disk etc.

Size	Dimensions [mm]			
	L_1	L_2	z x G	s
24 SD	48	58	4 x M6	2
28 SD	48	58	4 x M6	2
32 SD	64	75	4 x M6	2
45 SD	75	90	4 x M8	2
65 SD	100	114	4 x M8	2
80 SD	130	145	4 x M8	3
100 SD	180	196	6 x M10	4
125 SD	220	236	6 x M10	4

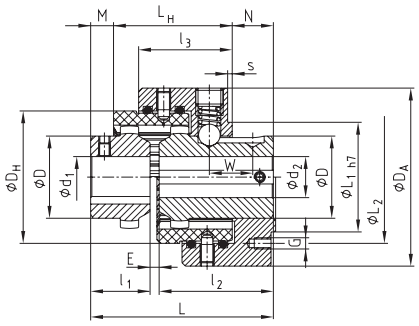
Performance data/torques see type M (on page 99), max. circumferential speed v = 20 m/s, referring to $ØD_A$
Other sizes on request

Ordering example:	BoWex® 32 SD	d_1 Ø32	d_2 Ø32
	Size and type of coupling	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

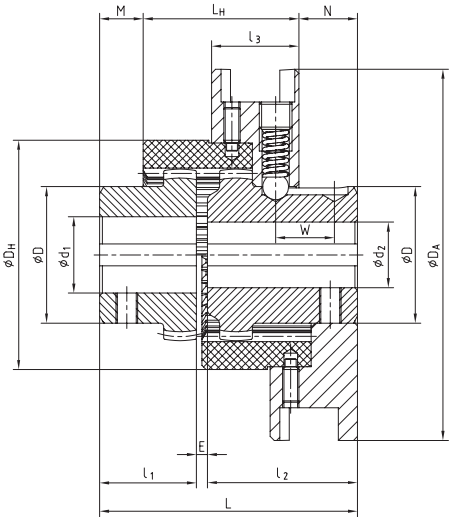
Components



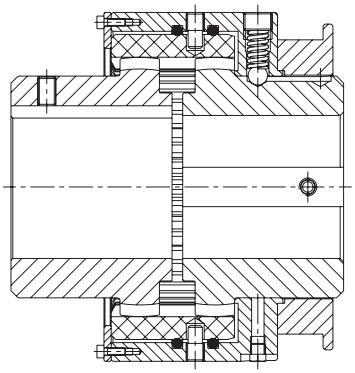
BoWex® SD



BoWex® SD-D



BoWex® SD2

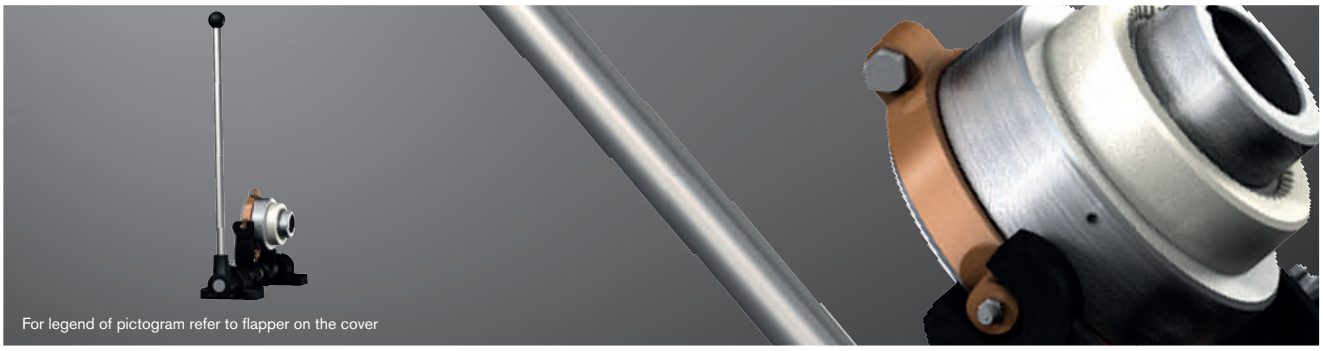


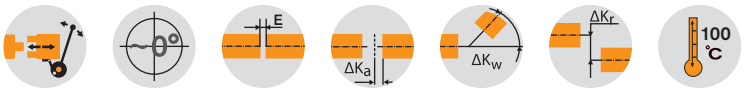
BoWex® SD-D3

GEARex®

BoWex® SD1
Curved-tooth gear coupling®

Shiftable coupling with shiftable linkage (at standstill)





BoWex® Type SD1 and slip ring

Size	Finish bore			Dimensions [mm]																		Shifting force [N]
	d_1	d_1 max.	d_2 max.	E	l1	l2	L	L_G	l4	l5	M	W	t	D	DH	D_A	D_1	D_2 ±0.1 (keyway)	D_5	n ±0.1 (keyway)	
24 SD1	For finish bores see stock programme on page 88	24	24	4	26	50	80	67	11	46	10	19	16	36	58	78	45	70.5	78	12.5	140
28 SD1		28	28	4	40	55	99	72	11	48	21.5	21.5	16	44	70	88	45	70.5	78	12.5	180
32 SD1		32	32	4	40	55	99	78	13.5	53	20.5	21.5	21	50	84	100	60	89.5	100	17.5	180
45 SD1		45	45	4	42	60	106	84	14	58	21.5	22.5	22	65	100	125	70	112.5	125	18	250
		48			50		114				29.5										
65 SD1		65	65	4	55	70	129	103	16	61	26	25	25	96	140	156	96	130.5	145	20.5	350
80 SD1		90	90	6	90	90	186	124	18.5	75	56	35	29	124	175	195	125	164.5	182	25.5	350
100 SD1		100	100	8	110	110	228	152	28	94	72	43	39	152	210	235	174	210.5	230	30.5	400
125 SD1		125	125	10	140	140	290	193	30.5	114	89	52	44	192	270	298	214	250.5	275	35.5	450

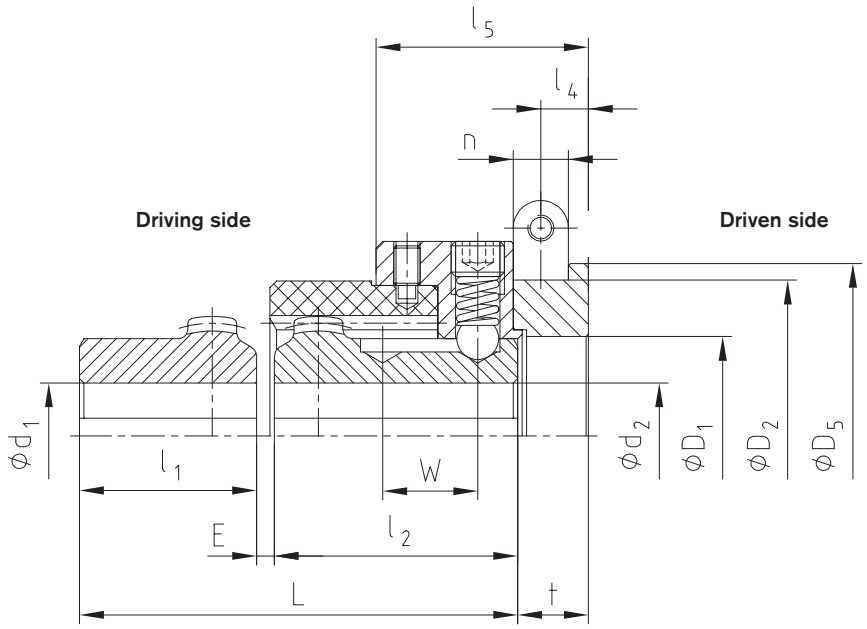
BoWex® Type SD1 - Shiftable linkage

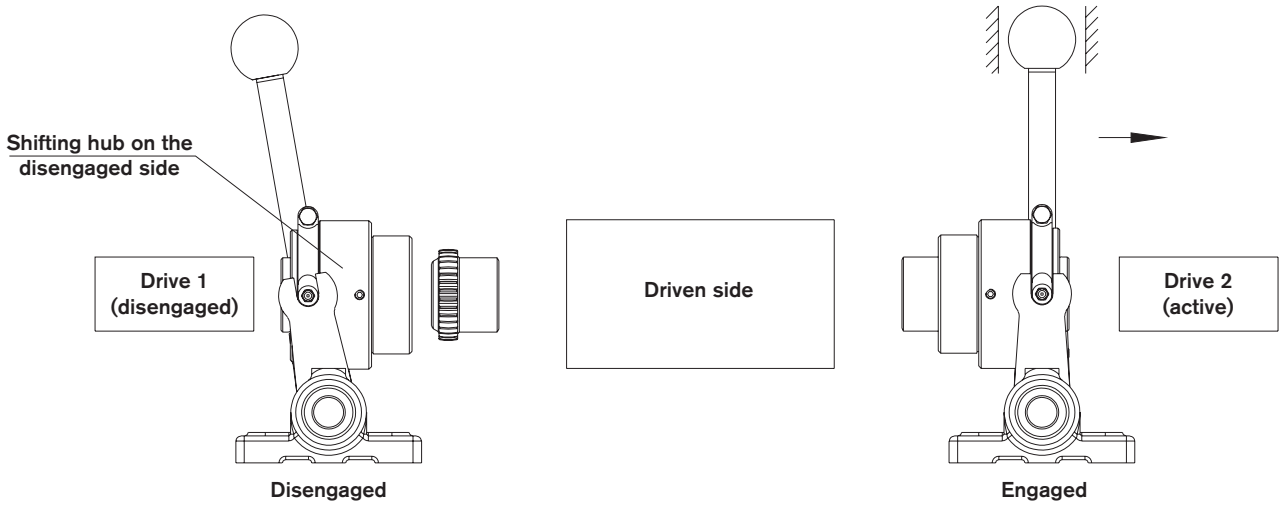
Size	Shiftable linkage size	Slip ring size	Dimensions [mm]															Dimensions with m_1 max.		
			a	b	c	d	d_3	d_4	e	F	g_1	L_2	L_3	m	m_1 min.	m_1 max.	A	B	m_3	m_4	m_5
24 SD1	1	1.1	110	50	18	20	11	16	30	70	55	320	400	75	180	190	90	114		55	16
28 SD1	1	1.1																			
32 SD1	2	2.2				25				97.5	60	430	450		240	270	111	151	20	80	34
45 SD1	3	3.3	140			30		20	40	120		490	600	100	280	310	140	180		90	44
65 SD1	3	4.4		60	25		13.5				70						170	210			
80 SD1	4	5.5				35			50	147.5		565	750		321	365	200	244		100	54
100 SD1	5	6.6	160			40		30	50 [1]	190	80	630	1085	120	365	410	250	300	30	110	62
125 SD1	5	7.7													-		300	350			

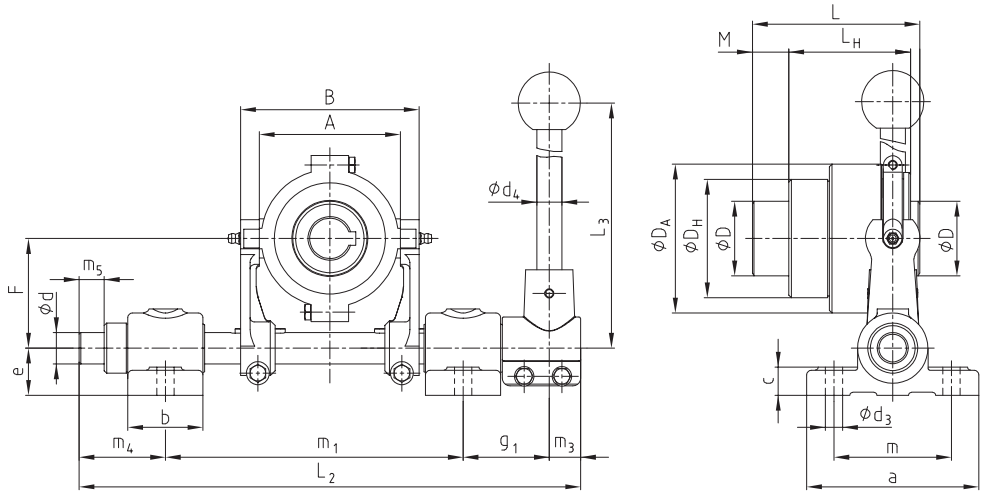
[1] = With a continuous base plate dimension „e“ has to be increased by at least 10 mm. The brackets of the driving and driven side have to be adjusted accordingly.
Also available as type SD-D. Other sizes on request.

Performance data/torques see type M (on page 90),
max. circumferential speed v = 20 m/s, referring to ØD$_A$
(see assembly instructions table 11)

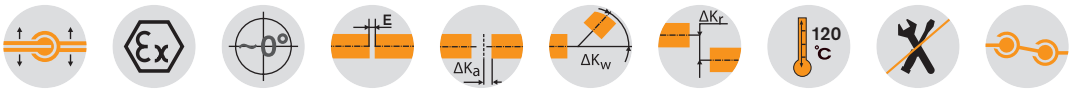
Ordering example:	BoWex® 65 SD1	d_1 Ø32	d_2 Ø32	4.4	3
	Size and type of coupling	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)		Slip ring Size	Shiftable linkage Size

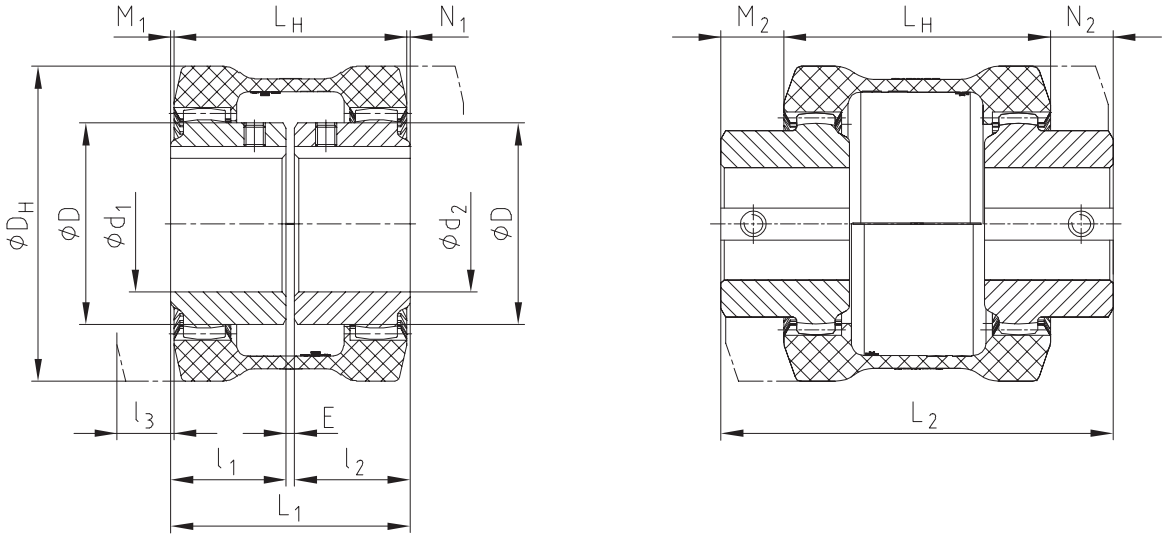

Driving side
Driven side
l5
l4
n
ϕd1
l1
W
ϕd2
ϕD1
ϕD2
ϕD5
E
l2
L
t

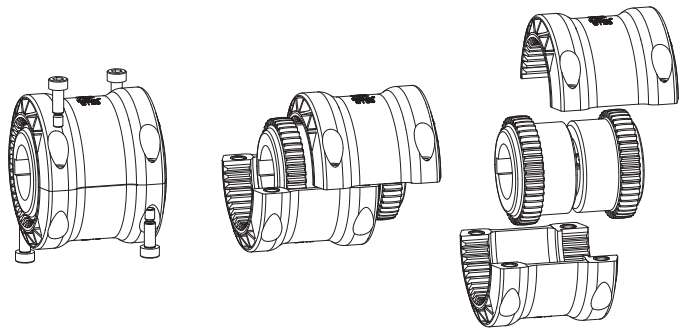

Shifting hub on the disengaged side
Drive 1 (disengaged)
Driven side
Drive 2 (active)
Disengaged
Engaged


B
A
ϕd4
L3
m5
F
ϕd
e
b
m4
m1
g1
m3
L2
L
M
LH
ϕDA
ϕDH
ϕD
c
ϕd3
m
a

Split CFC sleeve for high power density and radially dismountable







BoWex® Type GT with split sleeve

Size	Torque [Nm]			Finish bore $d_{max.}$		Dimensions [mm]											Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm²]		
	T_{KN}	$T_{K\ max.}$	T_{KW}	d_1	d_2	D	DH	L_H	l1	l2	l3	E	L_1	L_2	M_1, N_1	M_2, N_2	Sleeve	Hub	Total	Sleeve	Hub	Total
28	70	210	35	28	28	44	80	80	40	40	15	4	84	124	2	22	0.158	0.22	0.702	1.77	1.22	4.21
38	120	360	60	38	38	58	98	83	40	40	18	4	84	122	0.5	19.5	0.25	0.45	1.15	4.43	3.36	11.15
48	200	600	100	48	48	68	110	104	50	50	21	4	104	160	0	28	0.33	0.67	1.68	7.39	6.11	19.61
65	560	1680	280	65	65	96	150	111	55	55	27	4	114	160	1.5	24.5	0.69	1.54	3.77	28.9	31.80	92.5

l_3 = Drop-out center design dimension required

Ordering example:

BoWex® GT-28	d_1 Ø20	d_2 Ø28
Size and type of coupling	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

BoWex® M
Curved-tooth gear coupling®

Made of corrosion-resistant materials

BoWex® junior plug-in coupling (two-part) and BoWex® junior M (three-part)

Size	Finish bore				Dimensions [mm]									
	Hub Component 1b		Plug-in sleeve Component 2b		DH	l_1, l_2	E_1	E	L_{H1}	L_H	L_1	L	M_1	M, N
	d_1	D_1	d_2	D_2										
14 M-14	Ø6, Ø7, Ø8, Ø9	22	Ø8	22	40	23	2	4	40	37	48	50	8	6.5
	Ø10, Ø11	25	Ø10, Ø11	25										
	Ø12, Ø14	26	Ø12, Ø14	26										
19 M-19	Ø12, Ø14	27	Ø14, Ø15	29	48	25	2	4	42	37	52	54	10	8.5
	Ø16	30												
	Ø19	32	Ø19	35										
24 M-24	Ø10, Ø11, Ø12	26	Ø14, Ø16	32	53	26	2	4	45	41	54	56	9	7.5
	Ø14, Ø15, Ø16	32												
	Ø18, Ø19, Ø20	36	Ø19, Ø20	36										
	Ø24	38	Ø24	40										

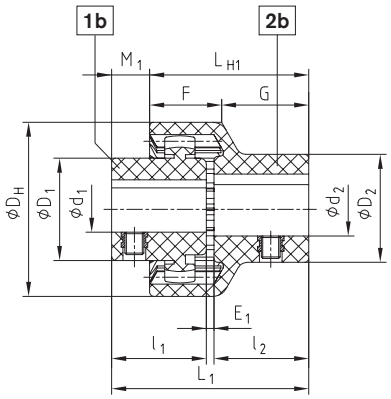
BoWex® type M with stainless steel hubs

Size	Finish bore d_1 max., d_2 max.	Dimensions [mm]						
		DH	D	l_1, l_2	E	L_H	L	M, N
M-24	24	53	36	26	4	41	56	7.5
M-38	38	83	58	40	4	48	84	18
M-48	48	95	68	50	4	50	104	27

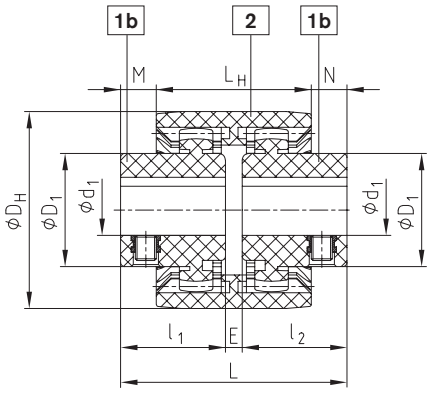
Other coupling sizes on request. Setscrews with BoWex® junior coupling are made of V4A as a standard.
For performance data see page 88.

Applications:
Food industry, print and paper industry, textile industry, sewage technology, wash-mobiles, chemical and pharmaceutical industry, offshore units, etc. For use in aggressive environment (air, water, chemicals, etc.).

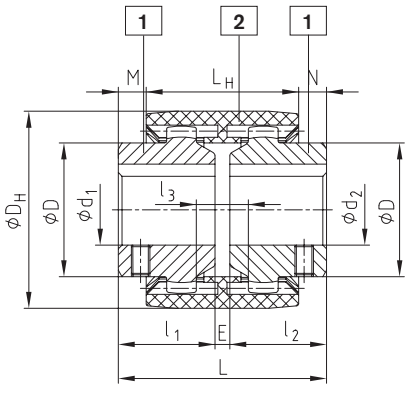
Type junior plug-in coupling (two-part)



Type junior M coupling (three-part)



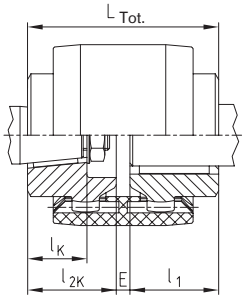
Type M (V4A)

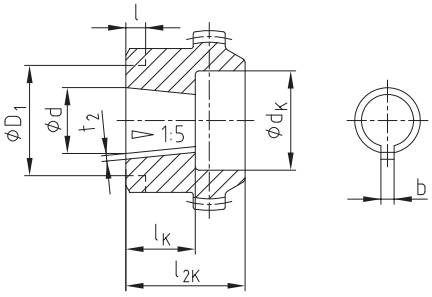


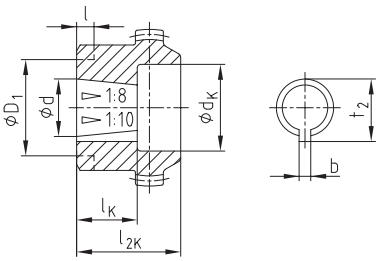
Ordering example:	BoWex® M-24 V4A	d_1 Ø20	d_2 Ø24
	Size and type of coupling	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

Taper bores

BoWex® with taper bore







$L_{Tot.} = l_1 + E + l_{2K}$

see stock programme on page 88

Taper bores 1:5

Code	Dimensions [mm]				Counterbore d_K and hub length l_{2K} [mm] Recess on hub collar D_1 x l [mm]																	
	Details of bores				14		19		24		28		32		38		42		48		65	
	d +0.05	b JS9	t_2 +0.1	l_K	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}
A-10	9.85	2	1.0	11.5	18	23	18	25	25	26	25	26	25	26	25	26						
					-		30 x 7		30 x 7		30 x 5		-		30 x 5							
B-17	16.85	3	1.8	18.5			25	30	28	30	36	40	36	40	36	40	45	42	45	42	45	50
C-20	19.85	4	2.2	21.5					28	36	36	40	36	40	36	40	45	42	45	42	45	50
Cs-22	21.95	3	1.8	21.5					28	36	36	40	36	40	36	40	45	42	45	42		
D-25	24.85	5	2.9	26.5							36	40	36	40	36	40	45	42	45	42	45	50
E-30	29.85	6	2.6	31.5											45	55	45	55	45	55	45	55
F-35	34.85	6	2.6	36.5															52	60	55	60
G-40	39.85	6	2.6	41.5															52	60	65	70

Taper bores 1:8

Code	Dimensions [mm]				Counterbore d_K and hub length l_{2K} [mm] Recess on hub collar D_1 x l [mm]																	
	Details of bores				14		19		24		28		32		38		42		48		65	
	d +0.05	b JS9	t_2 +0.1	l_K	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}
N/1	9.7 ± 0.015	2.4 +0.05	10.85	17	18	26	18	25	25	26	25	30	25	30	25	30						
					23 x 8		23 x 8		23 x 8		23 x 8		-		23 x 8							
N/1c	11.6	3 JS9	12.90	16.5	18	23			25	26	25	30										
N/1e	13	2.4 +0.05	13.80	21					25	30	25	30			25	30						
N/1d	14	3 JS9	15.50	17.5	20	23	25	30	28	30	28	30	28	40								
					-		-		-		28 x 10		-									
N/2	17.287	3.2 +0.05	18.24	24					28	35	36	40	36	40	36	40	45	42	45	42	45	50
									-		35 x 12		-		-		-		-		-	
N/2a	17.287	4 JS9	18.94	24					28	35	36	40	36	40	36	40	45	42	45	42	45	50
									-		35 x 12		-		-		-		-		-	
N/2b	17.287	3 JS9	18.34	24					28	35					36	40	45	42	45	42		
									-						-		-		-			
N/3	22.002	4 JS9	23.40	28							36	40	36	40	36	40	45	42	45	42	45	50
											-		-		-		-		-		48 x 14	
N/4	25.463	4.78 +0.05	27.83	36							36	50	36	50	36	50	45	50	45	50	45	62
											-		-		-		58 x 10		58 x 10		-	
N/4b	25.463	5 JS9	28.23	36							36	50					45	50	45	50	45	62
N/4a	27	4.78 +0.05	28.80	32.5											36	50						
N/4g	28.45	6 JS9	29.32	38.5											36	60	45	60	45	60		
N/5	33.176	6.38 +0.05	35.39	44											45	60	45	60	45	60	45	62
N/5a	33.176	7 JS9	35.39	44													45	60	45	60	45	62

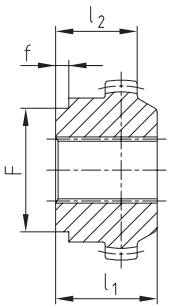
Taper bores 1:10

Code	Dimensions [mm]				Counterbore d_K and hub length l_{2K} [mm]																	
	Details of bores				14		19		24		28		32		38		42		48		65	
	d +0.05	b JS9	t_2 +0.1	l_K	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}	d_K	l_{2K}
CX-20	19.85	5	22.08	32							36	50			36	50	45	50	45	50		
DX-25	24.95	6	26.68	45									36	50			45	60	45	60	45	60
EX-30	29.75	8	31.88	50													45	60	45	60	45	70

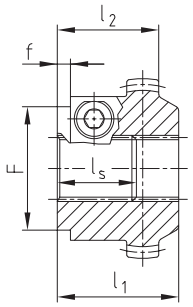
Spline hubs and inch bores

BoWex® spline hubs – basic programme

Spline hub (N)



Clamping hub (K)



If it is not possible to fasten the hubs of pump shafts with involute spline by means of an end plate and a screw, we recommend to use our spline clamping hub.
Radial clamping ensures a backlash-free tight fit on the pump shaft.

Spline and clamping hubs acc. to DIN 5480

Size	Dimensions [mm]							Order designation specify coupling size
	Type	Spline size	l1	l2	lS	F	f	
	N	25x1.25x18	42	-	-	-	-	P000205
42	K	25x1.25x18	42	-	-	-	-	P500202
	K	30x2x14	42	-	-	60	6	P500203
48	N	30x2x14	50	-	-	60	6	P000206
	K	30x2x14	50	-	-	60	6	P500203
	N	35x2x16	55	-	-	60	6	P000303
	K	35x2x16	60	-	-	60	6	P500301
65	N	40x2x18	55	-	-	78	6	P000304
	K	40x2x18	60	-	-	78	6	P500302
	K	45x2x21	55	-	-	78	6	P500401

Spline and clamping hubs to ANSI B92.1

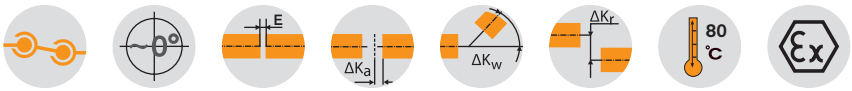
Size	Dimensions [mm]							Order designation specify coupling size
	Type	Spline size	l1	l2	lS	F	f	
	K	PH-S 5/8" 16/32DP, z=9	42	-	-	-	-	P558101
42	K	PI-S 3/4" 16/32DP, z=11	-	35	-	-	-	P559101
	K	PB-S 7/8" 16/32DP, z=13	42	-	-	60	3	P567101
	K	PB-BS 1" 16/32DP, z=15	42	-	27	50	6	P660201
48	K	PA-S 3/8" 16/32DP, z=21	50	-	45	52	7	P663301
	K	PA-S 3/8" 16/32DP, z=21	55	-	48	52	5	P663301
65	K	PC-S 1 1/4" 12/24DP, z=14	55	-	44	52	5	P656201

Inch bores – see stock programme on page 88

Bore and keyway acc. to ANSI/AGMA 9002-C14 Bore (clearance fit) Keyway (commercial class fit)						Bore and keyway acc. to ANSI/AGMA 9002-C14 Bore (clearance fit) Keyway (commercial class fit)					
KTR Code	Bore Ø [Inch]	Width of key-way [Inch]	Bore Ø [mm]	Width of keyway [mm]	Keyway depth/ Tolerance +0.381 [mm]	KTR Code	Bore Ø [Inch]	Width of key-way [Inch]	Bore Ø [mm]	Width of keyway [mm]	Keyway depth/ Tolerance +0.381 [mm]
Tb	3/8	1/8	9.525 +0.0254	3.175 +0.05	10.972	Sd	1 1/8	5/16	28.575+0.0254	7.937 +0.051	32.105
DNB	7/16	3/32	11.112 +0.0254	2.382 +0.051	12.293	Js	1 1/4	1/4	31.75+0.0254	6.35 +0.051	34.721
T	1/2	3/16	12.7 +0.0254	4.762 +0.051	14.757	K	1 1/4	5/16	31.75+0.0254	7.937 +0.051	35.331
Ta	1/2	1/8	12.7+0.0254	3.175 +0.051	14.224	Ma	1 3/8	5/16	34.925+0.0254	7.937 +0.051	38.557
DNC	17/32	1/8	13.495 +0.0254	3.175 +0.051	15.011	RH1	1 3/8	3/8	34.925+0.0254	9.525 +0.063	39.141
Do	9/16	1/8	14.287 +0.0254	3.175 +0.051	15.824	Cb	1 7/16	3/8	36.512+0.0254	9.525 +0.063	40.767
E	5/8	1/8	15.875 +0.0254	3.175 +0.051	17.424	Ca	1 1/2	5/16	38.1+0.0254	7.937 +0.051	41.783
Es	5/8	5/32	15.875 +0.0254	3.968 +0.051	17.729	C	1 1/2	3/8	38.1 +0.0254	9.525 +0.0635	42.392
Ed	5/8	3/16	15.875 +0.0254	4.762 +0.051	18.008	Nb	1 5/8	3/8	41.275 +0.0254	9.525 +0.0635	45.618
DNH	11/16	3/16	17.462 +0.0254	4.762 +0.051	19.634	Ls	1 3/4	3/8	44.45 +0.0254	9.525 +0.0635	48.818
Ad	3/4	1/8	19.05 +0.0254	3.175 +0.051	20.624	L	1 3/4	7/16	44.45 +0.0254	11.112 +0.0635	49.428
A	3/4	3/16	19.05 +0.0254	4.762 +0.051	21.259	Lu	1 7/8	1/2	47.625 +0.0254	12.7 +0.0635	53.238
G	7/8	3/16	22.225 +0.0254	4.762 +0.051	24.485	Da	1 15/16	1/2	49.212 +0.0254	12.7 +0.0635	54.864
F	7/8	1/4	22.225 +0.0254	6.35 +0.051	25.069	Ds	2	1/2	50.8 +0.0254	12.7 +0.0635	56.464
Gf	15/16	1/4	23.812 +0.0254	6.35 +0.051	26.695	Pa	2 1/8	1/2	53.975 +0.0381	12.7 +0.063	59.69
H	1	3/16	25.4 +0.0254	4.762 +0.051	27.686	U	2 1/4	1/2	57.15 +0.0381	12.7 +0.063	62.915
Hs	1	1/4	25.4 +0.0254	6.35 +0.051	28.295	Ub	2 3/8	5/8	60.325 +0.0381	15.875 +0.076	67.335
R	1 1/16	3/16	26.987 +0.0254	4.762 +0.051	29.286	Wd	3 3/8	7/8	85.725 +0.0381	22.225 +0.076	95.504
Sb	1 1/8	1/4	28.575 +0.0254	6.35 +0.051	31.521	Wf	3 5/8	7/8	92.075 +0.0381	22.225 +0.076	101.955

The splines and inch bores specified are only a part of KTR's options. Many other variants are available, too.

Coupling in accordance with AGMA 9008-B00, high power density



Dimensions

Size	Pilot bore	Max. finish bore	Dimensions [mm]														
		d_1, d_2	l_1, l_2	Hub lengthened max. l_1, l_2 [2]	E_{FA}	E_{FB}	E_{FAB}	L_{FA}	L_{FB}	L_{FAB}	L_3	D	D_{A1}	D_{A2}	F [1]	d_3 [1]
10	26	50	43	105	3	21	12	89	107	98	55	67	111	83	74	52
15	26	65	50	115	3	15	9	103	115	109	59	87	142	106	84	68
20	31	82	62	130	3	31	17	127	155	141	79	108	174	129	107	85
25	38	100	76	150	5	29	17	157	181	169	93	130	213	157	126	105
30	44.5	115	90	170	5	33	19	185	213	199	109	153	240	181	148	125
35	46	135	105	185	6	40	23	216	250	233	128	180	280	213	172	150
40	52	160	120	215	6	42	24	246	282	264	144	214	318	249	192	175
45	80	175	135	245	8	50	29	278	320	299	164	233	347	273	216	190
50	80	195	150	295	8	56	32	308	356	332	182	260	390	308	241	220
55	90	215	175	300	8	70	39	358	420	389	214	283	425.5	333	279	250
60	100	240	190	305	8	84	46	388	464	426	236	312	457	364.5	316	265
70	100	285	220	310	10	76	43	450	516	483	263	371	527	424	360	300

Technical data

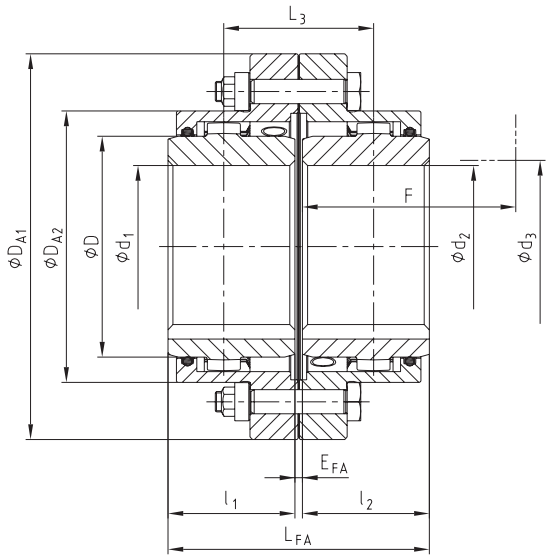
Size	Torque [Nm] [3]		Max. speed [rpm]	Weight with max. bore [kg]			Mass moment of inertia with max. bore [kgm²]	Dowel screw (10.9)		
	T_{KN}	T_{KN} (42CrMo4)		Sleeve	Hub	Total		z	M	T_A [Nm]
10	930	1580	8500	0.75	0.55	2.75	0.004	6	M6	15
15	2000	3300	6400	1.50	1.10	5.60	0.015	8	M8	36
20	3500	6300	5400	2.40	2.10	9.50	0.037	6	M10	72
25	6500	11000	4500	4.30	3.60	16.60	0.096	6	M12	125
30	10000	17400	4000	5.70	6.20	25.00	0.178	8	M12	125
35	17000	28800	3500	9.50	9.90	40.90	0.410	8	M14	200
40	28500	48500	3100	11.60	16.00	57.50	0.746	8	M14	200
45	37000	62000	3000	15.40	21.40	76.40	1.163	10	M14	200
50	51000	86000	2500	25.30	29.50	113.50	2.229	8	M18	430
55	65000	110000	2300	31.00	40.20	149.00	3.415	14	M18	430
60	85000	145000	2100	32.10	52.80	175.70	4.514	14	M18	430
70	135000	240000	1850	42.50	85.50	265.50	9.212	16	M20	610

■ = Standard
[1] Space required to align the coupling and replace the gasket
[2] Lengthened hubs available as a standard for type FA only. For type FB and FAB lengthened hubs are available on request only.
[3] Maximum torque of the coupling $T_{K\,max}$ = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

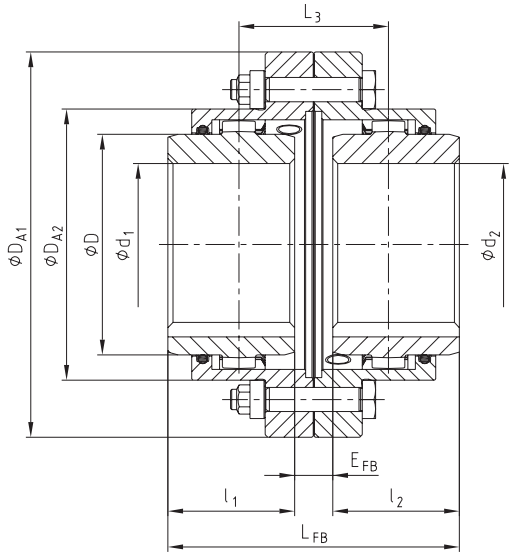
Ordering example:

GEARex® FA 10	d_1 Ø50	d_2 Ø50
Type and size of coupling	Finish bore with keyway to DIN 6885 sheet 1	Finish bore with keyway to DIN 6885 sheet 1

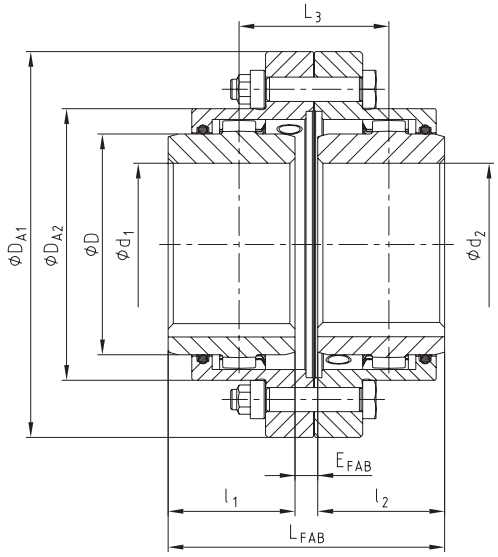
Type FA



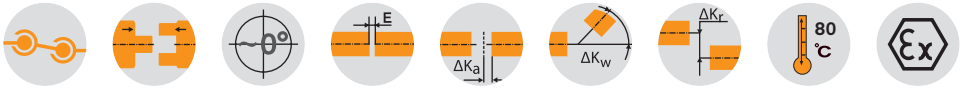
Type FB



Type FAB



Easy to assemble, high power density



Dimensions

Size	Pilot bore	Max. finish bore	Dimensions [mm]													
		d_1, d_2	l_1, l_2	Hub lengthened max. l_1, l_2 [2]	E_{DA}	E_{DB}	E_{DAB}	L_{DA}	L_{DB}	L_{DAB}	L_3	D	D_{A1}	D_{A2}	F [1]	d_3 [1]
20	31	82	62	130	3	31	17	127	155	141	79	108	187	146	107	85
25	38	100	76	150	5	29	17	157	181	169	93	130	220	172	126	105
30	44.5	115	90	170	5	33	19	185	213	199	109	153	248	194	140	125
35	46	135	105	185	6	40	23	216	250	233	128	180	285	228	155	155
40	52	160	120	215	6	42	24	246	282	264	144	214	335	270	180	180
45	80	175	135	245	8	50	29	278	320	299	164	233	358	294	195	200
50	80	195	150	295	8	56	32	308	356	332	182	260	390	322	210	230
55	90	215	175	300	8	70	39	358	420	389	214	283	425.5	354	235	250
60	100	240	190	305	8	84	46	388	464	426	236	312	457	380	270	275
70	100	285	220	310	10	76	43	450	516	483	263	371	527	445	300	335
80	140	300	280	-	10	50	30	570	610	590	310	394	545	475	360	358
85	160	325	292	-	13	53	33	597	637	617	325	430	585	515	372	395
90	180	350	305	-	13	83	48	623	693	658	353	464	640	560	385	428
100	220	390	330	-	13	93	53	673	753	713	383	512	690	612	410	465
110	220	420	350	-	20	296	158	720	996	858	508	560	765	665	440	515
120	260	450	420	-	25	421	223	865	1261	1063	643	608	825	720	510	560
130	300	500	440	-	25	415	220	905	1295	1100	660	684	980	805	540	628
140	380	550	460	-	20	430	225	940	1350	1145	685	750	1055	875	560	695
150	460	630	520	-	30	460	245	1070	1500	1285	765	850	1180	975	630	785

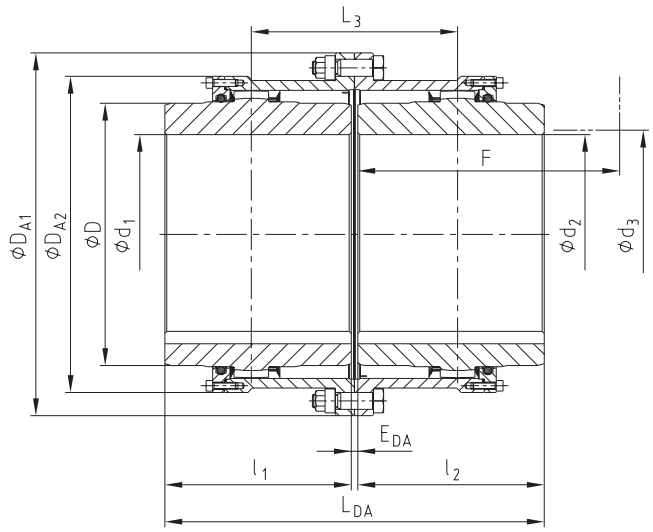
Technical data

Size	Torque [Nm] [3]		Max. speed [rpm]	Weight with max. bore [kg]			Mass moment of inertia with max. bore [kgm²]	Dowel screw (10.9)		
	T_{KN}	T_{KN} (42CrMo4)		Sleeve	Hub	Total		z	M	T_A [Nm]
20	3500	6300	5400	3.6	2.1	12.8	0.056	6	M10	72
25	6500	11000	4500	5.5	3.6	20.3	0.125	6	M12	125
30	10000	17400	4000	6.9	6.2	28.9	0.219	8	M12	125
35	17000	28800	3500	11.2	9.8	46.6	0.488	8	M14	200
40	28500	48500	3100	16.3	15.9	70.9	1.011	8	M14	200
45	37000	62000	3000	20.2	21.4	90.7	1.482	10	M14	200
50	51000	86000	2500	27.0	29.5	123.5	2.474	8	M18	430
55	65000	110000	2300	32.6	40.2	159.1	3.714	14	M18	430
60	85000	145000	2100	32.0	52.8	184.4	4.810	14	M18	430
70	135000	240000	1850	43.8	85.5	280	9.907	16	M20	610
80	175000	300000	1750	64	117	362	14.214	18	M20	610
85	225000	380000	1650	75	148	446	20.320	20	M20	610
90	-	500000	1550	101	183	568	31.036	20	M24	1000
100	-	650000	1500	117	232	698	45.358	24	M24	1000
110	-	820000	1250	140	295	940	73.880	20	M30	1700
120	-	1050000	1150	188	430	1312	118.40	24	M30	1700
130	-	1450000	1000	330	595	1965	235.431	20	M36	2800
140	-	1950000	950	391	751	2411	343.432	24	M36	2800
150	-	2750000	850	488	1057	3242	575.453	30	M36	2800

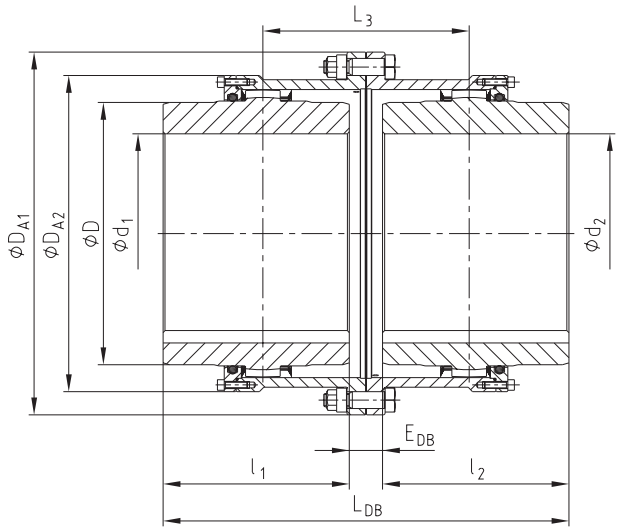
■ = Standard
[1] Space required to align the coupling and replace the gasket
[2] Lengthened hubs as a standard available for type DA only. For type DB and DAB lengthened hubs available on request only.
[3] Maximum torque of the coupling $T_{K\,max}$ = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

Ordering example:	GEARex® DA 80	d_1 Ø300	d_2 Ø300
	Type and size of coupling	Finish bore with keyway to DIN 6885 sheet 1	Finish bore with keyway to DIN 6885 sheet 1

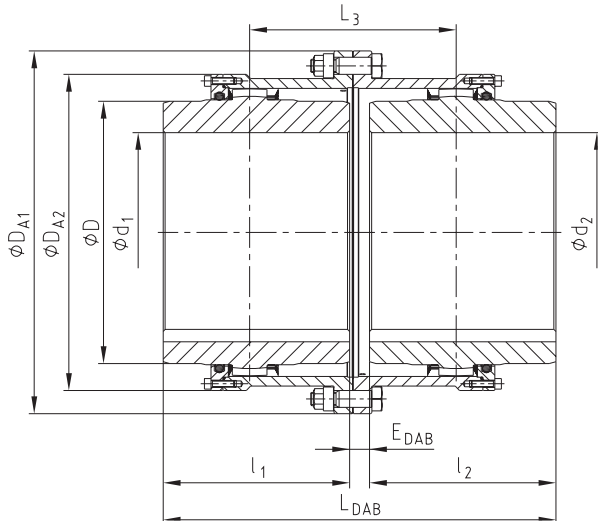
Type DA



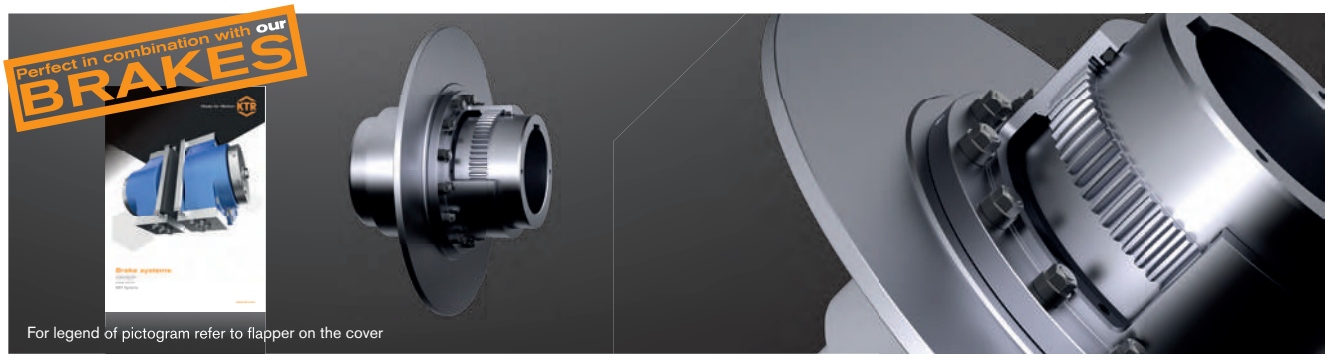
Type DB



Type DAB



All-steel gear coupling with brake disk



Dimensions

Size	Pilot bore	Max. finish bore	Dimensions [mm]													
		d_1, d_2	l_1, l_2	Hub lengthened max. l_1, l_2 [3]	E_A	E_B	L_A	L_B	L_3	N	D	D_{A1} [4]	D_{A2} [4]	F [2]	d_3 [2]	a
10 [1]	26	50	43	105	16	34	102	120	68		67	111	83	74	52	1.8
15 [1]	26	65	50	115	23	35	123	135	79		87	142	106	84	68	2.3
20	31	82	62	130	20	48	144	172	96		108	174	129	107	85	2.3
25	38	100	76	150	26	50	178	202	114		130	213	157	126	105	2.3
30	44.5	115	90	170	25	53	205	233	129		153	240	181	148	125	2.3
35	46	135	105	185	33	67	243	277	155		180	280	213	172	150	3.3
40	52	160	120	215	21	57	261	297	159		214	318	249	192	175	3.3
45	80	175	135	245	26	68	296	338	182		233	347	273	216	190	3.3
50	80	195	150	295	27	75	327	375	201		260	390	308	241	220	3.3

N = L_A • 0.5 or L_B • 0.5

Technical data

Size	Torque [Nm] [5]		Dowel screw (10.9)			Weight with max. bore excluding brake disk [kg]		Max. speed [6]	
	T_{KN}	T_{KN} (42CrMo4)	z	M	TA [Nm]	FBR	DBR	ØA x b [mm]	n [rpm]
10 [1]	930	1580	6	M6	15	2.75	–	250 x 12.7	3900
15 [1]	2000	3300	8	M8	36	5.60	–	300 x 12.7	3300
20	3500	6300	6	M10	72	9.50	12.8	315 x 12.7	3100
25	6500	11000	6	M12	125	16.60	20.3	400 x 12.7	2400
30	10000	17400	8	M12	125	25.00	28.9	400 x 12.7	2400
35	17000	28800	8	M14	200	40.90	46.6	460 x 12.7	2100
40	28500	48500	8	M14	200	57.50	70.9	515 x 12.7	1900
45	37000	62000	10	M14	200	76.40	90.7	610 x 12.7	1600
50	51000	86000	8	M18	430	113.50	123.5	710 x 12.7	1400

Recommended selection of coupling/brake disk

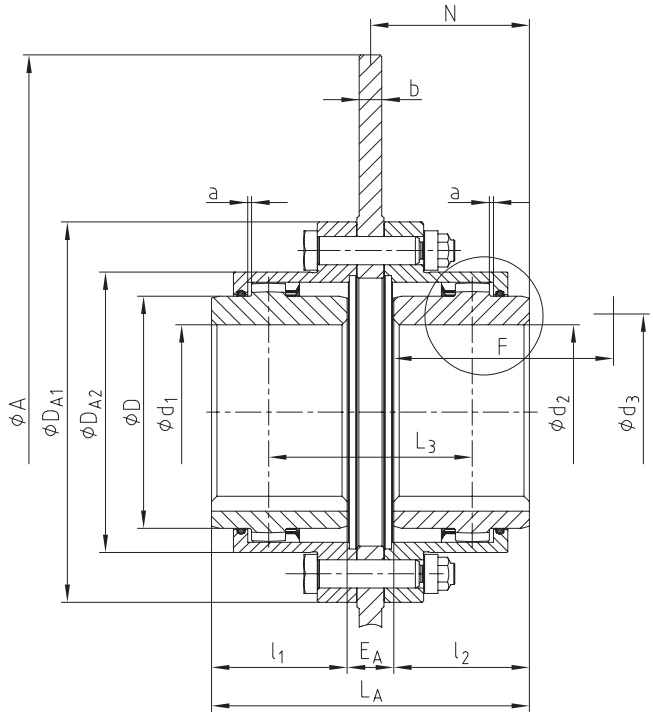
Size	Brake disk ØA x b [7]									
	250 x 12.7	300 x 12.7	315 x 12.7	350 x 12.7	400 x 12.7	460 x 12.7	515 x 12.7	610 x 12.7	710 x 12.7	810 x 12.7
10 [1]	x	x	x							
15 [1]		x	x	x						
20			x	x	x	x				
25					x	x	x	x		
30					x	x	x	x	x	
35						x	x	x	x	
40							x	x	x	x
45								x	x	x
50									x	x

■ = Standard
[1] Size 10 and 15 available as type F only.
[2] Space required to align the coupling and replace the gasket
[3] Hubs lengthened as a standard available in connection with hub configuration A only.
[4] Dimensions of type F For dimensions of type D see page 110.
[5] Maximum torque of the coupling $T_{K\,max.}$ = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.
[6] The maximum speed depends on the size of brake disk and the maximum perm. circumferential speed. Please observe specifications of the brake manufacturer.
[7] Other sizes of brake disks on request. Cranked brake disks are available on request of the customer, too.

Ordering example:

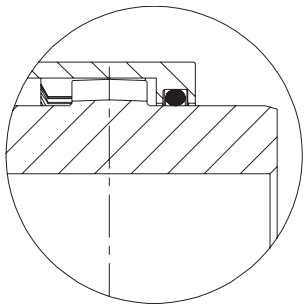
GEARex® FBR 10	d_1 Ø50	d_2 Ø50	E_A = 16	Ø300 x 12.7
Type and size of coupling	Finish bore with keyway to DIN 6885 sheet 1	Finish bore with keyway to DIN 6885 sheet 1	Configuration of hubs with shaft distance dimension E	Brake disk ØA x width b

Type FBR
with hub configuration A

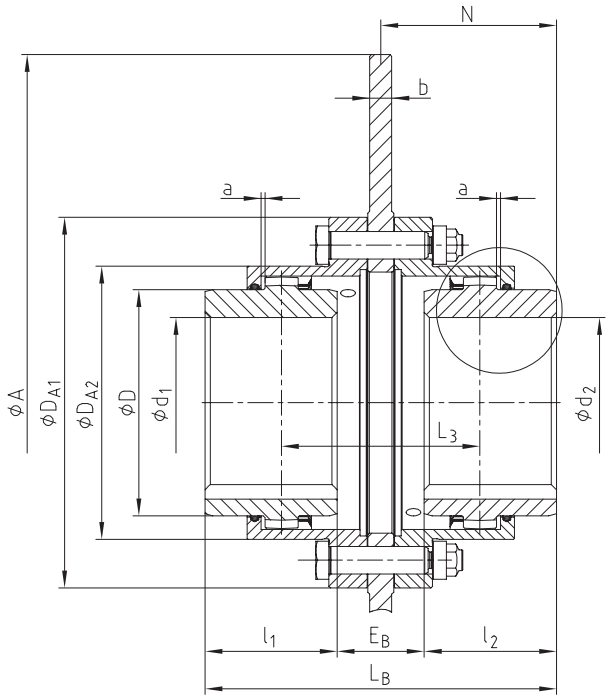


Types:

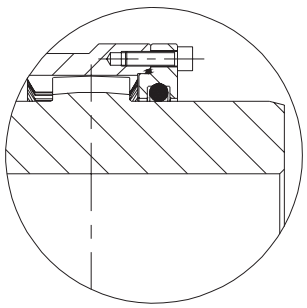
Type FBR



Type FBR
with hub arrangement B

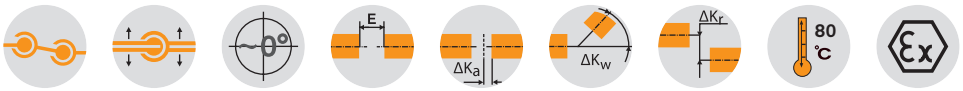


Type DBR



GEARex® FH and DH
All-steel gear couplings

Large shaft distance dimension, high power density



Dimensions

Size [3]	Torque [Nm] [4]		Pilot bore	Max. finish bore	Dimensions [mm]										Dowel screw (10.9)		
	T_{KN}	T_{KN} (42CrMo4)		d_1, d_2	l_1, l_2	Hub lengthened max. l_1, l_2	D	D_{A1} [2]	D_{A2} [2]	L_H	E_H	F [1]	d_3 [1]	z	M	T_A [Nm]
10	930	1580	26	50	43	105	67	111	83			74	52	6	M6	15
15	2000	3300	26	65	50	115	87	142	106			84	68	8	M8	36
20	3500	6300	31	82	62	130	108	174	129			107	85	6	M10	72
25	6500	11000	38	100	76	150	130	213	157			126	105	6	M12	125
30	10000	17400	44.5	115	90	170	153	240	181			148	125	8	M12	125
35	17000	28800	46	135	105	185	180	280	213			172	150	8	M14	200
40	28500	48500	52	160	120	215	214	318	249			192	175	8	M14	200
45	37000	62000	80	175	135	245	233	347	273			216	190	10	M14	200
50	51000	86000	80	195	150	295	260	390	308			241	220	8	M18	430
55	65000	110000	90	215	175	300	283	425.5	333			279	250	14	M18	430
60	85000	145000	100	240	190	305	312	457	364.5			316	265	14	M18	430
70	135000	240000	100	285	220	310	371	527	424			360	300	16	M20	610
80	175000	300000	140	300	280	-	394	545	475			360	358	18	M20	610
85	225000	380000	160	325	292	-	430	585	515			372	395	20	M20	610
90	-	500000	180	350	305	-	464	640	560			385	428	20	M24	1000
100	-	650000	220	390	330	-	512	690	612			410	465	24	M24	1000
110	-	820000	220	420	350	-	560	765	665			440	515	20	M30	1700
120	-	1050000	260	450	420	-	608	825	720			510	560	24	M30	1700
130	-	1450000	300	500	440	-	684	980	805			540	628	20	M36	2800
140	-	1950000	380	550	460	-	750	1055	875			560	695	24	M36	2800
150	-	2750000	460	630	520	-	850	1180	975			630	785	30	M36	2800

$L_H = E_H + l_1 + l_2$

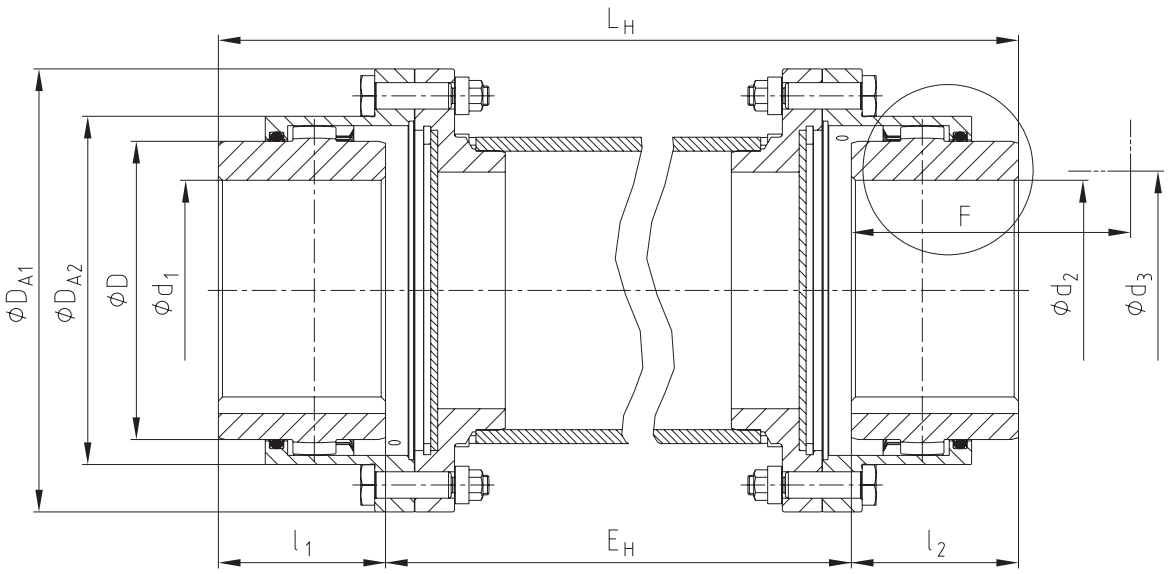
According to customer specification

■ = Standard
[1] Space required to align the coupling and replace the gasket
[2] For dimensions of type F see page 108. For type D see page 104.
[3] Size 10 and 15 available as type F only. From size 80 available as type D only.
[4] Maximum torque of the coupling $T_{K\,max}$ = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

Ordering example:

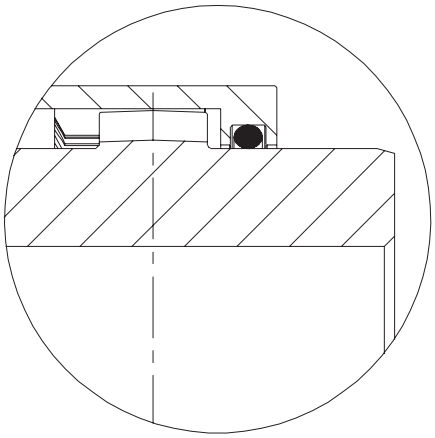
GEARex® FH 10	d_1 Ø50	d_2 Ø50	250
Type and size of coupling	Finish bore with keyway to DIN 6885 sheet 1	Finish bore with keyway to DIN 6885 sheet 1	Shaft distance dimension E_H

Components

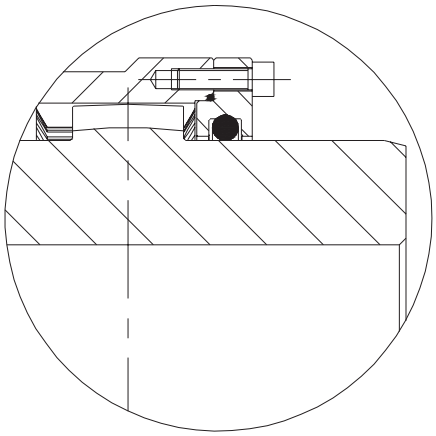


Types

Type FH

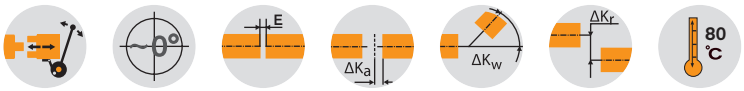


Type DH



GEARex® SD
All-steel gear coupling

Shiftable coupling with shiftable linkage (at standstill)



Dimensions

Size	Torque T_{KN} [Nm] [1]	Max. finish bore	Dimensions [mm]									
		d_1, d_2	E	l1	l2	l3	L	n	D	D_n	D_{A1}	D_{A2}
10	1580	50	3	50	50	14	103	18	67	112.5	110	125
15	3300	65	3	60	60	20	123	20	87	131	132	145
20	6300	82	3	70	70	18	143	25	108	165	152	185
25	11000	100	5	80	80	20.5	165	30	130	210.5	183	230
30	17400	115	6	100	100	20	206	30	153	210.5	208	230
35	28800	135	6	110	110	22.5	226	35	180	250.5	238	270
40	48500	160	6	140	140	27.5	286	38	214	300.5	282	320
45	62000	175	8	150	150	27.5	308	38	233	300.5	302	320
50	86000	195	8	170	170	30	348	40	260	362	330	386
55	110000	215	10	190	190	40	390	40	283	362	354	386

Dimensions

Size	Shiftable linkage Size	Slip ring Size	Dimensions [mm]																
			a	b	c	d_3	d_4	d_5	e	F	g_1	L_2	L_3	m	m_1	m_2	m_3	m_4	A	B
10	3	3.3	140	60	25	30	13.5	20	40	120	70	490	600	100	310	20	90	44	140	180
15	3	4.4	140	60	25	30	13.5	20	40	120	70	490	600	100	310	20	90	44	170	210
20	4	5.5	160	60	25	35	13.5	30	50	147.5	70	565	750	120	365	30	100	54	200	244
25	5	6.6	160	60	25	40	13.5	30	50	190	80	630	1025	120	410	30	110	62	250	300
30	5	6.6	160	60	25	40	13.5	30	50	190	80	630	1025	120	410	30	110	62	300	350
35	5	7.7	160	60	25	40	13.5	30	50	190	80	630	1085	120	410	30	110	62	300	350
40	6	8.8	160	60	25	40	13.5	30	50	265	80	760	1068	120	540	30	110	62	360	420
45	6	8.8	160	60	25	40	13.5	30	50	265	80	760	1068	120	540	30	110	62	360	420
50	6	9.9	160	60	25	40	13.5	30	50	265	80	760	1068	120	540	30	110	62	420	480
55	6	9.9	160	60	25	40	13.5	30	50	265	80	760	1068	120	540	30	110	62	420	480

[1] Maximum torque of the coupling $T_{K\,max}$ = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

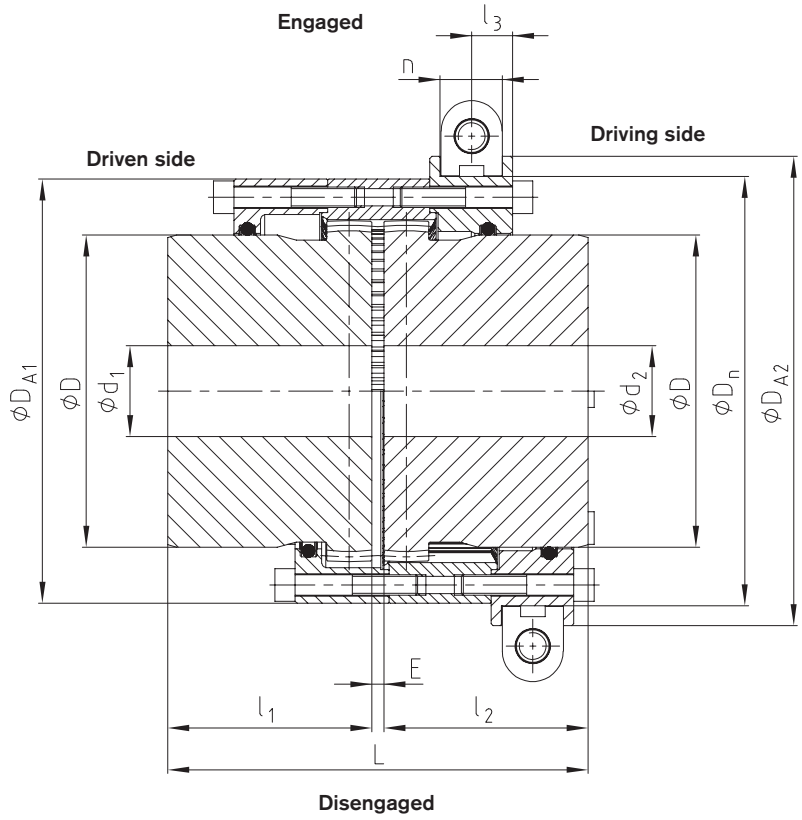
Max. circumferential speed v = 20 m/s, referring to D_n.
Standard GEARex® SD couplings are not designed for continuous operation.
For displacement figures of the coupling refer to KTR standard 40311.

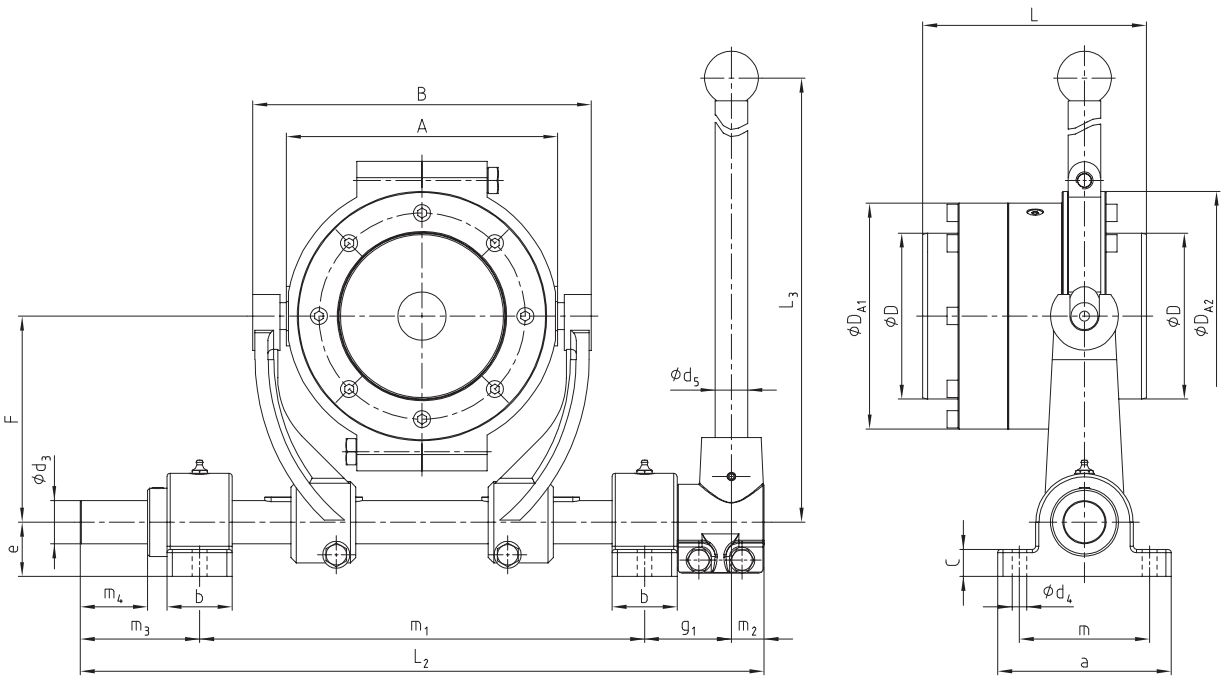
On request:
Other sizes or types for continuous operation available.
Shiftable linkage available with locking pins, locking devices and retrieval of shift position.

Ordering example:

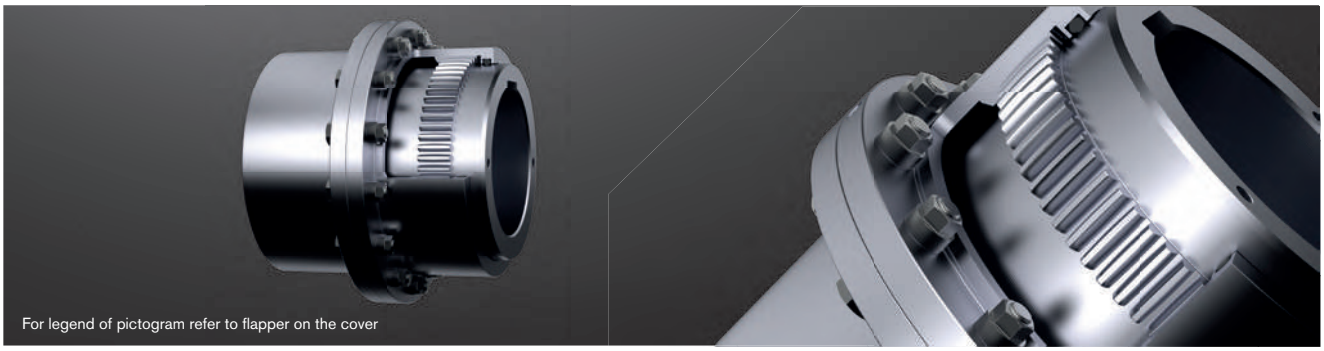
GEARex® 30 SD	d_1 Ø50	d_2 Ø55	6.6	5
Size and type of coupling	Finish bore with keyway to DIN 6885 sheet 1		Slip ring Size	Shiftable linkage Size

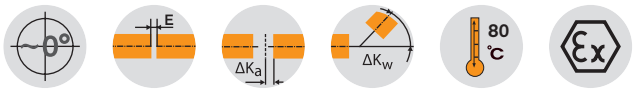
Components


Engaged
l_3
n
Driving side
Driven side
ϕD_{A1}
ϕD
ϕd_1
ϕd_2
ϕD
ϕD_n
ϕD_{A2}
E
l_1
l_2
L
Disengaged


B
A
F
ϕd_3
e
m_4
b
m_3
m_1
L_2
ϕd_5
L_3
b
g_1
m_2
L
ϕD_{A1}
ϕD
ϕD
ϕD_{A2}
C
ϕd_4
m
a

Single-cardanic, high power density





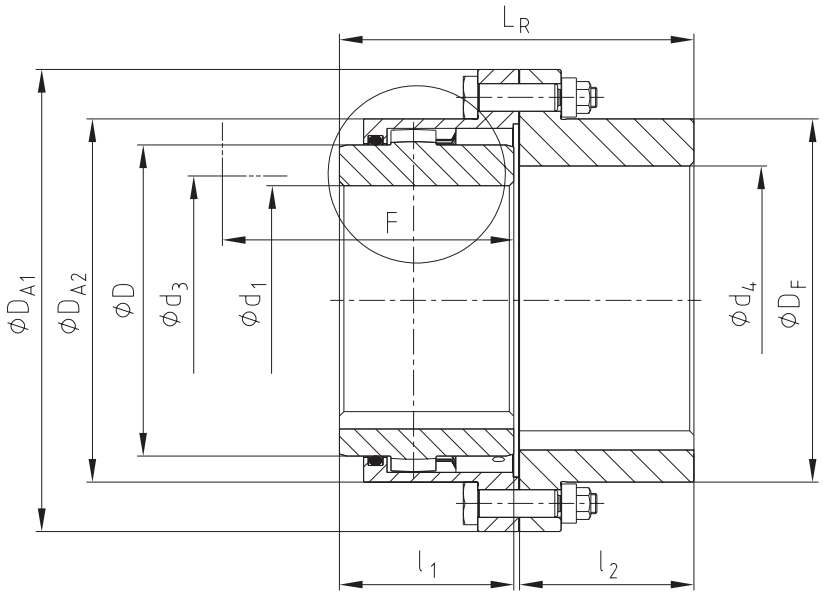
Dimensions

Size [3]	Torque [Nm] [4]		Max. finish bore		Dimensions [mm]									Dowel screw (10.9)		
	T_{KN}	T_{KN} (42CrMo4)	d_1	d_4	l_1, l_2	Hub lengthened max. l_1, l_2	D	D_{A1} [2]	D_{A2} [2]	D_F	L_R	F [1]	d_3 [1]	z	M	T_A [Nm]
10	930	1580	50	60	43	105	67	111	83	83	88	74	52	6	M6	15
15	2000	3300	65	78	50	115	87	142	106	106	103	84	68	8	M8	36
20	3500	6300	82	95	62	130	108	174	129	129	127	107	85	6	M10	72
25	6500	11000	100	115	76	150	130	213	157	157	157	126	105	6	M12	125
30	10000	17400	115	135	90	170	153	240	181	181	185	148	125	8	M12	125
35	17000	28800	135	155	105	185	180	280	213	213	216	172	150	8	M14	200
40	28500	48500	160	185	120	215	214	318	249	249	244	192	175	8	M14	200
45	37000	62000	175	200	135	245	233	347	273	273	276	216	190	10	M14	200
50	51000	86000	195	225	150	295	260	390	308	308	305	241	220	8	M18	430
55	65000	110000	215	245	175	300	283	425.5	333	333	356	279	250	14	M18	430
60	85000	145000	240	265	190	305	312	457	364.5	364.5	386	316	265	14	M18	430
70	135000	240000	285	310	220	310	371	527	424	424	450	360	300	16	M20	610
80	175000	300000	300	340	280	-	394	545	475	462	570	360	358	18	M20	610
85	225000	380000	325	370	292	-	430	585	515	500	597	372	395	20	M20	610
90	-	500000	350	400	305	-	464	640	560	546	623	385	428	20	M24	1000
100	-	650000	390	440	330	-	512	690	612	594	673	410	465	24	M24	1000
110	-	820000	420	480	350	-	560	765	665	647	710	440	515	20	M30	1700
120	-	1050000	450	520	420	-	608	825	720	700	852	510	560	24	M30	1700
130	-	1450000	500	560	440	-	684	980	805	760	890	540	628	20	M36	2800
140	-	1950000	550	610	460	-	750	1055	875	835	930	560	695	24	M36	2800
150	-	2750000	630	690	520	-	850	1180	975	935	1055	630	785	30	M36	2800

■ = Standard
[1] Space required to align the coupling and replace the gasket
[2] For dimensions of type F see page 108. For type D see page 104.
[3] Size 10 and 15 available as type F only. From size 80 available as type D only.
[4] Maximum torque of the coupling $T_{K\,max}$ = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

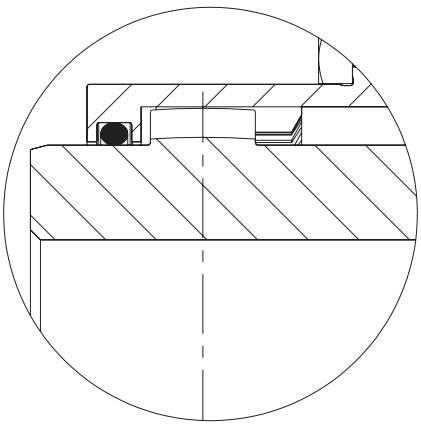
Ordering example:	GEARex® FR 10	d_1 Ø50	d_4 Ø60
	Type and size of coupling	Finish bore with keyway to DIN 6885 sheet 1	Finish bore with keyway to DIN 6885 sheet 1

Components

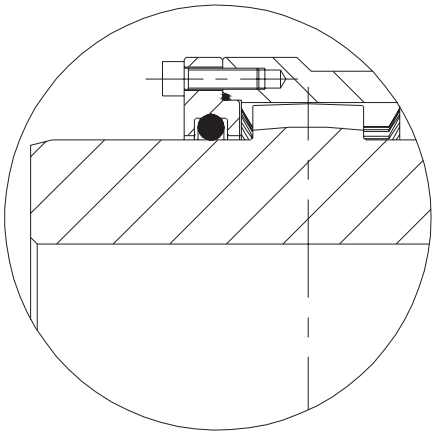


Types

Type FR

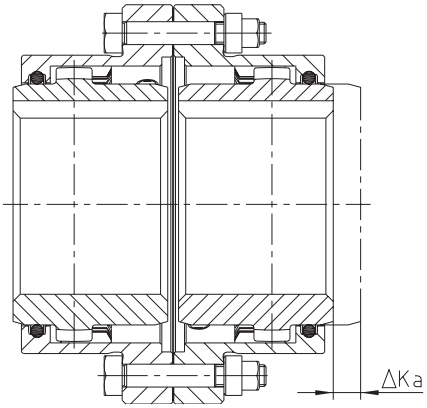


Type DR

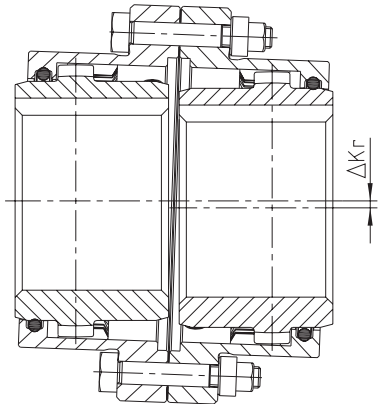


Displacements

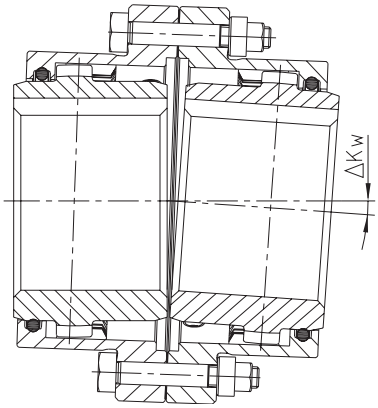
Axial displacement



Radial displacement



Angular displacement

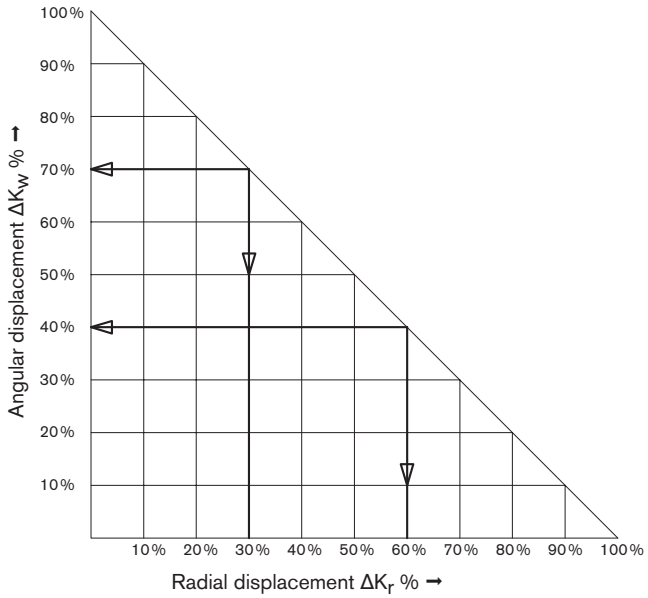


Displacements			
Size	Max. axial displacement ΔK_a [mm]	Max. permissible displacements [1]	
		ΔK_r [mm]	ΔK_w [°]
10		± 0.4	
15		± 0.5	
20		± 0.6	
25	± 1.0	± 0.8	
30		± 1.0	
35		± 1.0	
40		± 1.2	
45		± 1.4	
50		± 1.6	
55	± 1.5	± 1.8	
60		± 2.0	0.5° each hub
70		± 2.2	
80		± 2.5	
85		± 2.8	
90	± 2.0	± 3.0	
100		± 3.2	
110		± 4.4	
120		± 5.5	
130		± 5.7	
140	± 2.5	± 6.0	
150		± 6.6	

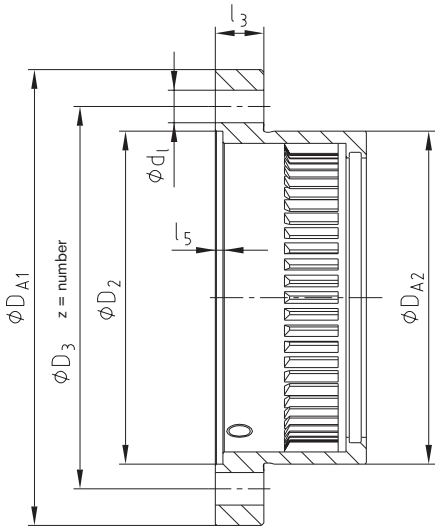
[1] The displacement figures are maximum figures which must not arise in parallel. If radial and angular displacements arise in parallel, the figures need to be reduced (see examples of calculation and diagramme).

Example 1:
ΔK_r = 30 %
ΔK_w = 70 %

Example 2:
ΔK_r = 60 %
ΔK_w = 40 %



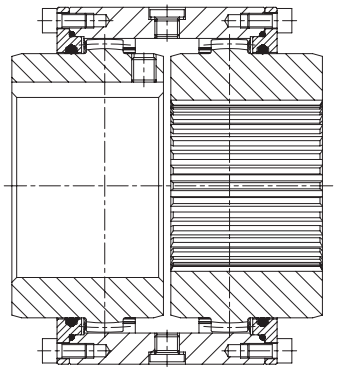
Flange dimensions in accordance with AGMA 9008-B00



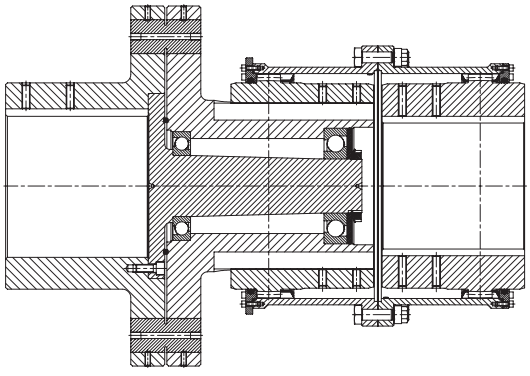
Flange dimensions								
Size	Dimensions [mm]							
	D_{A1}	D_{A2}	D_2	D_3	d_l	z = number	l3	l5
10	111	83	82	95.25	6.35	6	14	3
15	142	106	105	122.24	9.52	8	19	3
20	174	129	130	149.23	12.70	6	19	3
25	213	157	153	180.97	15.87	6	22	4
30	240	181	178	206.38	15.87	8	22	4
35	280	213	205	241.30	19.05	8	28.5	5
40	318	249	243	279.40	19.05	8	28.5	4
45	347	273	265	304.80	19.05	10	28.5	5.5
50	390	308	302	342.90	22.22	8	38	6
55	425.5	333	320	368.30	22.22	14	38	6
60	457	364.5	353	400.05	22.22	14	26	6
70	527	424	412	463.55	25.40	16	28.5	8

Other types

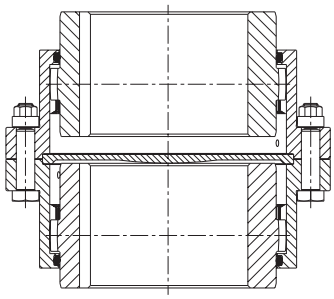
Type I (with one-piece sleeve)



Type BK (with shear pins)



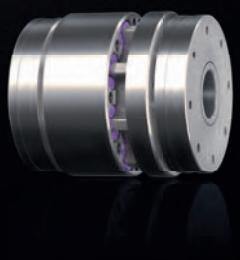
Type VD (for vertical assembly)



Backlash-free servo couplings

ROTEX® GS

ROTEX® GS HP

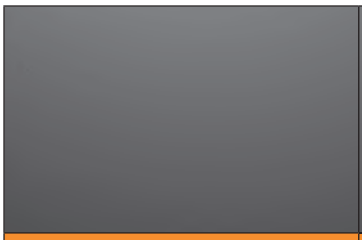


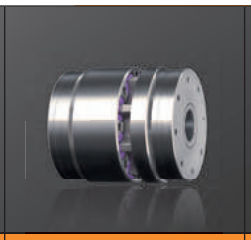
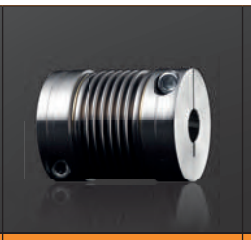
TOOLFLEX®

RADEX®-NC

BACKLASH-FREE SERVO COUPLINGS
TYPES AND OPERATING DESCRIPTION

Properties of backlash-free couplings



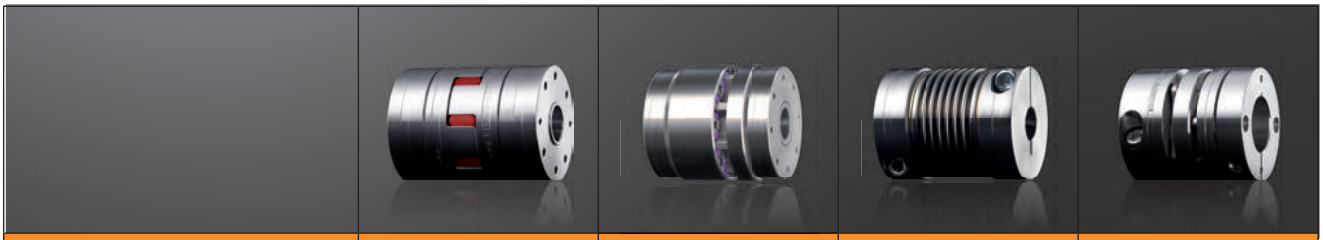




Product	ROTEX® GS	ROTEX® GS HP	TOOLFLEX®	RADEX®-NC
Type	Jaw coupling		Metal bellow-type coupling	Servo laminae coupling
Properties				
Backlash-free	●	●	●	●
Torsionally stiff			●	●
Damping vibrations	●	●		
Maintenance-free	●	●	●	●
Axial plug-in	●	●	Optionally	
Compensating for misalignment	●	●	●	●
Electrical insulation	●			
Fail-safe	●	●		
Shear type			●	
Special features				
Applications	Backlash-free drives			
Core industries	Machine tools, automation technology, drive technology, medical technology, packaging technology	Machine tools, automation technology, drive technology, medical technology	Drive technology, automation technology, medical technology, packaging technology, machine tools	Automation technology, drive technology, packaging technology, machine tools, medical technology
Applications	Main spindles Control & positioning technology (screw drives with pitch s < 40, otherwise review by KTR) Gearboxes (for medium to high transmission i ≥ 7) Measuring and testing technology Miniature drives	Main spindles, test benches, high-speed applications, measuring technology	Gearboxes (transmissions i < 7) Miniature drives Control & positioning technology (screw drives with pitch s ≥ 40)	Gearboxes (transmissions i < 7) Measuring & testing technology Miniature drives Control & positioning technology (screw drives with pitch s ≥ 40)
Variation of components	very high	low	medium	medium
Torque range T_{KN} [Nm]				
Min.	0.2	100	0.1	2.5
Max.	5,850	1340	600	3200
Max. circumferential speed v [m/s]				
Steel	depending on hub type up to 40 80 (type P) 175 (type HP)	175	depending on hub type up to 40	35
Aluminium	depending on hub type up to 50			depending on hub type up to 75
Torsion spring stiffness C_T [Nm/rad]				
Up to	1,308,850	472,300	322,740	1,050,000
Radial spring stiffness C_r [N/mm]				
Up to	20,290	19,600	1,365	
Spiders / bellow / laminas / spacer				
Material	Polyurethane, Hytrel	Polyurethane	Stainless steel	Stainless steel
Elastomer hardness	flexible to torsionally stiff	flexible to torsionally stiff	-	-
Temperature range [°C] min./max.	-50/+120	-30/+90	-30/+100 (bonded) -30/+200 (flanged/welded)	-30/+200
Geometries				
Design	compact	compact	compact, short	compact, short
Mass moment of inertia	low	low	low	low
Shaft distance dimension	medium	medium	medium	medium
Shaft-hub-connection				
Positive-locking	●	Optionally	Optionally	Optionally
Non-positive (frictionally engaged)	●	●	●	●

● ≈ Standard

BACKLASH-FREE SERVO COUPLINGS
TYPES AND OPERATING DESCRIPTION

Product finder of backlash-free couplings

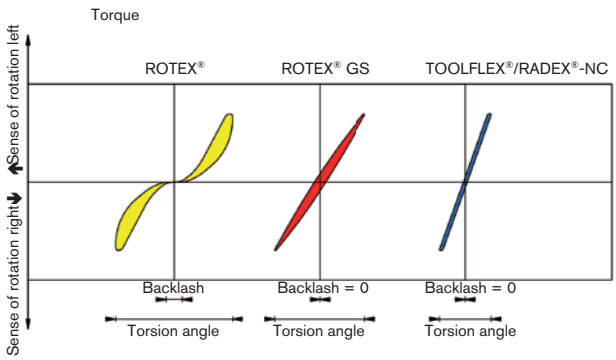


Product	ROTEX® GS	ROTEX® GS HP	TOOLFLEX®	RADEX®-NC
Type	Jaw coupling	high-speed coupling	Metal bellow-type coupling	Servo laminae coupling
Types (extract)				
Elastomers can be radially disassembled » without displacing driving/driven side	A-H	-	-	-
Intermediate shaft types » bridging larger shaft distances	ZR1, ZR2, ZR3	-	ZR	ZR
shaft-to-shaft connection	Standard	Standard	Standard	Standard
flange-to-shaft connection	CFN, DFN, CF-DKM	CF	CF	-
Flange-to-flange connection » particularly short mounting length	Optionally	Optionally	Optionally	-
Single-cardanic	Standard	Standard	-	EK
Double-cardanic » compensating for big displacements » lower restoring forces	DKM	-	Standard	DK
Certifications				
ATEX	●			●

● ≈ Standard

Torsion angle

The diagramme alongside this text explains the impact of ROTEX®, ROTEX® GS, RADEX®-NC and TOOLFLEX® couplings on backlash and torsion angle. Due to the high torsion spring stiffness of RADEX®-NC and TOOLFLEX®, the torsion angle is very low under torque. However, contrary to the flexible ROTEX® and the backlash-free ROTEX® GS damping of torsional vibrations etc. is not possible.



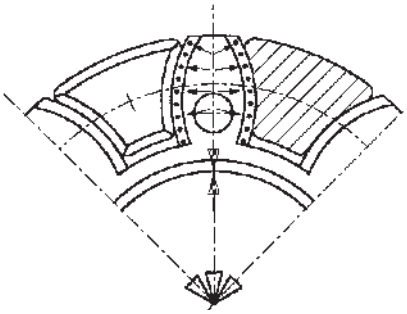
ROTEX® GS
Backlash-free jaw couplings

Technical description

ROTEX® GS is a three-part, axial plug-in coupling backlash-free under prestress. It impresses even with critical applications by its backlash-free power transmission, its stiffness which is each adapted to the application and its optimum damping of vibrations. Using this principle provides for particularly assembly-friendly options optimizing the assembly times in production.

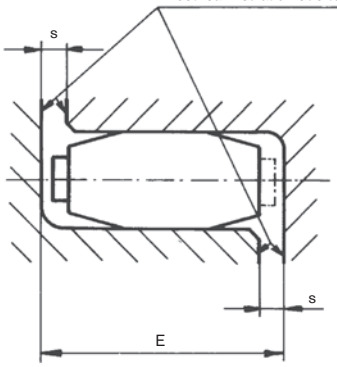
The straight spline of the spider mounted under prestress results in a lower surface pressure and consequently higher stiffness of the coupling system. The flexible teeth compensating for misalignment are radially supported in the internal diameter by a web. This avoids too high internal or external deformation with high acceleration resp. high speeds. This is vital for a smooth operation and long service life of the coupling.
The pegs on the spider arranged reciprocally prevent contact of the spider on the hubs over the full surface. Observing the distance dimension E ensures the coupling's ability to compensate for displacements.
Observing the gap dimension „s“ensures electrical insulation as well as a long service life of the coupling. This is gaining more and more importance, due to the increasing precision of shaft encoders and the existing demand for electromagnetic compatibility (EMC).

Limitation by concave cams with high speed/ centrifugal forces and prestress of elastomer parts



Support to the axis of rotation

Electrical insulation due to gap dimension „s“



Advice

- Feather keyways available from a bore ≥Ø6. Feather keyways according to DIN 6885 sheet 1, tolerance JS9.
- Finish bore tolerance H7 (except for clamping hubs), from Ø55 G7 with clamping ring hubs
- Finish bore tolerance H6 for ROTEX® GS P and ROTEX® GS HP
- Recommended insertion dimension of shafts in the coupling hubs: l_1/l_2; for clamping ring hubs the minimum insertion dimension l_3 applies
- Spider with bore available on request. Please specify in the order as shown in the example on page 130.

Use in potentially explosive atmospheres

ROTEX® GS couplings are suitable for power transmission in drives in potentially explosive atmospheres. The couplings are assessed and approved as units of category 2G/2D according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 1, 2, 21 and 22. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.
Selection: If used in potentially explosive atmospheres the clamping ring hubs (clamping hubs without feather keyway only for use in category 3) must be selected in that there is a minimum safety factor of s = 2 between the peak torque of the machine including all operating parameters and the nominal torque and frictional locking torque of the coupling.

Technical description

ROTEX® GS HP is a backlash-free, axial plug-in, flexible jaw coupling developed for high-speed drives.

In contrast to the ROTEX® GS coupling this type has individual elastomers instead of a connected spider.
This allows to design the hubs as a completely enclosed shape so that both the cam section and the pocket part feature higher stiffness against loads in the direction of rotation (torque shocks), but also in tangential direction (centrifugal force). The elastomers are embedded in the pocket part in a way that the high loads resulting from centrifugal forces do not have any negative influence on them and consequently on the overall drive system.

Instead of torques with circumferential speeds of a maximum of 100 m/s for ROTEX® GS P couplings, circumferential speeds up to 175 m/s can be reached with the new ROTEX® GS HP system.

Spiders

The flexible spiders for the GS series are available in five different kinds of Shore hardness, injected in different colours, either as a torsionally soft or hard material. These five spiders with different kinds of Shore hardness allow to easily adjust the ROTEX® GS to the individual conditions of an application considering the torsional spring stiffness and the vibration characteristics. The flexible prestress varies depending on the coupling size, the spiders/materials and the production tolerances. Resulting from it is the axial plug-in force starting from low as a close sliding fit resp. with torsionally soft spider to heavy with big prestress resp. torsionally rigid spider (see operating/assembly instruction KTR-N 45510 at www.ktr.com).
Along with an increasing hardness of the spider the torques to be transmitted and the stiffness of the spider increase, too. Along with reduced hardness of the spider the ability of compensating for displacements and damping the spider increases.

Properties of ROTEX® GS spiders

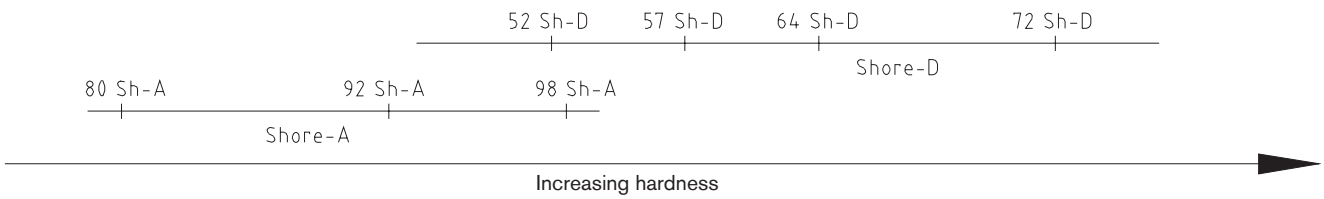
Description of spider hardness [Shore]	Marking of colour	Material	Perm. temperature range [°C]		Available for coupling size	Typical applications
			Permanent temperature [1]	Max. temperature (short-time) [1]		
80 ShA-GS		Polyurethane	-50 to +80	-60 to +120	Size 5 to 19	– drives of electric measuring systems
92 ShA-GS		Polyurethane	-40 to +90	-50 to +120	Size 5 to 38	– drives of electric measuring and control systems – main spindle drives
98 ShA-GS		Polyurethane	-30 to +90	-40 to +120	Size 5 to 90	– positioning drives – main spindle drives – high load
52 ShD-S-GS [2]		Polyurethane	-40 to +120	-50 to +150	Size 24 to 42	– positioning drives – backlash-free gears – main spindle drives – high load with increased temperature
57 ShD-GS		Polyurethane	-30 to +90	-40 to +120	Size 19 to 65	– positioning drives – main spindle drives – high load
64 ShD-H-GS 64 ShD-GS		Hytrel	-50 to +120	-60 to +150	Size 7 to 38	– planetary gears/backlash-free gears – higher torsion spring stiffness
		Polyurethane	-20 to +110	-30 to +120	Size 42 to 90	– higher load – higher torsion spring stiffness
72 ShD-H-GS 72 ShD-GS		Hytrel	-50 to +120	-60 to +150	Size 24 to 38	– very high torsion spring stiffness – very high load
		Polyurethane	-20 to +110	-30 to +120	Size 42 to 90	– very high torsion spring stiffness – very high load

Properties of ROTEX® GS HP tooth elements

Description of spider hardness [Shore]	Marking of colour	Material	Perm. temperature range [°C]		Available for coupling size	Typical applications
			Permanent temperature	Max. temperature (short-time)		
98 ShA-GS 52 ShD-GS		Polyurethane	-30 to +90	-40 to +120	Size 24 to 65 (for ROTEX® GS HP only)	– HSC main spindle drives – test benches with severely high speeds
65 ShD-GS		Polyurethane	-30 to +90	-40 to +120	Size 24 to 65 (for ROTEX® GS HP only)	– HSC main spindle drives – test benches with severely high speeds – higher load – higher torsion spring stiffness

[1] The temperature factors specified on page 23 must be considered.
[2] Torques and displacements same as with 98 ShA-GS spider

Degree of hardness



Spider material	Polyurethane					Hytrel
Degree of hardness	92 Shore A	98 Shore A	52 Shore D	57 Shore D	64 Shore D	64 Shore D
Relative damping ψ [-] [1]	0.80	0.80	0.75	0.75	0.75	0.60
Resonance factor V_R [-] [1]	7.90	7.90	8.50	8.50	8.50	10.5

[1] Special figures apply for ROTEX® GS HP, please contact us.

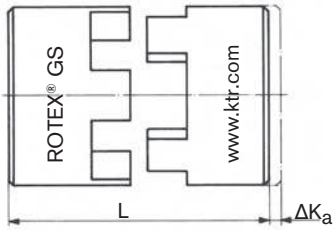
Technical data

Size	Spider GS Shore hardness	Shore scale	Max. speed [rpm] for type						Torque [Nm]		Static torsion spring stiffness [1] [Nm/rad]	Dynamic torsion spring stiffness [1] [Nm/rad]	Radial spring stiffness C_r [N/mm]	Weight [kg]		Mass moment of inertia J [kgm²]	
			2.0/2.1 2.5/2.6	2.8 2.9	1.0 1.1	6.0 light [2]	6.0 P [2]	DKM	T_{KN}	$T_{K\,max}$				Per hub [5]	Spider	Per hub [5]	Spider
	80	A							0.3	0.6	3.15	10	82				
5	92	A	38000	38000	47700			57300	0.5	1.0	5.16	16	154	0.001	0.2 x 10^{-3}	0.015 x 10^{-6}	0.002 x 10^{-6}
	98	A							0.9	1.7	8.3	25	296				
	80	A							0.7	1.4	8.6	26	114				
7	92	A	27000	27000	34100			40900	1.2	2.4	14.3	43	219	0.003	0.7 x 10^{-3}	0.085 x 10^{-6}	0.01 x 10^{-6}
	98	A							2.0	4.0	22.9	69	421				
	64	D							2.4	4.8	34.3	103	630				
	80	A							0.7	1.4	8.8	27	117				
8	98	A		23800					2.0	4.0	23.5	71	433	0.003	0.5 x 10^{-3}	0.117 x 10^{-6}	0.0124 x 10^{-6}
	64	D							2.4	4.8	35.3	106	648				
	80	A							1.8	3.6	17.2	52	125				
	92	A							3.0	6.0	31.5	95	262				
9	98	A	19000	19000	23800			28600	5.0	10.0	51.6	155	518	0.01	1.7 x 10^{-3}	0.48 x 10^{-6}	0.085 x 10^{-6}
	64	D							6.0	12.0	74.6	224	739				
	80	A							3.0	6.0	84.3	252	274				
	92	A							5.0	10.0	160.4	482	470				
12	98	A	15200	15200	19100			22900	9.0	18.0	240.7	718	846	0.02	2.3 x 10^{-3}	1.5 x 10^{-6}	0.139 x 10^{-6}
	64	D							12.0	24.0	327.9	982	1198				
	80	A							3.6	7.2	111	330	359				
13	98	A		12700		38200			11.0	22.0	316	941	1109	0.01	2.0 x 10^{-3}	1.1 x 10^{-6}	0.155 x 10^{-6}
	64	D							14.5	29.0	430	1287	1570				
	80	A							4.0	8.0	60.2	180	153				
	92	A							7.5	15.0	114.6	344	336				
14	98	A	12700	12700	15900	32000	47700	19100	12.5	25.0	171.9	513	654	0.02	4.7 x 10^{-3}	2.8 x 10^{-6}	0.509 x 10^{-6}
	64	D							16.0	32.0	234.2	702	856				
	80	A							5.0	10.0	157	471	400				
16	98	A		12000					15.0	30.0	450	1341	1710	0.02	3.6 x 10^{-3}	2.8 x 10^{-6}	0.435 x 10^{-6}
	64	D							19.0	38.0	612	1835	2238				
	80	A							6.0	12.0	618	1065	582				
	92	A							12.0	24.0	1090	1815	1120				
19	98	A	9550	9550	11900	24000 19000 [4]	35800	14300	21.0	42.0	1512	2540	2010	0.09	7.6 x 10^{-3}	19.5 x 10^{-6}	1.35 x 10^{-6}
	57	D							23.0	46.0	2036	3175	2470				
	64	D							26.0	52.0	2560	3810	2930				
	92	A							35	70	2280	4010	1480				
	98	A							60	120	3640	5980	2560				
	52	D				17000			60	120	3640	5980	2560			81.9	6.7
24	57	D	6950	10400	8650	14000 [4]	26000	10400	68	136	4335	8438	3128	0.2	0.02	x 10^{-6}	x 10^{-6}
	64	D							75	150	5030	10896	3696				
	72 [3]	D							97	194	9944	17095	5799				
	92	A							95	190	4080	6745	1780				
	98	A							160	320	6410	9920	3200				
	52	D				15000			160	320	6410	9920	3200			184.2	14.85
28	57	D	5850	8800	7350	12000 [4]	22000	8800	180	360	8335	15050	3775	0.3	0.03	x 10^{-6}	x 10^{-6}
	64	D							200	400	10260	20177	4348				
	72 [3]	D							260	520	21526	36547	7876				
	92	A							190	380	6525	11050	2350				
	98	A							325	650	11800	17160	4400				
	52	D				12000			325	650	11800	17160	4400			542.7	39.4
38	57	D	4750	7150	5950	9600 [4]	17900	7150	365	730	19050	28745	5437	0.6	0.05	x 10^{-6}	x 10^{-6}
	64	D							405	810	26300	40335	6474				
	72 [3]	D							525	1050	44584	71180	11425				
	98	A							450	900	21594	37692	5570				
	52	D							450	900	21594	37692	5570				
42	57	D	4000		5000	10000 8050 [4]	15000	6000	495	990	29225	53760	6420	2.4	0.08	2802 x 10^{-6}	85 x 10^{-6}
	64	D							560	1120	36860	69825	7270				
	72 [3]	D							728	1456	58600	93800	9766				
	98	A							525	1050	25759	45620	5930				
	57	D				9100			590	1180	41695	72685	7102			4709	135
48	64	D	3600		4550	7200 [4]	13600	5450	655	1310	57630	99750	8274	3.3	0.09	x 10^{-6}	x 10^{-6}
	72 [3]	D							852	1704	80000	136948	11359				
	98	A							685	1370	42117	61550	6686				
55	57	D							770	1540	68175	98065	8005			9460	229
	64	D	3150		3950	6350 [4]	11900	4750	825	1650	105730	130200	9248	5.1	0.12	x 10^{-6}	x 10^{-6}
	72 [3]	D							1072	2144	150000	209530	12762				
	98	A							940	1880	48520	71660	6418				
65	57	D							1055	2110	78535	114175	7685			15143	437
	64	D	2800		3500	5650 [4]	11000		1175	2350	118510	189189	8870	6.7	0.2	x 10^{-6}	x 10^{-6}
	72 [3]	D							1527	3054	160000	310000	11826				
	98	A							1920	3840	79150	150450	8650				
75	64	D	2350		2950	4750 [4]	8950		2400	4800	182320	316377	11923	10.5	0.3	32750 x 10^{-6}	1179 x 10^{-6}
	72 [3]	D							3120	6240	360540	586429	16454				
	98	A							3600	7200	204500	302900	10700				
90	64	D	1900		2380	3800 [4]	7150		4500	9000	429450	908700	14700	18.2	0.6	87099 x 10^{-6}	3362 x 10^{-6}
	72 [3]	D							5850	11700	847440	1308852	20290				

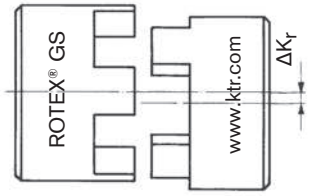
[1] Static and dynamic torsion spring stiffness with 0.5 x T_{KN}
[2] For higher speeds see ROTEX® GS HP
[3] When using the spider 72 ShD, we recommend to use hubs made of steel
[4] Clamping ring hubs 6.0 made of steel
[5] Hubs with an average bore type 1.0
The coupling has to be dimensioned in that the permissible coupling load is not exceeded during any operating condition (see coupling selection on page 22 et seqq.).
The specified torques $T_{KN}/T_{K\,max}$ refer to the spider. The shaft-hub-connection needs to be verified by the customer.

Hints for displacements

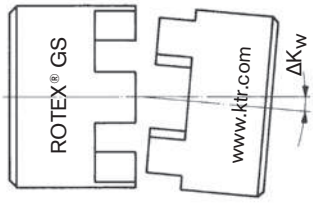
Axial displacement



Radial displacement



Angular displacement



Due to its design the ROTEX® GS is able to absorb axial, angular and radial displacement, without causing any wear or premature failure of the coupling. As the spider is only stressed under pressure it is ensured that the coupling remains backlash-free even after a longer operation period.

For instance, axial displacement may be generated by different tolerances of the connecting elements with assembly or by alteration of the shaft lengths if temperature fluctuations occur. As the shaft bearings usually cannot be axially stressed to a big extent, it is the task of the coupling to compensate for this axial displacement and keep the reaction forces low.

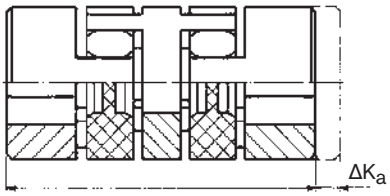
In case of pure angular displacement the imaginary bisecting lines of the shafts intersect in the centre of the coupling. Within a permissible range this displacement can be absorbed by the coupling without extensive restoring forces being generated.

Radial displacement results from parallel displacement of the shafts to one another, caused by different tolerances on the centerings or by mounting the power packs on different levels. Due to the kind of displacement the largest restoring forces are generated here, consequently causing the highest stresses on adjacent components.

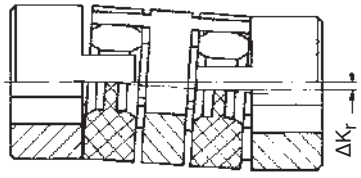
In case of larger displacements (especially radial displacements) the ROTEX® GS type DKM double-cardanic system should be used in order to avoid excessive restoring forces.

The permissible displacement figures of the flexible ROTEX® GS couplings specified are general standard values taking into account the load of the coupling up to the rated torque T_{KN} of the coupling and an ambient temperature of +30 °C. The displacement figures may only be used one by one, if they appear simultaneously, they must be limited in proportion. The ROTEX® GS couplings are able to absorb axial, radial and angular displacements. Careful and accurate alignment of the shafts increases the service life of the coupling.

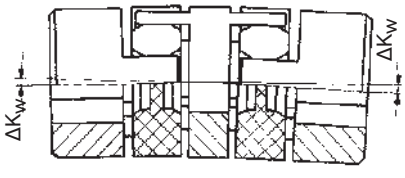
Axial displacement



Radial displacement



Angular displacement



Shaft misalignment of ROTEX® GS type DKM

This design reduces the restoring forces arising with radial displacement to a minimum, due to the double-jointed operation, additionally the coupling is able to compensate for higher axial and angular misalignment.

Displacements

Displacements							
Size	Spider GS	Standard displacements			DKM displacements		
		Axial ΔK_a [1] [mm]	Radial ΔK_r [mm]	Angular ΔK_w [degree]	Axial ΔK_a [1] [mm]	Radial ΔK_r [mm]	Angular ΔK_w [degree]
	80 ShA		0.12	1.1°		0.15	1.1°
5	92 ShA	-0.2	0.06	1.0°	-0.4	0.14	1.0°
	98 ShA		0.04	0.9°		0.13	0.9°
	80 ShA		0.15	1.1°		0.23	1.1°
7	92 ShA	+0.6	0.10	1.0°	+0.6	0.21	1.0°
	98 ShA	-0.3	0.06	0.9°	-0.6	0.19	0.9°
	64 ShD		0.04	0.8°		0.17	0.8°
	80 ShA		0.15	1.1°			
8	98 ShA	+0.6 -0.5	0.08	0.9°	—	—	—
	64 ShD		0.06	0.8°			
	80 ShA		0.19	1.1°		0.29	1.1°
9	92 ShA	+0.8	0.13	1.0°	+0.8	0.26	1.0°
	98 ShA	-0.4	0.08	0.9°	-0.8	0.24	0.9°
	64 ShD		0.05	0.8°		0.21	0.8°
	80 ShA		0.20	1.1°		0.35	1.1°
12	92 ShA	+0.9	0.14	1.0°	+0.9	0.32	1.0°
	98 ShA	-0.4	0.08	0.9°	-0.9	0.29	0.9°
	64 ShD		0.05	0.8°		0.25	0.8°
	80 ShA		0.20	1.1°			
13	98 ShA	+0.9 -0.8	0.08	0.9°	—	—	—
	64 ShD		0.05	0.8°			
	80 ShA		0.21	1.1°		0.40	1.1°
14	92 ShA	+1.0	0.15	1.0°	+1.0	0.37	1.0°
	98 ShA	-0.5	0.09	0.9°	-1.0	0.33	0.9°
	64 ShD		0.06	0.8°		0.29	0.8°
	80 ShA		0.21	1.1°			
16	98 ShA	+1.0 -0.8	0.10	0.9°	—	—	—
	64 ShD		0.08	0.8°			
	80 ShA		0.15	1.1°		0.49	1.1°
19	92 ShA		0.10	1.0°		0.45	1.0°
	98 ShA	+1.2 -0.5	0.06	0.9°	+1.2 -1.0	0.41	0.9°
	57 ShD		0.05	0.85°		0.38	0.85°
	64 ShD		0.04	0.8°		0.36	0.8°
	92 ShA		0.14	1.0°		0.59	1.0°
24	98 ShA		0.10	0.9°		0.53	0.9°
	57 ShD	+1.4 -0.5	0.08	0.85	+1.4 -1.0	0.50	0.85
	64 ShD		0.07	0.8°		0.47	0.8°
	72 ShD		0.04	0.7°		0.42	0.7°
	92 ShA		0.15	1.0°		0.66	1.0°
	98 ShA		0.11	0.9°		0.60	0.9°
28	57 ShD	+1.5 -0.7	0.09	0.85	+1.5 -1.4	0.56	0.85
	64 ShD		0.08	0.8°		0.53	0.8°
	72 ShD		0.05	0.7°		0.46	0.7°
	92 ShA		0.17	1.0°		0.77	1.0°
	98 ShA		0.12	0.9°		0.69	0.9°
38	57 ShD	+1.8 -0.7	0.10	0.85	+1.8 -1.4	0.65	0.85
	64 ShD		0.09	0.8°		0.61	0.8°
	72 ShD		0.06	0.7°		0.54	0.7°
	98 ShA		0.14	0.9°		0.75	0.9°
42	57 ShD	+2.0	0.12	0.85	+2.0	0.71	0.85
	64 ShD	-1.0	0.10	0.8°	-2.0	0.67	0.8°
	72 ShD		0.07	0.7°		0.59	0.7°
	98 ShA		0.16	0.9°		0.82	0.9°
48	57 ShD	+2.1	0.13	0.85	+2.1	0.77	0.85
	64 ShD	-1.0	0.11	0.8°	-2.0	0.73	0.8°
	72 ShD		0.08	0.7°		0.64	0.7°
	98 ShA		0.17	0.9°		0.91	0.9°
55	57 ShD	+2.2	0.14	0.85°	+2.2 -2.0	0.86	0.85°
	64 ShD	-1.0	0.12	0.8°		0.81	0.8°
	72 ShD		0.09	0.7°		0.71	0.7°
	98 ShA		0.18	0.9°			
65	57 ShD	+2.6	0.15	0.85°	—	—	—
	64 ShD	-1.0	0.13	0.8°			
	72 ShD		0.10	0.7°			
	98 ShA		0.21	0.9°			
75	64 ShD	+3.0 -1.5	0.15	0.8°	—	—	—
	72 ShD		0.11	0.7°			
	98 ShA		0.23	0.9°			
90	64 ShD	+3.4 -1.5	0.17	0.8°	—	—	—
	72 ShD		0.13	0.7°			

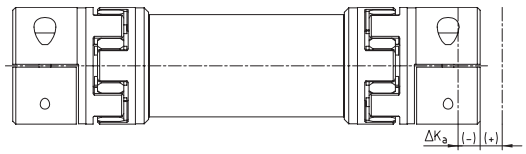
[1] The Ka figures specified have to be added to the length of the respective coupling type.
The displacement figures may only be used one by one, if they appear simultaneously, they must be limited in proportion. Care should be taken to maintain the distance dimension E accurately in order to allow for axial clearance of the coupling while in operation. Detailed mounting instructions are shown on our homepage www.ktr.com.
For technical data of type HP see page 136.

Displacements of intermediate shaft coupling

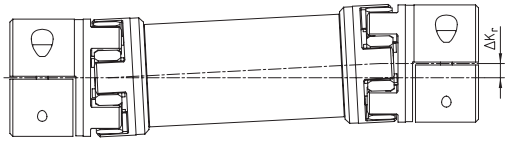
Displacements of intermediate shaft couplings			
ROTEX® GS size (with 98 ShA-GS)	Axial ΔK_a [mm]	Radial ΔKr [1] [mm]	Angular ΔK_w [degree]
14	+1.0 / -1.0	15	0.9°
19	+1.2 / -1.0	14	0.9°
24	+1.4 / -1.0	14	0.9°
28	+1.5 / -1.4	14	0.9°
38	+1.8 / -1.4	14	0.9°
42	+2.0 / -2.0	14	0.9°
48	+2.1 / -2.0	13	0.9°
55	+2.2 / -2.0	13	0.9°
65	+2.6 / -2.0	13	0.9°

[1] Radial displacements based on a coupling length L_{ZR} = 1000 mm

Axial displacement

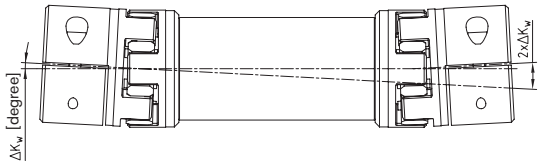


Radial displacement



$$\Delta Kr = (L_{ZR} - 2 \bullet l_1 - E) \cdot \tan \Delta Kw$$

Angular displacement



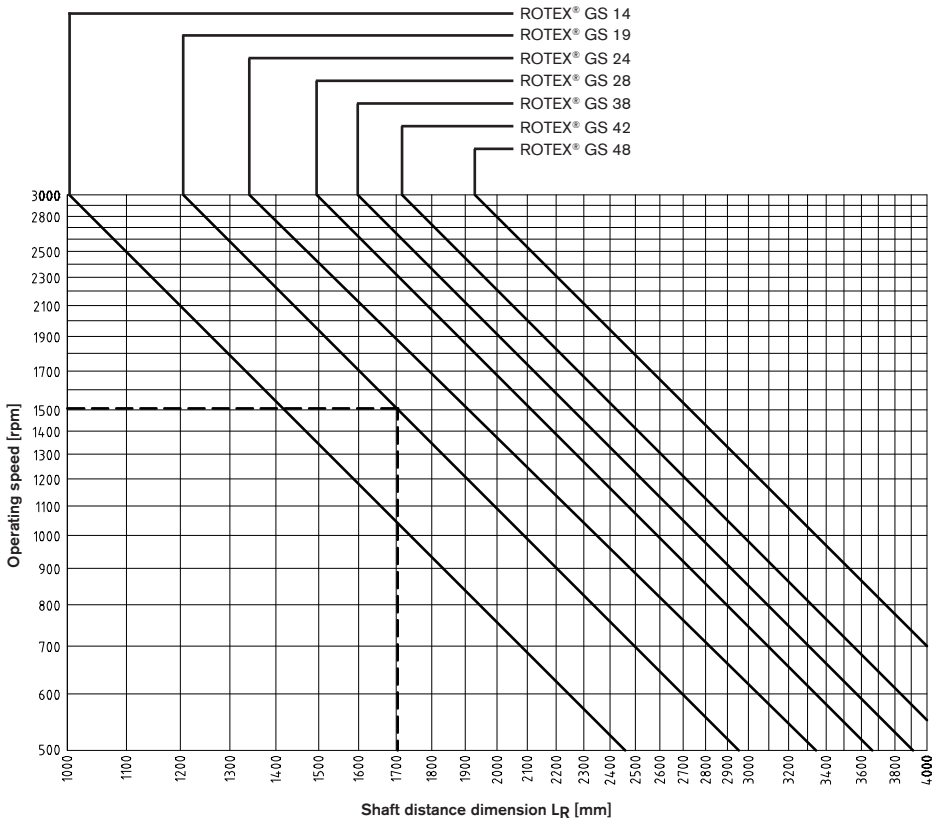
Calculation of overall torsion spring stiffness:

$$C_{tot.} = \frac{1}{2 \bullet \frac{1}{C_1} + \frac{L_{pipe}}{C_2}} \quad [Nm/rad]$$

$$\text{with } L_{pipe} = \frac{L_{ZR} - 2 \bullet L}{1000\ [m]}$$

C_1 = torsion spring stiffness for spider see page 128
C_2 = from table on page 150 - 152

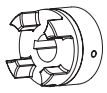
Chart of critical bending speeds for type ZR3



Example:
ROTEX® GS 19
Operating speed: 1500 rpm
Max. perm. shaft distance dimension: 1700 mm
Operating speed = $n_{crit}/1.4$

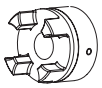
Types of hubs

Due to the numerous applications of ROTEX® GS for many different mounting situations, this coupling system is available with various hub types. The different hub types can be randomly combined within one size.



Type 1.0
with feather keyway and setscrew

Positive-locking power transmission, permissible torque depending on the permissible surface pressure. Not suitable for backlash-free power transmission with heavily reversing operation.



Type 1.1
without feather keyway, with setscrew

Non-positive torque transmission. Suitable for backlash-free transmission of very low torques.
(For ATEX category 3 only)

Type 1.5
with hydraulic clamping system

Integrated frictionally engaged shaft-hub-connection for transmitting high torques with easy assembly by means of a screw.

Type 2.0 clamping hub
single slot without feather keyway

Frictionally engaged, backlash-free shaft-hub-connection. Transmittable torques depending on bore diameter. Type 2.0 up to size 14 as standard.
(For ATEX category 3 only)

Type 2.1 clamping hub
single slot with feather keyway

Positive-locking power transmission with additional friction fit. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced. Type 2.1 up to size 14 as standard.

Type 2.5 clamping hub
double slotted, without feather keyway

Frictionally engaged, backlash-free shaft-hub-connection. Transmittable torques depending on bore diameter. Type 2.5 from size 19 as standard.
(For ATEX category 3 only)

Type 2.6 clamping hub
double slotted, with feather keyway

Positive-locking power transmission with additional friction fit. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced. Type 2.6 from size 19 as standard.

Type 2.8 compact type clamping hub C
with axial slot, without feather keyway

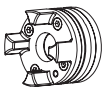
Frictionally engaged, backlash-free shaft-hub-connection, good properties of concentric running. Transmittable torques depending on bore diameter. Type 2.8 from size 24 as standard; size 7 - 19 type 2.8 single slotted.
(For ATEX category 3 only)

Type 2.9 compact type clamping hub C
with axial slot, with feather keyway

Positive-locking power transmission with additional friction fit. Surface pressure of the keyway connection is reduced. Type 2.9 from size 24 as standard;
size 7 - 19 type 2.9 single slotted.

Type 6.0 clamping ring hub

Integrated frictionally engaged shaft-hub-connection for the transmission of higher torques. Screwing on elastomer side. For details about torque and dimensions see page 132/133 and HP page 136. Suitable for high speeds.



Type 6.0 precision clamping ring hub

Operating principle equal to type 6.0, but highly accurate machining with slight modifications of design. See page 134.

Type 7.5 clamping hub type DH
without feather keyway for double-cardanic connections

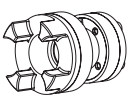
Frictionally engaged, backlash-free shaft-hub-connection for radial assembly of coupling. Transmittable torques depending on bore diameter. For torques see page 142.

Type 7.6 clamping hub type DH
with feather keyway for double-cardanic connections

Positive shaft-hub-connection with additional friction fit for radial assembly of coupling. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.

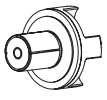
Type 7.8 clamping hub type H
without feather keyway for single-cardanic connection

Type 7.9 clamping hub type H
with feather keyway for single-cardanic connection



Type 4.2 with CLAMPEX® KTR 250

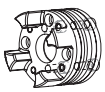
Frictionally engaged shaft-hub-connection to transmit high torques with clamping screws externally.



Type 9.0 expansion hub

Frictionally engaged connection for hollow shaft. Transmittable torques depend on bore diameter and hollow shaft.

Special designs on request of customers



Type 6.5 clamping ring hub

Design equal to 6.0, but only clamping screws externally. For instance for radial disassembly of intermediate pipe (special design).

ROTEX® GS
Backlash-free jaw couplings

Stock programme

Finish bore [mm] according to ISO fit H7 / feather keyway with thread according to DIN 6885 sheet 1 - JS9																																
Size	Hub type	un/pilot bored	Ø2	Ø3	Ø4	Ø5	Ø6	Ø6.35	Ø7	Ø8	Ø9	Ø9.5	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45
	1.1	●			●	●	●																									
7	2.0	●		●	●	●	●	●	●																							
	2.8	●																														
8	2.8	●		●	●	●	●		●	●																						
	1.0	●					●			●	●		●																			
	1.1	●			●	●	●		●	●			●																			
9	2.0	●		●	●	●	●	●	●	●	●	●	●	●																		
	2.1	●					●			●	●		●	●																		
	2.8	●				●	●			●	●																					
	1.0	●													●																	
	1.1	●																														
12	2.0	●			●	●	●	●		●	●		●	●	●																	
	2.1	●											●		●																	
	2.8	●																														
13	2.8	●					●			●			●	●	●																	
	1.0	●					●			●	●		●	●	●	●	●	●														
	1.1	●					●			●			●	●	●	●																
	2.0	●			●	●	●	●	●	●	●	●	●	●	●	●	●	●														
14	2.1	●								●	●		●	●	●	●	●	●														
	2.8	●								●	●		●	●	●	●		●														
	6.0 light						●			●	●		●	●	●	●																
	6.0 P															●																
16	2.8	●								●	●		●		●	●		●														
	1.0	●											●	●	●	●	●	●	●	●	●	●	●									
	2.5	●				■				●		●	●	●	●	●	●	●	●	●	●	●1)	●1)									
	2.6	●								●			●	●	●	●	●	●	●	●	●		●1)									
19	2.8	●								●	●		●	●	●	●	●	●	●	●	●		●									
	6.0 light												●	●	●	●	●	●	●	●	●											
	6.0 steel															●		●		●	●											
	6.0 P37.5																	●														
	6.0 P																			●												
	1.0	●													●	●	●	●	●	●	●	●	●	●	●							
	2.5	●								■					●	●	●	●	●	●	●	●	●	●	●							
	2.6	●													●	●		●	●	●	●	●	●	●	●							
24	2.8															●	●	●		●	●		●	●	●	●						
	6.0 light													●		●	●	●	●	●	●	●	●	●	●							
	6.0 steel																					●	●	●	●							
	6.0 P50																						●									
	6.0 P																							●								
	1.0	●																		●	●	●	●	●	●	●	●	●				
	2.5	●											■						●	●	●	●	●	●	●	●	●	●				
	2.6	●																●			●	●	●	●	●	●	●	●				
28	2.8																			●		●	●	●	●	●		●				
	6.0 light																		●	●	●	●	●	●	●	●	●	●				
	6.0 steel																					●	●	●	●	●	●	●				
	6.0 P																					●					●	●	●			
	1.0	●																			●			●	●	●	●	●	●	●		
	2.5	●												■										●			●	●	●	●		
	2.6	●																			●			●	●	●	●	●	●	●		
38	2.8																				●			●	●		●	●		●		
	6.0 light																				●	●	●	●	●	●	●	●	●	●	●	●
	6.0 steel																							●	●	●	●	●	●	●		●
	6.0 P																										●	●	●	●		

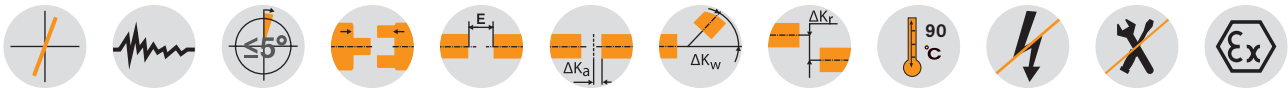
Taper bores for Fanuc motors:
GS 19 1:10 Ø11
GS 24 1:10 Ø16
[1] Type 2.0/2.1

Finish bores [mm]																	
Size	Hub type	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø80
42	6.0 light	●		●	●	●		●	●		●					
	6.0 steel	●	●	●	●	●	●	●	●	●	●					
48	6.0 light			●			●		●	●		●				
	6.0 steel			●	●	●	●	●	●	●	●	●				
55	6.0 steel					●	●	●	●	●	●	●	●			
65	6.0 steel						●	●	●	●	●	●	●	●	●	
75	6.0 steel										●	●	●	●	●	●
90	6.0 steel	Bores on request														

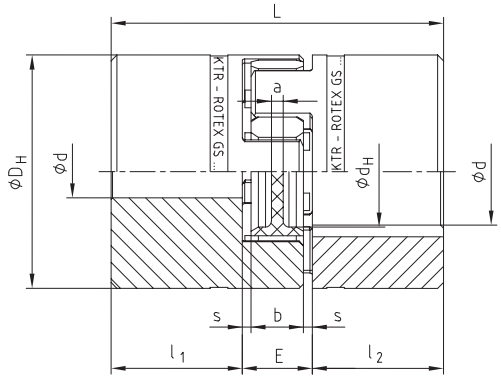
■ = Pilot bored clamping hubs
● = Standard bore from stock
Unbored hubs up to size 65 available from stock
Other dimensions on request

ROTEX® GS
Backlash-free jaw couplings

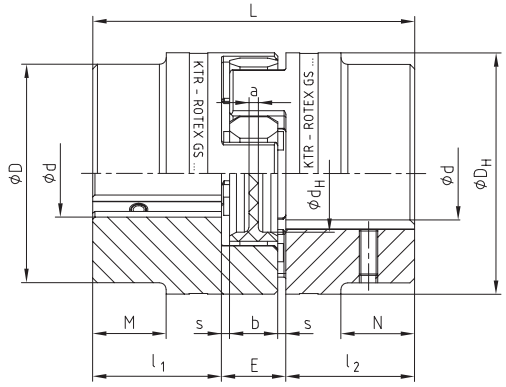
Standard types



ROTEX® GS 5 - 38

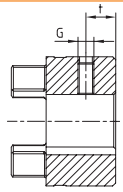


ROTEX® GS 42 - 90



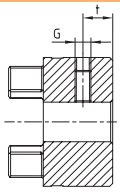
Types of hubs:

Type 1.0



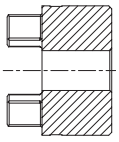
with feather keyway and setscrew

Type 1.1



without feather keyway, with setscrew

Type 1.2



without feather keyway and without setscrew

ROTEX® GS standard types - For size 5 to 38 hub material aluminium/for size 42 to 90 hub material steel

Size	Spider GS [1] torque T_{KN} [Nm] for 98 ShA	$d_{max.}$ for hub type			Dimensions [mm]										Setscrew DIN EN ISO 4029		
		1.0	1.1	1.2	D	D_H	d_H	L	l_1, l_2	M, N	E	b	s	a	G	t	T_A [Nm]
5	0.9	-	6	5	–	10	–	15	5	–	5	4	0.5	4.0	M2	2.5	0.35
7	2.0	7	7	7	–	14	–	22	7	–	8	6	1.0	6.0	M3	3.5	0.6
9	5.0	10	11	11	–	20	7.2	30	10	–	10	8	1.0	1.5	M4	5.0	1.5
12	9.0	12	12	12	–	25	8.5	34	11	–	12	10	1.0	3.5	M4	5.0	1.5
14	12.5	16	16	16	–	30	10.5	35	11	–	13	10	1.5	2.0	M4	5.0	1.5
19	21	24	-	–	–	40	18	66	25	–	16	12	2.0	3.0	M5	10	2.0
24	60	32	–	–	–	55	27	78	30	–	18	14	2.0	3.0	M5	10	2.0
28	160	38	–	–	–	65	30	90	35	–	20	15	2.5	4.0	M8	15	10
38	325	45	–	–	–	80	38	114	45	–	24	18	3.0	4.0	M8	15	10
42	450	55	–	–	85	95	46	126	50	28	26	20	3.0	4.0	M8	20	10
48	525	62	–	-	95	105	51	140	56	32	28	21	3.5	4.0	M8	20	10
55	685	74	–	–	110	120	60	160	65	37	30	22	4.0	4.5	M10	20	17
65	940	80	–	–	115	135	68	185	75	47	35	26	4.5	4.5	M10	20	17
75	1920	95	–	–	135	160	80	210	85	53	40	30	5.0	5.0	M10	25	17
90	3600	110	–	–	160	200	104	245	100	62	45	34	5.5	6.5	M12	30	40

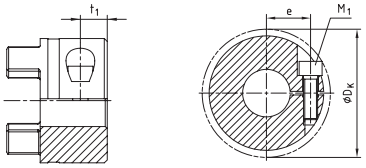
[1] For selections see page 22 et seqq./other spiders see page 127.

Ordering example:

ROTEX® GS 24	98 ShA-GS	d 20	2.5 - Ø24		1.0 - Ø20	
Coupling size	Spider hardness	**Optional:** Bore in spider	Hub type	Finish bore	Hub type	Finish bore

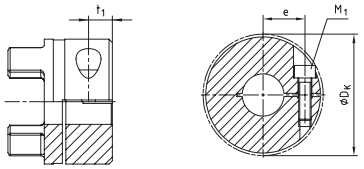
Types of hubs:

Type 2.0
Type 2.1



Size 5 to 14
Type 2.0: single slotted clamping hub **without** feather keyway (only for ATEX cat. 3), torque depending on bore Ø
Type 2.1: single slotted clamping hub **with** feather keyway

Type 2.5
Type 2.6



from size 19
Type 2.5: double slotted clamping hub **without** feather keyway (only for ATEX cat. 3), torque depending on bore Ø
Type 2.6: double slotted clamping hub **with** feather keyway

ROTEX® GS standard types - For size 5 to 38 hub material aluminium/for size 42 to 90 hub material steel

Size	Spider GS [1] torque T_{KN} [Nm] for 98 ShA	$d_{max.}$ for hub type				Dimensions [mm]										Clamping screws DIN EN ISO 4762 (ROTEX® GS 5 - DIN EN ISO 1207)				
		2.0	2.1	2.5	2.6	D	D_H	d_H	L	l_1, l_2	M, N	E	b	s	a	M_1	t_1	e	DK	T_A [Nm]
5	0.9	5	–	–	–	–	10	—	15	5	–	5	4	0.5	4.0	M1.2	2.5	3.5	11.4	– [2]
7	2.0	7	7	–	–	–	14	—	22	7	–	8	6	1.0	6.0	M2	3.5	5.0	16.5	0.37
9	5.0	11	11	–	–	–	20	7.2	30	10	–	10	8	1.0	1.5	M2.5	5.0	7.5	23.4	0.76
12	9.0	12	12	–	–	–	25	8.5	34	11	–	12	10	1.0	3.5	M3	5.0	9.0	27.5	1.34
14	12.5	16	16	–	–	–	30	10.5	35	11	–	13	10	1.5	2.0	M3	5.0	11.5	32.2	1.34
19	21	–	–	24	24	–	40	18	66	25	–	16	12	2.0	3.0	M6	11.0	14.5	46	10
24	60	–	–	28	28	–	55	27	78	30	–	18	14	2.0	3.0	M6	10.5	20.0	57.5	10
28	160	–	–	38	38	–	65	30	90	35	–	20	15	2.5	4.0	M8	11.5	25.0	73	25
38	325	–	–	45	45	–	80	38	114	45	–	24	18	3.0	4.0	M8	15.5	30.0	83.5	25
42	450	–	–	50	45	85	95	46	126	50	28	26	20	3.0	4.0	M10	18	32.0	93.5	69
48	525	–	–	55	55	95	105	51	140	56	32	28	21	3.5	4.0	M12	21	36.0	105	120
55	685	–	–	68	68 [3]	110	120	60	160	65	37	30	22	4.0	4.5	M12	26	42.5	119.5	120
65	940	–	–	70	70 [3]	115	135	68	185	75	47	35	26	4.5	4.5	M12	33	45.0	124	120
75	1920	–	–	80	80	135	160	80	210	85	53	40	30	5.0	5.0	M16	36	51.0	147.5	295
90	3600	–	–	90	90	160	200	104	245	100	62	45	34	5.5	6.5	M20	40	60.0	176	580

[1] For selections see page 22 et seqq./other spiders see page 121.
[2] No T_A defined (slotted screw)
[3] From Ø60 keyway opposite the clamping screw

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 2.0

Size	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16
7	0.7	0.9	1.1	1.2	1.4									
9		1.6	1.9	2.2	2.6	2.9	3.2	3.5	3.8					
12		2.4	2.9	3.4	3.9	4.4	4.9	5.4	5.8	6.3				
14			3.1	3.6	4.2	4.7	5.2	5.7	6.2	6.7	7.1	7.6	8.0	8.5

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 2.5

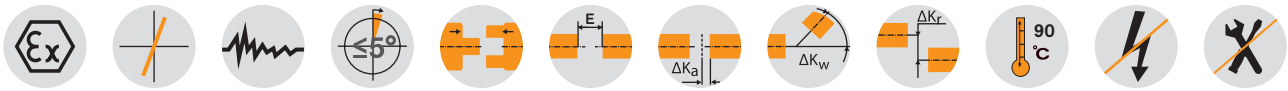
Size	Ø8	Ø10	Ø11	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø75	Ø80	Ø85	Ø90
19	19	23	25	31	33	35	39	41	42	46 [4]	49 [4]																			
24		24	26	33	35	37	41	43	45	48	52	54	59																	
28				63	67	71	79	82	86	94	101	105	115	122	129	139	148													
38					67	71	79	83	87	95	102	106	117	124	131	142	152	158	165	175										
42								188	197	214	231	240	264	281	297	320	343	358	373	395	417	431								
48												356	394	418	442	478	513	536	558	592	624	646	699							
55															456	493	529	553	577	611	646	668	724	778	830	882				
65																499	536	560	584	620	655	677	734	789	842	895	946			
75																			1107	1175	1242	1287	1396	1503	1607	1709	1810	1908	2005	
90																			1764	1876	1985	2057	2235	2409	2579	2746	2911	3072	3231	3387

[4] Clamping hub single slotted with 2-off clamping screws M4 and dimension e = 15, T_A = 2.9 Nm

ROTEX® GS Compact
Backlash-free jaw couplings

Compact design

For legend of pictogram refer to flapper on the cover



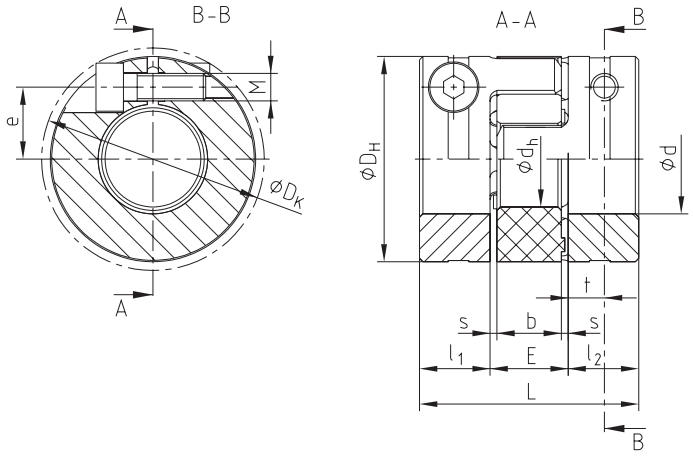
ROTEX® GS Compact - Hub material aluminium																	
Size	Spider GS [1] torque T_{KN} [Nm]				Dimensions [mm]									Clamping screws DIN EN ISO 4762			
	80 ShA	92 ShA	98 ShA	64 ShD	$d_{max.}$	D_H	DK	L	l_1, l_2	E	b	s	d_H	t	e	M	T_A [Nm]
Single slotted hub type 2.8/2.9																	
7	0.7	1.2	2.0	2.4	7	14	16.6	18	5	8	6	1	–	2.5	5	M2	0.37
8	0.5	–	2.0	2.4	8	15	17.3	20	7	6	5	0.5	6.2	4	5.4	M2	0.52
9	1.8	3.0	5.0	6	9	20	21.3	24	7	10	8	1	–	3.5	6.7	M2.5	0.76
12	3.0	5.0	9.0	12	12	25	26.2	26	7	12	10	1	–	3.5	8.3	M3	1.34
13	3.6	–	11	14.5	12.7	25	25.7	26	8	10	8	1	10	4	8	M3	1.9
14	4.0	7.5	12.5	16	16 [2]	30	31.6	32	9.5	13	10	1.5	–	4.5	10	M4	2.9
16	5.0	–	15	19	16	30	32.5	32	10.3	11.4	9.4	1	14	5.3	10.5	M4	4.1
19	6.0	12.0	21.0	26.0	24 [2]	40	45.5	50	17	16	12	2	–	9	14.0	M6	10
Axially slotted hub type 2.8/2.9																	
24	–	35	60	75	32	55	57.5	54	18	18	14	2	–	11	20.0	M6	10
28	–	95	160	200	35	65	69.0	62	21	20	15	2.5	–	12	23.8	M8	25
38	–	190	325	405	45	80	86.0	76	26	24	18	3	–	15	29.5	M10	49

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 2.8																									
Size	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45
Single slotted hub type 2.8																										
7	0.7	0.9	1.1	1.2	1.4																					
8	1.0	1.2	1.5	1.8	2.0	2.3																				
9		1.5	1.8	2.1	2.4	2.7	3.0																			
12		2.3	2.8	3.3	3.8	4.3	4.7	5.2	5.6	6.0																
13		3.1	3.9	4.6	5.2	5.9	6.5	7.1	7.8	8.4																
14			5.0	5.9	6.8	7.7	8.5	9.4	10.2	11.0	7.2 [2]	7.7 [2]	8.1 [2]													
16			7.2	8.5	9.8	11.0	12.2	13.4	14.6	15.7	17.9	19.0	20.0													
19						18.7	20.8	22.9	24.9	26.9	30.8	32.7	34.6	38.2	40.0	41.8	36.0 [2]									
Axially slotted hub type 2.8																										
24								34	37	41	48	51	54	61	64	68	81	85	95	102	109					
28											87	93	100	112	118	124	149	156	174	187	199	218				
38												148	158	178	188	198	237	247	277	296	316	346	375	395	415	444

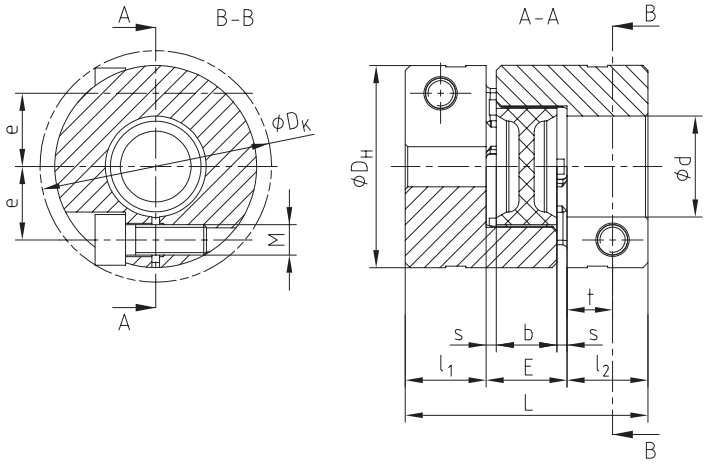
[1] For selections see page 22 et seqq./other spiders see page 121.
[2] Size 14 with screw M3 and dimension e = 10.4/D_K = 30.5/T_A = 1.34 Nm; size 19 with screw M5 and dimension e = 15.5/D_K = 47mm/T_A = 6 Nm

Ordering example:	ROTEX® GS 38	Compact	98 ShA-GS	d 28	2.8 - Ø28		2.8 - Ø45	
	Coupling size	Type	Spider hardness	**Optional:** Bore in spider	Hub type	Finish bore	Hub type	Finish bore

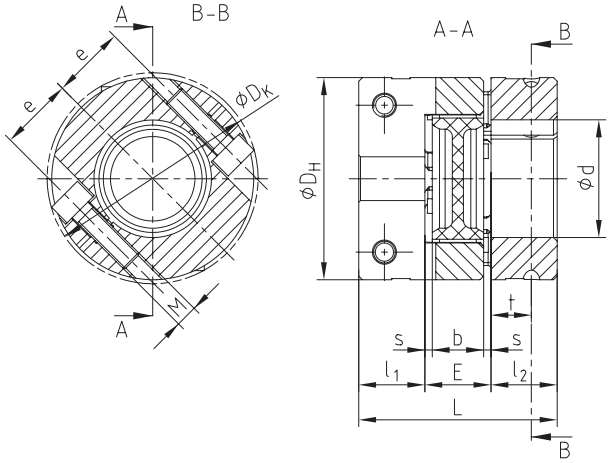
ROTEX® GS 8, 13, 16
Compact
single slotted type 2.8



ROTEX® GS 7, 9, 12, 14, 19
Compact
single slotted type 2.8

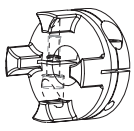


ROTEX® GS 24 - 38
Compact
axially slotted type 2.8



Types of hubs

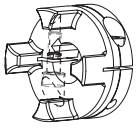
Type 2.8



Compact type clamping hub C with axial slot, without feather keyway

Type 2.8 from size 24 as standard, size 7 - 19 type 2.8 single slotted

Type 2.9

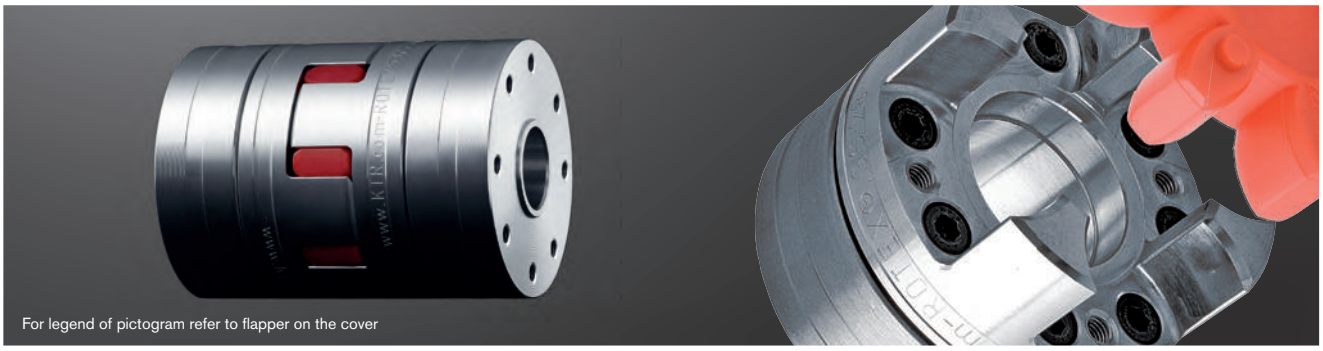


Compact type clamping hub C with axial slot, with feather keyway

Type 2.9 from size 24 as standard, size 7 - 19 type 2.9 single slotted

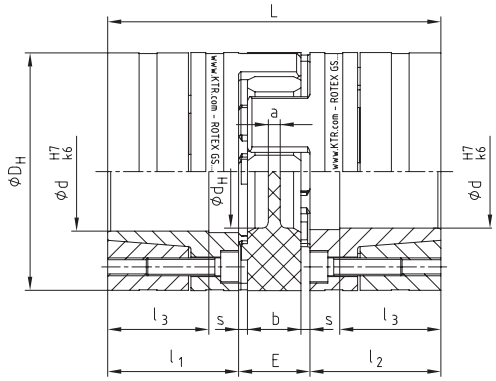
ROTEX® GS Clamping ring hubs light
Backlash-free jaw couplings

Integrated clamping system made of aluminium



Extraction thread M_1 between clamping screws

Clamping ring hub light with block mounting
(hub and clamping ring mounted as a block)



ROTEX® GS clamping ring hubs light

Size	Spider GS [1] torque T_{KN} [Nm]			Dimensions [mm]										Clamping screws DIN EN ISO 4762				Weight per hub with max. bore [kg]	Mass moment of inertia per hub with max. bore [kgm²]
	92 ShA	98 ShA	64 ShD	$d_{max.}$	D_H [2]	d_H	L	l_1, l_2	l_3	E	b	s	a	M	z = number	T_A [Nm]	M_1		
13	-	11	14.5	13	25	10	34	12	9	10	8	1	-	M2	6	0.37	M2	0.014	1.39×10^{-6}
14	7.5	12.5	16.0	14	30	10.5	50	18.5	13.5	13	10	1.5	2.0	M3	4	1.34	M3	0.032	0.04×10^{-4}
19	12	21	26	20	40	18	66	25	18	16	12	2.0	3.0	M4	6	3	M4	0.077	0.19×10^{-4}
24	35	60	75	32	55	27	78	30	22	18	14	2.0	3.0	M5	4	6	M5	0.162	0.78×10^{-4}
28	95	160	200	38	65	30	90	35	27	20	15	2.5	4.0	M5	8	6	M5	0.240	1.70×10^{-4}
38	190	325	405	48	80	38	114	45	35	24	18	3.0	4.0	M6	8	10	M6	0.490	5.17×10^{-4}
42	265	450	560	51	95	46	126	50	35	26	20	3.0	4.0	M8	4	25	M8	0.772	11.17×10^{-4}
48	310	525	655	55	105	51	140	56	41	28	21	3.5	4.0	M10	4	49	M10	1.066	18.81×10^{-4}

[1] For selections see page 22 et seqq./other spiders see page 121.
[2] $ØD_H$ + 2 mm with high speeds for expansion of spider

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 6.0 light

Size		Ø3	Ø4	Ø5	Ø6	Ø8	Ø9	Ø10	Ø11	Ø14	Ø15	Ø16	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55*
13	H7/k6	1.3 [3]	2.3 [3]	4.3 [3]	5.4 [3]	10 [3]	6.3	8.9	10.6																		
	H7/h6						2.4	4.8	5.4																		
14	H7/k6				8.2	13.1	18.7	20.5	25.9	36.2																	
	H7/h6				5.8	9.5	15.7	16.6	21.6	24.7																	
19	H7/k6							33	41	59	71	51	80	92													
	H7/h6							27	35	52	65	39	68	81													
24	H7/k6									84	99	93	139	157	160	177	232	177 [4]									
	H7/h6									75	92	79	125	145	119	136	190	147 [4]									
28	H7/k6											140	207	188	289	316	355	414	324	404	422						
	H7/h6											121	187	157	263	293	318	381	245	324	343						
38	H7/k6													290	439	480	567	656	617	759	733	825	922	808	937		
	H7/h6													247	403	447	530	626	499	636	606	696	792	678	809		
42	H7/k6																651	752	747	916	1001	1115	1044	1218	1404	1432	
	H7/h6																574	681	613	774	881	1001	888	1058	1241	1295	
48	H7/k6																765	822	927	1121	1220	1357	1318	1536	1768	1535	1823
	H7/h6																678	760	837	1047	1085	1231	1128	1339	1566	1331	1475

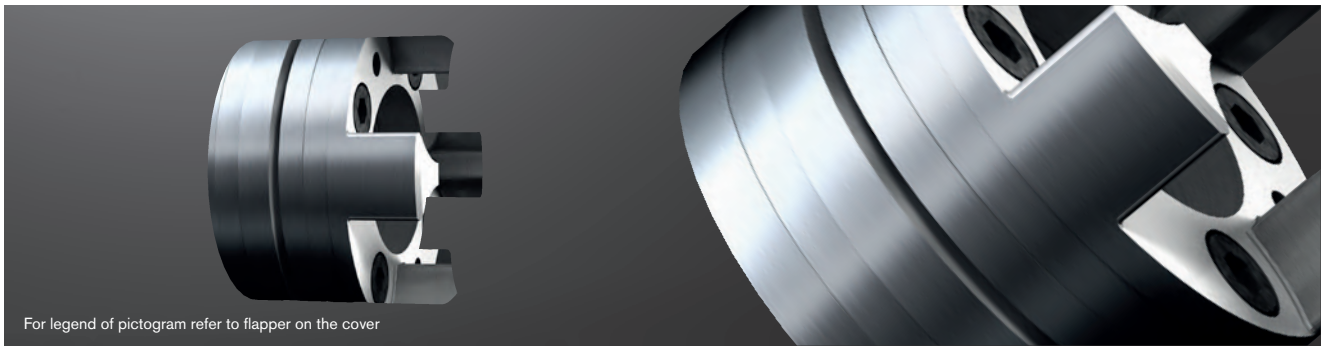
* Standard bore tolerance H7, special tolerances on request * From Ø55 tolerance G7/m6
The friction torque is reduced with bigger clearance.. Steel or nodular iron with a yield strength of approx. 250 N/mm² or more can be used as shaft material. For strength calculation of shaft/hollow shaft see KTR standard 45510 on our homepage www.ktr.com.
[3] Taper of hub with slot
[4] Clamping ring hub with screws M4, z = 8 and T_A = 2.9 Nm

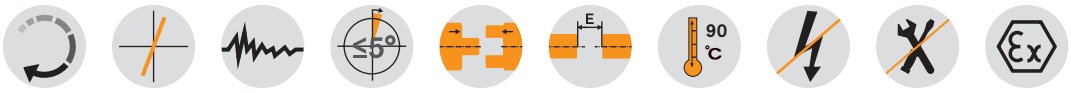
Ordering example:

ROTEX® GS 24	98 ShA-GS	d 20	6.0 light - Ø24		6.0 light - Ø20	
Coupling size	Spider hardness	**Optional:** Bore in spider	Hub type	Finish bore	Hub type	Finish bore

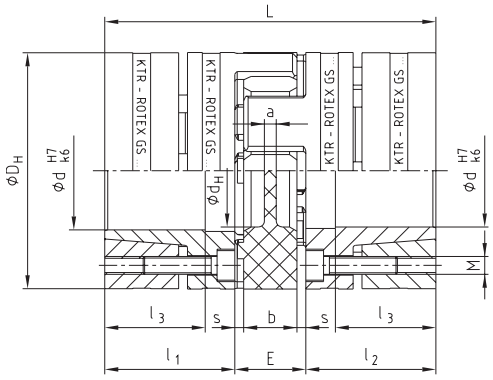
ROTEX® GS Clamping ring hubs made of steel
Backlash-free jaw couplings

Integrated clamping system made of steel





Extraction thread M_1 between clamping screws



ROTEX® GS clamping ring hubs steel

Size	Spider GS [1] torque T_{KN} [Nm]			Dimensions [mm]										Clamping screws DIN EN ISO 4762				Weight per hub with max. bore [kg]	Mass moment of inertia per hub with max. bore [kgm²]
	98 ShA	64 ShD	72 ShD	$d_{max.}$	D_H [2]	d_H	L	l_1, l_2	l_3	E	b	s	a	M	z = number	T_A [Nm]	M_1		
19	21	26	–	20	40	18	66	25	18	16	12	2.0	3.0	M4	6	4.1	M4	0.179	0.44×10^{-4}
24	60	75	97	28	55	27	78	30	22	18	14	2.0	3.0	M5	4	8.5	M5	0.399	1.91×10^{-4}
28	160	200	260	38	65	30	90	35	27	20	15	2.5	4.0	M5	8	8.5	M5	0.592	4.18×10^{-4}
38	325	405	525	48	80	38	114	45	35	24	18	3.0	4.0	M6	8	14	M6	1.225	12.9×10^{-4}
42	450	560	728	51	95	46	126	50	35	26	20	3.0	4.0	M8	4	41	M8	2.30	31.7×10^{-4}
48	525	655	852	55	105	51	140	56	41	28	21	3.5	4.0	M10	4	69	M10	3.08	52.0×10^{-4}
55	685	825	1072	70	120	60	160	65	45	30	22	4.0	4.5	M10	4	69	M10	4.67	103.0×10^{-4}
65	940	1175	1527	70	135	68	185	75	55	35	26	4.5	4.5	M12	4	120	M12	6.70	191.0×10^{-4}
75	1920	2400	3120	80	160	80	210	85	63	40	30	5.0	5.0	M12	5	120	M12	9.90	396.8×10^{-4}
90	3600	4500	5850	105	200	104	245	100	75	45	34	5.5	6.5	M16	5	295	M16	17.7	1136×10^{-4}

[1] For selections see page 22 et seqq./other spiders see page 121.
[2] $ØD_H$ + 2 mm with high speeds for expansion of spider

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 6.0 steel

Size		Ø10	Ø11	Ø14	Ø15	Ø16	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55*	Ø60*	Ø65*	Ø70*	Ø80*	Ø90*	Ø95*	Ø100*	Ø105*
19	H7/k6	27	32	69	84	57	94	110																					
	H7/h6	15	18	57	74	38	76	94																					
24	H7/k6			70	87	56	97	114	116	133	192																		
	H7/h6			55	74	32	72	93	84	103	173																		
28	H7/k6				108	131	207	148	253	285	315	382	330	433	503														
	H7/h6				74	97	172	94	207	242	267	343	260	377	453														
38	H7/k6							208	353	395	439	531	463	603	593	689	793	776											
	H7/h6							136	290	337	373	476	367	525	491	601	721	677											
42	H7/k6									445	495	595	526	677	671	775	718	872	1043	1061									
	H7/h6									387	429	540	429	600	569	687	599	773	970	978									
48	H7/k6											616	704	899	896	1030	962	1160	1379	1222	1543								
	H7/h6											513	590	806	775	924	822	1042	1290	1073	–								
55	H7/k6													863	856	991	918	1119	1110	1247	1277	1665	1605	2008					
	H7/h6													750	710	863	750	976	934	1089	–	–	–	–					
65	H7/k6															1446	1355	1637	1635	1827	1887	2429	2368	2930					
	H7/h6															1275	1135	1447	1404	1619	–	–	–	–					
75	H7/k6																1710	2053	2059	2294	2384	3040	2983	3664	4293				
	H7/h6																1460	1836	1797	2056	–	–	–	–	–				
90	H7/k6																			3845	4249	4795	5859	5906	7036	8047	9247	9575	10845
	H7/h6																			3445	–	–	–	–	–	–	–	–	–

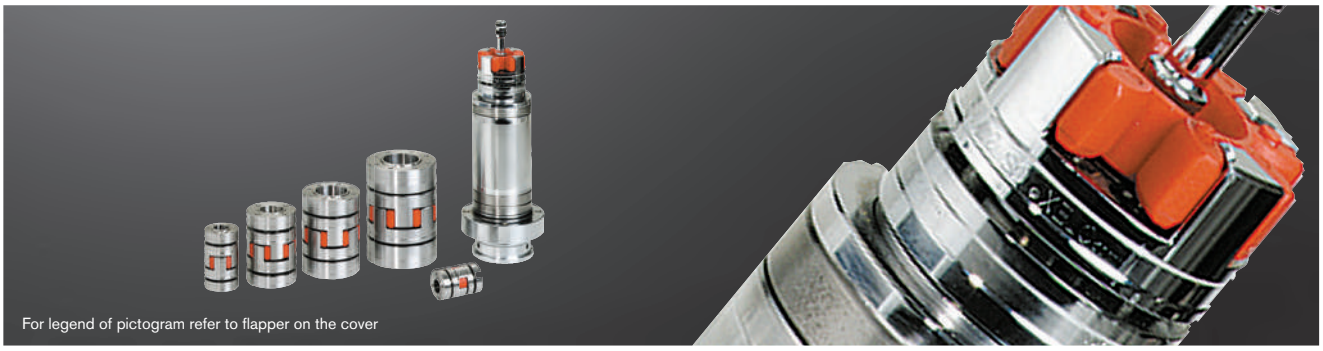
* From Ø55 tolerance G7/m6
The friction torque is reduced with bigger clearance.. For the strength calculation of shaft/hollow shaft see KTR standard 45510 on our homepage www.ktr.com.

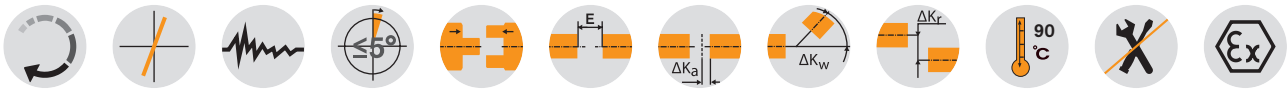
Ordering example:

ROTEX® GS 24	98 ShA-GS	d 20	6.0 steel - Ø24		6.0 steel - Ø20	
Coupling size	Spider hardness	**Optional:** Bore in spider	Hub type	Finish bore	Hub type	Finish bore

ROTEX® GS P
Backlash-free jaw couplings

Highly accurate type P according to DIN 69002





ROTEX® GS P - hubs/clamping ring material steel

Size	Spider GS [1] torque T_{KN} [Nm]		Dimensions [mm]											Clamping screws DIN EN ISO 4762				Weight per hub $d_{standard}$ [3] [kg]	Mass moment of inertia per hub with bore $d_{standard}$ [3] [kgm²]
	98 ShA	64 ShD	$d_{max.}$	D_H [2]	d_H	L	l_1, l_2	l_3	E	b	s	a	d_3	M	z = number	T_A [Nm]	M1		
14 P	12.5	16	15	32	10.5	50	18.5	15.5	13	10	1.5	2	—	M3	4	1.89	M3	0.08	0.011 x 10^{-3}
19 P	21	26	20	40	18	66	25	21	16	12	2	3	—	M4	6	3.05	M4	0.19	0.046 x 10^{-3}
24 P	60	75	28	55	27	78	30	25	18	14	2	3	—	M5	4	8.5	M5	0.44	0.201 x 10^{-3}
28 P	160	200	38	65	30	90	35	30	20	15	2.5	4	—	M5	8	8.5	M5	0.64	0.438 x 10^{-3}
38 P	325	405	48	80	38	114	45	40	24	18	3	4	—	M6	8	14	M6	1.32	1.325 x 10^{-3}
42 P	450	560	51	95	46	126	50	45	26	20	3	4	18.5	M8	4	35	M8	2.23	3.003 x 10^{-3}
48 P	525	655	55	105	51	140	56	50	28	21	3.5	4	20.5	M10	4	69	M10	3.09	5.043 x 10^{-3}
55 P	685	825	70	120	60	160	65	58	30	22	4	4.5	22.5	M10	4	69	M10	4.74	10.02 x 10^{-3}
65 P	940	1175	70	135	68	185	75	55	35	26	4.5	4.5	30	M12	4	120	M12	6.70	191.0 x 10^{-4}
75 P	1920	2400	80	160	80	210	85	63	40	30	5.0	5.0	40	M12	5	120	M12	9.90	396.8 x 10^{-4}
90 P	3600	4500	105	200	104	245	100	75	45	34	5.5	6.5	50	M16	5	295	M16	17.7	1136 x 10^{-4}

[1] For selections see page 22 et seqq./other spiders see page 121.
[2] Ø D_H + 2 mm with high speeds for expansion of spider
For the strength calculation of shaft/hollow shaft see KTR standard 45610 on our homepage www.ktr.com.

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 6.0 steel

Size		Ø10	Ø11	Ø14	Ø15	Ø16	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55*	Ø60*	Ø65*	Ø70*	Ø80*	Ø90*	Ø95*	Ø100*	Ø105*
14	H6/k6	11	13	29																									
	H6/h6	3	4	23																									
19	H6/k6	34	41	75	90	68	104	119																					
	H6/h6	22	26	64	80	49	85	103																					
24	H6/k6			79	95	70	110	126	134	149	201																		
	H6/h6			64	82	46	85	104	101	119	183																		
28	H6/k6				128	150	225	177	278	307	341	403	366	461	528														
	H6/h6				94	117	191	123	232	265	293	364	295	405	478														
38	H6/k6							247	386	426	475	560	511	641	644	733	828	825	970										
	H6/h6							174	323	368	408	505	415	564	542	645	757	726	897										
42	H6/k6									389	433	512	464	585	586	669	631	753	888	906									
	H6/h6									330	367	457	368	508	485	581	512	654	815	823									
48	H6/k6											672	762	945	957	1082	1033	1219	1423	1296	1606								
	H6/h6											568	647	852	836	977	892	1101	1334	1148	-								
55	H6/k6													920	929	1055	1002	1190	1198	1325	1388	1743	1722	2088					
	H6/h6													807	783	927	834	1047	1022	1168	-	-	-	-					
65	H6/k6															1532	1465	1731	1750	1931	2034	2534	2521	3038					
	H6/h6															1361	1245	1542	1520	1723	-	-	-	-					
75	H6/k6																1835	2161	2190	2413	2551	3161	3158	3789	4421				
	H6/h6																1585	1944	1928	2175	-	-	-	-	-				
90	H6/k6																			4046	4503	5057	6079	6181	7324	8398	9530	9892	11084
	H6/h6																			3645	-	-	-	-	-	-	-	-	-

* From Ø55 tolerance G6/m6.
The friction torque is reduced with bigger clearance.. For the strength calculation of shaft/hollow shaft see KTR standard 45610 on our homepage www.ktr.com.

Assignment for stub spindles according to DIN 69002

Spindle drive	ROTEX® GS P size	Dimensions according to DIN 69002										
		Standard spindle shaft diameter d	d_1	d_2	d_3	D_H	l_1, l_2	L	E	Transmittable torque T_R with d [Nm] [3]	Weight per hub with bore $d_{standard}$ [3] [kg]	Mass moment of inertia with bore $d_{standard}$ [3] [kgm²]
25 x 20	14 P	14	17	17	8.5	32	18.5	50	13	25	0.08	0.011 x 10^{-3}
32k x 25	19 P37.5	16	20	19	9.5	37.5	25	66	16	60	0.16	0.037 x 10^{-3}
32g x 30	19 P	19	23	22	9.5	40	25	66	16	71	0.19	0.046 x 10^{-3}
40 x 35	24 P50	24	28	29	12.5	50	30	78	18	108	0.331	0.136 x 10^{-3}
50 x 45	24 P	25	30	30	12.5	55	30	78	18	170	0.44	0.201 x 10^{-3}
63 x 55	28 P	35	40	40	14.5	65	35	90	20	506	0.64	0.438 x 10^{-3}
80 x 75	38 P	40	46	46	16.5	80	45	114	24	821	1.32	1.325 x 10^{-3}

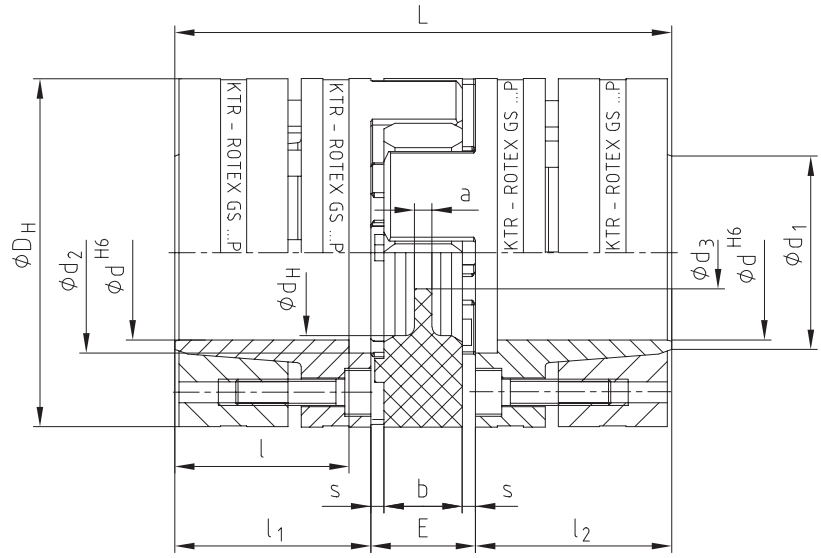
[3] Standard spindle shaft diameter

Ordering example:

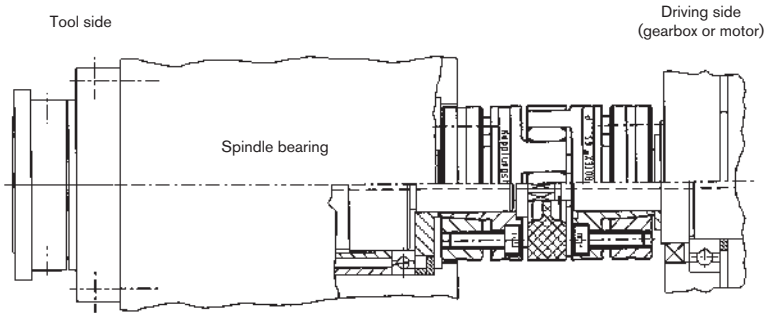
ROTEX® GS 24 P	98 ShA-GS	6.0 - Ø25		6.0 - Ø25	
Coupling size	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

Components

Extraction thread M_1 between clamping screws

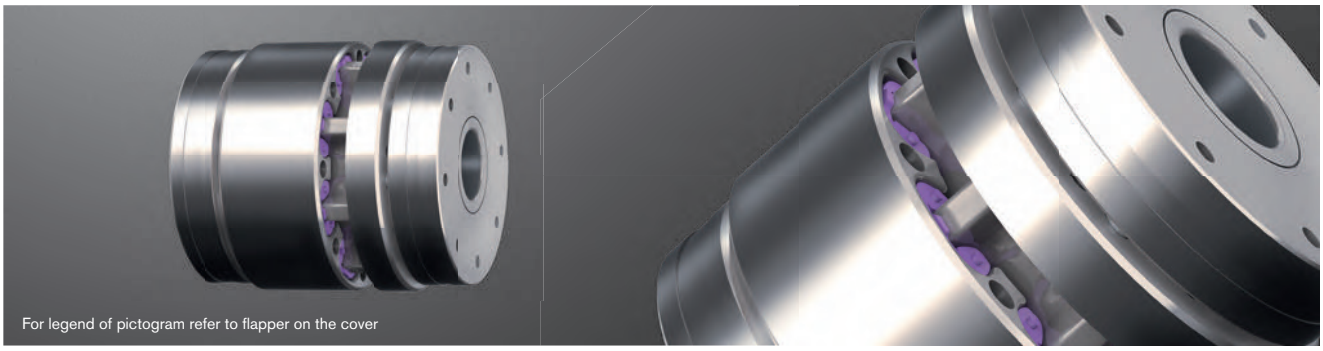


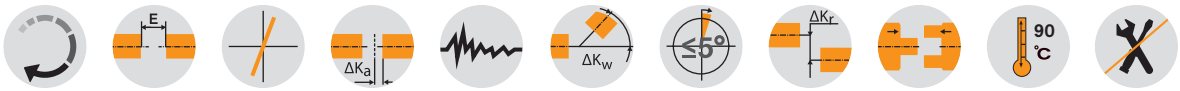
ROTEX® GS P with central coolant supply for stub spindles and multiple spindle heads



ROTEX® GS HP
Backlash-free shaft coupling

Highly accurate closed coupling system





ROTEX® GS HP - clamping ring hubs/clamping ring material steel

Size	Tooth element ROTEX® GS HP [1] torque T_{KN} [Nm]		Max. speed [rpm]	Dimensions [mm]										Clamping screws DIN EN ISO 4762			Weight of coupling with max. bore [kg]	Mass moment of inertia of coupling with max. bore [kgm²]
	52 ShD	65 ShD		Max. d_1, d_2	D_H	D	L	l_1, l_2	l_3, l_4	N	E	b	s	M	z = number	T_A [Nm]		
24	100	125	59,000	25	55	48	73	24.5	18	15	24	20	2	5	5	7.7	0.74	0.000317
28	160	200	47,000	35	66	58	78	27	17	17	24	20	2	5	6	7.7	1.02	0.000653
38	400	500	39,000	45	80	76	82	29	18	18	24	20	2	5	8	7.7	1.54	0.001534
42	475	590	35,000	51	95	82	99	36	24	24	27	22	2.5	6	8	13	2.59	0.003441
48	550	685	30,000	55	105	92	101	37	25	25	27	22	2.5	6	9	13	3.39	0.005481
55	725	905	26,000	60	120	105	103	38	26	26	27	22	2.5	6	10	13	6.84	0.009172
65	1075	1340	22,500	70	139	125	107	40	27	25.3	27	22	2.5	6	12	14	7.00	0.019633

[1] For selections see page 22 et seqq./other spiders see page 121.

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 6.0 steel

Size		Ø12	Ø15	Ø18	Ø19	Ø20	Ø22	Ø25	Ø28	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55 *	Ø60 *	Ø65 *
24	H6/k6	55	102	165	115	133	172	241												
	H6/h6	34	82	150	81	100	143	222												
28	H6/k6		125	199	226	158	202	280	246	340	432									
	H6/h6		99	177	201	111	157	240	195	292	398									
38	H6/k6					216	274	376	374	508	635	586	666	752	649					
	H6/h6					170	231	339	318	452	592	509	589	674	524					
42	H6/k6									665	830	1015	770	871	1035	1215	1153			
	H6/h6									570	749	953	656	766	948	1150	1076			
48	H6/k6													1128	1321	1530	1211	1477		
	H6/h6													914	1102	1306	985	–		
55	H6/k6													1314	1543	1562	1711	1562	1915	
	H6/h6													1217	1463	1329	1474	–	–	
65	H6/k6														1606	1852	2026	1891	2306	2134
	H6/h6														1349	1584	1751	–	–	–

* From Ø55 G6/m6.
The friction torque depends on the speed.
The friction torque is reduced with bigger clearance.. For the strength calculation of shaft/hollow shaft see KTR standard 45710 on our homepage www.ktr.com.

Technical data

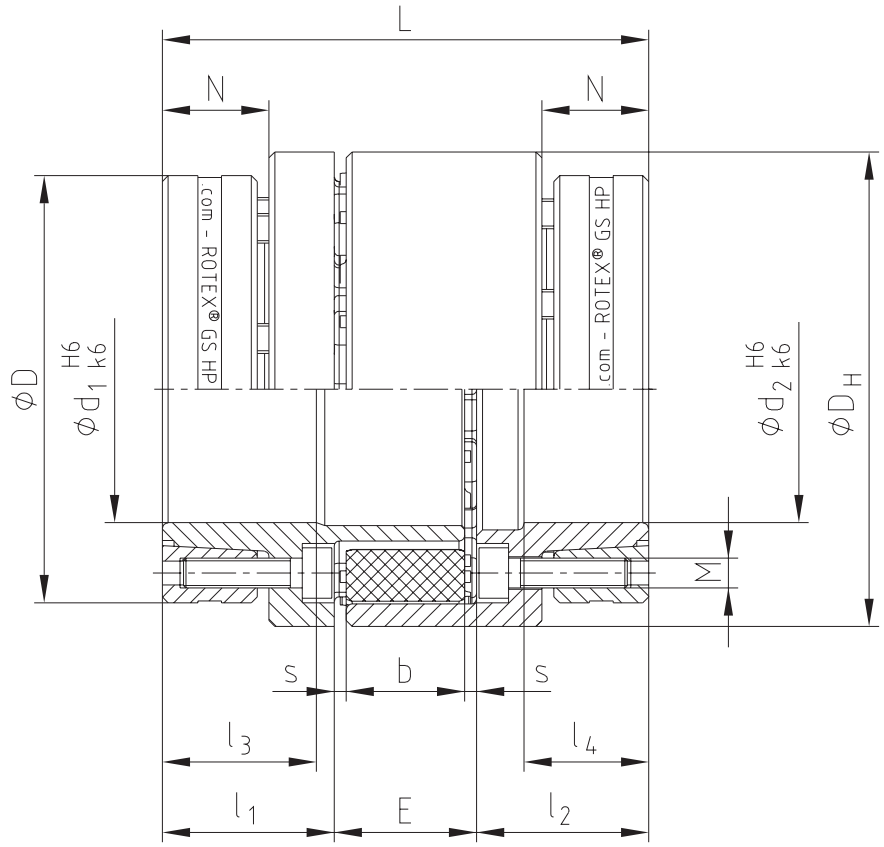
Size	Tooth element ROTEX® GS HP	Displacements			Torsional stiffness [Nm/rad]		Radial spring stiffness [N/mm]	Axial stiffness [N/mm]
		Axial ΔKa [mm]	Radial ΔKr [mm]	Angular ΔKw [degree]	$C_{T\,stat.}$	$C_{T\,dyn.}$	Cr	C_a
24	52 ShD	+1.0/-0.8	0.10	0.9	3,780	10,950	7,210	3,440
	64 ShD		0.07	0.8	6,050	17,520	10,100	4,820
28	52 ShD		0.10	0.9	7,760	23,980	8,380	4,360
	64 ShD		0.07	0.8	12,420	38,370	11,740	6,110
38	52 ShD		0.10	0.9	27,800	69,000	11,190	6,280
	64 ShD		0.07	0.8	44,480	110,400	15,670	8,790
42	52 ShD		0.14	0.9	52,950	101,750	12,490	7,410
	64 ShD		0.10	0.8	84,720	162,800	17,490	10,380
48	52 ShD	+1.4/-1.0	0.14	0.9	64,140	128,530	11,480	8,230
	64 ShD		0.10	0.8	102,620	205,640	16,070	11,520
55	52 ShD		0.14	0.9	87,500	198,940	12,240	9,830
	64 ShD		0.10	0.8	140,000	318,300	17,140	13,770
65	52 ShD		0.14	0.9	110,350	295,200	14,000	14,820
	64 ShD		0.10	0.8	174,930	472,300	19,600	20,750

The displacement figures may only be used one by one, if they appear simultaneously, they must be limited in proportion. Care should be taken to maintain the distance dimension E accurately in order to allow for axial clearance of the coupling while in operation. Detailed mounting instructions are shown on our homepage www.ktr.com.

Ordering example:

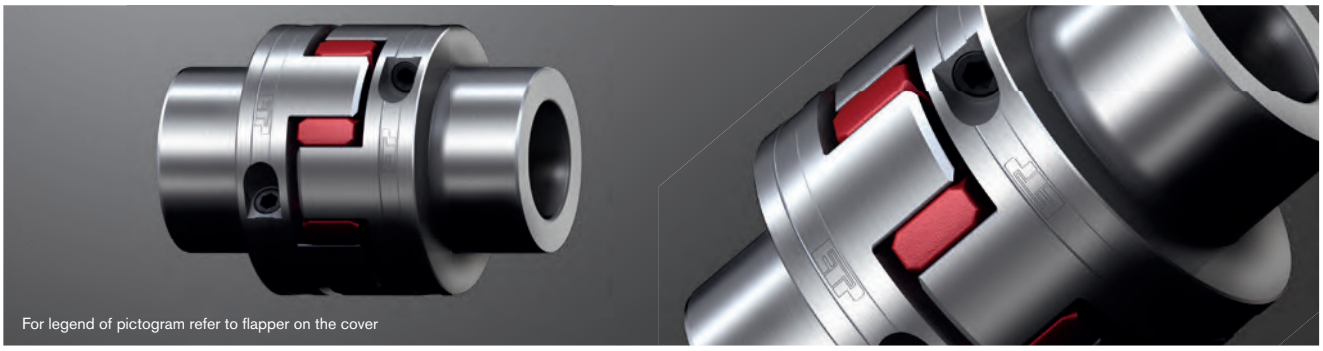
ROTEX® GS 24 HP	98 ShA-GS	d1 6.0 - Ø25		d2 6.0 - Ø25	
Coupling size	Hardness of tooth element	Hub type	Finish bore	Hub type	Finish bore

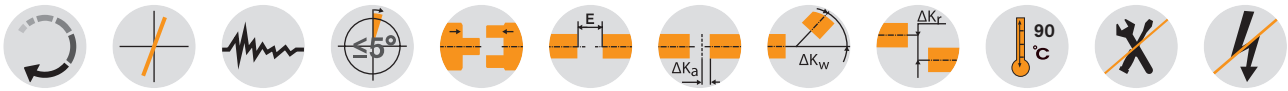
Components

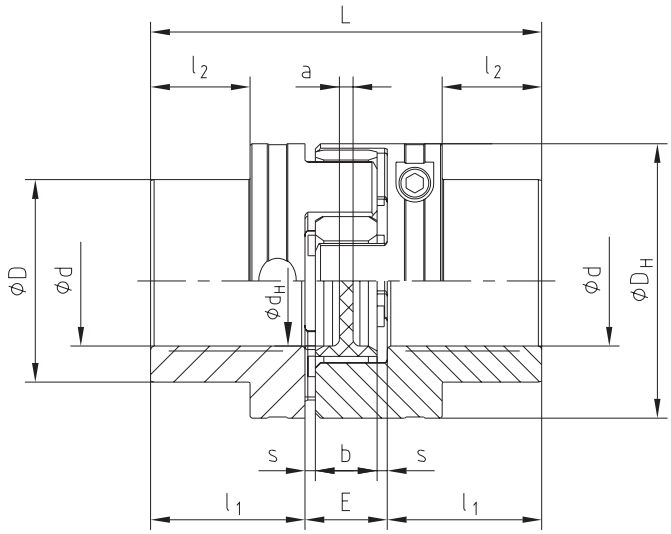

L
N
N
com - ROTEX® GS HP
com - ROTEX® GS HP
ϕD
ϕd1 H6 k6
ϕd2 H6 k6
ϕDH
M
s
b
s
l3
l4
l1
E
l2

ROTEX® GS P ETP®
Backlash-free jaw couplings

Integrated hydraulic clamping system







ROTEX® GS P ETP®																
Size	Spider GS [1] torque T_{KN} [Nm]			Dimensions [mm]										Screw		Weight per hub with max. bore [kg]
	92 ShA	98 ShA	64 ShD	$d_{max.}$	D_H [2]	d_H	L	l_1	l_2	E	b	s	a	M	T_A [Nm]	
24	35	60	75	24	55	27	78	30	16	18	14	2	3	M6	5	0.33
28	95	160	200	32	65	30	90	35	20	20	15	2.5	4	M6	5	0.53
38	190	325	405	40	80	38	114	45	29	24	18	3	4	M6	5	0.98
42	265	450	560	48	95	46	126	50	34	26	20	3.5	4	M6	5	1.51

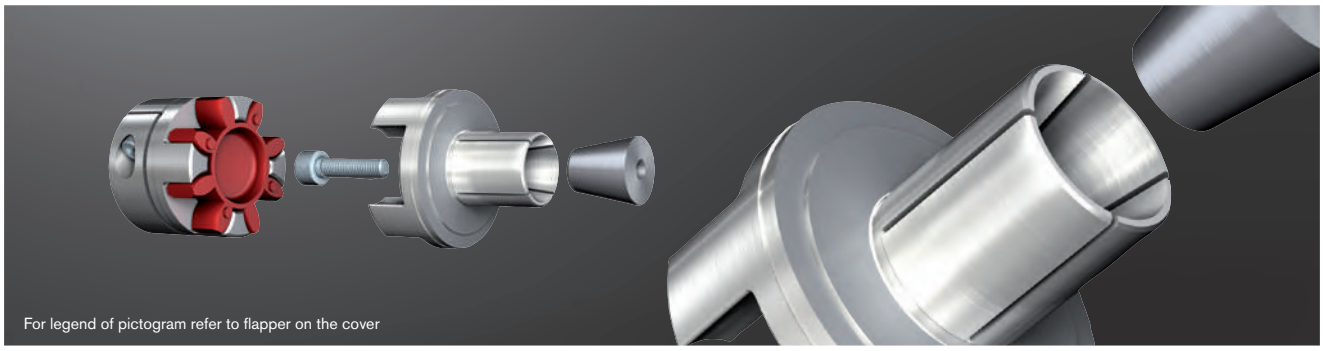
[1] For selections see page 22 et seqq./other spiders see page 121.
[2] $ØD_H$ + 2 mm with high speeds for expansion of spider

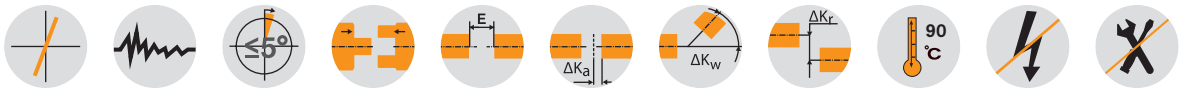
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type ROTEX® GS P ETP®																
Size	Tolerance fit	Bore diameter d/collar diameter D														
		Ø15/ Ø24	Ø16/ Ø26	Ø19/ Ø30	Ø20/ Ø32	Ø24/ Ø39	Ø25/ Ø40	Ø28/ Ø44	Ø30/ Ø47	Ø32/ Ø50	Ø35/ Ø55	Ø38/ Ø59	Ø40/ Ø62	Ø42/ Ø65	Ø45/ Ø70	Ø48/ Ø74
24	F6/h6	42	50	70	80	125										
28		50	60	80	95	150	160	210	230	250						
38						220	230	310	350	380	450	570	610			
42							270	360	410	440	540	660	730	820	940	1100

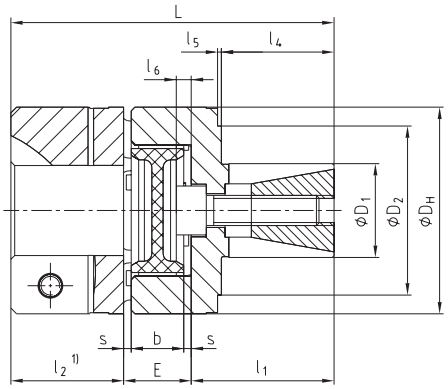
ETP® is a registered trademark by ETP® Transmission AB.

Ordering example:	ROTEX® GS P ETP® 24	98 ShA-GS	d 20	Ø24	Ø20
	Coupling size	Spider hardness	**Optional:** Bore in spider	Finish bore	Finish bore

Clamping system for hollow shaft connection





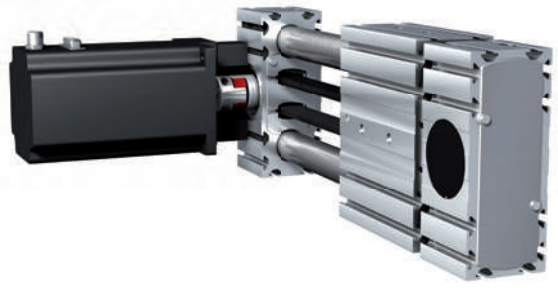


ROTEX® GS expansion hub - Expansion hub material aluminium/clamp pin material stainless steel

Size	Spider GS [2] torque T_{KN} [Nm]					Dimensions [mm]												Friction torque [3] [Nm]
	80 ShA	92 ShA	98 ShA	64 ShD	72 ShD	D_1 [2]	D_2	D_H	l_1 [2]	l_2	l_4 [2]	l_5 [2]	l_6	L	E	b	s	
9	1.8	3.0	5.0	6.0	–	10	–	20	20	10	11	–	0	40	10	8	1.0	6.4
12	3.0	5.0	9.0	12.0	–	10	20	25	19	11	14	1.5	2	42	12	10	1.0	7.7
14	4.0	7.5	12.5	16.0	–	12	24	30	18.5	11	12.5	3	2	42.5	13	10	1.5	7.7
19	6.0	12.0	21.0	26.0	–	20	35	40	28	25	20	1	0	69	16	12	2.0	35.7
24	–	35	60	75	97	25	45	55	38	30	30	1	4	86	18	14	2.0	82.0
28	–	95	160	200	260	35	55	65	44	35	36	1	5	99	20	15	2.5	182.0

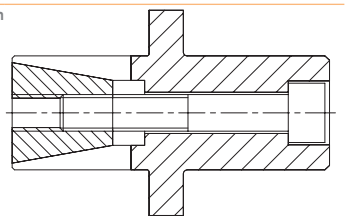
[1] For selections see page 22 et seqq./other spiders see page 121.
[2] Example: Other dimensions on customers' request.
[3] The friction torque applies for the figures D_1, l_1, l_4 and l_5 specified and a hollow shaft material steel.

ROTEX® GS expansion hub for axis of belt

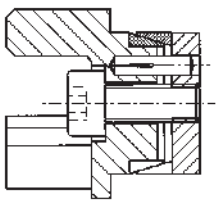


Special types for hollow shaft connections

Shaft extension



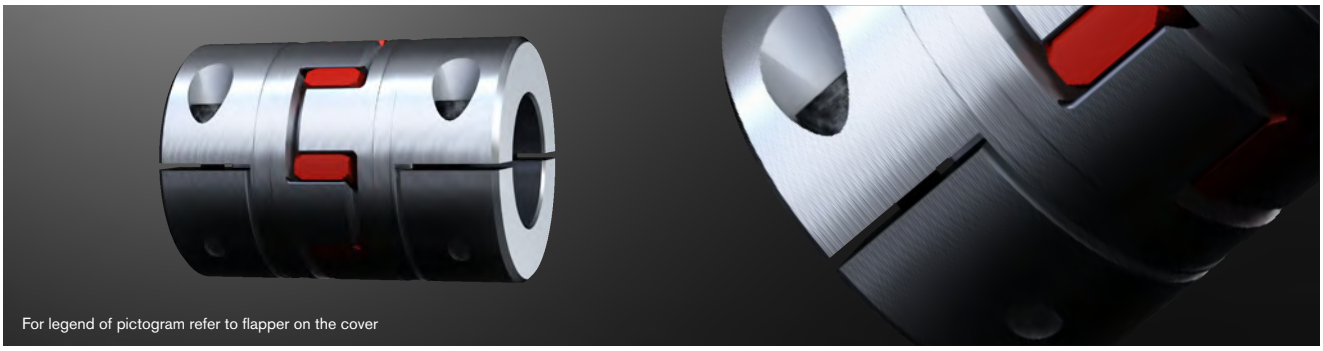
ROTEX® GS hub with CLAMPEX® KTR 150

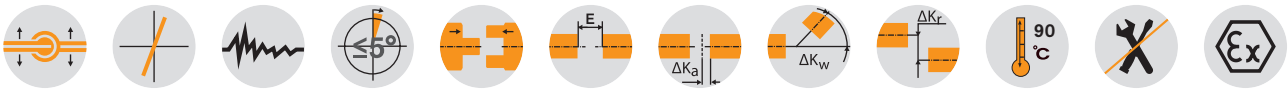


Ordering example:	ROTEX® GS 24	98 ShA-GS	d 20	9.0 – Ø24		2.5 – Ø20	
	Coupling size	Spider hardness	**Optional:** Bore in spider	Hub type	Finish bore	Hub type	Finish bore

ROTEX® GS A-H
Backlash-free jaw couplings

Drop-out center design coupling





ROTEX® GS type A-H - Hub material aluminium												
Size	Dimensions [mm]										Cap screws DIN EN ISO 4762	
	$d_{max.}$	L	l_1, l_2	E	b	s	D_H	DK	x_1, x_2	E_1	M	T_A [Nm]
19	20	66	25	16	12	2.0	40	46	17.5	31	M6	10
24	30	78	30	18	14	2.0	55	57.5	22.0	34	M6	10
28	38	90	35	20	15	2.5	65	73	25.0	40	M8	25
38	45	114	45	24	18	3.0	80	83.5	33.0	48	M8	25
42	50	126	50	26	20	3.0	95	93.5	36.5	48	M10	49

Technical data								
Size	Spider Shore-GS [1]	Shore scale	Max. speed [rpm]	Torque [Nm]		Static torsion spring stiffness [Nm/rad]	Weight per hub with max. bore [kg]	Mass moment of inertia J per hub with max. bore [kgm²]
				T_{KN}	$T_{K\,max}$			
19	80	A	9550	6.0	12.0	618	77 x 10^{-3}	19.6 x 10^{-6}
	92	A		12.0	24.0	1090		
	98	A		21.0	42.0	1512		
	64	D		26.0	52.0	2560		
24	92	A	6950	35	70	2280	161 x 10^{-3}	77.3 x 10^{-6}
	98	A		60	120	3640		
	64	D		75	150	5030		
28	92	A	5850	95	190	4080	240 x 10^{-3}	173 x 10^{-6}
	98	A		160	320	6410		
	64	D		200	400	10260		
38	92	A	4750	190	380	6525	470 x 10^{-3}	496 x 10^{-6}
	98	A		325	650	11800		
	64	D		405	810	26300		
42	92	A	4000	265	530	10870	1770 x 10^{-3}	2409 x 10^{-6}
	98	A		450	900	21594		
	64	D		560	1120	36860		

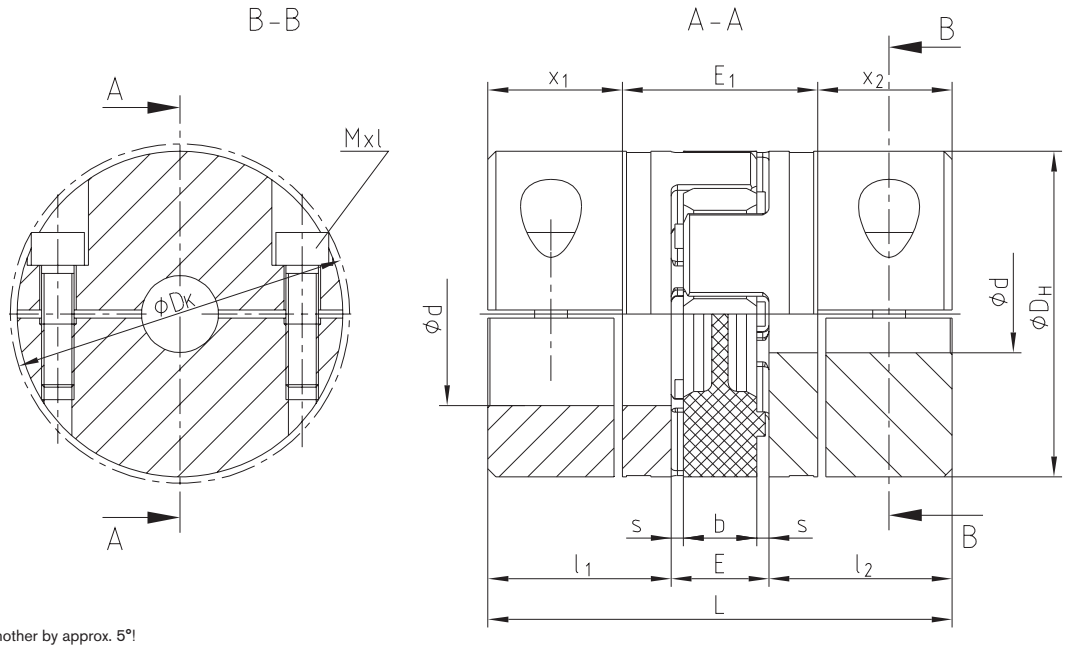
[1] For selections see page 22 et seqq./other spiders see page 121.
[2] Static torsion spring stiffness with 0.5 x T_{KN}
To make sure that the coupling can be radially assembled/disassembled, observe the insertion dimension x1/x2 of the shafts.

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 7.8																							
Size	Ø8	Ø10	Ø11	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø46	Ø48	Ø50
19	17	21	23	30	32	34	38	40	42														
24		21	23	30	32	34	38	40	42	47	51	53	59	63									
28				54	58	62	70	74	78	86	93	97	109	117	124	136	148						
38							70	74	78	86	93	97	109	117	124	136	148	156	163	175			
42										136	149	155	174	186	198	217	235	248	260	279	285	297	310

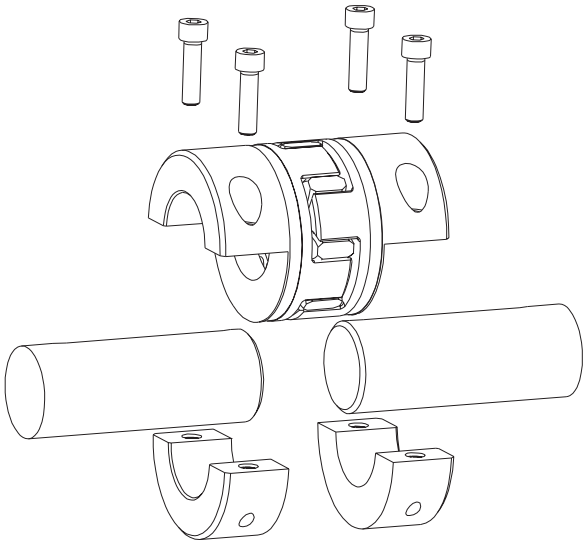
Ordering example:

ROTEX® GS 38	A-H	98 ShA-GS	7.8 – Ø38		7.9 – Ø30	
Coupling size	Type	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

Type A-H

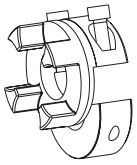


Caution:
Feather keyways are offset to one another by approx. 5°!
Hub material: Al-H



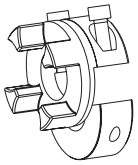
Types of hubs

Type 7.8



clamping hub type H without feather keyway for single-cardanic connection

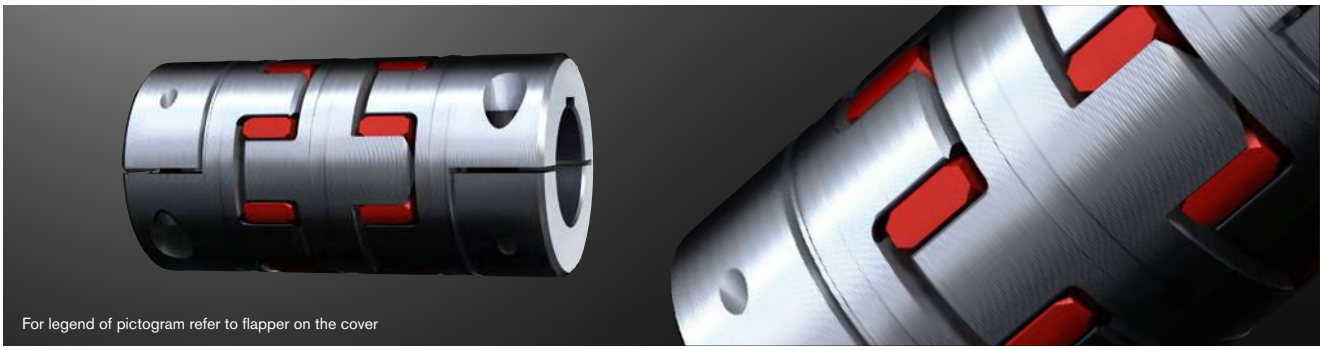
Type 7.9

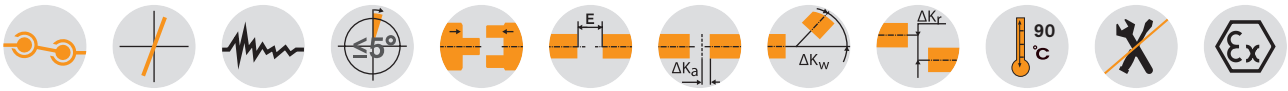


clamping hub type H with feather keyway for single-cardanic connection

ROTEX® GS DKM
Backlash-free jaw couplings

Double-cardanic jaw coupling



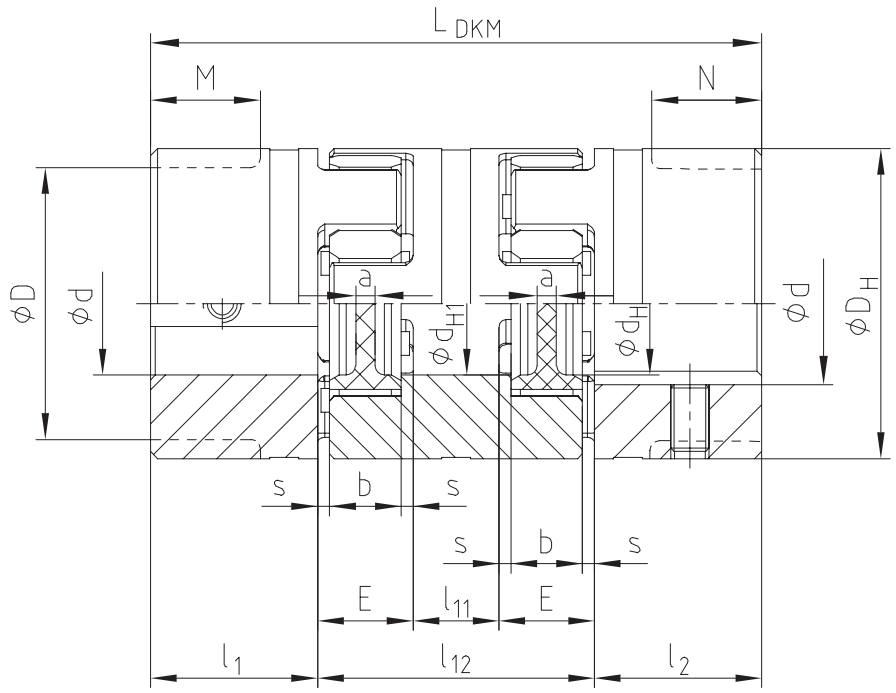


ROTEX® GS DKM - Spacer material aluminium/hub material depends on hub type																
Size	Spider GS [1] torque T_{KN} [Nm]		Dimensions [mm]													
	98 ShA	64 ShD	$d_{max.}$ [2]	D	D_H	d_H	d_{H1}	l_1, l_2	M, N	l_{11}	l_{12}	L_{DKM}	E	b	s	a
5	0.9	—	5	—	10	—	—	5	—	3	13	23	5	4	0.5	4.0
7	2.0	2.4	7	—	14	—	—	7	—	4	20	34	8	6	1.0	6.0
9	5.0	6.0	11	—	20	7.2	—	10	—	5	25	45	10	8	1.0	1.5
12	9.0	12.0	12	—	25	8.5	—	11	—	6	30	52	12	10	1.0	3.5
14	12.5	16.0	16	—	30	10.5	—	11	—	8	34	56	13	10	1.5	2.0
19	21.0	26.0	24	—	40	18.0	18	25	—	10	42	92	16	12	2.0	3.0
24	60	75	30	—	55	27.0	27	30	—	16	52	112	18	14	2.0	3.0
28	160	200	38	—	65	30.0	30	35	—	18	58	128	20	15	2.5	4.0
38	325	405	45	—	80	38.0	38	45	—	20	68	158	24	18	3.0	4.0
42	450	560	55	85	95	46	46	50	28	22	74	174	26	20	3.0	4.0
48	525	655	62	95	105	51	51	56	32	24	80	192	28	21	3.5	4.0
55	685	825	74	110	120	60	60	65	37	28	88	218	30	22	4.0	4.5

[1] For selections see page 22 et seqq./other spiders see page 121.
[2] Dependent on hub type. Hub types can be freely selected, for summary see page 126.

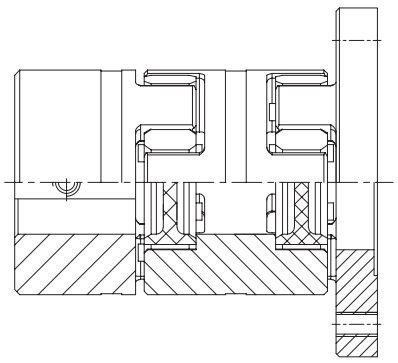
Ordering example:

ROTEX® GS 24	DKM	98 ShA-GS	d 25	1.0 - Ø25		2.5 - Ø25	
Coupling size	Type	Spider hardness	**Optional:** Bore in spider	Hub type	Finish bore	Hub type	Finish bore

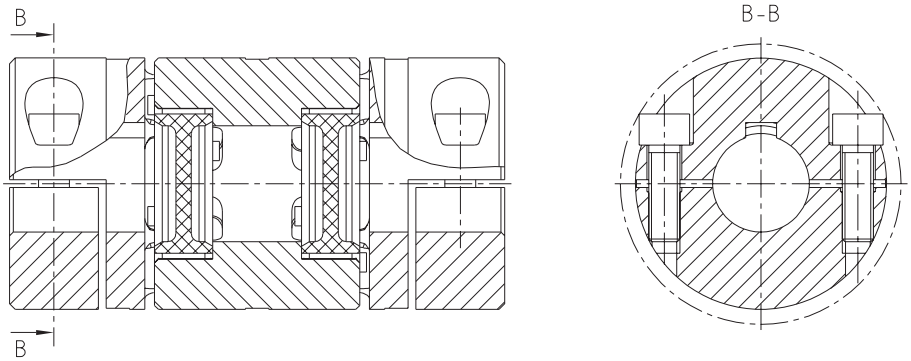


Other types:

ROTEX® GS - CF - DKM

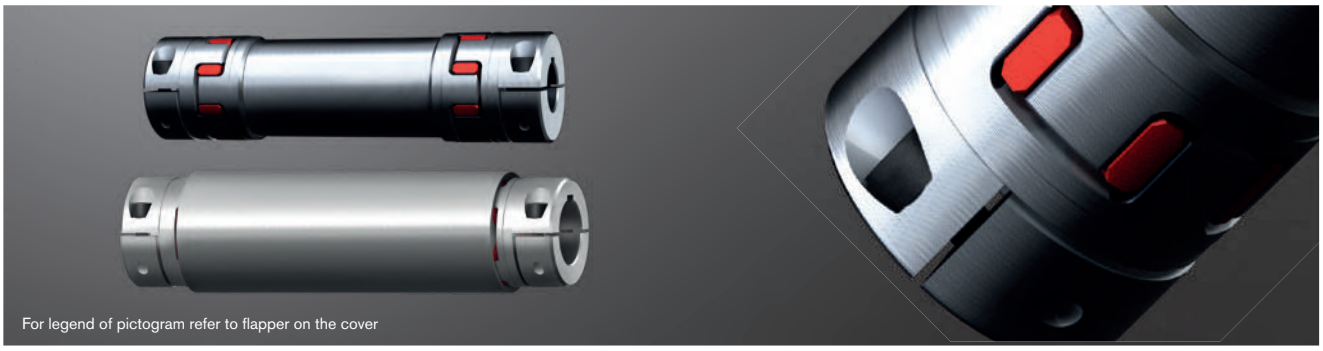


ROTEX® GS DKM-H



ROTEX® GS ZR3 and ZRS
Backlash-free intermediate shaft couplings

Intermediate shaft coupling with aluminium pipe



ROTEX® GS Type ZR3 - Hub material aluminium/intermediate pipe material aluminium

Size	Dimensions [mm]															
	$d_{max.}$	D_H	l_1	L	l_3	E	L_R		$L_{ZR} = L_R + 2 \bullet l_3$		d_R	DK	t_1	e	Cap screws DIN EN ISO 4762	
							min.	Max.	min.	Max.					M	T_A [Nm]
14	15	30	18.5	36.0	14.5	13	72	2971	101	3000	28	33.3	7.5	10.5	M4	2.9
19	20	40	25	49.0	17.5	16	98	2965	133	3000	40	46	8.0	14.5	M6	10
24	30	55	30	59.0	22.0	18	121	3456	165	3500	50	57.5	10.5	20	M6	10
28	38	65	35	67.0	25.0	20	137	3950	187	4000	60	73	11.5	25	M8	25
38	45	80	45	83.5	33.0	24	169	3934	235	4000	70	83.5	15.5	30	M8	25
42	50	95	50	93.0	36.5	26	180	3927	253	4000	80	93.5	18.0	32	M10	49
48	55	105	56	100.0	39.5	28	202	3921	281	4000	100	105	18.5	36	M12	86

Technical data of type ZR3

Size	Spider GS [1] torque T_{KN} [Nm]		Moment of inertia [10^{-3} kgm²]			Static torsion spring stiffness [3] [Nm/rad]
	98 ShA	64 ShD	Hub [2]	ZR hub	Pipe/meter	ZW C_2
14	12.5	16.0	0.00362	0.00238	0.088	858
19	21.0	26.0	0.02002	0.01304	0.329	3243.6
24	60.0	75.0	0.07625	0.04481	0.673	6631.8
28	160	200	0.17629	0.10950	1.199	11814.1
38	325	405	0.50385	0.2572	2.972	29290.4
42	450	560	1.12166	0.5523	4.560	44929.7
48	525	655	1.87044	1.1834	9.251	91158.2

[1] For selections see page 22 et seqq./other spiders see page 121.
[2] With $d_{max.}$
[3] Torsion spring stiffness with a length of 1 m of intermediate pipe with $L_{pipe} = L_{ZR} - 2 \cdot L$

For inquiries and orders please specify the shaft distance dimension L_R along with the maximum speed to review the critical bending speed. See diagramme on page 125.
The intermediate pipe can be combined with other hub types, but in that case it can no longer be radially disassembled. Please specify the required shaft distance dimension in your order.
Straightness/concentricity of pipes according to DIN EN 755-1.

ROTEX® type ZRS

Size	Dimensions [mm]								Intermediate pipe Torsion spring stiffness C [4]	Cap screws DIN EN ISO 4762		LZRS	min. L_R
	$d_{min.} - d_{max.}$	DH	l_1, l_2	l3	t1	e	DK	DH1	[Nm/rad]	M	Tightening torque T_A [Nm]		
19	0 - 20	40	25	17.5	8.0	14.5	46.0	45	3800	M6	10		33
24	0 - 24	55	30	22.0	15.0	20.0	57.5	60	11100	M6	10		37
28	0 - 38	65	35	25.0	17.5	25.0	73.0	72	23600	M8	25	$L_{ZRS} = L_R + 2 \times l_3$	40
38	24 - 45	80	45	33.0	22.5	30.0	83.5	87	43800	M8	25		49
42	24 - 55	95	50	36.5	25.0	30.0	97.0	103	82600	M10	49		53

[4] Torsion spring stiffness with an intermediate pipe length of 1 m

With vertical application a support washer has to be used (please specify in your order).
Insertion dimension of shaft l_3, to make sure the coupling can be radially assembled/disassembled.

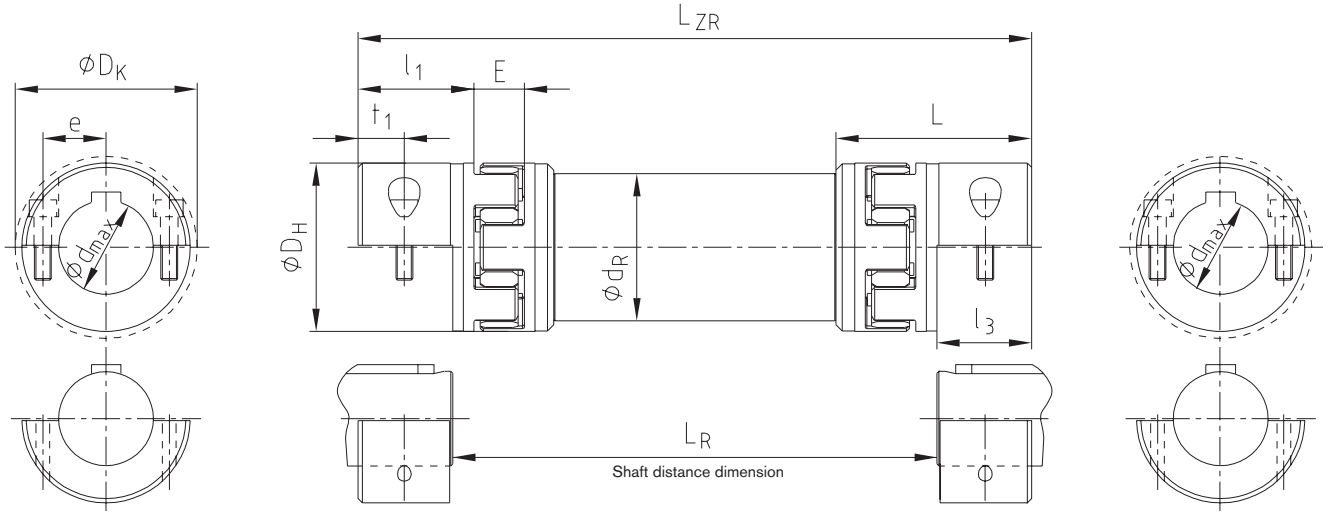
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 7.5

Size	Ø6	Ø8	Ø10	Ø11	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø46	Ø48	Ø50	Ø55
14	5.5	7.4	9.2	10.1	12.9	13.8																			
19		17	21	23	30	32	34	38	40	42															
24			21	23	30	32	34	38	40	42	47	51	53	59	63										
28					54	58	62	70	74	78	86	93	97	109	117	124	136	148							
38								70	74	78	86	93	97	109	117	124	136	148	156	163	175				
42											136	149	155	174	186	198	217	235	248	260	279	285	297	310	
48											199	217	226	253	271	290	317	344	362	380	407	416	434	452	498

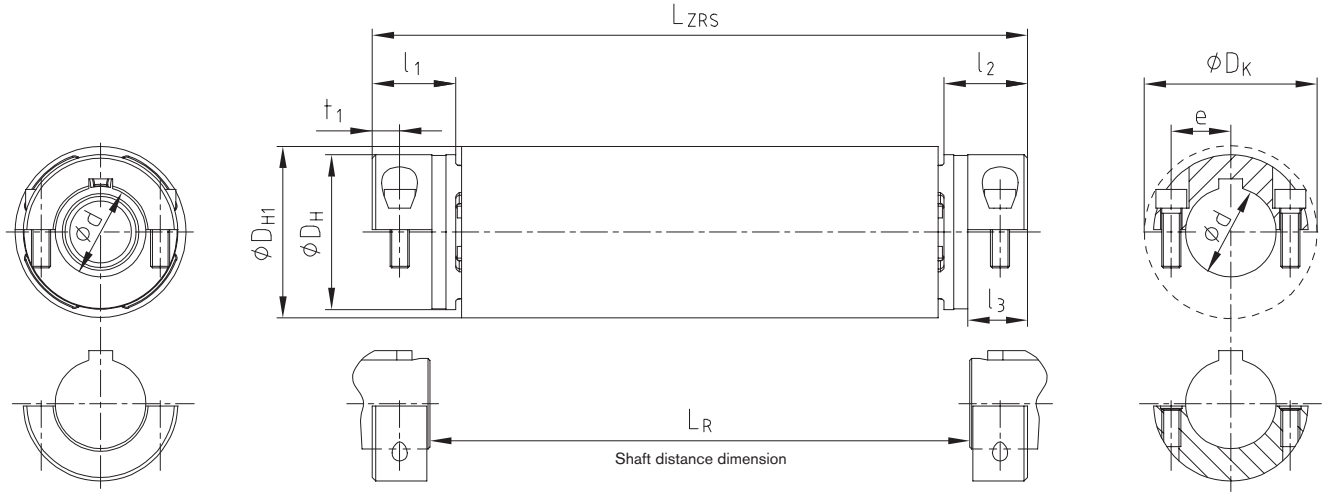
Ordering example:

ROTEX® GS 24	ZR3	1200 mm	98 ShA-GS	7.5 - Ø24		7.5 - Ø24	
Coupling size	Type	Shaft distance dimension (L_R)	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

Type ZR3

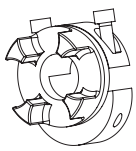


Type ZRS



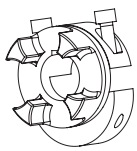
Types of hubs

Type 7.5



Clamping hub type DH without feather keyway for double-cardanic connections

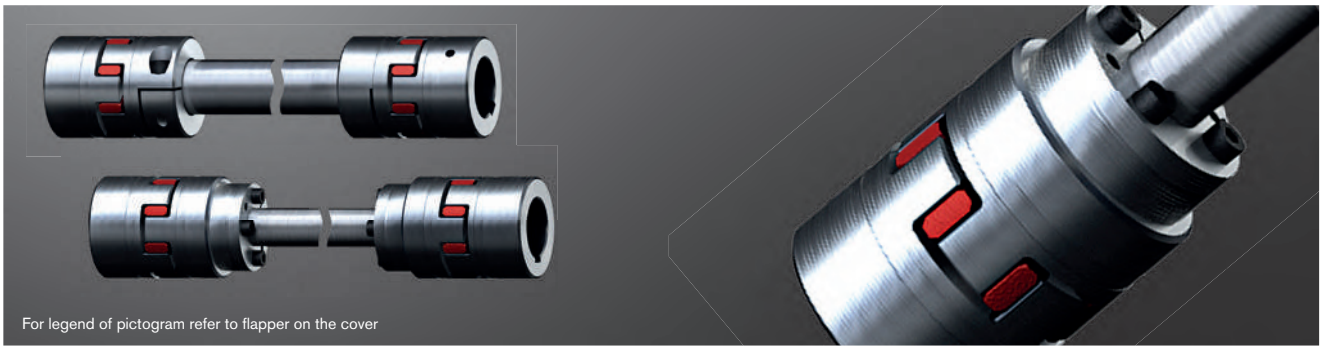
Type 7.6



Clamping hub type DH with feather keyway for double-cardanic connections

ROTEX® GS ZR1 and ZR2
Backlash-free intermediate shaft couplings

Intermediate shaft couplings with steel pipe/steel shaft



ROTEX® GS Type ZR1

Size	Spider GS [1] torque T_{KN} [Nm]		Dimensions [mm]												Cap screws DIN EN ISO 4762		Friction torque T_R [Nm]
	98 ShA	64 ShD	$d_{max.}$ [2]	D_H	l_1, l_2	L	E	b	s	B	L_{R1}	Minimum dimension for L_{R1}	L_{ZR1}	d_R [3]	M	T_A [Nm]	
14 ZR1	12.5	16.0	16	30	11	35	13	10	1.5	11.5	Please specify with inquiries and orders.	71	L_{R1}+22	14x2.5	M3	1.34	6.1
19 ZR1	21.0	26.0	24	40	25	66	16	12	2.0	14.0		110	L_{R1}+50	20x3.0	M6	10.5	34
24 ZR1	60	75	28	55	30	78	18	14	2.0	16.0		128	L_{R1}+60	25x2.5	M6	10.5	45
28 ZR1	160	200	38	65	35	90	20	15	2.5	17.5		145	L_{R1}+70	35x4.0	M8	25	105
38 ZR1	325	405	45	80	45	114	24	18	3.0	21.0		180	L_{R1}+90	40x4.0	M8	25	123

ROTEX® GS Type ZR2

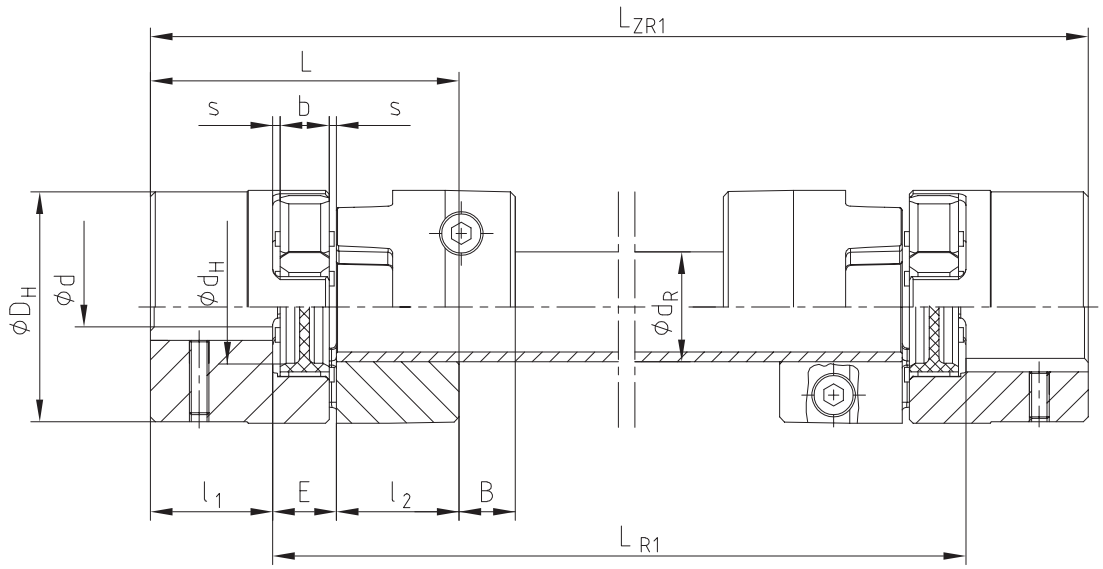
Size	Spider GS [1] torque T_{KN} [Nm]		Dimensions [mm]												Precision tube		Clamping set size KTR 250	Clamping screws DIN EN ISO 4762	Tightening torque T_A [Nm]
	98 ShA	64 ShD	dmax. [2]	D_H	l_1, l_2	l_3	L	E	b	s	B	L_{R2}	Minimum dimension for L_{R2}	L_{ZR2}	d_R [3] [mm]	C_2 [4] [Nm/rad]	dxD	M	
14 ZR2	12.5	16.0	16	30	11	26	50	13	10	1.5	11.5	Please specify with inquiries and orders.	109	L_{R2}+22	10x2.0	68.36	10x16	M4	5.6
19 ZR2	21.0	26.0	24	40	25	26	67	16	12	2.0	14.0		120	L_{R2}+50	12x2.0	130	12x18	M4	5.6
24 ZR2	60	75	28	55	30	38	86	18	14	2.0	16.0		156	L_{R2}+60	20x3.0	954.9	20x28	M6	17.0
28 ZR2	160	200	38	65	35	45	100	20	15	2.5	17.5		177	L_{R2}+70	25x2.5	1811	25x34	M6	17.0
38 ZR2	325	405	45	80	45	45	114	24	18	3.0	21.0		192	L_{R2}+90	32x3.5	5167	32x43	M6	17.0
42 ZR2	450	560	55	95	50	52	128	26	20	3.0	23.0		214	L_{R2}+100	40x4.0	11870	40x53	M6	17.0
48 ZR2	525	655	62	105	56	70	154	28	21	3.5	24.5		261	L_{R2}+112	45x4.0	17486	45x59	M8	41.0
55 ZR2	685	825	74	120	65	80	175	30	22	4.0	26.0		288	L_{R2}+130	55x4.0	33543	55x71	M8	41.0
65 ZR2	940	1175	80	135	75	80	185	35	26	4.5	30.5		387	L_{R2}+150	60x4.0	44362	60x77	M8	41.0

[1] For selections see page 22 et seqq./other spiders see page 121.
[2] Dependent on hub type. Hub types can be freely selected, for summary see page 126.
[3] Has to be remachined, if necessary.
[4] Torsion spring stiffness with a length of 1 m of intermediate pipe.
For inquiries and orders please specify the shaft distance dimension L_{R1}/L_{R2} along with the maximum speed to review the critical bending speed.
With vertical application a support washer has to be used (please specify in your order).
Straightness/concentricity of pipes according to DIN EN 10305-1.

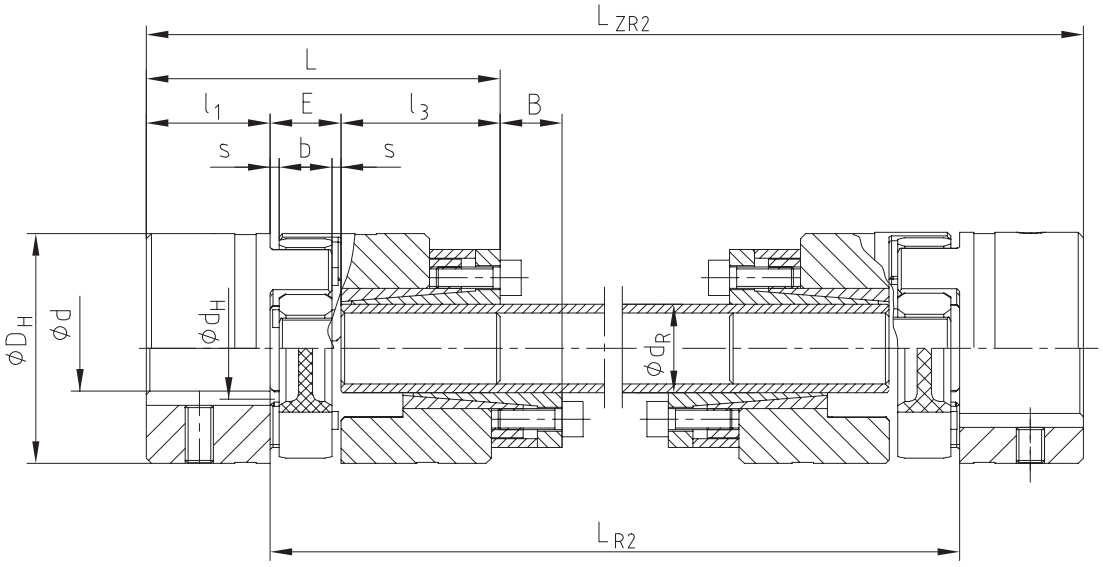
Ordering example:

ROTEX® GS 24	ZR1	1000 mm	98 ShA-GS	1.0 - Ø24		2.5 - Ø24	
Coupling size	Type	Shaft distance dimension (L_{R1}/L_{R2})	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

Type ZR1

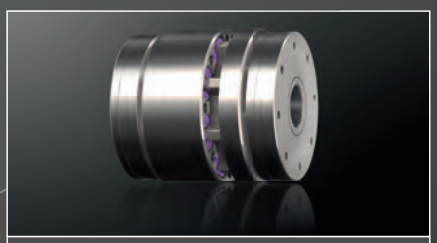


Type ZR2



Wide range for your application

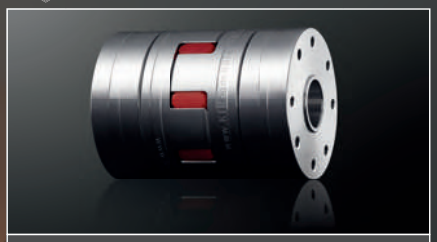
ROTEX® GS



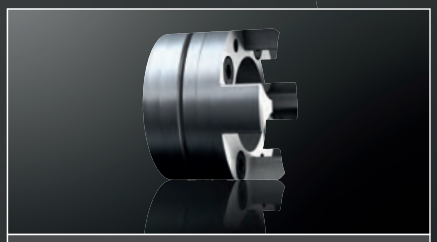
ROTEX® GS HP

ROTEX® GS miniature coupling

ROTEX® GS Compact



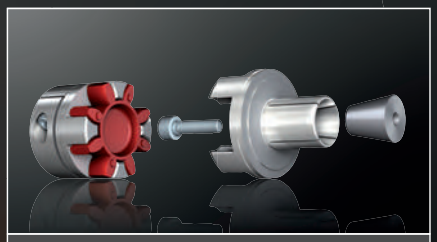
ROTEX® GS clamping ring hubs light



ROTEX® GS clamping ring hubs steel

ROTEX® GS P acc. to DIN 69002

ROTEX® GS P ETP



ROTEX® GS expansion hub

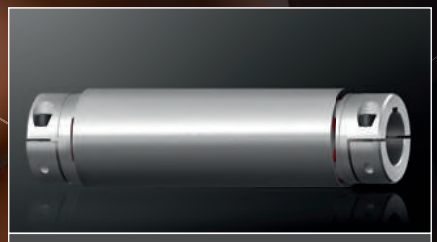
ROTEX® GS A-H

ROTEX® GS DKM

ROTEX® GS ZR1

ROTEX® GS ZR2

ROTEX® GS ZR3



ROTEX® GS ZRS

Low-cost, backlash-free servo couplings – easy and quick assembly

ROTEX® GS is a three-part servo coupling backlash-free under prestress (elastomer coupling). The various hub versions and different kinds of Shore hardness provide the optimum coupling for each application in automation technology.

This servo coupling is applied wherever drives need to position precisely. In spite of its vibration-damping properties the coupling is torsionally stiff so that you do not have to cut back on precision even with highly dynamic servo drives. The ROTEX® GS backlash-free elastomer couplings allow for simultaneous compensation of radial, axial and angular displacements. The backlash-free servo coupling ROTEX® GS operates with the construction kit system; it is available in a large number of various hub types that can be combined with each other within one coupling size.

The selection of the hub material depends on the size and it is composed of either aluminium or steel. Both frictionally engaged connections without feather keyway and positive-locking connections with feather keyway are available.

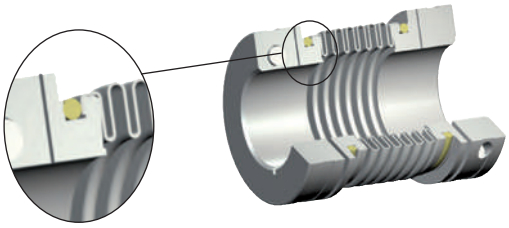
Applications of the servo coupling ROTEX® GS

Couplings for machine tools, automation technology, drive technology, medical technology, packaging technology.

TOOLFLEX®
Metal bellow-type couplings

Technical description

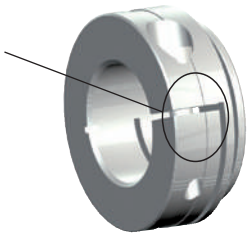
TOOLFLEX® is a metal bellow-type coupling, a coupling system which has proven in the field with numerous applications. The metal bellow optimally compensates for axial, radial and angular displacements. At the same time its geometric shape allows for high torsional stiffness and a low mass moment of inertia. TOOLFLEX® is manufactured in twelve sizes for maximum torques up to 600 Nm.
Its main application ranges are both positioning drives, e. g. ball spindles with a high pitch, and indexing tables or planetary and worm gears with small gear ratios.



Subject to its proven bonding technique a non-positive, backlash-free connection of the aluminium hubs with the multilayer bellows made of stainless steel is generated. The flanged insert connection for sizes 16 to 55 ensures torque transmission of every single bellow layer. Since TOOLFLEX® is a metal coupling, it remains fatigue-endurable in the high-temperature range up to a maximum of 200 °C. Apart from that it is resistant to the effect of media respectively critical operating conditions.

The renowned shaft-hub-connection made by clamping hubs ensures an easy assembly by a radial clamping screw.
Subject to two slots in the hub there is no deformation of the bellow when tightening the clamping screw.
For higher friction torques type KN with taper hubs can be used.

Double slotted clamping hub



Types

Type with setscrew

Type with clamping hubs

Type S-H / M-H

Type ZR

Type PI

Type KN

Type CF

Summary

Size	Type	Bel-low-hub-con-nection	Torque of bellow [Nm]		Standard types					Special types	
					Max. speed [rpm]						
			T_{KN} [Nm]	$T_{K\,max}$ [Nm]	Setscrew 1.0 / 1.1	Clamping hubs 2.5 / 2.6	S-H / M-H 7.8 / 7.9	ZR 7.5 / 7.6	PI	KN 6.5	CF
5	S	Bonded Maximum ambient temperature 100 °C	0.1	0.15	47,700						
	M										
7	S		1	1.5	31,800	31,800					
	M										
9	S		1.5	2.25	23,800	23,800					
	M										
12	S		2	3	19,000	19,100					
	M										
16	S	Flanged Maximum ambient temperature 200 °C	5	7.5	14,900	14,900					
	M										
20	S		15	22.5	11,900	11,900	9,550	3,000	11,900		
	M										
30	S		35	52.5		8,700	6,950	3,000	8,700	15,280	8,700
	M										
38	S		65	97.5		7,350	5,850	3,000	7,350	12,600	7,350
	M										
42	S		95	142.5		6,820			6,820	11,580	6,820
	M										
45	S		170	255		5,750	4,750	3,000	5,750	9,300	5,750
	M										
55 Al	S		340	510		4,800					
	M										
55	S	Welded Maximum ambient temperature 200 °C	340	510		4,800			4,800	7,870	
	M										
65	S		600	900		3,850					
	M										

Types of hubs

Due to the use of TOOLFLEX® for many different applications and mounting conditions, this coupling system is available with various hub types and two different lengths of bellows. A combination of the components forms a type.
TOOLFLEX® is supplied as a complete unit; a supply of individual components is not possible.

Type 1.0
with feather keyway and setscrew

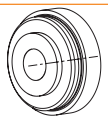
Positive-locking power transmission. Permissible torque depending on the permissible surface pressure. Not suitable for backlash-free power transmission with heavily reversing operation.

Type 1.1
without feather keyway, with setscrew

Non-positive torque transmission. Suitable for backlash-free transmission of very low torques.

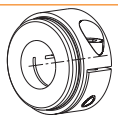
Type 1.3
with spline bore

Positive-locking power transmission. Spline on request of customers (e. g. for shaft with flattening).



Type 1.2
without feather keyway, without setscrew

For low torques. Suitable for bonding or pressing of the shaft.



Type 2.5 clamping hub
double slotted, without feather keyway

Frictionally engaged, backlash-free shaft-hub-connection. Transmittable torques depending on bore diameter.

Type 2.6 clamping hub
double slotted, with feather keyway

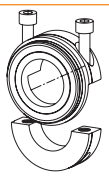
Positive-locking power transmission with additional friction fit. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.

Type 7.5 clamping hub type DH
without feather keyway for double-cardanic connection

Frictionally engaged, backlash-free shaft-hub-connection for radial assembly of coupling. Transmittable torques depending on bore diameter.

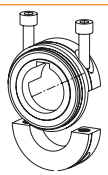
Type 7.6 clamping hub type DH
with feather keyway for double-cardanic connection

Positive-locking power transmission with additional friction fit for radial assembly of coupling. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.



Type 7.8 clamping hub type H
without feather keyway for single-cardanic connection

Frictionally engaged, backlash-free shaft-hub-connection for radial assembly of coupling. Transmittable torques depending on bore diameter.

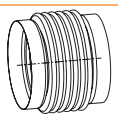


Type 7.9 clamping hub type H
with feather keyway for single-cardanic connection

Positive-locking power transmission with additional friction fit for radial assembly of coupling. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.

Bellow type S

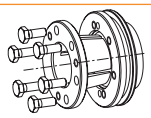
Bellow with 4 layers made of stainless steel; compact design with high torsion spring stiffness.



Bellow type M

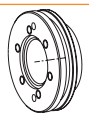
Bellow with 6 layers made of stainless steel; realizing large shaft distance dimensions and displacements.

Special designs on request of customers



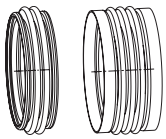
Type 6.5 taper hub KN

Integrated frictionally engaged shaft-hub-connection for the transmission of higher torques in the area of the shaft-hub-connection.



Flange

Flange to connect to customer's component. Special dimensions on request.

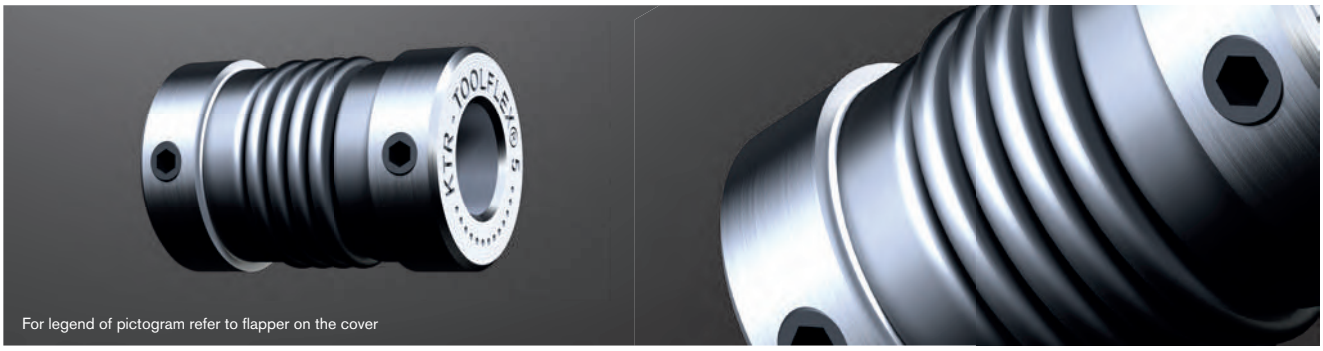


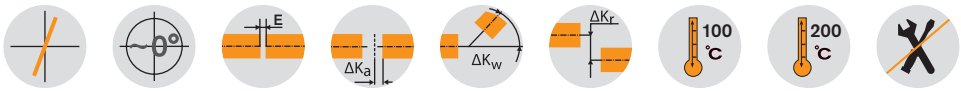
Special bellows

Bellows with 1, 2 or 3 layers available on request.

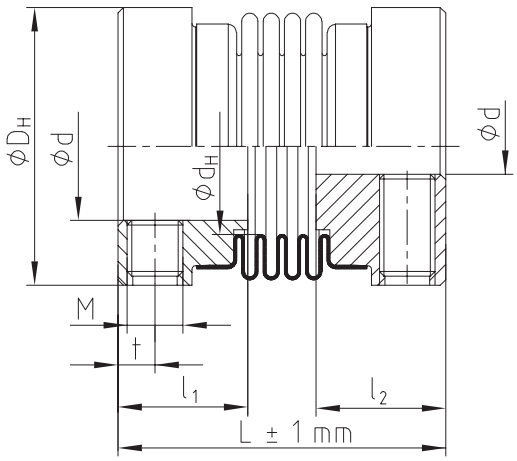
TOOLFLEX® S
Metal bellow-type couplings

Type S: Hubs with setscrews





TOOLFLEX® S type 1.1



TOOLFLEX® S with setscrew (type 1.1) - Hub material aluminium/bellow material stainless steel

Size	Bellow-hub-connection	Torque of bellow T_{KN} [1] [Nm]	Max. speed [rpm]	Dimensions [mm]									Perm. displacements			Torsion spring stiffness C_T [Nm/rad]	Weight [3] [kg]
				Finish bore d		General				Setscrew							
				min.	Max.	D_H	d_H	L	l_1, l_2	M	t	z = number [2]	Axial [mm]	Radial [mm]	Angular [degree]		
5		0.1	47700	2	5	10	6	15	6	M2	1.8	1	±0.30	0.10	0.7	97	0.0027
7	[4]	1.0	31800	3	8	15	9	18	7	M3	2.0	1	±0.30	0.10	0.7	390	0.005
9		1.5	23800	3	10	20	12	21	8	M3	2.2	2	±0.35	0.15	1.0	750	0.010
12		2.0	19000	4	14	25	16	27.5	11	M4	2.8	2	±0.40	0.15	1.0	1270	0.017
16	[5]	5.0	14900	5	18	32	20	37	13	M5	4	2	±0.30	0.15	1.0	4500	0.046
20		15	11900	6	25	40	27	42	15	M5	5	2	±0.40	0.15	1.0	9600	0.076

[1] For selection see page 22 et seqq.
[2] Number per hub; from size 9: 2 x 120° offset.
[3] Figures refer to the complete coupling with max. bore.
[4] Bonded
[5] Flanged

Types of hubs

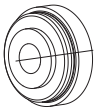
Type 1.0

Hub with feather keyway and setscrew

Type 1.1

Hub without feather keyway, with setscrew

Type 1.2



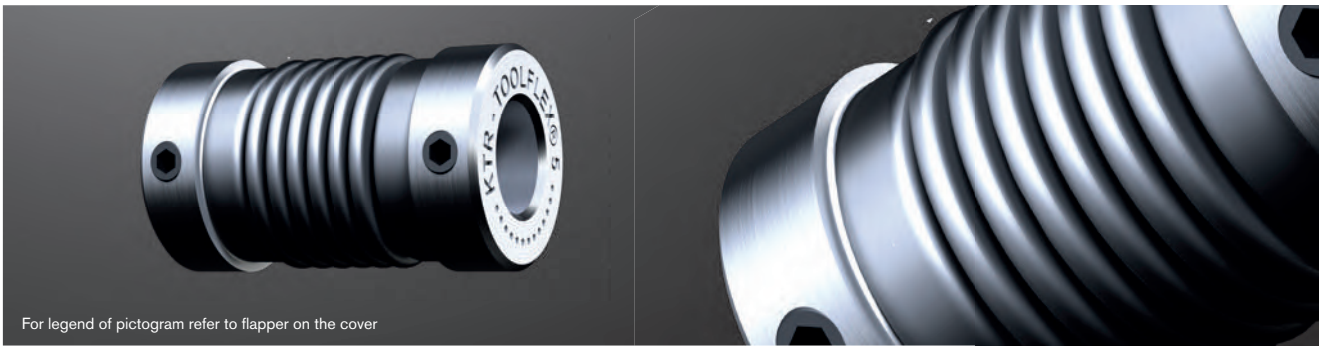
Hub without feather keyway, without setscrew

Type 1.3

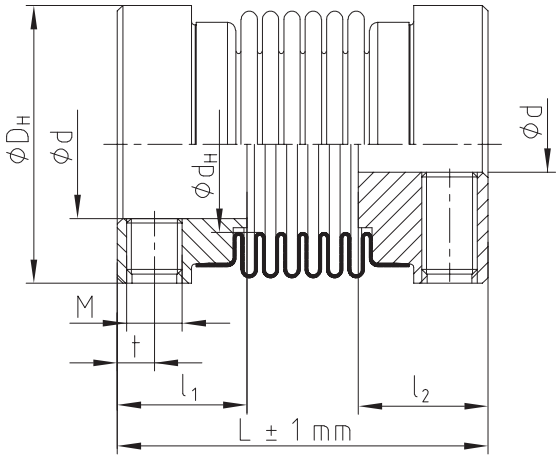
Hub with spline bore

Ordering example:	TOOLFLEX® 7 S	1.1 - Ø4		1.1 - Ø6	
	Size and type of coupling	Hub type	Finish bore	Hub type	Finish bore

Type M: Hubs with setscrews



TOOLFLEX® M type 1.1



TOOLFLEX® M with setscrew (type 1.1) - Hub material aluminium/bellow material stainless steel

Size	Bellow-hub-connection	Torque of bellow T_{KN} [1] [Nm]	Max. speed [rpm]	Dimensions [mm]									Perm. displacements			Torsion spring stiffness C_T [Nm/rad]	Weight [3] [kg]
				Finish bore d		General				Setscrew							
				min.	Max.	D_H	d_H	L	l_1, l_2	M	t	z = number [2]	Axial [mm]	Radial [mm]	Angular [degree]		
5		0.1	47700	2	5	10	6	17	6	M2	1.8	1	±0.40	0.15	1.0	75	0.003
7	[4]	1.0	31800	3	8	15	9	20	7	M3	2.0	1	±0.40	0.15	1.0	300	0.006
9		1.5	23800	3	10	20	12	24	8	M3	2.2	2	±0.50	0.20	1.5	580	0.011
12		2.0	19000	4	14	25	16	31	11	M4	2.8	2	±0.60	0.20	1.5	980	0.019
16	[5]	5.0	14900	5	18	32	20	41	13	M5	4	2	±0.50	0.20	1.5	3050	0.049
20		15	11900	6	25	40	27	49	15	M5	5	2	±0.60	0.20	1.5	6600	0.082

[1] For selection see page 22 et seqq.
[2] Number per hub; from size 9: 2 x 120° offset.
[3] Figures refer to the complete coupling with max. bore.
[4] Bonded
[5] Flanged

Types of hubs

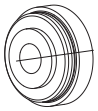
Type 1.0

Hub with feather keyway and setscrew

Type 1.1

Hub without feather keyway, with setscrew

Type 1.2



Hub without feather keyway, without setscrew

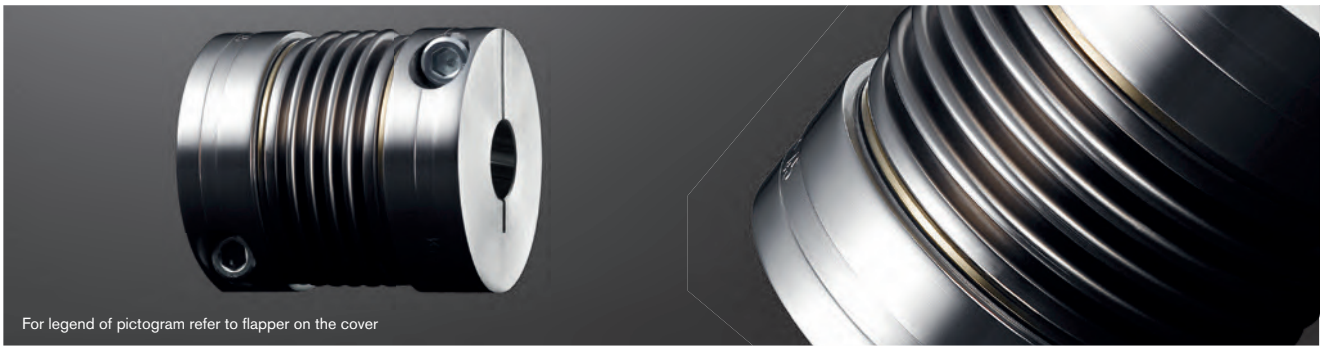
Type 1.3

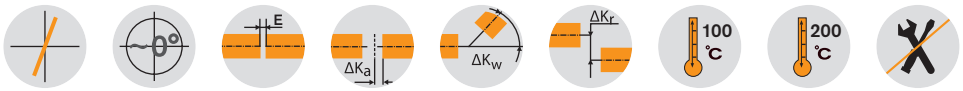
Hub with spline bore

Ordering example:	TOOLFLEX® 7 M	1.1 - Ø4		1.1 - Ø6	
	Size and type of coupling	Hub type	Finish bore	Hub type	Finish bore

TOOLFLEX® S
Metal bellow-type couplings

Type S: with clamping hubs





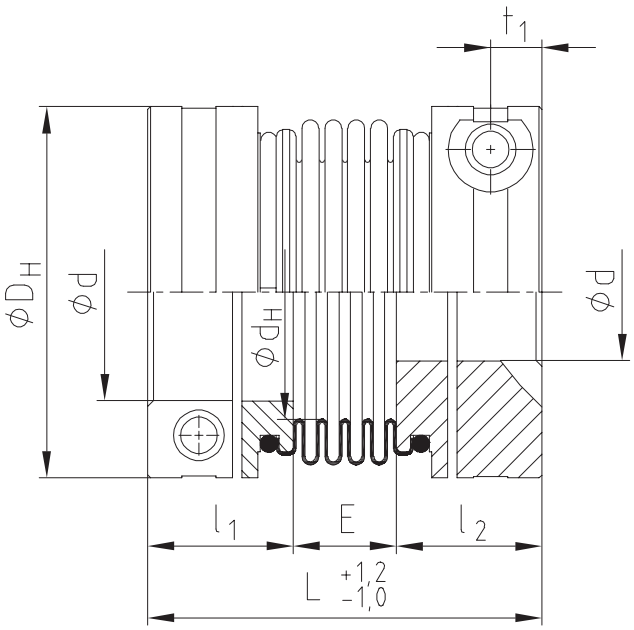
TOOLFLEX® Type S with clamping hubs - Hub material aluminium (size 55/65 steel)/bellow material stainless steel												
Size	Dimensions [mm]											
	Finish bore d		General					Clamping screws DIN EN ISO 4762				
	min.	Max.	L	l_1, l_2	E	D_H	d_H	M_1	DK	t_1	e_1	T_A [Nm]
7	3	7	24	9	6	15	9	M2	16.5	3.2	5	0.37
9	3	9	29	11	7	20	12	M2.5	21.5	3.5	7.1	0.76
12	4	12	34.5	13	8.5	25	16	M3	26.5	4	8.5	1.34
16	5	16	45	17.0	11	32	20	M4	35.0	5	12.0	2.9
20	8	20	55	21.5	12	40	27	M5	43.5	6	14.5	6
30	10	30	63	23.0	17	55	33	M6	58.0	7	19	10
38	12	38	69	25.5	18	65	42	M8	72.6	9	25	25
42	14	42	84	30.0	24	70	46	M8	76.1	9	27	25
45	14	45	86.5	32.0	22.5	83	58	M10	89.0	11	30	49
55 Al	20	55	111	40.0	31	100	73	M12	106.0	14	37	86
55 [3]	20	55	111	40.0	31	100	73	M12	106.0	14	37	120
65 [3]	30	65	126	45.0	36	125	95	M14	127.2	15	45	190

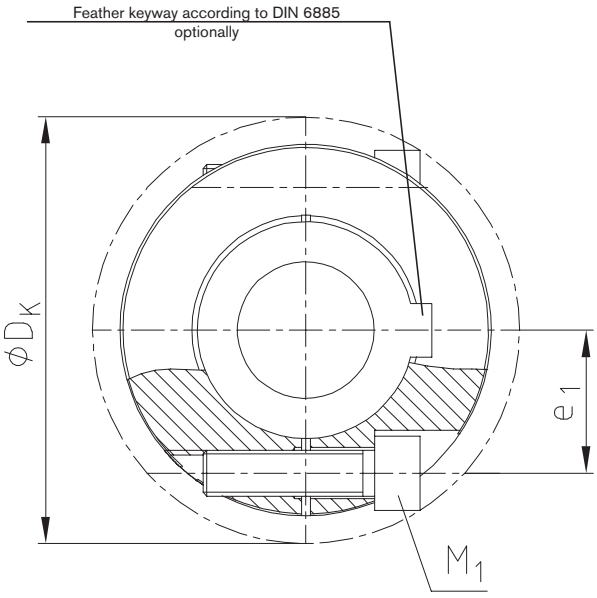
Technical data												
Size	Bellow-hub-connection	Torque of bellow T_{KN} [1] [Nm]	Max. speed [rpm]	Hub material	Moment of inertia [2] [x10^{-6}kgm^2]	Torsion spring stiffness C_T [Nm/rad]	Axial stiffness C_a [N/mm]	Radial stiffness C_r [N/mm]	Perm. displacements			Weight [2] [kg]
									Axial [mm]	Radial [mm]	Angular [degree]	
7	Bonded	1	31800	Aluminium	0.26	390	—	—	±0.3	0.10	0.7	0.007
9		1.5	23800	Aluminium	0.97	750	—	—	±0.35	0.15	1.0	0.014
12		2	19100	Aluminium	2.6	1270	—	—	±0.4	0.15	1.0	0.025
16	Flanged	5	14900	Aluminium	9	4500	43	138	±0.3	0.15	1.0	0.06
20		15	11950	Aluminium	30	9600	63	189	±0.4	0.15	1.0	0.12
30		35	8700	Aluminium	114	17800	97	233	±0.5	0.20	1.5	0.24
38		65	7350	Aluminium	245	37400	108	318	±0.6	0.20	1.5	0.35
42		95	6820	Aluminium	396	54700	120	499	±0.6	0.20	1.5	0.49
45		170	5750	Aluminium	931	95800	132	738	±0.9	0.20	1.5	0.82
55 Al		340	4800	Aluminium	1665	144100	160	894	±1.1	0.25	1.5	1.50
55 [3]	[3]	340	4800	Steel	4996	144100	160	894	±1.0	0.25	1.5	3.20
65 [3]		600	3850	Steel	13318	322740	212	1365	±1.0	0.30	1.5	5.50

[1] For selection see page 22 et seqq.
[2] Figures refer to the complete coupling with max. bore.
[3] Hub made of steel welded with bellow.

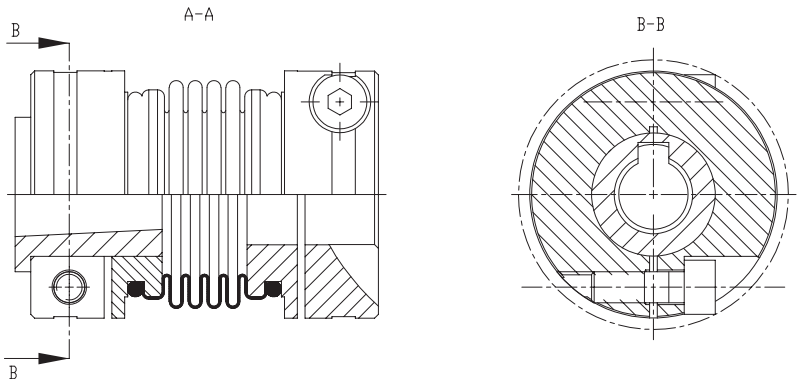
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 2.5																														
Size	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø50	Ø55	Ø60	Ø65
7	0.7	0.9	1.0	1.2	1.4																									
9	1.2	1.5	1.9	2.2	2.5	2.8	3.1																							
12		2.3	2.8	3.3	3.8	4.3	4.8	5.2	5.7	6.1																				
16			5.4	6.4	7.3	8.2	9.1	10.0	10.9	11.7	13.4	14.2	15.0																	
20						13.5	15.0	16.5	18.0	19.3	22.1	23.5	24.8	27.4	28.7	30.0														
30									26	28	32	34	36	40	42	43	51	53	58	61										
38											63	67	71	79	82	86	101	105	115	122	129	139	148							
42											63	67	71	79	83	87	102	106	117	124	130	141	150	157	163					
45																136	160	166	183	194	206	222	238	248	259	274				
55 Al																205	242	251	277	295	312	337	362	378	394	418	457	494		
55 [3]																	341	354	391	416	440	475	510	533	556	589	644	697		
65 [3]																				576	610	660	710	743	775	823	901	977	1051	1124

Ordering example:	TOOLFLEX® 30 S	2.5	Ø25	2.5	Ø30
	Size and type of coupling	Hub type	Finish bore	Hub type	Finish bore





Other types:
Type for FANUC motors



Types of hubs

Type 2.5

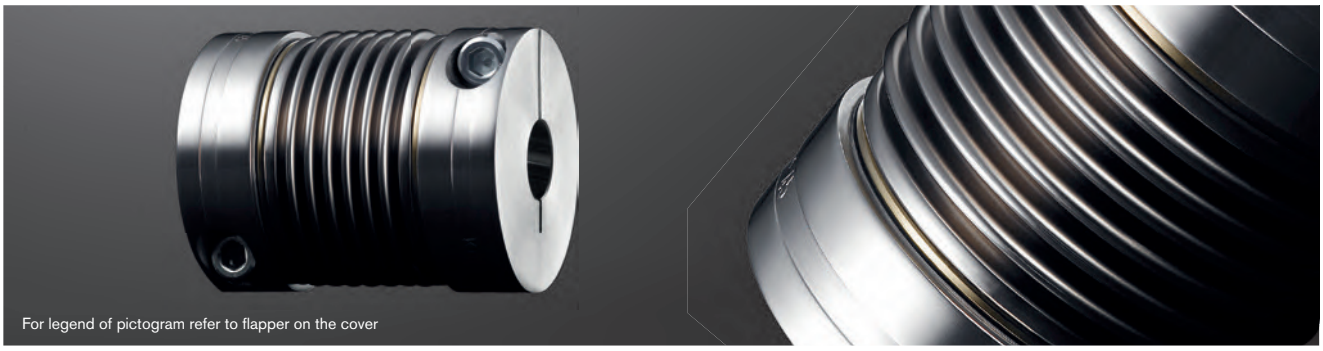
Clamping hub double slot without feather keyway

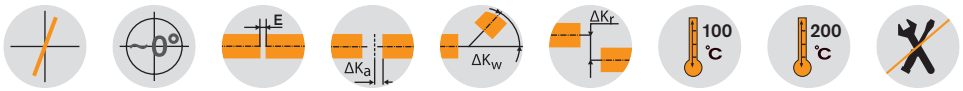
Type 2.6

Clamping hub double slot with feather keyway

TOOLFLEX® M
Metal bellow-type couplings

Type M: with clamping hubs





TOOLFLEX® Type M with clamping hubs - Hub material aluminium (size 55/65 steel)/bellow material stainless steel

Size	Dimensions [mm]											
	Finish bore d		General					Clamping screws DIN EN ISO 4762				
	min.	Max.	L	l_1, l_2	E	D_H	d_H	M_1	DK	t_1	e_1	T_A [Nm]
7	3	7	26	9	8	15	9	M2	16.5	3.2	5	0.37
9	3	9	32	11	10	20	12	M2.5	21.5	3.5	7.1	0.76
12	4	12	38	13	12	25	16	M3	26.5	4	8.5	1.34
16	5	16	49	17.0	15	32	20	M4	35.0	5	12	2.9
20	8	20	62	21.5	19	40	27	M5	43.5	6	14.5	6
30	10	30	72	23.0	26	55	33	M6	58.0	7	19	10
38	12	38	81	25.5	30	65	42	M8	72.6	9	25	25
42	14	42	95	30.0	35	70	46	M8	76.1	9	27	25
45	14	45	103	32.0	39	83	58	M10	89.0	11	30	49
55 Al	20	55	125	40.0	45	100	73	M12	106.0	14	37	86
55 [3]	20	55	125	40.0	45	100	73	M12	106.0	14	37	120
65 [3]	30	65	142	45.0	52	125	95	M14	127.2	15	45	190

Technical data

Size	Bellow-hub-connection	Torque of bellow T_{KN} [1] [Nm]	Max. speed [rpm]	Hub material	Moment of inertia [2] [x10^{-6}kgm^2]	Torsion spring stiffness C_T [Nm/rad]	Axial stiffness C_a [N/mm]	Radial stiffness C_r [N/mm]	Perm. displacements			Weight [2] [kg]
									Axial [mm]	Radial [mm]	Angular [degree]	
7	Bonded	1	31800	Aluminium	0.3	300	—	—	±0.4	0.15	1.0	0.008
9		1.5	23800	Aluminium	1.0	580	—	—	±0.5	0.20	1.5	0.015
12		2	19100	Aluminium	2.7	980	—	—	±0.6	0.20	1.5	0.03
16	Flanged	5	14900	Aluminium	10	3050	29	92	±0.5	0.20	1.5	0.06
20		15	11950	Aluminium	32	6600	42	126	±0.6	0.20	1.5	0.14
30		35	8700	Aluminium	123	14800	65	155	±0.8	0.25	2.0	0.31
38		65	7350	Aluminium	262	24900	72	212	±0.8	0.25	2.0	0.45
42		95	6820	Aluminium	427	36500	80	333	±0.8	0.25	2.0	0.52
45		170	5750	Aluminium	1020	64000	88	492	±1.0	0.25	2.0	1.13
55 Al		340	4800	Aluminium	1706	96100	107	598	±1.1	0.30	20	2.0
55 [3]	[3]	340	4800	Steel	5118	96100	107	598	±1.0	0.30	2.0	3.3
65 [3]		600	3850	Steel	13727	226550	135	910	±2.0	0.35	2.0	5.6

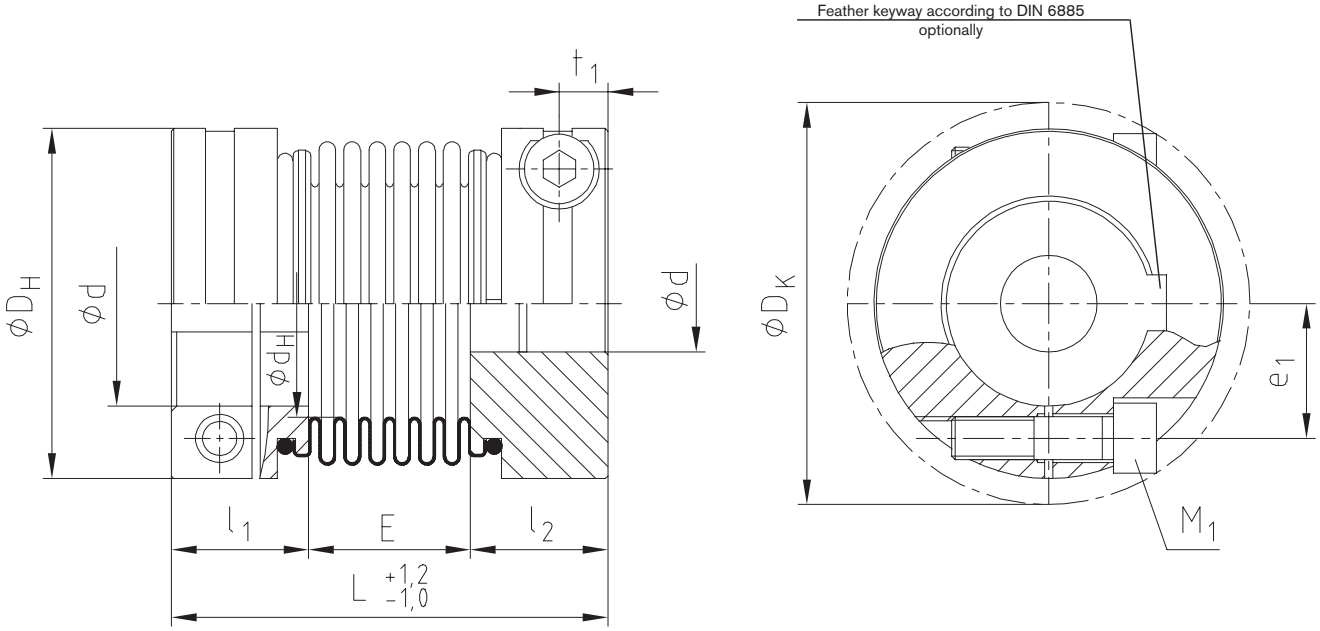
[1] For selection see page 22 et seqq.
[2] Figures refer to the complete coupling with max. bore.
[3] Hub made of steel welded with bellow.

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 2.5

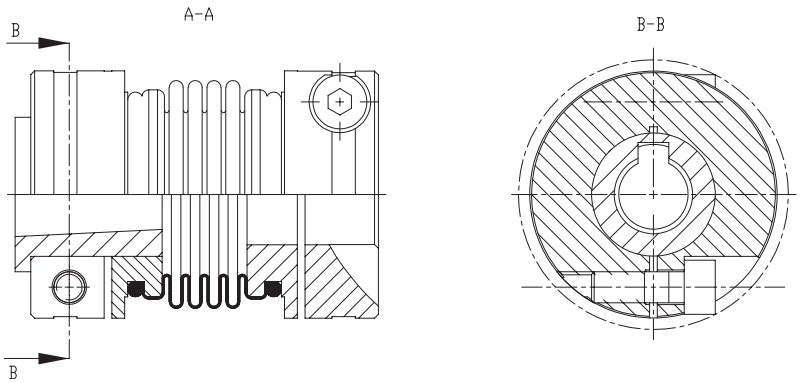
Size	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø50	Ø55	Ø60	Ø65
7	0.7	0.9	1.0	1.2	1.4																									
9	1.2	1.5	1.9	2.2	2.5	2.8	3.1																							
12		2.3	2.8	3.3	3.8	4.3	4.8	5.2	5.7	6.1																				
16			5.4	6.4	7.3	8.2	9.1	10.0	10.9	11.7	13.4	14.2	15.0																	
20						13.5	15.0	16.5	18.0	19.3	22.1	23.5	24.8	27.4	28.7	30.0														
30									26	28	32	34	36	40	42	43	51	53	58	61										
38											63	67	71	79	82	86	101	105	115	122	129	139	148							
42											63	67	71	79	83	87	102	106	117	124	130	141	150	157	163					
45																136	160	166	183	194	206	222	238	248	259	274				
55 Al																205	242	251	277	295	312	337	362	378	394	418	457	494		
55 [3]																	341	354	391	416	440	475	510	533	556	589	644	697		
65 [3]																				576	610	660	710	743	775	823	901	977	1051	1124

Ordering example:

TOOLFLEX® 30 M	2.5 - Ø25		2.5 - Ø30	
Size and type of coupling	Hub type	Finish bore	Hub type	Finish bore



Other types:
Type for FANUC motors



Types of hubs

Type 2.5

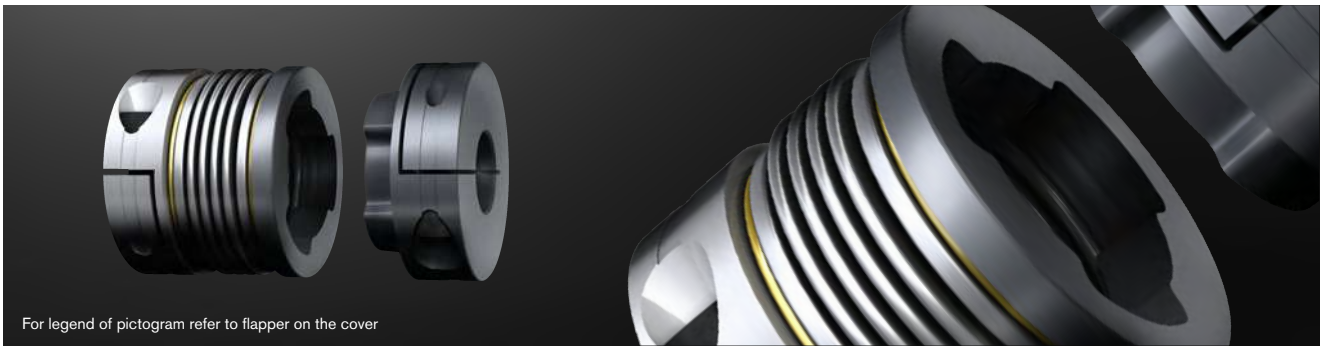
Clamping hub double slot without feather keyway

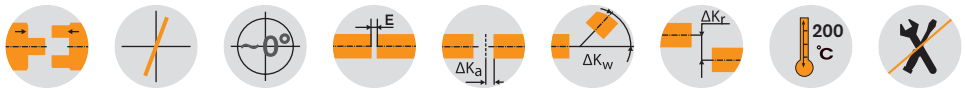
Type 2.6

Clamping hub double slot with feather keyway

TOOLFLEX® PI
Metal bellow-type couplings

Axial plug-in





TOOLFLEX® Type S-PI - Hub material aluminium/bellow material stainless steel															
Size	Type	Dimensions [mm]													
		General									Clamping screws DIN EN ISO 4762				
		Min. d_1, d_2	Max. d_1	Max. d_2	L [1]	l_1	l_2	E	D_H	H	M_1, M_2	DK	e	t_1, t_2	T_A [Nm]
20	S	8	20	20	67.0	21.5	33.5	12.0	40	0.5 - 1	M5	43.5	14.5	6	6
30	S	10	30	28	73.5	23.0	33.5	17.0	55	0.5 - 1	M6	58.0	19.0	7	10
38	S	12	38	32	87.5	25.5	44.0	18.0	65	0.5 - 1.5	M8	72.6	25.0	9	25
42	S	14	42	35	93.0	30	39.0	21.0	70	0.5 - 1.5	M8	76.1	25.0	9	25
45	S	14	45	42	96.0	32.0	41.5	22.5	83	0.5 - 1.5	M10	89.0	30.0	11	49
55 [4]	S	20	55	55	130.1	40	58.5	31.5	100	0.5 - 1.5	M12	106.0	37	14	120

Technical data of TOOLFLEX® S-PI										
Size	Type	Torque of bellow T_{KN} [2] [Nm]	Max. speed [rpm]	Moment of inertia [3] [x10^{-6}kgm^2]	Torsion spring stiffness C_T [Nm/rad]	Axial stiffness C_a [N/mm]	Radial stiffness C_r [N/mm]	Perm. displacements		Weight [3] [kg]
								Radial [mm]	Angular [degree]	
20	S	15	11950	37	6600	63	189	0.15	1.0	0.15
30	S	35	8700	140	11500	97	233	0.20	1.5	0.29
38	S	65	7350	329	21500	108	318	0.20	1.5	0.50
42	S	95	6820	396	31500	120	499	0.20	1.5	0.49
45	S	170	5750	1031	55000	132	738	0.25	1.5	0.93
55 [4]	S	340	4800	6150	144100	160	894	0.25	1.5	3.80

TOOLFLEX® Type M-PI - Hub material aluminium/bellow material stainless steel															
Size	Type	Dimensions [mm]													
		General									Clamping screws DIN EN ISO 4762				
		Min. d_1, d_2	Max. d_1	Max. d_2	L [1]	l_1	l_2	E	D_H	H	M_1, M_2	DK	e	t_1, t_2	T_A [Nm]
20	M	8	20	20	74.0	21.5	33.5	19.0	40	0.5 - 1	M5	43.5	14.5	6	6
30	M	10	30	28	82.5	23.0	33.5	26.0	55	0.5 - 1	M6	58.0	19.0	7	10
38	M	12	38	32	99.5	25.5	44.0	30.0	65	0.5 - 1.5	M8	72.6	25.0	9	25
42	M	14	42	35	104.0	30	39.0	32.0	70	0.5 - 1.5	M8	76.1	25.0	9	25
45	M	14	45	42	112.5	32.0	41.5	39.0	83	0.5 - 1.5	M10	89.0	30.0	11	49
55 [4]	M	20	55	55	143.6	40	58.5	45	100	0.5 - 1.5	M12	106.0	37	14	120

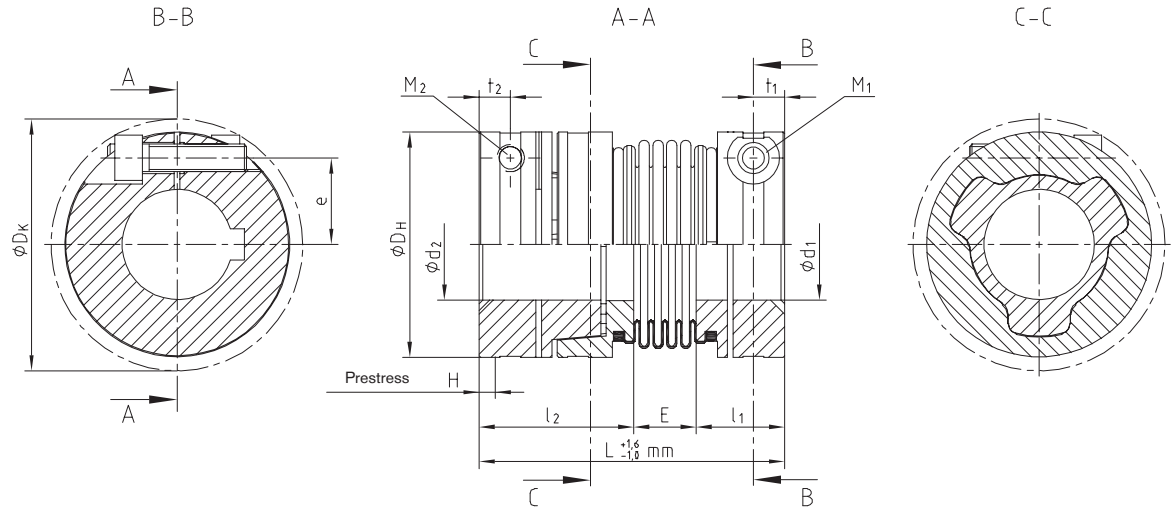
Technical data of TOOLFLEX® M-PI										
Size	Type	Torque of bellow T_{KN} [2] [Nm]	Max. speed [rpm]	Moment of inertia [3] [x10^{-6}kgm^2]	Torsion spring stiffness C_T [Nm/rad]	Axial stiffness C_a [N/mm]	Radial stiffness C_r [N/mm]	Perm. displacements		Weight [3] [kg]
								Radial [mm]	Angular [degree]	
20	M	15	11950	38	4900	42	126	0.20	1.5	0.16
30	M	35	8700	145	10200	65	155	0.25	2.0	0.31
38	M	65	7350	346	15100	72	212	0.25	2.0	0.52
42	M	95	6820	427	22000	80	333	0.25	2.0	0.52
45	M	170	5750	1127	41000	88	492	0.30	2.0	1.00
55 [4]	M	340	4800	6270	96100	107	598	0.30	2.0	3.90

[1] When plugged in
[2] For selection see page 22 et seqq.
[3] Figures refer to the complete coupling with max. bore.
[4] Hub made of steel welded with bellow.

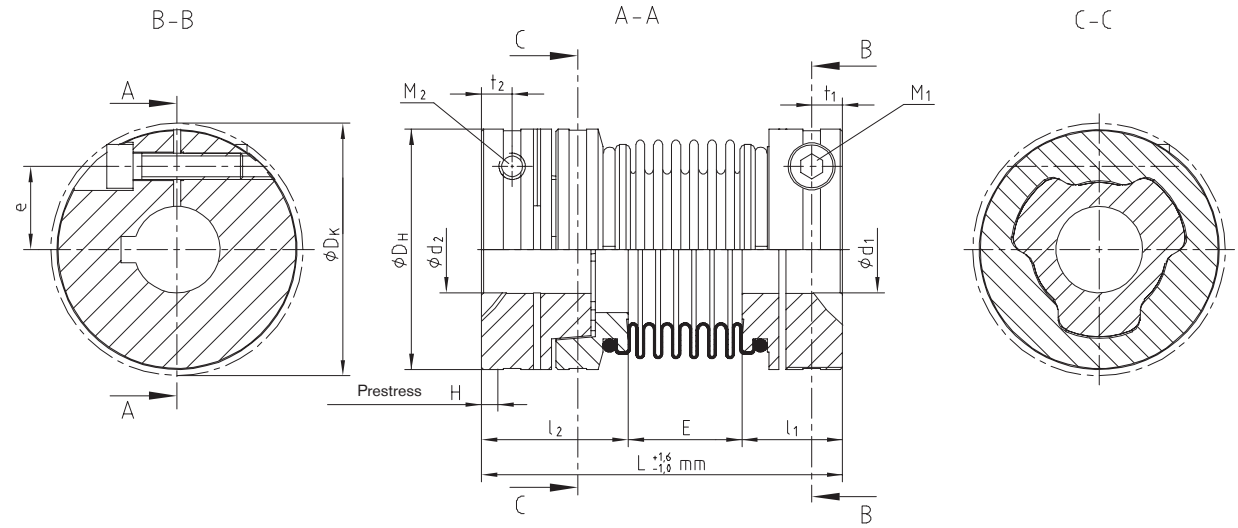
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 2.5 for Ød_1/Ød_2																				
Size	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42
20	13.5	15.0	16.5	18.0	19.3	22.1	23.5	24.8	27.4	28.7	30.0									
30				26	28	32	34	36	40	42	43	51	53	58	61					
38						63	67	71	79	82	86	101	105	115	122	129	139	148		
42						63	67	71	79	83	87	102	106	117	124	130	141	150	157	163
45											136	160	166	183	194	206	222	238	248	259
55 [4]												341	354	391	416	440	475	510	533	556

Ordering example:	TOOLFLEX® 30 S-PI	d_1 - Ø22	d_2 - Ø18
	Size and type of coupling	Finish bore	Finish bore

TOOLFLEX® S-PI

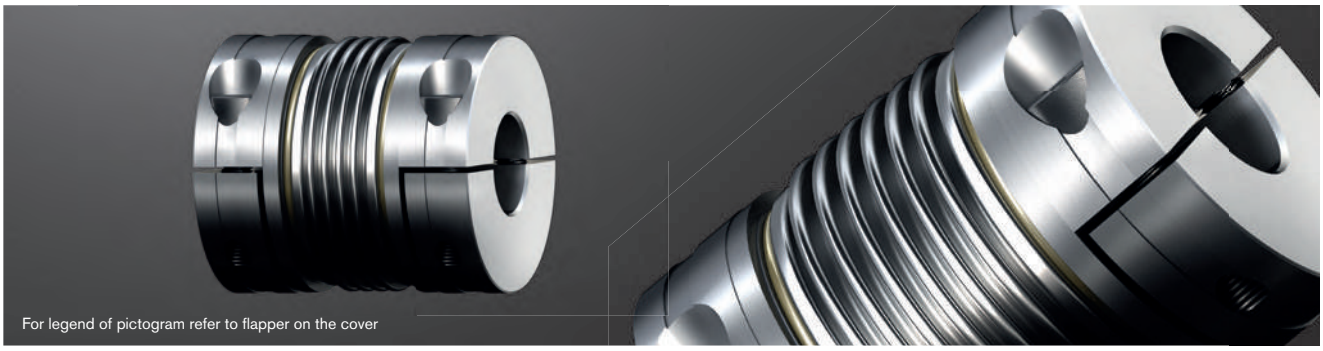


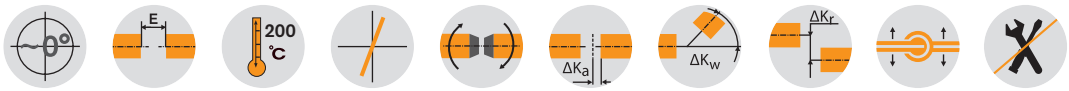
TOOLFLEX® M-PI



TOOLFLEX® S-H / M-H
Metal bellow-type couplings

Half shell clamping hubs





TOOLFLEX® type S-H / half shell clamping hubs - Hub material aluminium/bellow material stainless steel

Size	Finish bore d		Dimensions [mm]										
			General								Clamping screws DIN EN ISO 4762		
	min.	Max.	L	l_1, l_2	E	D_H	DK	E_1	t_1	x_1, x_2	e	M	T_A [Nm]
20	8	20	51	19.5	12.0	40	41.2	26.0	5.5	12.5	14.5	M4	5.0
30	10	30	68	25.5	17.0	55	57.7	34.0	7.5	17.0	19.0	M6	15.0
38	12	38	78	30.0	18.0	65	72.6	36.0	9.5	21.0	25.0	M8	40.0
45	14	45	94.5	36.0	22.5	83	88.8	46.5	11.0	24.0	30.0	M10	70.0

Technical data of TOOLFLEX® S-H

Size	Bellow-hub-connection	Torque of bellow T_{KN} [1] [Nm]	Max. speed [rpm]	Moment of inertia [2] [x10^{-6}kgm^2]	Torsion spring stiffness C_T [Nm/rad]	Axial stiffness C_a [N/mm]	Radial stiffness C_r [N/mm]	Perm. displacements			Weight [2] [kg]
								Axial [mm]	Radial [mm]	Angular [degree]	
20	Flanged	15	9550	28	9600	63	189	±0.4	0.15	1.0	0.110
30		35	6950	132	17800	97	233	±0.5	0.20	1.5	0.285
38		65	5850	292	37400	108	318	±0.6	0.20	1.5	0.422
45		170	4750	1003	95800	132	738	±0.9	0.20	1.5	0.897

TOOLFLEX® type M-H / half shell clamping hubs - Hub material aluminium/bellow material stainless steel

Size	Finish bore d		Dimensions [mm]										
			General								Clamping screws DIN EN ISO 4762		
	min.	Max.	L	l_1, l_2	E	D_H	DK	E_1	t_1	x_1, x_2	e	M	T_A [Nm]
20	8	20	58	19.5	19.0	40	41.2	33.0	5.5	12.5	14.5	M4	5.0
30	10	30	77	25.5	26.0	55	57.7	43.0	7.5	17.0	19.0	M6	15.0
38	12	38	90	30.0	30.0	65	72.6	48.0	9.5	21.0	25.0	M8	40.0
45	14	45	111	36.0	39.0	83	88.8	63.0	11.0	24.0	30.0	M10	70.0

Technical data of TOOLFLEX® M-H

Size	Bellow-hub-connection	Torque of bellow T_{KN} [1] [Nm]	Max. speed [rpm]	Moment of inertia [2] [x10^{-6}kgm^2]	Torsion spring stiffness C_T [Nm/rad]	Axial stiffness C_a [N/mm]	Radial stiffness C_r [N/mm]	Perm. displacements			Weight [2] [kg]
								Axial [mm]	Radial [mm]	Angular [degree]	
20	Flanged	15	9550	29	6600	42	126	±0.6	0.20	1.5	0.115
30		35	6950	138	14800	65	155	±0.8	0.25	2.0	0.304
38		65	5850	310	24900	72	212	±0.8	0.25	2.0	0.445
45		170	4750	1069	64000	88	492	±1.0	0.25	2.0	0.947

[1] For selection see page 22 et seqq.
[2] Figures refer to the complete coupling with max. bore.
To make sure that the coupling can be radially assembled/disassembled, observe the insertion dimension x1/x2 of the shafts.

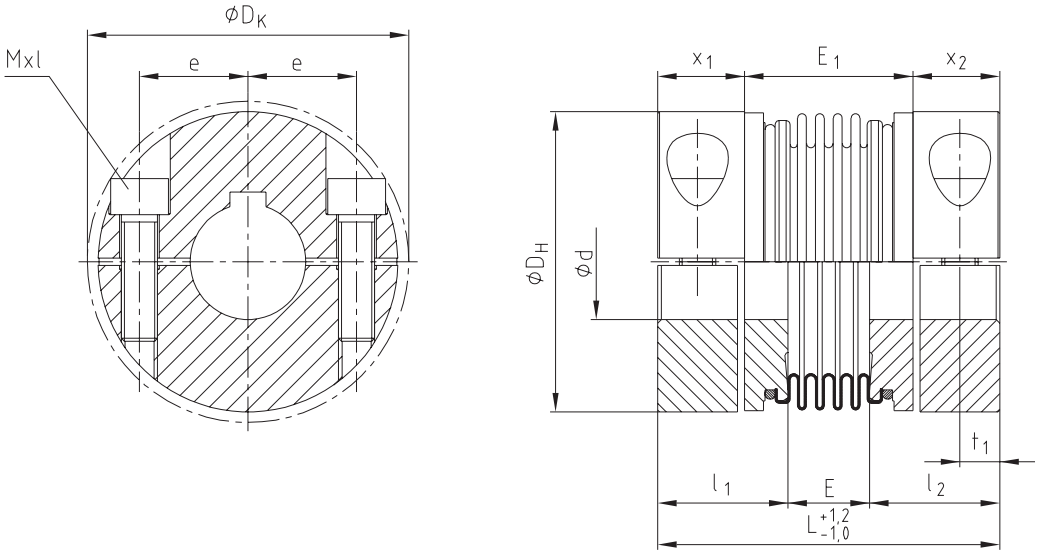
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 7.8 for Ød$_1$/Ød$_2$

Size	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45
20	20	23	25	28	30	35	38	40	45	48	50										
30			51	56	61	71	76	81	92	97	102	122	127	143							
38					120	140	150	160	180	190	200	240	250	280	300	320	350	380			
45						197	211	226	254	268	282	338	352	395	423	451	493	536	564	592	634

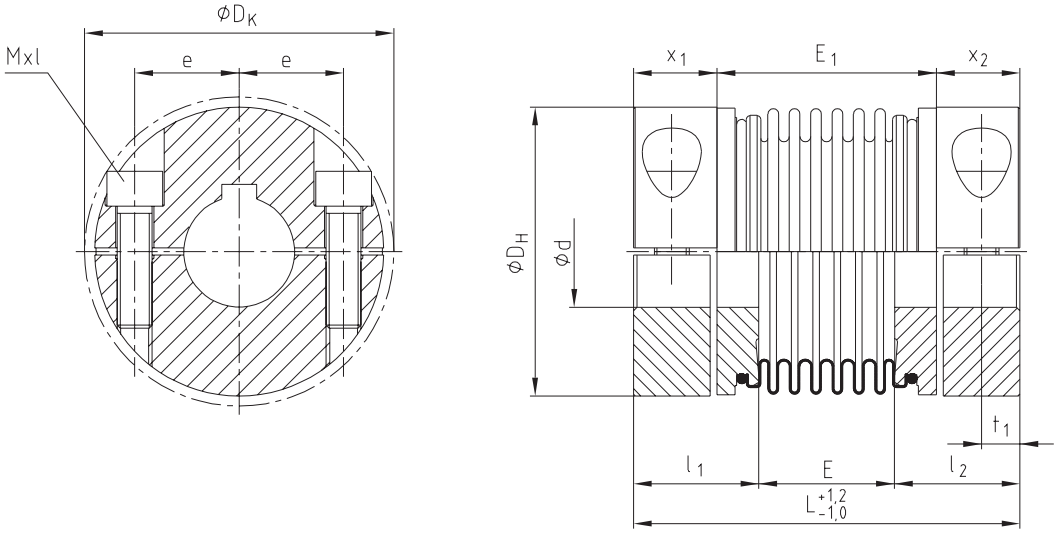
Ordering example:

TOOLFLEX® 30 S-H	7.8 - Ø25		7.9 - Ø30	
Size and type of coupling	Hub type	Finish bore	Hub type	Finish bore

TOOLFLEX® S-H



TOOLFLEX® M-H



Types of hubs

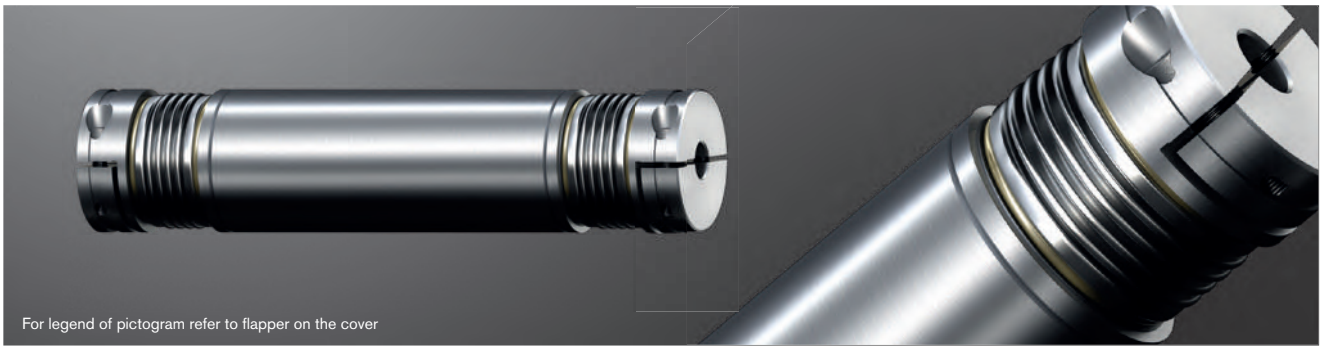
Type 7.8

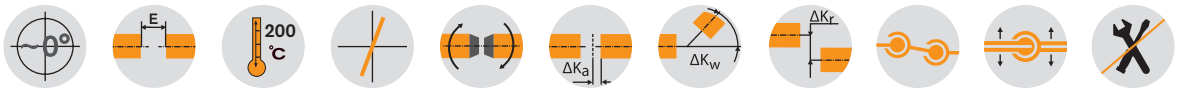
clamping hub type H without feather keyway for single-cardanic connection

Type 7.9

clamping hub type H with feather keyway for single-cardanic connection (on request)

Intermediate shaft coupling with bonded aluminium pipe





TOOLFLEX® type ZR / half shell clamping hubs - Hub material aluminium/bellow material stainless steel																
Size	Finish bore d		Dimensions [mm]													
			General											Clamping screws DIN EN ISO 4762		
	min.	Max.	D_H	L	l_3	L_R		$L_{ZR} = L_R + 2 \bullet l_3$		d_R	DK	t_1	e	M	T_A [Nm]	
						min.	Max.	min.	Max.							
20	8	20	40	40	12.5	80	2975	105	3000	40	41.2	5.5	14.5	M4	5	
30	10	28	55	58.5	17.0	114	3466	148	3500	50	58.0	7.5	19	M6	15	
38	12	38	65	61	21.0	129	3958	171	4000	60	72.6	9.5	25	M8	40	
45	14	45	83	78.5	25.0	149	3950	199	4000	80	89.0	11.0	30	M10	70	

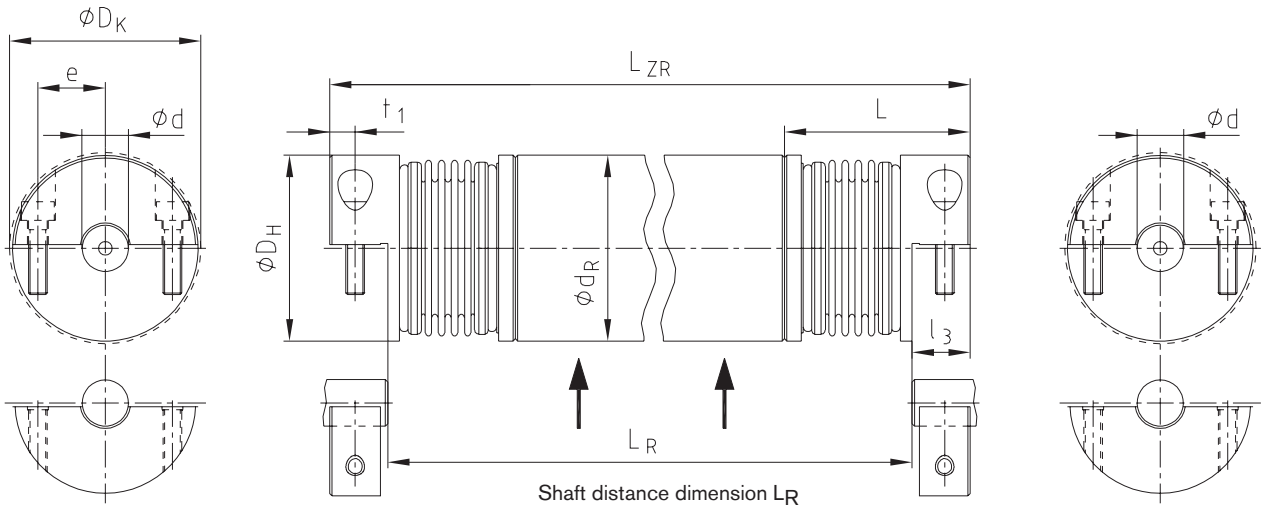
Technical data of TOOLFLEX® ZR				
Size	Torque of bellow T_{KN} [1] [Nm]	Moment of inertia [10^{-3} kgm²]		Static torsion spring stiffness [Nm/rad]
		Z_R hub [2]	Pipe/meter	Z_W C_2 [3]
20	15	0.024378	0.329	3245
30	35	0.121256	0.673	6630
38	65	0.253162	1.199	11,815
45	170	0.961451	4.560	44,930

[1] For selection see page 22 et seqq.
[2] Figures refer to the complete coupling with max. bore.
[3] Torsion spring stiffness with a length of 1 m of intermediate pipe with $L_{pipe} = L_{ZR} - 2 \cdot L$
For inquiries and orders please specify the shaft distance dimension L_R along with the maximum speed to review the critical bending speed.
Straightness/concentricity of pipes according to DIN EN 755-1.

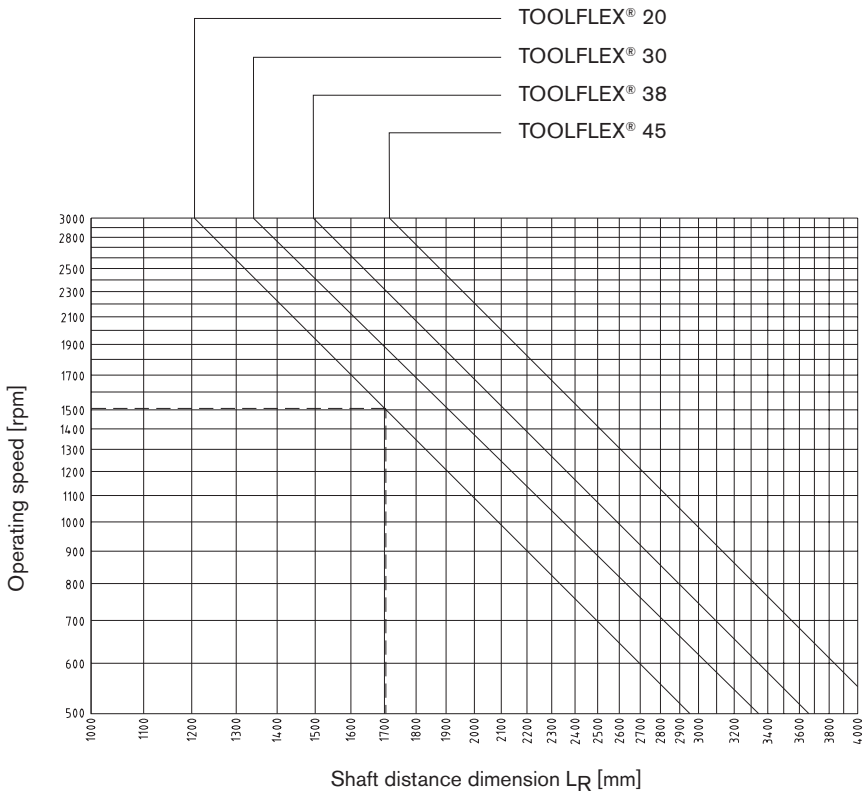
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 7.5 for Ød1/Ød2																					
Size	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45
20	20	23	25	28	30	35	38	40	45	48	50										
30			51	56	61	71	76	81	92	97	102	122	127	143							
38					120	140	150	160	180	190	200	240	250	280	300	320	350	380			
45						197	211	226	254	268	282	338	352	395	423	451	493	536	564	592	634

Ordering example:	TOOLFLEX® 30	ZR	1200 mm	7.5 - Ø24		7.6 - Ø24	
	Size and type of coupling	Type	Shaft distance dimension (L_R)	Hub type	Finish bore	Hub type	Finish bore

TOOLFLEX® ZR



Shaft distance dimension L_R



Shaft distance dimension L_R [mm]

Types of hubs

Type 7.5

Clamping hub type DH without feather keyway for double-cardanic connection

Type 7.6

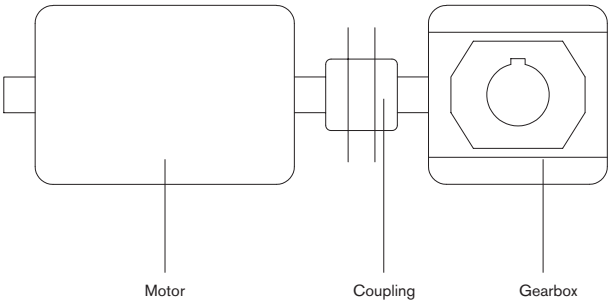
Clamping hub type DH with feather keyway for double-cardanic connection (on request)

RADEX®-NC
Servo laminae couplings

Technical description

RADEX®-NC is a line specifically developed for servo technology. With this coupling a set of torsionally stiff steel laminas that are soft in bending ensure reliable compensation for axial, angular and radial shaft displacements. As an all-metal coupling - the laminas are made of stainless steel - RADEX®-NC can even be used with high temperatures (up to 200 °C) and under aggressive ambient conditions. RADEX®-NC is manufactured in 10 sizes from size 5 to 75 for max. torques up to 4800 Nm. In addition to the two different types (EK = single-cardanic and DK = double-cardanic) it is available in five different hub types.

A typical application of RADEX®-NC are backlash-free worm gear pairs with low gear ratios. For reason of the gear ratio of the gearbox the stiffness of the coupling must be converted from the drive side into the driven side. Here the gear ratio itself has a decisive effect because it is included in the calculation by square. This converted stiffness is added in line with the gearbox stiffness in order to obtain the total stiffness. In case of gear ratios that are smaller than i = 8 we recommend to use RADEX®-NC due to the loss of stiffness of the total system arising with the use of flexible couplings.



Use in potentially explosive atmospheres

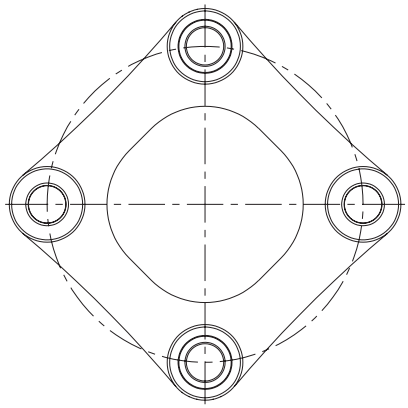
RADEX®-NC couplings are suitable for power transmission in drives in potentially explosive atmospheres. The couplings are assessed and approved as units of category 2G/2D according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 1, 2, 21 and 22. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.

Selection:

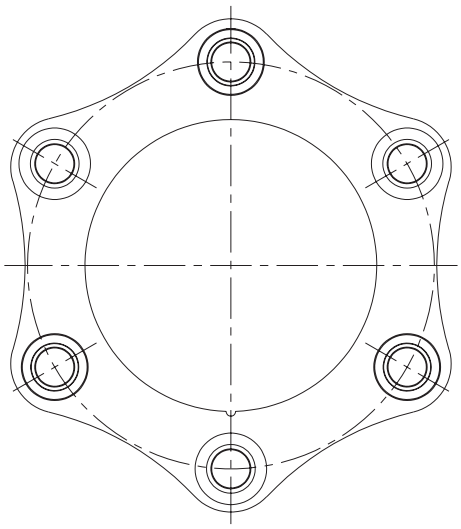
If used in potentially explosive atmospheres, the clamping hubs without feather keyway only for use in category 3 (with feather keyway for cat. 2) must be selected in that there is a minimum safety factor of s = 2 between the peak torque (including all operating parameters) and the nominal torque and frictional torque of engagement of the coupling.

RADEX®-NC DK and EK
Servo laminae couplings

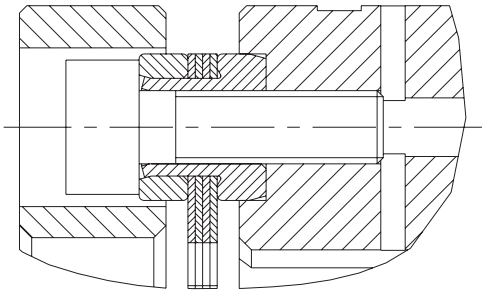
Laminae sets



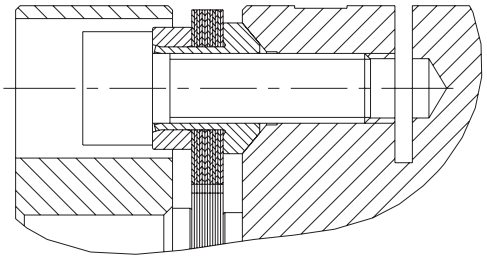
Size 5 to 26
(lamina with 4 holes)



Size 36 to 75
(lamina with 6 holes)



Size 5 to 10
(cylindrical sleeve)



Size 16 to 75
(taper sleeve)

Types of hubs

Type 2.5 clamping hub
double slotted, without feather keyway

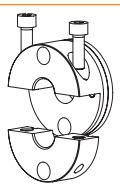
Frictionally engaged, backlash-free shaft-hub-connection. Transmittable torques depending on bore diameter.

Type 2.6 clamping hub
double slotted, with feather keyway

Positive-locking power transmission with additional friction fit. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.

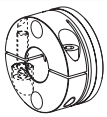
Type 6.5 clamping ring hub

Integrated frictionally engaged shaft-hub-connection for the transmission of higher torques. Suitable for high speeds.



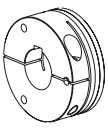
Type 7.5 clamping hub type DH
without feather keyway for double-cardanic connection

Frictionally engaged, backlash-free shaft-hub-connection for radial assembly of coupling. Transmittable torques depending on bore diameter.



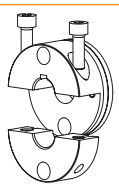
Type 3.5 clamping hub
triple slotted, without feather keyway

Frictionally engaged, backlash-free shaft-hub-connection, good properties of concentric running and reduced imbalance. Transmittable torques depending on bore diameter. Type 3.5 standard from size 43



Type 3.6 clamping hub
triple slotted, with feather keyway

Positive-locking power transmission with additional friction fit. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced. Type 3.6 standard from size 43



Type 7.6 clamping hub type DH
with feather keyway for double-cardanic connection

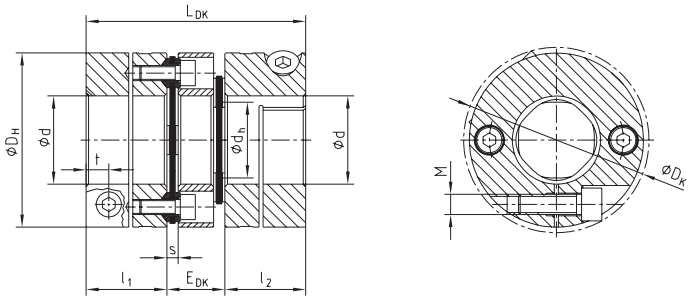
Positive-locking, backlash-free power transmission with additional friction fit for radial assembly of coupling. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.

RADEX®-NC DK and EK
Servo laminae couplings

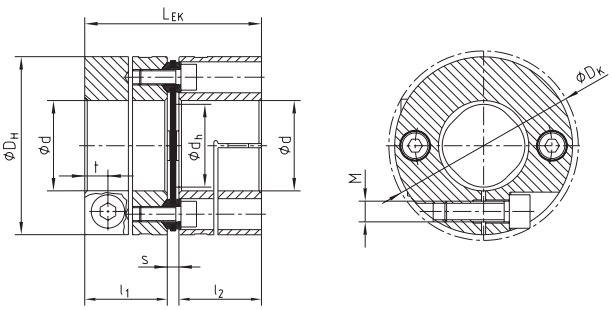
Double- and single-cardanic types

Hub type 2.5/2.6

Type DK



Type EK



RADEX®-NC Types DK and EK - Hub and spacer material aluminium/laminas made of stainless steel														
Size	Dimensions [mm]										Clamping screws DIN EN ISO 4762		Mass moment of inertia [kgm²]	
	dmax.	D_H	DK	l_1, l_2	L_{DK}	E_{DK}	L_{EK}	d_h	s	t	M	T_A [Nm]	DK	EK
5	12	26	26	12	34	10	26.5	12	2.5	3.5	M2.5	0.8	0.000004	0.000003
10	15	35	35	16	44	12	35	14.5	3	5	M4	3	0.000016	0.000012
16	20	46	49	22	58	14	47	19.5	3	6.8	M6	10	0.000063	0.00005
21	30	58	59	25	69	19	53.5	24	3.5	6.8	M6	10	0.00018	0.00014
26	38	69	73	32	88	24	69	30	5	9	M8	25	0.00046	0.00036
36	45	84	87	35	93.6	23.6	74.8	48	4.8	10.5	M10	49	0.0011	0.00091

Technical data												
Size	T_{KN} [1] [Nm]	$T_{K\,max}$ [1] [Nm]	Max. speed [rpm]	Torsion spring stiffness [Nm/rad]		Laminae type	Displacements of type DK			Displacements of type EK		
				EK	DK		Radial [mm]	Axial [mm]	Angular per lamina [degree]	Radial [mm]	Axial [mm]	Angular per lamina [degree]
5	2.5	5	18,300	2,400	1,200	4 holes	0.13	± 0.4	1	-	± 0.2	1
10	7.5	15	13,600	5,600	2,800	4 holes	0.16	± 0.8	1	-	± 0.4	1
16	35	53	10,500	20,000	10,000	4 holes	0.19	± 1.0	1	-	± 0.5	1
21	70	105	8,500	40,000	20,000	4 holes	0.27	± 1.2	1	-	± 0.6	1
26	120	180	7,000	84,000	42,000	4 holes	0.33	± 1.6	1	-	± 0.8	1
36	340	510	5,700	280,000	140,000	6 holes	0.32	± 2.0	1	-	± 1.0	1

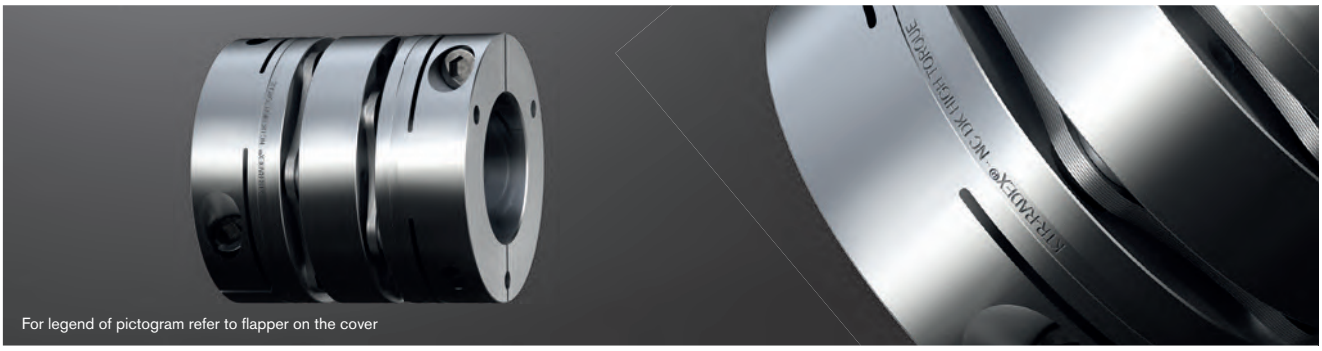
[1] For selection see page 22 et seqq.

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 2.5																						
Size	Pilot bored	Ø3	Ø5	Ø8	Ø10	Ø12	Ø14	Ø15	Ø16	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45
5	2.5	1.1	1.8	2.8	3.4	4																
10	4.5		5	7.7	9.5	11.1	12.7	13.5														
16	5.5				23	27	31	33	35	41	43											
21	7.5					28	32	34	36	42	44	48	52	54	59	63						
26	9.5							66	70	81	85	92	100	103	114	121	127	137	147			
36	11.5									129	135	147	159	165	182	194	199	221	237	247	258	273

Ordering example:

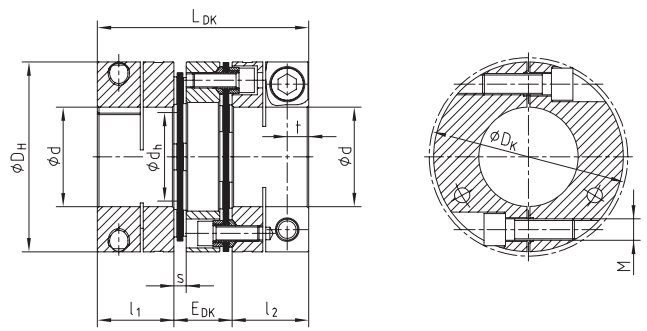
RADEX®-NC 21	DK	2.5 - Ø20		2.5 - Ø25	
Coupling size	Type	Hub type	Finish bore	Hub type	Finish bore

Double- and single-cardanic types

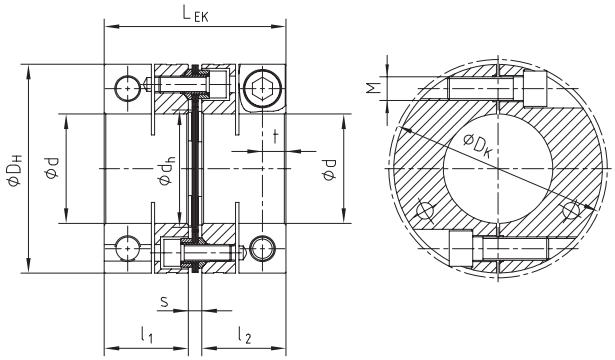


Hub type 3.5/3.6

Type DK



Type EK



RADEX®-NC Types DK and EK - Hub and spacer material aluminium up to size 61, steel with size 75 / laminas made of stainless steel														
Size	Dimensions [mm]										Clamping screws DIN EN ISO 4762		Mass moment of inertia [kgm²]	
	$d_{max.}$	D_H	DK	l_1, l_2	L_{DK}	E_{DK}	L_{EK}	d_h	s	t	M	T_A [Nm]	DK	EK
43	55	104	104	40.5	115	34	89	61	8	10.5	M10	49	0.0033	0.0025
51	70	124	130	50	138	38	108	73	8	14	M14	135	0.0082	0.006
61	80	144	148.5	54	150	42	118	88	10	16	M16	210	0.016	0.012
75	90	170	181.1	70	189	49	152	104	12	21.5	M20	610	0.099	0.077

Technical data												
Size	T_{KN} [1] [Nm]	$T_{K\,max}$ [1] [Nm]	Max. speed [rpm]	Torsion spring stiffness [Nm/rad]		Laminae type	Displacements of type DK			Displacements of type EK		
				Type EK	Type DK		Radial [mm]	Axial [mm]	Angular per lamina [degree]	Radial [mm]	Axial [mm]	Angular per lamina [degree]
43	600	900	8,100	510,000	255,000	6 holes	0.45	± 2.20	1	—	± 1.10	1
51	1,300	1,950	6,700	920,000	460,000	6 holes	0.52	± 2.50	1	—	± 1.25	1
61	2,000	3,000	6,100	1,500,000	750,000	6 holes	0.56	± 2.60	1	—	± 1.30	1
75	3,200	4,800	5,100	2,100,000	1,050,000	6 holes	0.64	± 2.90	1		± 1.45	1

[1] For selection see page 22 et seqq.

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 3.5																							
Size	Pilot bored	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø58	Ø60	Ø65	Ø70	Ø75	Ø80	Ø85	Ø90
43	15.0	238	248	258	297	317	347	377	397	416	446	476	496	545								
51	28.0				594	633	693	752	792	831	891	950	990	1089	1148	1188	1286	1385				
61	30.0							1039	1093	1148	1230	1312	1367	1503	1585	1640	1777	1913	2050	2187		
75	35												3129	3192	3630	3755	4068	4381	4694	5006	5319	5632

Ordering example:

RADEX®-NC 43	DK	3.5 - Ø25		3.5 - Ø35	
Coupling size	Type	Hub type	Finish bore	Hub type	Finish bore

RADEX®-NC DK and EK with clamping ring hubs
Servo laminae couplings

Double- and single-cardanic types

RADEX®-NC Types DK and EK - Hub and spacer material aluminium/laminas made of stainless steel																
Size	Dimensions [mm]											Clamping screws DIN EN ISO 4017			Mass moment of inertia [kgm²]	
	$d_{max.}$	D_H	l_1, l_2	l_3	L_{DK}	L_{DK1}	E_{DK}	L_{EK}	L_{EK1}	d_h	s	M x l	z = number	T_A [Nm]	DK	EK
16	20	46	24	18	62	68	14	51	57	19.5	3	M5 x 20	4	6	0.000075	0.000063
21	28	58	28	22	75	81.2	19	59.5	65.7	24	3.5	M6 x 25	4	10	0.000218	0.000177
26	35	69	36	28	96	100.8	24	77	81.8	30	5	M5 x 30	8	6	0.000565	0.000467
36	42	84	43	35	109.6	118.3	23.6	90.8	99.5	48	4.8	M8 x 40	6	25	0.001581	0.001294
43	60	104	46	35	126	135.9	34	100	109.9	61	8	M8 x 40	6	25	0.004051	0.003250
51	70	124	50	38	138	150.5	38	108	120.5	73	8	M10 x 45	6	49	0.008981	0.007096
61	80	144	55	43	152	165.5	42	120	133.5	88	10	M12 x 50	6	85	0.024188	0.020678

Technical data												
Size	T_{KN} [1] [Nm]	$T_{K\,max}$ [1] [Nm]	Max. speed [rpm]	Torsion spring stiffness [Nm/rad]		Laminae type	Displacements of type DK			Displacements of type EK		
				Type EK	Type DK		Radial [mm]	Axial [mm]	Angular per lamina [degree]	Radial [mm]	Axial [mm]	Angular per lamina [degree]
16	35	53	31,150	20,000	10,000	4 holes	0.19	± 1.00	1.00	—	± 0.50	1
21	70	105	24,700	40,000	20,000	4 holes	0.27	± 1.20	1.00	—	± 0.60	1
26	120	180	20,800	84,000	42,000	4 holes	0.33	± 1.60	1.00	—	± 0.80	1
36	340	510	17,100	280,000	140,000	6 holes	0.32	± 2.00	1.00	—	± 1.00	1
43	600	900	13,800	510,000	255,000	6 holes	0.45	± 2.20	1.00	—	± 1.10	1
51	1300	1950	11,600	920,000	460,000	6 holes	0.52	± 2.50	1.00	—	± 1.25	1
61	2000	3000	10,000	1,500,000	750,000	6 holes	0.56	± 2.60	1.00	—	± 1.30	1

[1] For selection see page 22 et seqq.

Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 6.5																										
Size	Tolerance fit	Ø10	Ø12	Ø14	Ø15	Ø16	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55*	Ø60*	Ø65*	Ø70*	Ø75*	Ø80*
16	H7/h6	29	33	57	70	50	83	97																		
	H7/k6	34	42	64	76	62	96	109																		
21	H7/h6	27	45	75	91	79	125	145	127	144	201															
	H7/k6	36	56	83	99	93	139	157	169	187	245															
26	H7/h6				104	126	194	169	279	311	338	404	273	357												
	H7/k6				124	145	214	200	305	334	382	444	355	441												
36	H7/h6							241	395	438	521	616	523	664	647	741	841									
	H7/k6							284	430	471	558	646	640	779	778	875	974									
43	H7/h6										595	705	647	814	946	1073	980	1163	1360	1200	1072	1372				
	H7/k6										684	789	784	916	1096	1219	1144	1332	1534	1376	1370	1669				
51	H7/h6											750	818	1020	1085	1228	1166	1377	1605	1450	1607	2283	2255	2704		
	H7/k6											822	927	1117	1254	1392	1348	1568	1803	1652	1960	2387	2447	2842		
61	H7/h6													880	1074	1211	1264	1480	1597	1750	1911	2097	2542	2669	2718	3168
	H7/k6													951	1131	1258	1333	1534	1668	1810	2032	2239	2635	2785	2855	3252

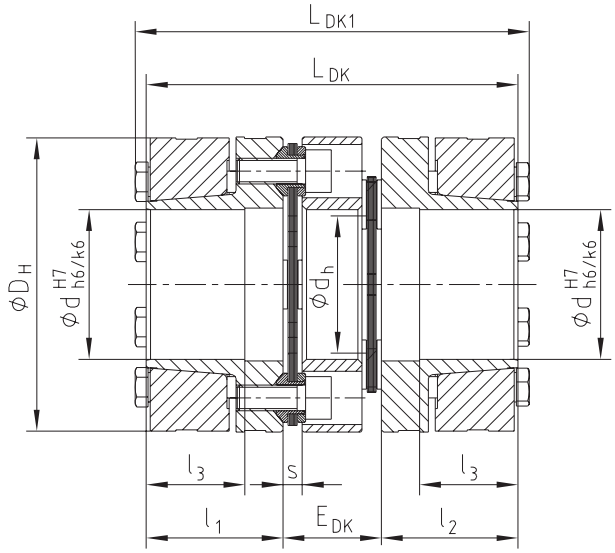
* From Ø55 tolerance G7/h6 or G7/m6

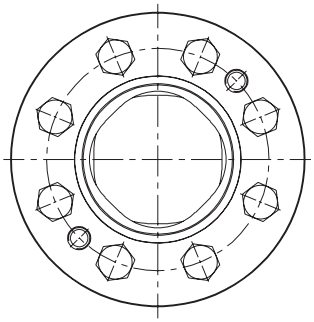
Ordering example:

RADEX®-NC 26	DK	6.5 - Ø24		6.5 - Ø35	
Coupling size	Type	Hub type	Finish bore	Hub type	Finish bore

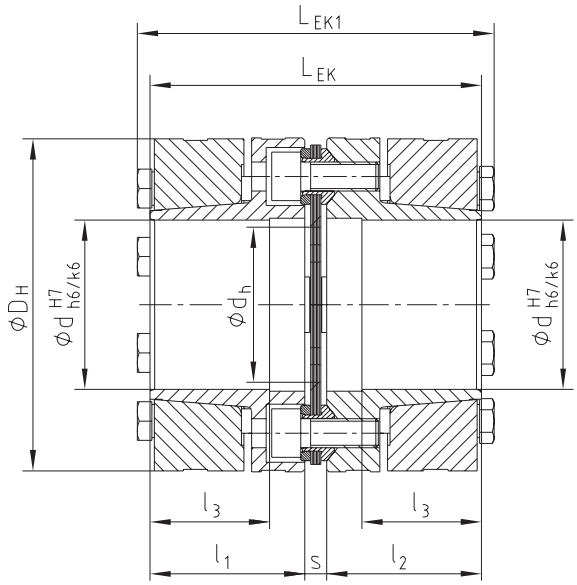
Hub type 6.5

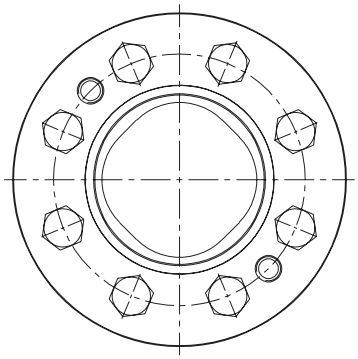
Type DK





Type EK



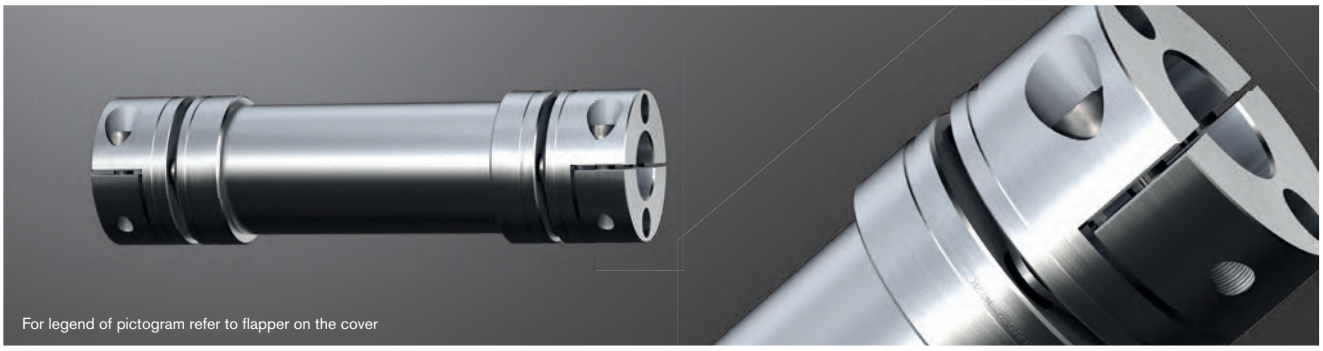


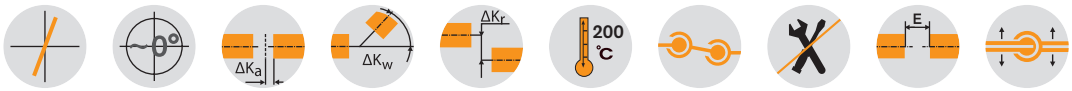
Types of hubs

Type 6.5
Clamping ring hub

RADEX®-NC ZR
Servo laminae couplings

Double-cardanic type





RADEX®-NC Type ZR - Hub and spacer material aluminium/laminas made of stainless steel																
Size	Finish bore d		Dimensions [mm]													
			General											Clamping screws DIN EN ISO 4762		
	min.	Max.	D_H	L	l_3	L_R		$L_{ZR} = L_R + 2 \bullet l_3$		d_R	DK	t_1	e	M	T_A [Nm]	
						min.	Max.	min.	Max.							
16	6	20	46	42	17.0	75	2966	109	3000	40	48.9	8	16	M6	15.0	
21	8	30	58	47.5	17.0	92	3466	126	3500	50	59.2	8	20.5	M6	15.0	
26	10	35	69	59	21.5	124	3957	167	4000	60	72.6	9.5	25	M8	40.0	
36	12	45	84	62.3	26.5	114	3947	167	4000	80	86.8	12	30	M10	70.0	

Technical data of RADEX®-NC ZR				
Size	T_{KN} [1] [Nm]	Moment of inertia [10^{-3} kgm²]		Static torsion spring stiffness [Nm/rad]
		Z_R hub [2]	Pipe/meter	$Z_W C_2$ [3]
16	35	0.049596	0.329	2449
21	70	0.138744	0.673	4980
26	120	0.348421	1.199	9220
36	340	0.869569	4.560	34014

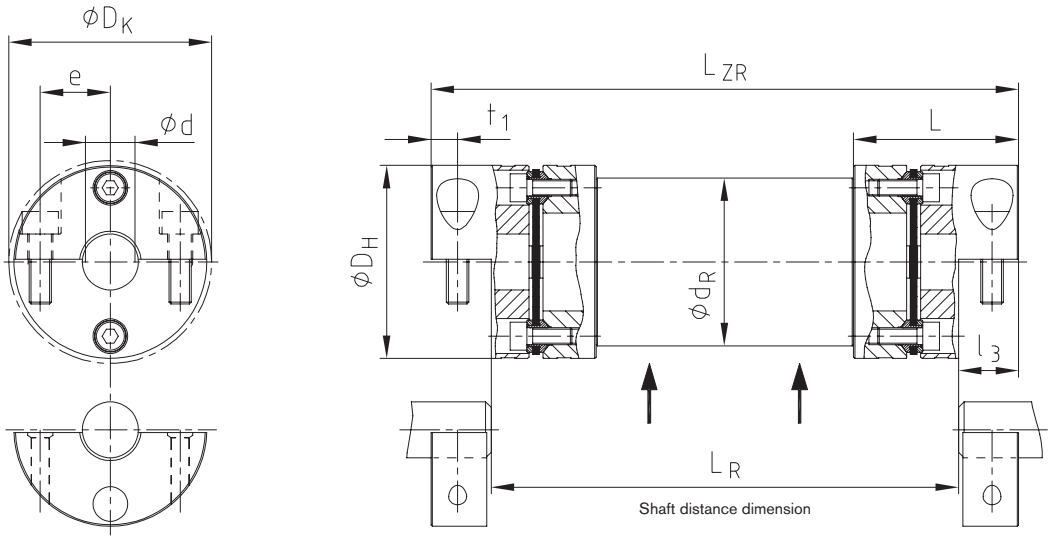
[1] For selection see page 22 et seqq.
[2] Figures refer to the complete coupling with max. bore.
[3] Torsion spring stiffness with a length of 1 m of intermediate pipe with $L_{pipe} = L_{ZR} - 2 \cdot L$
For inquiries and orders please specify the shaft distance dimension L_R along with the maximum speed to review the critical bending speed.
Straightness/concentricity of pipes according to DIN EN 755-1.

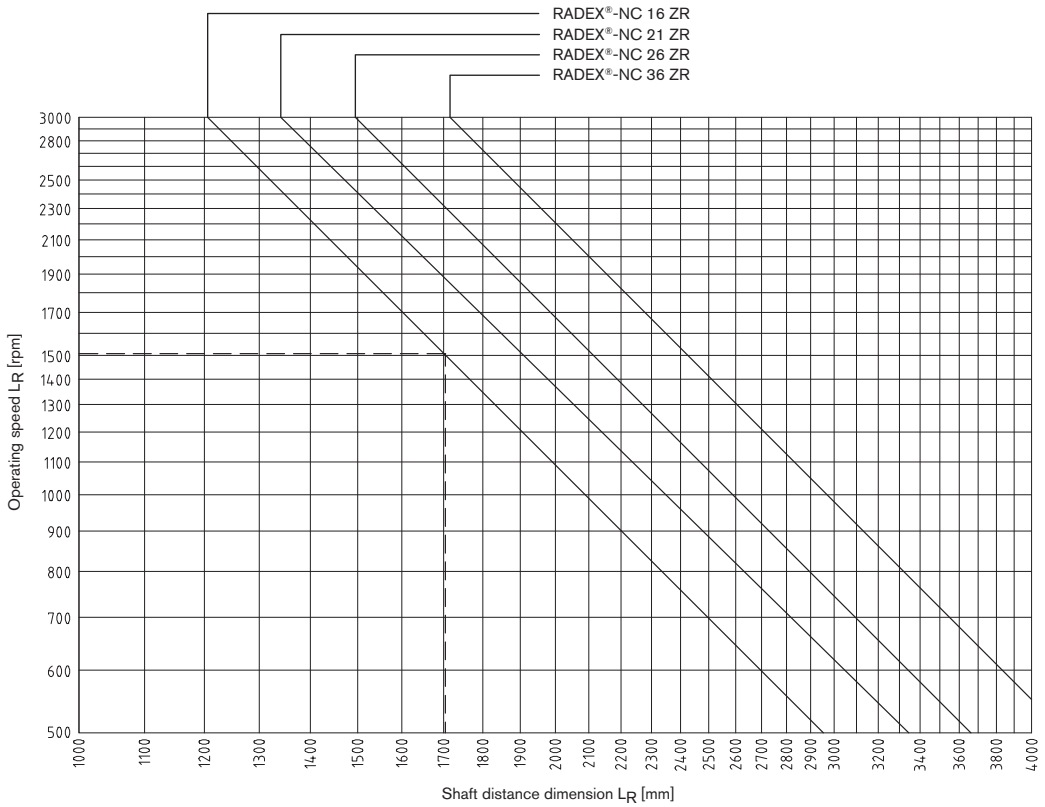
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 7.5 for $Ød_1/Ød_2$																					
Size	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45
16			51	56	61	71	76	81	92	97	102										
21					61	71	76	81	92	97	102	122	127	143	153						
26							150	160	180	190	200	240	250	280	300						
36										268	282	338	352	395	423	451	493	536	564	592	634

Ordering example:

RADEX®-NC 26	ZR	1200 mm	7.5 - Ø24		7.6 - Ø24	
Coupling size	Type	Shaft distance dimension (L_R)	Hub type	Finish bore	Hub type	Finish bore

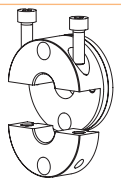
Components





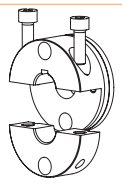
Types of hubs

Type 7.5



Clamping hub type DH without feather keyway for double-cardanic connection

Type 7.6



Clamping hub type DH with feather keyway for double-cardanic connection (on request)

Steel laminae couplings

RADEX®-N

RIGIFLEX®-N

RIGIFLEX®-HP

STEEL LAMINAE COUPLINGS
TYPES AND OPERATING DESCRIPTION

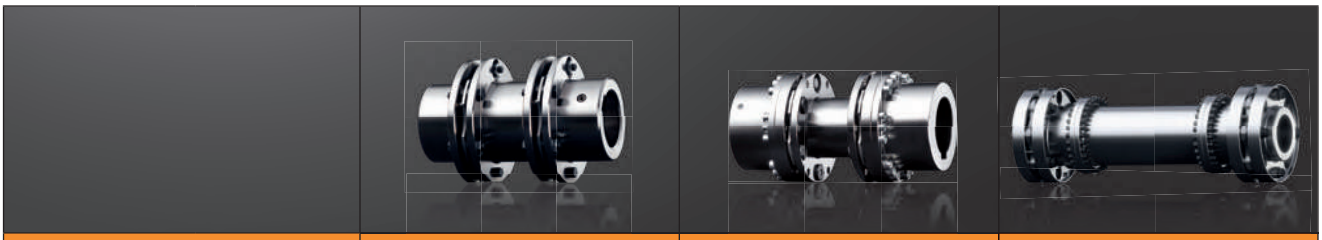
Properties of laminae couplings

			
Product	**RADEX®-N**	**RIGIFLEX®-N**	**RIGIFLEX®-HP**
Type	Steel laminae coupling		High-performance steel laminae coupling
Properties			
Torsionally stiff	●	●	●
Backlash-free	●	●	●
Maintenance-free	●	●	●
Compensating for misalignment	●	●	●
Special features			
Stock programme	Basic programme available from stock, customised solutions available	Basic programme available from stock, customised solutions available	For customised solutions, applications in high performance ranges and on high-speed drives
Applications / core industries	Pumps, compressors, fans	Pumps, compressors, fans	Pumps, turbo compressors, turbines
API	610	610 & 671	610 & 671
Performance data			
Max. rated torque T_{KN} [Nm]	280,000	280,000	330,000
Max. speed n [rpm]	20,000	23,000	17,300
Max. operating temperature T [°C]	280	280	280
Standard materials			
Hubs			
Steel (S355J2)	●	●	
Q & T steel (C45N)	●	●	
Q & T steel (42CrMo4V)			●
Q & T steel (30CrNiMo8)			●
Spacers			
Steel (S355J2)	●	●	
Q & T steel (C45N)	●	●	
Q & T steel (42CrMo4V)	with torsion shafts		●
Q & T steel (30CrNiMo8)	with torsion shafts		●
Special materials (corrosion-resistant)			
Hubs			
Steel (1.4305)	●	○	○
Steel (1.4404)	●		
Spacers			
Steel (1.4305)	●	○	○
Steel (1.4404)	●		
Spacer made of Composite GRP (fibre glass)	●		
Spacer made of Composite CFRP (carbon fibre)	●		
Surface coating	Painting, phosphating, zinc-coating and passivating, Geomet, Tenifer Q	Painting, phosphating, zinc-coating and passivating, Geomet, Tenifer Q	Painting, phosphating, zinc-coating and passivating, Geomet, Tenifer Q

● ≈ Standard
○ ≈ On request

STEEL LAMINAE COUPLINGS
TYPES AND OPERATING DESCRIPTION

Product finder of laminae couplings



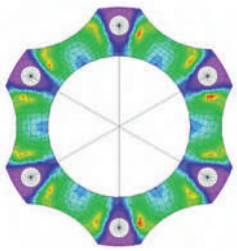
Product	RADEX®-N	RIGIFLEX®-N	RIGIFLEX®-HP
Type	Steel laminae coupling		High-performance steel laminae coupling
Geometries			
Design	Single- and double-cardanic	double-cardanic	double-cardanic
Max. shaft diameter [mm]	330	400	380
Radial assembly	●	●	●
Certifications/type examinations			
ATEX	●	●	–
GOST R/ GOST TR	●	●	●
DNV GL	●	●	●
ABS	●	●	–
LR	●	●	●

● ≈ Standard

Details on laminae couplings

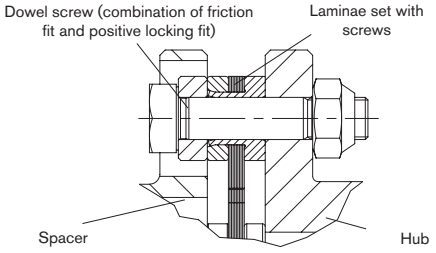
Laminas - laminae shape optimized by FEM

The steel laminae sets made of high-strength, stainless spring steel were developed based on FEM calculations. Considering the necessary options of displacement of the coupling, the optimum shape with regard to torque transmission and torsional stiffness was aimed at. The waisted shape of the steel laminas on the outside diameter resulted from this optimization calculation.



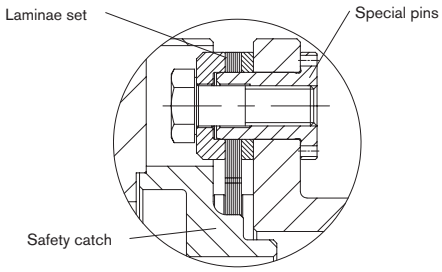
RADEX®-N - laminae sets with dowel screws

The heart of the steel laminae coupling are the laminae sets and their connection to hubs resp. spacers. High-strength special dowel screws that are alternately screwed to hubs and spacer allow for a combination of friction fit and positive locking fit. Thus a high power density with simultaneous ease of displacement and low restoring forces is ensured.



RIGIFLEX®-N - protecting the spacer

Since our main idea with the development of RIGIFLEX®-N was to comply with the standards of API 610 and API 671, the spacer is secured by a safety catch, too. In case if the laminas break the spacer remains inside the coupling.
In general the spacer is supplied along with laminae sets pre-assembled by the manufacturer. These are connected with the spacers resp. flanges fully free from backlash via positive-locking special pins.

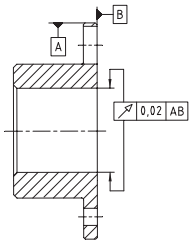


RADEX®-N
Steel laminae couplings

General advice

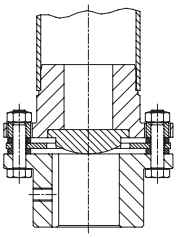
Advice on assembly and operation

See our mounting instructions KTR standard 47110 at www.ktr.com. With the assembly it is important to make sure that the laminae sets are assembled free from distortion in axial direction. If the finish bore is machined by the customer, the concentricity and axial running tolerances have to be adhered to (see sketch).



Installation

RADEX®-N couplings are designed for horizontal installation. With vertical installation the spacer might have to be supported (see sketch). Please consult with us.



Delivery condition

RADEX®-N couplings are delivered as individual components (can be delivered assembled on request). The hubs can be supplied unbored or with finish bore and feather keyway or with a frictionally engaged shaft-hub-connection. The shaft-hub-connection needs to be inspected by the customer (consult with KTR, if necessary).

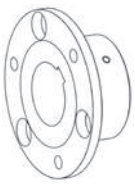
Balancing

On request of the customer the RADEX®-N couplings can be supplied with balancing. For standard applications this is not necessary due to accurate machining of the coupling. Please consult with us, if necessary.

Safety regulations

The coupling has to be dimensioned in that the permissible coupling load is not exceeded during any operating condition. For this purpose the actual loads have to be compared to the permissible coupling parameters. The customer has to protect rotating parts from accidental contact (Safety of Machinery DIN EN 292 chapter 2). Take precautions to make sure there is sufficient coupling protection in case of fracture of the coupling caused by overload.

Types of hubs



Type 1.0 hub
with feather keyway and setscrew

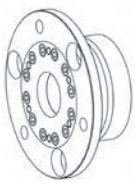
Positive-locking torque transmission, permissible torque depending on the permissible surface pressure. Not suitable for backlash-free torque transmission with heavily reversing operation.

Type 1.1 hub
without feather keyway, with setscrew

Non-positive torque transmission for crimp connections and adhesive bonds. (No ATEX approval)

Type 1.2 hub
without feather keyway, without setscrew

Non-positive torque transmission for crimp connections and adhesive bonds. (No ATEX approval)

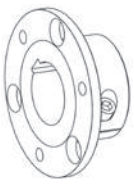


Type 6.0 clamping ring hub

Integrated frictionally engaged shaft-hub-connection for the transmission of higher torques. Clamping screws on laminae side. Transmittable torques depending on bore diameter. Suitable for high speeds.

Type 6.5 clamping ring hub

Integrated frictionally engaged shaft-hub-connection for the transmission of higher torques. Clamping screws from outside. Transmittable torques depending on bore diameter. Suitable for high speeds.



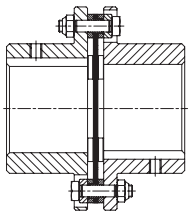
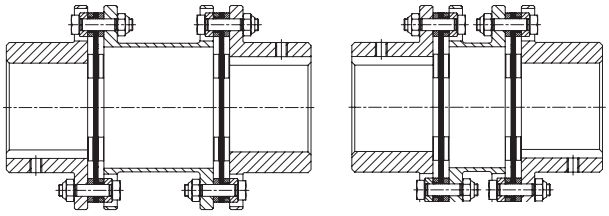
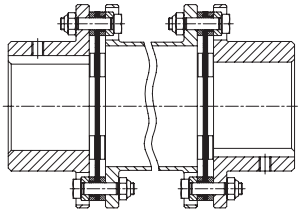
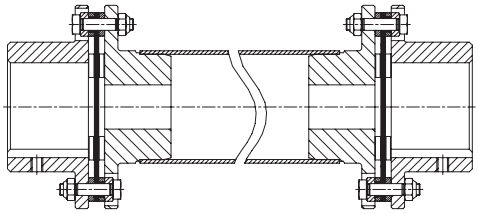
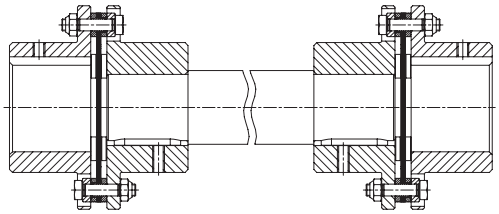
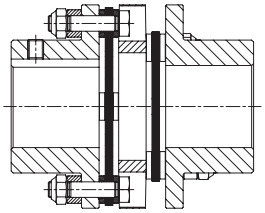
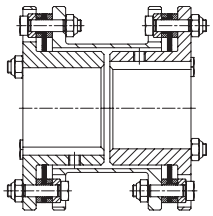
Type 2.5 clamping hub
double slotted, without feather keyway

Frictionally engaged, backlash-free shaft-hub-connection. Transmittable torques depending on bore diameter. For ATEX category 3 only.

Type 2.6 clamping hub
double slotted, with feather keyway

Positive-locking shaft-hub connection with additional friction fit. The friction fit prevents respectively reduces reverse backlash.

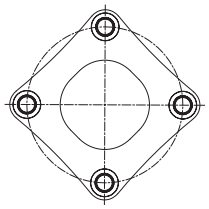
Types and applications

	Properties	Applications
Type NN (see page 180) 	● Single-cardanic type ● Only angular and axial displacement permissible ● High torsional rigidity ● Compact dimensions	● Mixers ● Agitators ● Immersion pumps ● Fans ● Applications with high radial load
Type NANA 1/NANA 2 (see page 180) 	● Double-cardanic type ● Compensating for high misalignment with low restoring forces ● Standard spacers available from stock	● Paper machines ● Printing and processing machines ● Materials handling ● Steel mills ● Generators ● Mill drives
Type NANA 3 (see page 184) 	● Double-cardanic type ● Spacers adapted to standard dimensions of pumps ● Radial assembly, no shifting of the machine required ● Available according to API 610	● Process pumps ● Water pumps ● Pumps according to API standard ● Turbines ● Compressors
Type NANA 4 (see page 182) 	● Customised spacers ● Max. shaft distance dimension up to approx. 6 m ● Welded intermediate pipes for high torsional stiffness	● Foil and paper machines ● Pallet and conveyor systems ● Robotic palletizers ● Test benches ● Cooling towers/blowers
Type NNW (see page 182) 	● Customised spacers ● coupling consisting of 2-off type NN with intermediate shaft ● For drives with relatively low speeds	● Low-speed drives with large shaft distance dimensions ● Agitators ● Crushers ● Presses ● Packaging machinery
Type NNZ (see page 181) 	● Compact double-cardanic coupling ● Cannot be radially assembled ● With intermediate disk ● Ideally suitable for replacing curved-tooth gear couplings made of steel ● Standard type up to size 70	● Robotics ● Paper machines and inserters ● Machine tools ● Packaging machinery ● Test benches
Type NENE (see page 181) 	● With reduced hubs ● Compact double-cardanic design ● spacer cannot be radially assembled ● Variable spacer length	● Applications with short shaft distance dimensions ● Replacement of curved-tooth gear couplings made of steel

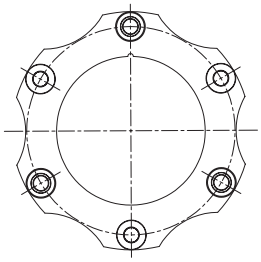
Technical data

The following laminae types are to be distinguished with RADEX®-N:

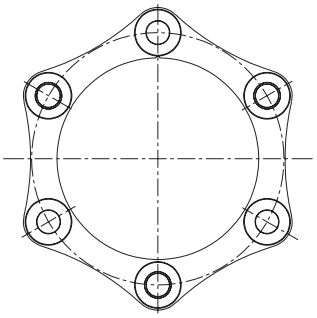
Size 20 – 50
(laminae with 4 holes)



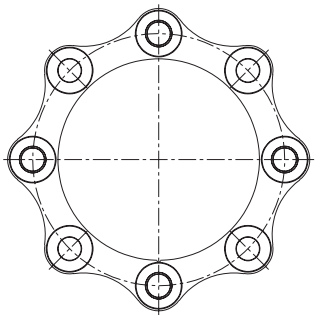
Size 60 – 135
(laminae with 6 holes)



Size 136 – 336
(laminae with 6 holes)



Size 138 – 338
(laminae with 8 holes)



Torques and displacements

Size	Laminae type	Torques [Nm] [1]			Perm. displacements [2]				
						Axial [mm]		Radial [mm]	
		T_{KN}	$T_{K\,max}$	T_{KW}	Angular [°] each laminae	NN	NANA 1/ NANA 2/NNZ	NANA 1	NANA 2
20	laminae with 4 holes	30	60	15	1.0	0.60	1.2	1.0	0.2
25		60	120	30	1.0	0.80	1.6	1.0	0.2
35		120	240	60	1.0	1.00	2.0	1.1	0.3
38		240	480	120	1.0	1.20	2.4	1.2	0.3
42		320	640	160	1.0	1.40	2.8	1.2	0.4
50		470	940	235	1.0	1.60	3.2	1.5	0.4
60		900	1800	450	1.0	1.00	2.0	1.5	0.8
70		1300	2600	650	1.0	1.10	2.2	1.8	1.0
80		1800	3600	900	1.0	1.30	2.6	2.1	1.2
85		2600	5200	1300	1.0	1.30	2.6	2.2	1.2
90		4600	9200	2300	1.0	1.00	2.0	2.2	1.1
105		5600	11200	2800	1.0	1.20	2.4	2.4	1.4
115		9900	19800	4950	1.0	1.40	2.8	2.5	1.5
135	laminae with 6 holes	13500	27000	6750	1.0	1.75	3.5	3.8	–
136		17500	35000	8750	0.7	1.85	3.7		
156		25000	50000	12500	0.7	2.10	4.2		
166		35000	70000	17500	0.7	2.25	4.5		
186		42000	84000	21000	0.7	2.40	4.8		
206		52500	105000	26250	0.7	2.60	5.2		
246		90000	180000	45000	0.7	3.00	6.0		
286		150000	300000	75000	0.7	3.35	6.7		
336		210000	420000	105000	0.7	3.75	7.5	Depending on	
138	laminae with 8 holes	23000	46000	11500	0.5	1.30	2.6	drop-out center dimension E	
158		33000	66000	16500	0.5	1.40	2.8		
168		45000	90000	22500	0.5	1.50	3.0		
188		56000	112000	28000	0.5	1.60	3.2		
208		70000	140000	35000	0.5	1.75	3.5		
248		120000	240000	60000	0.5	2.00	4.0		
288		200000	400000	100000	0.5	2.40	4.5		
338		280000	560000	140000	0.5	2.50	5.0		

Permissible speeds and torsional stiffness figures

Size	Max. speed [rpm] (higher speeds on request)	Torsion spring stiffness x 10^6 [Nm/rad] per laminae set	Size	Max. speed [rpm] (higher speeds on request)	Torsion spring stiffness x 10^6 [Nm/rad] per laminae set
20	20400	0.02	156	3500	17.00
25	16800	0.03	166	3300	19.00
35	13900	0.11	186	3000	25.00
38	12000	0.20	206	2800	31.00
42	11000	0.28	246	2300	55.00
50	9000	0.50	286	2000	79.00
60	8200	0.56	336	1800	125.00
70	7300	0.90	138	3800	20.00
80	6300	1.10	158	3500	26.00
85	5900	1.50	168	3300	30.00
90	5400	2.00	188	3000	39.00
105	5000	2.50	208	2800	49.00
115	4300	3.50	248	2300	83.00
135	3700	6.90	288	2000	125.00
136	3800	13.00	338	1800	200.00

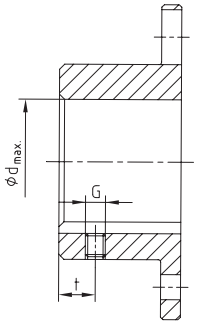
[1] For selection of coupling see page 18 et seqq.
[2] The permissible displacement figures specified are maximum figures which must not arise simultaneously. If axial, radial and angular displacement arises at the same time, these values must be reduced.

Technical data

Weights and mass moments of inertia						
Size	Hub [1] [kg] / [kgm²]	Laminae set [kg] / [kgm²]	NN [1] complete [kg] / [kgm²]	NANA 1 [1] complete [kg] / [kgm²]	NANA 2 [1] complete [kg] / [kgm²]	NNZ [1] complete [kg] / [kgm²]
20	0.13 / 0.000043	0.04 / 0.00002	0.3 / 0.00011	0.6 / 0.000204	–	0.4 / 0.000166
25	0.2 / 0.000116	0.08 / 0.00005	0.56 / 0.00028	0.9 / 0.000522	–	0.8 / 0.000414
35	0.6 / 0.00042	0.10 / 0.00010	1.2 / 0.00094	1.9 / 0.00158	–	1.6 / 0.00129
38	0.8 / 0.00073	0.20 / 0.00026	1.8 / 0.0017	2.8 / 0.00303	–	2.4 / 0.00247
42	1.1 / 0.00123	0.25 / 0.00040	2.4 / 0.0029	3.6 / 0.00482	–	3.1 / 0.00409
50	1.7 / 0.00291	0.46 / 0.0010	4.0 / 0.0068	6.2 / 0.0118	–	5.1 / 0.00932
60	1.9 / 0.00378	0.40 / 0.0012	4.2 / 0.0087	6.0 / 0.0141	5.8 / 0.0138	5.3 / 0.0120
70	2.8 / 0.00714	0.42 / 0.0016	6.0 / 0.016	8.6 / 0.0253	8.2 / 0.0242	7.5 / 0.0214
80	4.1 / 0.0134	0.72 / 0.0037	9.0 / 0.031	12.6 / 0.0476	12.0 / 0.0458	11.1 / 0.0410
85	5.1 / 0.0195	1.0 / 0.0065	11.2 / 0.046	16.2 / 0.0734	15.5 / 0.0711	14.8 / 0.0650
90	6.2 / 0.0282	2.3 / 0.0162	14.7 / 0.073	22.0 / 0.121	21.3 / 0.119	20.1 / 0.108
105	7.6 / 0.0414	2.2 / 0.0180	17.4 / 0.101	25.8 / 0.165	24.6 / 0.159	23.1 / 0.145
115	12.0 / 0.0899	4.0 / 0.0433	27.9 / 0.223	42.8 / 0.381	41.2 / 0.372	38.3 / 0.333
135	19.0 / 0.187	7.3 / 0.105	45.1 / 0.478	71.3 / 0.835	–	–
136	16.8 / 0.153	7.9 / 0.113	41.4 / 0.419			–
156	20.2 / 0.217	11.9 / 0.200	52.2 / 0.634			–
166	30.0 / 0.373	12.3 / 0.255	72.3 / 1.001			–
186	42.0 / 0.629	12.7 / 0.318	96.7/ 1.576			–
206	55.1 / 1.004	18.2 / 0.548	128.3 / 2.556			–
246	85.9 / 2.229	31.2 / 1.304	203.1 / 5.762			–
286	145.1 / 4.977	44.4 / 2.495	334.4 / 12.449			–
336	223.9 / 10.486	64.2 / 4.74	512.0 / 25.712	Depending on	Depending on	–
138	16.2 / 0.145	9.9 / 0.143	42.3 / 0.433	drop-out center dimension E	drop-out center dimension E	–
158	19.5 / 0.205	14.9 / 0.252	54.0 / 0.662			–
168	29.4 / 0.360	15.2 / 0.318	74.0 / 1.038			–
188	41.7/ 0.611	15.6 / 0.396	99.0 / 1.618			–
208	54.1 / 0.971	22.4 / 0.680	130.5 / 2.622			–
248	84.0 / 2.144	38.2 / 1.605	206.2 / 5.893			–
288	142.5 / 4.823	53.8 / 3.056	338.8 / 12.702			–
338	220.1 / 10.18	78.0 / 5.817	518.2 / 26.177			–

[1] Hubs with max. bore

Cylindrical bores

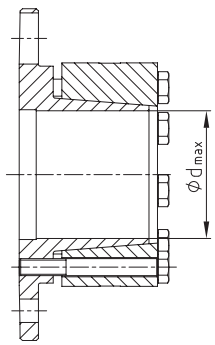


Standard hub 1.0 with feather keyway according to DIN 6885 sheet 1									
Size	$d_{max.}$	G	t	T_A [Nm]	Size	$d_{max.}$	G	t	T_A [Nm]
20	20	M5	6	2.0	105	110	M12	30	40.0
25	25	M5	8	2.0	115	120	M12	30	40.0
35	38	M6	15	4.8	135	135			
38	42	M6	15	4.8	136 / 138	135			
42	50	M8	20	10.0	156 / 158	150			
50	55	M8	20	10.0	166 / 168	170			
60	65	M8	20	10.0	186 / 188	190	According to customer specification		
70	75	M10	20	17.0	206 / 208	210			
80	85	M10	20	17.0	246 / 248	245			
85	90	M10	25	17.0	286 / 288	290			
90	100	M12	25	40.0	336 / 338	340			

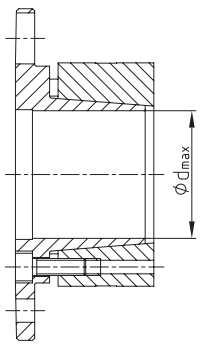
Backlash-free shaft-hub connections without feather key

Selection: If used in potentially explosive atmospheres the clamping ring hubs must be selected in that there is a minimum safety factor of s = 2 between the peak torque of the machine including all operating parameters and the nominal torque and frictional locking torque of the coupling.

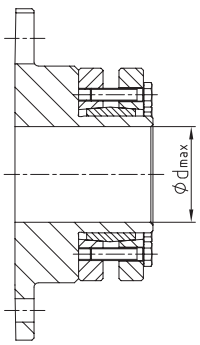
Clamping ring hub type 6.5
(clamping screws from outside)



Clamping ring hub type 6.0
(clamping screws from inside)



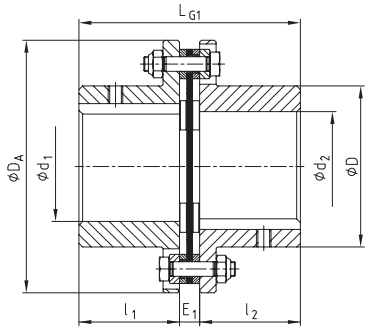
Type with CLAMPEX® element type 603



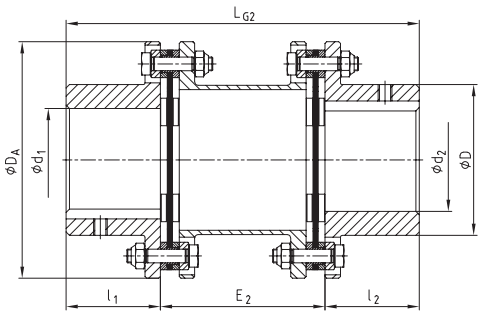
RADEX®-N NN, NANA 1 and NANA 2
Steel laminae couplings

Standard types

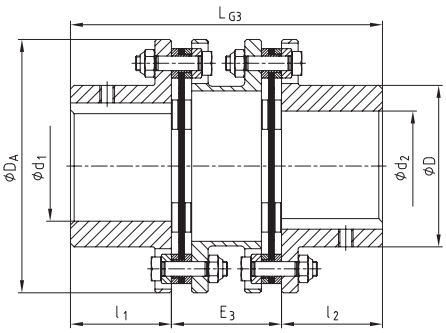
Components



Type NN



Type NANA 1



Type NANA 2

RADEX®-N Types NN, NANA 1, NANA 2										
Size	Max. finish bore	Dimensions [mm]								
	d_1, d_2	D	D_A	l_1, l_2	L_{G1}	E_1	L_{G2}	E_2	L_{G3}	E_3
20	20	32	56	20	45	5	100	60	–	–
25	25	40	68	25	56	6	110	60	–	–
35	38	54	82	40	86	6	150	70	–	–
38	42	58	94	45	98	8	170	80	–	–
42	50	68	104	45	100	10	170	80	–	–
50	55	78	126	55	121	11	206	96	–	–
60	65	88	138	55	121	11	206	96	170	60
70	75	102	156	65	141	11	246	116	200	70
80	85	117	179	75	164	14	286	136	233	83
85	90	123	191	80	175	15	300	140	246	86
90	100	132	210	80	175	15	300	140	251	91
105	110	147	225	90	200	20	340	160	281	101
115	120	163	265	100	223	23	370	170	309	109
135	135	184	305	135	297	27	520	250	–	–
136	135	180	300	135	293	23				
156	150	195	325	150	327	27				
166	170	225	350	165	361	31				
186	190	250	380	185	401	31				
206	210	275	420	200	437	37				
246	245	320	500	240	524	44				
286	290	383	567	280	612	52				
336	340	445	660	330	718	58	According to customer specification			
138	135	180	300	135	293	23				
158	150	195	325	150	327	27				
168	170	225	350	165	361	31				
188	190	250	380	185	401	31				
208	210	275	420	200	437	37				
248	245	320	500	240	524	44				
288	290	383	567	280	612	52				
338	340	445	660	330	718	58				

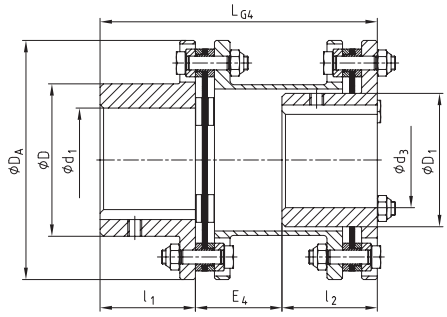
Ordering example:

RADEX®-N 60	NANA 1	Ø50	Ø60
Coupling size	Type	Finish bore d_1	Finish bore d_2

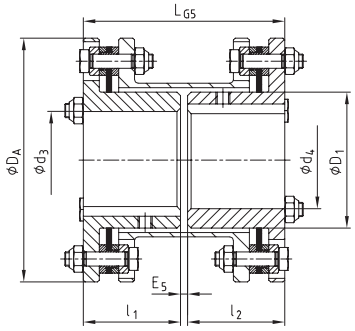
RADEX®-N NENA 1, NENA 2, NENE and NNZ
Steel laminae couplings

Standard types

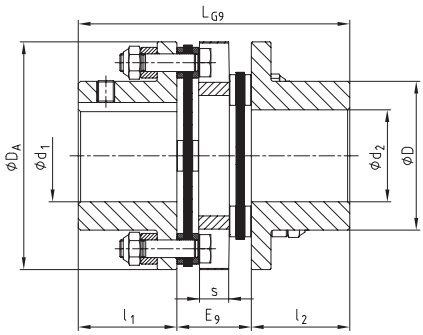
Components



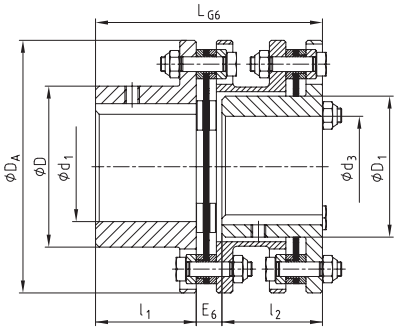
Type NENA 1



Type NENE



Type NNZ



Type NENA 2

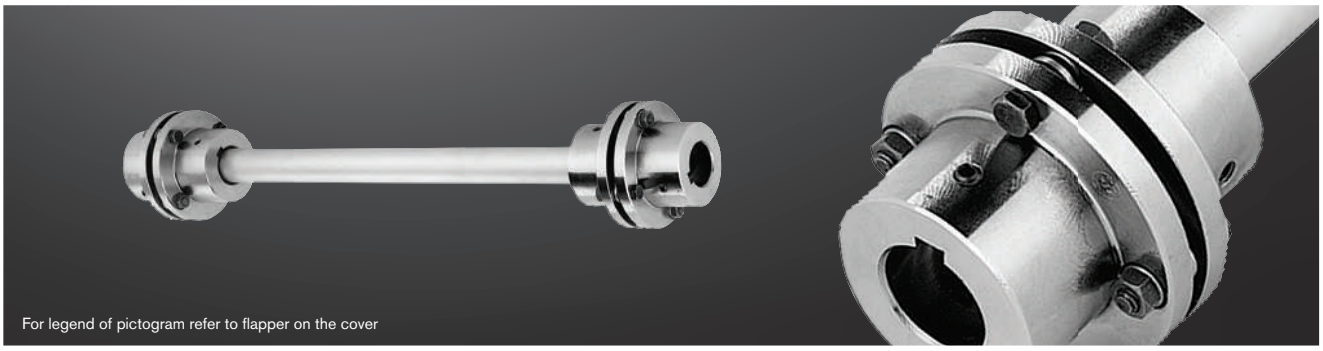
RADEX®-N Types NENA 1, NENE, NENA 2, NNZ															
Size	Max. finish bore		Dimensions [mm]												
	d_1, d_2	d_3, d_4	D	D_1	D_A	l_1, l_2	L_{G4}	E_4	L_{G5}	E_5	L_{G6}	E_6	L_{G9}	E_9
20	20	–	32	–	56	20	–	–	–	–	–	–	58	18
25	25	–	40	–	68	25	–	–	–	–	–	–	70	20
35	38	–	54	–	82	40	–	–	–	–	–	–	102	22
38	42	–	58	–	94	45	–	–	–	–	–	–	118	28
42	50	–	68	–	104	45	–	–	–	–	–	–	124	34
50	55	–	78	–	126	55	–	–	–	–	–	–	144	34
60	65	55	88	77	138	55	160	50	114	4	124	14	144	34
70	75	65	102	90	156	65	190	60	134	4	144	14	166	36
80	85	75	117	104	179	75	220	70	154	4	167	17	–	–
85	90	80	123	112	191	80	232	72	164	4	178	18	–	–
90	100	85	132	119	210	80	233	73	166	6	184	24	–	–
105	110	90	147	128	225	90	263	83	186	6	204	24	–	–
115	120	100	163	145	265	100	288	88	206	6	227	27	–	–

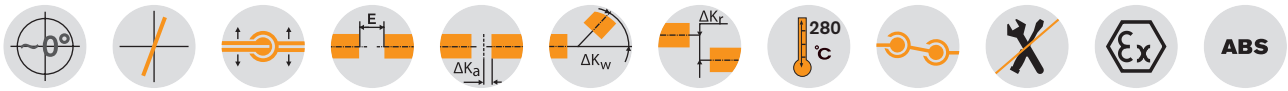
Ordering example:

RADEX®-N 60	NENA 1	Ø50	Ø60
Coupling size	Type	Finish bore d_1	Finish bore d_2

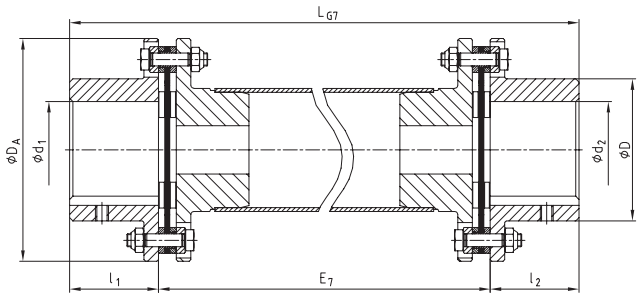
RADEX®-N NANA 4 and NNW
Steel laminae couplings

Customised types

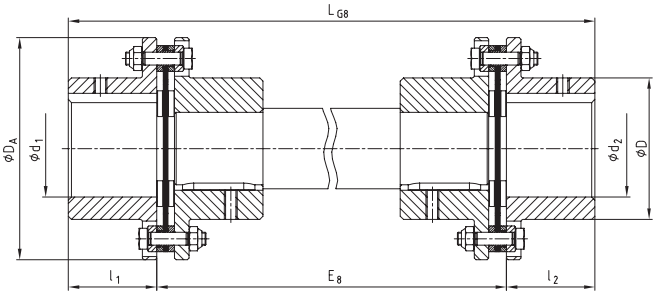




Components



Type NANA 4



Type NNW

RADEX®-N Types NANA 4, NNZ and NNW								
Size	Max. finish bore	Dimensions [mm]						
	d_1, d_2	D	D_A	l_1, l_2	L_{G7}	E_7	L_{G8}	E_8
20	20	32	56	20				
25	25	40	68	25				
35	38	54	82	40				
38	42	58	94	45				
42	50	68	104	45				
50	55	78	126	55				
60	65	88	138	55				
70	75	102	156	65				
80	85	117	179	75				
85	90	123	191	80				
90	100	132	210	80				
105	110	147	225	90				
115	120	163	265	100				
135	135	184	305	135				
136	135	180	300	135				
156	150	195	325	150				
166	170	225	350	165				
186	190	250	380	185				
206	210	275	420	200				
246	245	320	500	240				
286	290	383	567	280				
336	340	445	660	300				
138	135	180	300	135				
158	150	195	325	150				
168	170	225	350	165				
188	190	250	380	185				
208	210	275	420	200				
248	245	320	500	240				
288	290	383	567	280				
338	340	445	660	300				

$L_{G7} = E_7 + l_1 + l_2$

Intermediate shaft dimension according to customer specification

$L_{G8} = E_8 + l_1 + l_2$

Intermediate shaft dimension according to customer specification

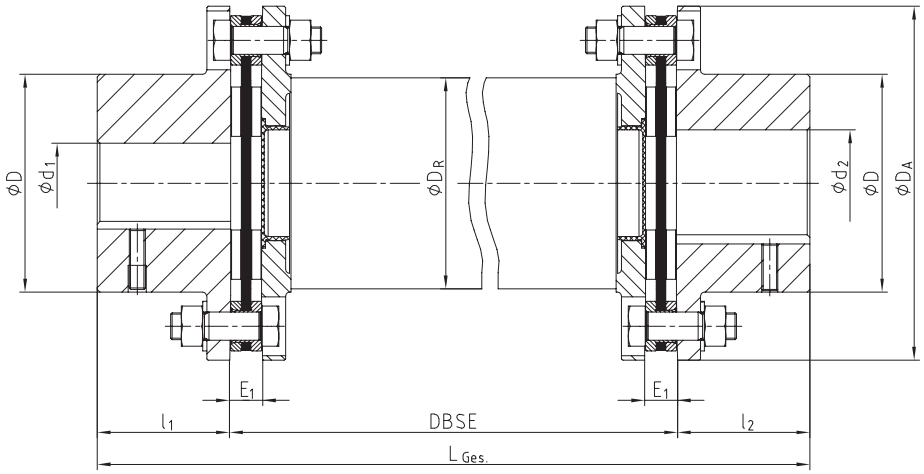
Ordering example:

RADEX®-N 60	NANA 4	Ø50	Ø60	2500
Coupling size	Type	Finish bore d_1	Finish bore d_2	Shaft distance dimension

RADEX®-N Composite
Steel laminae couplings

Corrosion-resistant type for large shaft distances

Components



RADEX®-N Type NANA 4 CFK											
Size	Torque [Nm] 1)		Dimensions [mm]								
	T_{KN}	$T_{K\,max}$	D_A	d_1, d_2 max.	D	l_1, l_2	E_1	DBSE	L_{total}	Composite tube D_R	Max. DBSE 2) with 1500 rpm
70	800	1600	149	75	102	65	11	As specified by the customer	$l_1 + l_2 +$ DBSE	95	3500
85	1800	3600	184	90	123	80	15			117	3900
90	2500	5000	200	100	135	80	15			128	4100
115	4500	9000	253	120	163	100	23			160	4600

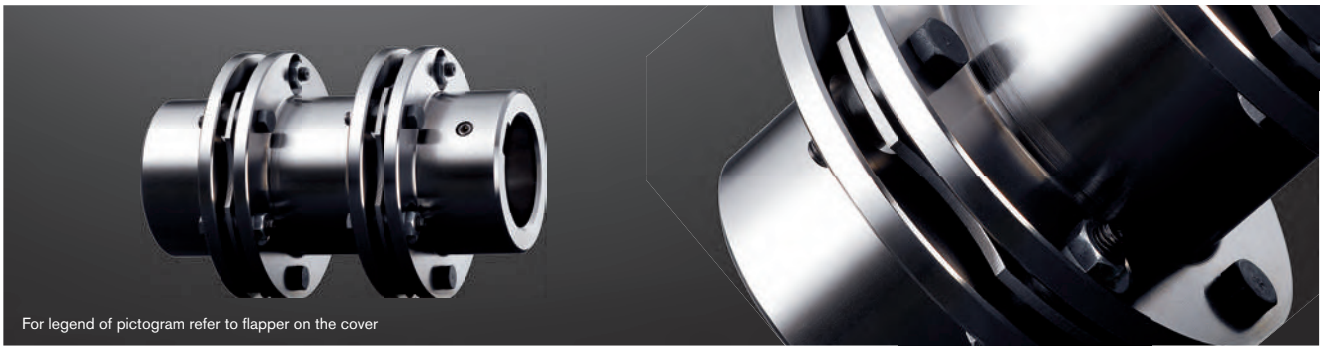
1) For selection of coupling see page 18 et seqq.
2) For higher speeds or bigger shaft distance dimensions please consult with KTR (+49 5971 798-484). The above-mentioned characteristic figures (e. g. max. DBSE) can be varied by Composite tubes optimized for the application, if necessary.

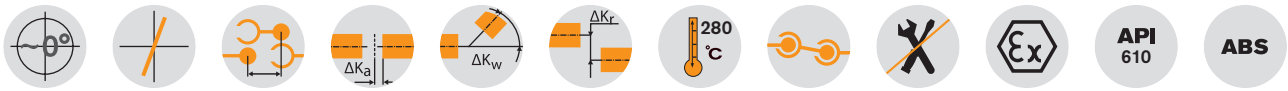
Particularly the steel laminae couplings are well suited for applications with especially large distance dimensions between the drive and the driven side (e. g. cooling towers, fans etc.) due to their design. In order to generate high speeds with large distance dimensions, RADEX®-N couplings with intermediate tubes made of glass fibre or carbon fibre reinforced nylon (GRP or CFRP) are used, if necessary.

Ordering example:	RADEX®-N 85	NANA 4 CFK	Ø60	Ø70	3000
	Coupling size	Type	Finish bore d_1	Finish bore d_2	Shaft distance dimension

RADEX®-N NANA 3
Steel laminae couplings

pump drives in accordance with API 610





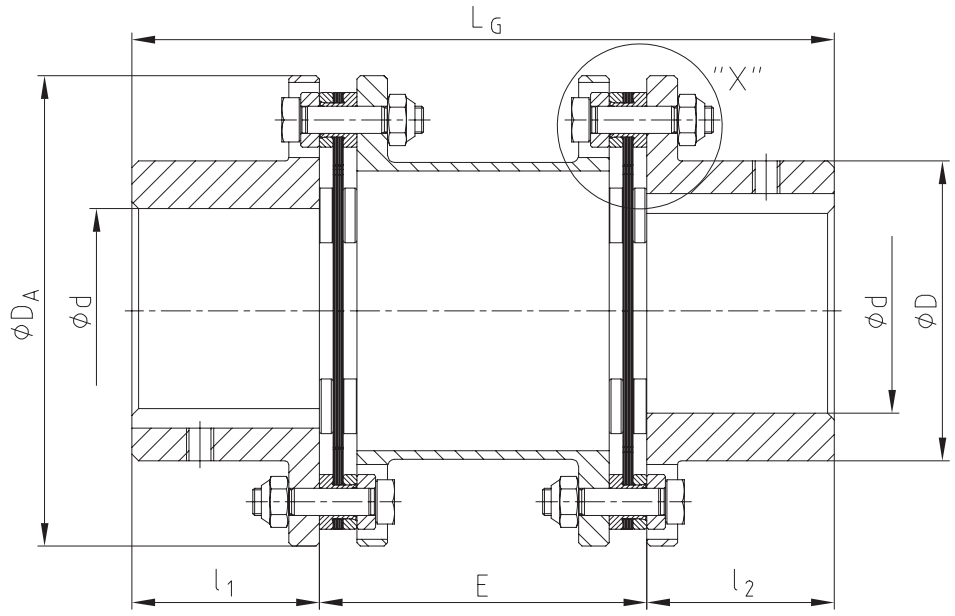
RADEX®-N type NANA 3							
Size	Max. finish bore	Dimensions [mm]				Perm. displacements	
	d	D	D_A	$E_{standard}$ [1]	l_1, l_2	Angular [°] each laminae	Axial [mm]
42	50	68	104	100	45	1.0	2.8
50	55	78	126	140/180	55	1.0	3.2
60	65	88	138	100/140/180/250	55	1.0	2.0
70	75	102	156	100/140/180	65	1.0	2.2
80	85	117	179	100/140/180/250	75	1.0	2.6
85	90	123	191	100/140/180/250	80	1.0	2.3
90	100	132	210	140/180/250	80	1.0	2.0
105	110	147	225	250	90	1.0	2.4
115	120	163	265	250	100	1.0	2.8
135	135	184	305	250	135	1.0	3.5
136	135	180	300		135	0.7	3.7
156	150	195	325		150	0.7	4.2
166	170	225	350		165	0.7	4.5
186	190	250	380		185	0.7	4.8
206	210	275	420		200	0.7	5.2
246	245	320	500		240	0.7	6.0
286	290	383	567		280	0.7	6.7
336	340	445	660	As specified by the customer	330	0.7	7.5
138	135	180	300		135	0.5	2.6
158	150	195	325		150	0.5	2.8
168	170	225	350		165	0.5	3.0
188	190	250	380		185	0.5	3.2
208	210	275	420		200	0.5	3.5
248	245	320	500		240	0.5	4.0
288	290	383	567		280	0.5	4.5
338	340	445	660		330	0.5	5.0

[1] Other distance dimensions E available on request.

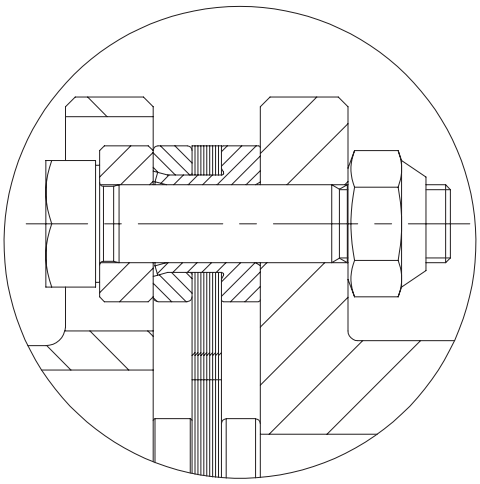
Ordering example:

RADEX®-N 60	NANA 3	Ø50	Ø60	140
Coupling size	Type	Finish bore d_1	Finish bore d_2	Shaft distance dimension

Components



Detail “X”

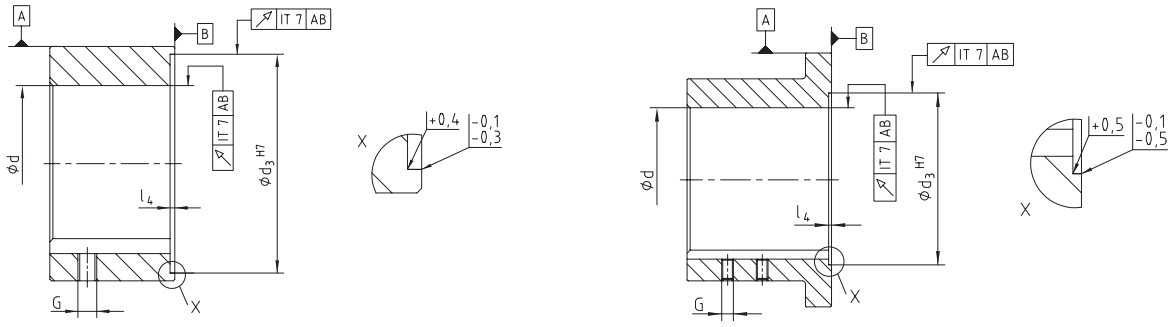


Safety catch of the spacer:
The laminae sets are provided with a sleeve in order to secure the spacer in case if the laminas break.

General advice

Advice on assembly and operation

See our mounting instructions KTR standard 47410 at www.ktr.com. With the assembly it is important to make sure that the laminae sets are assembled free from distortion in axial direction.
If the finish bore is machined by the customer, the tolerances for concentricity and axial run-out have to be observed (see illustrations below).



Installation

RIGIFLEX®-N couplings are designed for horizontal installation. With vertical installation the spacer has to be supported, if necessary. Please consult with us.

Delivery condition

RIGIFLEX®-N-couplings are supplied as individual components (assembled on request), with the subassembly of spacers (flanges, laminae sets and spacer) being fully assembled. The hubs can be supplied unbored or with finish bore and feather keyway or with a frictionally engaged shaft-hub-connection. The shaft-hub-connection needs to be inspected by the customer (consult with KTR, if necessary).

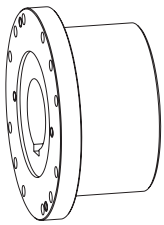
Balancing

On request of the customer the RIGIFLEX®-N couplings can be balanced. Please consult with us, if necessary.

Safety regulations

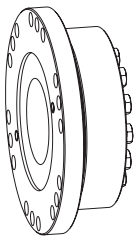
The coupling has to be dimensioned in that the permissible coupling load is not exceeded during any operating condition. For this purpose the actual loads have to be compared to the permissible coupling parameters. The customer has to protect rotating parts from accidental contact (Safety of Machinery DIN EN 292 chapter 2). Take precautions to make sure there is sufficient coupling protection in case of fracture of the coupling caused by overload.

Types of hubs



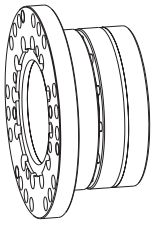
Type 1.0 hub with feather keyway and setscrew

Positive-locking torque transmission, permissible torque depending on the permissible surface pressure.



Type with KTR 620 or 603 clamping set

Frictionally engaged torque transmission with external clamping set KTR 620 or KTR 603. Transmittable torques depending on bore diameter.



Type 6.0 and 6.5 hub

Integrated frictionally engaged shaft-hub-connection. Transmittable torques depending on bore diameter. Suitable for high speeds.