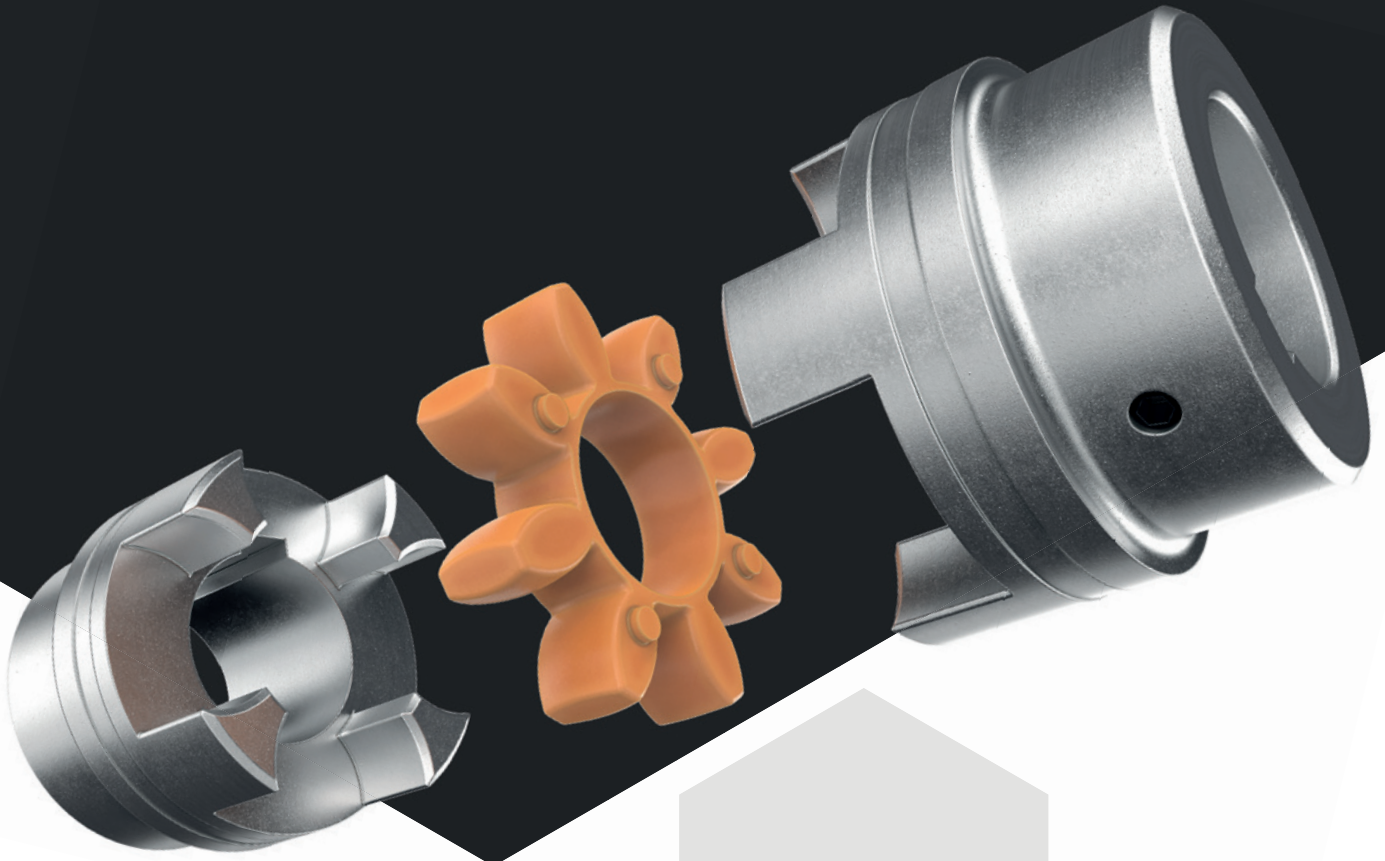


Made for Motion



Drive Technology

Couplings

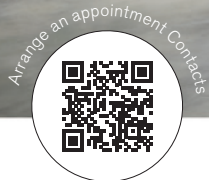
Torque limiters

Clamping elements

Torque measuring systems

2024/25

www.ktr.com



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.“



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.

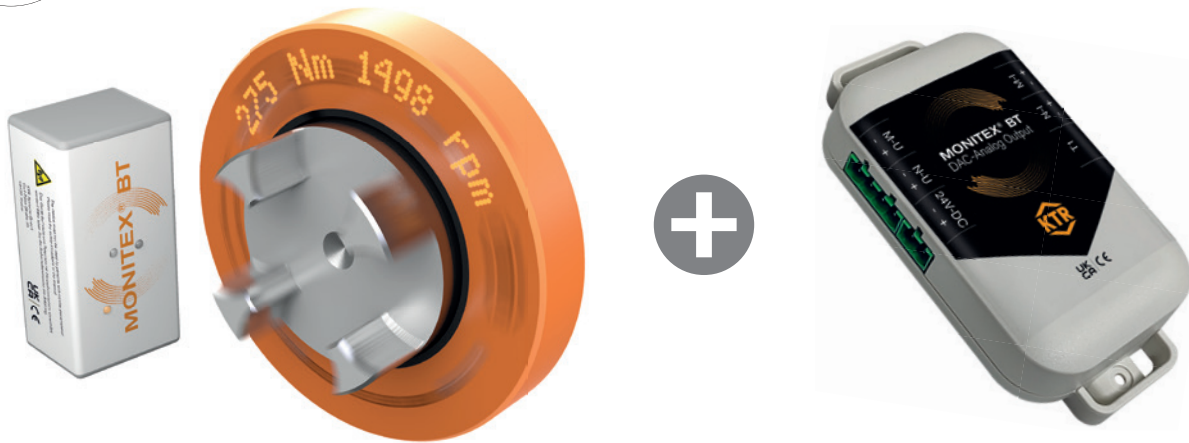
Do you have any questions about the subjects of compliance, occupational safety, environmental protection, carbon footprint, Supply Chain Due Diligence Act or sustainability reporting/CSRD?

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





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)



Backlash-free intermediate shaft coupling



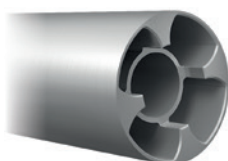
ROTEX® GS ZRS

- 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)



Individually cut to size



Internal geometry machined
tailor-made for elastomer

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 electrification. 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, multimedum 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



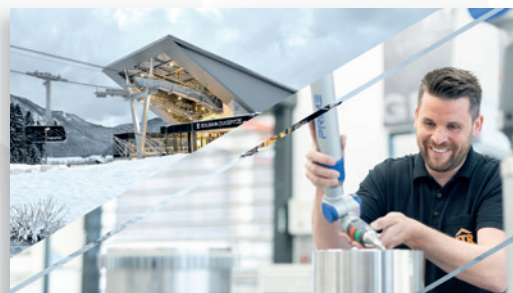
Automation



Machine tools



Hydraulics



General drive technology



Marine



Gensets

SUMMARY OF PRODUCTS/INDUSTRIES

WIND POWER	Gearless wind turbines	Wind turbines	Local power grids	CONSTRUCTION AND AGRICULTURAL MACHINERY	Excavators	Road rollers	Crushers	Combine harvesters	Tank spreaders	PUMPS AND COMPRESSORS	Compressors	Pumps	Cooling towers	INDOOR MATERIALS HANDLING	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																	
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TORQUE LIMITERS

RUFLEX®																	
KTR SI/KTR SI Compact																	
SYNTEX®/SYNTEX®-NC																	

CLAMPING SETS

CLAMPEX®																	
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TORQUE MEASURING TECHNOLOGY

DATAFLEX®																	
MONITEX® BT																	

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

MARINE																		
ATEX	GOST R/GOST TR	Bureau Veritas	American Bureau of Shipping	DNV/GL	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									
																		

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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 $\geq 10^5$ 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 [kgm ²]	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 [kgm ²]	J_L	
Mass moment of inertia of coupling [kgm ²]	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/mm ²	Sintered steel	180 N/mm ²
Nodular iron (GJS)	225 N/mm ²	Aluminium diecast (Al-D)	110 N/mm ²
Steel	250 N/mm ²	Aluminium wrought products (Al-H)	200 N/mm ²
Polyamide	30 N/mm ² (up to +40 °C)	For other steel materials p _{perm.}	$0.9 \cdot R_e (R_{p0.2})$

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 .

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

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

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.

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

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

$$\text{Shock on load side} \\ T_S = T_{LS} \cdot M_L \cdot S_L$$

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

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

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

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

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

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.

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

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

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

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.

$$P_{KW} \geq P_W$$

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.

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

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: $P = 160 \text{ kW}$
 Speed: $n = 1485 \text{ rpm}$
 Moment of inertia of driving side: $J_{\text{Motor}} = 2.9 \text{ kgm}^2$
 Starting frequency: 6 times per hour → $S_Z = 1.0$ (see page 15)
 Ambient temperature: $+70^\circ\text{C}$ → $S_t = 1.45$ using T-PUR® (see page 15)
 Peak torque (starting torque) $T_{AS} = 2 \cdot T_{AN}$

Given: Details of load side

Screw compressor:
 Rated torque of load side: $T_{LN} = 930 \text{ Nm}$
 Moment of inertia of load side: $J_{\text{Compressor}} = 6.8 \text{ kgm}^2$

Calculation

1.1 Loading generated by rated torque

- Rated torque of drive T_{AN}

$$T_{AN} = 9550 \cdot \frac{P [\text{kW}]}{n [\text{rpm}]} \rightarrow 9550 \cdot \frac{160 \text{ kW}}{1485 \text{ rpm}} = 1029 \text{ Nm}$$
- Rated torque of load side T_{LN}

$$T_{KN} \geq T_{LN} \cdot S_t \rightarrow 930 \text{ Nm} \cdot 1.45 = 1348.5 \text{ Nm} \rightarrow T_{KN} \geq 1348.5 \text{ Nm}$$
- Coupling selection
 ROTEX® size 90 - spider 92 Shore A with:
 $T_{KN} = 2400 \text{ Nm}$
 $T_{K \text{ max}} = 4800 \text{ Nm}$
 Mass moments of inertia of page 59
 $J_{KA} = 0.0673 \text{ kgm}^2$
 $J_{KL} = 0.0673 \text{ kgm}^2$

1.2 Loading generated by torque shocks

- Shock on driving side without load torque being superimposed

$$T_{K \text{ max}} \geq T_S \cdot S_Z \cdot S_t + T_N \cdot S_t \rightarrow T_N = 0$$

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

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

$$J_A = J_{\text{Motor}} + J_{KA} \rightarrow 2.9 \text{ kgm}^2 + 0.0673 \text{ kgm}^2 \rightarrow J_A = 2.9673 \text{ kgm}^2$$

$$J_L = J_{\text{Compressor}} + J_{KL} \rightarrow 6.8 \text{ kgm}^2 + 0.0673 \text{ kgm}^2 \rightarrow J_L = 6.8673 \text{ kgm}^2$$

Start-up torque $T_{AS} = 2 \cdot T_{AN} \rightarrow 2 \cdot 1029 \text{ Nm} = 2058 \text{ Nm}$

$$\rightarrow \text{Shock on drive side } T_S = 2058 \cdot 0.7 \cdot 1.8 = 2593.1 \text{ Nm}$$

$$\rightarrow T_{K \text{ max}} \geq 2593.1 \text{ Nm} \cdot 1 \cdot 1.45 = 3760 \text{ Nm}$$

$T_{K \text{ max}}$ with 4800 Nm $\geq 3760 \text{ Nm}$ ✓

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

REVOLUX® 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 $\geq 10^5$ 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	SZ	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				Direction factor S_R	
Start-up frequency per hour	< 10	< 25	< 50	Same torsional direction	1.0
S_z	1.0	1.2	1.4	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 .

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

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

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.

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

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: $P = 200 \text{ kW}$
 Speed: $n = 1500 \text{ rpm}$
 Starting frequency: 6 times per hour → $S_Z = 1.0$ (see page 19)
 Ambient temperature: $+65 \text{ °C}$ → $S_t = 1.0$ (see page 19)
 Peak torque (starting torque) T_{AS} = $2 \cdot T_{AN}$
 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: $T_{LN} = 930 \text{ Nm}$
 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}

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

● Loading generated by rated torque

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

1.2 Loading generated by torque shocks

● Shock on driving side without load torque being superimposed

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

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

$$\rightarrow T_{K \max} \geq 1860 \text{ Nm} \cdot 1 \cdot 1 \cdot 1 = \underline{1860 \text{ Nm}}$$

● Coupling selection

$$T_{KN} = 2400 \text{ Nm}$$

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

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 $\geq 10^5$ 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 occurring 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 [kgm ²]	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 [kgm ²]	J_L	
Mass moment of inertia of coupling [kgm ²]	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 [kgm ²]	$J_{Mot}/J_{Sp}/J_{HS}$	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	$i \leq 5$	8.0
	$i > 5 - \leq 7$	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

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

and

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

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

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 :

$$T_S = T_{AS} \cdot M_A \cdot S_Z \quad \longrightarrow \quad M_A = \frac{J_L}{(J_A + J_L)}$$

2. Servo-hydraulic drives

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

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} .

$S_t \cdot S_B$ 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

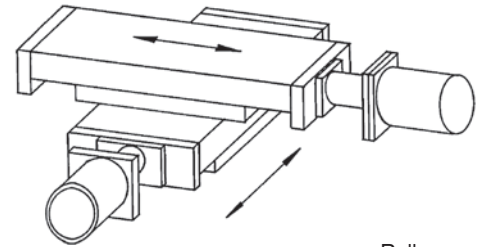
Max. driving torque T_{AS} : 144 Nm

Moment of inertia J_{Mot} : 0.0108 kgm²

Diameter of motor shaft: 32 k6 without feather keyway

Ambient temperature: +40 °C

Starts per minute: 15



Ball screw

→ $S_t = 1.2$ (see page 23)

→ $S_z = 1.0$ (see page 23)

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_{SI} : 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)

$$T_{KN} \geq T_{AN} \cdot S_t \cdot S_B \quad \rightarrow 43 \text{ Nm} \cdot 1.2 \cdot 4 \quad \rightarrow T_{KN} \geq 206.4 \text{ Nm}$$

● Coupling selection (pre-selection)

ROTEX® GS 38

Spider 98 Shore A with clamping ring hubs 6.0 light:

Mass moments of inertia of page 138

$T_{KN} = 325 \text{ Nm}$

$J_{KA} = 0.000517 \text{ kgm}^2$

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

$J_{KL} = 0.000517 \text{ kgm}^2$

● Load by maximum driving torque, not including load torque

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

$$\text{Shock on drive side} \quad T_S = T_{AS} \cdot M_A \cdot S_z \quad \rightarrow 144 \text{ Nm} \cdot 0.379 \cdot 1.0 \quad \rightarrow T_S = 54.58 \text{ Nm}$$

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

$$J_L = J_{Sp} + J_{SI} + J_{KL} \quad \rightarrow 0.0038 \text{ kgm}^2 + 0.0026 \text{ kgm}^2 + 0.000517 \text{ kgm}^2 \quad \rightarrow J_L = 0.006917 \text{ kgm}^2$$

$$J_{SI} = m_{SI} \cdot \left(\frac{s}{2 \cdot \pi} \right)^2 \quad \rightarrow 1030 \text{ kg} \cdot \left(\frac{0.01}{2 \cdot \pi} \right)^2 \quad \rightarrow J_{SI} = 0.0026 \text{ kgm}^2$$

$$J_A = J_{Mot} + J_{KA} \quad \rightarrow 0.0108 \text{ kgm}^2 + 0.000517 \text{ kgm}^2 \quad \rightarrow J_A = 0.011317 \text{ kgm}^2$$

$$\rightarrow T_{KN} \geq 54.58 \text{ Nm} \cdot 1.2 \cdot 4 \quad \rightarrow T_{KN} \geq 261.9 \text{ Nm}$$

T_{KN} with 325 Nm $\geq 261.9 \text{ Nm}$

● 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.

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

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

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 key-way

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 key-way
 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) $T_{KN} \geq T_{AN} \cdot S_t \cdot S_B \rightarrow 130 \text{ Nm} \cdot 1.4 \cdot 2.4 \rightarrow T_{KN} \geq 436.8 \text{ Nm}$

● Coupling selection

ROTEX® GS 42

Spider 98 Shore A with clamping ring hubs 6.0 light:

Mass moments of inertia of page 138

$T_{KN} = 450 \text{ Nm}$

$J_{KA} = 0.001117 \text{ kgm}^2$

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

$J_{KL} = 0.001117 \text{ kgm}^2$

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

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

Shock on drive side $T_S = T_{AS} \cdot M_A \cdot S_Z \rightarrow 190 \text{ Nm} \cdot 0.258 \cdot 1.0 \rightarrow T_S = 49.02 \text{ Nm}$

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

$J_L = J_{HS} + J_{KL} \rightarrow 0.1094 \text{ kgm}^2 + 0.001117 \text{ kgm}^2 \rightarrow J_L = 0.110517 \text{ kgm}^2$

$J_A = J_{Mot} + J_{KL} \rightarrow 0.316 \text{ kgm}^2 + 0.001117 \text{ kgm}^2 \rightarrow J_A = 0.317117 \text{ kgm}^2$

$T_{KN} \geq 49.02 \text{ Nm} \cdot 1.4 \cdot 2.4 \rightarrow T_{KN} \geq 164.7 \text{ Nm}$

T_{KN} with 450 Nm $\geq 164.7 \text{ Nm}$

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

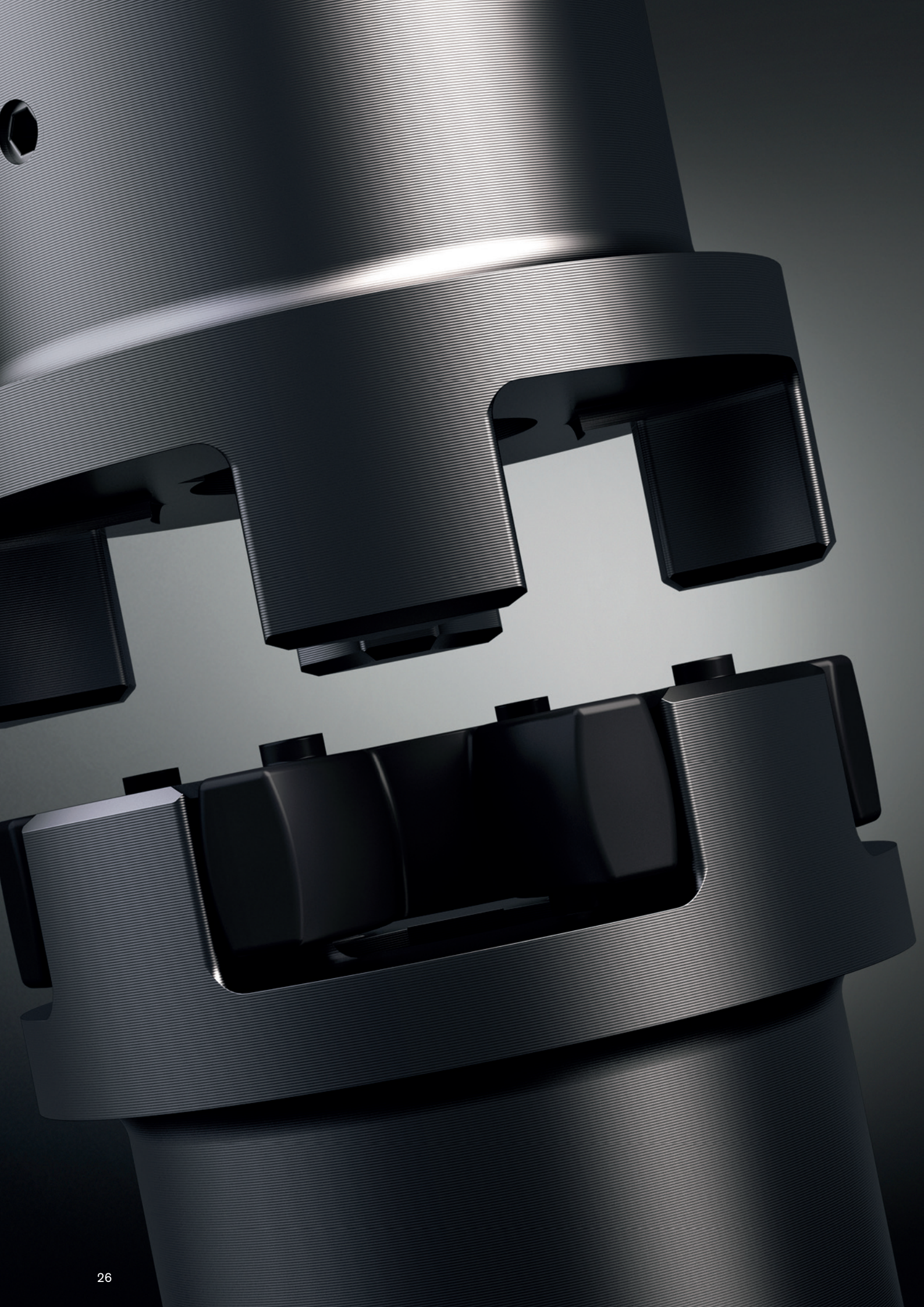
The coupling has to be dimensioned in that the permissible friction torque is not exceeded during any operating condition.

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

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

Result

The coupling is sufficiently dimensioned.



Flexible jaw and pin & bush couplings

Types and operating description

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POLY-NORM®

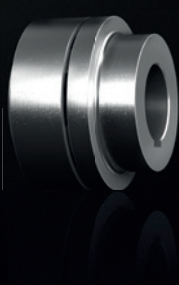
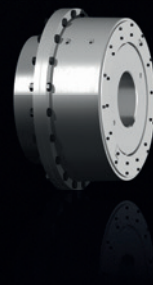
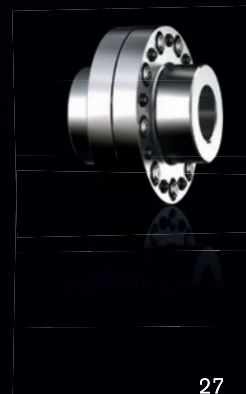
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ROTEX®**ROFLEX®****POLY-NORM®****POLY-NORM®-M****REVOLEX®**

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	REVOLUX®
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

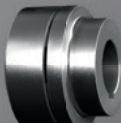
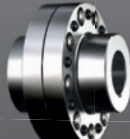
○ ≈ On request

¹⁾ Size 68 made of sintered steel

FLEXIBLE JAW AND PIN & BUSH COUPLINGS

TYPES AND OPERATING DESCRIPTION

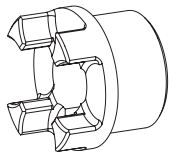
Product finder of jaw and pin & bush couplings

					
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.



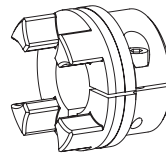
Type 1.0 hub with feather keyway and setscrew

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 2.3 clamping hub with spline bore

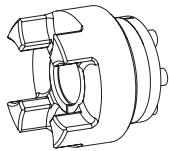
For splines see page 37. Positive-locking power transmission. The friction fit avoids resp. reduces reverse backlash.

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.

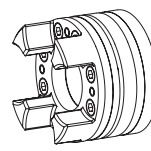


Type 4.2 hub for CLAMPEX® clamping set KTR 250

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.

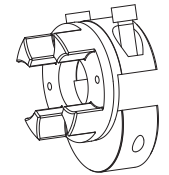


Type 6.0 clamping ring hub (see ROTEX® GS series)

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).

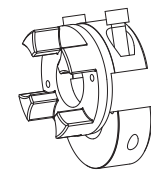


Type 7.6 clamping hub type DH with feather keyway for double-cardanic connection

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)

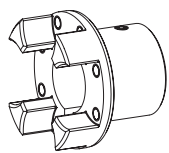


Type 7.9 clamping hub type H with feather keyway

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.

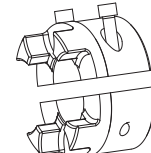
Type 7.8 clamping hub type H
without feather keyway

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



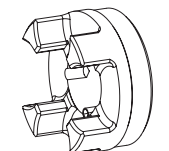
FNN hub

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



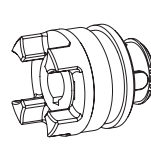
Type 7.1 SPLIT hub with feather keyway

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.



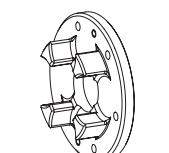
TB1 hub/TB2 hub

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



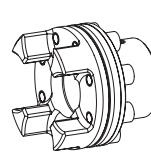
SD hub shifting hub

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.



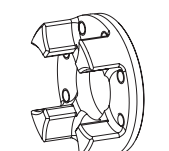
Driving flange type 3b

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



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.



Driving flange type 3Na

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

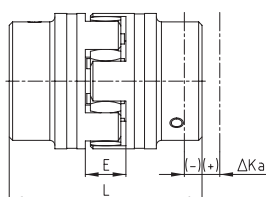
Speeds

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	-	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).	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 circumferen- tial 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		

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

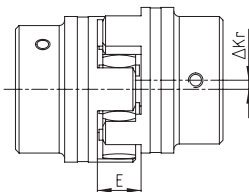
Displacements

Axial displacement ΔK_A

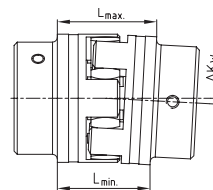


$$L_{\max} = L + \Delta K_A$$

Radial displacement ΔK_r



Angular displacement ΔK_W [degree]



$$\Delta K_W [\text{mm}] = L_{\max} - L_{\min}$$

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.

ROTEX®

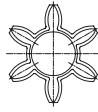
Flexible jaw couplings

Properties of standard spiders

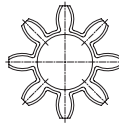
ROTEX® 14



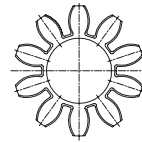
ROTEX® 19



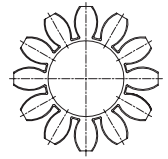
ROTEX® 24 - 65



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	-40 °C to +120 °C	-40 °C to +90 °C
Short-term temperature	-40 °C to +150 °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	-40 °C to +120 °C	-30 °C to +90 °C
Short-term temperature	-40 °C to +150 °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	-40 °C to +120 °C	
Short-term temperature	-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⁾				1.0 T_{KN}	0.75 T_{KN}	0.5 T_{KN}	0.25 T_{KN}
	T_{KN}	T_K max	Rated T_{KN}	Max. T_K max	Vibratory T_{KW}								
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⁾				1.0 T_K	0.75 T_K	0.5 T_K	0.25 T_K
	T_{KN}	T_K max	Rated T_{KN}	Max. T_K max	Vibratory T_{KW}								
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⁾				1.0 T _{KN}	0.75 T _{KN}	0.5 T _{KN}	0.25 T _{KN}
	T _{KN}	T _K max	Rated T _{KN}	Max. T _K max	Vibratory T _{KW}								
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	-40 °C to +100 °C ¹⁾	up to +180 °C
Short-term temperature	-40 °C to +120 °C ¹⁾	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

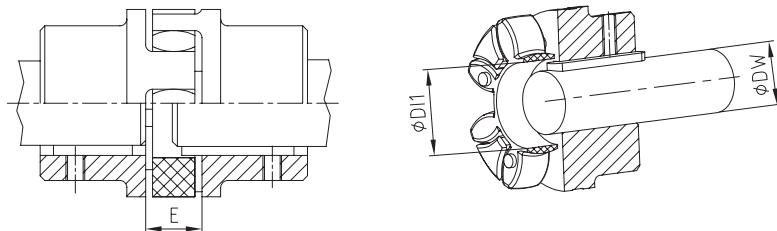
¹⁾ different properties depending on compound

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

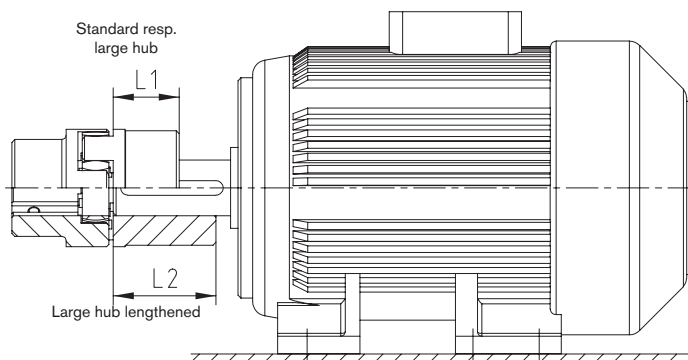


Shaft ØDW with feather key (acc. to DIN 6885 sheet 1) protruding into the spider ØD1

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		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
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	g 1)	0.06	0.43	g 1)	0.037	0.43	g 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	19	0.55	3.7	19	0.37	3.9	19	0.18	2.5	19
90S	24 x 50	1.5	5		1.1	7.5		0.75	8		0.25	3.5	
90L		2.2	7.4		1.5	10		1.1	12		0.37	5.3	
100L	28 x 60	3	9.8	24	2.2	15	24	1.5	15	24	0.55	7.9	
		4	13		3	20		2.2	22		0.75	11	24
112M		5.5	18		4	27		3	30		1.1	16	
132S	38 x 80	7.5	25	28	5.5	36	28	4	40	28	1.5	21	28
					7.5	49		5.5	55		2.2	30	
132M											3	40	
160M	42 x 110	11	36	38	11	72	38	7.5	75	38	3	40	
		15	49					11	109		5.5	74	38
160L		18.5	60		15	98					7.5	100	
180M	48 x 110	22	71		18.5	121							
180L					22	144		15	148		11	145	
200L	55 x 110	30	97	42	30	196	42	18.5	181	42	15	198	42
		37	120					22	215				
225S	55 x 110				37	240	48				18.5	244	48
225M	60 x 140	45	145		45	292		30	293	55	22	290	55
250M	60 x 140	55	177	48	55	356	55	37	361	65 2)	30	392	65
280S		75	241		75	484	65 2)	45	438		37	483	65 2)
280M	75 x 140	90	289	55	90	581		55	535		45	587	75
315S		110	353		110	707	75	75	727	75	55	712	
315M		132	423	65	132	849		90	873		75	971	
	65 x 140	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		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	400	1280	90	400	2570		315	3040	110	250	3220	110
		500	1600		500	3210	110	400	3850		315	4060	125
		560	1790		560	3580		450	4330	125	355	4570	
400	80 x 170	630	2020		630	4030	125	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	900	2880		900	5760		710	6830		560	7190	160
		1000	3200	110	1000	6400	160	800	7690	160	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

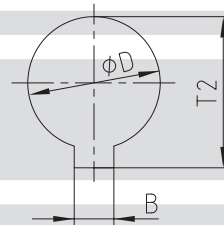
2) For motor hub made of steel see page 40

ROTEX®

Flexible jaw couplings

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	$\frac{5}{8}$ "	14.28	16/32	9	30°	PS-S	1 $\frac{1}{2}$ "	35.98	12/24	17	30°
PI-S	$\frac{3}{4}$ "	17.46	16/32	11	30°	PD-S	1 $\frac{1}{2}$ "	36.51	16/32	23	30°
PB-S	$\frac{7}{8}$ "	20.63	16/32	13	30°	PE-S	1 $\frac{3}{4}$ "	42.86	16/32	27	30°
PB-BS	1"	23.81	16/32	15	30°	PK-S	1 $\frac{3}{4}$ "	41.275	8/16	13	30°
PJ	1 $\frac{1}{8}$ "	26.98	16/32	17	30°	PT-C ¹⁾	2"	47.625	8/16	15	30°
PC-S	1 $\frac{1}{4}$ "	29.63	12/24	14	30°	PQ-C ¹⁾	2 $\frac{1}{4}$ "	53.975	8/16	17	30°
PA-S	1 $\frac{3}{8}$ "	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 $\frac{3}{8}$ "	8.69	6	34.93	29.65
1 $\frac{3}{8}$ "	—	21	34.95	34.80 ³⁾
1 $\frac{3}{4}$ "	11.07	6	44.45	37.74
1 $\frac{3}{4}$ "	—	20	45.20	40.20

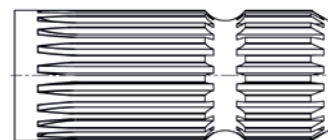
1 $\frac{3}{8}$ ", 6 teeth



1 $\frac{3}{4}$ ", 6 teeth



1 $\frac{3}{4}$ ", 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

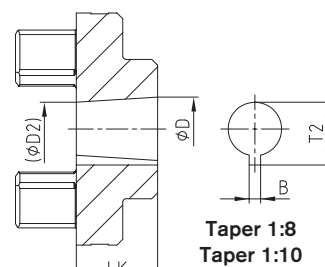
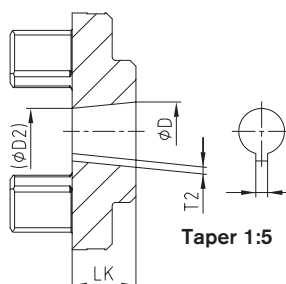
With code N/6 and N/6a keyway in parallel with taper.

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

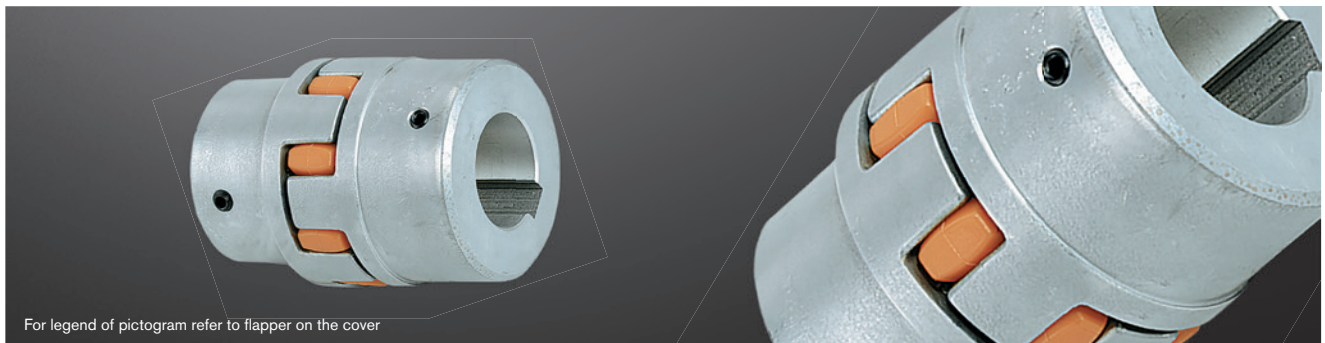
Basic programme taper 1:5

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

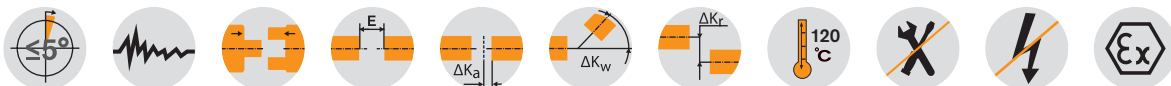


ROTEX® Standard Flexible jaw couplings

Materials: aluminium + cast + sinter material



For legend of pictogram refer to flapper on the cover



ROTEX® Sintered steel (Sint)																	
Size	Component	Spider ¹⁾ (component 2) Rated torque [Nm]			Finish bore D (min. - max.)	Dimensions [mm]										Setscrew	
		92 ShA	98 ShA	64 ShD		General										G	T
14	1a	7.5	12.5	—	0-16	L	L1, L2	E	B1	S	DH	DI1	DN	N		M4	5
19	1a	10	17	—	0-25	35	11	13	10	1.5	30	10	30	—		M5	10
24	1a	35	60	—	0-35	66	25	16	12	2.0	40	18	40	—		M5	10
						78	30	18	14	2.0	56	27	56	—			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	62			
	1b				12-48	164	70										
42	1	265	450	560	14-45	126	50	26	20	3	95	46	75	40	M8	20	10
	1a				42-55								94	65			
	1b				14-55	176	75										
48	1	310	525	655	15-52	140	56	28	21	3.5	105	51	85	45	M8	20	10
	1a				48-62								104	69			
	1b				15-62	188	80										
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

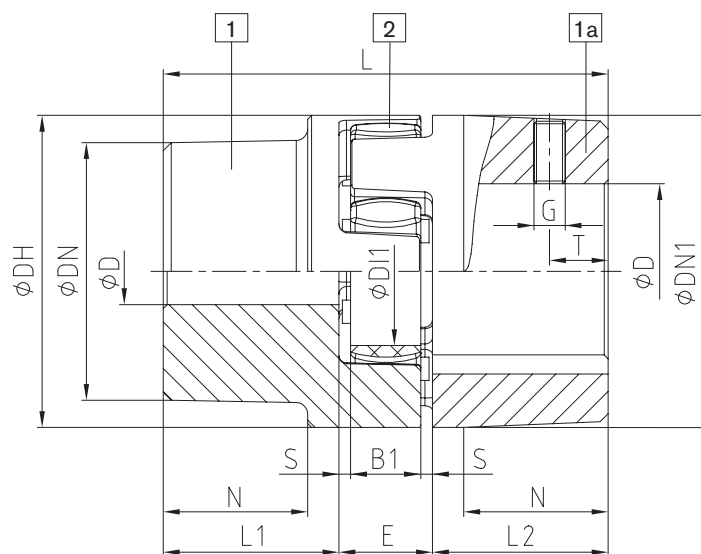
ROTEX® Nodular iron (GJS)																	
100	1	3300	4950	6185	50-115	270	110	50	38	6	225	113	180	89	M12	30	40
110	1	4800	7200	9000	60-125	295	120	55	42	6.5	255	127	200	96	M16	35	80
125	1	6650	10000	12500	60-145	340	140	60	46	7	290	147	230	112	M16	40	80
140	1	8550	12800	16000	60-160	375	155	65	50	7.5	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.

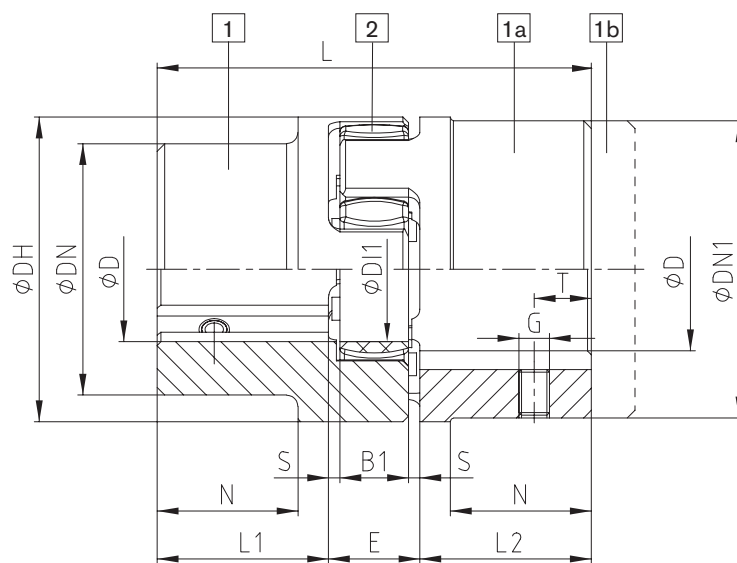
¹⁾ Maximum torque of the coupling $T_{K \max}$ = rated torque of the coupling $T_{KN} \times 2$. For selection see page 14 et seqq.

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

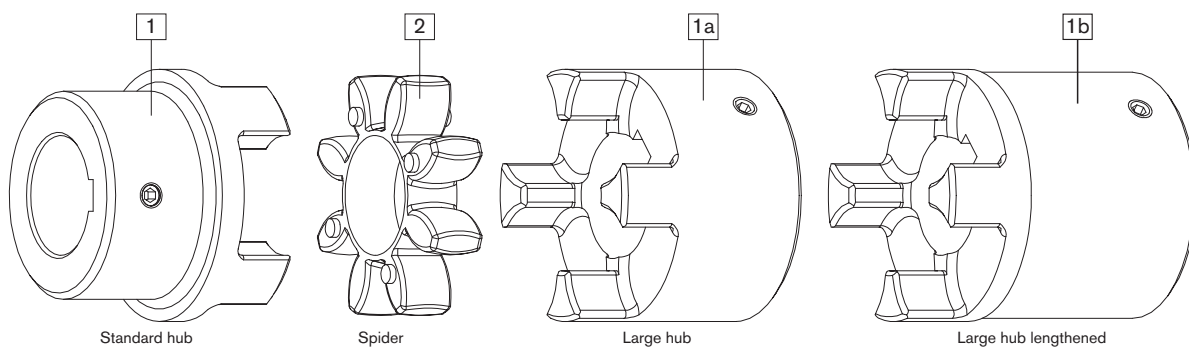
Components



AI-D (thread opposite the keyway)

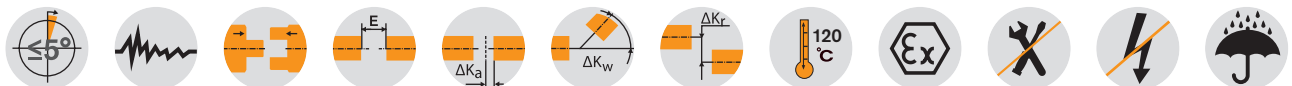
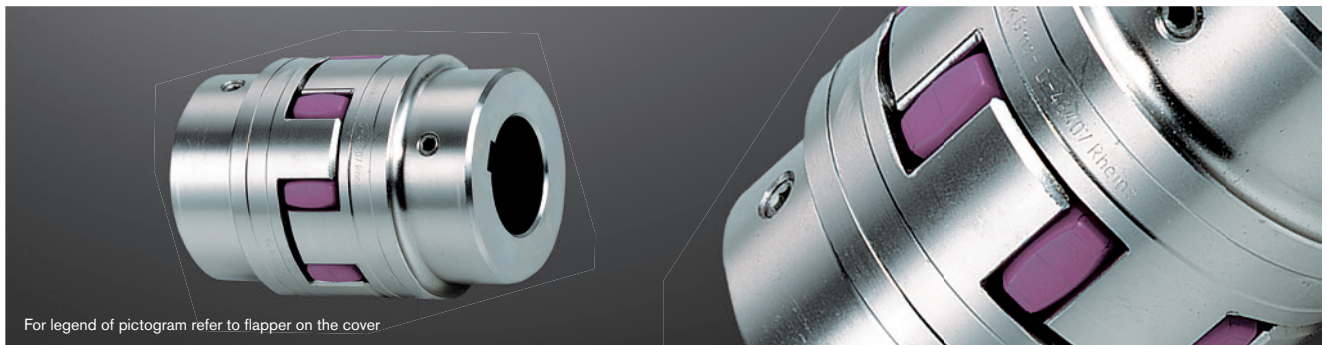


GJL / GJS (thread on the keyway)



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]											
		92 ShA	98 ShA	64 ShD		General										Setscrew	
						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.

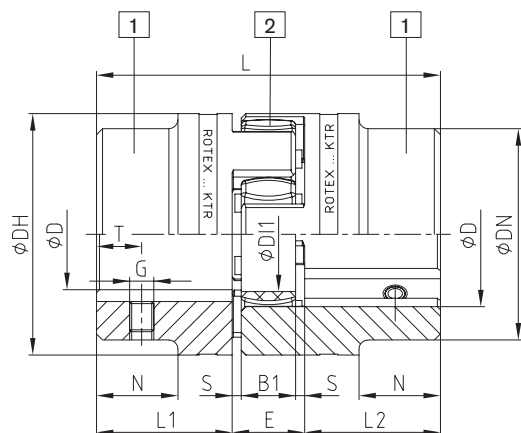
Ordering example:	ROTEX® 38		1.4305		92 ShA		1 - Ø45		1 - Ø25	
	Coupling size		Material		Spider hardness		Component	Finish bore	Component	Finish bore

ROTEX®

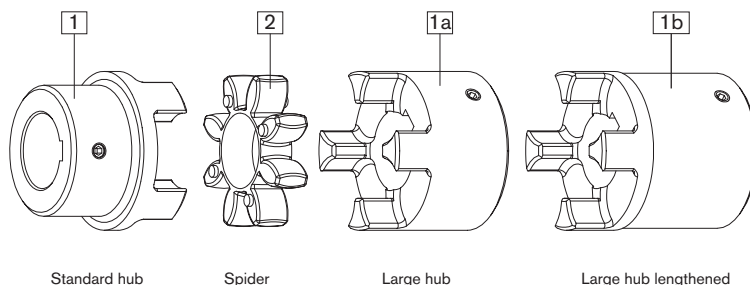
Flexible jaw couplings

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.



ClassNK

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	Component	Material	Spider (component 2) Rated torque [Nm]	Dimensions [mm]					
				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

ROTEX®

Flexible jaw couplings

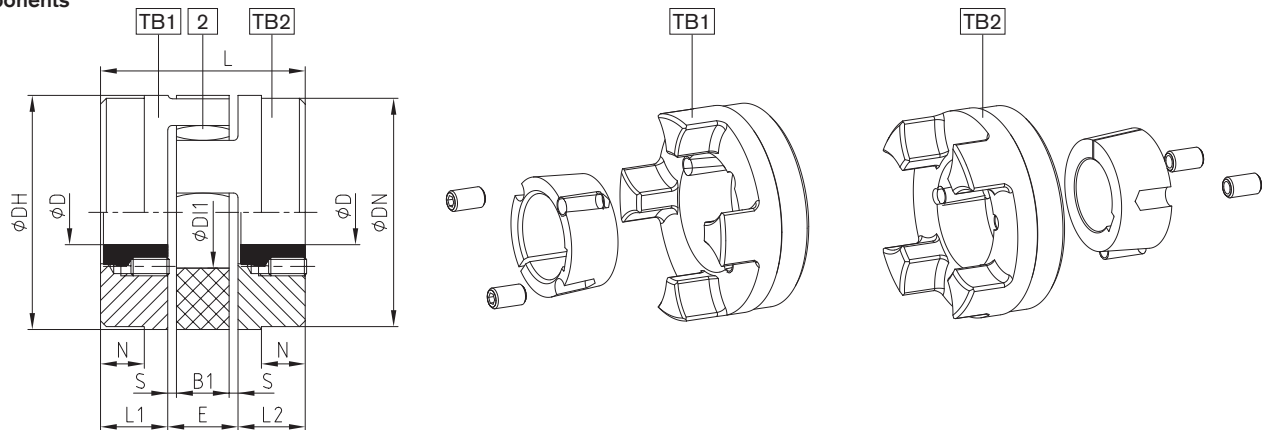
Taper clamping sleeve



For legend of pictogram refer to flapper on the cover



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.

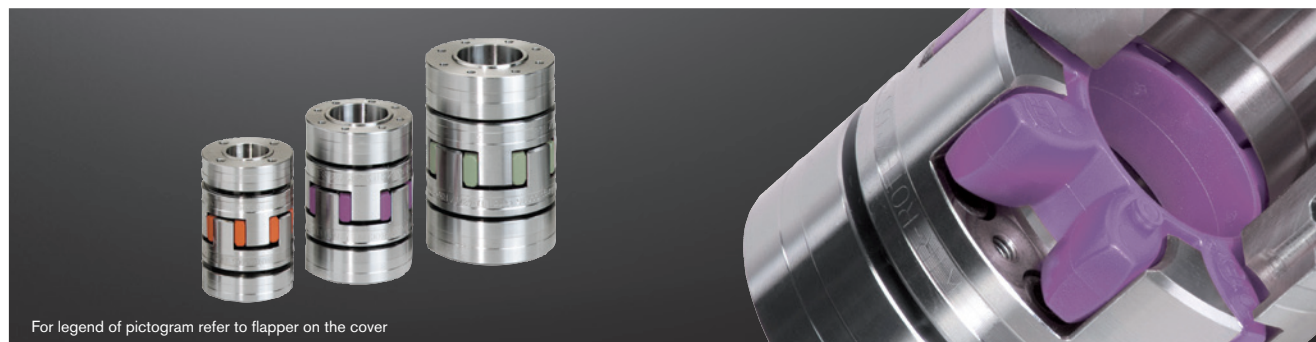
Please order our separate dimension sheet (M373054).

²⁾ Bore with feather keyway (flat design) acc. to DIN 6885 sheet 3

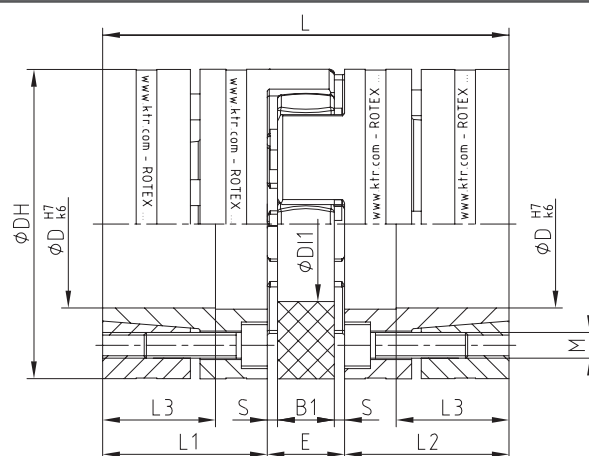
Ordering example:

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



For legend of pictogram refer to flapper on the cover



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

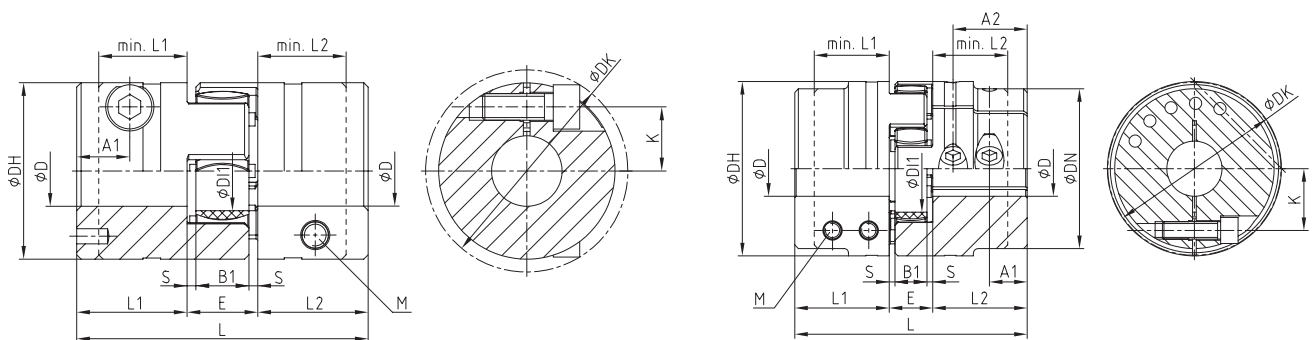
ROTEX®

Flexible jaw couplings

Clamping hubs



For legend of pictogram refer to flapper on the cover



ROTEX® 19 - 28

ROTEX® 38 - 90

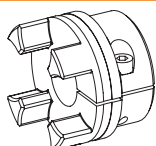
ROTEX® as clamping hubs																
Size	Dimensions [mm]														Screw DIN EN ISO 4762	
	Max. finish bore D	L	L1, L2	min. L1, min. L2	E	B1	S	DH	DN	DI1	DK	A1	A2	K	M	T _A [Nm]
19	20 ¹⁾	66	25	20	16	12	2.0	40	-	18	46.0	12	—	14.5	M6	14
24	28	78	30	25	18	14	2.0	55	-	27	57.5	12	—	20.0	M6	14
28	38	90	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

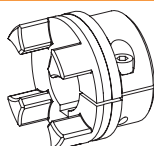
¹⁾ With type 2.1 D_{max.} Ø17 mm

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



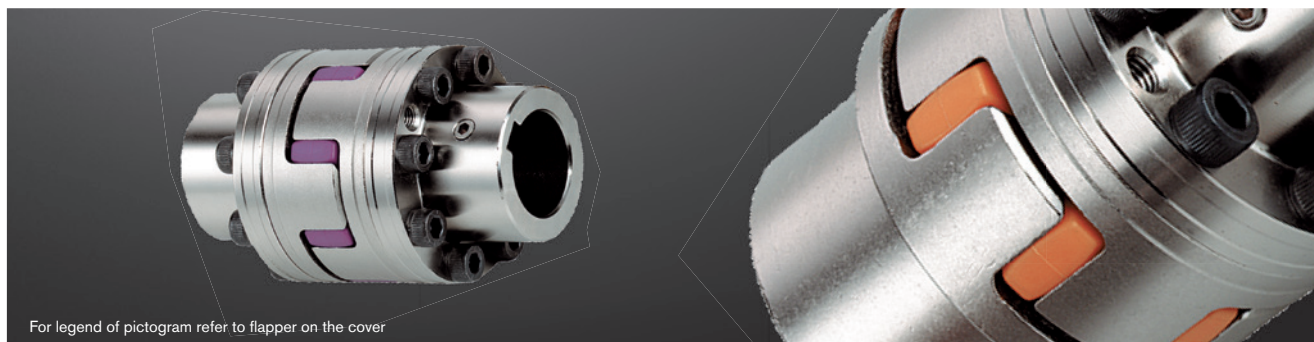
Type 2.3
Clamping hub with spline
bore (For a selection of our
programme of spline bores see
page 37)

**Ordering
example:**

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

ROTEX® AFN and BFN Flexible jaw couplings

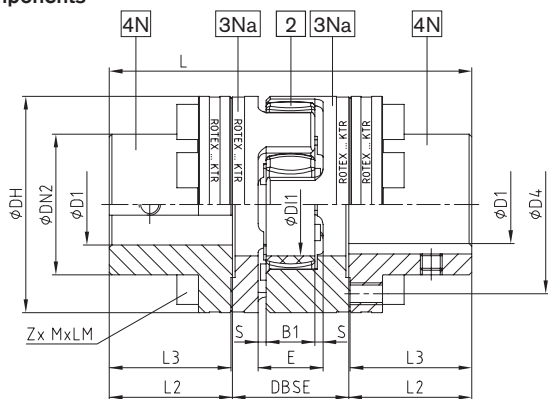
Flange programme



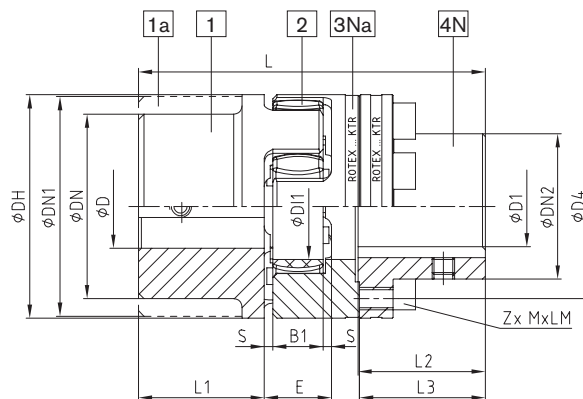
For legend of pictogram refer to flapper on the cover



Components



Type AFN



Type BFN

ROTEX® Type AFN and BFN																			
Size	Pilot bore D	Component 4N max. finish bore D1	Dimensions [mm]											Cap screws ³⁾ DIN EN ISO 4762 - 12.9					
			DH	DN2	D4	DI1	DBSE	L1, L2	E	B1	S	L3	L	MxLM	Z	pitch ²⁾	TA ¹⁾ [Nm]		
24	Jaw coupling: page 38 to 40 Stock programme: page 36 and 37	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		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	

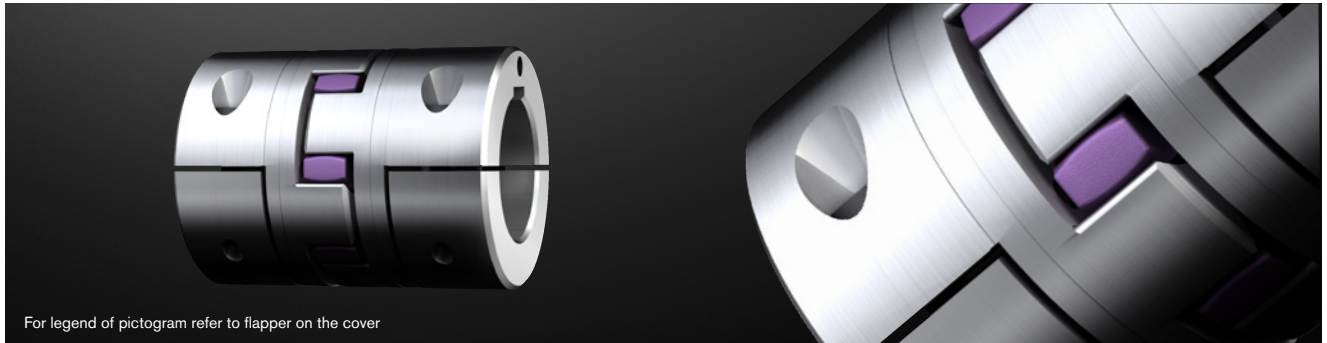
- ¹⁾ Screw tightening torque TA [Nm].
²⁾ Thread in the driving flange between the cams.
³⁾ Coupling is delivered not assembled.

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

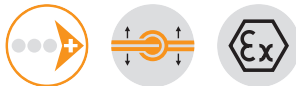
ROTEX® AH

Flexible jaw couplings

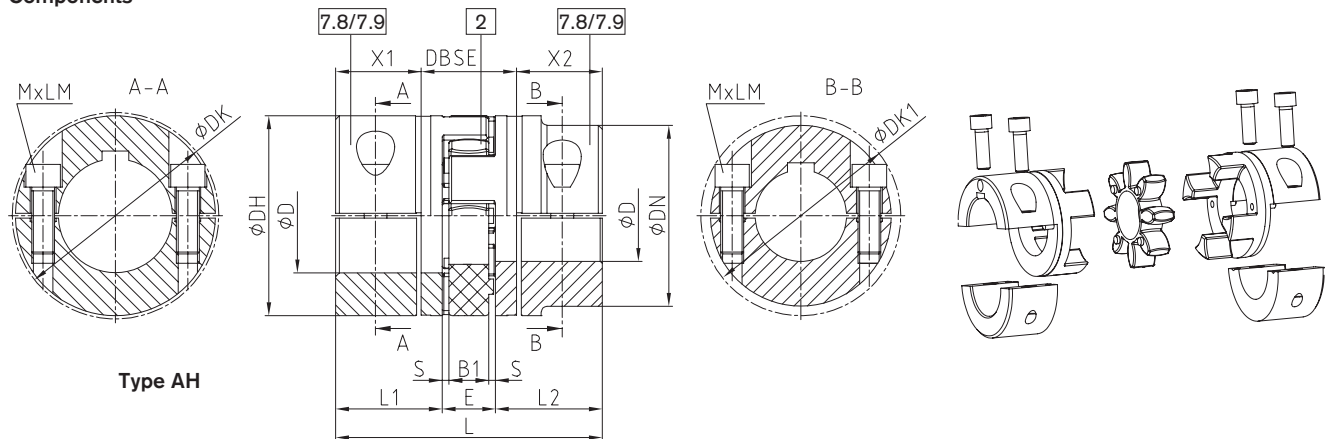
Drop-out center design coupling



For legend of pictogram refer to flapper on the cover



Components



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	—			M16x50	
90	90	245	100	45	34	5.5	200	160	—	176.0	81.5	82	M20x60	580
	110							—	197.0	—			M20x60	
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

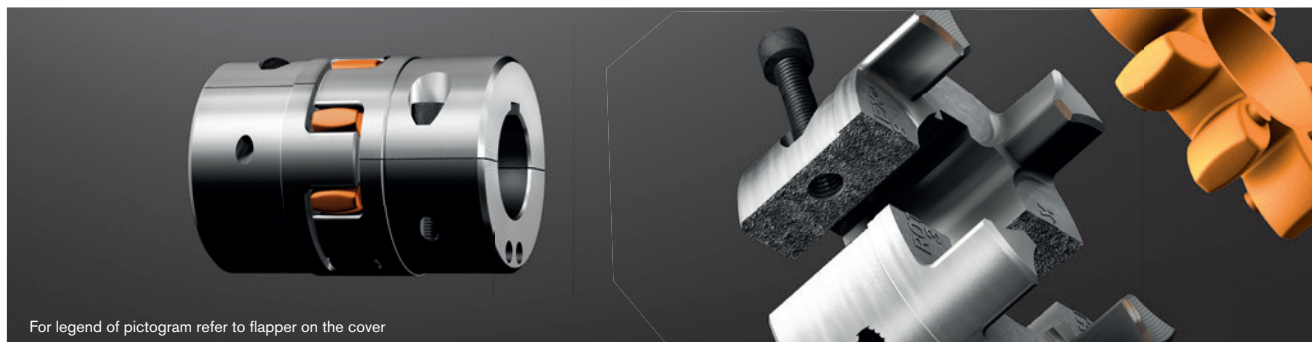
¹⁾ From size 100: 4 clamping screws for each clamping hub

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



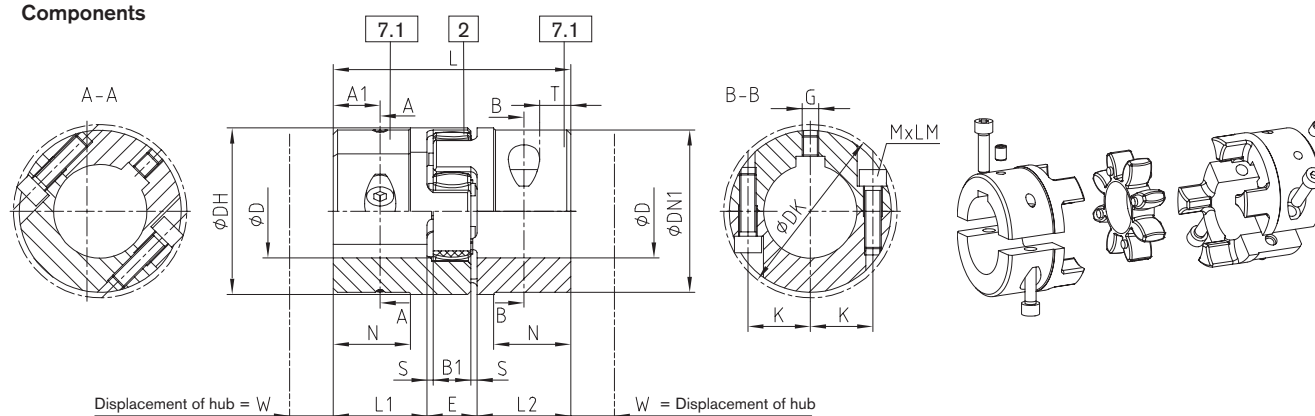
Drop-out center design coupling with SPLIT hubs



For legend of pictogram refer to flapper on the cover



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	Tightening torque T _A [Nm]
19	0	24	66	25	16	12	2.0	40	-	44	-	15.5	12.5	10	M5	-	4.1
24	0	28	78	30	18	14	2.0	55	-	57.5	-	20	15	10	M5	12	14
28	0	38	90	35	20	15	2.5	65	-	73	-	25	17.5	15	M8	12	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	Tightening torque T _A [Nm]
38	24	48	114	45	24	18	3.0	80	78	83.5	37	30	22.5	15		15	34
42	24	55	126	50	26	20	3.0	95	94	97	40	30	25		M8	15	67
48	24	60	140	56	28	21	3.5	105	104	108.5	45	35	28			15	115
55	24	70	160	65	30	22	4.0	120	118	122	52	40	32.5	20		15	115
65	28	70	185	75	35	26	4.5	135	115	123.5	61	50	37.5		M10	15	M12x40
	70	80							135	132.5							M12x45
75	40	80	210	85	40	30	5.0	160	135	147	69	51	42.5	25		20	M16x50
	80	90							160	158							290
90	40	90	245	100	45	34	5.5	200	160	176	81	60	50	30	M12	30	M20x60
	90	110							200	197							560

7.1 = SPLIT hub with feather keyway

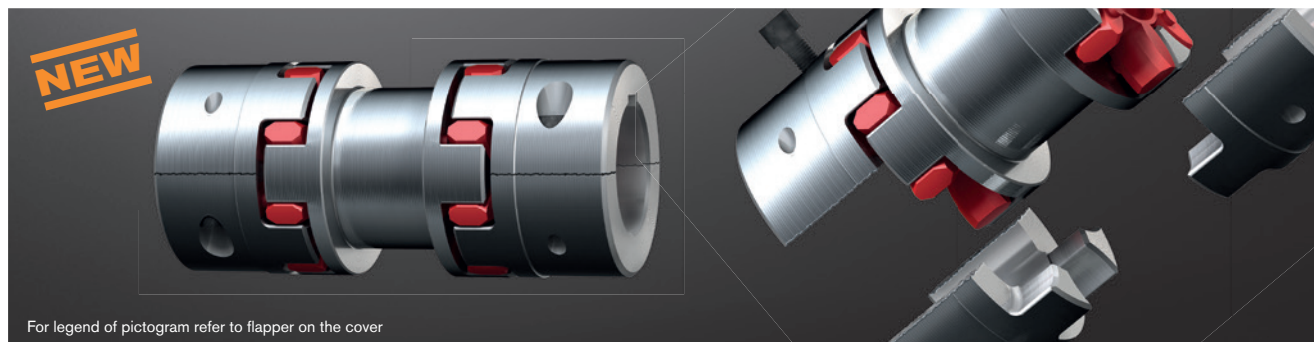
Ordering example:

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

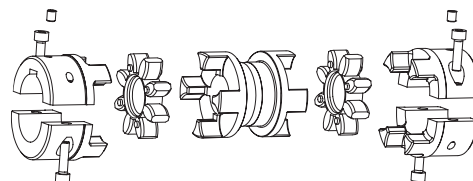
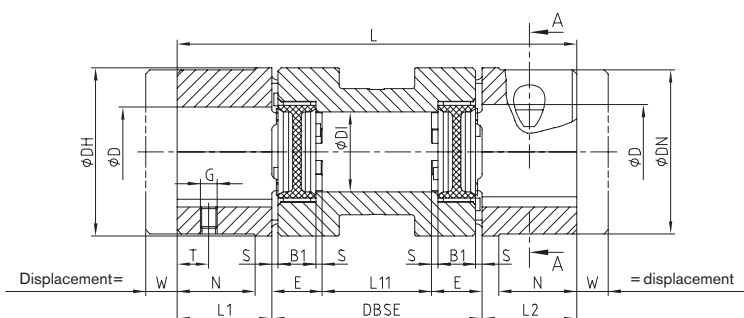
ROTEX® ZS-DKM-SH

Flexible jaw couplings

Double-cardanic shaft coupling with SPLIT hubs



For legend of pictogram refer to flapper on the cover



ROTEX® type ZS-DKM-SH																								
Size ³⁾	Spider 98 ShA-GS TKN [Nm] ^{1) 2)}	Drop-out center length DBSE	Dimensions [mm]													Screws DIN EN ISO 4762		Max. displacements						
			Finish bore D		DH	DN	DK	DI	L1, L2	L11	E	B1	S	L	G	W	MxLM	T _A [Nm]	Axial [mm]	with n = 1500 rpm		with n = 3000 rpm		
			min.	Max.																Radial [mm]	Angular [°]	Radial [mm]	Angular [°]	
19	10	42 ⁵⁾ 52 ⁵⁾	0	24	40	-	-	18	25	10	16	12	2.0	92	-	-	-	-	1.2	0.45	-	-	-	-
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	1.47			
		88 ⁵⁾								28				218						1.01	-			
55	410	100	24	70	120	118	122	60	65	40	30	22	4.0	270	M10	15	M12x45	115	2.2	1.22	-	0.92	-	-
		140								40				230						1.22	0.92			
		180								80				310						1.92	1.44			
		200								120				310						2.62	1.96			
		102 ⁵⁾								140				330						2.97	2.22			
65	625	140	24	80	135	135 ⁶⁾	132.5 ⁶⁾	68	75	32	35	26	4.5	252	M10	15	M12x40	115	2.6	1.17	-	-	-	-
		70								35				290						1.83	1.37			
		110								330				2.53						1.90				
		116 ⁵⁾								36				286						1.33	-			
75	1280	140	40	90	160	160 ⁶⁾	158 ⁶⁾	80	85	60	40	30	5.0	310	M10	20	M16x50	290	3.0	1.75	-	1.31	-	-
		180								100				350						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 $T_{KN} \times 2$

²⁾ Mathematically transmittable torque with double-cardanic types acc. to 92 ShA-GS using the higher quality spiders 98 ShA-GS

³⁾ ROTEK®-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 ROTEK® DKM and ZS-DKM-SH couplings is 20m/s, with higher speeds please consult with KTR.

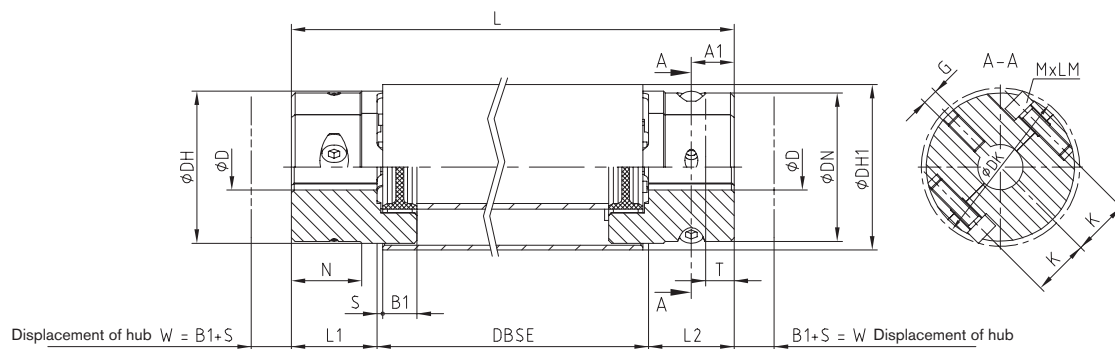
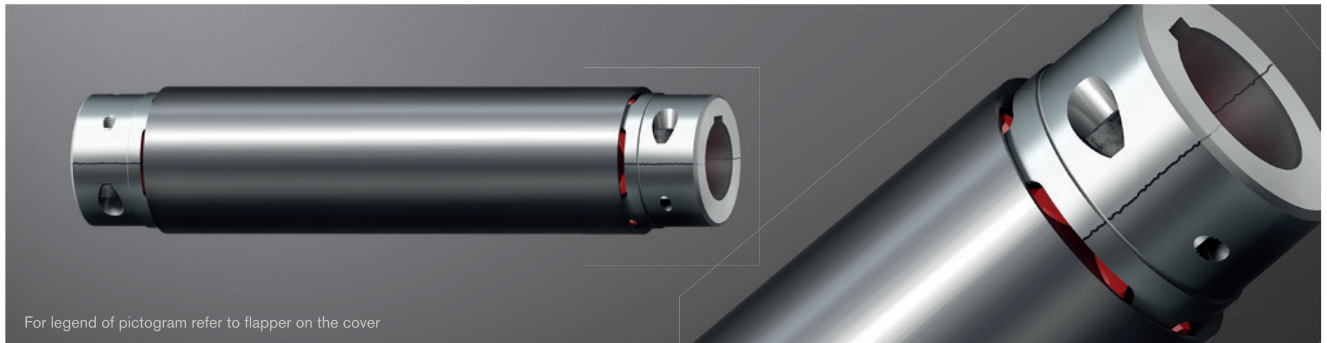
Spiders ROTEK® 98 ShA-GS and 64 ShD-GS applicable, while the transmittable torque $[T_{KN}; T_{Kmax}]$ of the 92 ShA-GS spider must not be exceeded.

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



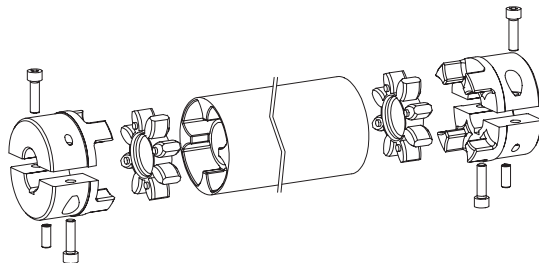
ROTEX® type ZRS																			
Size	Dimensions ³⁾ [mm]															Clamping screw DIN EN ISO 4762		Intermediate pipe Torsion spring stiffness C ²⁾ [Nm/rad]	
	Finish bore D min.	Max.	DH	DN	L1, L2	N	B1	S	G	T	A1	K	DK	DH1	Min. DBSE	L ¹⁾	MxLM	Tightening torque T _A [Nm]	
19	0	20	40	-	25	-	12	2.0	M5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

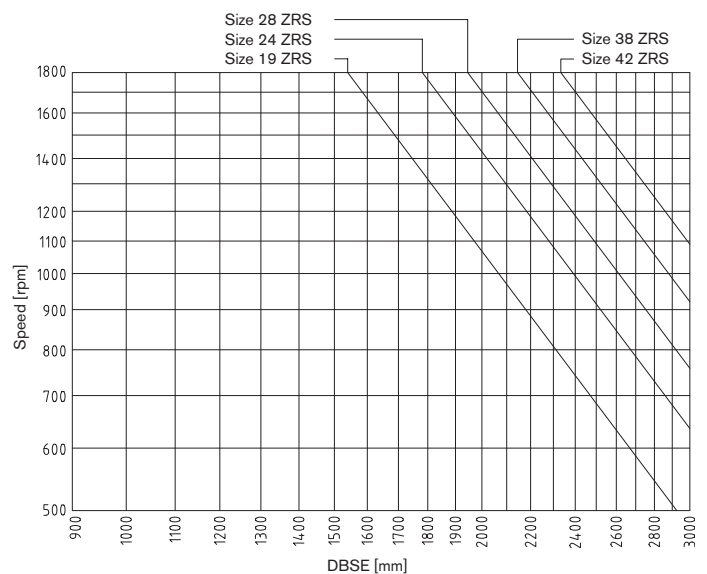
Mathematically transmittable torque with double-cardanic types acc. to 92 ShA-GS using the higher quality spiders 98 ShA-GS



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:



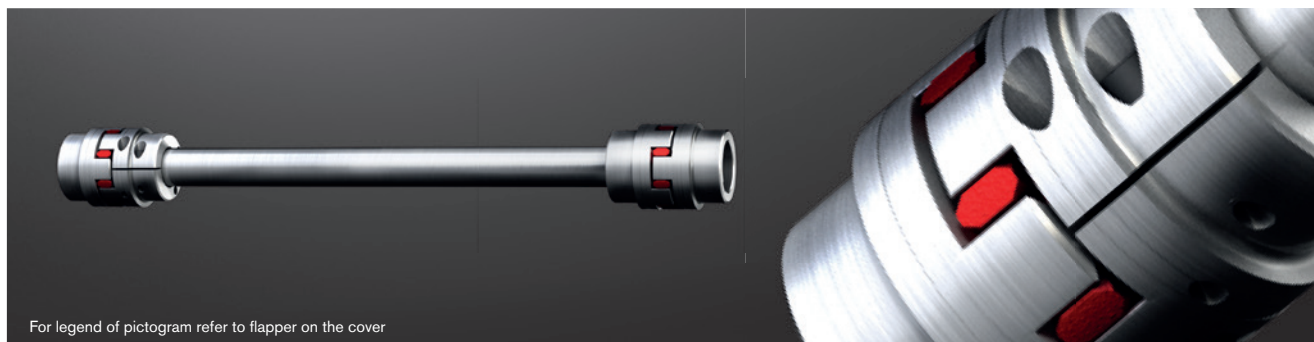
Ordering example:

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

ROTEX® ZR

Flexible jaw couplings

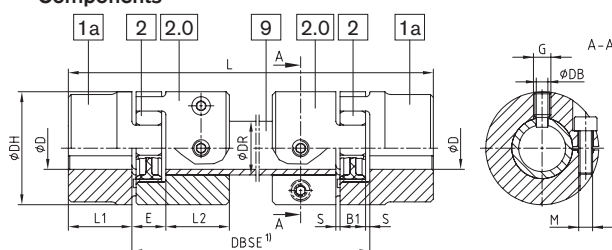
Intermediate shaft programme



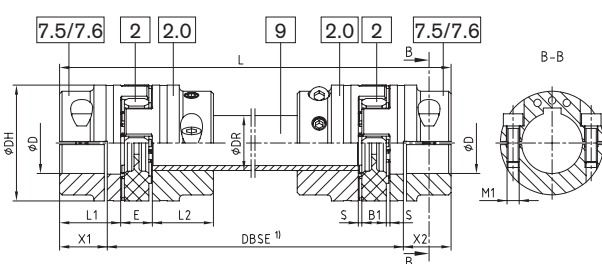
For legend of pictogram refer to flapper on the cover



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		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		Torsional stiffness/m					
	Component 1a	Component 7.5/7.6							Component 1a	Component 7.5/7.6	Component 1a	Component 7.5/7.6	M	TA [Nm]	M1	TA [Nm]	DR					C 2) [Nm²/rad]
19	25	20	40	25	17.5	16	12	2.0	L = DBSE + 2 • L1	L = DBSE + 2 • X1/X2	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			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

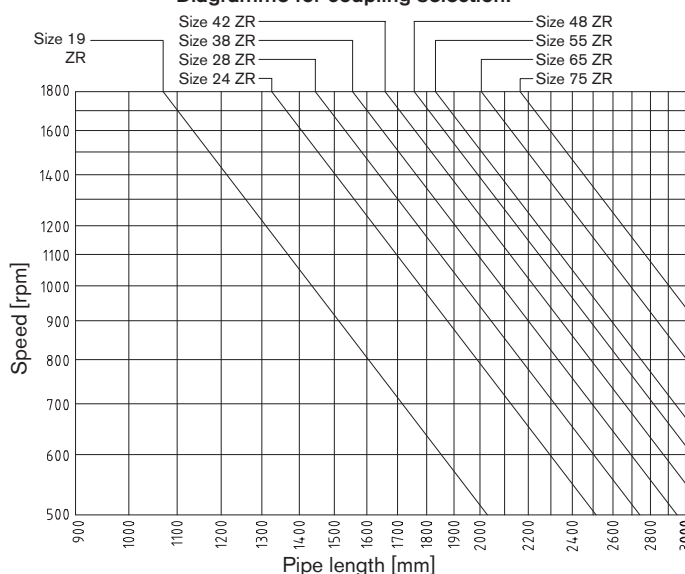
¹⁾ With inquiries and orders please specify the shaft distance dimension DBSE along with the maximum speed to review the critical bending speed.

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:



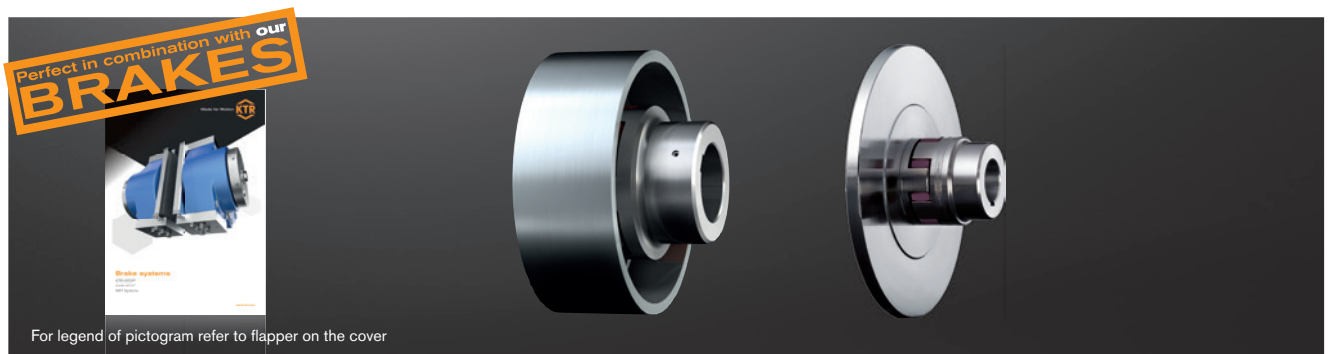
Ordering example:

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	16 x 22.5°	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												Type SBAN												
Brake drum	ROTEX® BTAN dimension "AB"										Speed rpm [V] (30 m/s)	Brake disk	ROTEX® SBAN dimension "AS"											Speed rpm [V] (30 m/s)
	38	42	48	55	65	75	90	100	110	125			38	42	48	55	65	75	90	100	110	125		
160x60	14										3550	200x12.5	31.25											2800
200x75	9	12	17	24							2800	250x12.5	31.25	34.25	39.25									2240
250x95	1	4	9	16	25	33					2240	315x16		32.5	37.5	44.5	53.5	61.5						1800
315x118		-5	0	7	16	24	36				1800	400x16			37.5	44.5	53.5	61.5	73.5	81.5	88.5			1400
400x150		-18	-13	-6	3	11	23	31	38		1400	500x16				44.5	53.5	61.5	73.5	81.5	88.5	104.5	1120	
500x190					-12	-4	8	16	23	39	1120	630x20					51.5	59.5	71.5	79.5	86.5	102.5	900	
630x236						-22	-10	-2	5	21	900	710x20					51.5	59.5	71.5	79.5	86.5	102.5	800	
710x265								-13	-6	10	800	800x25							69	77	84	100	710	
800x300										-4	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

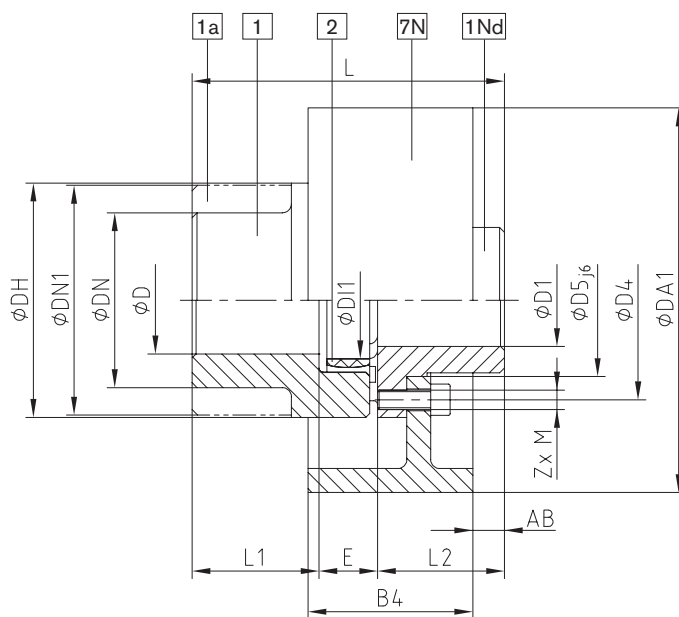
FNN hub: M 380823

Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9].

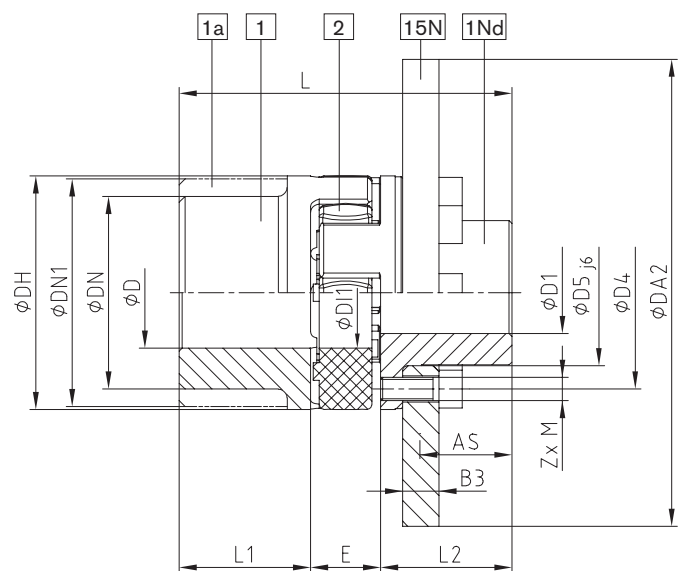
Ordering example:

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

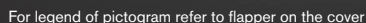


**Brake drum
Type BTAN**

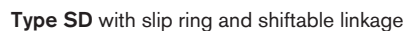


**Brake disk
Type SBAN**

ROTEX®



ROFLEX®



POLY-NORM®

POLY-NORM®-M

REVOLUX®

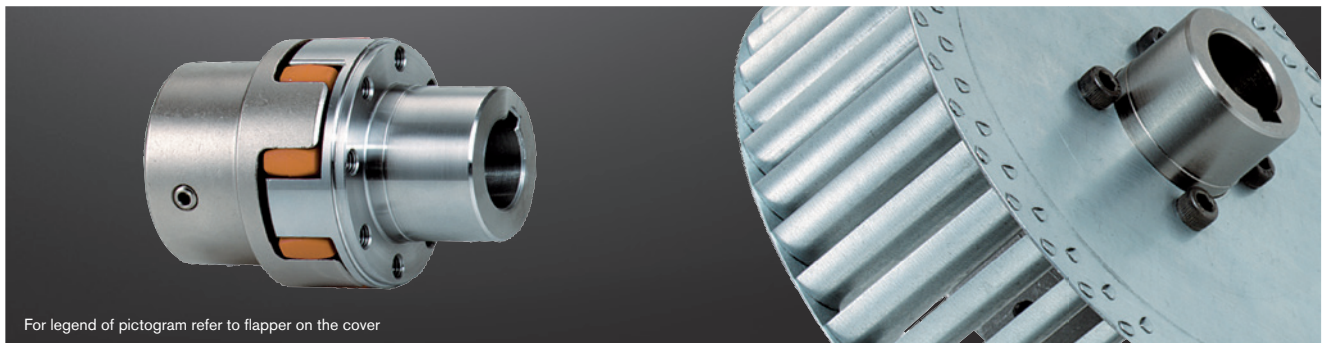
Ordering example:

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

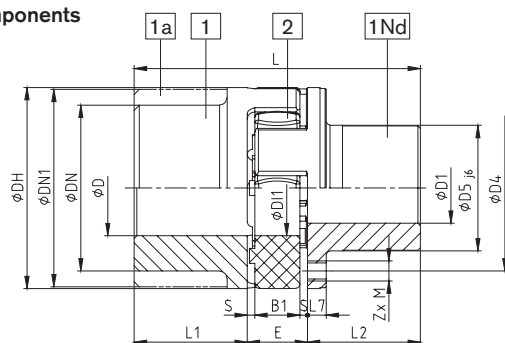
For mounting of fan



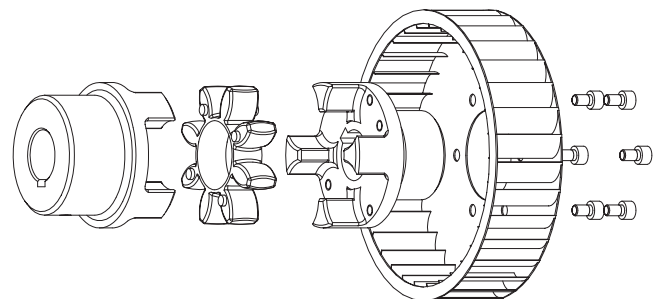
For legend of pictogram refer to flapper on the cover



Components



Type FNN



Type FNN with fan (type 1)

ROTEX® Type FNN																
Size	D, DN, DN1	Max. finish bore D1	Dimensions [mm]													
			L	DH	DI1	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.

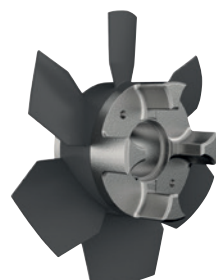
Type 1: Fan screwed on

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.

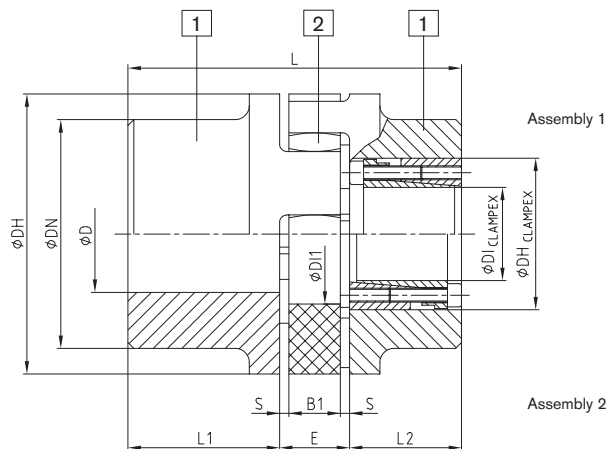


Ordering example:

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

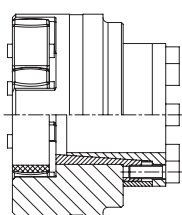
Other types with clamping sets

Components



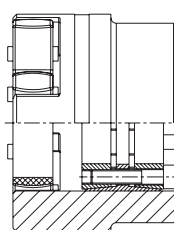
ROTEX® with clamping set CLAMPEX® KTR 200														
Size	D, DN	Hub material	CLAMPEX® KTR 200		Dimensions [mm]									
			Max. size of KTR clamping set DxDH	Transmittable torque and axial force										
				T [Nm]	FAX [kN]	L1	L2	E	B1	S	DH	DN	DI1	L
42	Jaw coupling: page 38 to 40 Stock programme: 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		GIS Component 1	65x95	4300	132	110	59	50	38	6.0	225	180	113	Length = L1 + E + L2 (clamping set)
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



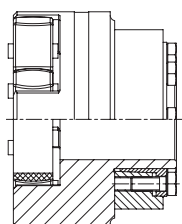
Frictionally engaged and backlash-free transmission of medium torques. CLAMPEX® KTR 250 is particularly suitable for thin-walled hubs and/or those made of aluminium or cast material. Please contact the KTR engineering department for any further details.

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.

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

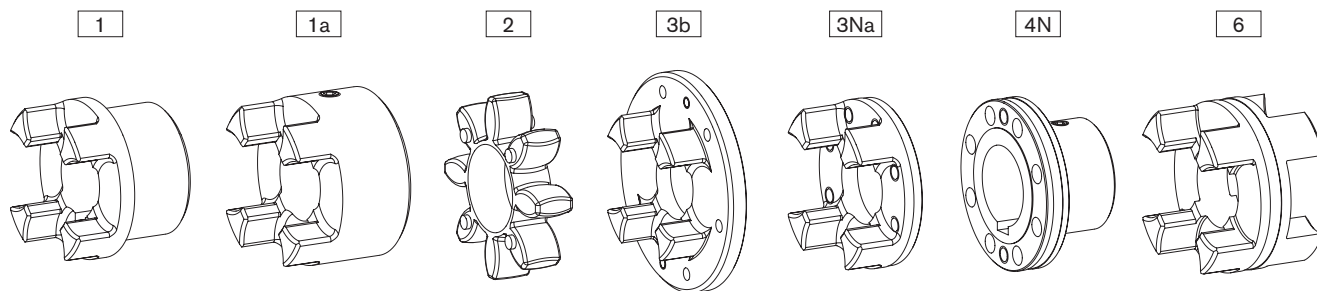


ROTEX® - KTR-SI FRE - idle rotation overload coupling

- 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			Component 2	Component 3b	Component 3Na		Component 4N	Component 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	—	—

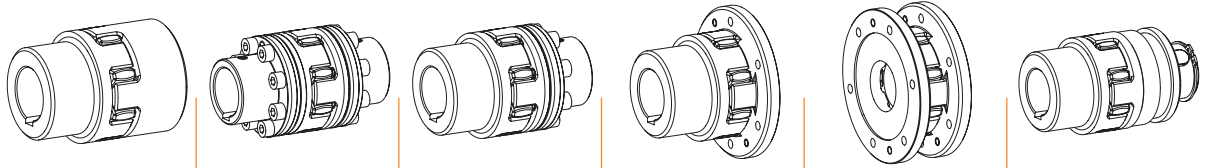
Weight and mass moment of inertia each refer to the average finish bore without feather keyway.

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

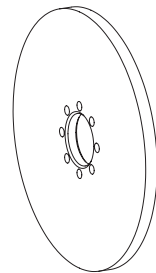
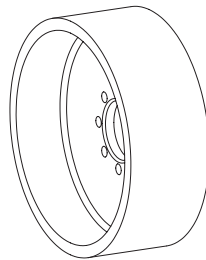
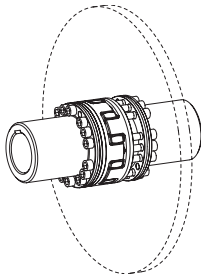
ROTEX®

Flexible jaw couplings

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

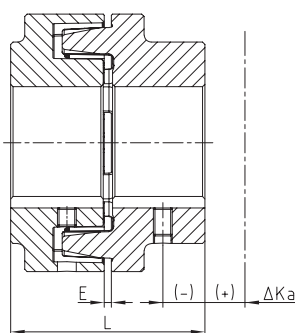
Brake disk for SBAN / AFN-SB spec.		
Brake disk ØA x G _S	Weight [kg]	Mass moment of inertia J [kgm²]
200 x 12.5	2.9	0.01537
250 x 20	7.7	0.05913
250 x 30	11.5	0.08869
250 x 12.5	4.7	0.03758
315 x 16	8.6	0.11183
315 x 20	12.3	0.15117
315 x 30	18.5	0.22601
355 x 20	15.5	0.23376
355 x 30	23.5	0.36432
400 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

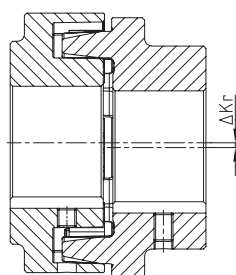
If requested, coupling is dynamically balanced. For circumferential speeds exceeding $v = 20$ m/s dyn. balancing is recommended.

Axial displacement ΔK_A

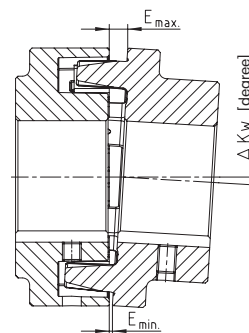


$$L_{\max./\min.} = L + \Delta K_A \text{ [mm]}$$

Radial displacement ΔK_R



Angular displacement ΔK_W



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

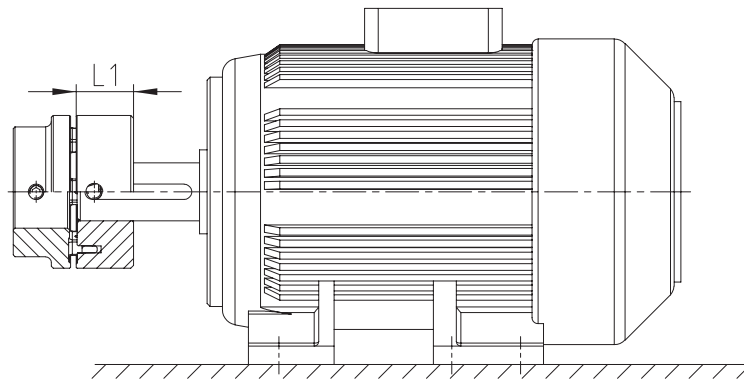
Advice for assembly

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.

ROFLEX® N

Flexible jaw couplings

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]													
	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		0.06	0.43		0.037	0.43				
63	11 x 23		0.12	0.41		0.09	0.64		0.045	0.52				
			0.18	0.62		0.12	0.88		0.06	0.7				
71	14 x 30		0.25	0.86		0.18	1.3		0.09	1.1				
			0.37	1.3		0.25	1.8		0.18	2		0.09	1.4	
80	19 x 40		0.55	1.9		0.37	2.5		0.25	2.8		0.12	1.8	
			0.75	2.5		0.55	3.7		0.37	3.9		0.18	2.5	
90S	24 x 50		1.1	3.7		0.75	5.1		0.55	5.8		0.25	3.5	
90L	24 x 50		1.5	5	68	1.1	7.5	68	0.75	8	68	0.37	5.3	
100L	28 x 60		2.2	7.4		1.5	10		1.1	12		0.55	7.9	
112M	28 x 60		3	9.8		2.2	15		1.5	15		0.75	11	68
			4	13		3	20		2.2	22		1.1	16	
132S	38 x 80		4	13		4	27		2.2	22		1.5	21	
132M	38 x 80		5.5	18		5.5	36		3	30		2.2	30	
			7.5	25				4	40		3	40		
160M	42 x 110					7.5	49		5.5	55	80			
			11	36										
160L	42 x 110		15	49	80	11	72	95	7.5	75	95	4	54	80
180M	48 x 110		18.5	60		15	98		11	109		5.5	74	95
180L	48 x 110		22	71	95	18.5	121	110			110	7.5	100	
200L	55 x 110					22	144		15	148				110
			30	97		30	196		18.5	181		11	145	
225S	55 x 110		37	120		22	144		18.5	181		15	198	
225M	60 x 140				110	30	196	125	22	215	125			125
250M	60 x 140	65 x 140	37	120		37	240		22	215				
280S	65 x 140	75 x 140	45	145		45	292	140			140	18.5	244	
280M			55	177	125	55	356	160	30	293		22	290	140
315S	65 x 140	80 x 170	55	177		55	356		37	361	160	30	392	160
315M			75	241	140	75	484	180	45	438		37	483	
315L	65 x 140	80 x 170	90	289		90	581		55	535		45	587	180
			110	353		110	707		75	727	160	55	712	
315	85 x 170	110 x 210	132	423	160	132	849		90	873		75	971	
			160	513		160	1030		110	1070		90	1170	200
355	75 x 140	95 x 170	200	641		200	1290	200	132	1280	200	110	1420	225
400	80 x 170	110 x 210			180				160	1550	225	132	1710	250
			250	802		250	1600	225	200	1930	250	160	2070	
450	90 x 170	120 x 200	315	1010		315	2020		250	2410		200	2580	
			355	1140	200	355	2280					250	3220	
450	90 x 170	120 x 200	400	1280		400	2570		315	3040		315	4060	
			500	1600	225	500	3210		400	3850				
450	90 x 170	120 x 200	560	1790		560	3580		450	4330		355	4570	
			630	2020		630	4030		500	4810		400	5150	
450	90 x 170	120 x 200	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	

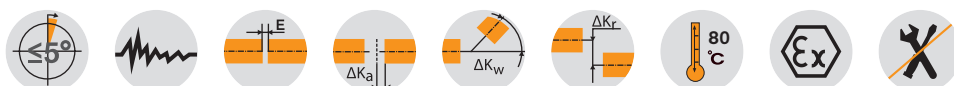
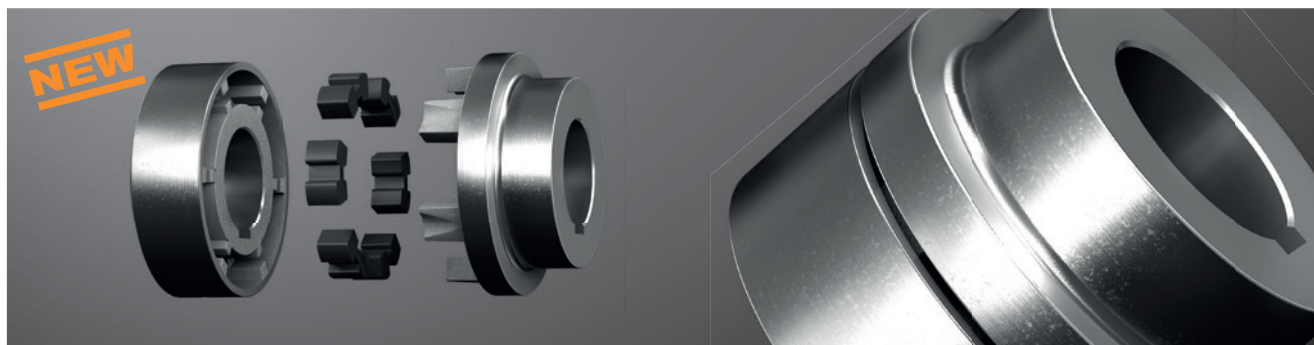
The coupling selection is based on an ambient temperature of up to +30 °C. The selection is based on a minimum safety factor of 2 to the max. coupling torque ($T_{K \max}$). A detailed selection is possible according to catalogue page 15 et seqq. Drives with periodical torque curves must be selected 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.

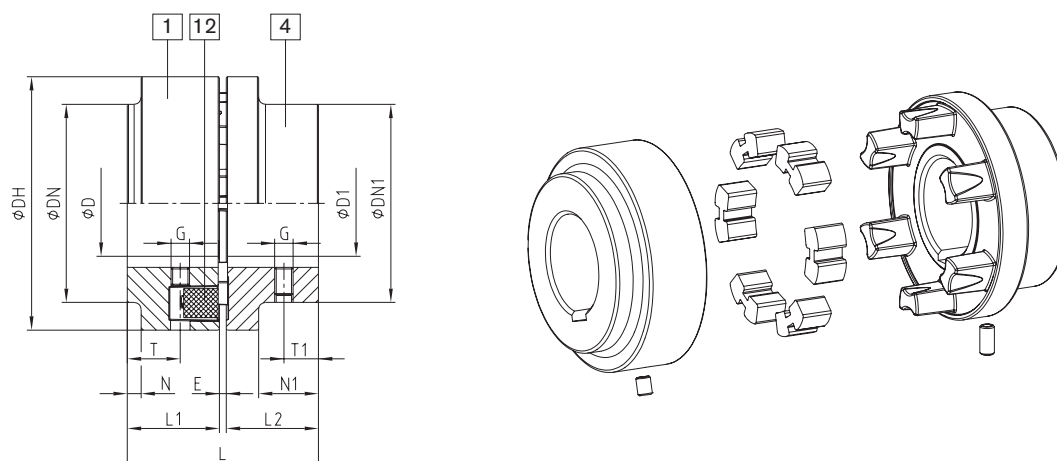
ROFLEX® N

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⁾
	TKN [Nm]	TK max [Nm]		Max. finish bore		General								Thread for setscrews						
				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

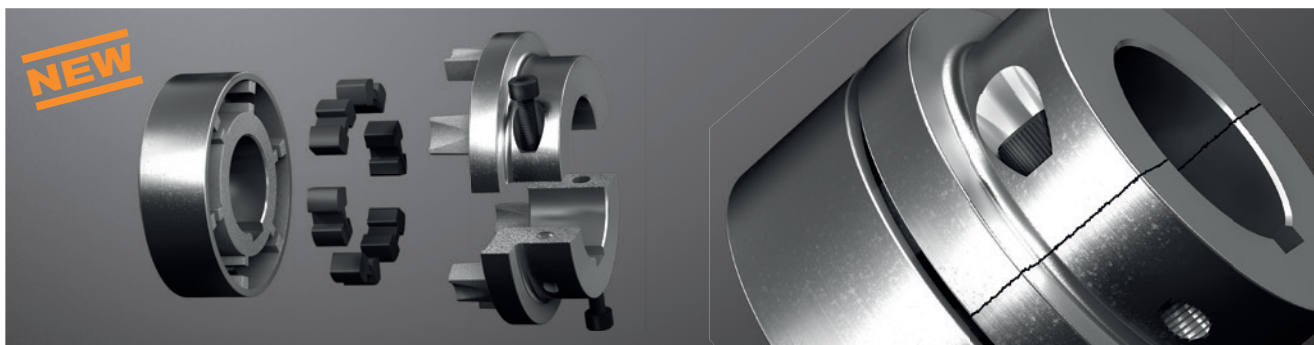
Ordering
example:

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

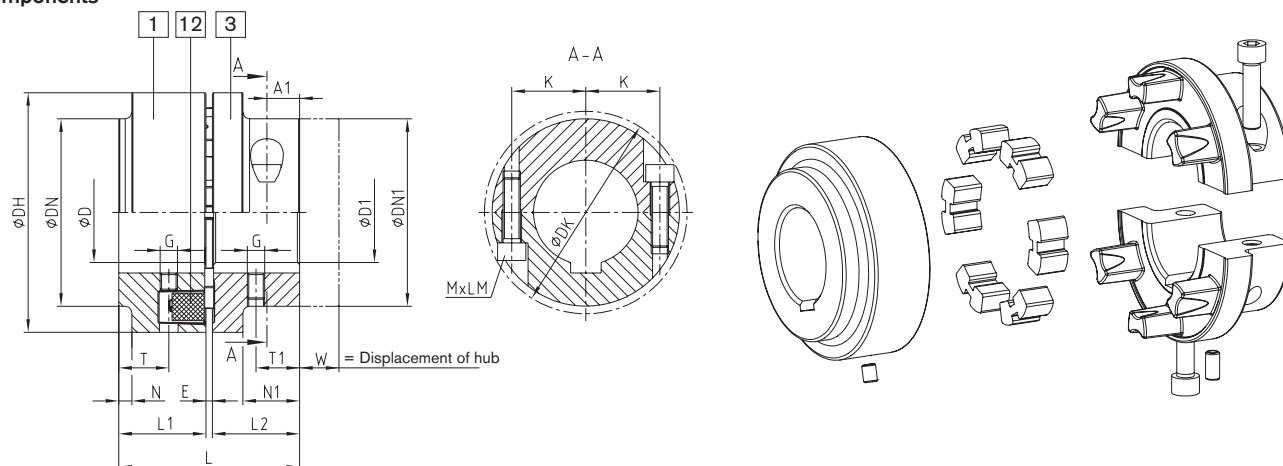
ROFLEX® SH

Flexible jaw couplings

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⁾	Weig [kg] ²⁾		
				Max. finish bore		General										Thread for setscrews				Cap screws								
	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

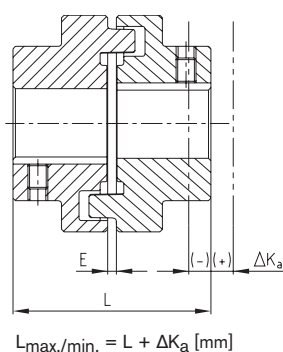
POLY-NORM® Technical data													
Size	Torque [Nm] DIN 740 ¹⁾			Max. speed [rpm] with v = 35 m/s	Torsion angle with		Torsion spring stiffness C dyn. [Nm/rad]				Max. perm. displacement [mm] ²⁾		
	Rated torque TKN	Maximum torque TK max	Vibratory torque TKW		TKN	TK max	1.0 TKN	0.75 TKN	0.5 TKN	0.25 TKN	Axial ΔKa	Radial ΔK _r	Angular ΔK _w
28	40	80	16	9650	4.5	6.0	0.52x10 ⁴	0.332x10 ⁴	0.187x10 ⁴	0.09x10 ⁴	± 1.0	0.20	1.2
32	60	120	24	8550			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	4.0	5.5	3.85x10 ⁴	2.46x10 ⁴	1.39x10 ⁴	0.664x10 ⁴	± 1.5	0.30	2.0
60	410	820	164	5150			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	2.5	3.5	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			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	1.5	2.1	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			567.9x10 ⁴	438.3x10 ⁴	301.6x10 ⁴	161.9x10 ⁴	± 4.0	0.70	9.6
260	55000	110000	22000	1000	1.5	2.1	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

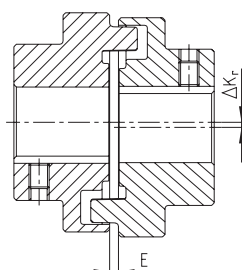
²⁾ Displacement with n = 1500 rpm

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.

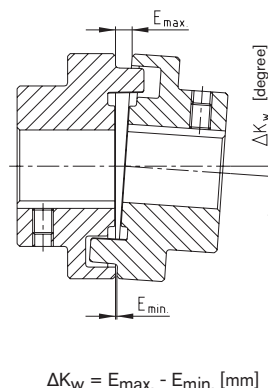
Axial displacement ΔK_a



Radial displacement ΔK_r



Angular displacement ΔK_w



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

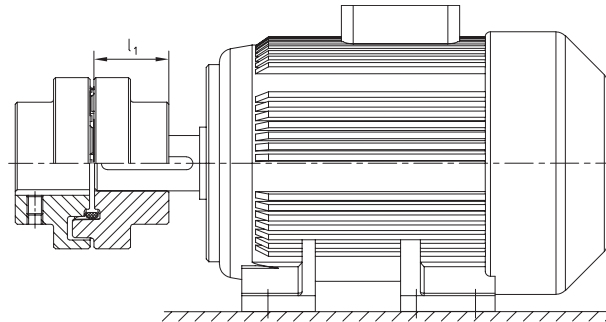


Elastomer ring NBR 78 Shore A

POLY-NORM®

Flexible coupling

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			5.5	18		5.5	36		3	30		2.2	30	
	38 x 80		7.5	25	38			38	4	40	38	3	40	38
132M						7.5	49		5.5	55				
160M	42 x 110		11	36		11	72	42	7.5	75	42	4	54	42
			15	49	42							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		30	196	55	18.5	181	55	15	198	55
			37	120	55				22	215				
225S	55 x 110	60 x 140				37	240				60	18.5	244	60
225M			45	145		45	292	60	30	293		22	290	
250M	60 x 140	65 x 140	55	177	60	55	356	65	37	361	65	30	392	65
280S		75 x 140	75	241		75	484		45	438		37	483	
280M			90	289	65	90	581	75	55	535	75	45	587	75
315S		80 x 170	110	353		110	707		75	727		55	712	85
315M			132	423	75	132	849	85	90	873	85	75	971	
	65 x 140		160	513		160	1030		110	1070		90	1170	90
315L			200	641		200	1290	90	132	1280	90	110	1420	
					85				160	1550		132	1710	100
315		85 x 170	250	802		250	1600		200	1930	100	160	2070	100
			315	1010		315	2020	100	250	2410	110	200	2580	110
			355	1140	90	355	2280		315	3040	125	250	3220	125
355	75 x 140	95 x 170	400	1280		400	2570	110	400	3850		315	4060	
			500	1600		500	3210							
			560	1790	100	560	3580	125	450	4330	140	355	4570	140
400	80 x 170	110 x 210	630	2020		630	4030		500	4810		400	5150	
			710	2270	110	710	4540	140	560	5390	160	450	5790	160
			800	2560		800	5120		630	6060		500	6420	
450	90 x 170	120 x 200	900	2880	125	900	5760	160	710	6830		560	7190	180
			1000	3200		1000	6400		800	7690	180	630	8090	180

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

Flexible jaw and
pin & bush couplings

ROTEX®

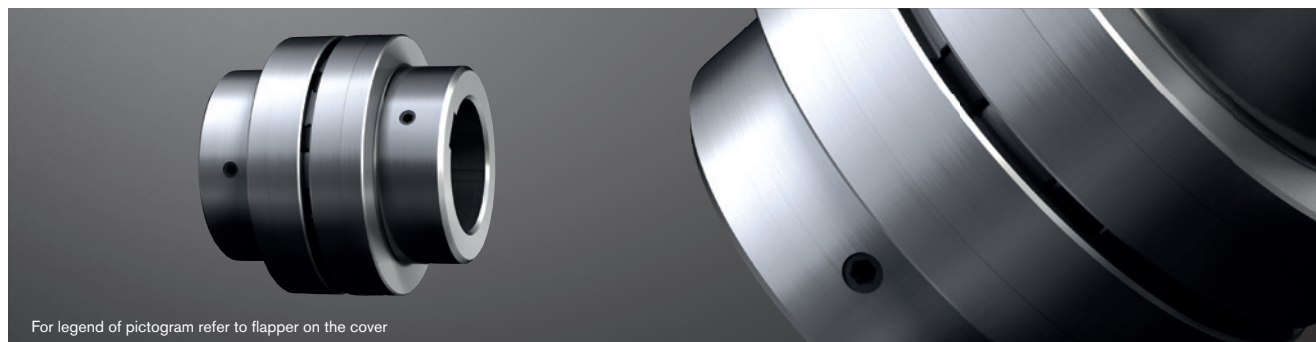
ROFLEX®

POLY-NORM®

POLY-NORM®-M

REVOLUX®

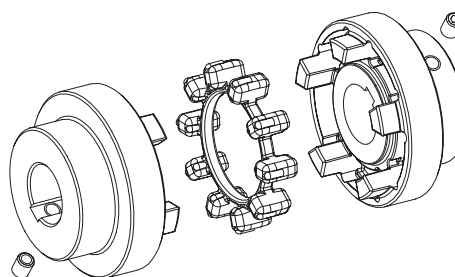
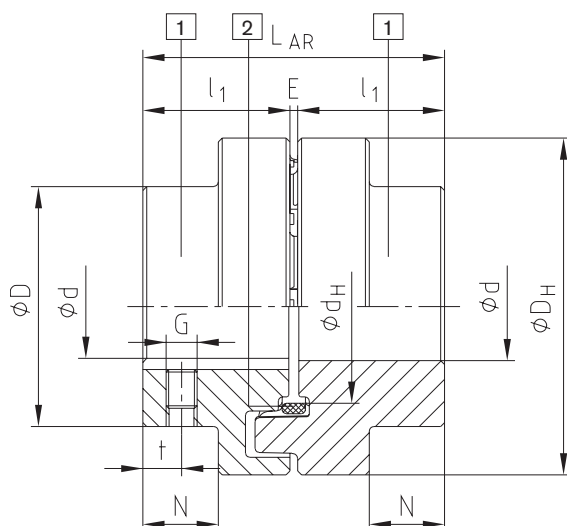
Two-part



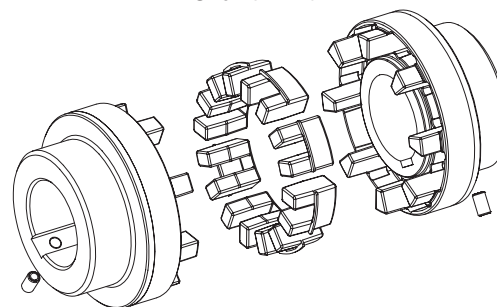
For legend of pictogram refer to flapper on the cover



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}	l ₁	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.

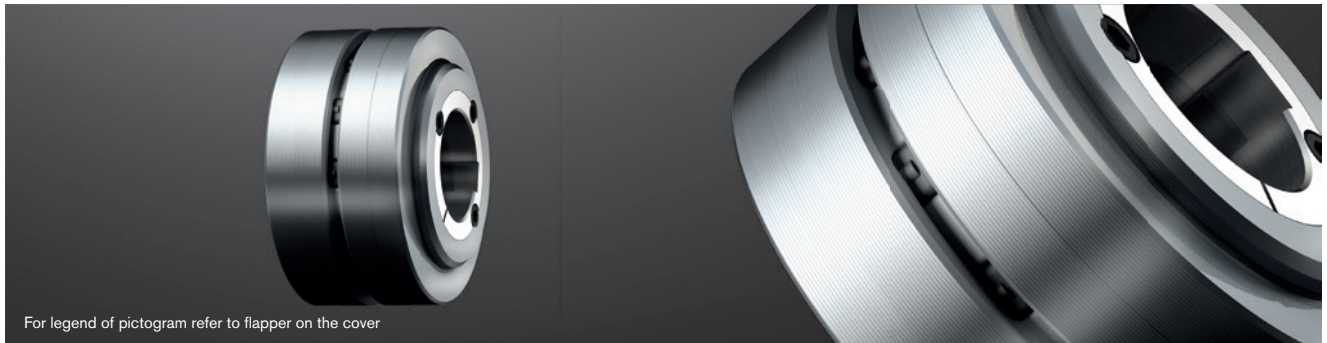
²⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9] and setscrew on the keyway

³⁾ Referring to medium bore

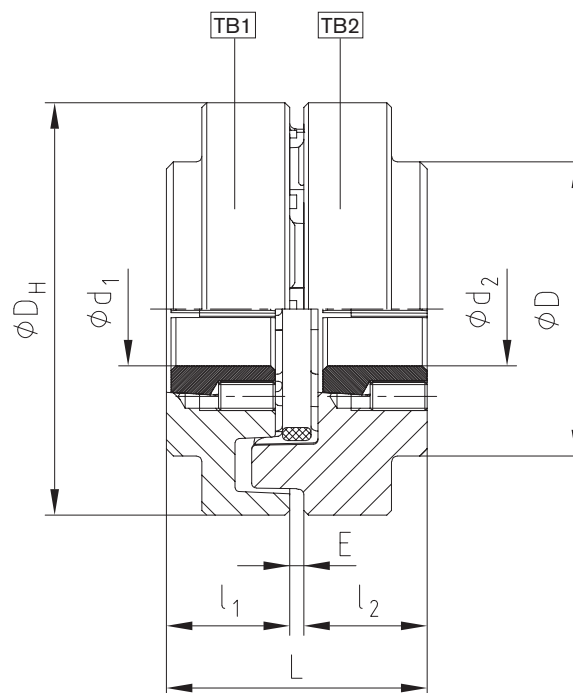
POLY-NORM® AR

Flexible couplings

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	90	3030	75	82	5/8"	32	8	90
	1615	40	42.5	3/8"	16	5	20		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

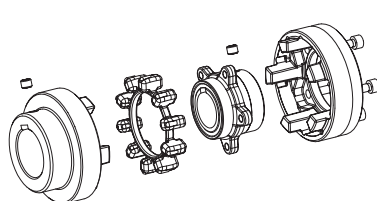
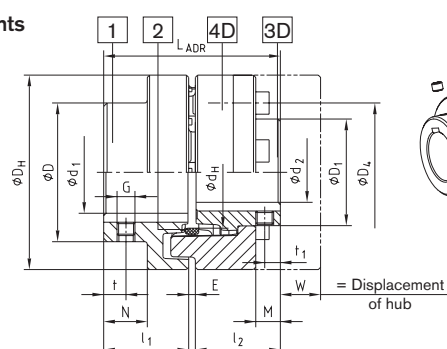
Three-part



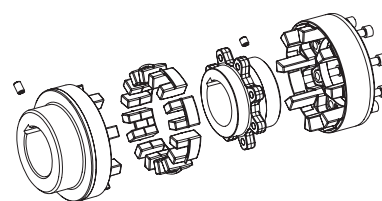
For legend of pictogram refer to flapper on the cover



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	t ₁	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	120	105	226	110	6	250	185	150	158	60	39.5	30	M16	30	30	80
125	5500	11000	140	115	256	125	6	280	210	168	178	70	48.0	35	M16	35	35	80
140	7200	14400	160	135	286	140	6	315	235	195	216	76.5	47.0	59	M20	35	35	140
160	10000	20000	175	155	326	160	6	350	265	225	246	94.5	65.0	43	M20	45	45	140
180	13400	26800	200	175	366	180	6	400	300	255	290	111.5	79.0	33	M20	50	50	140
200	19000	38000	220	200	408	200	8	450	335	290	320	126	95	7	M24	50	50	240
220	30000	60000	240	220	448	220	8	500	370	320	354	140	103	8	M24	50	50	240
240	43000	86000	260	240	488	240	8	550	405	350	388	154	119	1	M24	50	50	240
260	55000	110000	280	260	530	260	10	650	440	380	445	158	109	34	M24	60	60	240
280	67000	134000	300	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.

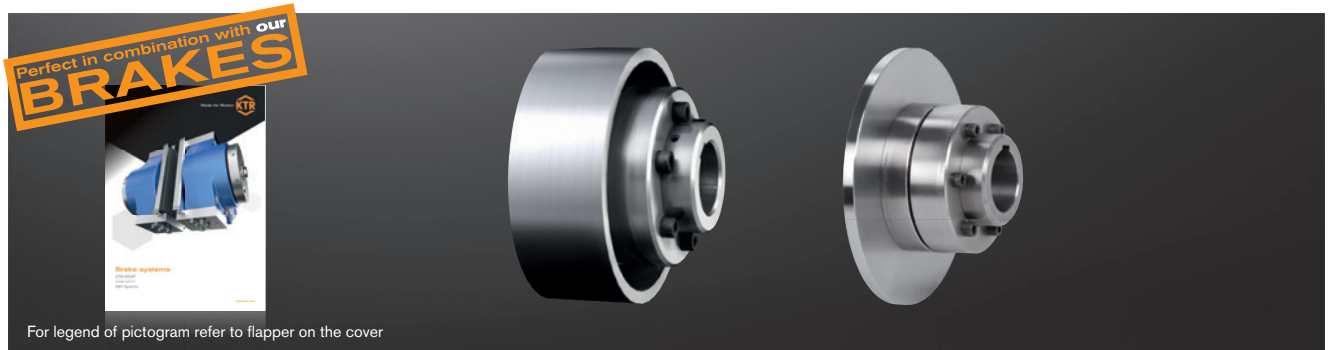
²⁾ Bore H7 with keyway to DIN 6885 sheet 1 [JS9] and setscrew ³⁾ Screw tightening torques acc. to 8.8

Ordering example:

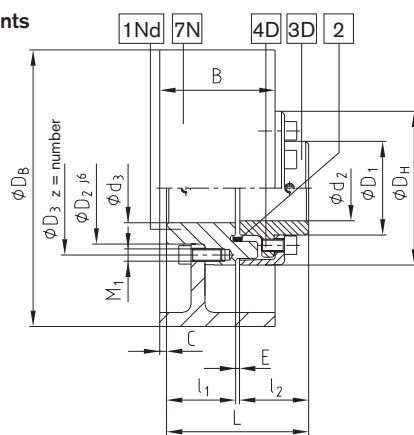
POLY-NORM® 65	ADR	d ₁ = Ø55	d ₂ = Ø60
Coupling size	Type	Finish bore	Finish bore

POLY-NORM® BTA and SBA Flexible couplings

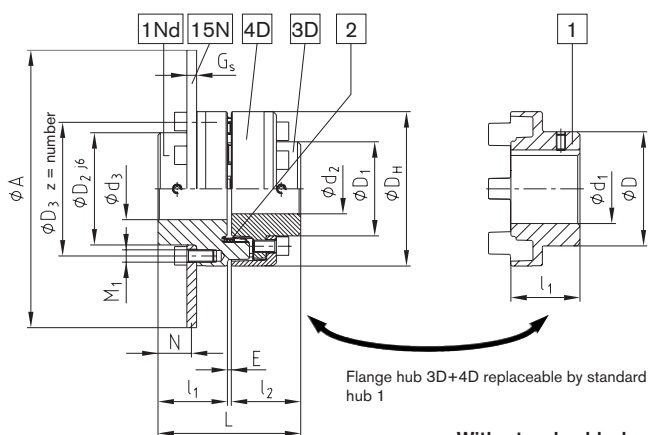
With brake drum/brake disk for brake stop



Components



Brake drum type ADR-BTA



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)		Dimensions [mm]											
	Torque [Nm]		D, D ₁	Max. finish bore			DH	D ₂	D ₃	z	M ₁	l ₁ , l ₂	E	L
	T _{KN}	T _{K max}		d ₁	d ₂	d ₃								
38	90	180	For dimensions D, D ₁ 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® 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⁾	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⁾				
ØDxB Brake drum ²⁾	Dimensions C [mm]																ØAxG Brake disk ²⁾	Dimensions N [mm]																			
160x60	4															7150	200x12.5	13.75														5725					
200x75	9	8	4													5725	250x12.5	13.75	14.75	18.75													4575				
250x95	17	16	20	7	3	0										4575	315x16		13	17	22	26	29	35.5									3625				
315x118		25	21	16	12	9	2.5	-3.5								3625	400x16			17	22	26	29	35.5	41.5	42	48						2850				
400x150			34	28	25	22	15.5	9.5	9	3						2850	500x16				22	26	29	35.5	41.5	42	48	54	64				2275				
500x190										18	12	-2				2275	630x20											46	52	62	69	86		1800			
630x236												20	13	-4		1800	710x20											46	52	62	69	86	104	1600			
710x265													24	7	-11	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

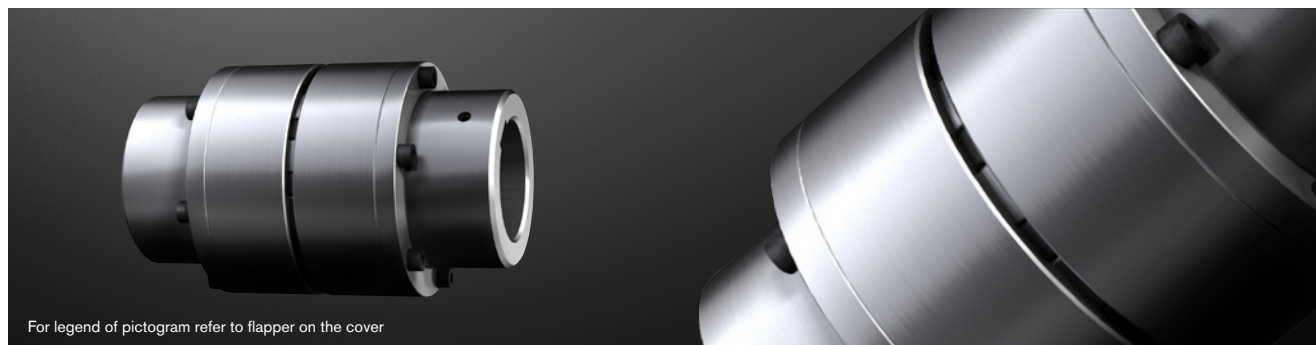
Other sizes on request

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

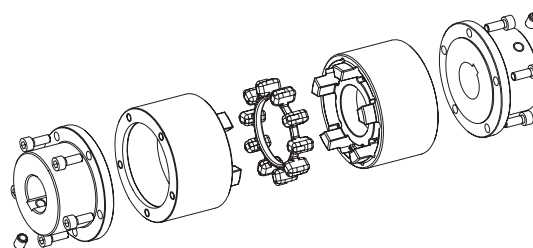
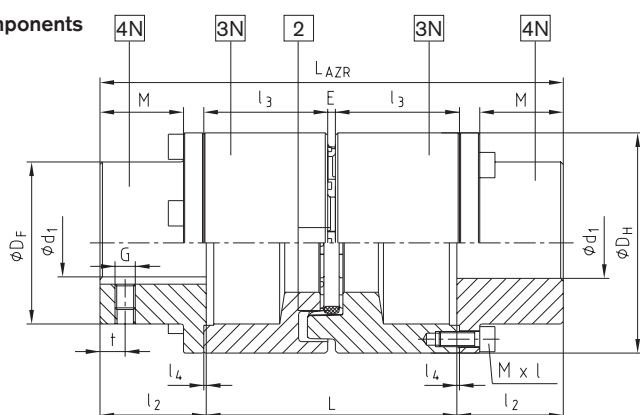
Standard drop-out center design coupling



For legend of pictogram refer to flapper on the cover



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 [mm]	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			
		T _{KN}	T _{K max}		L _{AZR}	I ₂	I ₃	E	I ₄	DH	D _F	M	MxI	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
	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
	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
	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
	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
	250				69		0.0240										10.8	
	180				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
	260				69		0.0414										13.0	
	180				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
	270				69		0.0730										15.8	
	180				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
	330				89		0.1008										25.6	
	250				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
	350				89		0.1658										35.2	
90	180	2000	4000	110	420	90	124	5	1.5	200	148	73.5	M12x35	120	M12	25	0.1812	40.7
	320				69		0.2466										38.2	
	250				89		0.2880										42.2	
100	140	2900	5800	120	430	100	124	6	2	224	165	83	M12x35	120	M12	25	0.3566	49.3
	340				69		0.3988										50.0	
	180				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⁾ Bore H7 with keyway to DIN 6885 sheet 1 [JS9] and setscrew on the keyway

³⁾ Referring to medium bore

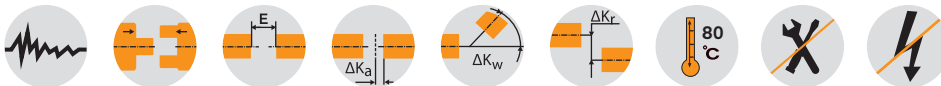
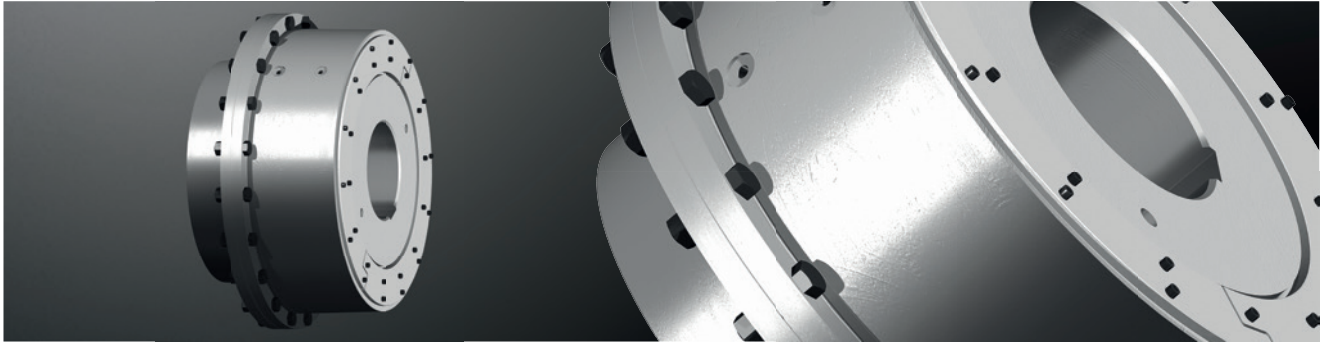
*For other extendable lengths (L = 120/160/195/215) it is possible to combine two driving flanges 3N with various lengths. As an example: driving flanges of POLY-NORM® 85 for extendable length 140 and 250 give an extendable length of 195 mm (140 mm + 250 mm = 390 mm; 390 mm/2 = 195 mm)

Ordering example:

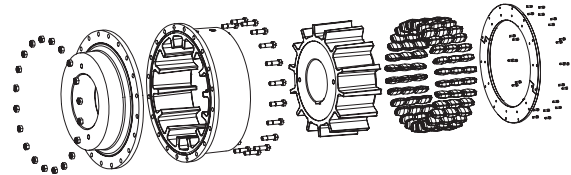
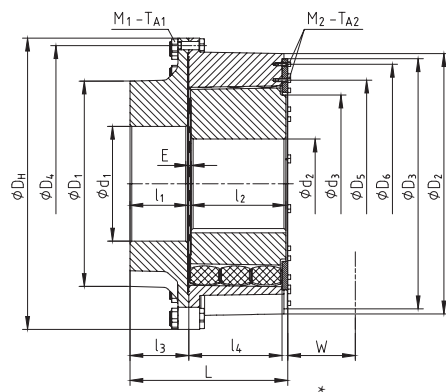
POLY-NORM® 42	AZR	140	Ø38	Ø42
Coupling size	Type	Drop-out center design length L	Finish bore	Finish bore

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⁾	l ₂	l ₃ ³⁾	l ₄	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

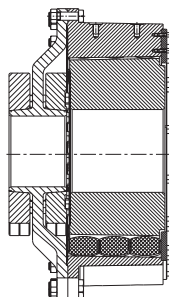
¹⁾ Standard material Perbunan [NBR] 80 Shore A, electrically insulating available on request, for selection see page 18 et seqq.

²⁾ Referring to max. bore

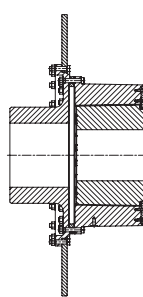
³⁾ Variable according to customer's request. Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9]. If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with speed as specified by the customer). For circumferential speeds exceeding v = 20 m/s dyn.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

Other types

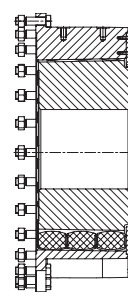
Type AFN with clamping ring hub



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

Flexible jaw and
pin & bush couplings

ROTEX®

ROFLEX®

POLY-NORM®

POLY-NORM®-M

REVOLEX®

Technical data

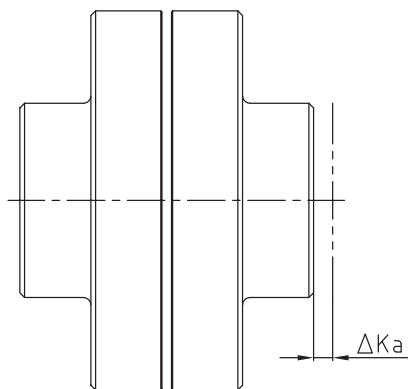
REVOLEX® KX-D Technical data												
Size	Torque [Nm] NBR 80 ShA DIN 740 ¹⁾				Cast iron		Steel		Torsion spring stiffness C dyn. [Nm/rad]			
	Rated TKN	Max. TK max	Vibratory TKW	TK max ²⁾	Max. speed [rpm] with v = 35 m/s	Max. bore [mm]	Max. speed [rpm] with v = 60 m/s	Max. bore [mm]	0.25 TKN	0.50 TKN	0.75 TKN	1.00 TKN
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	According to customer specification	6.25x10 ⁷	1.33x10 ⁸	2.03x10 ⁸	2.74x10 ⁸
KX-D 520	810000	1620000	324000	2430000	–	–	740		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

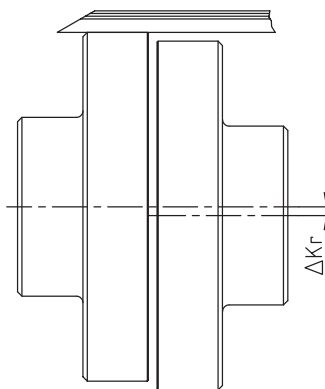
If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with speed as specified by the customer). For circumferential speeds exceeding v = 30 m/s dyn. balancing is recommended.

Axial displacement ΔK_a

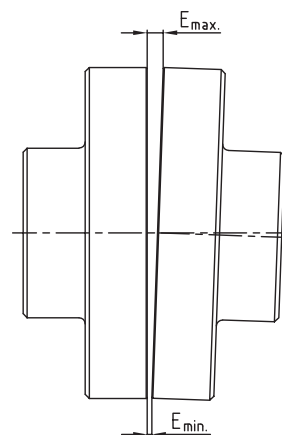


$$L_{\max./\min.} = L + \Delta K_a \text{ [mm]}$$

Radial displacement ΔK_r



Angular displacement ΔK_w



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

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.

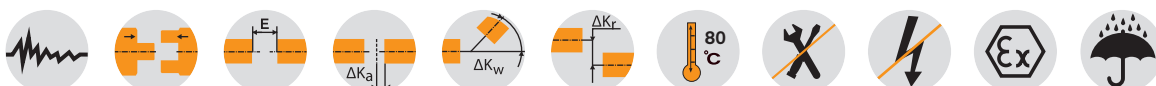
REVOLEX® KX-D

Flexible pin & bush coupling

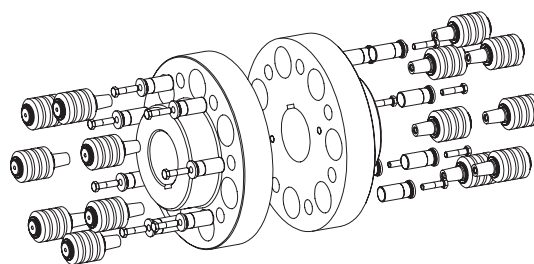
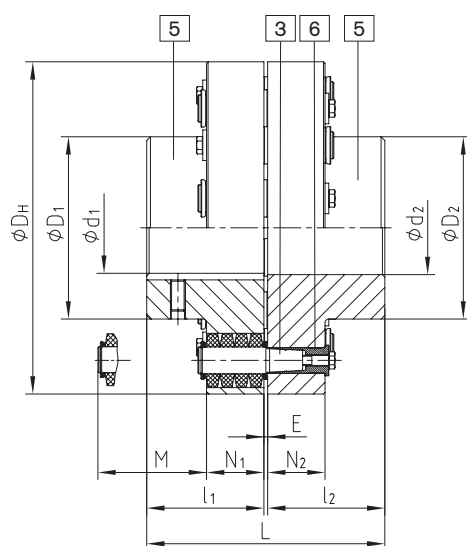
Material cast



For legend of pictogram refer to flapper on the cover



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.) d ₁ , d ₂	Dimensions [mm]							Mass moment of inertia ³⁾ [kgm ²]	Weight ³⁾ [kg]
	T _{KN}	T _{K max}			L	l ₁ , l ₂	E	D _H	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

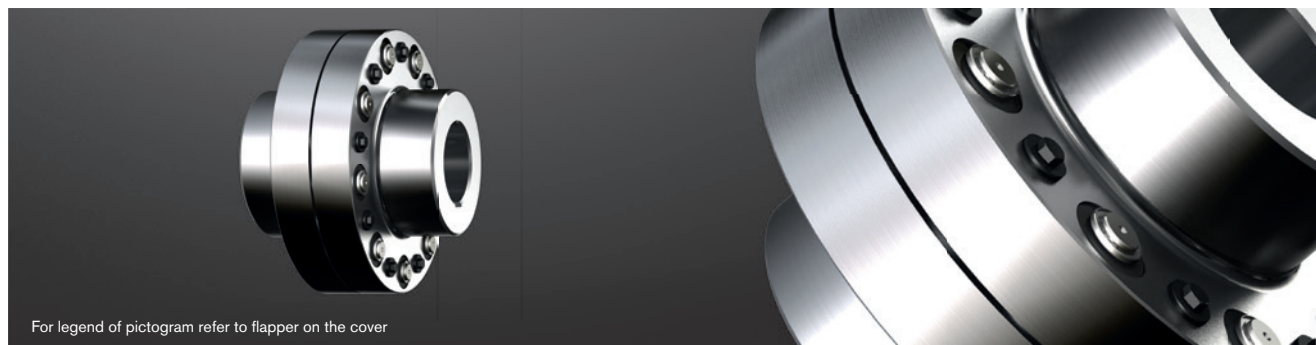
Ordering example:

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

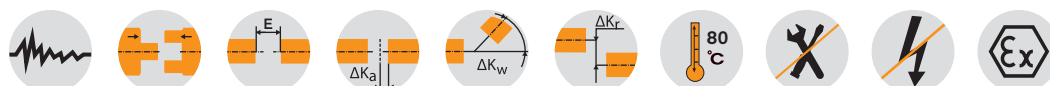
REVOLEX® KX-D

Flexible pin & bush coupling

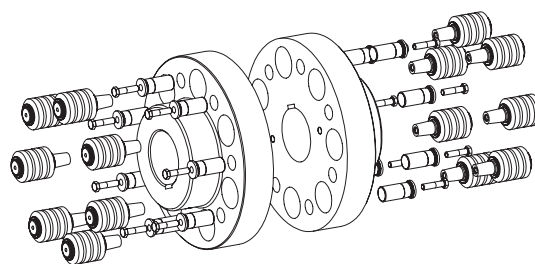
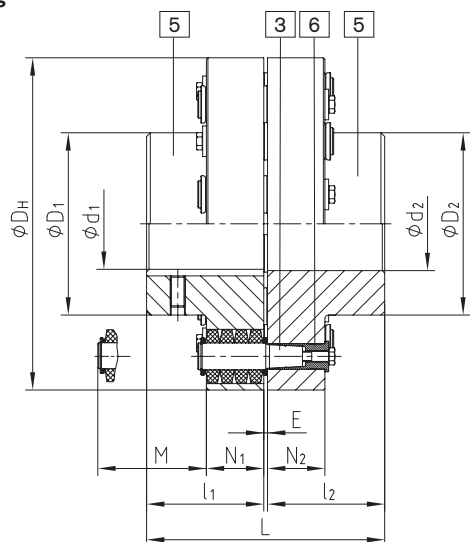
Material steel



For legend of pictogram refer to flapper on the cover



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.) d ₁ , d ₂	Dimensions [mm]							Mass moment of inertia ³⁾ [kgm ²]	Weight ³⁾ [kg]
	T _{KN}	T _{K max}			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

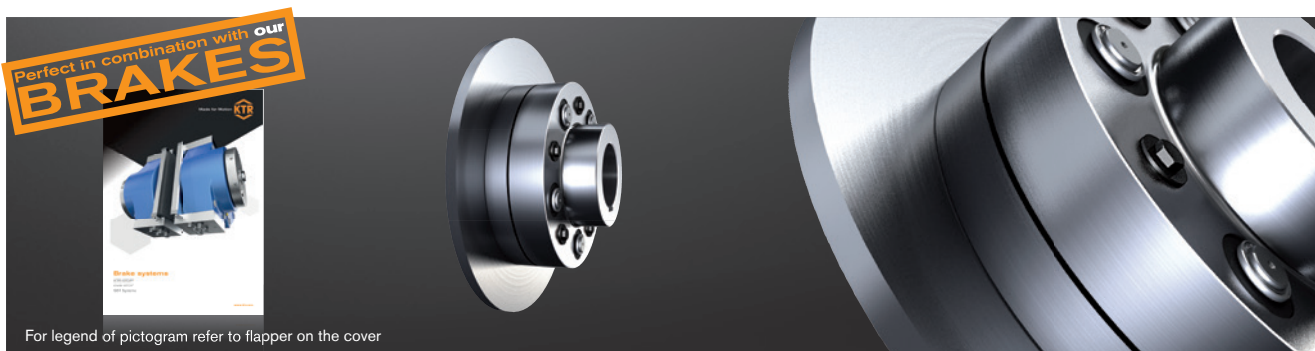
Ordering example:

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 KX-D	Ø630x30 KX-D	Ø710x30 KX-D	Ø800x30 KX-D	Ø900x30 KX-D	Ø1000x30 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.

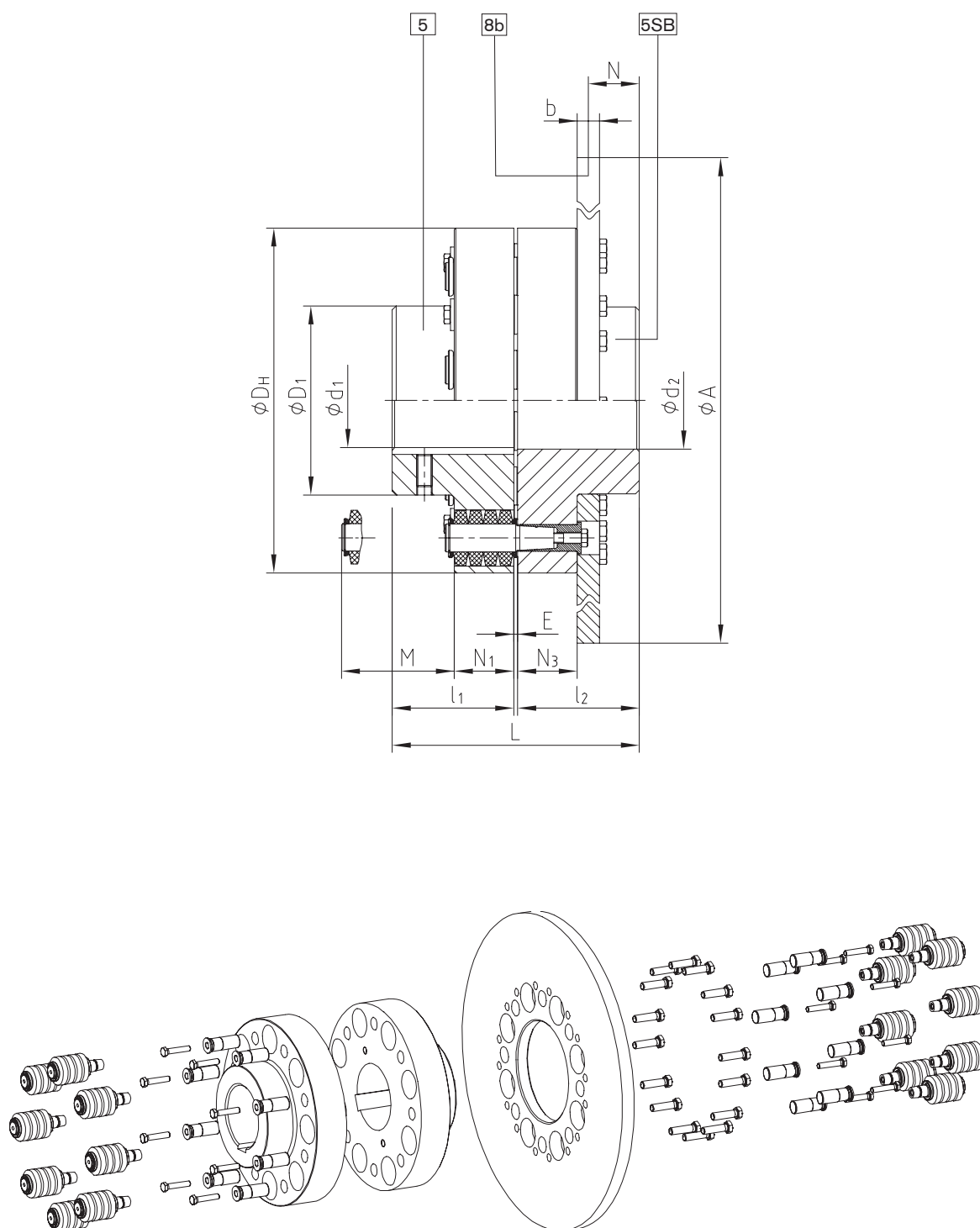
²⁾ Maximum circumferential speed v = 60 m/s referring to the maximum outside diameter.

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

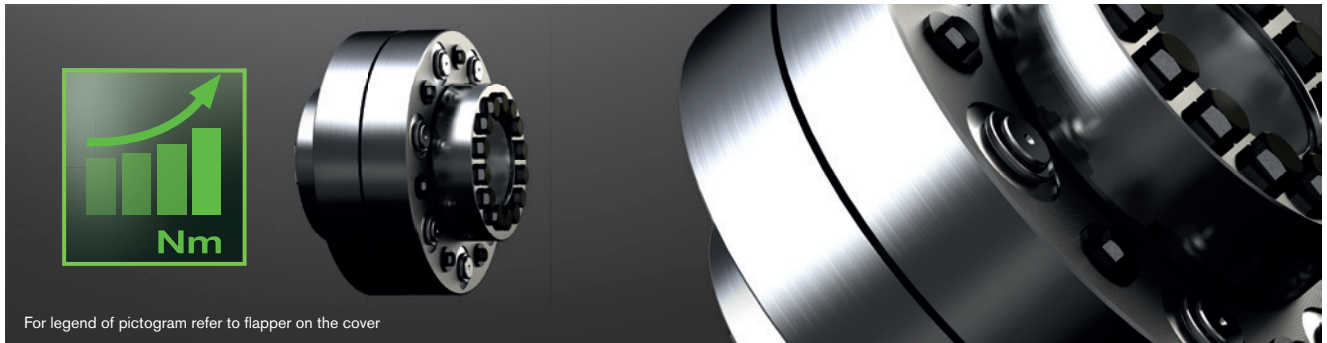
Components



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

¹⁾ = 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.

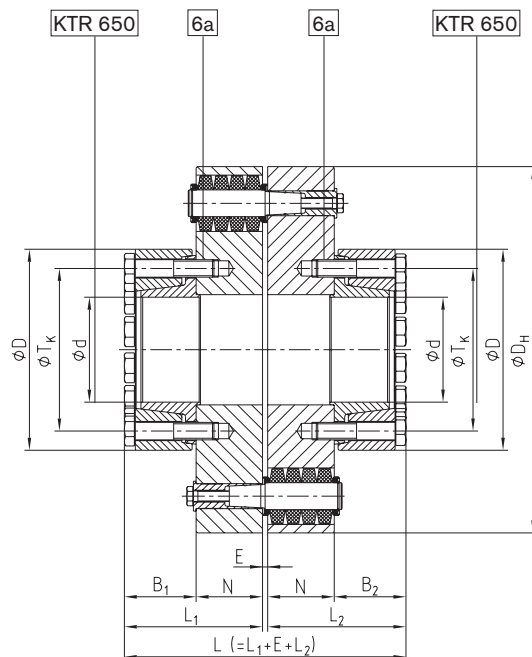
If requested, coupling is dynamically balanced (semi-key balancing G 6.3 with speed as specified by the customer). For circumferential speeds exceeding v = 30 m/s dynamic balancing is recommended (referring to outside diameter ØA).

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:

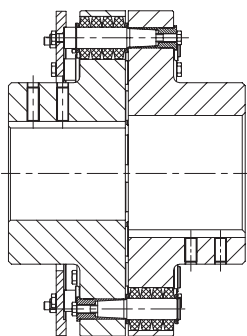
REVOLUX® KX-D 170	Steel	KTR 650 Ø120	KTR 650 Ø150
Type and size of coupling	Material	KTR 650 for shaft diameter	KTR 650 for shaft diameter

Components

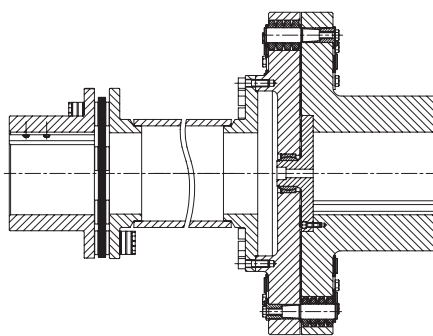


Other types

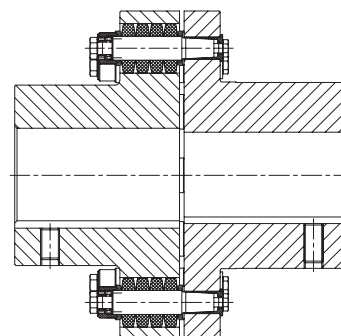
Type AB with limitation of axial backlash



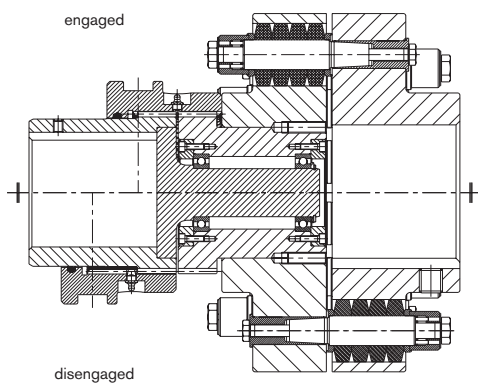
Intermediate shaft type with RADEX®-N



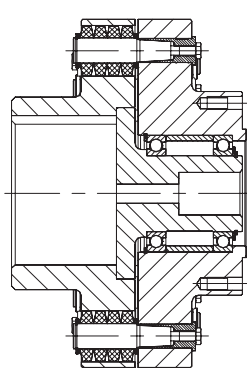
Backlash-free type



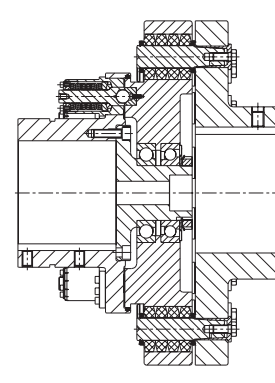
Type KX-D SD
shiftable with shiftable linkage



Type KX-D
with cardan shaft connection



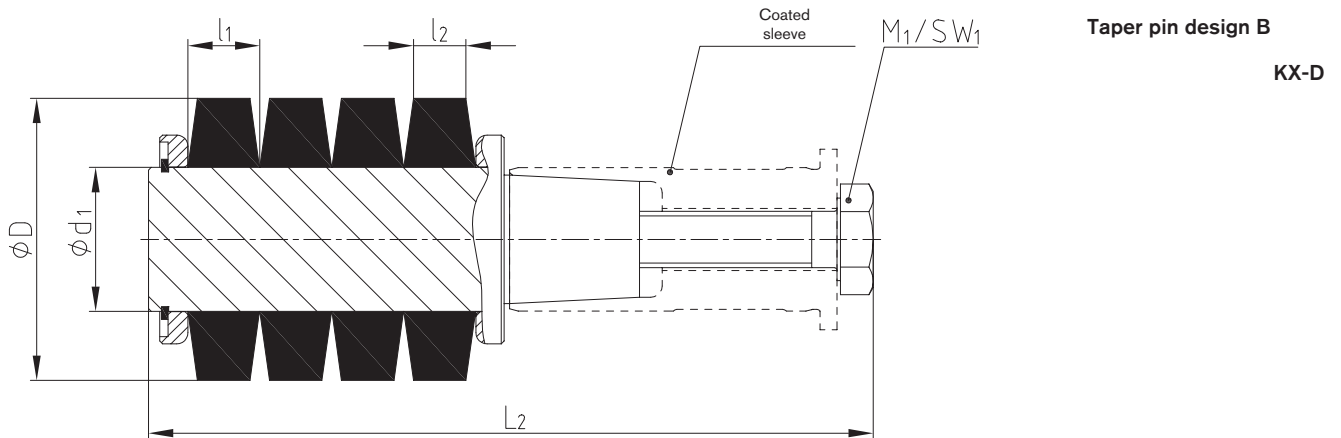
Type KX-D
with KTR-SI FRE



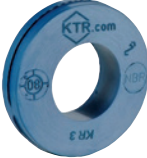
REVOLEX® KX-D

Flexible pin & bush coupling

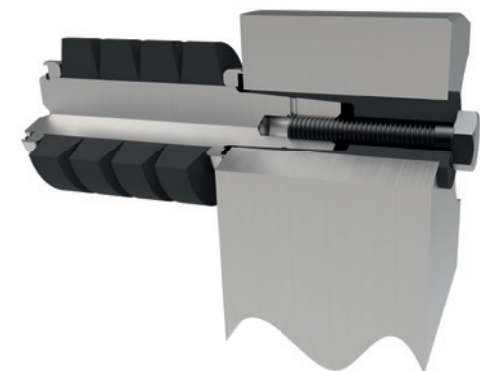
Technical data of pins



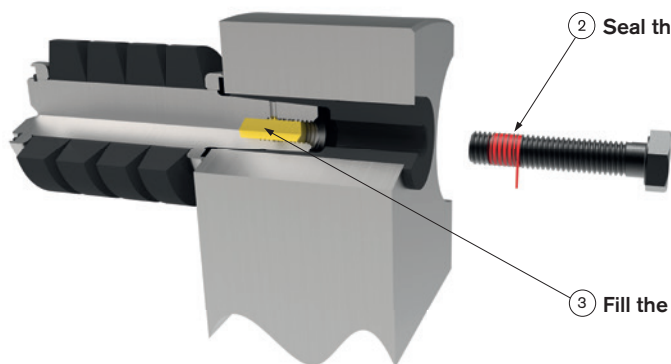
Technical data										
Size	Pin		Elastomer ring NBR 80 Shore A			Pin		Screw DIN EN ISO 4014/4017		Tightening torque T_A [Nm]
	Size	Number KX-D	D	l1	l2	d1	L2	M1	SW1	
75	3	10	50	12.7	9.3	25.5	129	M10	16	67
85		12								
95		14								
105	4	16	63	17.8	12.5	30.7	178	M12	18	115
120		14								
135		16								
150	5	18	85.5	23.1	15.3	43.2	220	M16	24	290
170		14								
190		16								
215	6	18	113.7	30.5	20.3	58.4	290	M24	36	970
240		14								
265		16								
305	7	20	150	41.5	29	75	393	M30	46	1350
330		24								
355		16								
470	8	22	209.5	55.5	35	95	523	M36	55	2250
520		18								
590		20								
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

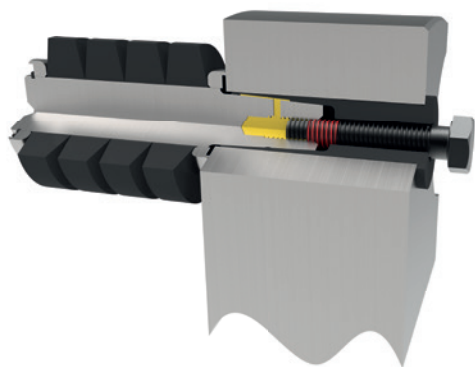


① Unscrew screw

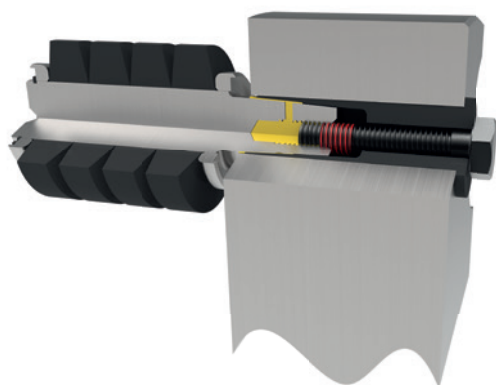


② Seal the screw in this area with sealing tape (e. g. Loctite® 55)

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

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---------------------------------	----

BoWex®

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Type M, type I and type M...C with explosion protection	90
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GEARex®

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BoWex®



GEARex®



GEAR COUPLINGS

TYPES AND OPERATING DESCRIPTION

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	●	○
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	○	○
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

○ ≈ On request

* ≈ Depending on size

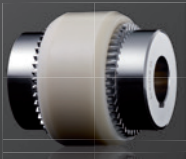


In KTR's Power Transmission Center the performance of our products is subjected to testing. Great emphasis is put on quality assurance.

GEAR COUPLINGS

TYPES AND OPERATING DESCRIPTION

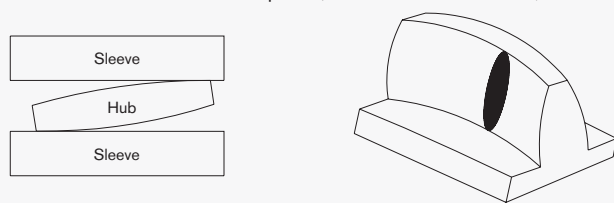
Product finder of gear couplings

		
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®)



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

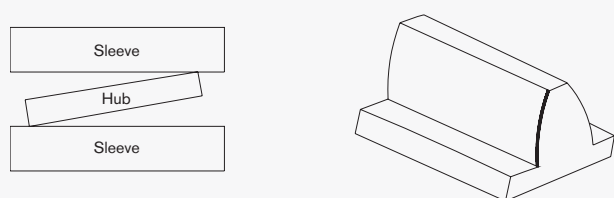
BoWex®:

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°.

Hub with spur toothing

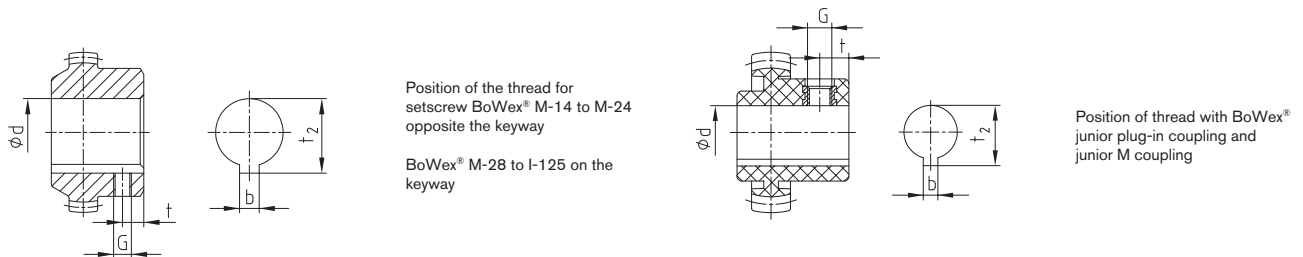


Technical data

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	6000
	junior 19 / M-19	8	16	4	
	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.

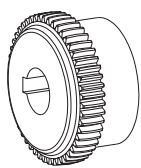


BoWex® coupling hubs							
Size Dimensions	14 19 24	28 32 38	42 45 48	65	80	100	125
Thread G	M5	M8	M10	M10	M12	M16	
Distance t	6	10	15 ¹⁾ 20	20	30	40	
Tightening torque T _A [Nm]	2	10	17	17	40	80	

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

Types of hubs



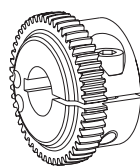
**Type 1.0 hub
with feather keyway and setscrew**

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.

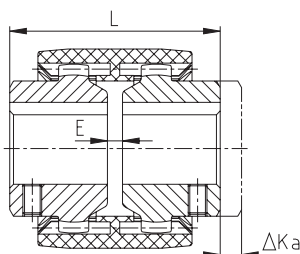
**Type 2.3 clamping hub
with spline bore (see page 101)**

Other hub types on request.

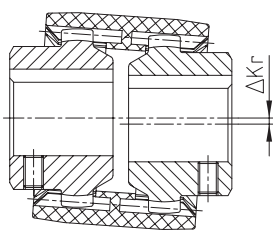
Displacements

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.

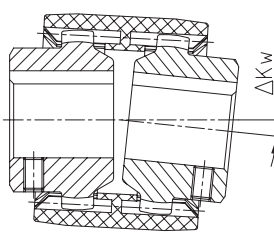
Axial displacement



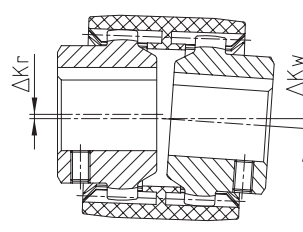
Radial displacement



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	Displacements – type GT				Displacements – type HEW Compact											
	28	38	48	65	42-130			65-180			80-225			100-305		
Elastomer hardness [Shore A]					T50	T65	T70	T50	T65	T70	T50	T65	T70	T50	T65	T70
Max. axial displacement ΔK_a [mm]	± 1	± 1	± 1	± 1	± 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
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
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
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

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.

BoWex® Curved-tooth gear coupling®

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.

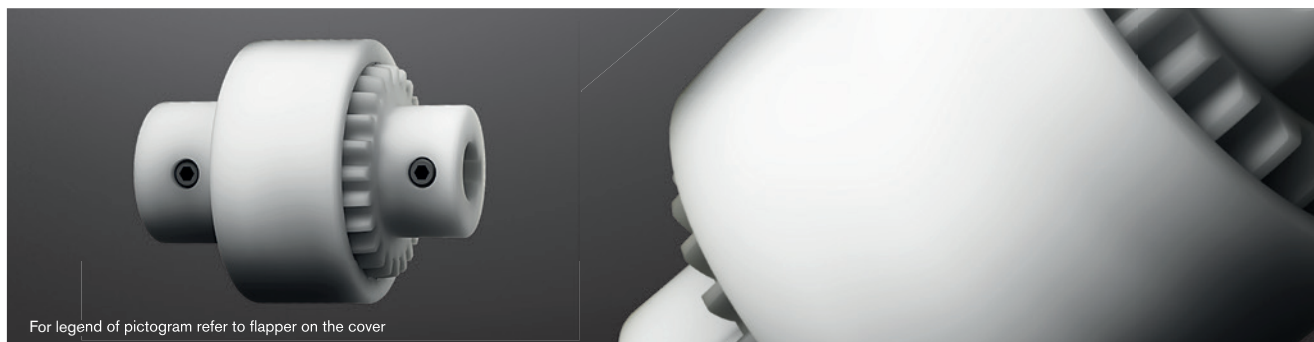
● Standard length

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] 3000 ≤ 1500
	kW	T [Nm]	BoWex® coupling	kW	T [Nm]	BoWex® coupling	kW	T [Nm]	BoWex® coupling	
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	19 x 40
	1.1	3.7		0.75	5.1		0.55	5.8		
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
112 M	4	13		3	20		2.2	22		
132 S	5.5	18	38	4	27	38	3	30	38	38 x 80
	7.5	25		5.5	36		4	40		
132 M				7.5	49		5.5	55		
160 M	11	36	42	11	72	42	7.5	75	42	42 x 110
160 L	15	49		15	98		11	108		
180 M	18.5	60	48	18.5	121	48			48	48 x 110
180 L	22	71		22	144		15	148		
200 L	30	97		30	196		18.5	181		55 x 110
225 S	37	120		37	240		22	215		
225 M	45	145	65	45	292	65	30	293	65	55 x 110
250 M	55	177		55	356		37	361		60 x 140
280 S	75	241	80	75	484	80	45	438	80	65 x 140
280 M	90	289		90	581		55	535		75 x 140
315 S	110	353	80	110	707	80	75	727	80	
315 M	132	423		132	849		90	873		
315 L	160	513	80	160	1030	100	110	1070	100	80 x 170
	200	641		200	1290		132	1280		
315			100			125	160	1550	125	85 x 170
	250	801		250	1610		200	1930		
355	315	1010	125	315	2020		250	2420		
	355	1140		355	2280					
	400	1280		400	2560		315	3040	-	75 x 140
										95 x 170

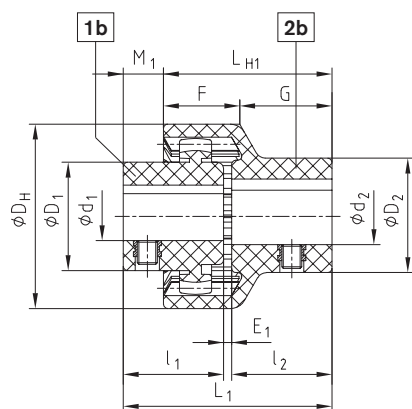
Torque T ^Δ = rated torque according to Siemens catalogue.

BoWex® junior and junior M Curved-tooth gear coupling®

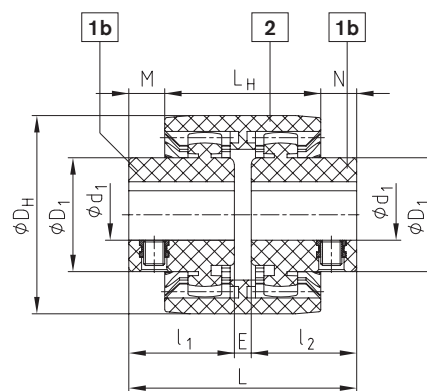
Plug-in coupling made of nylon (two-part and three-part)



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	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
M-14			Ø10, Ø11	25	Ø10, Ø11	25													
			Ø12, Ø14	26	Ø12, Ø14	26													
19	8	16	Ø10, Ø11, Ø12, Ø14	27	Ø12, Ø14, Ø19	29	47	25	2	52	42	10	19.0	23.0	4	54	37	8.5	6000
M-19			Ø15, Ø16	30	Ø15, Ø16	30													
			Ø19	32	Ø19	35													
	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
24			Ø14, Ø15, Ø16	32															
M-24			Ø18, Ø19, Ø20	36	Ø19, Ø20	36													
			Ø24	38	Ø24	40													

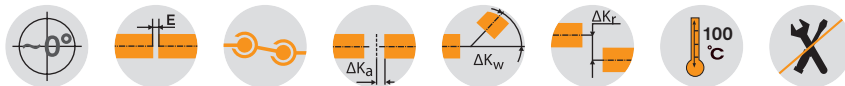
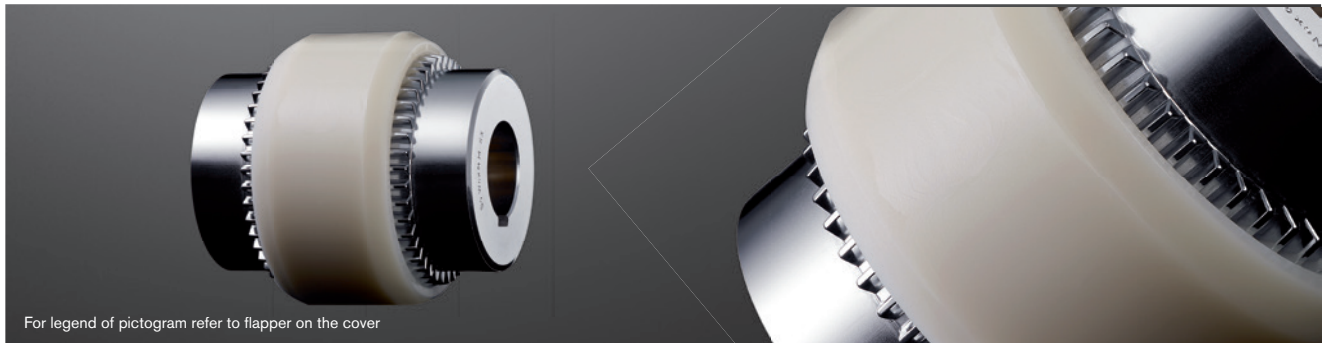
¹⁾ Finish bores with tolerance +0.05/-0.1; feather keyway ±0.08

Ordering example:

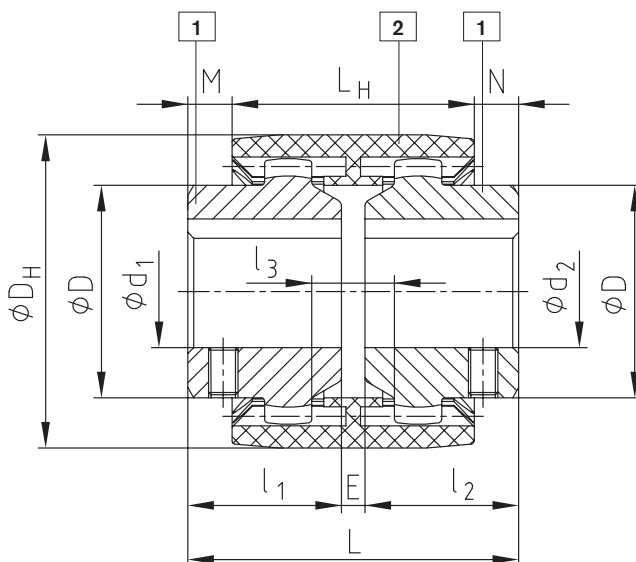
BoWex® junior 19	d ₁ Ø19	d ₂ Ø14
Coupling size of two-part type or BoWex® junior M-19 three-part type	Finish bore	Finish bore

BoWex® M, I Curved-tooth gear coupling®

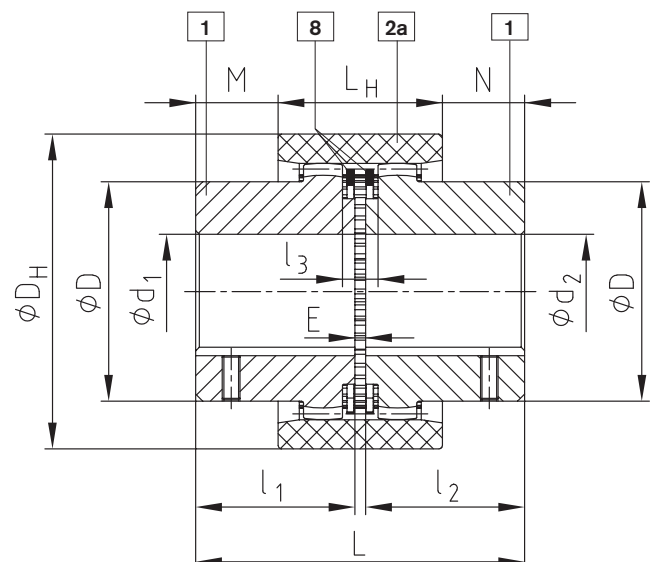
Compact and maintenance-free



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	I3	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

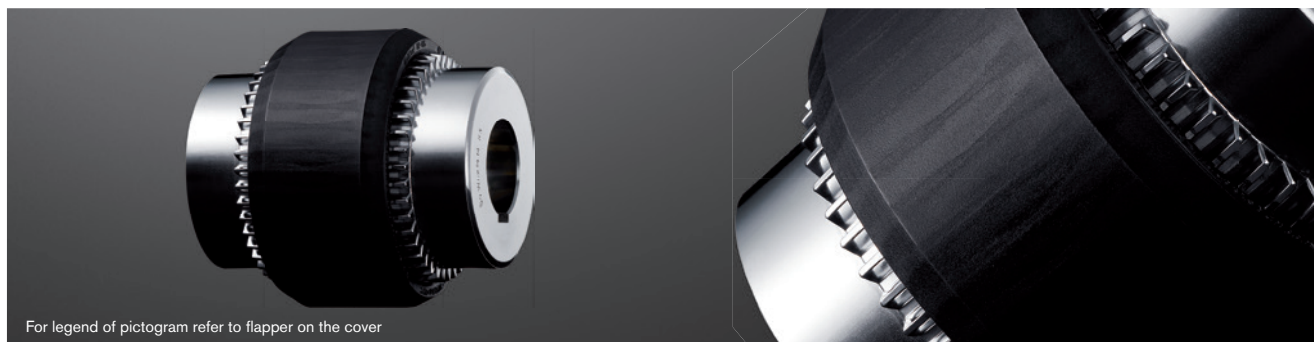
Ordering example:

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)

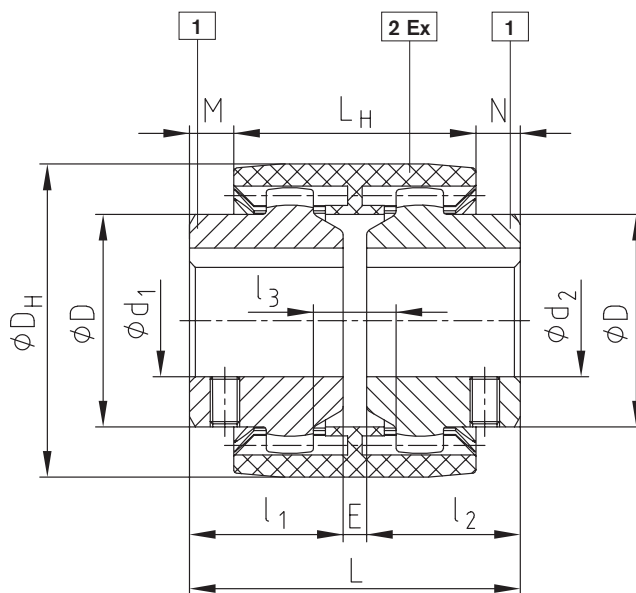
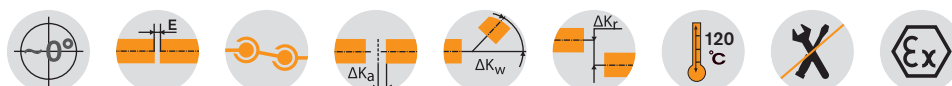
BoWex® M...C

Curved-tooth gear coupling®

Compact and maintenance-free



For legend of pictogram refer to flapper on the cover



Type M...C

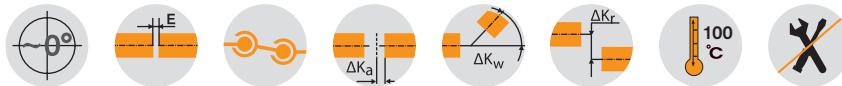
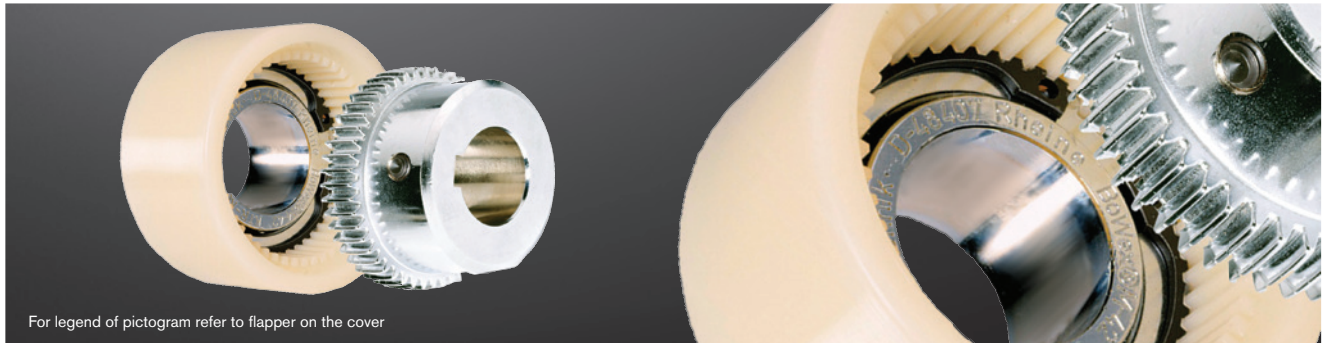
BoWex® Type M...C 																								
Size	Torque [Nm]			Finish bore d1, d2		Dimensions [mm]													Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm²]		
	T _{KN}	T _{K max.}	T _{KW}	Pilot bored	Max.	l ₁ , l ₂	E	L	L _H	M, N	I3	D	DH	Tip circle ØD _Z hub	Number of teeth	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:

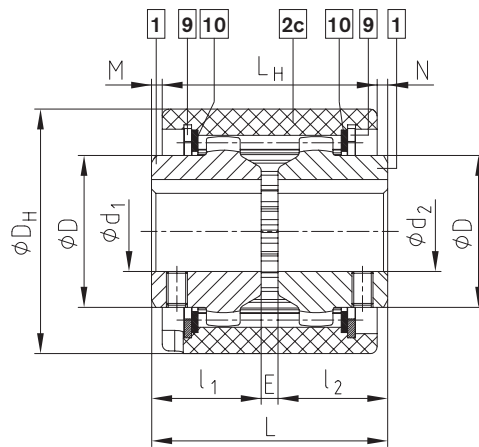
BoWex® M-28C	d ₁ Ø20	d ₂ Ø28
Size and type of coupling	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

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

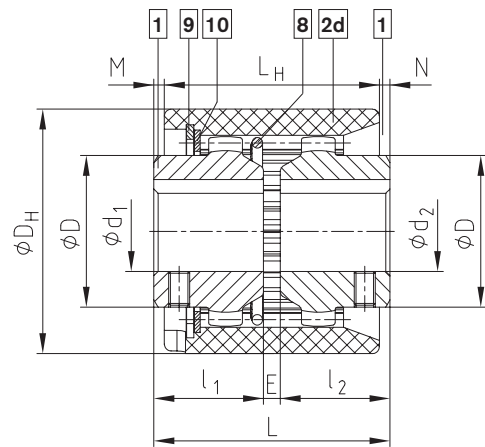
Compact and maintenance-free



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 [kgcm ²]		
	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.

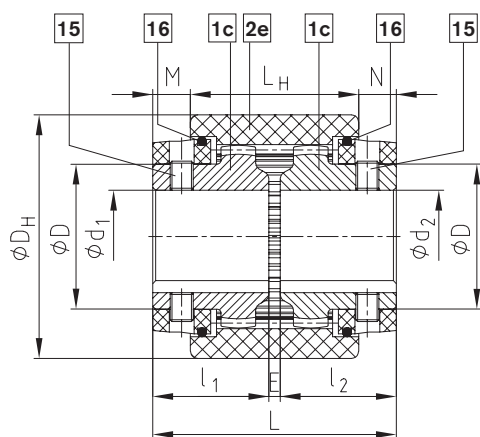
Ordering example:	BoWex® 32 AS	d ₁ Ø32	d ₂ Ø32
	Size and type of coupling AS or Spec.-I	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

BoWex® SG, SSR and Spec.-I/CD Curved-tooth gear coupling®

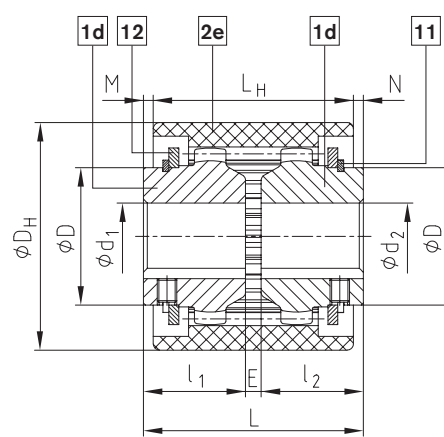
Other coupling types



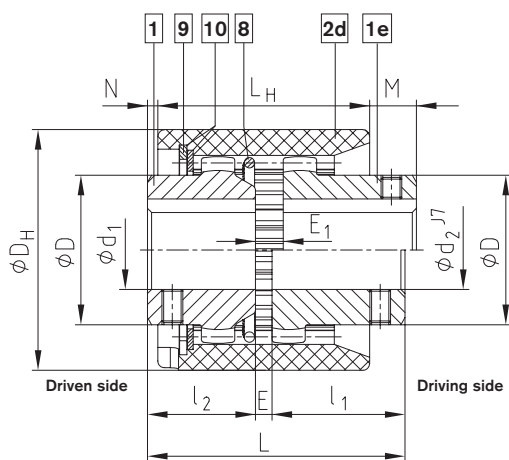
Components



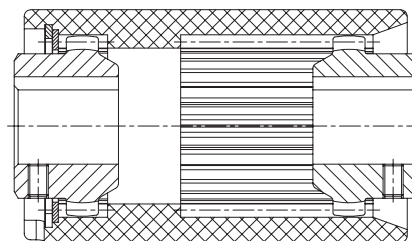
BoWex® Type SG with dust protection circlips



BoWex® Type SSR with Seeger circlips



BoWex® Type Spec.-I/CD



Type Spec.-I with a long PA-sleeve

GEARex®

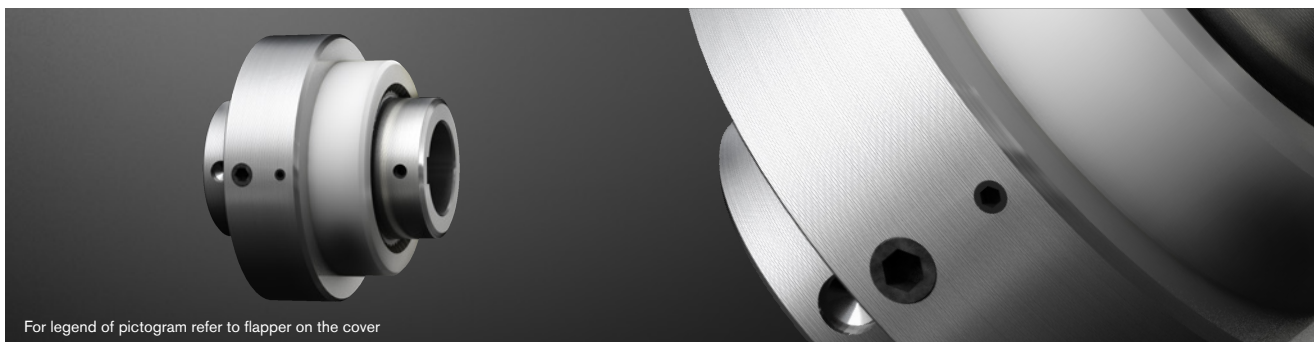
Gear
couplings

BoWex®

BoWex® SD/SD-D

Curved-tooth gear coupling®

Shiftable coupling (at standstill)



For legend of pictogram refer to flapper on the cover



BoWex® Type SD																						
Size	Pilot bore		Finish bore d1, d2			Dimensions [mm]												Weight with max. bore [kg]		Mass moment of inertia J with max. bore [kgcm²]		Shifting force [N]
	Un- bored	Pilot bored	d1	d1 max.	d2 max.	E	I1	I2	L	LH	I3	M	W	N	D	DH	DA	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
				50																		
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.

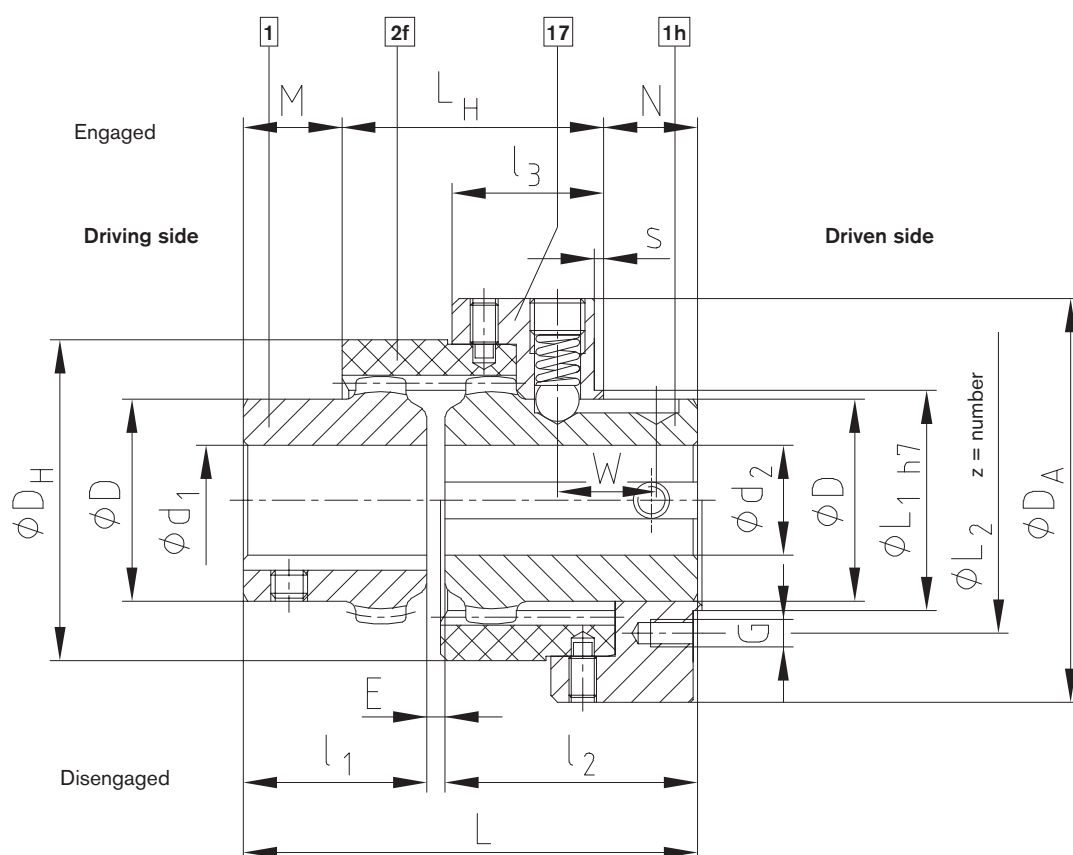
Size	Dimensions [mm]			
	L ₁	L ₂	z x G	s
24 SD	48	58	4 x M6	2
28 SD	48	58	4 x M6	2
32 SD	64	75	4 x M6	2
45 SD	75	90	4 x M8	2
65 SD	100	114	4 x M8	2
80 SD	130	145	4 x M8	3
100 SD	180	196	6 x M10	4
125 SD	220	236	6 x M10	4

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

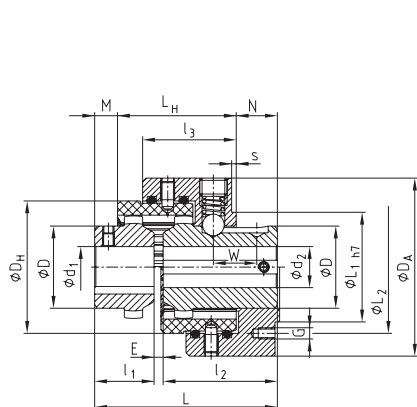
Ordering example:

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)

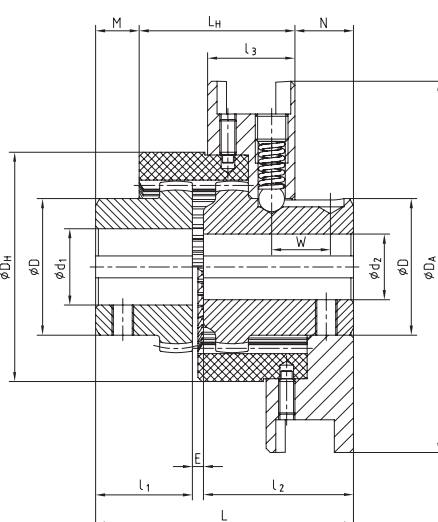
Components



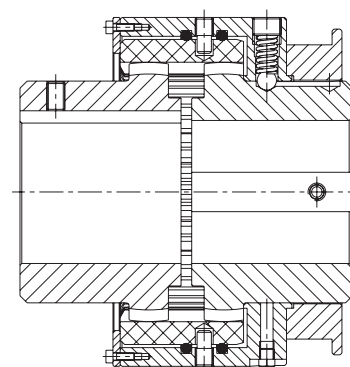
BoWex® SD



BoWex® SD-D



BoWex® SD2

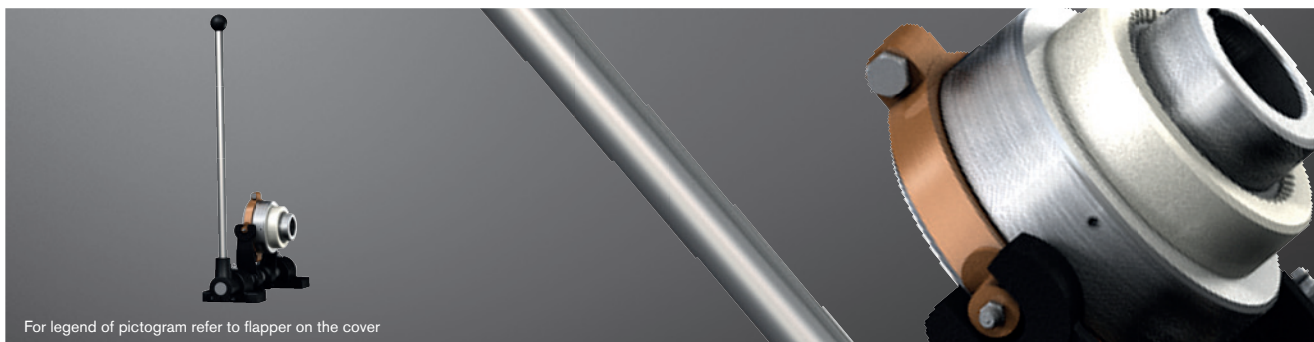


BoWex® SD-D3

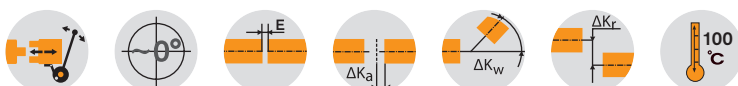
BoWex® SD1

Curved-tooth gear coupling®

Shiftable coupling with shiftable linkage (at standstill)



For legend of pictogram refer to flapper on the cover



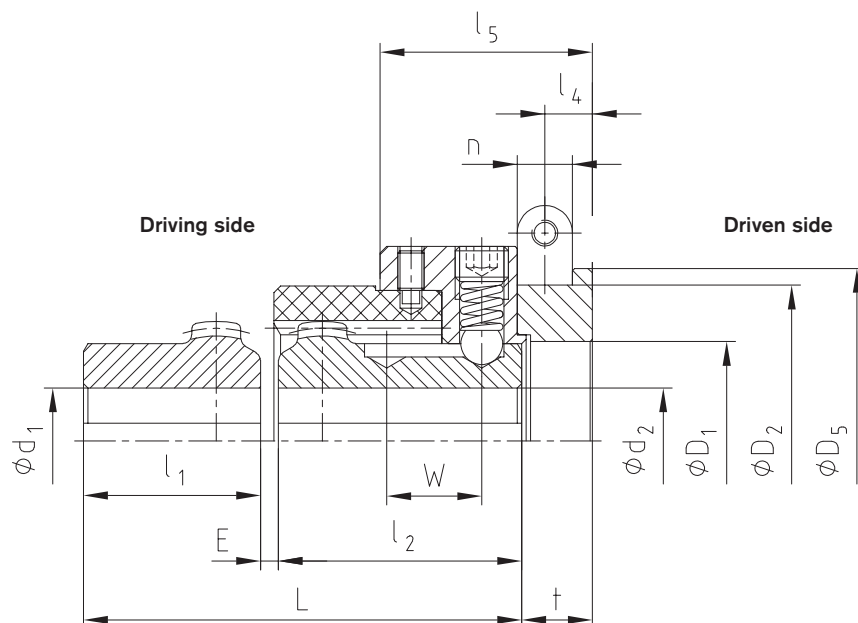
BoWex® Type SD1 and slip ring																					
Size	Finish bore			Dimensions [mm]																	Shifting force [N]
	d ₁	d ₁ max.	d ₂ max.	E	I ₁	I ₂	L	L _G	I ₄	I ₅	M	W	t	D	DH	D _A	D ₁	D ₂ ±0.1 (keyway)	D ₅	n ±0.1 (keyway)	
24 SD1	For finish bores see stock programme on page 88	24	24	4	26	50	80	67	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
		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 m1 max.			
			a	b	c	d	d3	d4	e	F	g1	L2	L3	m	m1 min.	m1 max.	A	B	m3	m4	m5
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					20	40	120				100			140	180			
65 SD1	3	4.4				30					70	490	600		280	310	170	210		90	44
80 SD1	4	5.5		60	25	35	13.5		50	147.5		565	750								
100 SD1	5	6.6	160					30							321	365	200	244		100	54
125 SD1	5	7.7				40			50 ¹⁾	190	80	630	1085	120	365	410	250	300	30	110	62
															-		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.

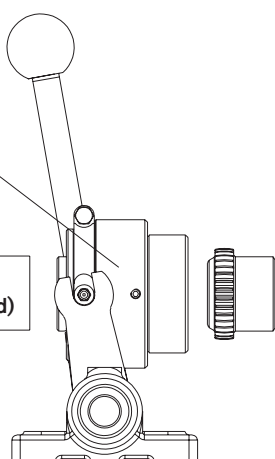
Performance data/torques see type M (on page 90),
max. circumferential speed v = 20 m/s, referring to ØD_A
(see assembly instructions table 11)

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



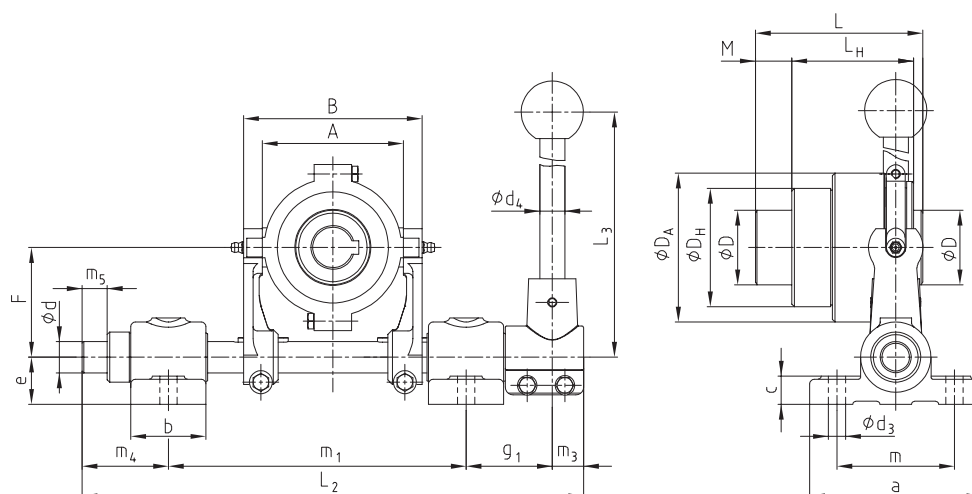
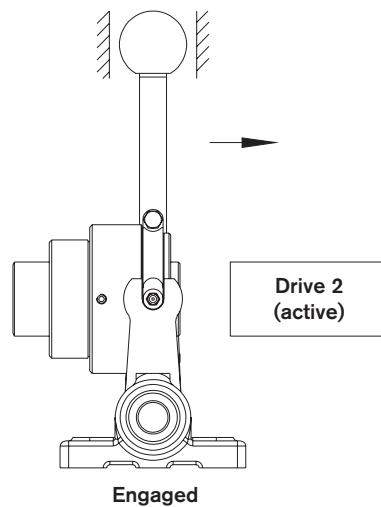
Shifting hub on the
disengaged side

Drive 1
(disengaged)



Driven side

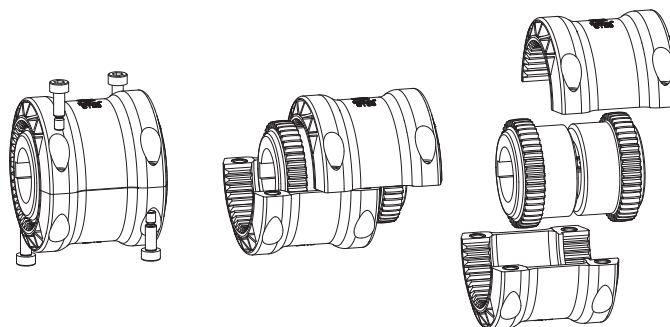
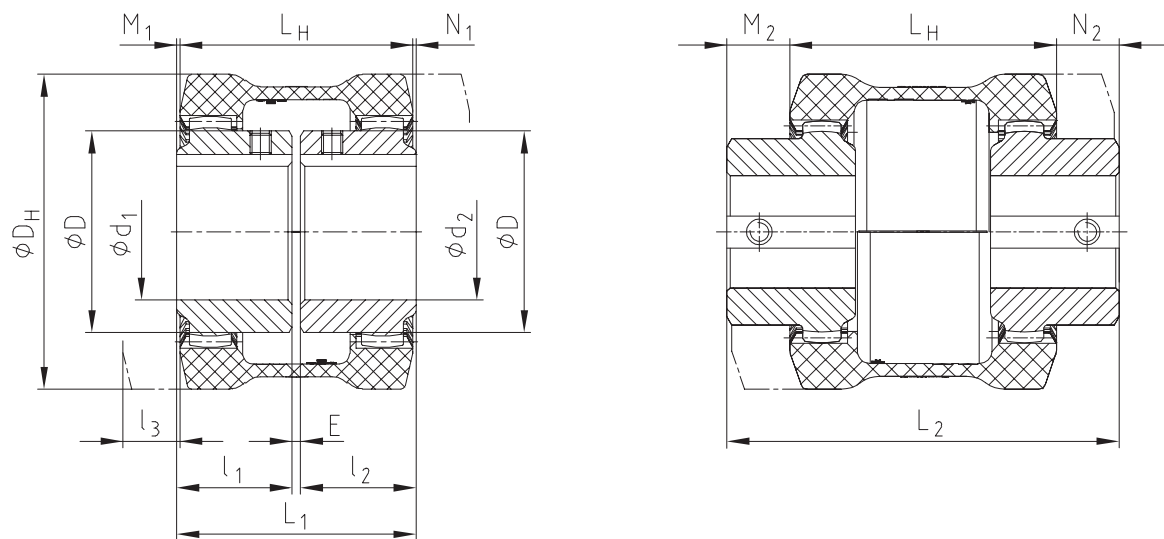
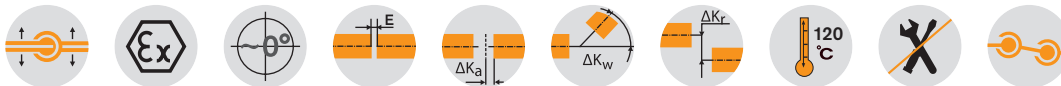
Drive 2
(active)



BoWex® GT

Curved-tooth gear coupling®

Split CFC sleeve for high power density and radially dismountable



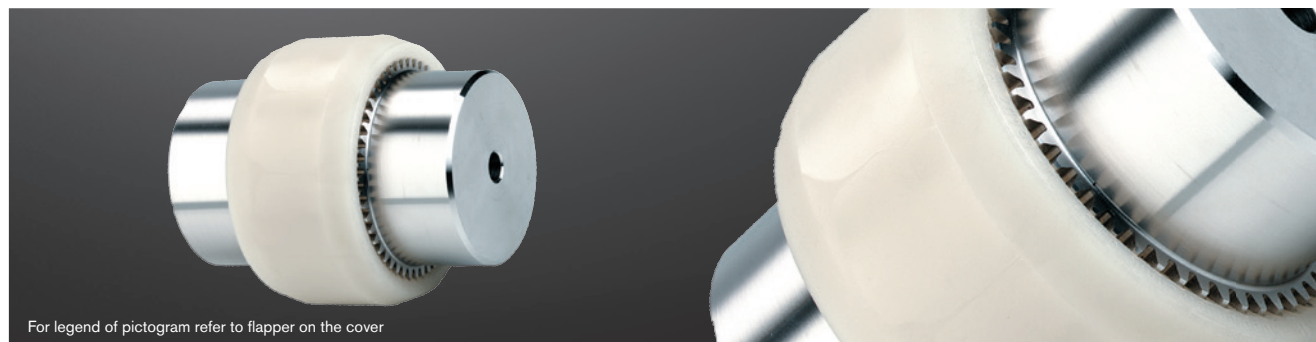
BoWex® Type GT with split sleeve																						
Size	Torque [Nm]			Finish bore d _{max.}		Dimensions [mm]											Weight with max. bore [kg]			Mass moment of inertia J with max. bore [kgcm²]		
	T _{KN}	T _{K max.}	T _{KW}	d ₁	d ₂	D	DH	L _H	I ₁	I ₂	I ₃	E	L ₁	L ₂	M ₁ , N ₁	M ₂ , N ₂	Sleeve	Hub	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

l₃ = 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



For legend of pictogram refer to flapper on the cover



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	Ø6, Ø7, Ø8, Ø9	22	Ø8	22	40	23	2	4	40	37	48	50	8	6.5
M-14	Ø10, Ø11	25	Ø10, Ø11	25										
	Ø12, Ø14	26	Ø12, Ø14	26										
19	Ø12, Ø14	27	Ø14, Ø15	29	48	25	2	4	42	37	52	54	10	8.5
M-19	Ø16	30	Ø14, Ø15	29										
	Ø19	32	Ø19	35										
24	Ø10, Ø11, Ø12	26	Ø14, Ø16	32	53	26	2	4	45	41	54	56	9	7.5
M-24	Ø14, Ø15, Ø16	32	Ø14, Ø16	32										
	Ø18, Ø19, Ø20	36	Ø19, Ø20	36										
	Ø24	38	Ø24	40										

BoWex® type M with stainless steel hubs

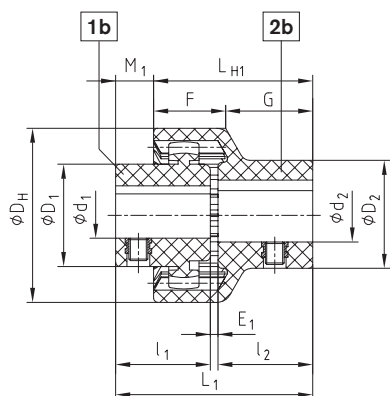
Size	Finish bore d ₁ max., d ₂ max.	Dimensions [mm]						
		DH	D	l ₁ , l ₂	E	L _H	L	M, N
M-24	24	53	36	26	4	41	56	7.5
M-38	38	83	58	40	4	48	84	18
M-48	48	95	68	50	4	50	104	27

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

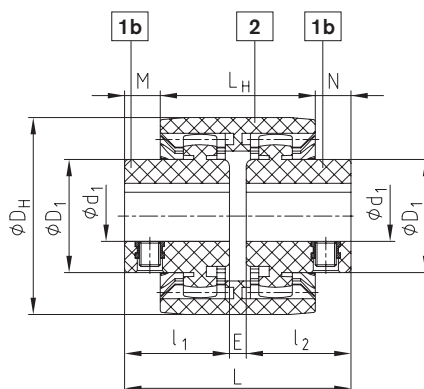
Applications:

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.).

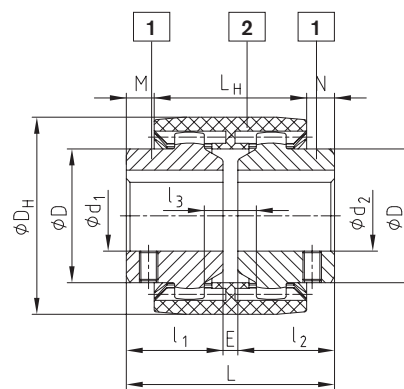
Type junior plug-in coupling (two-part)



Type junior M coupling (three-part)



Type M (V4A)



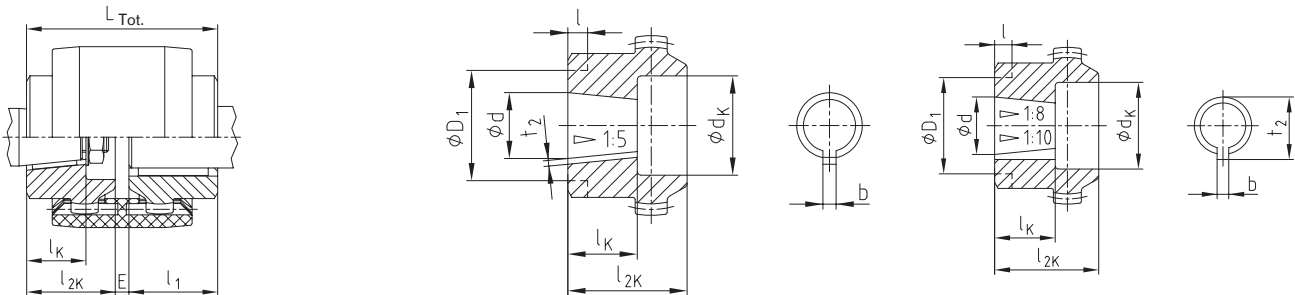
Ordering
example:

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)

BoWex® Curved-tooth gear coupling®

Taper bores

BoWex® with taper bore



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

see stock programme on page 88

Taper bores 1:5																				
Dimensions [mm]					Counterbore d _K and hub length l _{2K} [mm] Recess on hub collar D ₁ x l [mm]															
Code	Details of bores				14		19		24		28		32		38		42		48	
	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}
A-10	9.85	2	1.0	11.5	18	23	18	25	25	26	25	26	25	26	25	26				
B-17	16.85	3	1.8	18.5			25	30	28	30	36	40	36	40	36	40	45	42	45	42
C-20	19.85	4	2.2	21.5					28	36	36	40	36	40	36	40	45	42	45	42
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
E-30	29.85	6	2.6	31.5											45	55	45	55	45	55
F-35	34.85	6	2.6	36.5														52	60	55
G-40	39.85	6	2.6	41.5														52	60	65

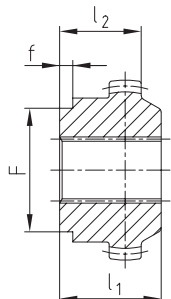
Taper bores 1:8																				
Dimensions [mm]					Counterbore d _K and hub length l _{2K} [mm] Recess on hub collar D ₁ x l [mm]															
Code	Details of bores				14		19		24		28		32		38		42		48	
	d +0.05	b JS9	t ₂ +0.1	l _K	d _K	l _{2K}	d _K	l _{2K}	d _K	l _{2K}	d _K	l _{2K}	d _K	l _{2K}	d _K	l _{2K}	d _K	l _{2K}	d _K	l _{2K}
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				
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						
N/2	17.287	3.2 +0.05	18.24	24					28	35	36	40	36	40	36	40	45	42	45	42
N/2a	17.287	4 JS9	18.94	24					28	35	36	40	36	40	36	40	45	42	45	42
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
N/4	25.463	4.78 +0.05	27.83	36							36	50	36	50	36	50	45	50	45	50
N/4b	25.463	5 JS9	28.23	36							36	50					45	50	45	50
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
N/5a	33.176	7 JS9	35.39	44													45	60	45	60

Taper bores 1:10																				
Dimensions [mm]					Counterbore d _K and hub length l _{2K} [mm]															
Code	Details of bores				14		19		24		28		32		38		42		48	
	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}
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
EX-30	29.75	8	31.88	50													45	60	45	60

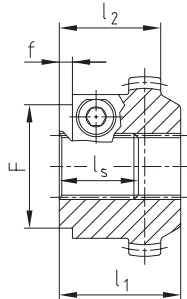
Spline hubs and inch bores

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]						
	Type	Spline size	l1	l2	lS	F	f
42	N	25x1.25x18	42	-	-	-	-
	K	25x1.25x18	42	-	-	-	-
48	K	30x2x14	42	-	-	60	6
	N	30x2x14	50	-	-	60	6
65	K	30x2x14	50	-	-	60	6
	N	35x2x16	55	-	-	60	6
65	K	35x2x16	60	-	-	60	6
	N	40x2x18	55	-	-	78	6
65	K	40x2x18	60	-	-	78	6
	K	45x2x21	55	-	-	78	6

Spline and clamping hubs to ANSI B92.1							
Size	Dimensions [mm]						
	Type	Spline size	l1	l2	lS	F	f
42	K	PH-S 5/8"	42	-	-	-	-
		16/32DP, z=9					
	K	PI-S 3/4"	-	35	-	-	-
		16/32DP, z=11					
48	K	PB-S 7/8"	42	-	-	60	3
		16/32DP, z=13					
48	K	PB-BS 1"	42	-	27	50	6
		16/32DP, z=15					
65	K	PA-S 3/8"	50	-	45	52	7
		16/32DP, z=21					
65	K	PA-S 3/8"	55	-	48	52	5
		16/32DP, z=21					
65	K	PC-S 1 1/4"	55	-	44	52	5
		12/24DP, z=14					

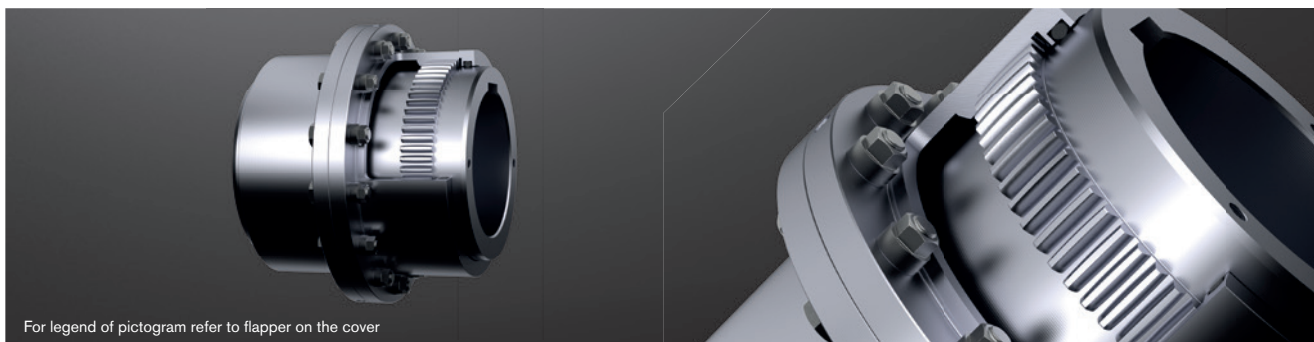
Inch bores – see stock programme on page 88											
Bore and keyway acc. to ANSI/AGMA 9002-C14 Bore (clearance fit) Keyway (commercial class fit)						Bore and keyway acc. to ANSI/AGMA 9002-C14 Bore (clearance fit) Keyway (commercial class fit)					
KTR Code	Bore Ø [Inch]	Width of keyway [Inch]	Bore Ø [mm]	Width of keyway [mm]	Keyway depth/ Tolerance +0.381 [mm]	KTR Code	Bore Ø [Inch]	Width of keyway [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.

GEARex® FA, FB and FAB

All-steel gear couplings

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⁾	EFA	EFB	EFAB	LFA	LFB	LFAB	L ₃	D	DA1	DA2	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 [kgm ²]	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

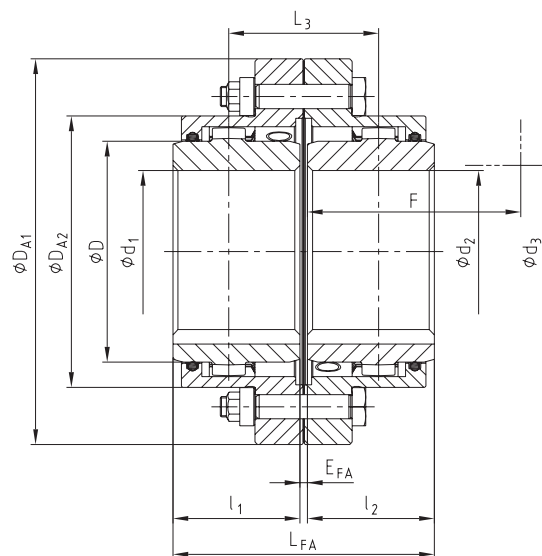
²⁾ Lengthened hubs available as a standard for type FA only. For type FB and FAB lengthened hubs are available on request only.

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.

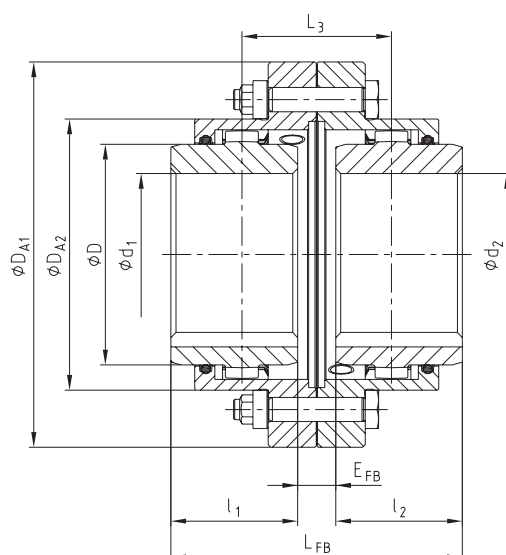
Ordering example:

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

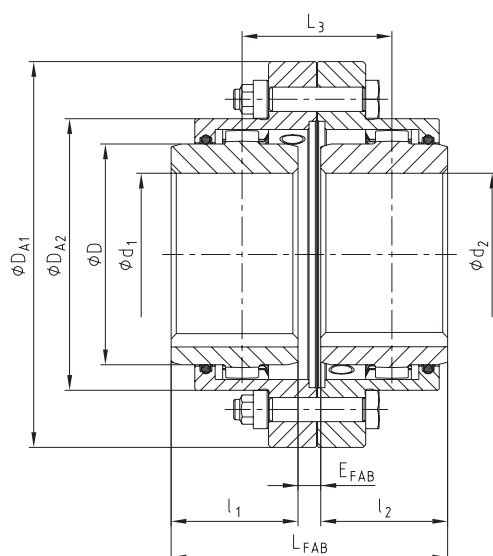
Type FA



Type FB



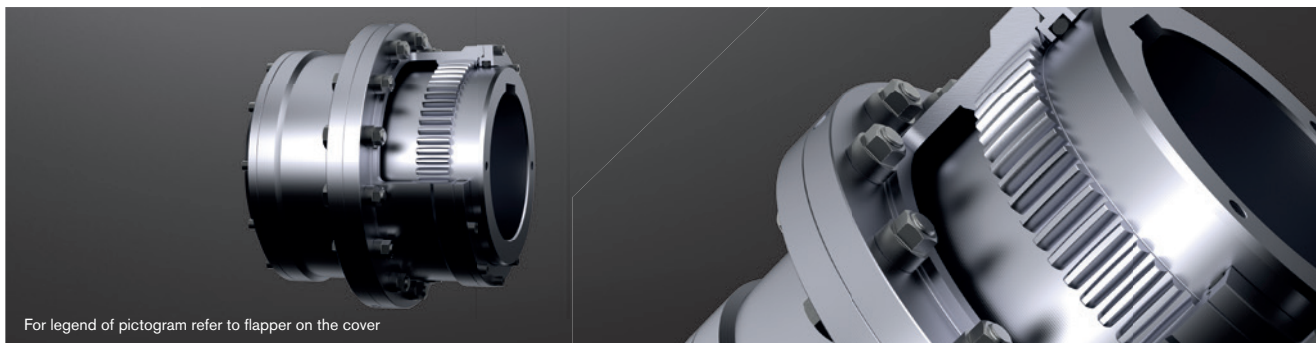
Type FAB



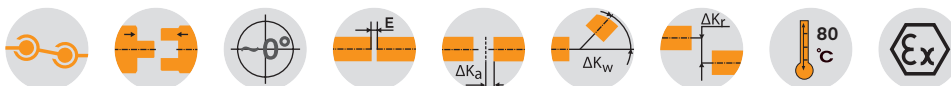
GEARex® DA, DB and DAB

All-steel gear couplings

Easy to assemble, high power density



For legend of pictogram refer to flapper on the cover



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

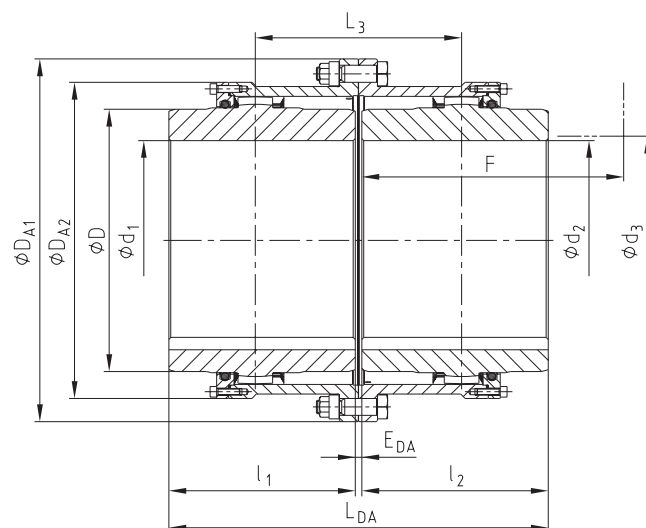
²⁾ Lengthened hubs as a standard available for type DA only. For type DB and DAB lengthened hubs available on request only.

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.

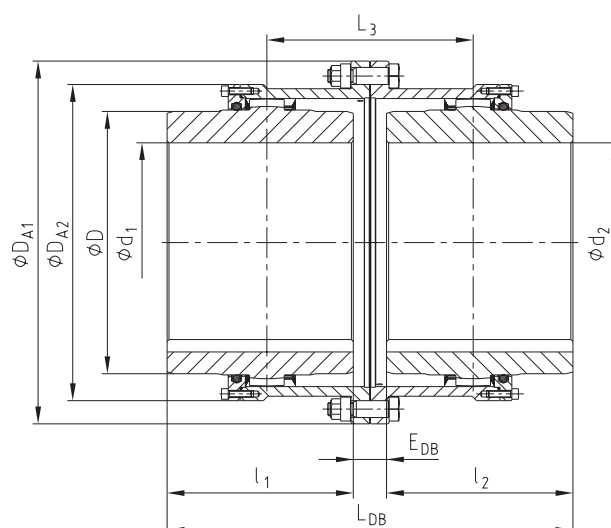
Ordering example:

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

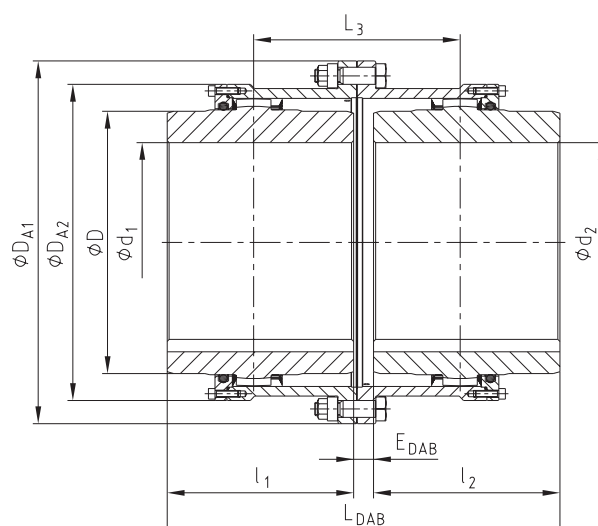
Type DA



Type DB



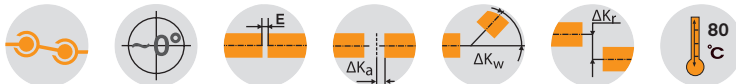
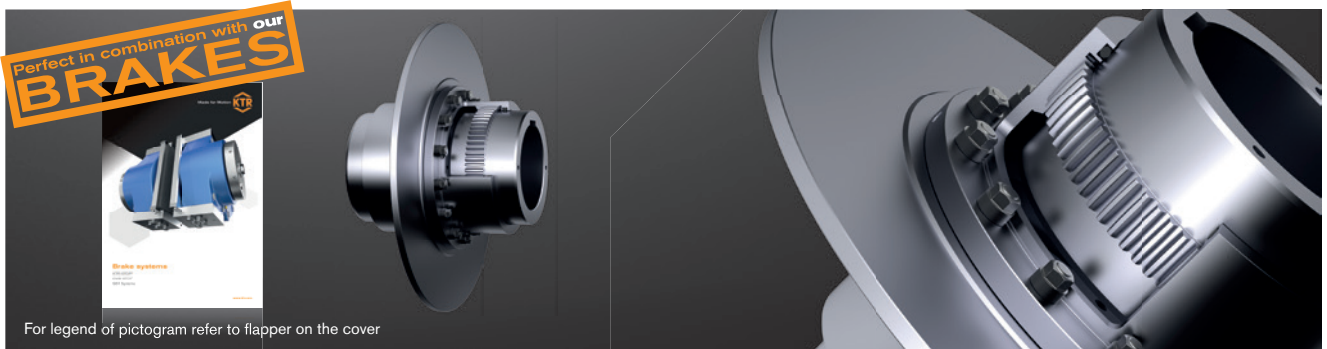
Type DAB



GEARex® FBR and DBR

All-steel gear coupling

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	N = L _A • 0.5 or L _B • 0.5	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		

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.

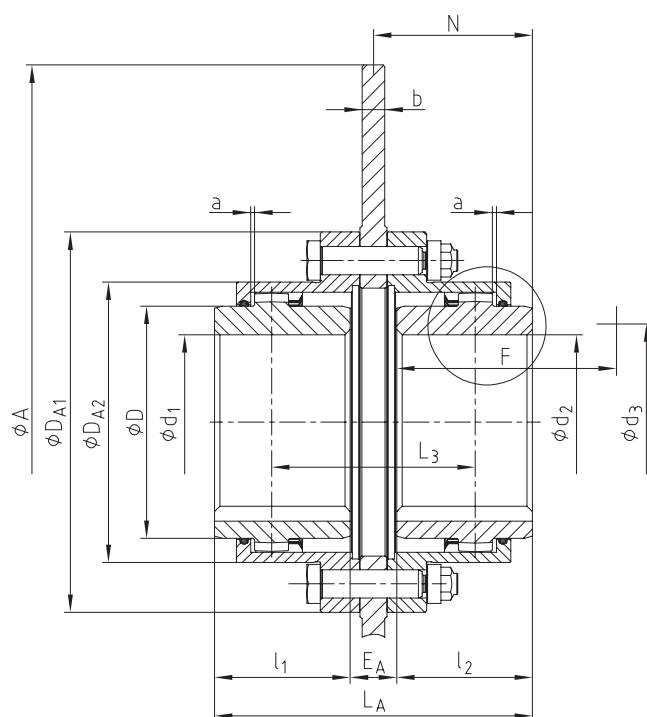
⁵⁾ Maximum torque of the coupling T_{K max.} = rated torque of the coupling T_{KN} x 2. For selection see page 14 et seqq.

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.

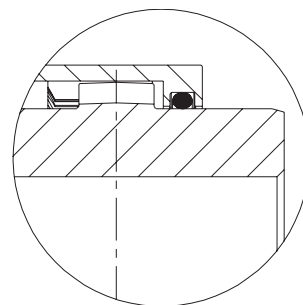
Ordering example:	GEARex® FBR 10	d ₁ Ø50	d ₂ Ø50	E _A = 16	Ø300 x 12.7
	Type and size of coupling	Finish bore with keyway to DIN 6885 sheet 1	Finish bore with keyway to DIN 6885 sheet 1	Configuration of hubs with shaft distance dimension E	Brake disk ØA x width b

**Type FBR
with hub configuration A**

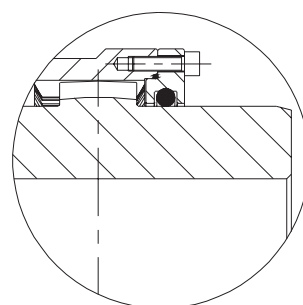


Types:

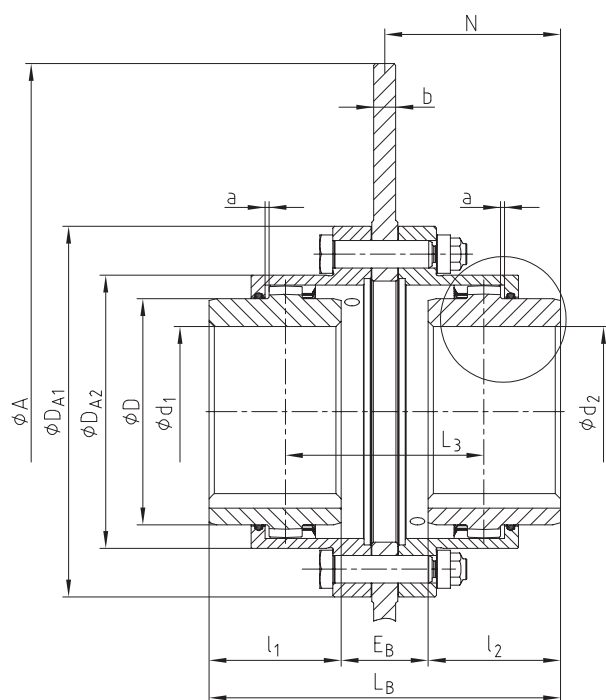
Type FBR



Type DBR



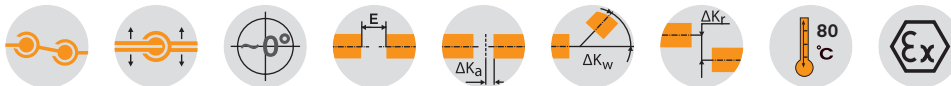
**Type FBR
with hub arrangement B**



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)			
	TkN	TkN (42CrMo4)			d ₁ , d ₂	l ₁ , l ₂	Hub lengthened max. l ₁ , l ₂	D	DA1 ²⁾	DA2 ²⁾	L _H	E _H	F ¹⁾	d ₃ ¹⁾	z	M
10	930	1580	26	50	43	105	67	111	83	L _H = E _H + l ₁ + l ₂	According to customer specification	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		

■ = Standard

¹⁾ Space required to align the coupling and replace the gasket

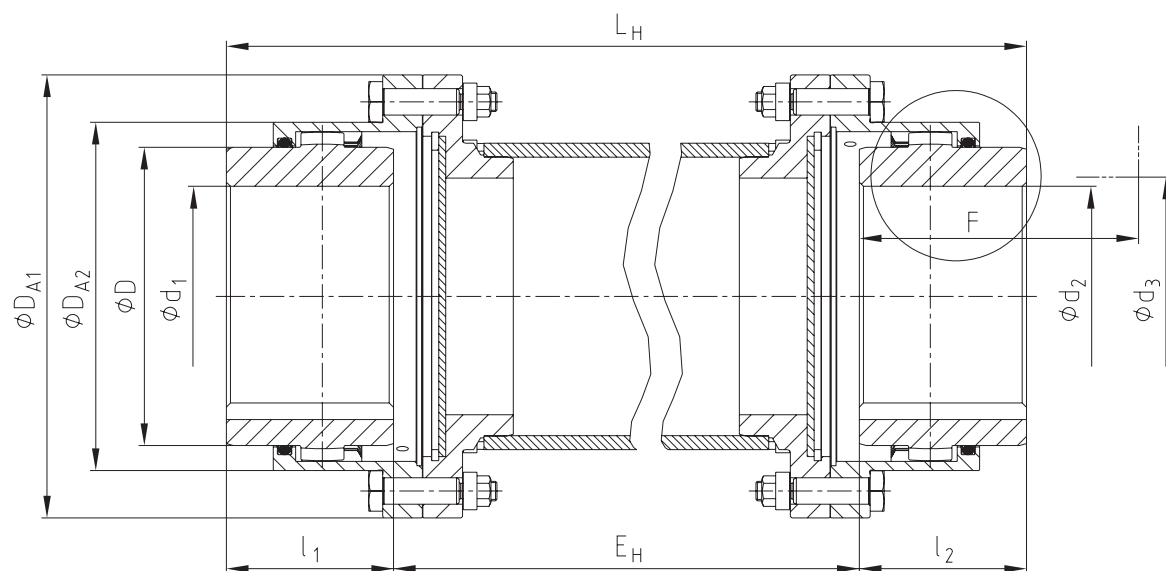
²⁾ For dimensions of type F see page 108. For type D see page 104.

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

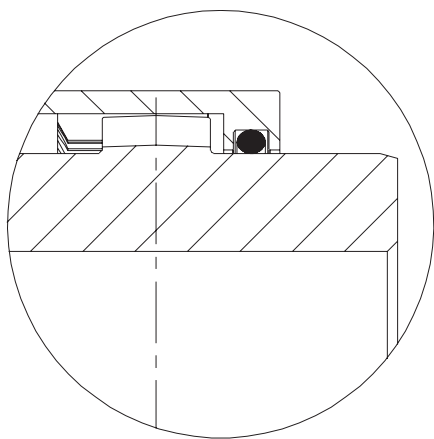
Components



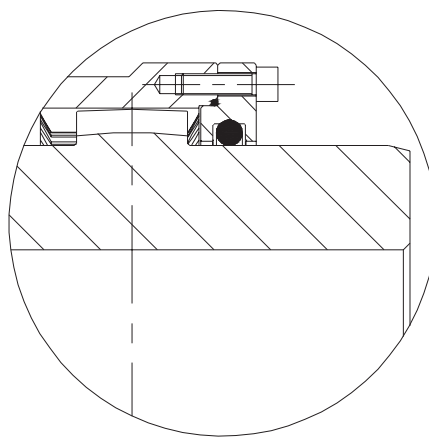
BoWex®

Types

Type FH



Type DH

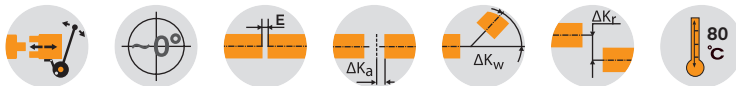


GEARex®

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	DA_1	DA_2
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

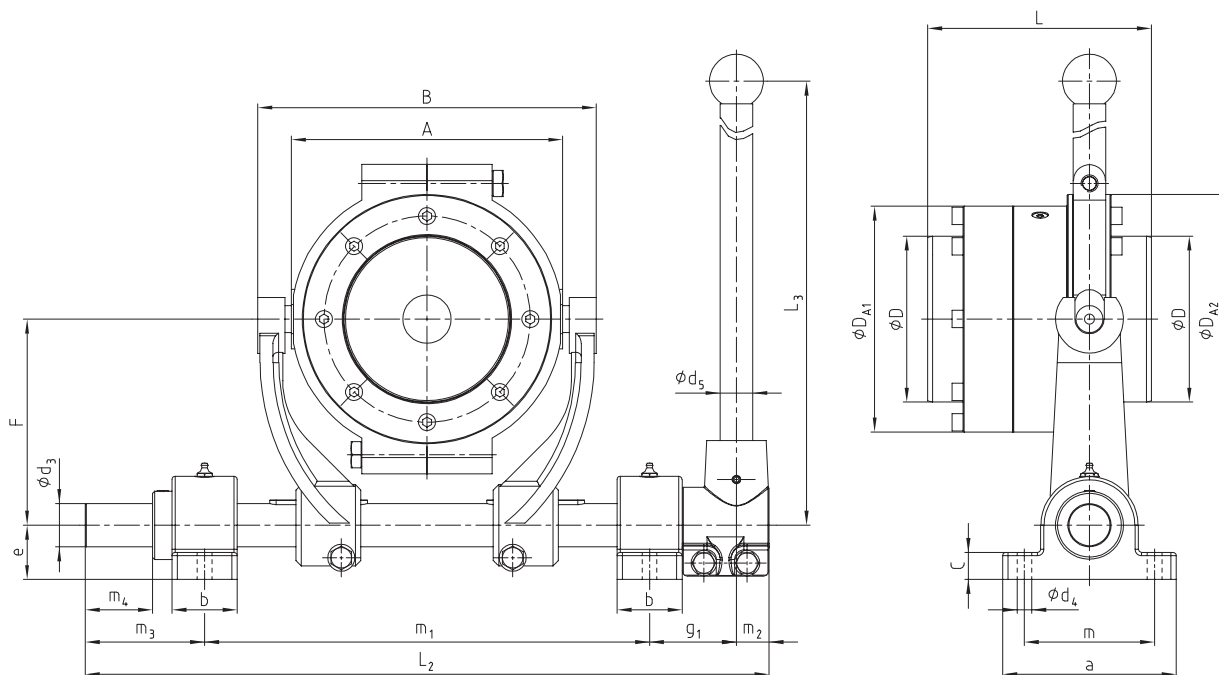
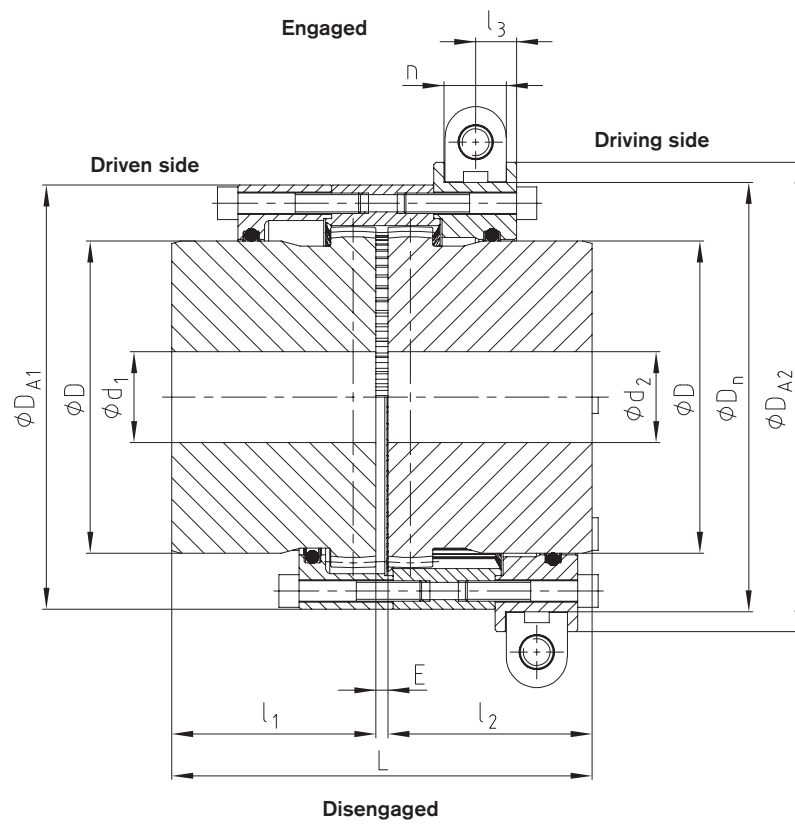
Dimensions																				
Size	Shiftable linkage Size	Slip ring Size	Dimensions [mm]																	
			a	b	c	d_3	d_4	d_5	e	F	g_1	L_2	L_3	m	m_1	m_2	m_3	m_4	A	B
10	3	3.3	140	60	25	30	13.5	20	40	120	70	490	600	100	310	20	90	44	140	180
15	3	4.4	140	60	25	30	13.5	20	40	120	70	490	600	100	310	20	90	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 $T_{KN} \times 2$. 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.

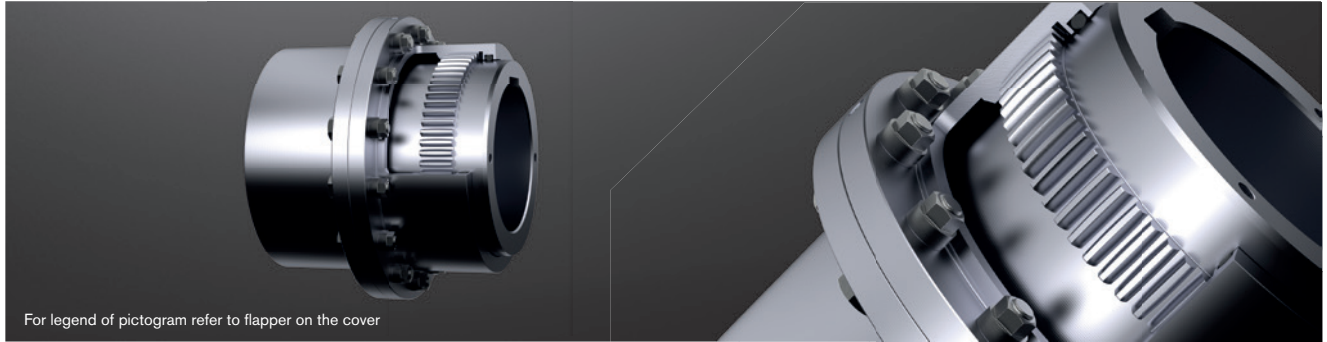
Ordering example:	GEARex® 30 SD	d_1 Ø50	d_2 Ø55	6.6	5
	Size and type of coupling	Finish bore with keyway to DIN 6885 sheet 1		Slip ring Size	Shiftable linkage Size



GEARex® FR and DR

All-steel gear couplings

Single-cardanic, high power density



Dimensions																
Size ³⁾	Torque [Nm] ⁴⁾		Max. finish bore		Dimensions [mm]									Dowel screw (10.9)		
	TkN	TkN (42CrMo4)	d1	d4	l1, l2	Hub lengthened max. l1, l2	D	DA1 ²⁾	DA2 ²⁾	DF	LR	F ¹⁾	d3 ¹⁾	z	M	TA [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.

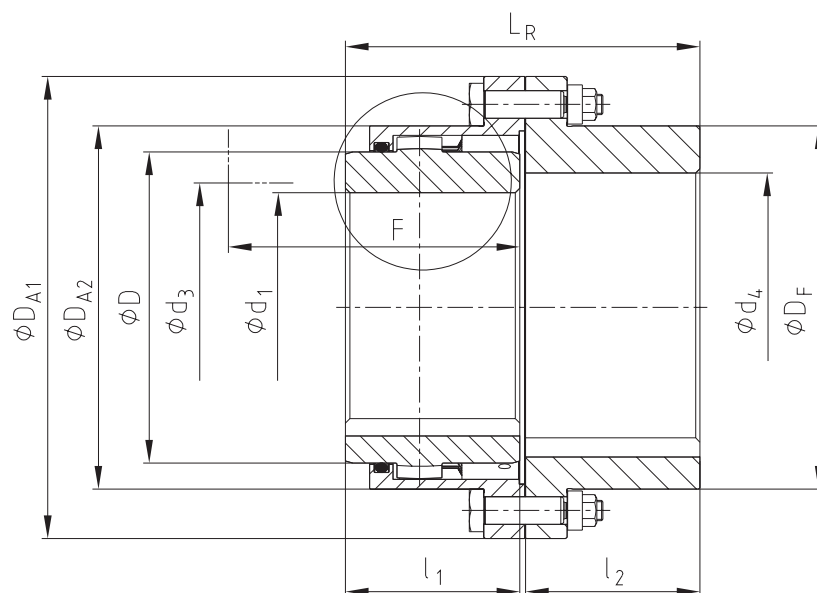
³⁾ Size 10 and 15 available as type F only. From size 80 available as type D only.

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

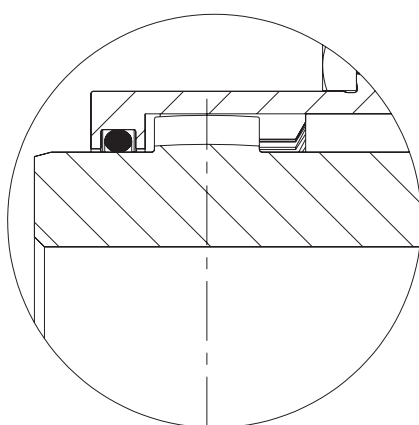
Components



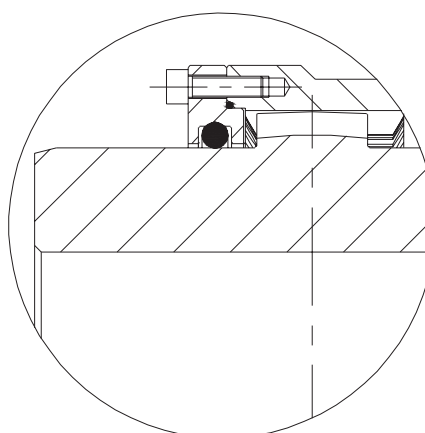
BoWex®

Types

Type FR

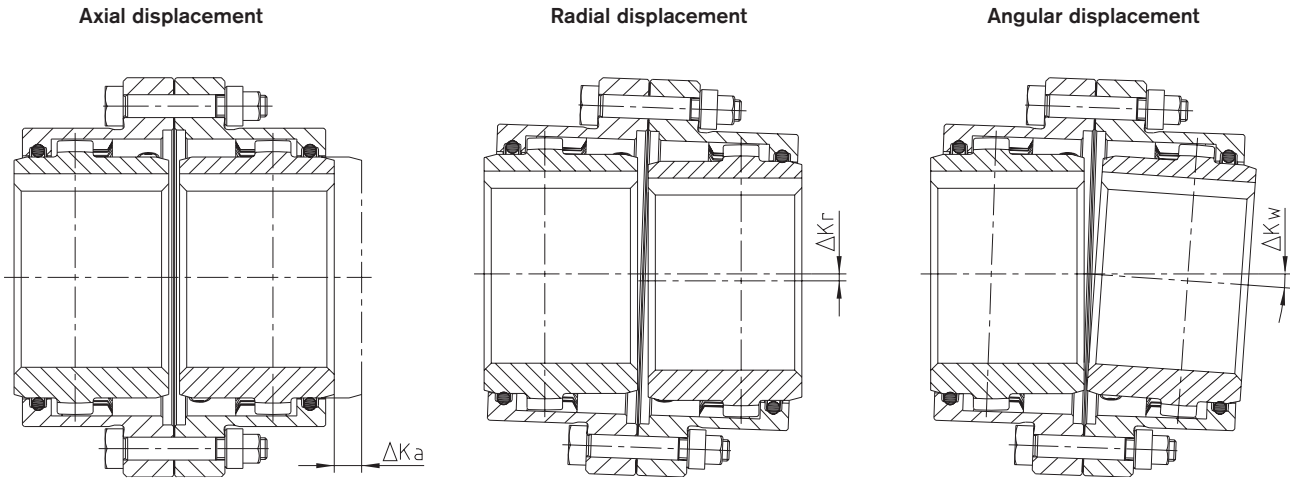


Type DR



GEARex®

Displacements

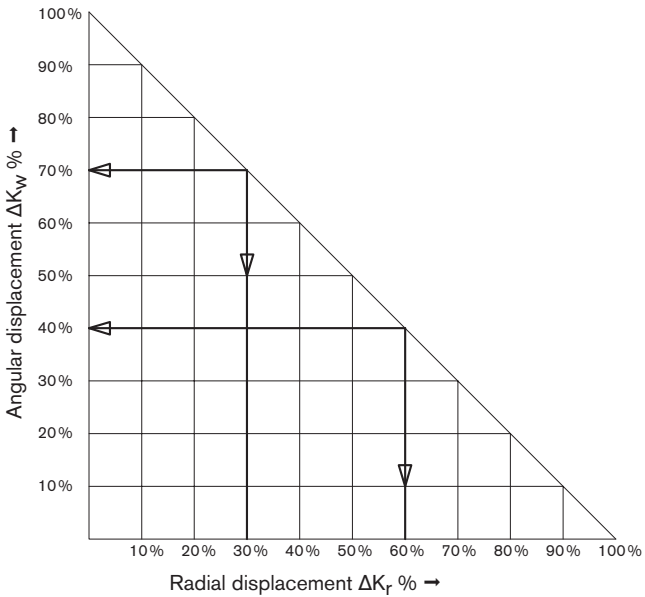


Displacements			
Size	Max. axial displacement ΔK_a [mm]	Max. permissible displacements ¹⁾	
		ΔK_r [mm]	ΔK_w [°]
10	± 1.0	± 0.4	0.5° each hub
15		± 0.5	
20		± 0.6	
25		± 0.8	
30		± 1.0	
35	± 1.5	± 1.0	
40		± 1.2	
45		± 1.4	
50		± 1.6	
55		± 1.8	
60	± 2.0	± 2.0	
70		± 2.2	
80		± 2.5	
85		± 2.8	
90		± 3.0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

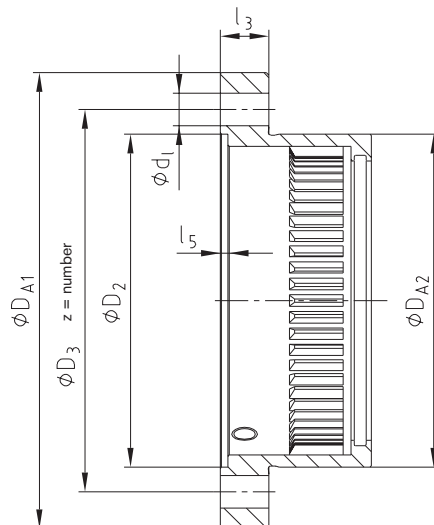
¹⁾ The displacement figures are maximum figures which must not arise in parallel. If radial and angular displacements arise in parallel, the figures need to be reduced (see examples of calculation and diagramme).

Example 1:
 $\Delta K_r = 30\%$
 $\Delta K_w = 70\%$

Example 2:
 $\Delta K_r = 60\%$
 $\Delta K_w = 40\%$



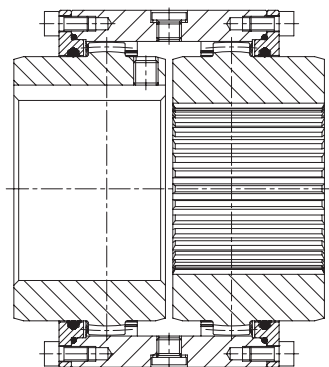
Flange dimensions in accordance with AGMA 9008-B00



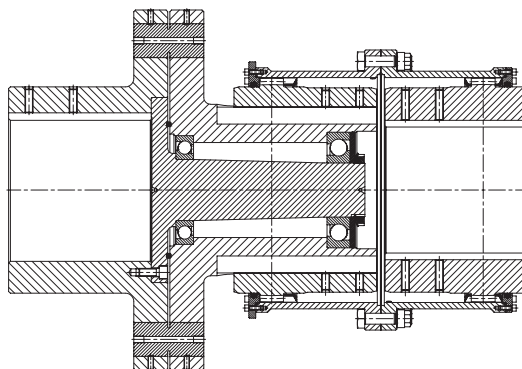
Flange dimensions								
Size	Dimensions [mm]							
	D_{A1}	D_{A2}	D_2	D_3	d_1	$z = \text{number}$	l_3	l_5
10	111	83	82	95.25	6.35	6	14	3
15	142	106	105	122.24	9.52	8	19	3
20	174	129	130	149.23	12.70	6	19	3
25	213	157	153	180.97	15.87	6	22	4
30	240	181	178	206.38	15.87	8	22	4
35	280	213	205	241.30	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

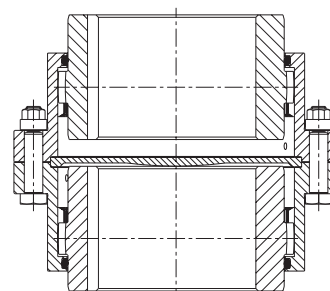
Type I (with one-piece sleeve)



Type BK (with shear pins)



Type VD (for vertical assembly)





Backlash-free servo couplings

Types and operating description

118

ROTEX® GS

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TOOLFLEX®

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RADEX®-NC

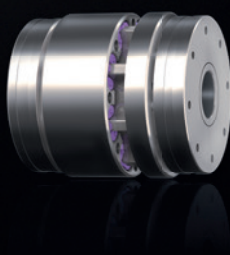
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Backlash-free
servo couplings

ROTEX® GS



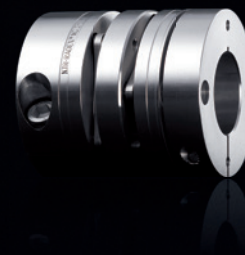
ROTEX® GS HP



TOOLFLEX®



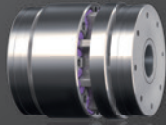
RADEX®-NC



BACKLASH-FREE SERVO COUPLINGS

TYPES AND OPERATING DESCRIPTION

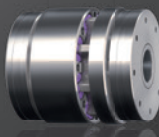
Properties of backlash-free couplings

				
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	175	depending on hub type up to 40	35
	80 (type P)			
	175 (type HP)			
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 / laminae / 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
			-30/+200 (flanged/welded)	
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

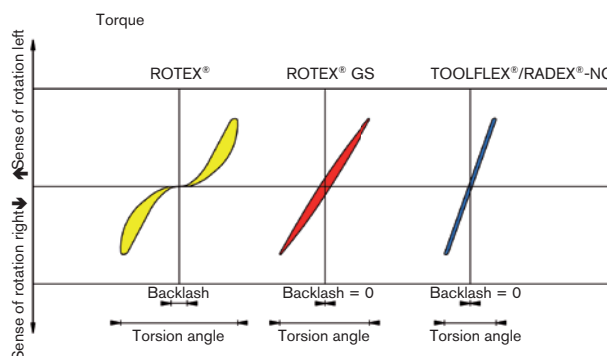
Product finder of backlash-free couplings

				
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

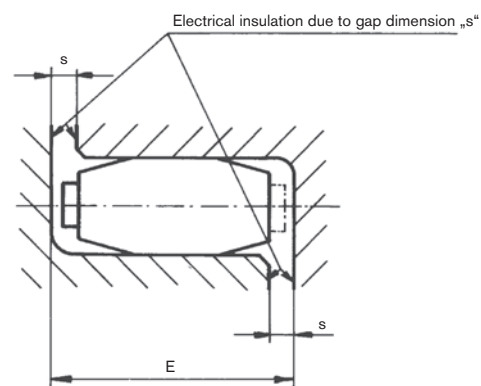
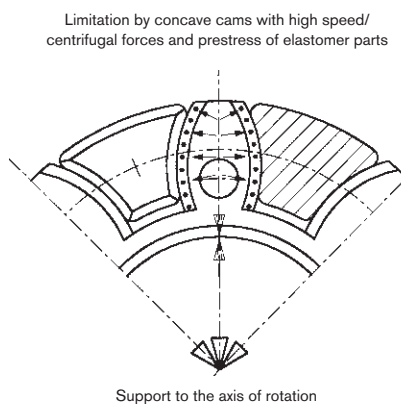


ROTEX® GS is a three-part, axial plug-in coupling backlash-free under prestress. It impresses even with critical applications by its backlash-free power transmission, its stiffness which is each adapted to the application and its optimum damping of vibrations. Using this principle provides for particularly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



Advice

- Feather keyways available from a bore $\geq \varnothing 6$. Feather keyways according to DIN 6885 sheet 1, tolerance JS9.
- Finish bore tolerance H7 (except for clamping hubs), from $\varnothing 55$ 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.

ROTEX® GS

Backlash-free jaw couplings

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).

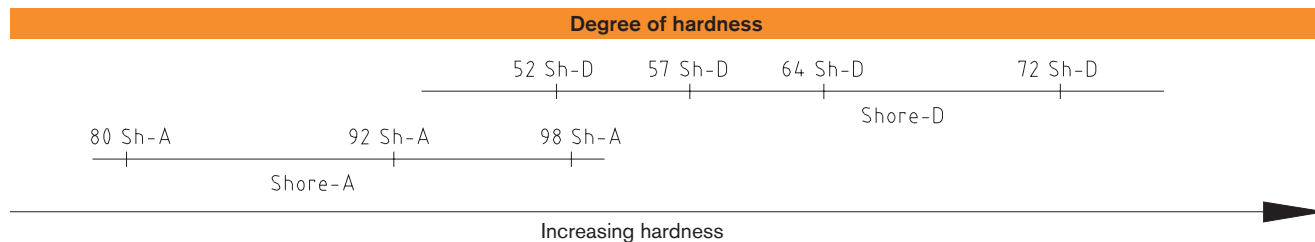
Along with an increasing hardness of the spider the torques to be transmitted and the stiffness of the spider increase, too. Along with reduced hardness of the spider the ability of compensating for displacements and damping the spider increases.

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



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.

ROTEX® GS

Backlash-free jaw couplings

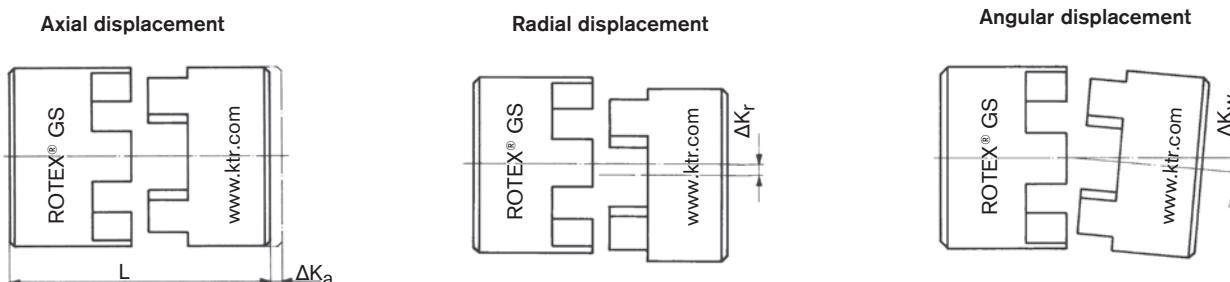
Technical data

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 [kgm ²]	
			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
5	80	A	38000	38000	47700			57300	0.3	0.6	3.15	10	82	0.001	0.2 x 10 ⁻³	0.015 x 10 ⁻⁶	0.002 x 10 ⁻⁶
	92	A							0.5	1.0	5.16	16	154				
	98	A							0.9	1.7	8.3	25	296				
7	80	A	27000	27000	34100			40900	0.7	1.4	8.6	26	114	0.003	0.7 x 10 ⁻³	0.085 x 10 ⁻⁶	0.01 x 10 ⁻⁶
	92	A							1.2	2.4	14.3	43	219				
	98	A							2.0	4.0	22.9	69	421				
8	64	D		23800					2.4	4.8	34.3	103	630	0.003	0.5 x 10 ⁻³	0.117 x 10 ⁻⁶	0.0124 x 10 ⁻⁶
	80	A							0.7	1.4	8.8	27	117				
	98	A							2.0	4.0	23.5	71	433				
9	64	D	19000	19000	23800			28600	2.4	4.8	35.3	106	648	0.01	1.7 x 10 ⁻³	0.48 x 10 ⁻⁶	0.085 x 10 ⁻⁶
	80	A							1.8	3.6	17.2	52	125				
	92	A							3.0	6.0	31.5	95	262				
12	98	A	15200	15200	19100			22900	5.0	10.0	51.6	155	518	0.02	2.3 x 10 ⁻³	1.5 x 10 ⁻⁶	0.139 x 10 ⁻⁶
	64	D							6.0	12.0	74.6	224	739				
	80	A							3.0	6.0	84.3	252	274				
13	92	A		12700		38200			5.0	10.0	160.4	482	470	0.01	2.0 x 10 ⁻³	1.1 x 10 ⁻⁶	0.155 x 10 ⁻⁶
	98	A							9.0	18.0	240.7	718	846				
	64	D							12.0	24.0	327.9	982	1198				
14	80	A	12700	12700	15900	32000	47700	19100	3.6	7.2	111	330	359	0.02	4.7 x 10 ⁻³	2.8 x 10 ⁻⁶	0.509 x 10 ⁻⁶
	92	A							7.5	15.0	114.6	344	336				
	98	A							12.5	25.0	171.9	513	654				
16	64	D	12000						16.0	32.0	234.2	702	856	0.02	3.6 x 10 ⁻³	2.8 x 10 ⁻⁶	0.435 x 10 ⁻⁶
	80	A							5.0	10.0	157	471	400				
	98	A							15.0	30.0	450	1341	1710				
19	64	D	9550	9550	11900	24000 19000 ⁴⁾	35800	14300	19.0	38.0	612	1835	2238	0.09	7.6 x 10 ⁻³	19.5 x 10 ⁻⁶	1.35 x 10 ⁻⁶
	80	A							6.0	12.0	618	1065	582				
	92	A							12.0	24.0	1090	1815	1120				
24	98	A	6950	10400	8650	17000 14000 ⁴⁾	26000	10400	21.0	42.0	1512	2540	2010	0.2	0.02	81.9 x 10 ⁻⁶	6.7 x 10 ⁻⁶
	57	D							23.0	46.0	2036	3175	2470				
	64	D							26.0	52.0	2560	3810	2930				
28	92	A	5850	8800	7350	15000 12000 ⁴⁾	22000	8800	35	70	2280	4010	1480	0.3	0.03	184.2 x 10 ⁻⁶	14.85 x 10 ⁻⁶
	98	A							60	120	3640	5980	2560				
	52	D							60	120	3640	5980	2560				
38	57	D	4750	7150	5950	12000 9600 ⁴⁾	17900	7150	68	136	4335	8438	3128	0.6	0.05	542.7 x 10 ⁻⁶	39.4 x 10 ⁻⁶
	64	D							75	150	5030	10896	3696				
	72 ³⁾	D							97	194	9944	17095	5799				
42	92	A	4000	5000	10000 8050 ⁴⁾	15000	6000		95	190	4080	6745	1780	2.4	0.08	2802 x 10 ⁻⁶	85 x 10 ⁻⁶
	98	A							160	320	6410	9920	3200				
	52	D							160	320	6410	9920	3200				
48	57	D	3600	4550	9100 7200 ⁴⁾	13600	5450		180	360	8335	15050	3775	3.3	0.09	4709 x 10 ⁻⁶	135 x 10 ⁻⁶
	64	D							200	400	10260	20177	4348				
	72 ³⁾	D							260	520	21526	36547	7876				
55	92	A	3150	3950	6350 ⁴⁾	11900	4750		190	380	6525	11050	2350	5.1	0.12	9460 x 10 ⁻⁶	229 x 10 ⁻⁶
	98	A							325	650	11800	17160	4400				
	52	D							325	650	11800	17160	4400				
65	64	D	2800	3500	5650 ⁴⁾	11000			365	730	19050	28745	5437	6.7	0.2	15143 x 10 ⁻⁶	437 x 10 ⁻⁶
	57	D							405	810	26300	40335	6474				
	72 ³⁾	D							525	1050	44584	71180	11425				
75	98	A	2350	2950	4750 ⁴⁾	8950			450	900	21594	37692	5570	10.5	0.3	32750 x 10 ⁻⁶	1179 x 10 ⁻⁶
	64	D							450	900	21594	37692	5570				
	72 ³⁾	D							495	990	29225	53760	6420				
90	92	A	1900	2380	3800 ⁴⁾	7150			560	1120	36860	69825	7270	18.2	0.6	87099 x 10 ⁻⁶	3362 x 10 ⁻⁶
	64	D							728	1456	58600	93800	9766				
	72 ³⁾	D							525	1050	25759	45620	5930				

ROTEX® GS

Backlash-free jaw couplings

Hints for displacements



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.

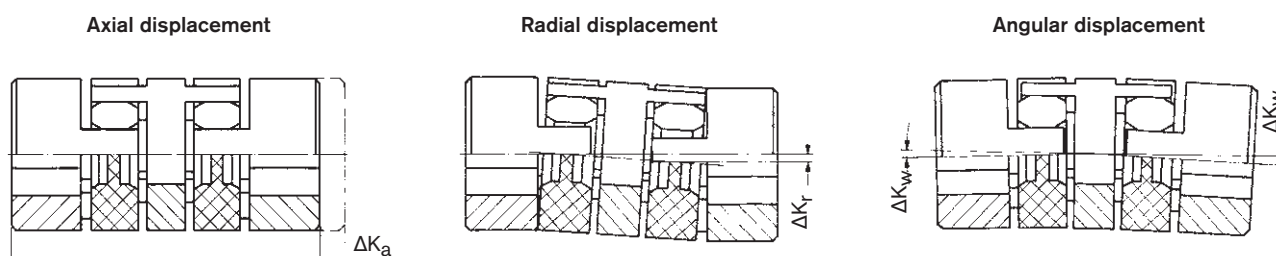
For instance, axial displacement may be generated by different tolerances of the connecting elements with assembly or by alteration of the shaft lengths if temperature fluctuations occur. As the shaft bearings usually cannot be axially stressed to a big extent, it is the task of the coupling to compensate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



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.

ROTEX® GS

Backlash-free jaw couplings

Displacements

Displacements							
Size	Spider GS	Standard displacements			DKM displacements		
		Axial $\Delta K_a^{1)}$ [mm]	Radial ΔK_r [mm]	Angular ΔK_w [degree]	Axial $\Delta K_a^{1)}$ [mm]	Radial ΔK_r [mm]	Angular ΔK_w [degree]
5	80 ShA		0.12	1.1°		0.15	1.1°
	92 ShA	-0.2	0.06	1.0°	-0.4	0.14	1.0°
	98 ShA		0.04	0.9°		0.13	0.9°
7	80 ShA		0.15	1.1°		0.23	1.1°
	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°
8	80 ShA		0.15	1.1°			
	98 ShA	+0.6	0.08	0.9°	—	—	—
	64 ShD	-0.5	0.06	0.8°			
9	80 ShA		0.19	1.1°		0.29	1.1°
	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°
12	80 ShA		0.20	1.1°		0.35	1.1°
	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°
13	80 ShA		0.20	1.1°			
	98 ShA	+0.9	0.08	0.9°	—	—	—
	64 ShD	-0.8	0.05	0.8°			
14	80 ShA		0.21	1.1°		0.40	1.1°
	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°
16	80 ShA		0.21	1.1°			
	98 ShA	+1.0	0.10	0.9°	—	—	—
	64 ShD	-0.8	0.08	0.8°			
19	80 ShA		0.15	1.1°		0.49	1.1°
	92 ShA	+1.2	0.10	1.0°	+1.2	0.45	1.0°
	98 ShA	-0.5	0.06	0.9°	-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°
24	92 ShA		0.14	1.0°		0.59	1.0°
	98 ShA	+1.4	0.10	0.9°	+1.4	0.53	0.9°
	57 ShD	-0.5	0.08	0.85	-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°
28	92 ShA		0.15	1.0°		0.66	1.0°
	98 ShA	+1.5	0.11	0.9°	+1.5	0.60	0.9°
	57 ShD	-0.7	0.09	0.85	-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°
38	92 ShA		0.17	1.0°		0.77	1.0°
	98 ShA	+1.8	0.12	0.9°	+1.8	0.69	0.9°
	57 ShD	-0.7	0.10	0.85	-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°
42	98 ShA		0.14	0.9°		0.75	0.9°
	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°
48	98 ShA		0.16	0.9°		0.82	0.9°
	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°
55	98 ShA		0.17	0.9°	+2.2	0.91	0.9°
	57 ShD	+2.2	0.14	0.85°	-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°
65	98 ShA		0.18	0.9°			
	57 ShD	+2.6	0.15	0.85°	—	—	—
	64 ShD	-1.0	0.13	0.8°			
75	72 ShD		0.10	0.7°			
	98 ShA	+3.0	0.21	0.9°	—	—	—
	64 ShD	-1.5	0.15	0.8°			
90	72 ShD		0.11	0.7°			
	98 ShA	+3.4	0.23	0.9°			
	64 ShD	-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.

ROTEX® GS

Backlash-free jaw couplings

Displacements of intermediate shaft coupling

Displacements of intermediate shaft couplings			
ROTEX® GS size (with 98 ShA-GS)	Axial ΔK_a [mm]	Radial ΔK_r 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

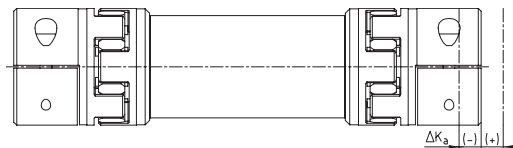
Calculation of overall torsion spring stiffness:

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

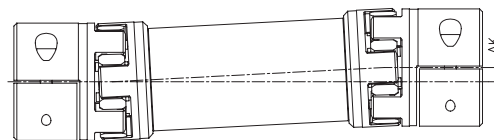
$$\text{with } L_{pipe} = \frac{L_{ZR} - 2 \cdot L}{1000} [\text{m}]$$

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

Axial displacement



Radial displacement



$$\Delta K_r = (L_{ZR} - 2 \cdot l_1 - E) \cdot \tan \Delta K_w$$

Angular displacement

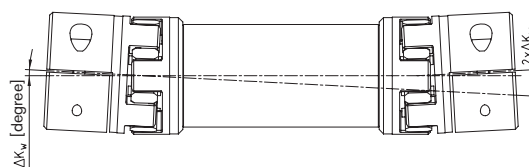
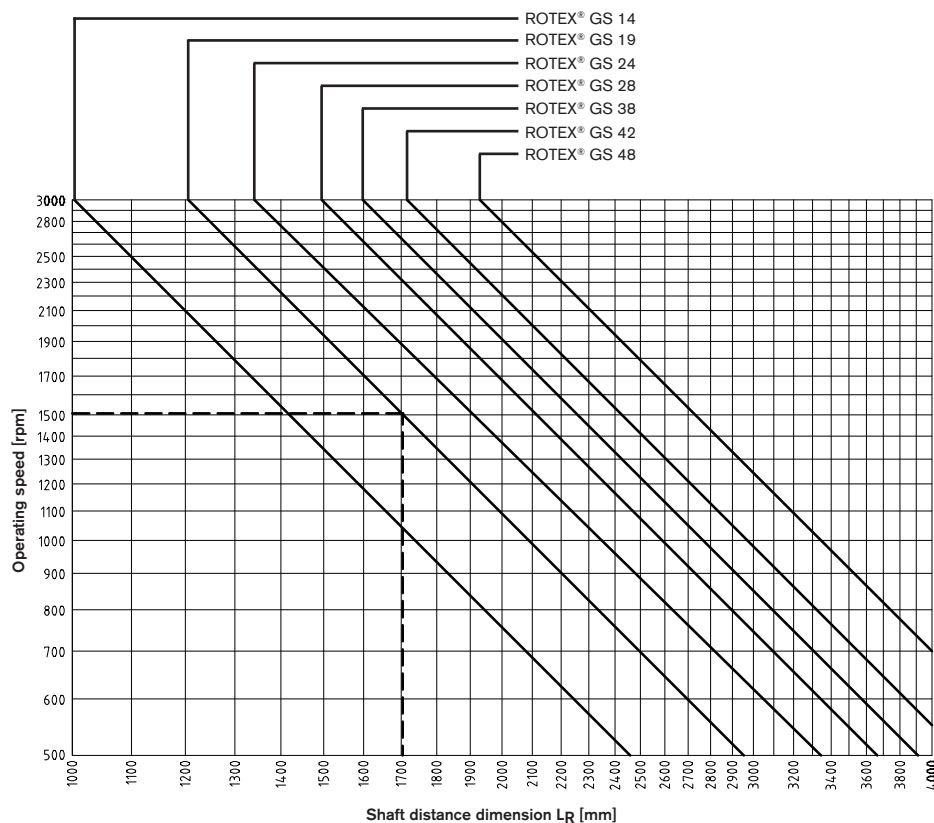


Chart of critical bending speeds for type ZR3



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

ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

TOOLFLEX®

RADEX®-NC

ROTEX® GS

Backlash-free jaw couplings

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)



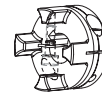
Type 2.6 clamping hub
double slotted, with feather keyway

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.



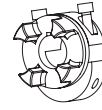
Type 6.0 precision clamping ring hub

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

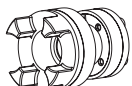
Positive shaft-hub-connection with additional friction fit for radial assembly of coupling. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.



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

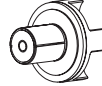


Type 7.9 clamping hub type H
with feather keyway for single-cardanic connection



Type 4.2 with CLAMPEX® KTR 250

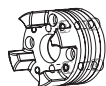
Frictionally engaged shaft-hub-connection to transmit high torques with clamping screws externally.



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).

Backlash-free jaw couplings

Stock programme

[illegible]

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														

● = Standard bore from stock

Unbored hubs up to size 65 available

Other dimensions on request

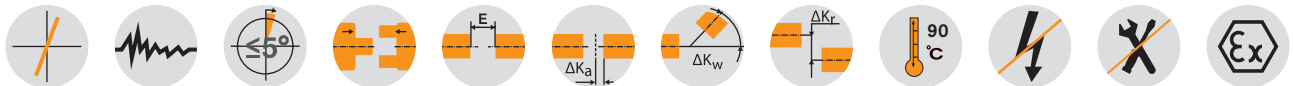
ROTEX® GS

Backlash-free jaw couplings

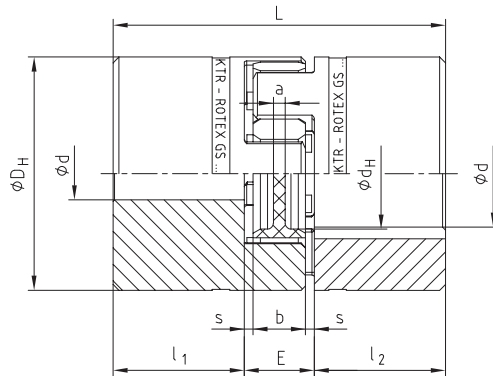
Standard types



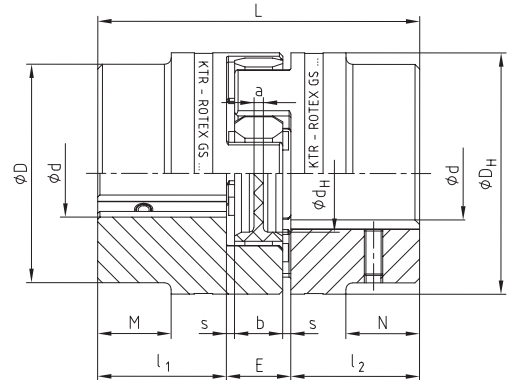
For legend of pictogram refer to flapper on the cover



ROTEX® GS 5 - 38

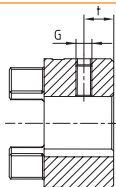


ROTEX® GS 42 - 90



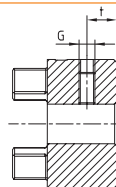
Types of hubs:

Type 1.0



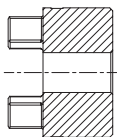
with feather keyway
and setscrew

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

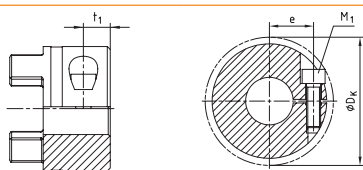
¹⁾ For selections see page 22 et seqq./other spiders see page 127.

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

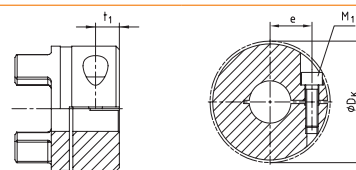
Types of hubs:

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 seq./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

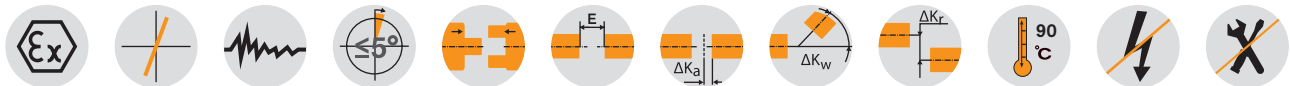
Size	Ø8	Ø10	Ø11	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø75	Ø80	Ø85	Ø90
19	19	23	25	31	33	35	39	41	42	46 ⁴⁾	49 ⁴⁾																			
24		24	26	33	35	37	41	43	45	48	52	54	59																	
28				63	67	71	79	82	86	94	101	105	115	122	129	139	148													
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



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	I ₁ , I 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

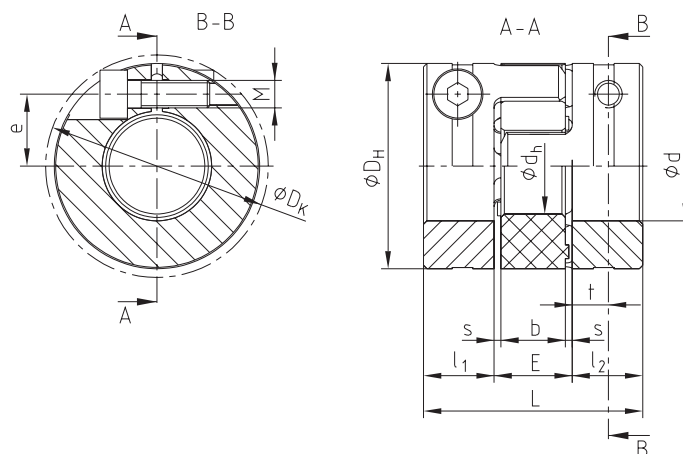
Review of shaft-hub-connection: Friction torques T _R [Nm] for hub type 2.8																											
Size	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	
Single slotted hub type 2.8																											
7	0.7	0.9	1.1	1.2	1.4																						
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.

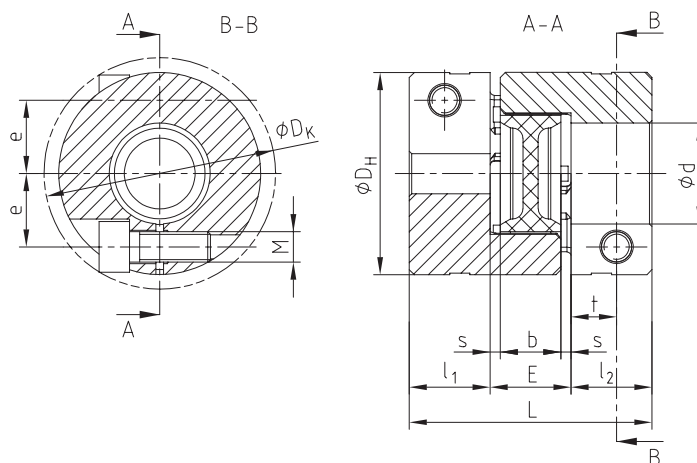
²⁾ Size 14 with screw M3 and dimension e = 10.4/DK = 30.5/T_A = 1.34 Nm; size 19 with screw M5 and dimension e = 15.5/DK = 47mm/T_A = 6 Nm

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	

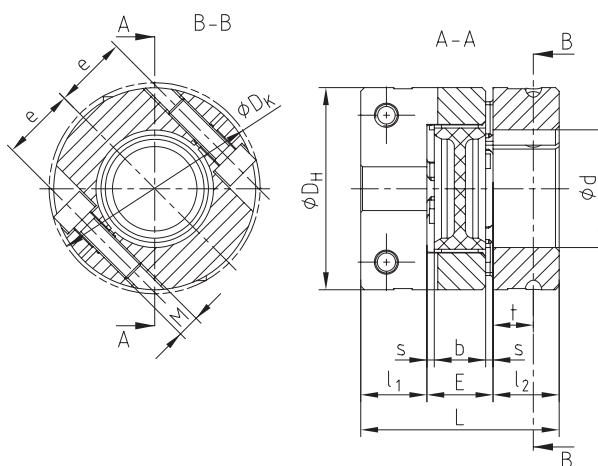
ROTEX® GS 8, 13, 16
Compact
single slotted type 2.8



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

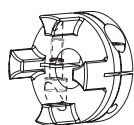


ROTEX® GS 24 - 38
Compact
axially slotted type 2.8



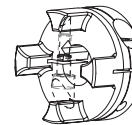
Types of hubs

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

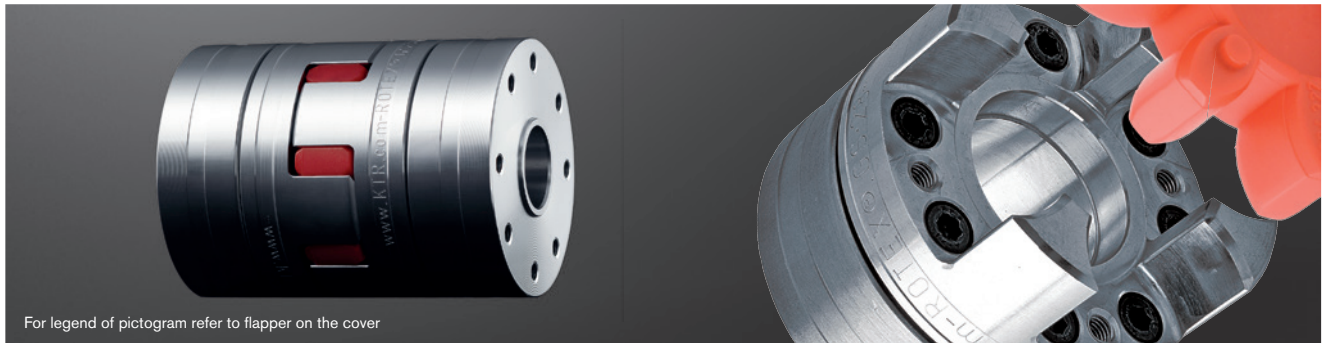
Type 2.9



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

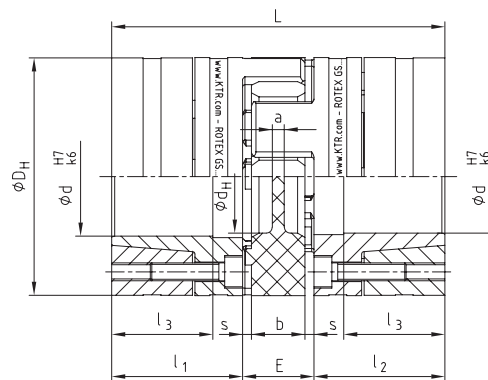


For legend of pictogram refer to flapper on the cover



Extraction thread M_1 between
clamping screws

Clamping ring hub light with
block mounting
(hub and clamping ring mount-
ed 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 [kgm ²]	
	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 x 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 x 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 x 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 x 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 x 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 x 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 x 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 x 10 ⁻⁴

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

²⁾ $\varnothing D_H + 2$ 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																		
	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

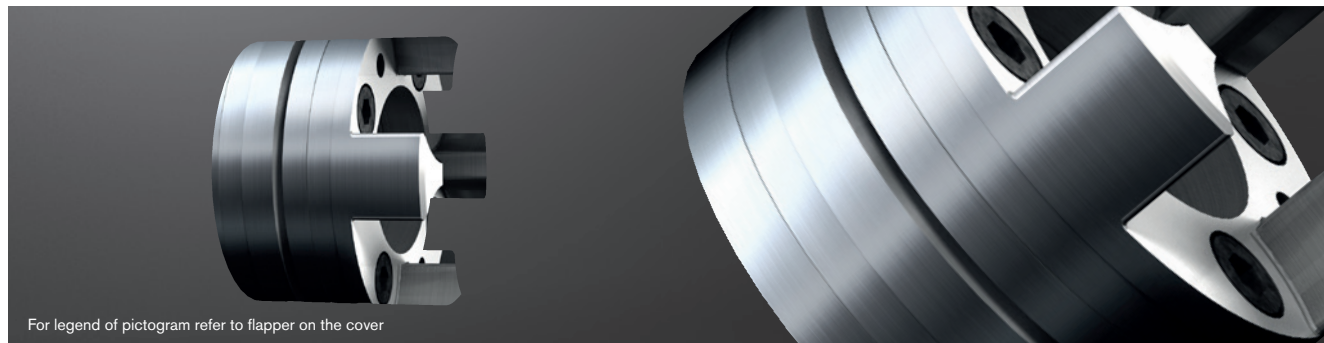
⁴⁾ Clamping ring hub with screws M4, z = 8 and $T_A = 2.9$ Nm

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

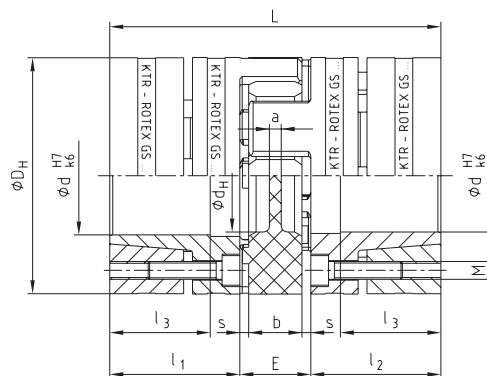
Integrated clamping system made of steel



For legend of pictogram refer to flapper on the cover



Extraction thread M₁ 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 [kgm ²]
	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 x 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 x 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 x 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 x 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 x 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 x 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 x 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 x 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 x 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 x 10 ⁻⁴

¹⁾ For selections see page 22 et seq./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.

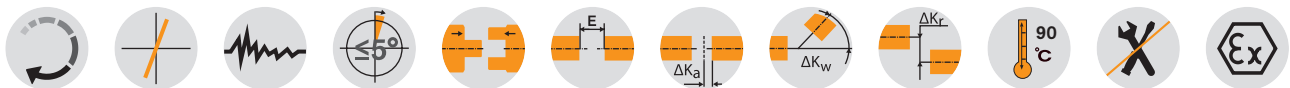
Ordering
example:

With bigger clearance: For the strength calculation of shaft-hollow shaft see DIN standard 19230 or on our homepage www.wittmann.com						
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 _{stand- ard} ³⁾ [kg]	Mass moment of inertia per hub with bore d _{standard} ³⁾ [kgm ²]
	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.

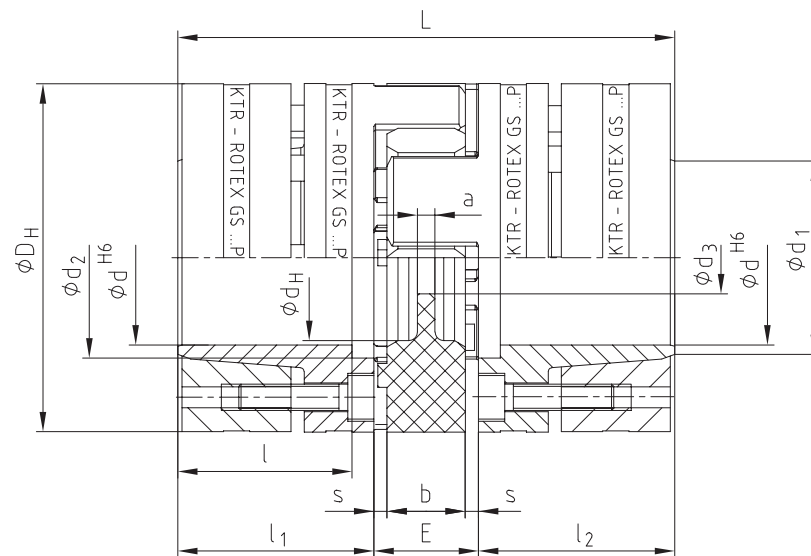
Assignment for stub spindles according to DIN 69002												
Spindle drive	ROTEX® GS P size	Dimensions according to DIN 69002										
		Standard spindle shaft diameter d	d ₁	d ₂	d ₃	D _H	l ₁ , l ₂	L	E	Transmittable torque T _R with d [Nm] ³⁾	Weight per hub with bore d _{standard} ³⁾ [kg]	Mass moment of inertia with bore d _{standard} ³⁾ [kgm ²]
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

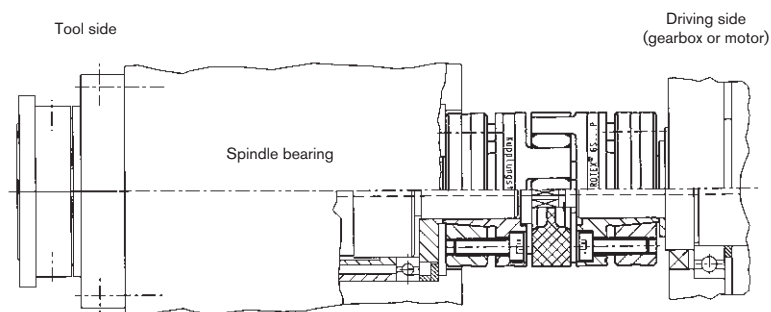
Ordering example:	ROTEX® GS 24 P	98 ShA-GS	6.0 - Ø25		6.0 - Ø25	
	Coupling size	Spider hardness	Hub type	Finish bore	Hub type	Finish bore

Components

Extraction thread M_1
between clamping
screws



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



ROTEX® GS

ROTEX® GS HP

TOOLFLEX®

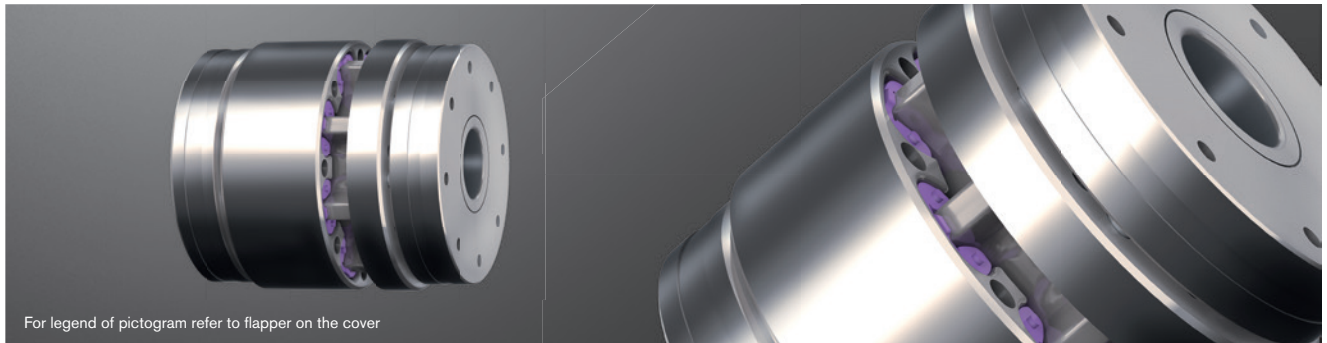
RADEX®-NC

Backlash-free
servo couplings

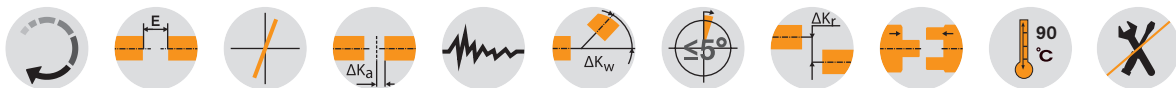
ROTEX® GS HP

Backlash-free shaft coupling

Highly accurate closed coupling system



For legend of pictogram refer to flapper on the cover



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 [kgm ²]
	52 ShD	65 ShD		Max. d ₁ , d ₂	DH	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

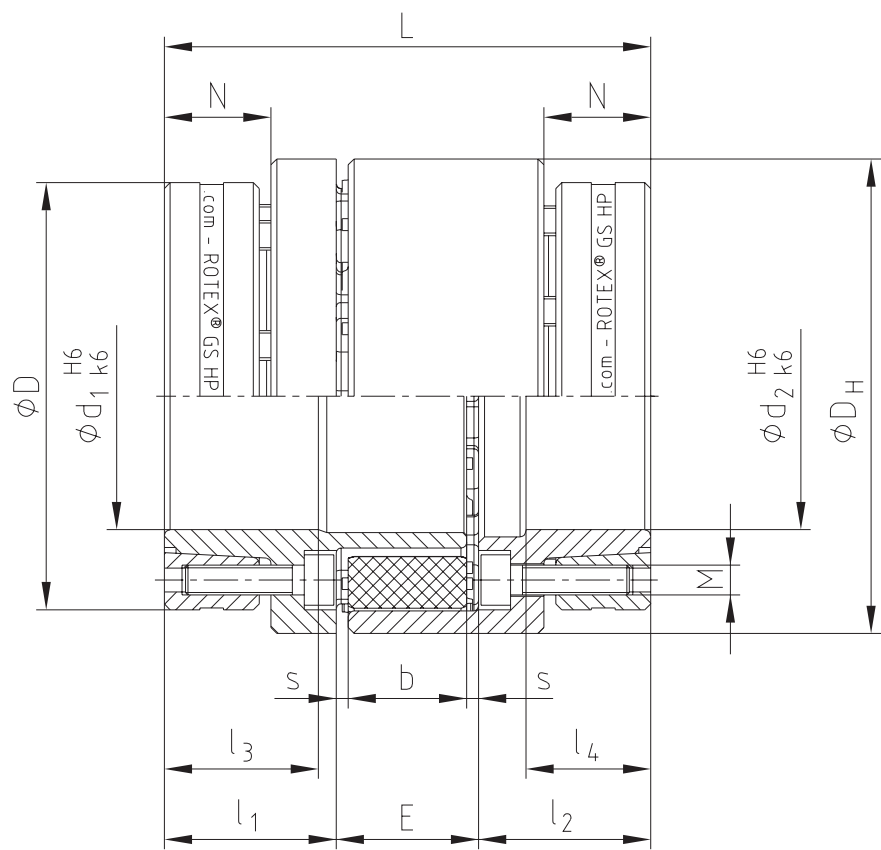
Size	Tooth element ROTEX® GS HP	Displacements			Torsional stiffness [Nm/rad]		Radial spring stiffness [N/mm]	Axial stiffness [N/mm]
		Axial ΔK _a [mm]	Radial ΔK _r [mm]	Angular ΔK _w [degree]	C _T stat.	C _T dyn.	C _r	C _a
24	52 ShD	+1.0/-0.8	0.10	0.9	3,780	10,950	7,210	3,440
	64 ShD		0.07	0.8	6,050	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	+1.4/-1.0	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		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	+1.4/-1.0	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



ROTEX® GS

ROTEX® GS HP

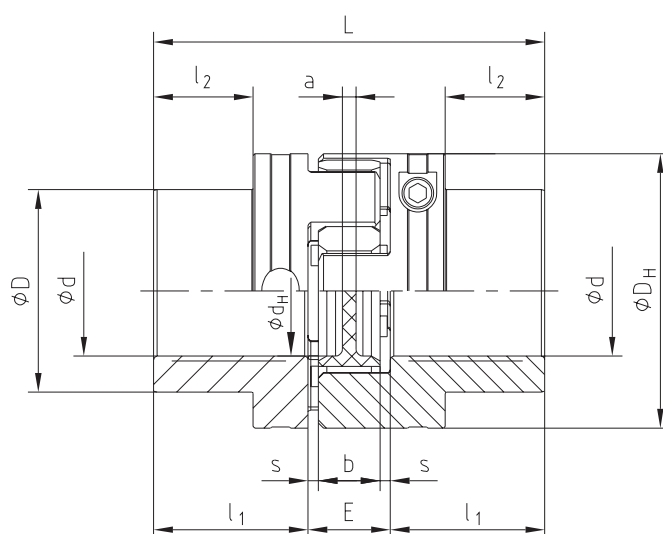
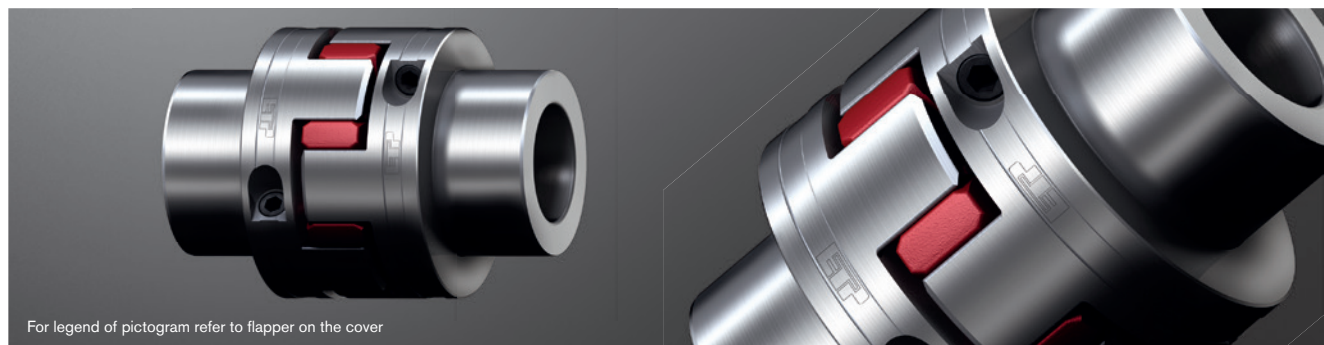
TOOLFLEX®

RADEX®-NC

Backlash-free
servo couplings

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) $\emptyset D_H + 2 \text{ mm}$ with high speeds for expansion of spider

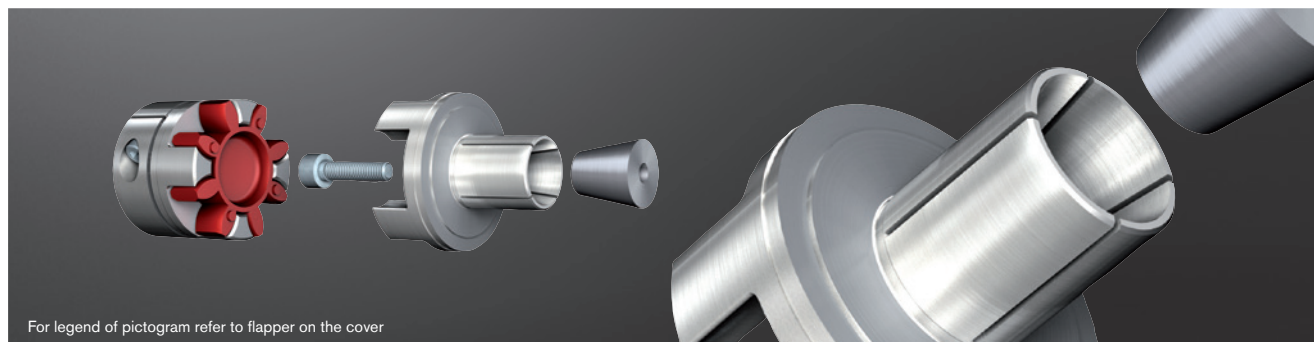
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type ROTEX® GS P ETP®																
Size	Tolerance fit	Bore diameter d/collar diameter D														
		Ø15/ Ø24	Ø16/ Ø26	Ø19/ Ø30	Ø20/ Ø32	Ø24/ Ø39	Ø25/ Ø40	Ø28/ Ø44	Ø30/ Ø47	Ø32/ Ø50	Ø35/ Ø55	Ø38/ Ø59	Ø40/ Ø62	Ø42/ Ø65	Ø45/ Ø70	Ø48/ Ø74
24	F6/h6	Ø24	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.

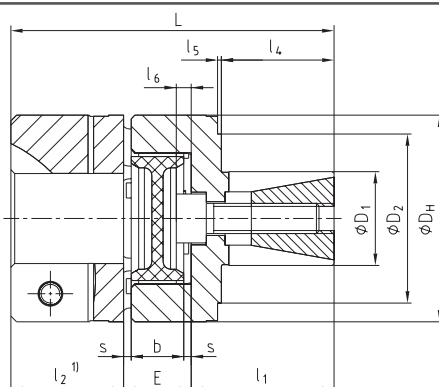
Ordering example:	ROTEX® GS P ETP® 24	98 ShA-GS	d 20	Ø24	Ø20
	Coupling size	Spider hardness	Optional: Bore in spider	Finish bore	Finish bore

ROTEX® GS expansion hubs Backlash-free jaw couplings

Clamping system for hollow shaft connection



For legend of pictogram refer to flapper on the cover



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

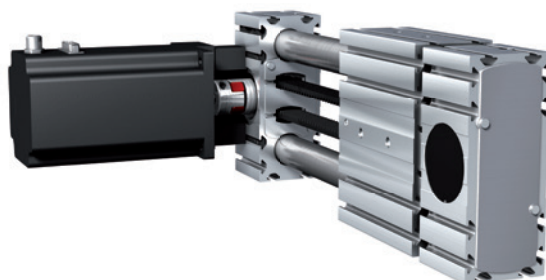
Size	Spider GS ²⁾ torque T _{KN} [Nm]					Dimensions [mm]													Friction torque ³⁾ [Nm]
	80 ShA	92 ShA	98 ShA	64 ShD	72 ShD	D1 ²⁾	D ₂	D _H	l ₁ ²⁾	l ₂	l ₄ ²⁾	l ₅ ²⁾	l ₆	L	E	b	s		
9	1.8	3.0	5.0	6.0	–	10	–	20	20	10	11	–	0	40	10	8	1.0	6.4	
12	3.0	5.0	9.0	12.0	–	10	20	25	19	11	14	1.5	2	42	12	10	1.0	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 seq./other spiders see page 121.

²⁾ Example: Other dimensions on customers' request.

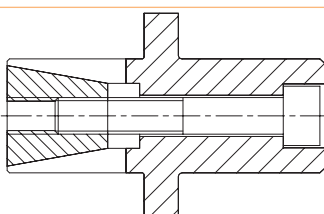
³⁾ The friction torque applies for the figures D₁, l₁, l₄ and l₅ specified and a hollow shaft material steel.

ROTEX® GS expansion hub for axis of belt

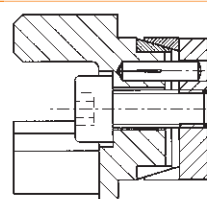


Special types for hollow shaft connections

Shaft extension



ROTEX® GS hub
with CLAMPEX®
KTR 150



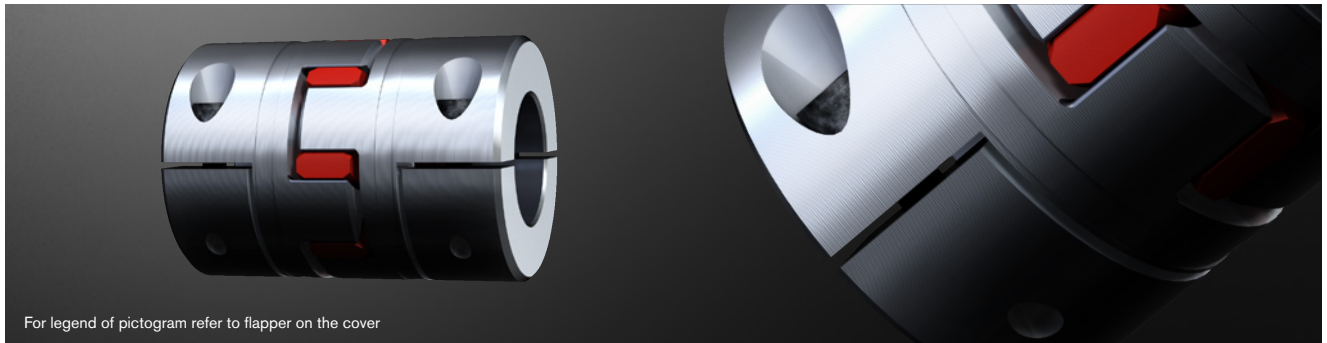
Ordering
example:

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

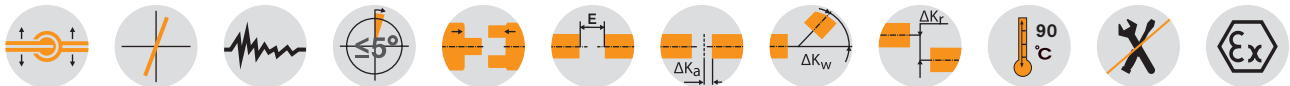
ROTEX® GS A-H

Backlash-free jaw couplings

Drop-out center design coupling



For legend of pictogram refer to flapper on the cover



ROTEX® GS type A-H - Hub material aluminium

Size	Dimensions [mm]										Cap screws DIN EN ISO 4762	
	d _{max.}	L	l _{1, l2}	E	b	s	D _H	DK	x _{1, x2}	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 [kgm ²]
				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		
	92	A		95	190	4080		
28	98	A	5850	160	320	6410	240 x 10 ⁻³	173 x 10 ⁻⁶
	64	D		200	400	10260		
	92	A		190	380	6525		
	98	A		325	650	11800		
38	64	D	4750	405	810	26300	470 x 10 ⁻³	496 x 10 ⁻⁶
	92	A		265	530	10870		
	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.

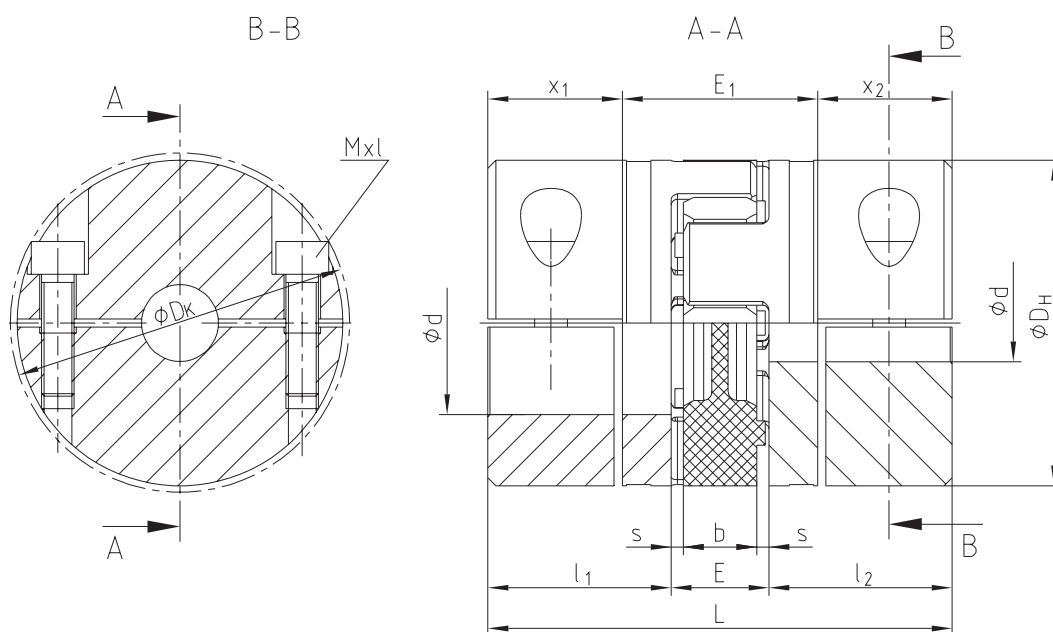
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 7.8

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

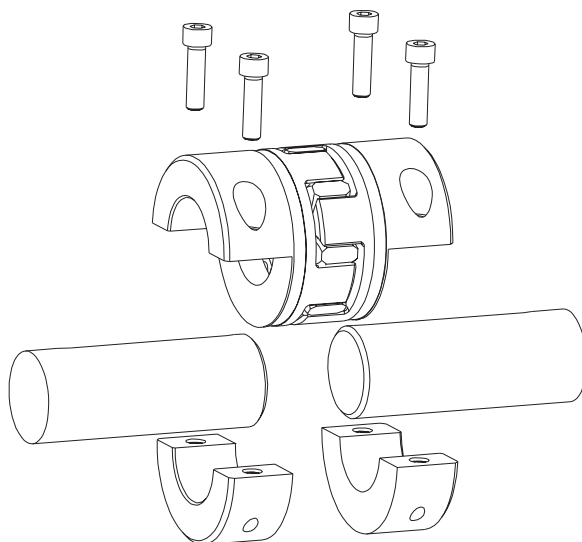
Ordering example:

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



ROTEX® GS

Backlash-free
servo couplings

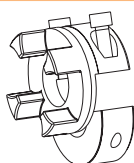
ROTEX® GS HP

TOOLFLEX®

RADEX®-NC

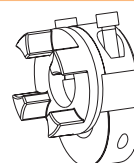
Types of hubs

Type 7.8



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

Type 7.9

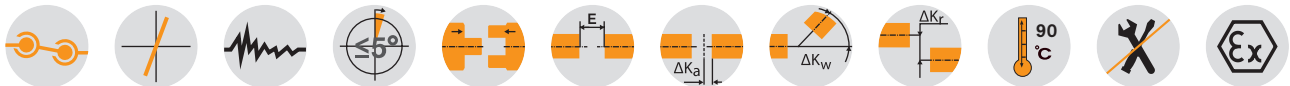
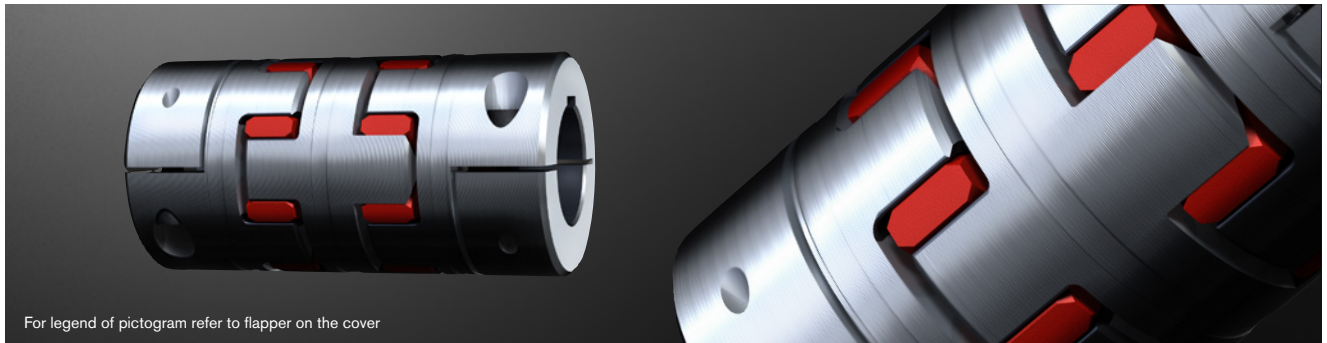


clamping hub type H with feather keyway for
single-cardanic connection

ROTEX® GS DKM

Backlash-free jaw couplings

Double-cardanic jaw coupling



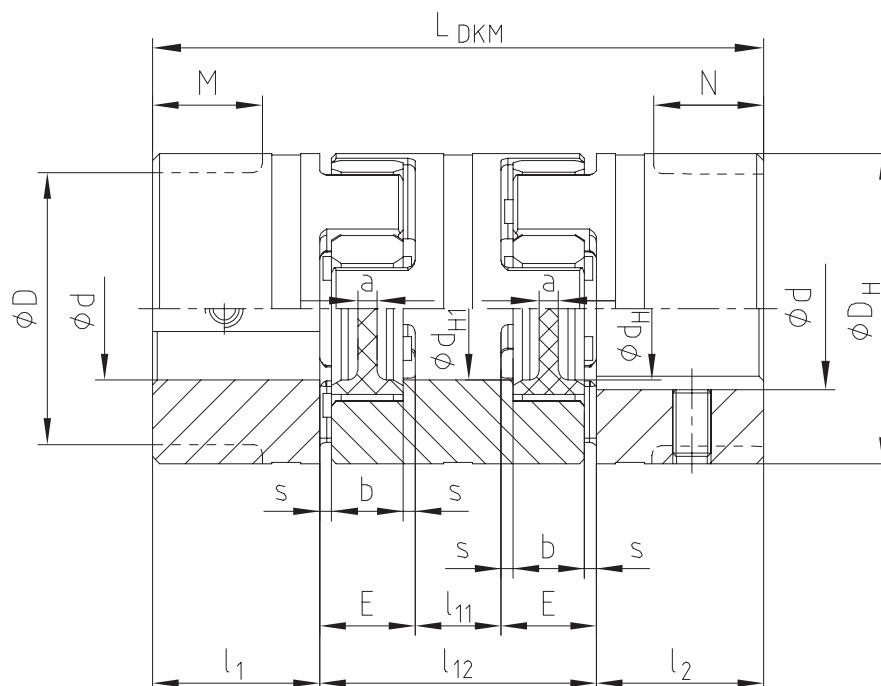
ROTEX® GS DKM - Spacer material aluminium/hub material depends on hub type																
Size	Spider GS ¹⁾ torque T _{KN} [Nm]		Dimensions [mm]													
	98 ShA	64 ShD	d _{max.} ²⁾	D	D _H	d _H	d _{H1}	l ₁ , l ₂	M, N	l ₁₁	l ₁₂	LDKM	E	b	s	a
5	0.9	—	5	—	10	—	—	5	—	3	13	23	5	4	0.5	4.0
7	2.0	2.4	7	—	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



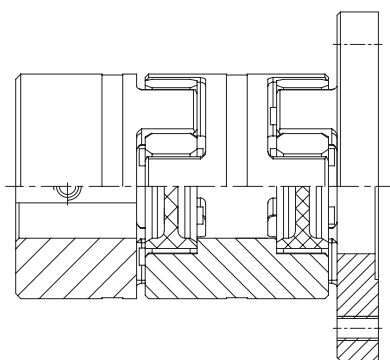
ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

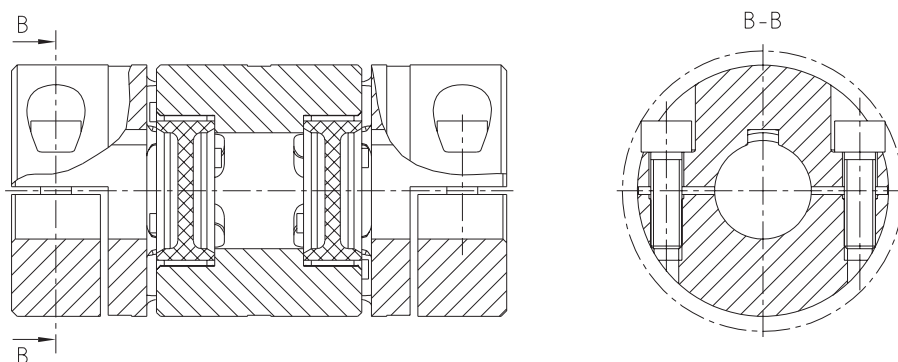
Other types:

ROTEX® GS - CF - DKM



TOOLFLEX®

ROTEX® GS DKM-H

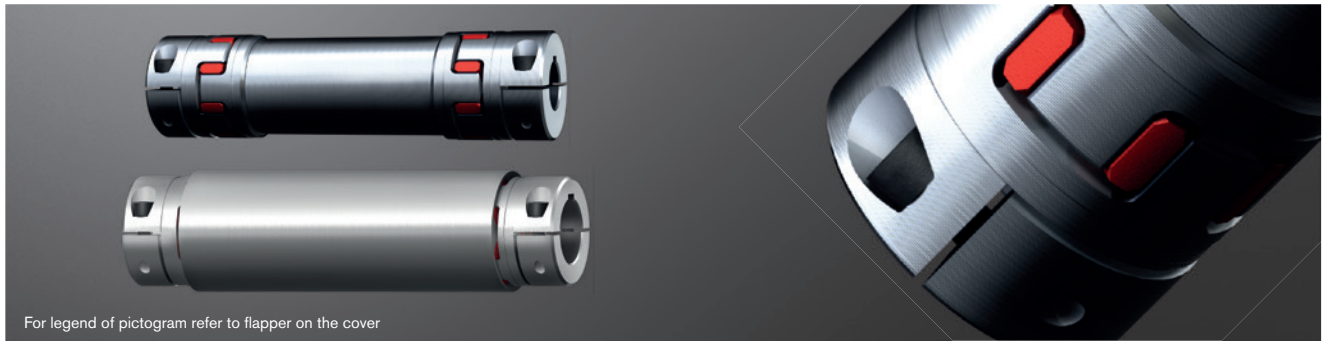


RADEX®-NC

ROTEX® GS ZR3 and ZRS

Backlash-free intermediate shaft couplings

Intermediate shaft coupling with aluminium pipe



For legend of pictogram refer to flapper on the cover



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

Size	Dimensions [mm]														Cap screws DIN EN ISO 4762	
	d _{max.}	D _H	l ₁	L	l ₃	E	L _R		L _{ZR} = L _R + 2 • l ₃		d _R	DK	t ₁	e	M	T _A [Nm]
							min.	Max.	min.	Max.						
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 kgm ²]			Static torsion spring stiffness ³⁾ [Nm/rad]
	98 ShA	64 ShD	Hub ²⁾	ZR hub	Pipe/meter	
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 • 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 stiff- ness C ⁴⁾	Cap screws DIN EN ISO 4762		LZRS	min LR
	d _{min.} - d _{max.}	DH	l ₁ , l ₂	l ₃	t ₁	e	DK	DH1		M	Tightening torque T _A [Nm]		
19	0 - 20	40	25	17.5	8.0	14.5	46.0	45	3800	M6	10	LZRS = LR + 2 x l ₃	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		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 l₃, to make sure the coupling can be radially assembled/disassembled.

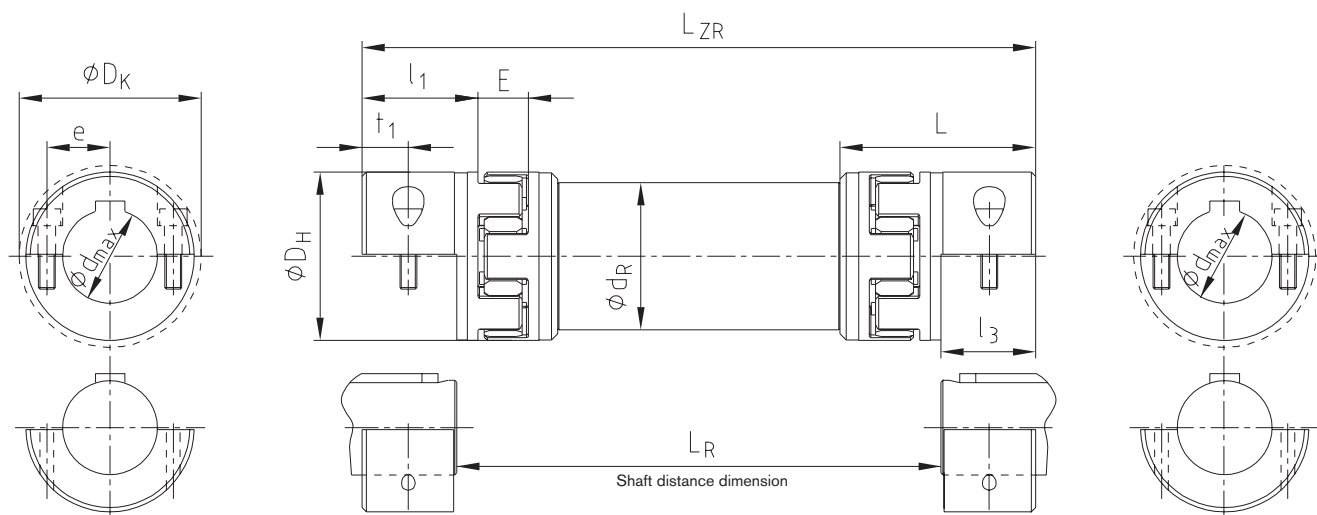
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 7.5

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

Type ZR3

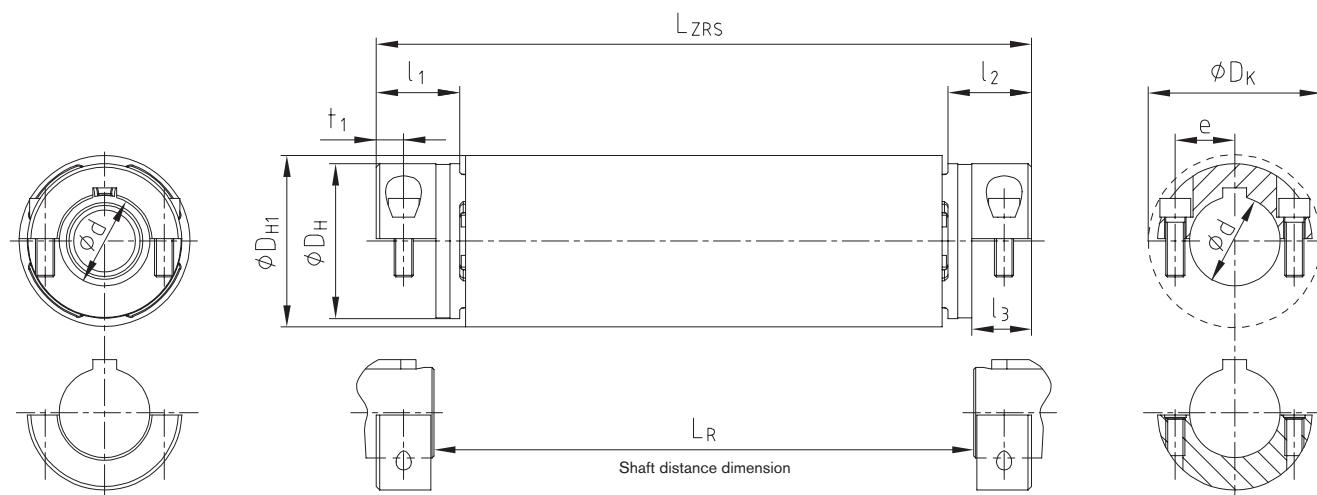


ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

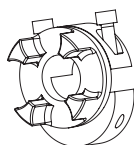
Type ZRS



TOOLFLEX®

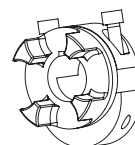
Types of hubs

Type 7.5



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

Type 7.6



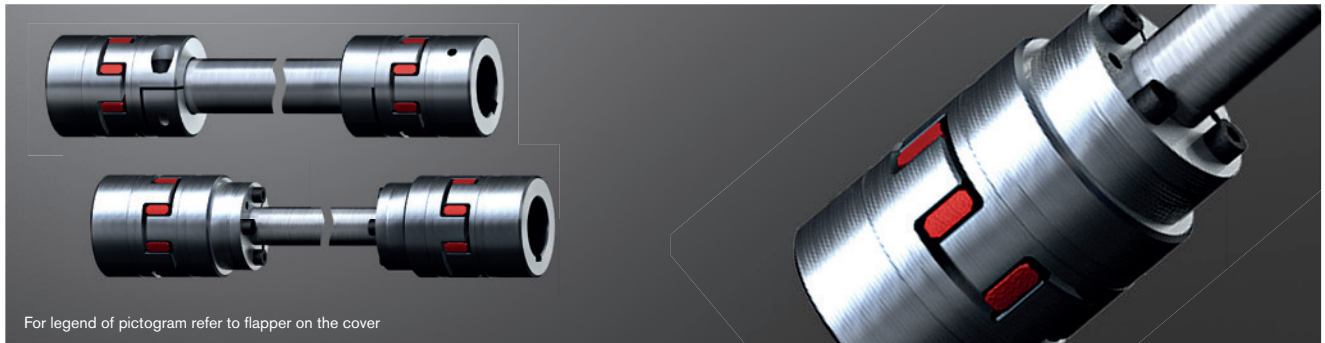
Clamping hub type DH with feather keyway for double-cardanic connections

RADEX®-NC

ROTEX® GS ZR1 and ZR2

Backlash-free intermediate shaft couplings

Intermediate shaft couplings with steel pipe/steel shaft



For legend of pictogram refer to flapper on the cover



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	LR1	Minimum dimension for LR1	LZR1	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	LR1+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	LR1+50	20x3.0	M6	10.5	34
24 ZR1	60	75	28	55	30	78	18	14	2.0	16.0		128	LR1+60	25x2.5	M6	10.5	45
28 ZR1	160	200	38	65	35	90	20	15	2.5	17.5		145	LR1+70	35x4.0	M8	25	105
38 ZR1	325	405	45	80	45	114	24	18	3.0	21.0		180	LR1+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	LR2	Minimum dimension for LR2	LZR2	dR 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	LR2+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	LR2+50	12x2.0	130	12x18	M4	5.6
24 ZR2	60	75	28	55	30	38	86	18	14	2.0	16.0		156	LR2+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	LR2+70	25x2.5	1811	25x34	M6	17.0
38 ZR2	325	405	45	80	45	45	114	24	18	3.0	21.0		192	LR2+90	32x3.5	5167	32x43	M6	17.0
42 ZR2	450	560	55	95	50	52	128	26	20	3.0	23.0		214	LR2+100	40x4.0	11870	40x53	M6	17.0
48 ZR2	525	655	62	105	56	70	154	28	21	3.5	24.5		261	LR2+112	45x4.0	17486	45x59	M8	41.0
55 ZR2	685	825	74	120	65	80	175	30	22	4.0	26.0		288	LR2+130	55x4.0	33543	55x71	M8	41.0
65 ZR2	940	1175	80	135	75	80	185	35	26	4.5	30.5		387	LR2+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.

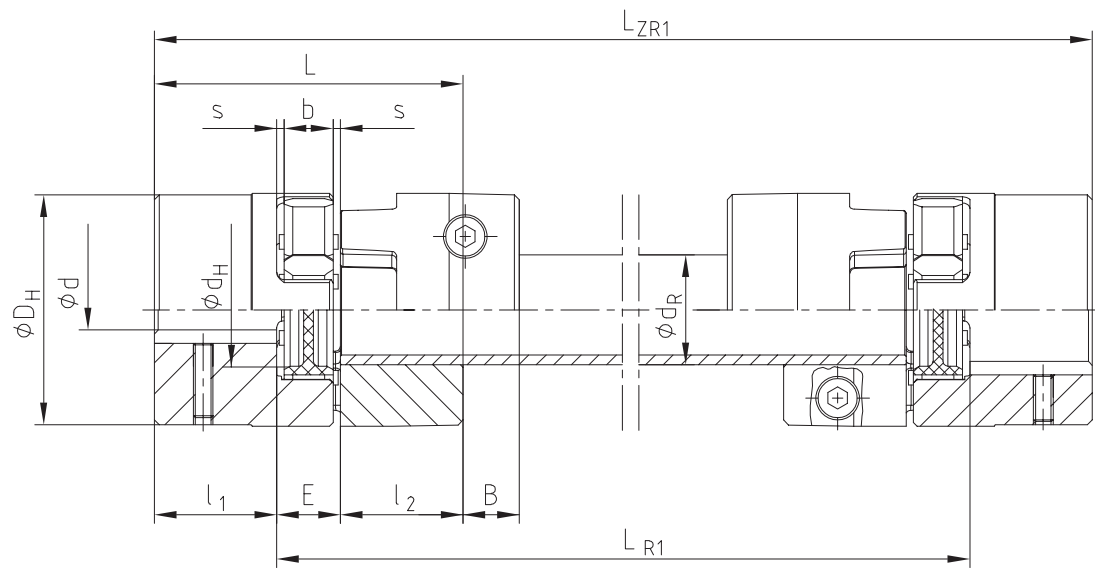
For inquiries and orders please specify the shaft distance dimension LR₁/LR₂ along with the maximum speed to review the critical bending speed.

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 di- mension (LR ₁ /LR ₂)	Spider hardness	Hub type	Finish bore	Hub type	Finish bore	Hub type	Finish bore	Hub type	Finish bore

Type ZR1

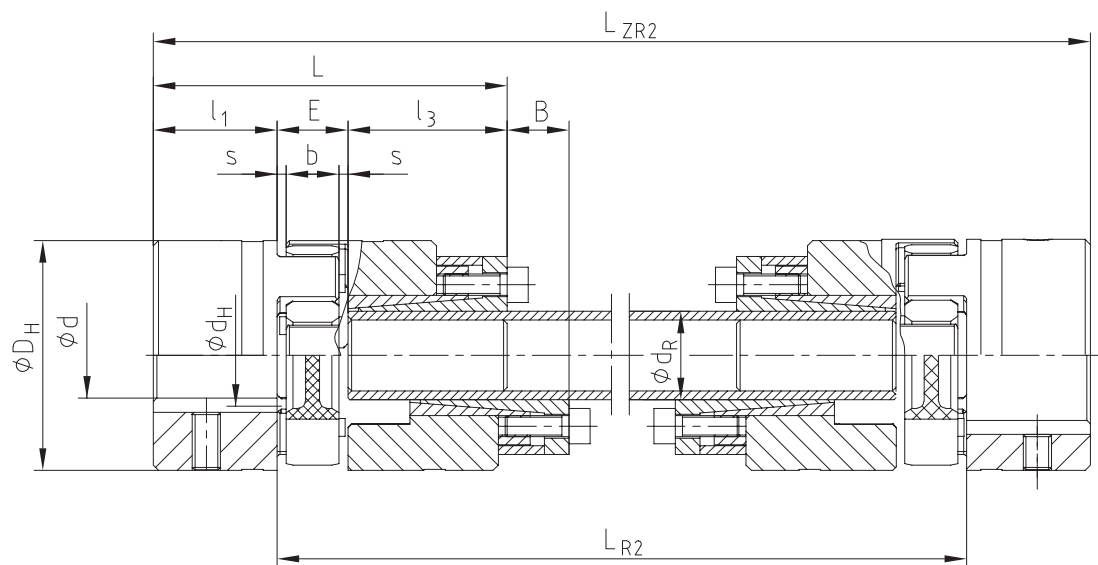


ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

Type ZR2



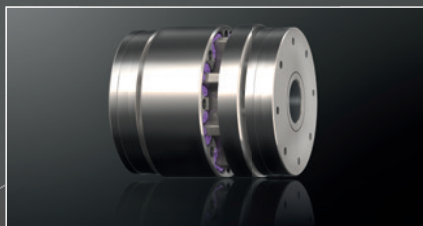
TOOLFLEX®

RADEX®-NC

Wide range for your application



ROTEX® GS



ROTEX® GS HP



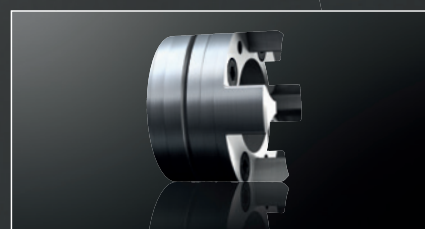
ROTEX® GS miniature coupling



ROTEX® GS Compact



ROTEX® GS clamping ring hubs light



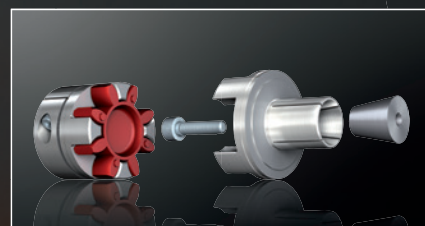
ROTEX® GS clamping ring hubs steel



ROTEX® GS P acc. to DIN 69002



ROTEX® GS P ETP



ROTEX® GS expansion hub



ROTEX® GS A-H



ROTEX® GS DKM



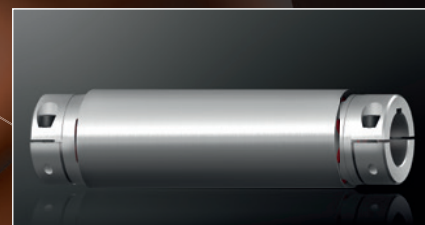
ROTEX® GS ZR1



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.

Backlash-free
servo couplings

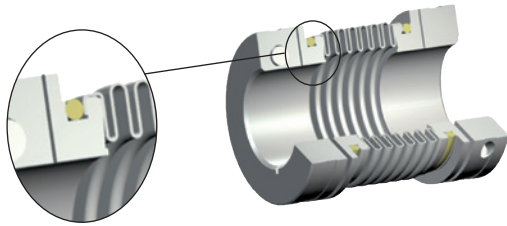


TOOLFLEX®

Metal bellow-type couplings

Technical description

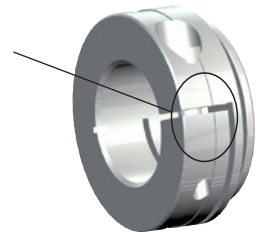
TOOLFLEX® is a metal bellow-type coupling, a coupling system which has proven in the field with numerous applications. The metal bellow optimally compensates for axial, radial and angular displacements. At the same time its geometric shape allows for high torsional stiffness and a low mass moment of 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	
			TKN [Nm]	TK max [Nm]	Max. speed [rpm]					
					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	
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	Flanged Maximum ambient temperature 200 °C	2	3	19,000	19,100				
	M									
16	S		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	Welded Maximum ambient temperature 200 °C	35	52.5		8,700	6,950	3,000	8,700	15,280
	M									
38	S		65	97.5		7,350	5,850	3,000	7,350	12,600
	M									
42	S		95	142.5		6,820			6,820	11,580
	M									
45	S		170	255		5,750	4,750	3,000	5,750	9,300
	M									
55 Al	S		340	510		4,800				
	M									
55	S		340	510		4,800			4,800	7,870
	M									
65	S		600	900		3,850				
	M									

TOOLFLEX®

Metal bellow-type couplings

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.



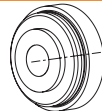
Type 1.0
with feather keyway and setscrew
Positive-locking power transmission. Permissible torque depending on the permissible surface pressure. Not suitable for backlash-free power transmission with heavily reversing operation.



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.



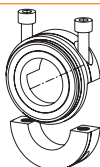
Type 2.6 clamping hub
double slotted, with feather keyway
Positive-locking power transmission with additional friction fit. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.



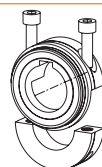
Type 7.5 clamping hub type DH
without feather keyway for double-cardanic connection
Frictionally engaged, backlash-free shaft-hub-connection for radial assembly of coupling. Transmittable torques depending on bore diameter.



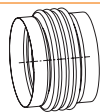
Type 7.6 clamping hub type DH
with feather keyway for double-cardanic connection
Positive-locking power transmission with additional friction fit for radial assembly of coupling. The friction fit avoids resp. reduces reverse backlash. Surface pressure of the keyway connection is reduced.



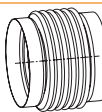
Type 7.8 clamping hub type H
without feather keyway for single-cardanic connection
Frictionally engaged, backlash-free shaft-hub-connection for radial assembly of coupling. Transmittable torques depending on bore diameter.



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.

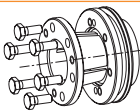


Bellow type S
Bellow with 4 layers made of stainless steel; compact design with high torsion spring stiffness.

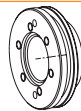


Bellow type M
Bellow with 6 layers made of stainless steel; realizing large shaft distance dimensions and displacements.

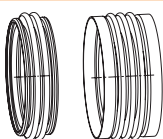
Special designs on request of customers



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.

ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

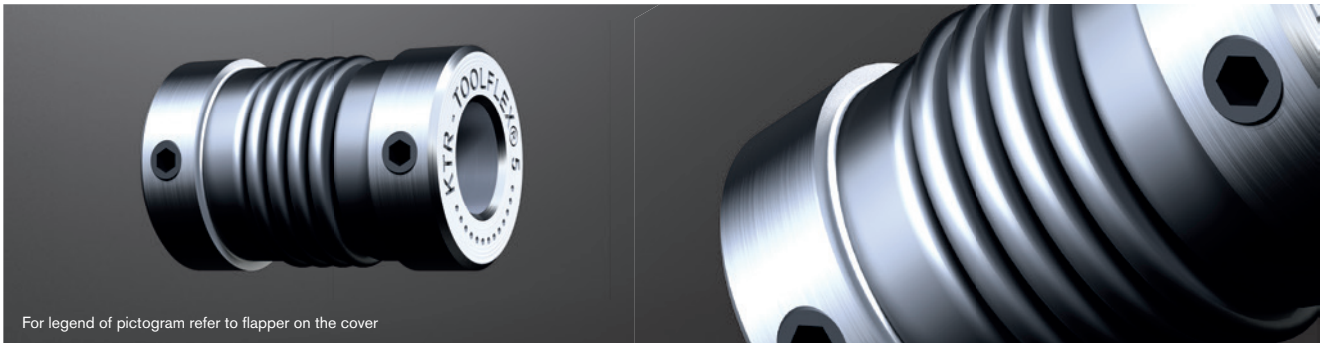
TOOLFLEX®

RADEX®-NC

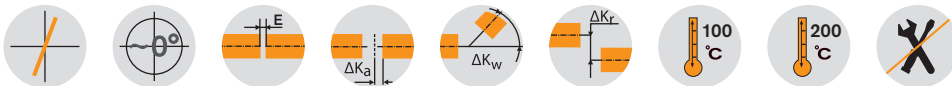
TOOLFLEX® S

Metal bellow-type couplings

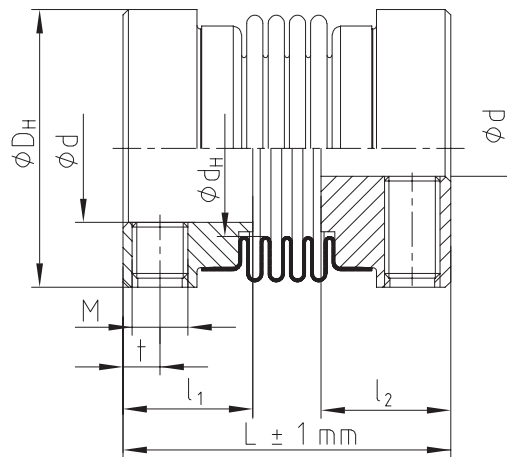
Type S: Hubs with setscrews



For legend of pictogram refer to flapper on the cover



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 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	4)	0.1	47700	2	5	10	6	15	6	M2	1.8	1	±0.30	0.10	0.7	97	0.0027
7		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

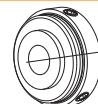
Types of hubs

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

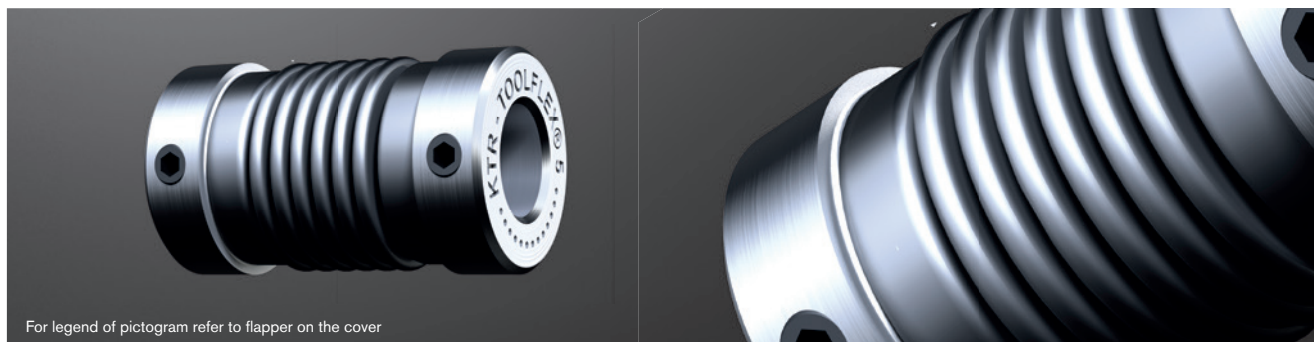
Ordering example:

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

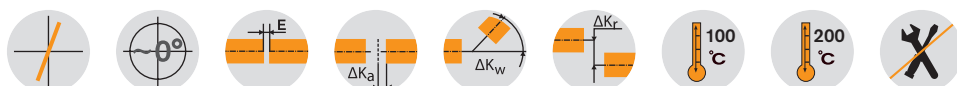
TOOLFLEX® M

Metal bellow-type couplings

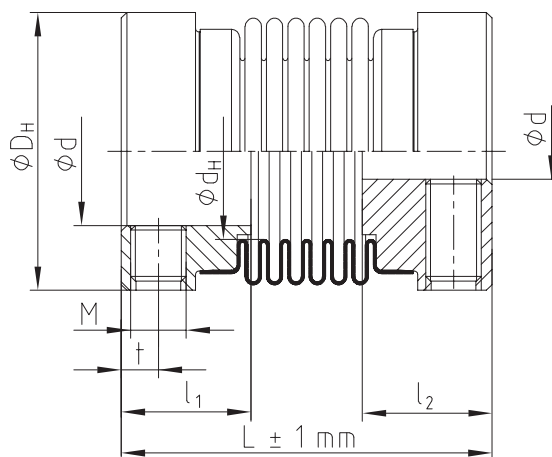
Type M: Hubs with setscrews



For legend of pictogram refer to flapper on the cover



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	4)	0.1	47700	2	5	10	6	17	6	M2	1.8	1	±0.40	0.15	1.0	75	0.003
7		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



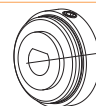
Hub without feather keyway, with setscrew

Type 1.2



Hub without feather keyway, without setscrew

Type 1.3



Hub with spline bore

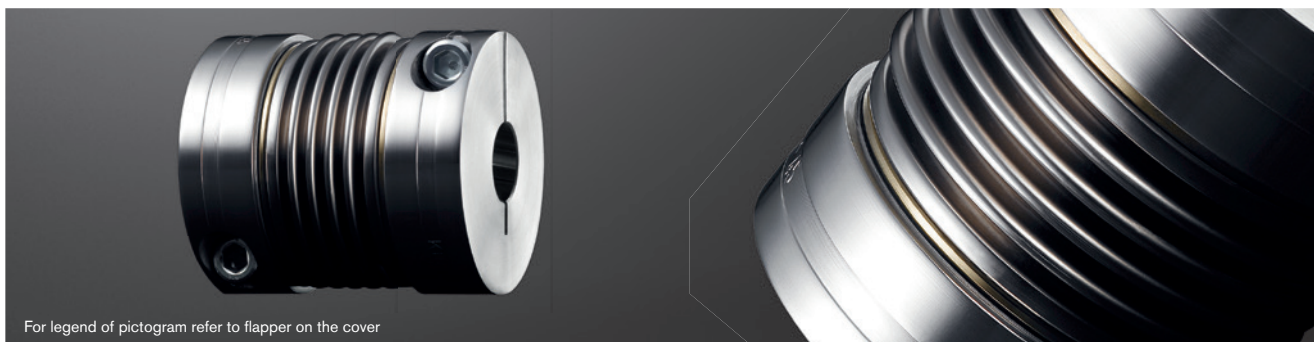
Ordering example:

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

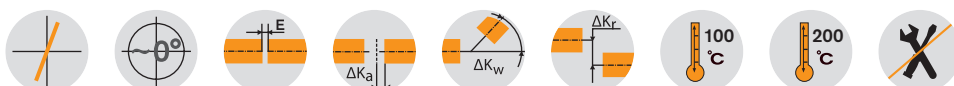
TOOLFLEX® S

Metal bellow-type couplings

Type S: with clamping hubs



For legend of pictogram refer to flapper on the cover



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	I ₁ , I 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		5	14900	Aluminium	9	4500	43	138	±0.3	0.15	1.0	0.06
20	Flanged	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.

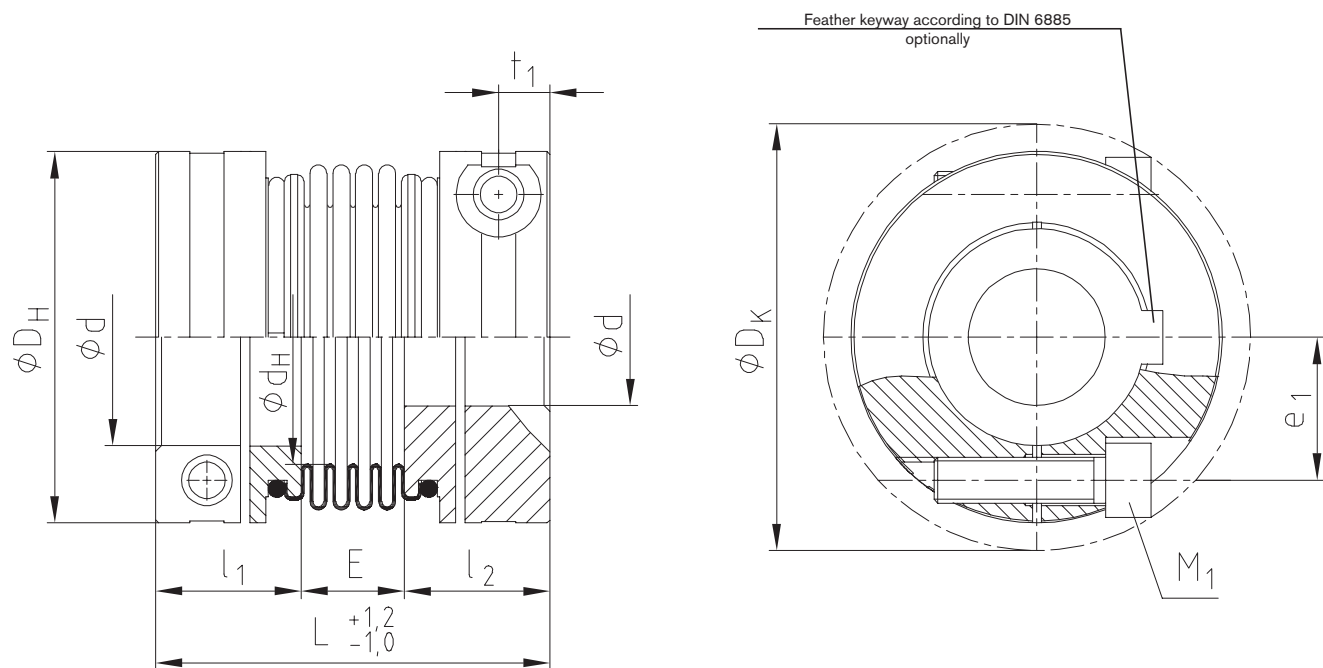
²⁾ Figures refer to the complete coupling with max. bore.

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



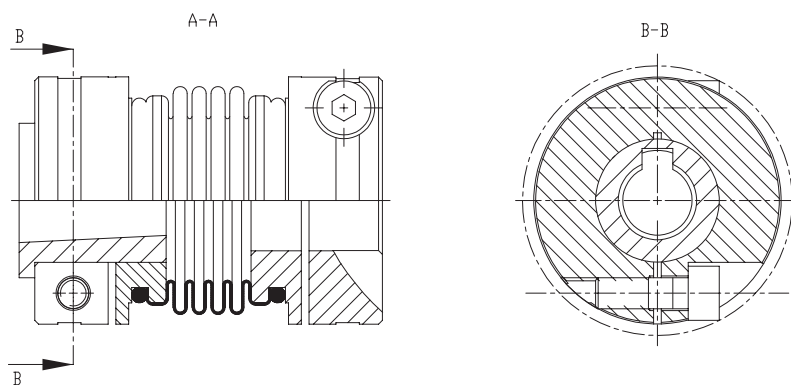
ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

Other types:

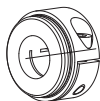
Type for FANUC motors



TOOLFLEX®

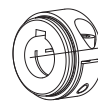
Types of hubs

Type 2.5



Clamping hub double slot without feather keyway

Type 2.6



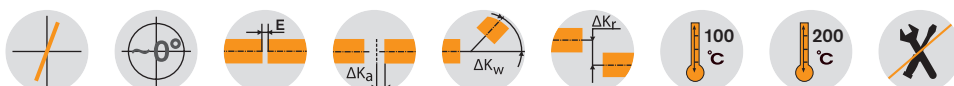
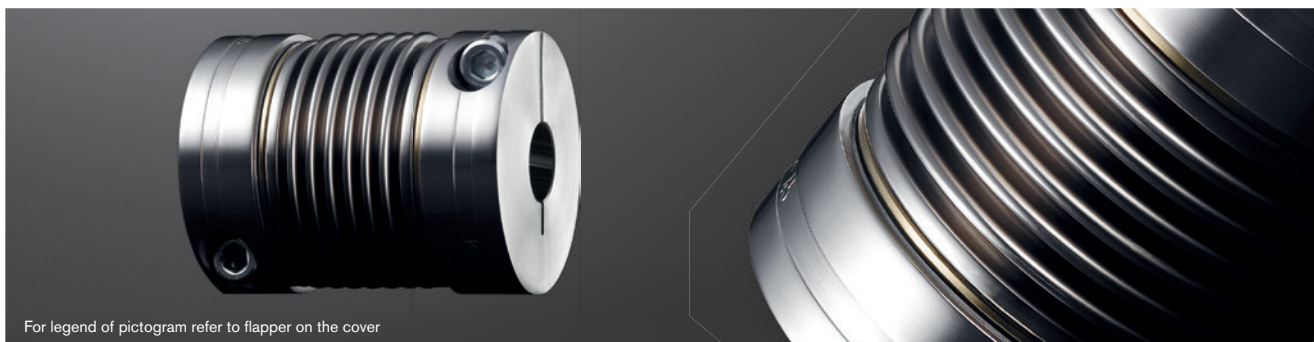
Clamping hub double slot with feather keyway

RADEX®-NC

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		5	14900	Aluminium	10	3050	29	92	±0.5	0.20	1.5	0.06
20	Flanged	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	3)	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	2.0	2.0
55 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.

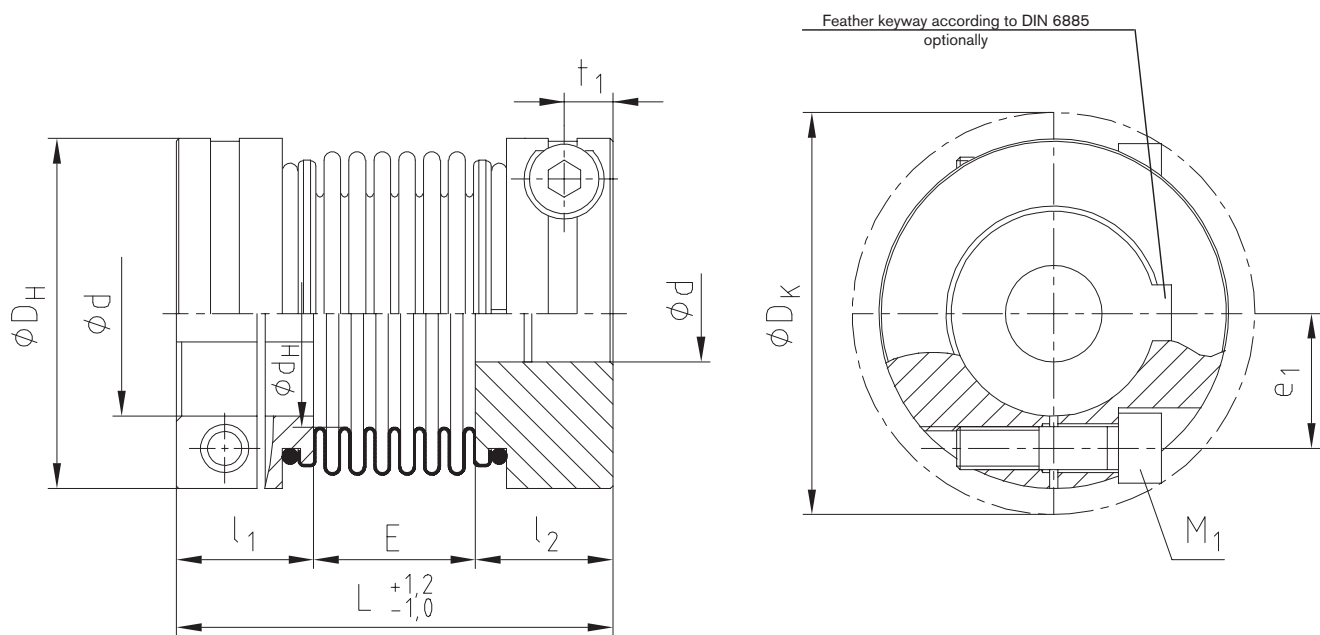
²⁾ Figures refer to the complete coupling with max. bore.

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 A)																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	



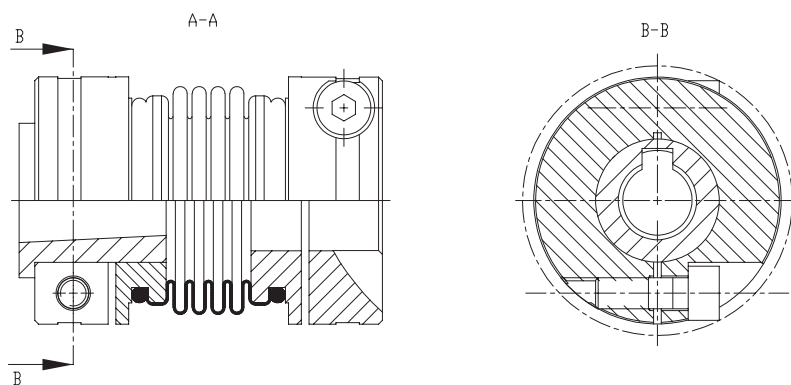
ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

Other types:

Type for FANUC motors



TOOLFLEX®

Types of hubs

Type 2.5



Clamping hub double slot without feather keyway

Type 2.6



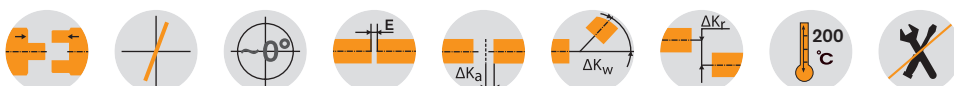
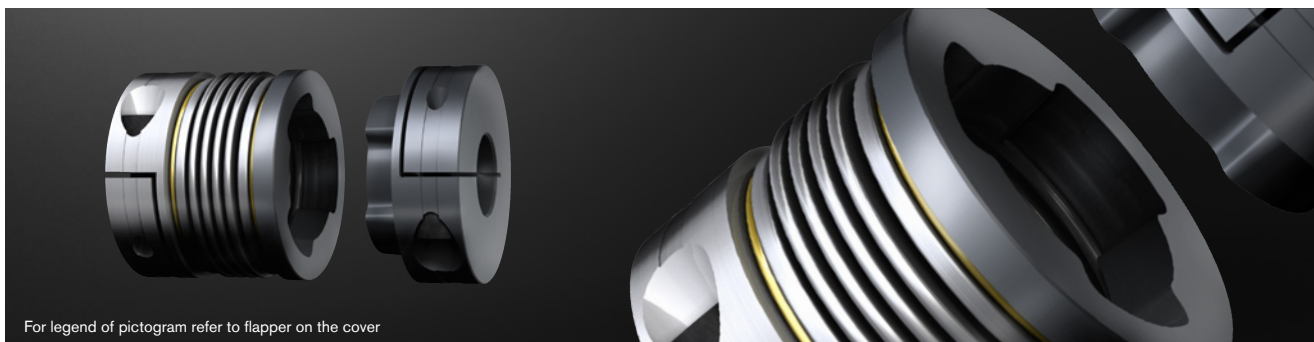
Clamping hub double slot with feather keyway

RADEX®-NC

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⁾	I ₁	I 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 TKN 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⁾	I ₁	I 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 TKN 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.

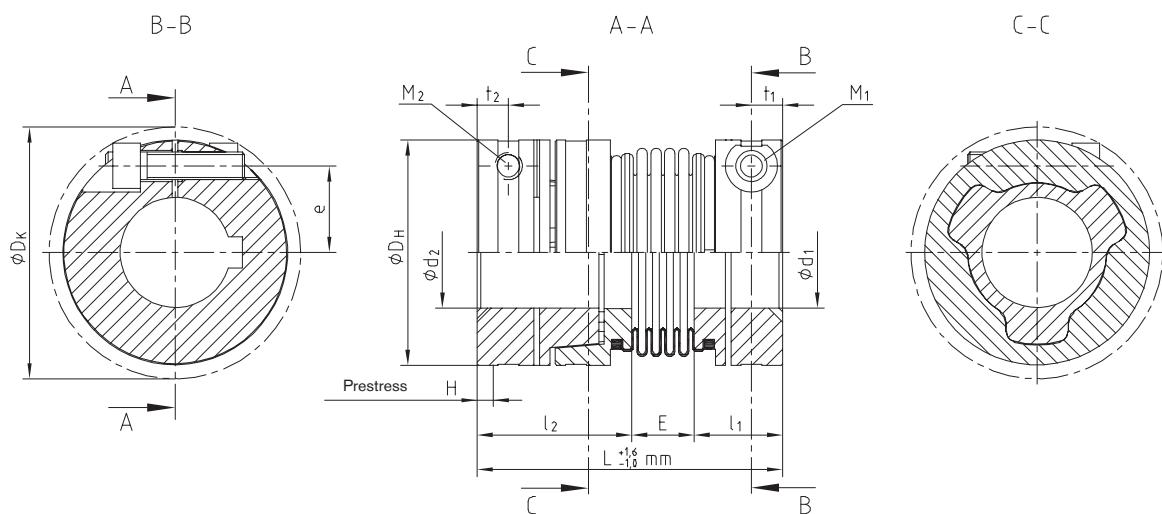
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 2.5 for Ød₁/Ød₂

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

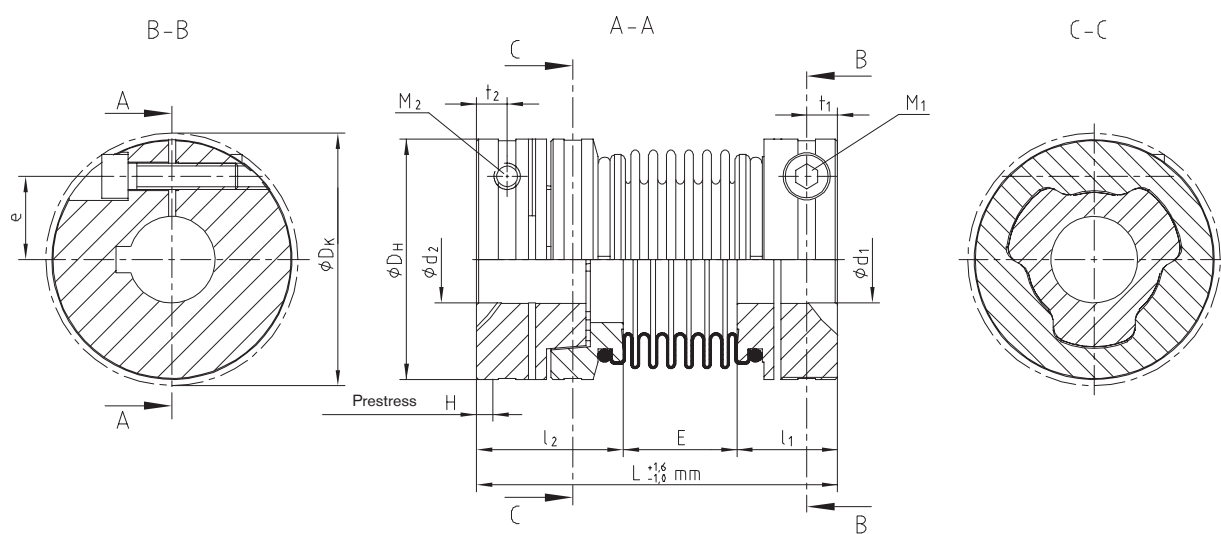


ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

TOOLFLEX® M-PI



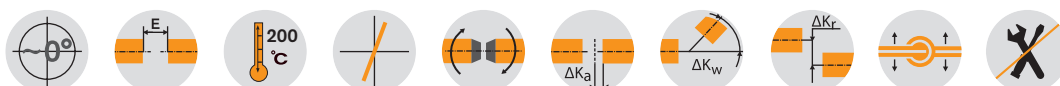
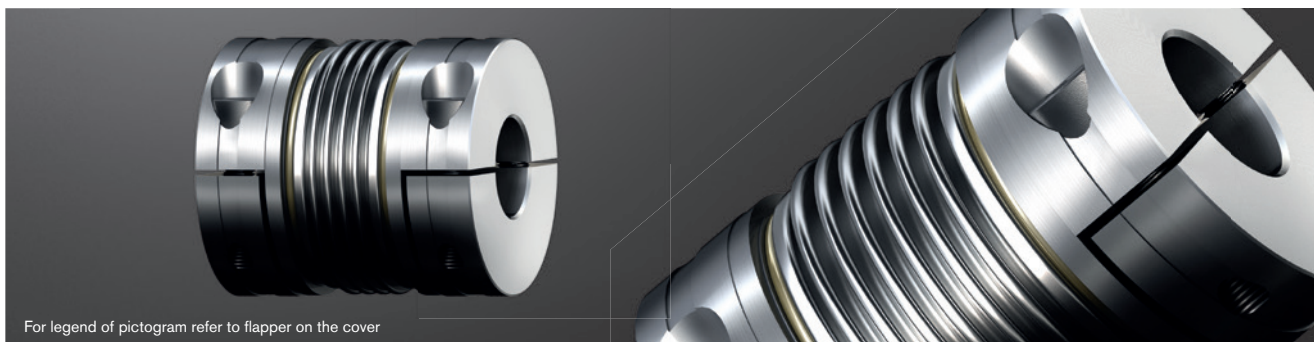
TOOLFLEX®

RADEX®-NC

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]										
	min.	Max.	General								Clamping screws DIN EN ISO 4762		
			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	Bel- low-hub-con- nection	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]										
	min.	Max.	General								Clamping screws DIN EN ISO 4762		
			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	Bel- low-hub-con- nection	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.

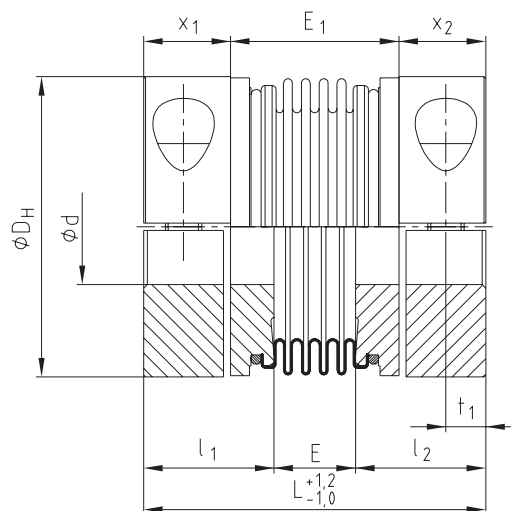
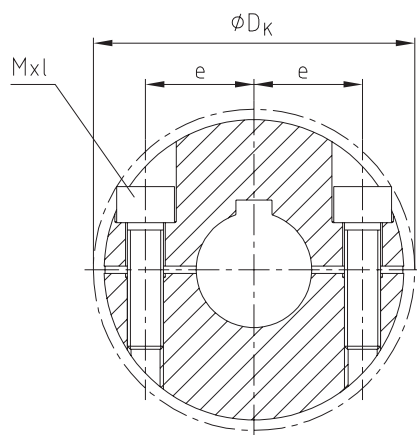
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 7.8 for Ød₁/Ød₂

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

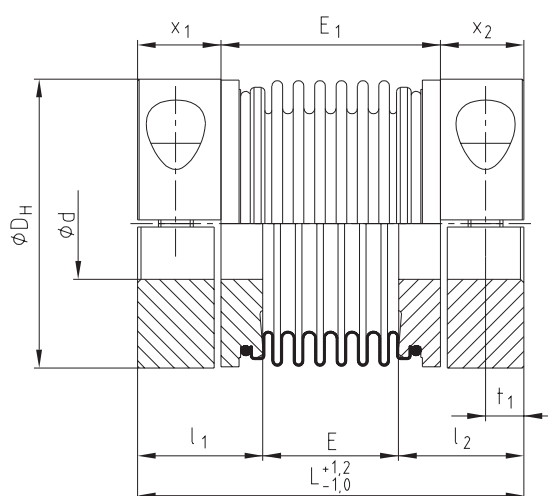
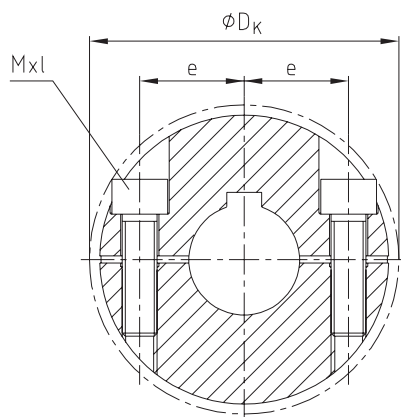
Ordering
example:

TOOLFLEX® 30 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



ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

TOOLFLEX®

RADEX®-NC

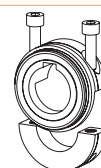
Types of hubs

Type 7.8



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

Type 7.9

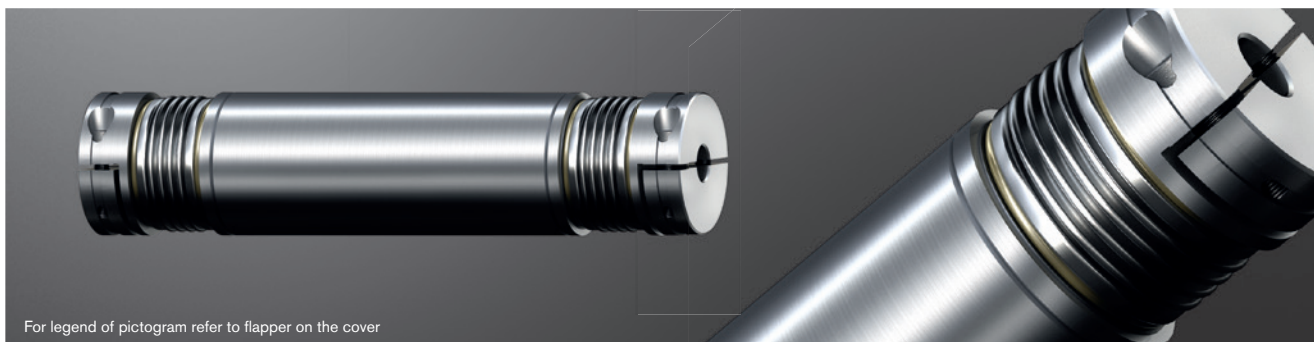


clamping hub type H with feather keyway for
single-cardanic connection (on request)

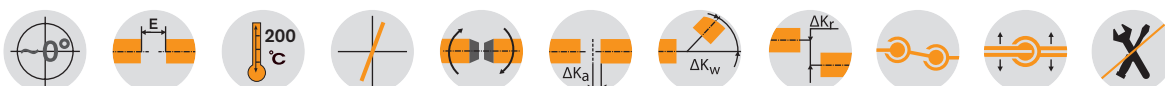
TOOLFLEX® ZR

Metal bellow-type couplings

Intermediate shaft coupling with bonded aluminium pipe



For legend of pictogram refer to flapper on the cover



TOOLFLEX® type ZR / half shell clamping hubs - Hub material aluminium/bellow material stainless steel															
Size	Finish bore d		Dimensions [mm]												
	min.	Max.	General											Clamping screws DIN EN ISO 4762	
			D _H	L	l ₃	L _R		L _{ZR} = L _R + 2 • l ₃		d _R	DK	t ₁	e		
						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 TKN ¹⁾ [Nm]	Moment of inertia [10 ⁻³ kgm ²]		Static torsion spring stiffness [Nm/rad]
		ZR hub ²⁾	Pipe/meter	
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 $L_{pipe} = LZR - 2 \cdot L$.

For inquiries and orders please specify the shaft distance dimension LR along with the maximum speed to review the critical bending speed.

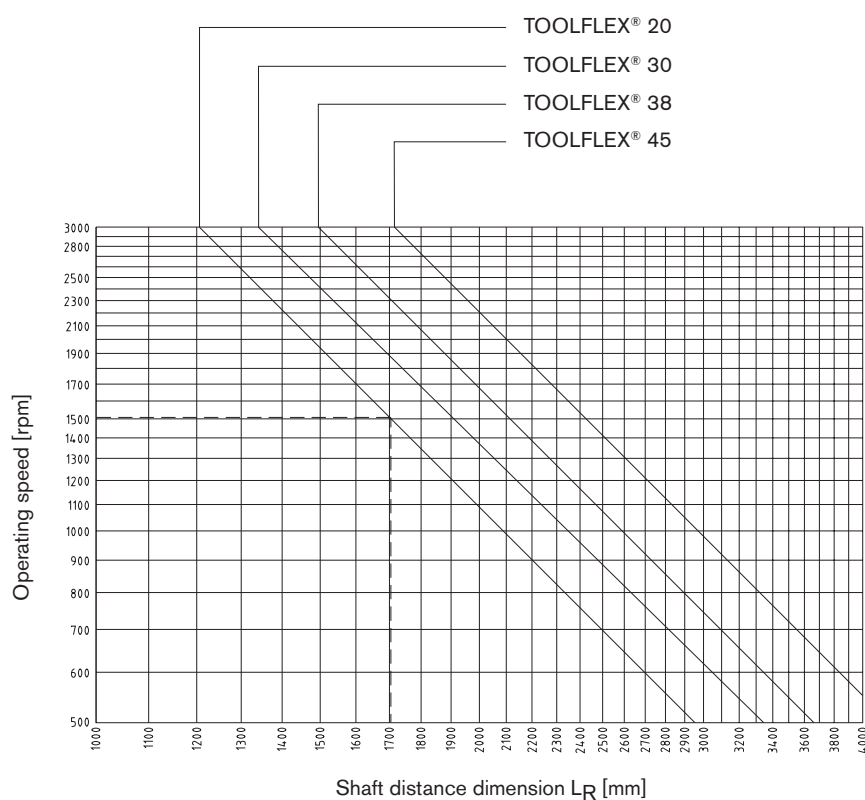
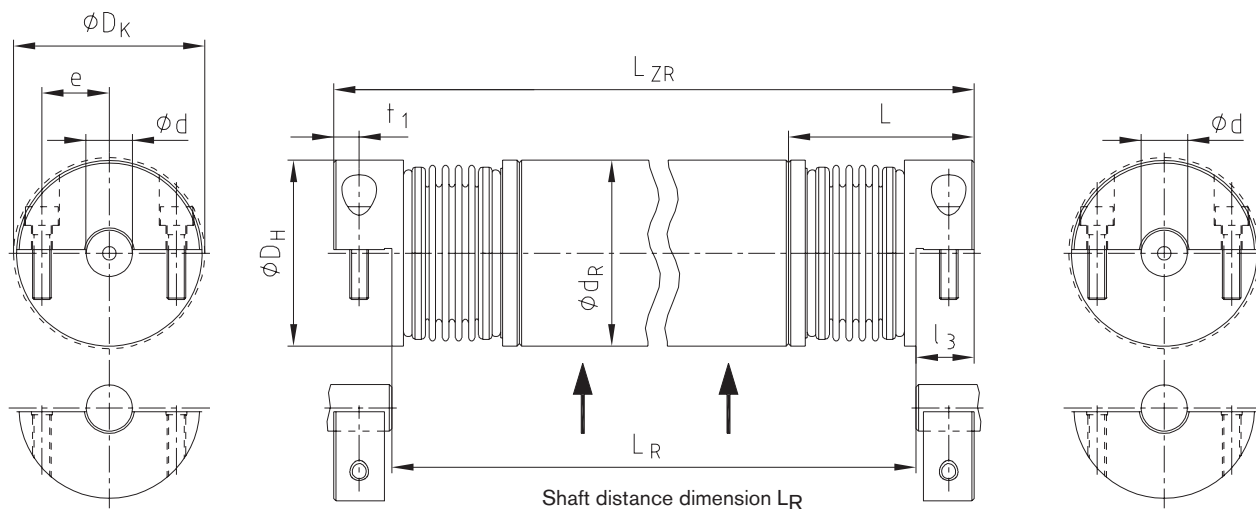
Straightness/concentricity of pipes according to DIN EN 755-1.

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
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 (LR)	Hub type	Finish bore

TOOLFLEX® ZR



ROTEX® GS

Backlash-free
servo couplings

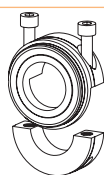
ROTEX® GS HP

TOOLFLEX®

RADEX®-NC

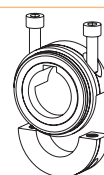
Types of hubs

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

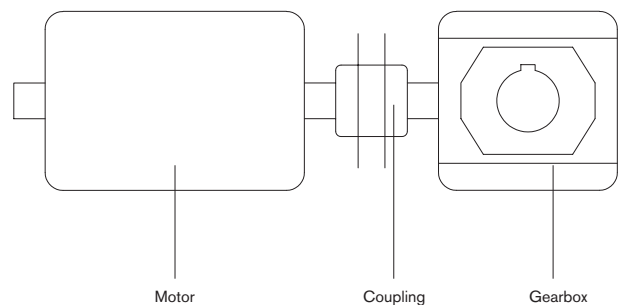
Servo laminae couplings

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.

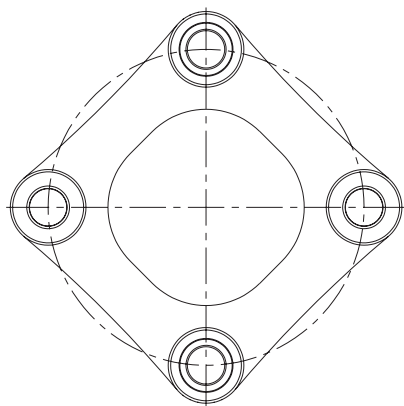
Selection:

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.

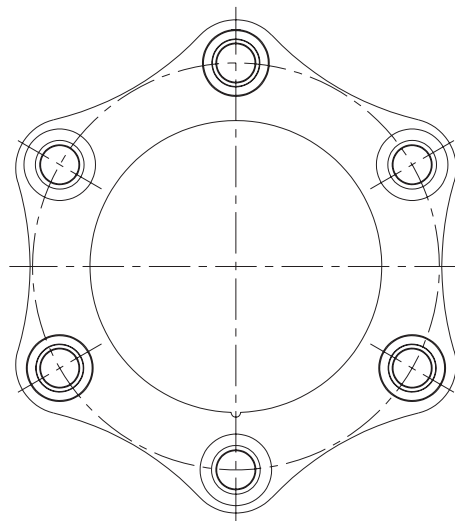


RADEX®-NC DK and EK Servo laminae couplings

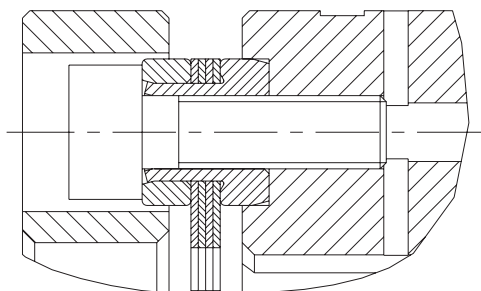
Laminae sets



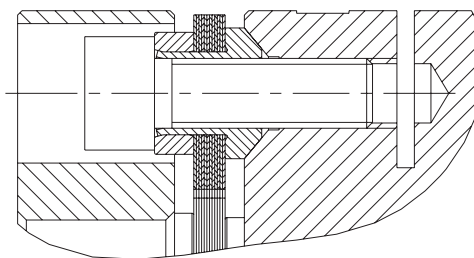
Size 5 to 26
(lamina with 4 holes)



Size 36 to 75
(lamina with 6 holes)



Size 5 to 10
(cylindrical sleeve)



Size 16 to 75
(taper sleeve)

ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

TOOLFLEX®

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.



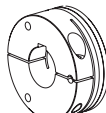
Type 6.5 clamping ring hub
Integrated frictionally engaged shaft-hub-connection for the
transmission of higher torques. Suitable for high speeds.



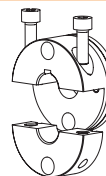
Type 7.5 clamping hub type DH
without feather keyway for double-cardanic connection
Frictionally engaged, backlash-free shaft-hub-connection for
radial assembly of coupling. Transmittable torques depend-
ing on bore diameter.



Type 3.5 clamping hub
triple slotted, without feather keyway
Frictionally engaged, backlash-free shaft-hub-connection,
good properties of concentric running and reduced im-
balance. 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.

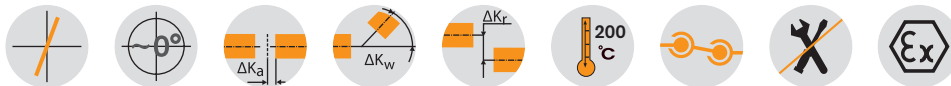
RADEX®-NC

RADEX®-NC DK and EK Servo laminae couplings

Double- and single-cardanic types

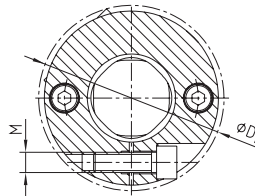
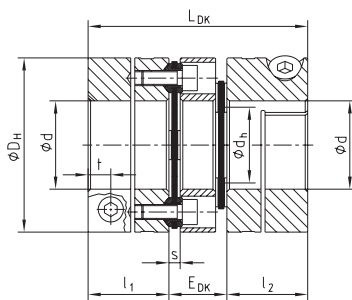


For legend of pictogram refer to flapper on the cover

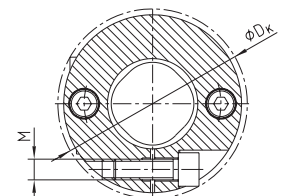
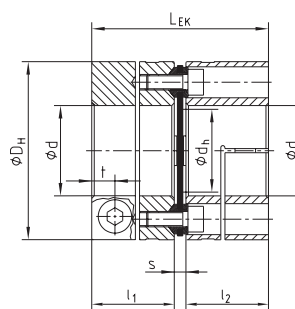


Hub type 2.5/2.6

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 [kgm ²]	
	dmax.	D _H	D _K	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

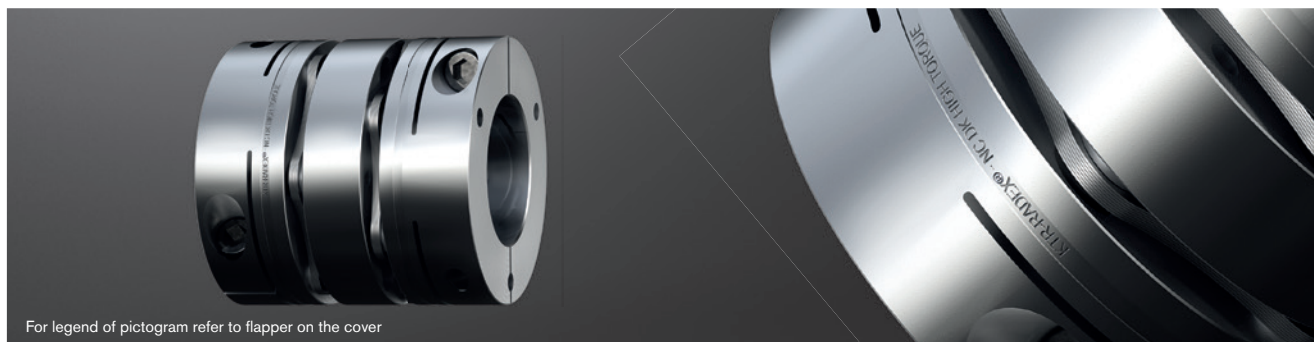
Size	Pilot bored	Ø3	Ø5	Ø8	Ø10	Ø12	Ø14	Ø15	Ø16	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45
5	2.5	1.1	1.8	2.8	3.4	4																
10	4.5		5	7.7	9.5	11.1	12.7	13.5														
16	5.5				23	27	31	33	35	41	43											
21	7.5					28	32	34	36	42	44	48	52	54	59	63						
26	9.5							66	70	81	85	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:

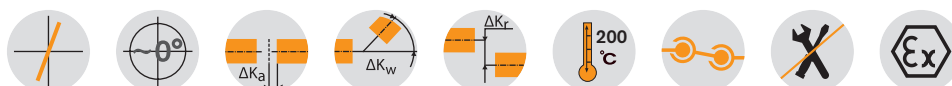
RADEX®-NC 21	DK	2.5 - Ø20		2.5 - Ø25	
Coupling size	Type	Hub type	Finish bore	Hub type	Finish bore

RADEX®-NC DK and EK Servo laminae couplings

Double- and single-cardanic types

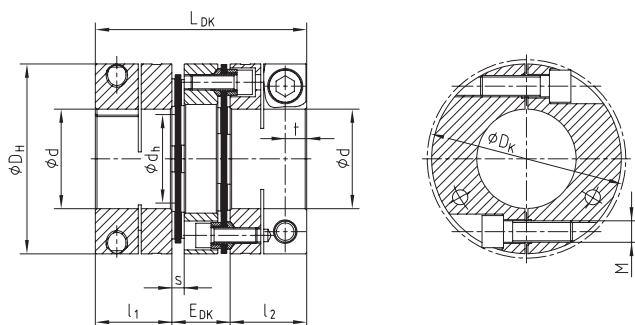


For legend of pictogram refer to flapper on the cover

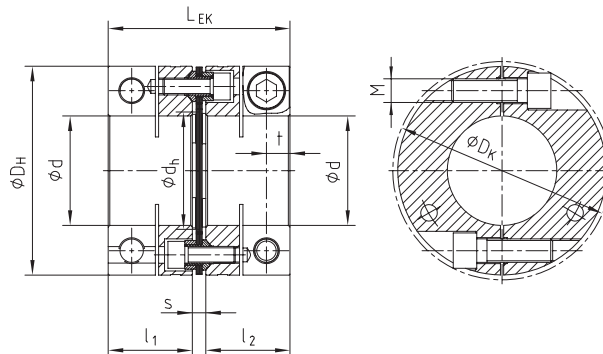


Hub type 3.5/3.6

Type DK



Type EK



ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

TOOLFLEX®

RADEX®-NC

RADEX®-NC Types DK and EK - Hub and spacer material aluminium up to size 61, steel with size 75 / laminae made of stainless steel

Size	Dimensions [mm]										Clamping screws DIN EN ISO 4762		Mass moment of inertia [kgm ²]	
	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

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

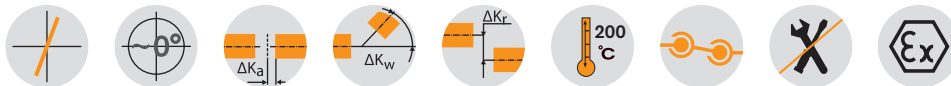
RADEX®-NC DK and EK with clamping ring hubs

Servo laminae couplings

Double- and single-cardanic types



For legend of pictogram refer to flapper on the cover



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 [kgm ²]	
	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.

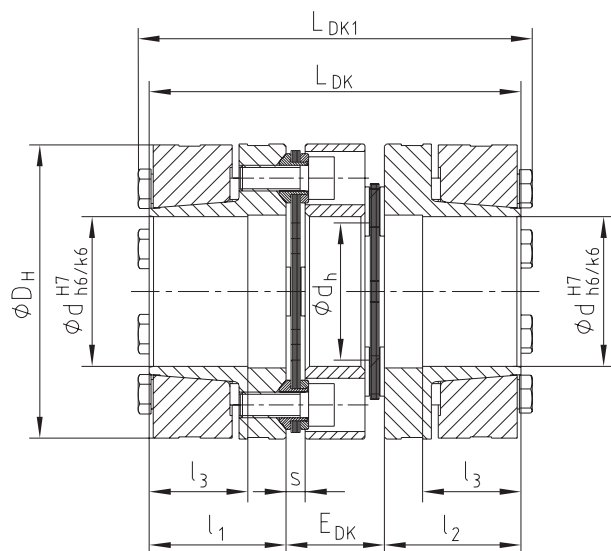
Review of shaft-hub-connection: Friction torques T _R [Nm] for hub type 6.5																											
Size	Tolerance fit	Ø10	Ø12	Ø14	Ø15	Ø16	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55*	Ø60*	Ø65*	Ø70*	Ø75*	Ø80*	
16	H7/h6	29	33	57	70	50	83	97																			
	H7/k6	34	42	64	76	62	96	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

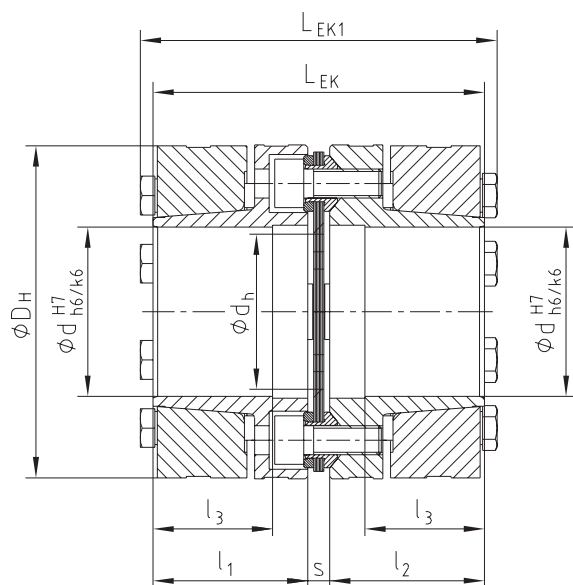
Ordering example:	RADEX®-NC 26	DK	6.5 - Ø24		6.5 - Ø35	
	Coupling size	Type	Hub type	Finish bore	Hub type	Finish bore

Hub type 6.5

Type DK



Type EK



ROTEX® GS

Backlash-free
servo couplings

ROTEX® GS HP

TOOLFLEX®

RADEX®-NC

Types of hubs

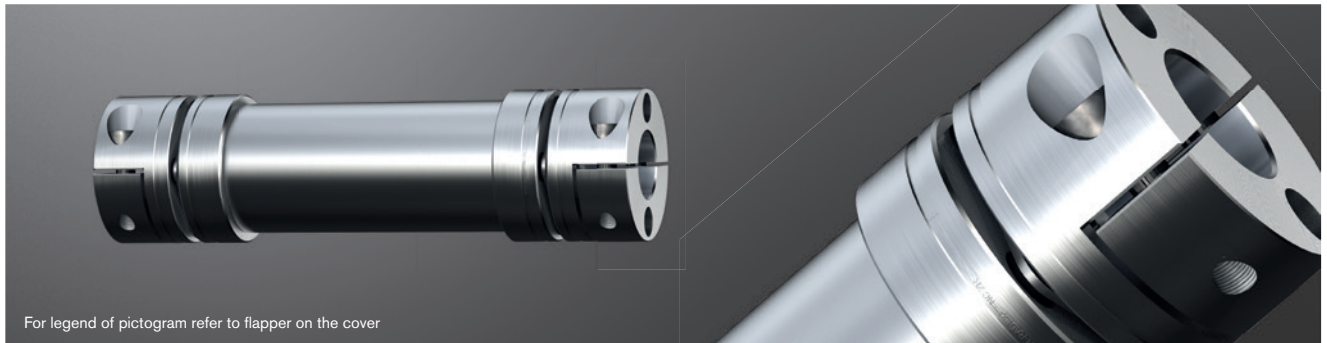


Type 6.5
Clamping ring hub

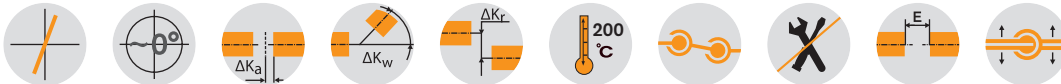
RADEX®-NC ZR

Servo laminae couplings

Double-cardanic type



For legend of pictogram refer to flapper on the cover



RADEX®-NC Type ZR - Hub and spacer material aluminium/laminas made of stainless steel

Size	Finish bore d		Dimensions [mm]											Clamping screws DIN EN ISO 4762	
	min.	Max.	DH	L	l3	General		LZR = LR + 2 • l3		dR	DK	t1	e	M	TA [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	TKN ¹⁾ [Nm]	Moment of inertia [10 ⁻³ kgm ²]		Static torsion spring stiffness [Nm/rad]
		ZR hub ²⁾	Pipe/meter	
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 $L_{pipe} = LZR - 2 \cdot L$.

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.

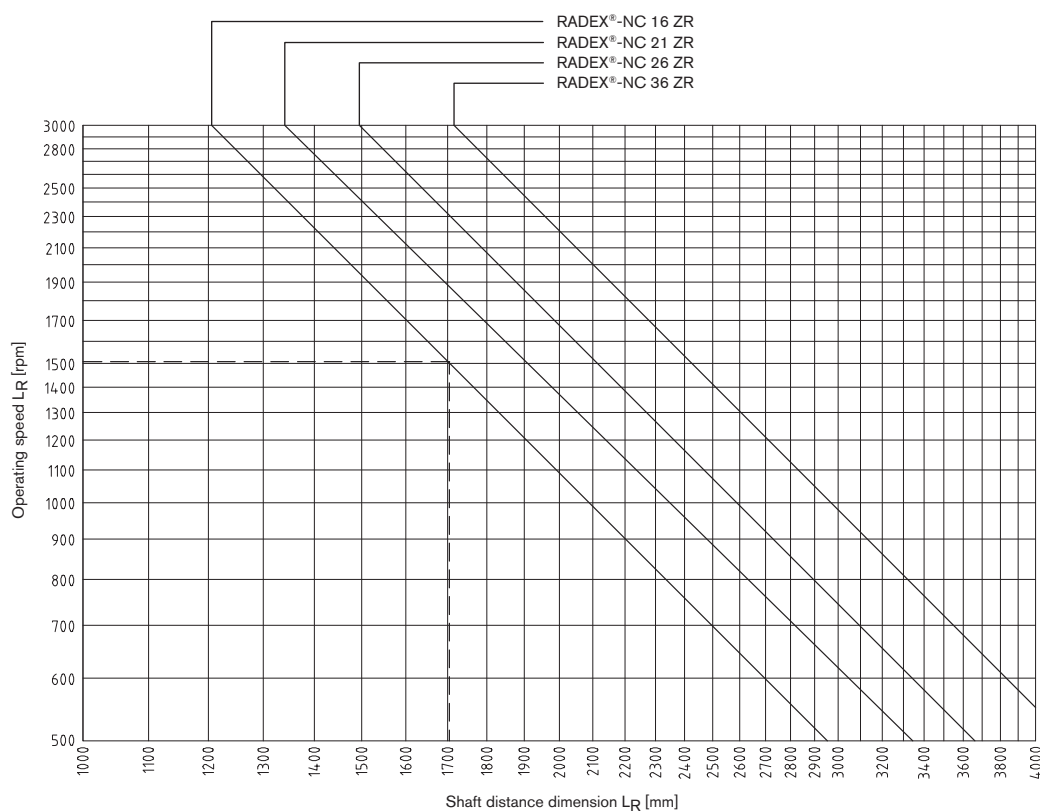
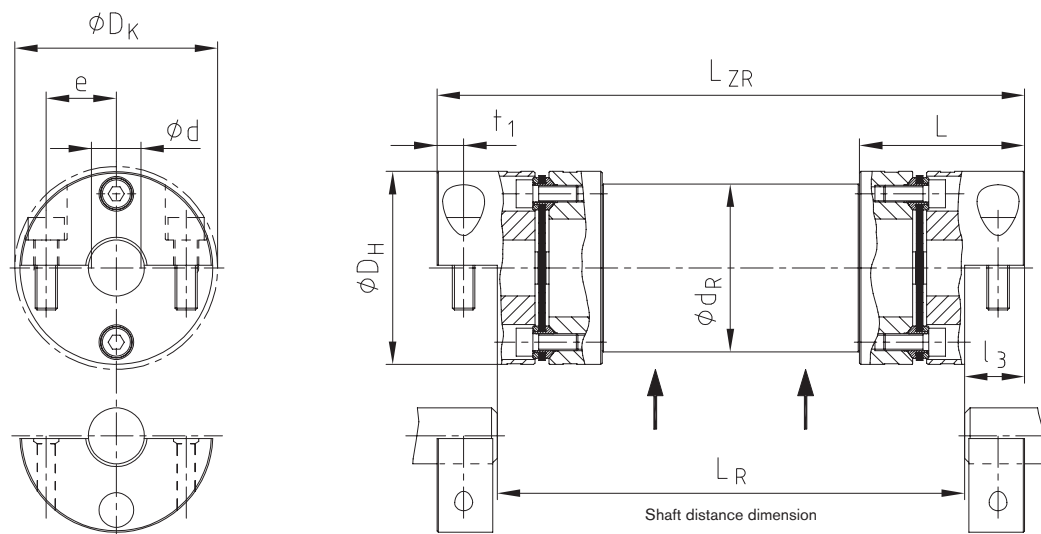
Review of shaft-hub-connection: Friction torques T_R [Nm] for hub type 7.5 for $\varnothing d_1/\varnothing d_2$

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:

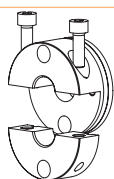
RADEX®-NC 26	ZR	1200 mm	7.5 - Ø24		7.6 - Ø24	
Coupling size	Type	Shaft distance dimension (L_R)	Hub type	Finish bore	Hub type	Finish bore

Components



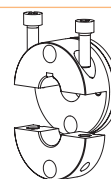
Types of hubs

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

Types and operating description	174
RADEX®-N	
General information and hub types	176
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Standard series NANA 3 for pump drives in accordance with API 610	184
RIGIFLEX®-N	
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Type A	189
Type A-J	190
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RIGIFLEX®-HP	
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RADEX®-N



RIGIFLEX®-N



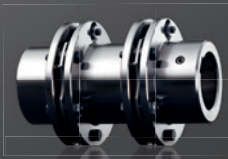
RIGIFLEX®-HP



STEEL LAMINAE COUPLINGS

TYPES AND OPERATING DESCRIPTION

Properties of laminae couplings

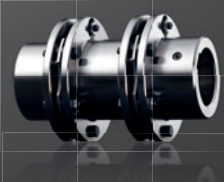
			
Product	RADEX*-N	RIGIFLEX*-N	RIGIFLEX*-HP
Type	Steel laminae coupling		High-performance steel laminae coupling
Properties			
Torsionally stiff	●	●	●
Backlash-free	●	●	●
Maintenance-free	●	●	●
Compensating for misalignment	●	●	●
Special features			
Stock programme	Basic programme available from stock, 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

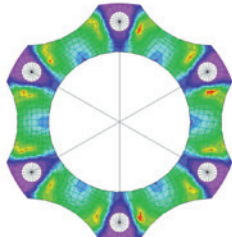
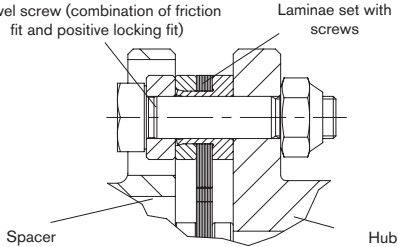
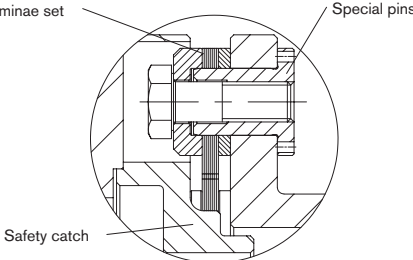
TYPES AND OPERATING DESCRIPTION

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.	 Dowel screw (combination of friction fit and positive locking fit) Laminae set with screws Spacer Hub
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.	 Laminae set Special pins Safety catch

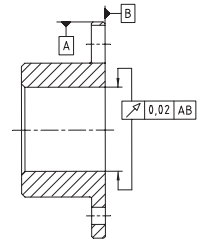
RADEX®-N

Steel laminae couplings

General advice

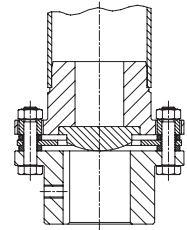
Advice on assembly and operation

See our mounting instructions KTR standard 471 10 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

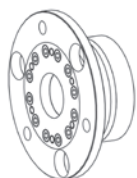
Positive-locking torque transmission, permissible torque depending on the permissible surface pressure. Not suitable for backlash-free torque transmission with heavily reversing operation.

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

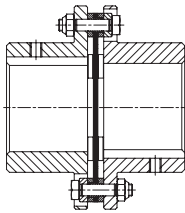
Positive-locking shaft-hub connection with additional friction fit. The friction fit prevents respectively reduces reverse backlash.

RADEX®-N

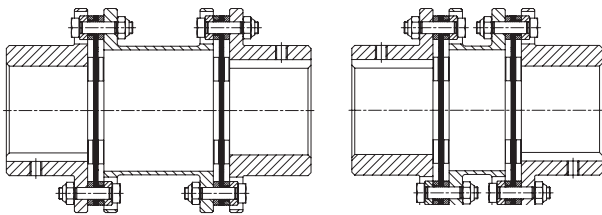
Steel laminae couplings

Types and applications

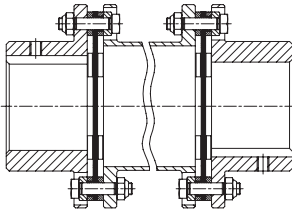
Type NN (see page 180)



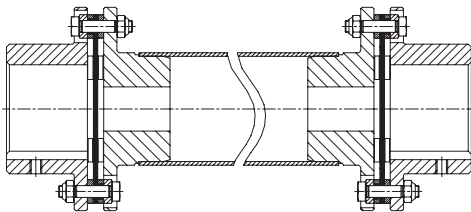
Type NANA 1/NANA 2 (see page 180)



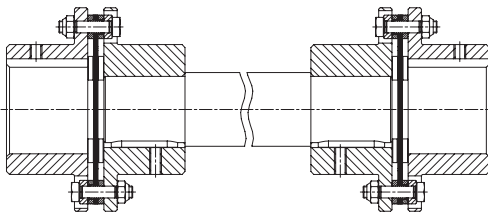
Type NANA 3 (see page 184)



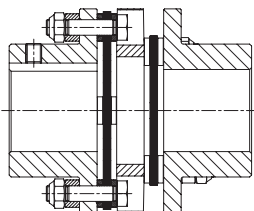
Type NANA 4 (see page 182)



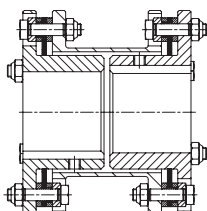
Type NNW (see page 182)



Type NNZ (see page 181)



Type NENE (see page 181)



Properties

- Single-cardanic type
- Only angular and axial displacement permissible
- High torsional rigidity
- Compact dimensions

Applications

- Mixers
- Agitators
- Immersion pumps
- Fans
- Applications with high radial load

- 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

- 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

- 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

- 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

- 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

- 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

RADEX®-N

Laminae couplings

RIGIFLEX®-N

RIGIFLEX®-HP

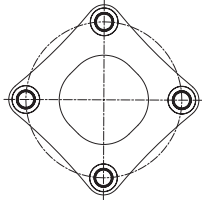
RADEX®-N

Steel laminae couplings

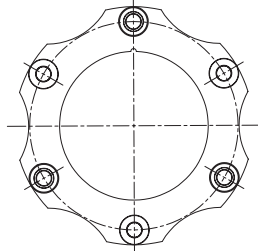
Technical data

The following laminae types are to be distinguished with RADEX®-N:

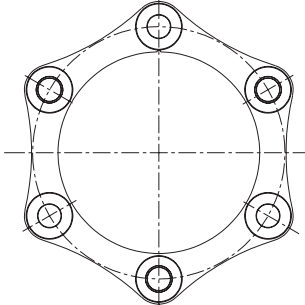
Size 20 – 50
(laminae with 4 holes)



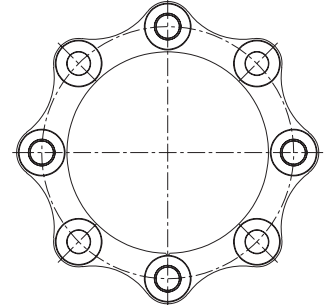
Size 60 – 135
(laminae with 6 holes)



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⁾			
		T _{KN}	T _{K max}	T _{KW}	Angular [°] each laminae	Axial [mm]		Radial [mm]	
						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	laminae with 6 holes	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		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	laminae with 8 holes	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		
138		23000	46000	11500	0.5	1.30	2.6	Depending on 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	laminae with 8 holes	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.

RADEX®-N

Steel laminae couplings

Technical data

Weights and mass moments of inertia						
Size	Hub ¹⁾ [kg] / [kgm ²]	Laminae set [kg] / [kgm ²]	NN ¹⁾ complete [kg] / [kgm ²]	NANA 1 ¹⁾ complete [kg] / [kgm ²]	NANA 2 ¹⁾ complete [kg] / [kgm ²]	NNZ ¹⁾ complete [kg] / [kgm ²]
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	–	–	–
138	16.2 / 0.145	9.9 / 0.143	42.3 / 0.433	Depending on drop-out center dimension E	Depending on 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

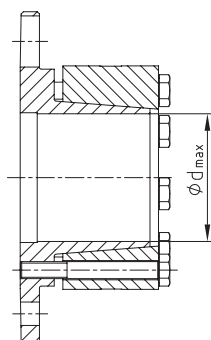
Cylindrical bores

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	According to customer specification		
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			
70	75	M10	20	17.0	206 / 208	210	According to customer specification		
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			

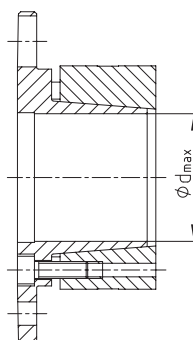
Backlash-free shaft-hub connections without feather key

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.

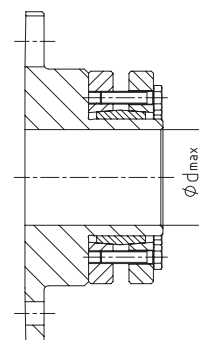
Clamping ring hub type 6.5
(clamping screws from outside)



Clamping ring hub type 6.0
(clamping screws from inside)



Type with CLAMPEX® element type 603

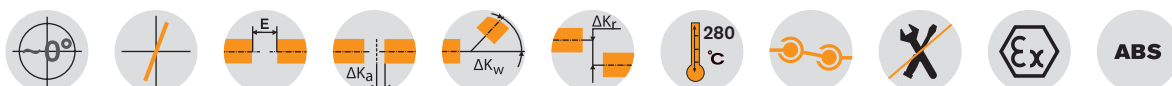


RADEX®-N NN, NANA 1 and NANA 2 Steel laminae couplings

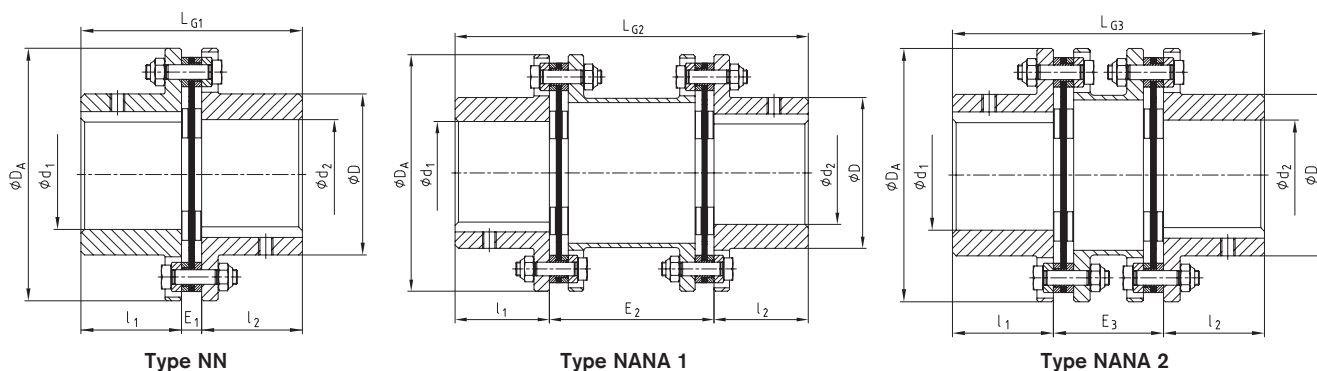
Standard types



For legend of pictogram refer to flapper on the cover



Components



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	According to customer specification			
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				
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

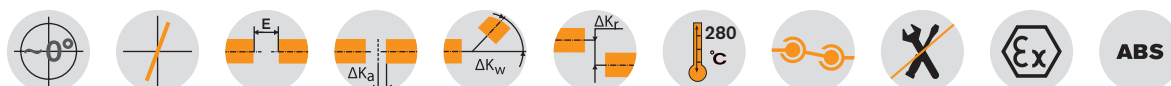
RADEX®-N NENA 1, NENA 2, NENE and NNZ

Steel laminae couplings

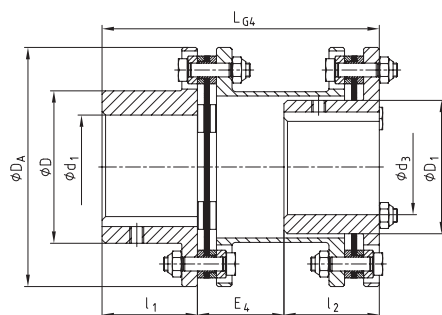
Standard types



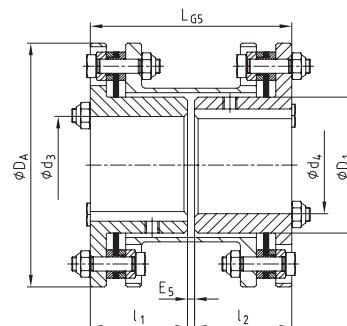
For legend of pictogram refer to flapper on the cover



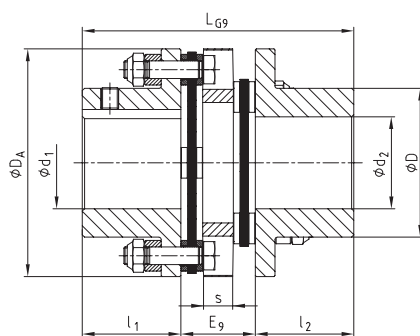
Components



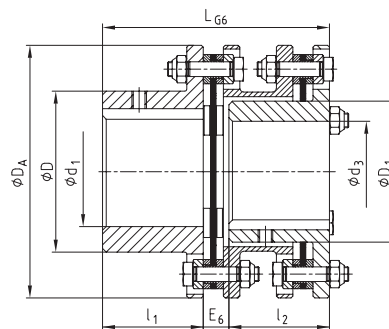
Type NENA 1



Type NENE



Type NNZ



Type NENA 2

RADEX®-N Types NENA 1, NENE, NENA 2, NNZ

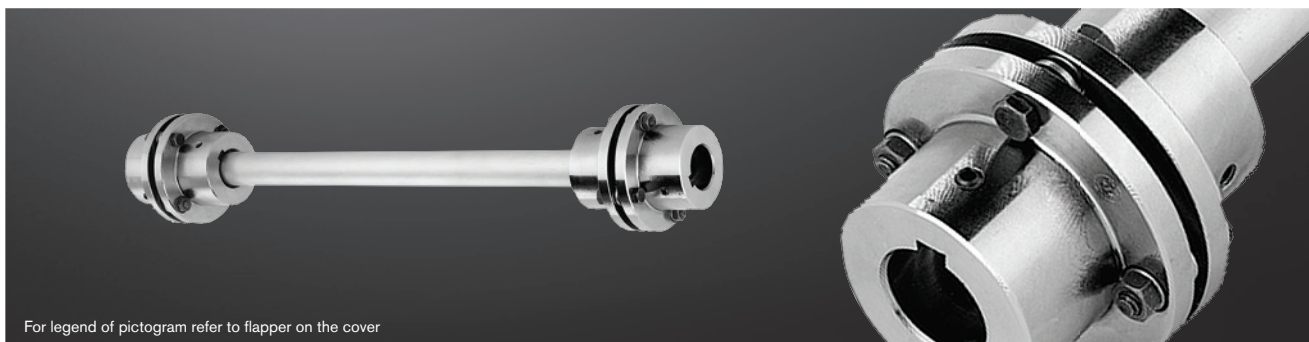
Size	Max. finish bore		Dimensions [mm]											
	d1, d2	d3, d4	D	D1	DA	l1, l2	LG4	E4	LG5	E5	LG6	E6	LG9	E9
20	20	–	32	–	56	20	–	–	–	–	–	–	58	18
25	25	–	40	–	68	25	–	–	–	–	–	–	70	20
35	38	–	54	–	82	40	–	–	–	–	–	–	102	22
38	42	–	58	–	94	45	–	–	–	–	–	–	118	28
42	50	–	68	–	104	45	–	–	–	–	–	–	124	34
50	55	–	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:

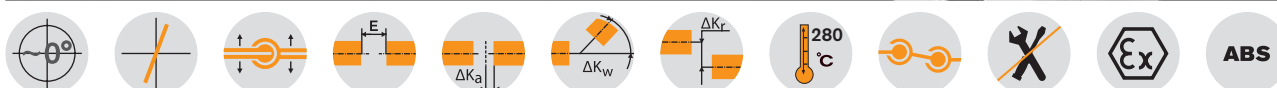
RADEX®-N 60	NENA 1	Ø50	Ø60
Coupling size	Type	Finish bore d ₁	Finish bore d ₂

RADEX®-N NANA 4 and NNW Steel laminae couplings

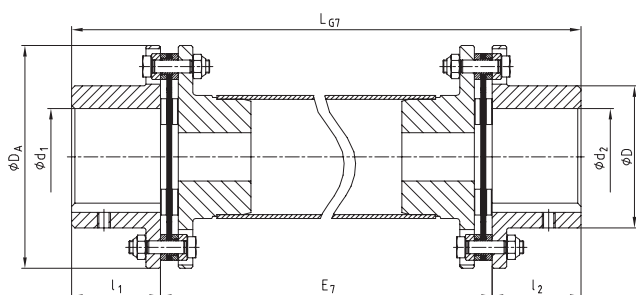
Customised types



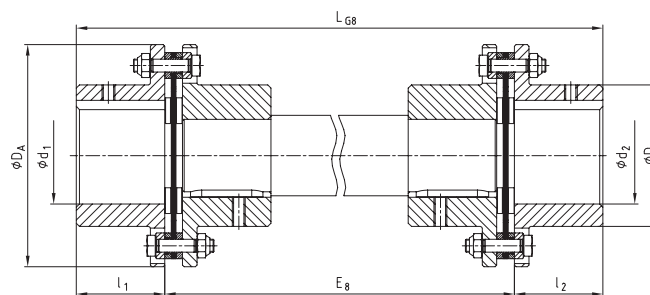
For legend of pictogram refer to flapper on the cover



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	$L_{G7} = E_7 + l_1 + l_2$	Intermediate shaft dimension according to customer specification	$L_{G8} = E_8 + l_1 + l_2$	Intermediate shaft dimension according to customer specification
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				

Ordering
example:

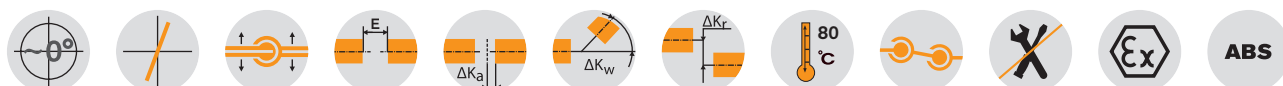
RADEX®-N 60	NANA 4	Ø50	Ø60	2500
Coupling size	Type	Finish bore d_1	Finish bore d_2	Shaft distance dimension

RADEX®-N Composite Steel laminae couplings

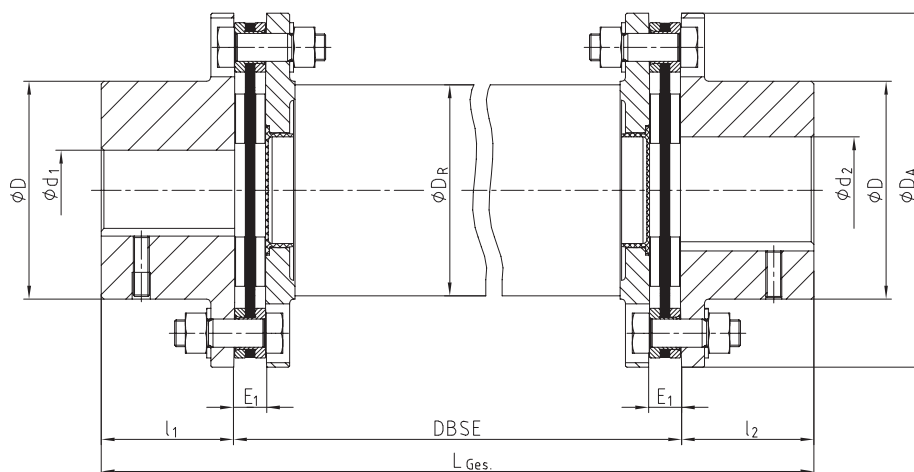
Corrosion-resistant type for large shaft distances



For legend of pictogram refer to flapper on the cover



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



For legend of pictogram refer to flapper on the cover

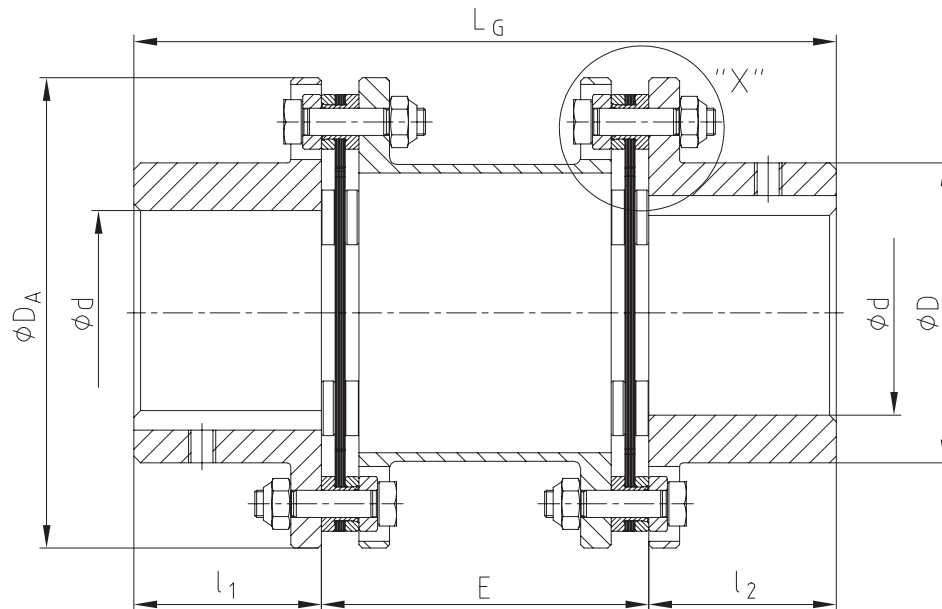


RADEX®-N type NANA 3							
Size	Max. finish bore	Dimensions [mm]				Perm. displacements	
	d	D	D _A	E _{standard} ¹⁾	l ₁ , l ₂	Angular [°] each laminae	Axial [mm]
42	50	68	104	100	45	1.0	2.8
50	55	78	126	140/180	55	1.0	3.2
60	65	88	138	100/140/180/250	55	1.0	2.0
70	75	102	156	100/140/180	65	1.0	2.2
80	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

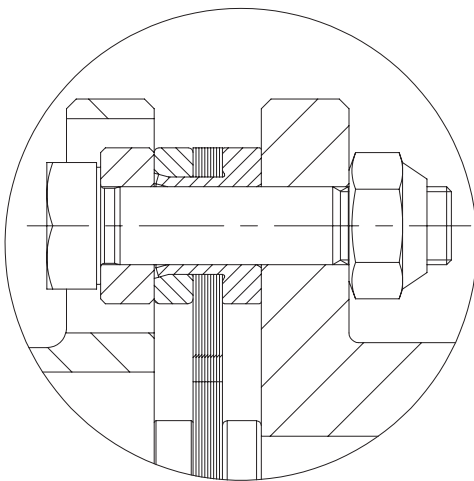
¹⁾ Other distance dimensions E available on request.

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.

RIGIFLEX®-N

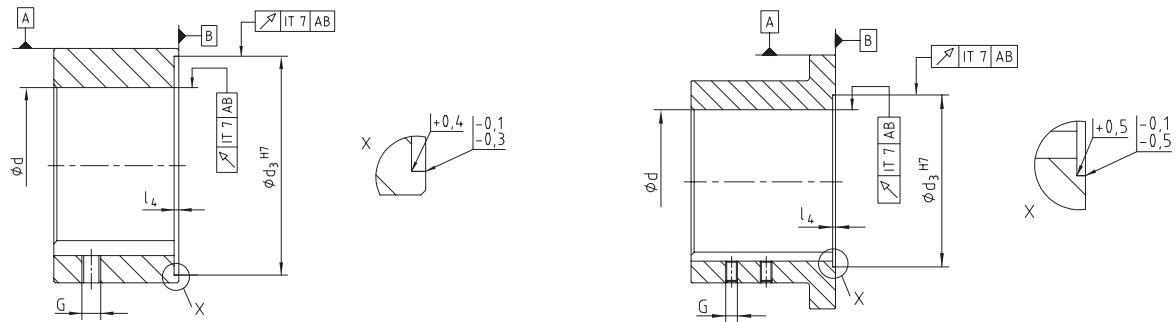
Steel laminae couplings

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).

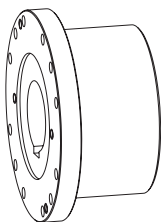
Balancing

On request of the customer the RIGIFLEX®-N couplings can be balanced. Please consult with us, if necessary.

Safety regulations

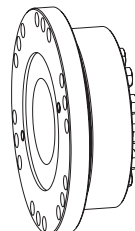
The coupling has to be dimensioned in that the permissible coupling load is not exceeded during any operating condition. For this purpose the actual loads have to be compared to the permissible coupling parameters. The customer has to protect rotating parts from accidental contact (Safety of Machinery 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



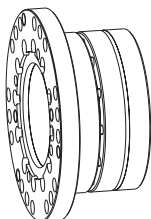
Type 1.0 hub with feather keyway and setscrew

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.

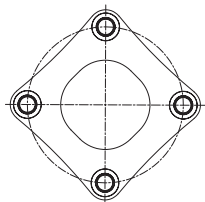
RIGIFLEX®-N

Steel laminae couplings

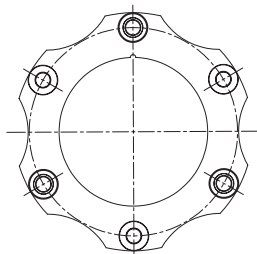
Technical data

The following laminae types are to be distinguished with RIGIFLEX®-N:

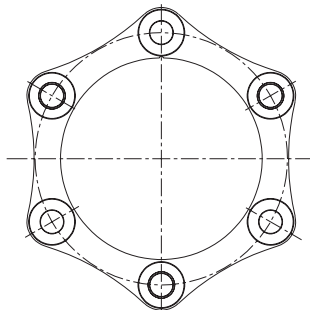
Size 35 – 65
(laminae with 4 holes)



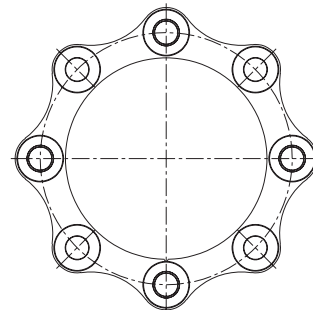
Size 75 – 160
(laminae with 6 holes)



Size 166 – 406
(laminae with 6 holes)



Size 168 – 408
(laminae with 8 holes)



RADEX®-N

Laminae couplings

RIGIFLEX®-N

RIGIFLEX®-HP

Torques and displacements											
Size	Laminae type	Torques [Nm]			Perm. displacements						
		TKN	TK max	TKW	Angular displacement ± K _w ¹⁾ [°]	Axial displacement ± K _a [mm]	Radial ± K _r [mm]				
							E=100	E=140	E=180	E=200	E=250
35	laminae with 4 holes	130	260	65	0.7	1.2	0.90	1.40	–	–	–
50		270	540	135	0.7	1.4	0.77	1.26	–	–	–
65		550	1100	275	0.7	1.5	0.75	1.23	1.72	–	–
75		1100	2200	550	0.7	1.8	0.73	1.22	1.71	–	–
85		1900	3800	950	0.7	2.1	–	1.14	1.62	1.87	2.48
110		3500	7000	1750	0.7	2.4	–	1.05	1.54	1.78	2.39
120		5750	11500	2875	0.7	2.6	–	1.00	1.49	1.73	2.35
140	laminae with 6 holes	10500	21000	5250	0.7	3.3	–	–	–	1.55	2.16
160		16000	32000	8000	0.7	3.8	–	–	–	–	1.99
166		19000	38000	9500	0.7	3.7	Depending on shaft distance dimension E				
196		22500	45000	11250	0.7	4.2					
216		32000	64000	16000	0.7	4.5					
256		52500	105000	26250	0.7	5.2					
306		86000	172000	43000	0.7	6.0					
346		135000	270000	67500	0.7	6.7					
406		210000	420000	105000	0.7	7.5					
168		25000	50000	12500	0.5	2.6					
198		30000	60000	15000	0.5	2.8					
218		42500	85000	21500	0.5	3.0					
258	70000	140000	35000	0.5	3.5						
308	115000	230000	57500	0.5	4.0						
348	180000	360000	90000	0.5	4.5						
408	280000	560000	140000	0.5	5.0						

¹⁾ Angular displacement each laminae set

If axial, angular and radial shaft displacement arises in parallel please note the following table:

Size	Permissible angular displacement							
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7
	Permissible axial displacement							
35	1.20	1.00	0.85	0.74	0.60	0.40	0.20	0.00
50	1.40	1.20	1.00	0.80	0.60	0.40	0.20	0.00
65	1.50	1.29	1.07	0.86	0.64	0.43	0.22	0.00
75	1.80	1.54	1.29	1.03	0.77	0.52	0.26	0.00
85	2.10	1.80	1.50	1.20	0.90	0.60	0.30	0.00
110	2.40	2.06	1.71	1.37	1.03	0.69	0.34	0.00
120	2.60	2.23	1.86	1.48	1.11	0.74	0.37	0.00
140	3.30	2.83	2.36	1.88	1.41	0.94	0.47	0.00
160	3.80	3.26	2.71	2.17	1.63	1.09	0.54	0.00
166	3.70	3.17	2.64	2.12	1.59	1.06	0.53	0.00
196	4.20	3.60	3.00	2.40	1.80	1.20	0.60	0.00
216	4.50	3.86	3.21	2.57	1.93	1.29	0.64	0.00
256	5.20	4.46	3.71	2.97	2.23	1.49	0.74	0.00
306	6.00	5.14	4.29	3.43	2.57	1.72	0.86	0.00
346	6.75	5.79	4.82	3.86	2.89	1.93	0.96	0.00
406	7.50	6.43	5.36	4.28	3.21	2.14	1.07	0.00
168	2.60	2.08	1.56	1.04	0.52	0.00	–	–
198	2.80	2.24	1.68	1.12	0.56	0.00	–	–
218	3.00	2.40	1.80	1.20	0.60	0.00	–	–
258	3.50	2.80	2.10	1.40	0.70	0.00	–	–
308	4.00	3.20	2.40	1.60	0.80	0.00	–	–
348	4.50	3.60	2.70	1.80	0.90	0.00	–	–
408	5.00	4.00	3.00	2.00	1.00	0.00	–	–

RIGIFLEX®-N

Steel laminae couplings

Technical data

Permissible speeds and stiffness figures								
Size	Max. speed [rpm]	each laminae set		ct [Nm/rad] for complete coupling with mounting length E				
		cw [Nm/rad]	ct x 10 ⁶ [Nm/rad]	E=100	E=140	E=180	E=200	E=250
35	23000	170	0.056	65020	56700	–	–	–
50	18000	490	0.27	73953	63990	–	–	–
65	13600	260	0.5	146022	129938	117046	–	–
75	12400	1000	0.67	306145	278381	255234	–	–
85	11000	1500	0.9	–	406641	369429	353265	318433
110	9000	1500	1.5	–	664284	637587	625028	595693
120	8000	3000	2.0	–	1798018	1637553	1567602	1416348
140	6400	10000	3.5	–	–	–	2363340	2226630
160	5600	10350	6.9	–	–	–	–	2654894
166	5600	26800	13.0	Mounting dimension E as indicated by the customer				
196	5200	35800	17.0					
216	4600	41500	19.0					
256	3900	65000	31.0					
306	3300	112000	55.0					
346	2900	205000	79.0					
406	2500	276000	125.0					
168	5600	44300	20.0					
198	5200	82200	26.0					
218	4600	90000	30.0					
258	3900	138000	49.0					
308	3300	234000	83.0					
348	2900	416000	125.0					
408	2500	562000	200.0					

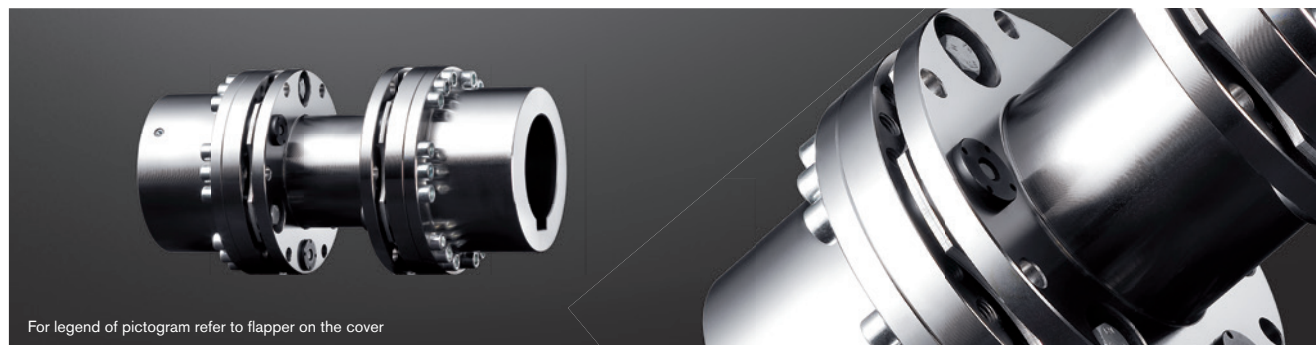
cw = angular stiffness
ct = torsion spring stiffness

Weights and mass moments of inertia												
Size	Hub (max. bore)		Spacer complete [kg]					Spacer complete [kgm ²]				
	[kg]	[kgm ²]	E=100	E=140	E=180	E=200	E=250	E=100	E=140	E=180	E=200	E=250
35	0.60	0.0007	1.030	1.120	–	–	–	0.00040	0.00050	–	–	–
50	0.92	0.001019	2.262	2.442	–	–	–	0.00256	0.00263	–	–	–
65	2.7	0.00541	3.922	4.183	4.445	–	–	0.00810	0.00830	0.00828	–	–
75	2.4	0.00566	4.482	4.842	5.202	–	–	0.01143	0.01191	0.01239	–	–
85	3.7	0.01135	–	7.154	7.548	7.746	8.239	–	0.02364	0.02427	0.02459	0.02538
110	6.7	0.03222	–	12.492	13.478	13.972	15.205	–	0.06291	0.06540	0.06665	0.06976
120	9.2	0.05238	–	–	17.324	17.842	19.137	–	–	0.10314	0.10458	0.10818
140	18.2	0.15175	–	–	–	32.530	34.325	–	–	–	0.31901	0.32845
160	29.9	0.33890	–	–	–	–	52.458	–	–	–	–	0.68640
166	28.0	0.32	Mounting dimension E as indicated by the customer									
196	37.0	0.554										
216	50.0	0.85										
256	95.0	2.35										
306	138.0	4.55										
346	215.0	9.75										
406	310.0	18.95										
168	30.0	0.33										
198	40.0	0.56										
218	52.0	0.88										
258	99.0	2.43										
308	142.0	4.78										
348	222.0	9.83										
408	325.0	19.22										

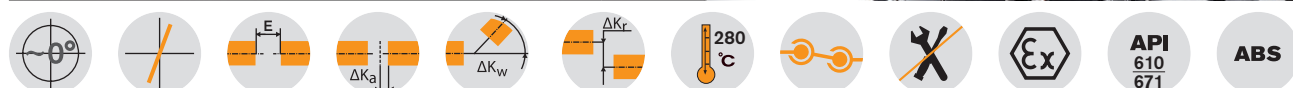
RIGIFLEX®-N

Steel laminae couplings

Standard type A

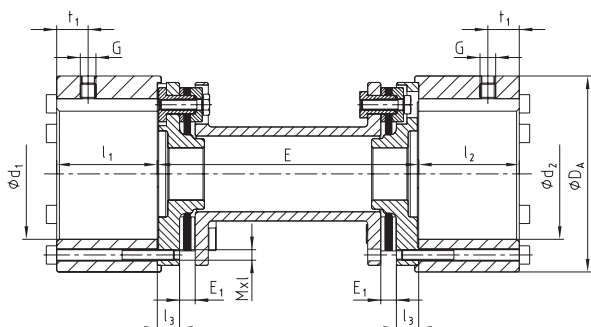


For legend of pictogram refer to flapper on the cover

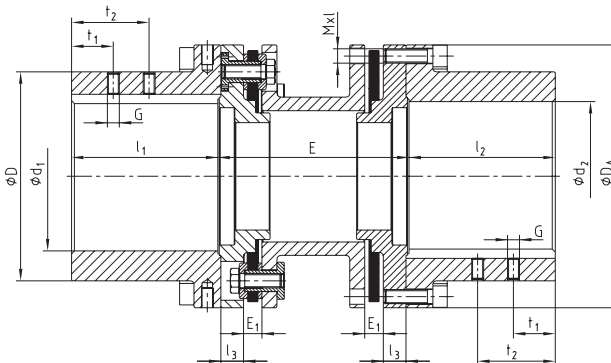


Components

Size 35



Size 50 - 408



RIGIFLEX®-N type A

RIGIFLEX®-N type A																			
Size	Torques [Nm]			Max. finish bore	Dimensions [mm]													Screws DIN EN ISO 4762	
	T _{KN}	T _{K max}	T _{KW}	d ₁ , d ₂	D	D _A	l ₁ , l ₂	l ₃	G	t ₁	t ₂	E ₁	E ¹⁾					Mxl	T _A [Nm]
35	130	260	65	50	–	75	38.5	8.5	M6	15	–	6	100	140	–	–	–	M4x45	4.1
50	270	540	135	50	70	95	50	12	M6	10	–	9	100	140	–	–	–	M6x22	14
65	550	1100	275	70	100	126	63	12	M8	20	–	11	100	140	180	–	–	M6x25	14
75	1100	2200	550	75	105	138	62.5	12	M8	20	–	11	100	140	180	–	–	M8x30	35
85	1900	3800	950	90	120	156	72.5	15	M10	20	–	12	–	140	180	200	250	M8x30	35
110	3500	7000	1750	110	152	191	87	18	M10	25	–	12	–	140	180	200	250	M10x35	69
120	5750	11500	2875	120	165	213	102	20	M12	25	–	12	–	–	180	200	250	M12x40	120
140	10500	21000	5250	150	200	265	126	25	M12	30	–	15	–	–	–	200	250	M16x50	295
160	16000	32000	8000	165	230	305	145	31	M12	30	–	15	–	–	–	–	250	M16x55	295
166	19000	38000	9500	165	230	305	155	31	M16	30	70	17	According to customer specification					M20x50	560
196	22500	45000	11250	195	260	330	185	32	M16	40	90	24						M20x50	560
216	32000	64000	16000	210	285	370	205	32	M20	50	110	26						M20x65	560
256	52500	105000	26250	260	350	440	245	38	M20	70	130	31						M24x80	970
306	86000	172000	43000	305	400	515	295	43	M24	70	130	36	According to customer specification					M27x100	1450
346	135000	270000	67500	350	460	590	335	55	M24	95	175	45						M30x110	1950
406	210000	420000	105000	405	530	675	395	58.5	M24	95	175	50						M36x130	3300
168	25000	50000	12500	165	230	305	155	31	M16	30	70	17	According to customer specification					M20x50	560
198	30000	60000	15000	195	260	330	185	32	M16	40	90	24						M20x50	560
218	42500	85000	21500	210	285	370	205	32	M20	50	110	26						M20x65	560
258	70000	140000	35000	260	350	440	245	38	M20	70	130	31						M24x80	970
308	115000	230000	57500	305	400	515	295	43	M24	70	130	36	According to customer specification					M27x100	1450
348	180000	360000	90000	350	460	590	335	55	M24	95	175	45						M30x110	1950
408	280000	560000	140000	405	530	675	395	58.5	M24	95	175	50						M36x130	3300

¹⁾ Other shaft distance dimensions available on request.

For selection of coupling see page 18 et seqq. Assembly instructions of KTR standard 47410 available at www.ktr.com.

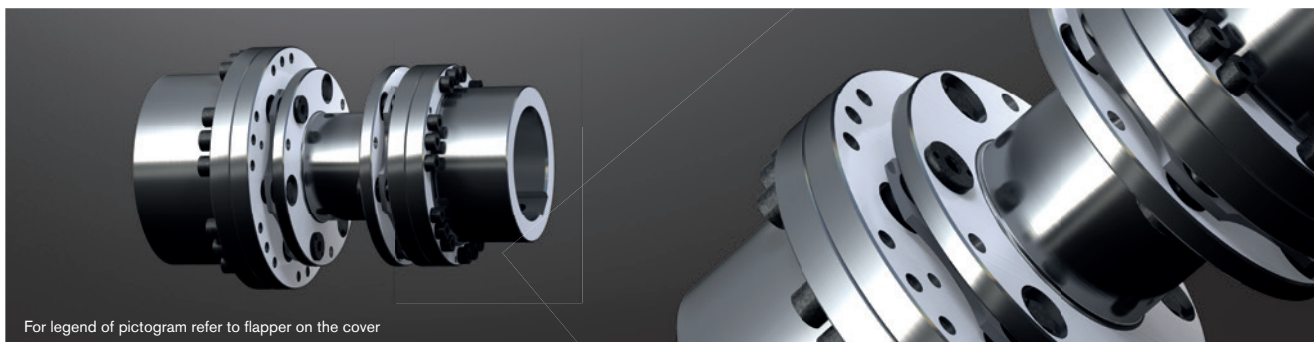
Ordering example:

RIGIFLEX®-N 120	A	Ø 100	Ø 120	200
Coupling size	Type	Bore d ₁	Bore d ₂	Shaft distance dimension E

RIGIFLEX®-N

Steel laminae couplings

Standard type A-J

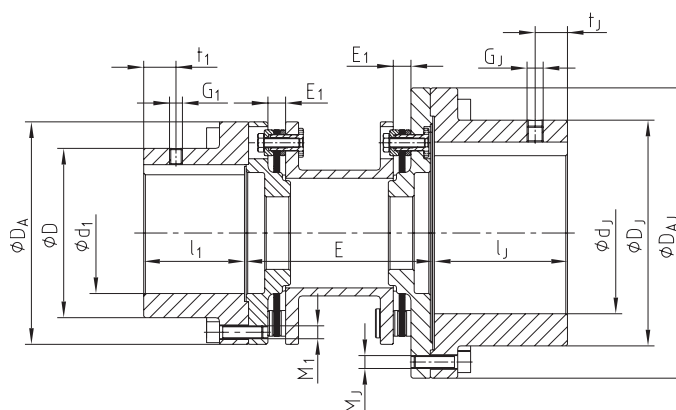


For legend of pictogram refer to flapper on the cover



Components

Size 50 - 140

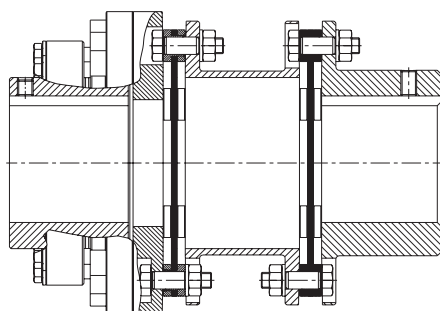


RIGIFLEX®-N type A-J																									
Size	Torques [Nm]			Max. finish bore		Dimensions [mm]															Screws DIN EN ISO 4762				
	T _{KN}	T _{K max}	T _{KW}	d ₁	d _J	D	D _A	l ₁	D _J	D _{AJ}	l _J	G ₁	t ₁	G _J	t _J	E ₁	E ¹⁾					M ₁	T _A [Nm]	M _J	T _{AJ} [Nm]
50	270	540	135	50	70	70	95	50	100	126	63	M6	10	M8	20	9	100	140	–	–	–	M6	14	M6	14
65	550	1100	275	70	90	100	126	63	120	156	72.5	M8	20	M10	20	11	100	140	180	–	–	M6	14	M8	35
75	1100	2200	550	75	100	105	138	62.5	140	180	83	M8	20	M10	20	11	100	140	180	–	–	M8	35	M8	35
85	1900	3800	950	90	110	120	156	72.5	152	191	87.5	M10	20	M10	25	12	–	140	180	200	250	M8	35	M10	69
110	3500	7000	1750	110	150	152	191	87	200	265	127	M10	25	M12	30	12	–	140	180	200	250	M10	69	M16	295
120	5750	11500	2875	120	165	165	213	102	230	305	147	M12	25	M12	30	12	–	–	180	200	250	M12	120	M16	295
140	10500	21000	5250	150	195	200	265	126	260	330	186	M12	30	M16	40/90	15	–	–	–	200	250	M16	295	M20	560
160	16000	32000	8000	165	210	230	305	145	285	370	205	M12	30	M20	50/60	15	–	–	–	200	250	M16	295	M20	560

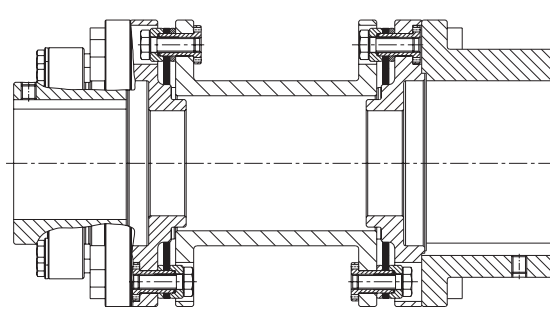
¹⁾ Other shaft distance dimensions available on request.

For selection of coupling see page 18 et seqq. Assembly instructions of KTR standard 47410 available at www.ktr.com.

Other types:



For RADEX®-N with integrated slipping unit
see dimension sheet 699206



For RIGIFLEX®-N with integrated slipping unit
see dimension sheet 698869

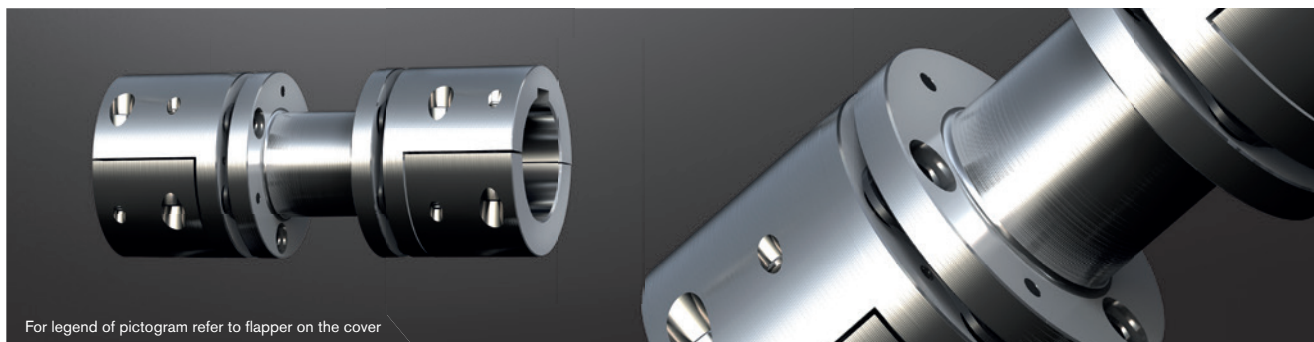
Ordering example:

RIGIFLEX®-N 85	A-J	Ø 80	Ø 120	200
Coupling size	Type	Bore d ₁	Bore d _J	Shaft distance dimension E

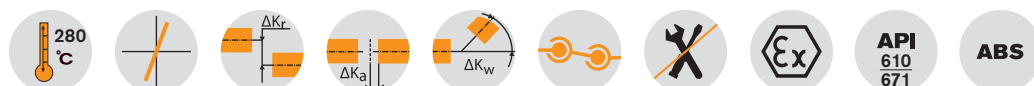
RIGIFLEX®-N

Steel laminae couplings

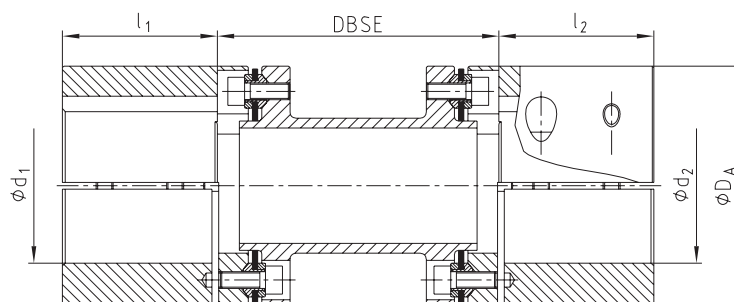
Standard type A-H



For legend of pictogram refer to flapper on the cover



Components

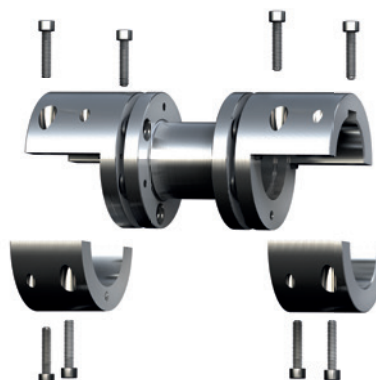


RIGIFLEX®-N type A-H											
Size	Torques [Nm]		Max. finish bore [mm]	Dimensions [mm]							
	T _{KN}	T _{K max}	d ₁ , d ₂	D _A	l ₁ , l ₂	Standard shaft distance dimension DBSE ¹⁾				Perm. axial displacement	Perm. angular displacement (per laminae set [°])
46	90	180	42	69	45					+/- 1.4	1.0
56	255	510	55	85	55	100				+/- 1.2	0.7
66	450	900	65	105	65		140	180	250	+/- 1.6	0.7
76	975	1950	75	124	75					+/- 1.8	0.7
86	1500	3000	85	145	85	-				+/- 2.2	0.7
106	2400	4800	105	168	105		-			+/- 2.4	0.7

¹⁾ Other shaft distance dimensions (DBSE) available on request

Benefits of type A-H:

- Hub type 7.6 - half shell hub
- Easy and quick radial assembly and disassembly
- Type according to API 610 and 671 (see exceptions)
- Drop-out protection of spacer with fracture of laminae following API 671



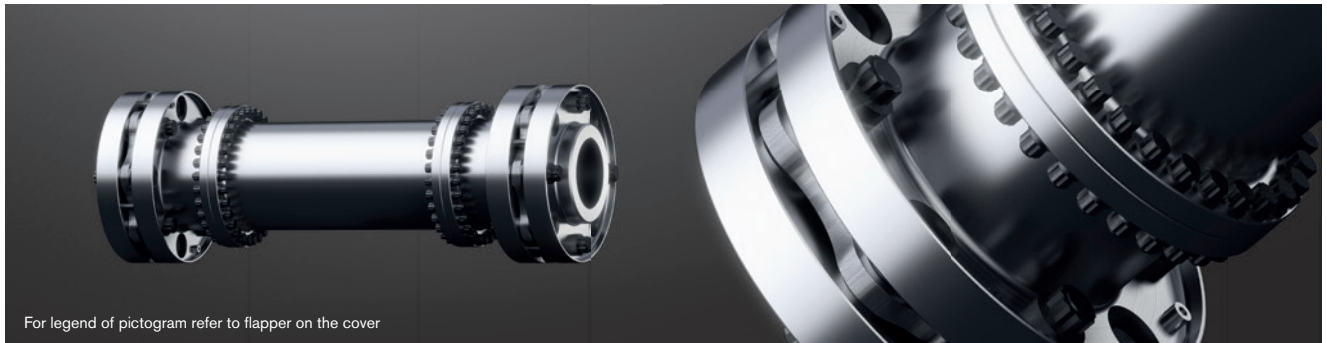
Ordering example:

RIGIFLEX®-N 66	A-H	Ø 42	Ø 48	140
Coupling size	Type	Bore d ₁	Bore d ₂	Shaft distance dimension DBSE

RIGIFLEX®-HP C

High-performance steel laminae couplings

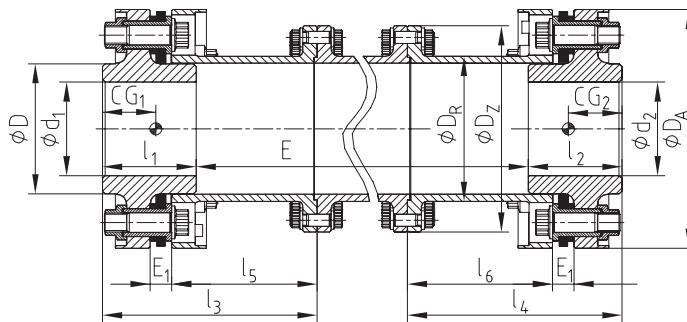
Flange connection



For legend of pictogram refer to flapper on the cover



Components



RIGIFLEX®-HP type C														
Size	Torques [Nm]		Max. finish bore	Dimensions [mm]										
	T _{KN}	T _{K max}		d ₁ , d ₂	D	D _A	D _Z	D _R	E ₁	E	E _{min}	CG ₁ , CG ₂ ²⁾	l ₁ , l ₂	l ₃ , l ₄
158	20000	26000	85	119	220	195	135	17	According to customer specification	335	46	85	189	130
168	30000	39000	100	139	255	220	155	23		395	55	100	229	155
188	38000	49400	105	147	265	235	165	23		375	55	105	229	155
208	50000	65000	120	168	298	245	186	23		350	57	120	229	155
228	59000	76700	125	178	315	270	199	33		425	65	125	265	175
248	72000	93600	140	196	335	300	217	33		395	67	140	265	175
278	115000	149500	160	225	380	335	248	33		355	70	160	265	175
318	180000	234000	180	252	445	370	280	48		495	88	180	348	225
358	253000	328900	210	295	500	415	326	48		435	93	210	348	225
388	330000	429000	235	330	545	464	362	48		400	97	235	348	225

Technical data								
Size	Max. speed [rpm]	Perm. displacements			Stiffness figures			
		Angular ¹⁾	Axial	Radial ²⁾	each laminae set	Spacer	Coupling complete ²⁾	
		± K _w [°]	± K _a [mm]	± K _r [mm]	c _t [Nm/rad]	c _{tR} [Nm · mm/rad]	c _{tE} = 457.2 [Nm/rad]	
158	17300	0.25	3.0	2.30	13.0 · 10 ⁶	839 · 10 ⁶	1.04 · 10 ⁶	
168	14900	0.25	3.0	2.32	18.0 · 10 ⁶	1535 · 10 ⁶	1.79 · 10 ⁶	
188	14400	0.25	3.3	2.37	28.0 · 10 ⁶	1974 · 10 ⁶	2.23 · 10 ⁶	
208	12800	0.25	3.8	2.50	35.0 · 10 ⁶	2876 · 10 ⁶	3.15 · 10 ⁶	
228	12100	0.25	4.0	2.44	39.5 · 10 ⁶	4123 · 10 ⁶	5.06 · 10 ⁶	
248	11400	0.25	4.2	2.58	60.0 · 10 ⁶	5410 · 10 ⁶	5.51 · 10 ⁶	
278	10000	0.25	4.5	2.75	80.0 · 10 ⁶	8592 · 10 ⁶	7.94 · 10 ⁶	
318	8500	0.25	5.2	2.70	105.0 · 10 ⁶	14724 · 10 ⁶	13.00 · 10 ⁶	
358	7600	0.25	6.0	2.96	155.0 · 10 ⁶	26258 · 10 ⁶	20.30 · 10 ⁶	
388	7000	0.25	6.5	3.18	225.0 · 10 ⁶	37596 · 10 ⁶	27.70 · 10 ⁶	

¹⁾ Per laminae set ²⁾ with E=457.2 mm and cylindrical maximum finish bore

Size	Coupling ²⁾			Spacer	
	m [kg]	J [kgm ²]	m _R [kg/mm]	J _R [kgm ² /mm]	
158	45	0.274	20.28 · 10 ⁻³	81 · 10 ⁻⁶	
168	69	0.577	27.282 · 10 ⁻³	149 · 10 ⁻⁶	
188	78	0.711	30.975 · 10 ⁻³	191 · 10 ⁻⁶	
208	97	1.081	35.118 · 10 ⁻³	279 · 10 ⁻⁶	
228	123	1.561	44.397 · 10 ⁻³	400 · 10 ⁻⁶	
248	144	2.109	48.614 · 10 ⁻³	524 · 10 ⁻⁶	
278	190	3.542	58.694 · 10 ⁻³	833 · 10 ⁻⁶	
318	306	7.792	79.311 · 10 ⁻³	1427 · 10 ⁻⁶	
358	405	12.869	104.041 · 10 ⁻³	2545 · 10 ⁻⁶	
388	525	19.257	120.151 · 10 ⁻³	3644 · 10 ⁻⁶	

$c_t \text{ total} = 1 / ((1/c_tE = 457.2) + ((E - 457.2 \text{ mm}) / c_tR))$
 $m_{\text{total}} = m + m_R \cdot (E - 457.2 \text{ mm})$
 $J_{\text{total}} = J + J_R \cdot (E - 457.2 \text{ mm})$

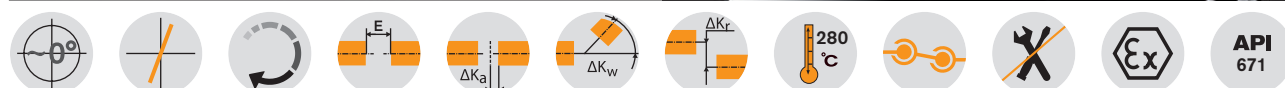
RIGIFLEX®-HP L

High-performance steel laminae couplings

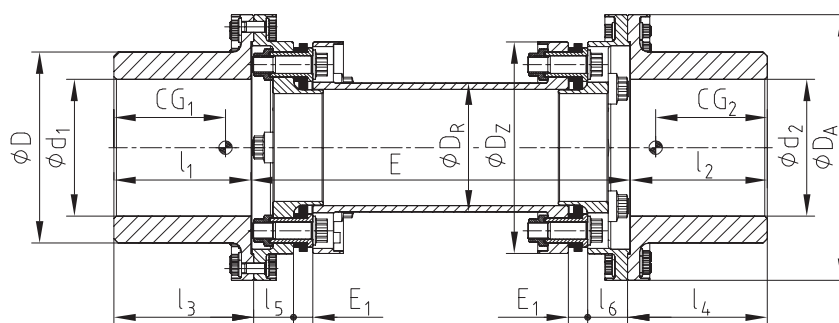
Type with flange hubs



For legend of pictogram refer to flapper on the cover



Components



RIGIFLEX®-HP type L												
Size	Torques [Nm]		Max. finish bore	Dimensions [mm]								
	T _{KN}	T _{K max}		d ₁ , d ₂	D	D _A	D _Z	D _R	E ₁	E	E _{min.}	CG ₁ , CG ₂ ²⁾
158	20000	26000	150	210	310	220	135	17	According to customer specification	265	140	150
168	30000	39000	165	230	320	255	155	23		340	148	165
188	38000	49400	180	250	335	265	165	23		340	156	180
208	50000	65000	200	280	362	298	186	23		340	165	200
228	59000	76700	220	310	390	315	199	33		390	179	220
248	72000	93600	240	340	420	334	217	33		390	185	235
278	115000	149500	270	380	455	380	248	33		390	202	270
318	180000	234000	315	445	550	445	280	48		510	246	315
358	253000	328900	350	490	600	500	326	48		510	263	350
388	330000	429000	380	535	650	545	362	48		510	277	380

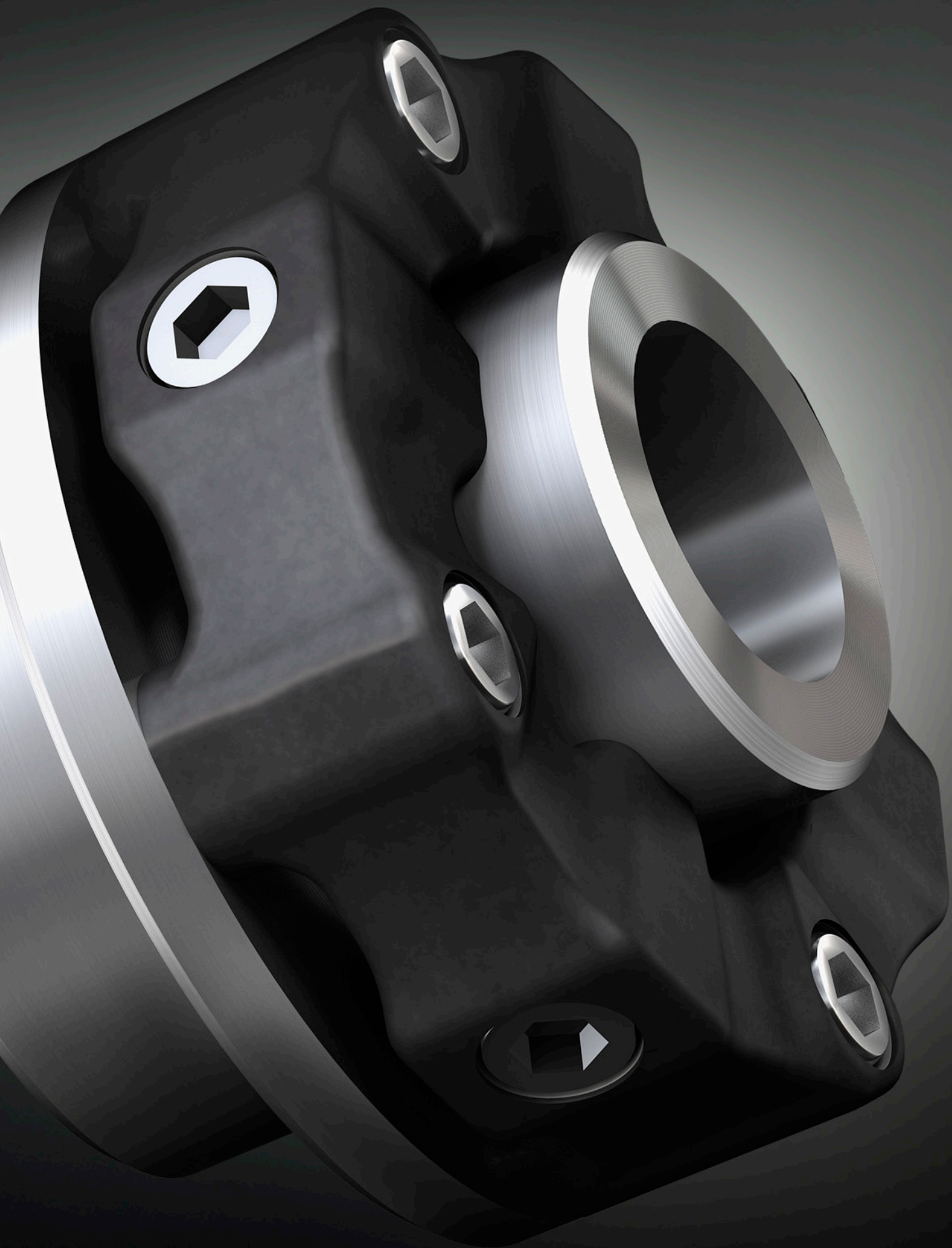
Technical data							
Size	Max. speed [rpm]	Perm. displacements			Stiffness figures		
		Angular ¹⁾	Axial	Radial ²⁾	each laminae set	Spacer	Coupling complete ²⁾
		± K _W [°]	± K _A [mm]	± K _R [mm]	c _t [Nm/rad]	c _{tR} [Nm · mm/rad]	c _{tE} = 457.2 [Nm/rad]
158	13800	0.25	3.0	1.56	13.0 · 10 ⁶	839 · 10 ⁶	1.70 · 10 ⁶
168	12300	0.25	3.0	1.45	18.0 · 10 ⁶	1535 · 10 ⁶	3.00 · 10 ⁶
188	11400	0.25	3.3	1.45	28.0 · 10 ⁶	1974 · 10 ⁶	4.08 · 10 ⁶
208	10500	0.25	3.8	1.45	35.0 · 10 ⁶	2876 · 10 ⁶	5.61 · 10 ⁶
228	9700	0.25	4.0	1.34	39.5 · 10 ⁶	4123 · 10 ⁶	7.77 · 10 ⁶
248	9000	0.25	4.2	1.34	60.0 · 10 ⁶	5410 · 10 ⁶	10.70 · 10 ⁶
278	8300	0.25	4.5	1.34	80.0 · 10 ⁶	8592 · 10 ⁶	15.60 · 10 ⁶
318	6900	0.25	5.2	1.13	105.0 · 10 ⁶	14724 · 10 ⁶	26.90 · 10 ⁶
358	6300	0.25	6.0	1.13	155.0 · 10 ⁶	26258 · 10 ⁶	41.20 · 10 ⁶
388	5800	0.25	6.5	1.13	225.0 · 10 ⁶	37596 · 10 ⁶	61.30 · 10 ⁶

¹⁾ Per laminae set ²⁾ with E=457.2 mm and cylindrical maximum finish bore

Size	Coupling ²⁾		Spacer	
	m [kg]	J [kgm ²]	m _R [kg/mm]	J _R [kgm ² /mm]
158	80	0.717	20.28 · 10 ⁻³	81 · 10 ⁻⁶
168	115	1.327	27.282 · 10 ⁻³	149 · 10 ⁻⁶
188	135	1.759	30.975 · 10 ⁻³	191 · 10 ⁻⁶
208	175	2.771	35.118 · 10 ⁻³	279 · 10 ⁻⁶
228	235	4.525	44.397 · 10 ⁻³	400 · 10 ⁻⁶
248	285	6.417	48.614 · 10 ⁻³	524 · 10 ⁻⁶
278	375	10.381	58.694 · 10 ⁻³	833 · 10 ⁻⁶
318	642	24.810	79.311 · 10 ⁻³	1427 · 10 ⁻⁶
358	812	38.404	104.041 · 10 ⁻³	2545 · 10 ⁻⁶
388	1016	57.062	120.151 · 10 ⁻³	3644 · 10 ⁻⁶

Ordering example:

RIGIFLEX®-HP 188	L	Ø 160	Ø 180	457.2
Coupling size	Type	Bore d ₁	Bore d ₂	Shaft distance dimension E



highly flexible shaft couplings

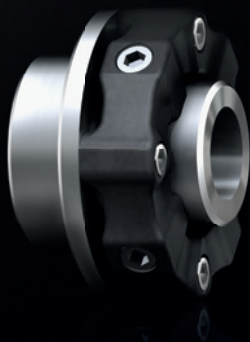
Types and operating description	196
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EVOLASTIC® NEW	
Description of product and application	198
Type E	200
Type EH	201
Type E2H	202
Type EFH	203
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Type EHP	205
Type E2HP	206
Type EFHP	207
Type D2H	208
Type DFH	209

BoWex-ELASTIC®	
Type HEW Compact	218

Highly flexible
shaft couplings

EVOLASTIC® **NEW**



BoWex-ELASTIC® HEW Compact



HIGHLY FLEXIBLE SHAFT COUPLINGS

TYPES AND OPERATING DESCRIPTION

Properties of highly flexible shaft couplings

		
Product	EVOLASTIC®	BoWex® HEW Compact
Type	Highly flexible jaw coupling	Highly flexible gear coupling
Properties		
Highly flexible	●	●
Damping vibrations	●	
Maintenance-free	●	●
Axial plug-in	●	●
Shear type		●
Fail-safe	●	
Compensating for misalignment	●	●
Types		
Variant diversity	very high	medium
Special features	reducing torsional vibrations and compensating for misalignment above average with compact dimensions, extremely flexible for individual drives	this type combines a compact design, ability for axial plug-in and low restoring forces
Applications / core industries	flexible all-rounder coupling for wide applications in mechanical and plant engineering	applications critical to rotation such as screw compressors, piston compressors or transfer pumps
Torque range T_{KN} [Nm]		
Min.	100	200
Max.	5,600	8,400
Max. circumferential speed v [m/s]		
Steel + cast EN-GJS (dynamic balancing)	60	50
Hub materials available		
Steel (semi-finished product) » customised solutions available	●	●
Stainless steel	○	○
Corrosion-protected types	○	○
Spiders / elastomers		
Material	NR + EPDM	NR + EPDM
Degree of hardness	highly flexible compounds W, S, M	40 - 70 Shore A
Temperature range in °C, min. / max. (standard)	-40 / +80	-40 / +100
Temperature range in °C, min. / max. (special)	-30 / +100	-30 / +120

● ≈ Standard
○ ≈ On request

HIGHLY FLEXIBLE SHAFT COUPLINGS

TYPES AND OPERATING DESCRIPTION

Product finder for highly flexible shaft couplings

		
Product	EVOLASTIC®	BoWex® HEW Compact
Type	Highly flexible jaw coupling	Highly flexible gear coupling
Geometries		
Design	short	short
Mass moment of inertia	low	low
Shaft distance dimension	low	low
Types (extract)		
Elastomers can be radially disassembled » without displacing driving/driven side	D2H, DFH	–
Intermediate shaft types » bridging larger shaft distances	D2H, DFH	–
shaft-to-shaft connection	EH, E2H, EHP, E2HP	Standard
flange-to-shaft connection	EFH, EFHP	–
Flange-to-flange connection » particularly short mounting length	customised	–
Double-cardanic » compensating for big displacements, lower restoring forces	D2H, DFH	–
Certifications / type examinations		
ATEX 	○	●
GOST R / GOST TR 	○	●
DNV/GL 	○	●
Bureau Veritas 	○	●

● ≈ Standard
○ ≈ On request

Highly flexible
shaft couplings

EVOLASTIC®

Highly flexible couplings

Description of product and application

The EVOLASTIC® is a highly flexible, non-slip and backlash-free shaft and flange coupling for versatile use in a large number of main and auxiliary drives in mechanical and plant engineering.

Subject to the elastomer element pre-stressed to pressure, the coupling is able to reduce torsional vibrations in the drive train and absorb overload shocks smoothly. Structure-borne noise is efficiently damped. At the same time it offsets misalignment above average in three dimensions (axially, radially and angularly).

The key component of this series is a vulcanised, circularly closed elastomer element made of natural rubber (WN, SN, MN, up to 80 °C) or for higher temperatures made of synthetical EPDM material (WE, SE, ME, up to 100 °C). The various kinds of rubber hardness cover one application and torque range per size.

The basic variants distinguish between directly screwed types and plug-gable types. They cover all convenient mounting conditions ranging from a finished individual component through hub/hub and flange/hub applications to the driving shaft. Apart from that the product portfolio allows for highly individual and flexible mounting options, tailor-made for the special application.



NEW

Technical data													
Size	Elastomer type ²⁾	Torque [Nm] ¹⁾				Dynamic torsion spring stiffness C _{dyn.} [Nm/rad]		Relative damping ψ [-]		Perm. damping power P _{KW} [W]		Operating speed [rpm]	
		TKN	TKmax	TKmax1	TKW	30 °C	60 °C	30 °C	60 °C	30 °C	60 °C	n	n _{max.}
12	SN	100	200	300	40	900	720	0.80	0.64	25	15	4,500	5,000
	MN	120	240	360	48	1,500	1,200	1.10	0.88			5,400	6,000
24	SN	200	400	600	80	2,000	1,600	0.80	0.64	40	24	3,780	4,200
	MN	240	480	720	96	3,600	2,880	1.10	0.88			4,500	5,000
32	SN	280	560	840	112	6,500	5,200	0.80	0.64	50	30	3,800	4,200
	MN	320	640	960	128	9,500	7,600	1.10	0.88			4,500	5,000
48	SN	420	840	1,260	168	6,800	5,440	0.80	0.64	75	45	3,780	4,200
	MN	480	960	1,440	192	13,500	10,800	1.10	0.88			4,500	5,000
60	SN	500	1,000	1,500	200	4,600	3,680	0.80	0.64	80	48	3,240	3,600
	MN	600	1,200	1,800	240	7,750	6,200	1.10	0.88			3,600	4,000
86	SN	760	1,520	2,280	304	12,500	10,000	0.90	0.72	90	54	3,600	4,000
	MN	860	1,720	2,580	344	21,000	16,800	1.10	0.88			4,050	4,500
125	SN	1,100	2,200	3,300	440	8,800	7,040	0.80	0.64	120	72	2,880	3,200
	MN	1,250	2,500	3,750	500	16,000	13,600	1.10	0.88			3,240	3,600
200	SN	1,700	3,400	5,100	680	29,000	23,200	0.90	0.72	150	90	3,060	3,400
	MN	2,000	4,000	6,000	800	44,000	35,200	1.10	0.88			3,240	3,600
280	WN	2,400	4,800	7,200	960	38,000	30,400	0.70	0.56	170	102	2,700	3,000
	MN	2,800	5,600	8,400	1,120	78,000	62,400	1.10	0.88			3,060	3,400
360	WN	3,200	6,400	9,600	1,280	48,500	38,800	0.70	0.56	200	120	2,700	3,000
	SN	3,400	6,800	10,200	1,360	67,000	53,600	0.90	0.72			3,060	3,400
560	MN	3,600	7,200	10,800	1,440	115,000	92,000	1.10	0.88	240	144	3,060	3,400
	WN	5,000	10,000	14,000	2,000	73,500	58,800	0.80	0.64			2,250	2,500
560	SN	5,200	10,400	14,000	2,080	105,000	84,000	1.00	0.80	240	144	2,520	2,800
	MN	5,600	11,200	14,000	2,240	138,000	110,400	1.10	0.88			2,700	3,000

¹⁾ T_{KN} Torque that can be constantly transmitted over the entire speed range.

T_{Kmax} Transient torque peaks (e. g. resonance passage), max. 100,000 load alternation pulsating / 50,000 load alternation vibratory

T_{Kmax1} Impact loads rarely, max. 1,000 load alternation

For selection consider DIN 740 part II (operating factor, temperature factor), parameters for an ambient temperature of 30 °C.

²⁾ Higher strength on request.

Types

Types axially screwed+	
E	Elastomer + set of screws
EH	Elastomer + hub
E2H	Elastomer + two hubs
EFH	Elastomer + flange + hub
D2H	Two elastomers + intermediate shaft + two hubs
DFH	Two elastomers + intermediate shaft + flange and hub



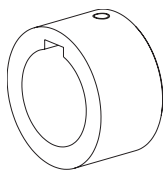
Types plugged in axially	
EP	Elastomer + locking pin
EHP	Elastomer + pluggable hub
E2HP	Elastomer + two pluggable hubs
EFHP	Elastomer + flange + pluggable hub



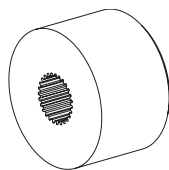
EVOLASTIC®

Highly flexible couplings

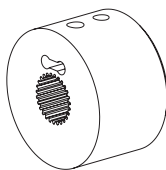
Types of hubs



Type 1.0
with feather keyway
and setscrew



Type 1.3
spline toothing



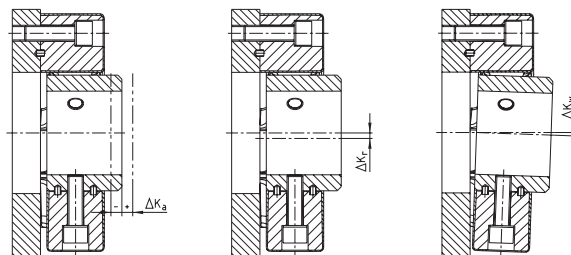
Type 3.1
spline/clamping hub N

Other hub types on request.

Examples:

- slotted clamping hub
- clamping ring hub
- taper or cylindrical press fit

Displacements / Displacement stiffness



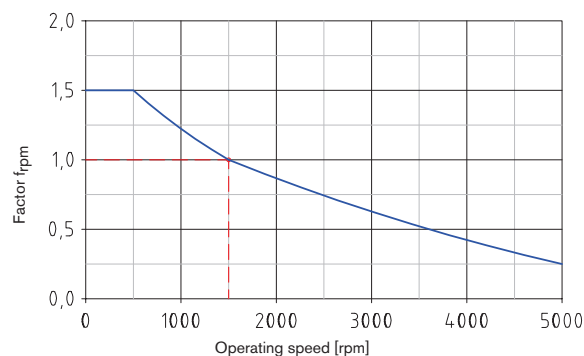
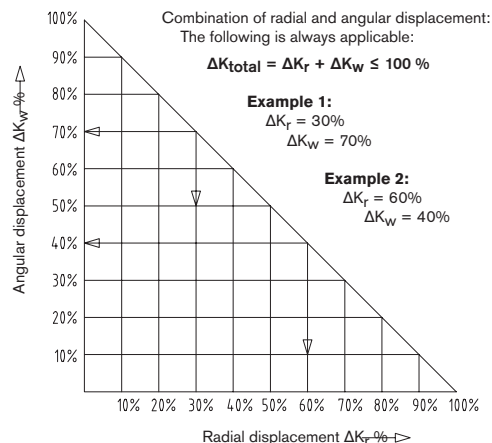
Displacements																			
Size		12		24		32		48		60		86		125		200		280	
Elastomer type		SN	MN	SN	MN	SN	MN	SN	MN	SN	MN	SN	MN	SN	MN	SN	MN	SN	MN
Perm. radial displacement ΔK_r [mm]	1,500 rpm	3.6	3.6	3.6	3.6	4.5	3.6	4.5	4.5	4.5	5.4	5.4	1.3	2.5	2.0	1.8	1.4	2.5	1.4
	Max. ¹⁾	3.0		3.0		2.0		2.0		3.0		2.0		3.0		2.0		2.0	
Perm. angular displacement ΔK_w [°]	1,500 rpm	6.0		6.0		4.0		4.0		6.0		4.0		6.0		4.0		4.0	
	Max. ^{1) 2)}	±2.5		±3.0		±3.0		±2.5		±3.0		±3.0		±3.5		±3.0		±3.5	
Perm. axial displacement ΔK_a [mm]		±2.5		±3.0		±3.0		±2.5		±3.0		±3.0		±3.5		±3.0		±3.5	

¹⁾ For short-term start-up operation

²⁾ Check for cardanic free movement

The radial and angular displacement of a coupling element refers to an operating speed of 1,500 rpm. Following the graph the permissible operating displacement increases with lower speed or reduces with rising speed by the factor f_{rpm} . The combination of radial and angular displacement in an application is divided up as a percentage. The permissible displacement refers to the total of alignment and operating displacement.

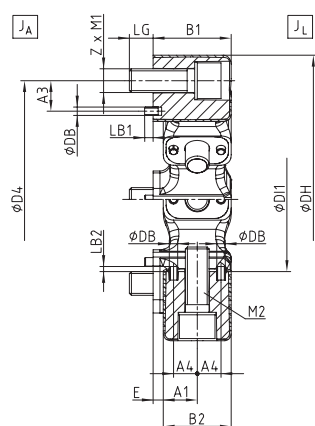
Stiffnesses							
Size	Elastomer hardness	Axial stiffness C_a [N/mm]		Radial stiffness C_r [N/mm]		Angular stiffness C_w [Nm/°]	
		30 °C	60 °C	30 °C	60 °C	30 °C	60 °C
12	S	50	40	280	224	2.0	1.6
	M	70	56	400	320	3.0	2.4
24	S	70	56	400	320	4.0	3.2
	M	100	80	550	440	5.0	4.0
32	S	200	160	1,100	880	12	9.6
	M	450	360	1,700	1,360	25	20
48	S	270	216	1,000	800	10	8.0
	M	420	336	1,500	1,200	15	12
60	S	100	80	440	352	10	8.0
	M	120	96	650	520	14	11
86	S	390	312	1,300	1,040	24	19
	M	490	392	1,625	1,300	30	24
125	S	150	120	650	520	15	12
	M	200	160	920	736	22	18
200	S	420	336	1,700	1,360	45	36
	M	525	420	2,125	1,700	56	45
280	W	460	368	1,150	920	58	46
	M	800	640	2,800	2,240	95	76
360	W	450	360	1,800	1,440	66	53
	S	550	440	2,200	1,760	80	64
560	M	710	568	2,500	2,000	100	80
	W	380	304	1,950	1,560	95	76
	S	480	384	2,500	2,000	120	96
	M	620	496	3,000	2,400	150	120



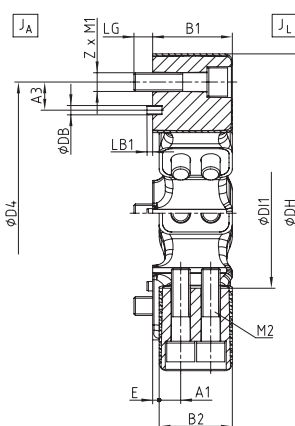
EVOLASTIC® E

Highly flexible couplings

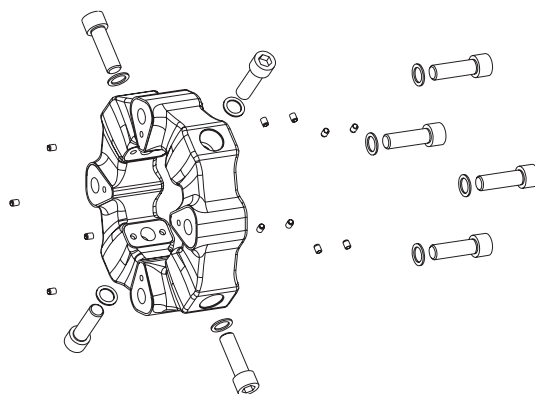
Individual element - available in various kinds of Shore hardness



Size 12 - 280



Size 360 - 560



NEW

EVOLASTIC® type E																	
Size	Dimensions [mm]														Mass moment of inertia [kgm ²]		Weight [kg]
	DH	DI1	B1	B2	E	D4	Z x Pitch	A3	LG	LB1	DB	A1	A4	LB2	JA	JL	
12	122	60	32	28	4	100	3 x 120°	12	10	4	4	14.0	10.0	-	0.0005	0.0005	0.50
24	150	70	42	36	6	125	3 x 120°	18	12	4	5	18.0	13.5	5	0.0010	0.0010	0.93
32	150	70	42	36	6	125	4 x 90°	18	12	4	5	18.0	13.5	5	0.0020	0.0020	1.13
48	170	85	46	40	6	140	4 x 90°	18	14	5	5	20.0	14.0	5	0.0040	0.0030	1.55
60	200	100	58	50	8	165	3 x 120°	20	16	5	5	25.0	18.0	5	0.0070	0.0070	2.28
86	200	100	58	50	8	165	4 x 90°	20	16	5	5	25.0	18.0	5	0.0090	0.0080	2.76
125	260	125	70	63	7	215	3 x 120°	25	20	5	8	31.5	22.5	5	0.0240	0.0220	4.74
200	260	125	70	63	7	215	4 x 90°	25	20	5	8	31.5	22.5	5	0.0300	0.0280	5.79
280	300	145	80	72	8	250	4 x 90°	25	20	5	8	36.0	22.5	5	0.0550	0.0500	7.89
360	340	160	85	78	7	280	4 x 90°	30	20	6	10	2 x 23.0	-	-	0.0960	0.0950	11.50
560	363	170	105	95	10	300	4 x 90°	40	24	6	10	2 x 28.5	-	-	0.1510	0.1450	15.38

Delivery condition:

EVOLASTIC® couplings type E are supplied with a mounting kit consisting of cap screws, screw locking washers and positioning sleeves. With the connection design make sure sufficient screw-in depth.

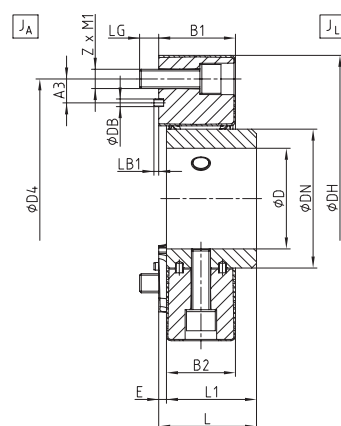
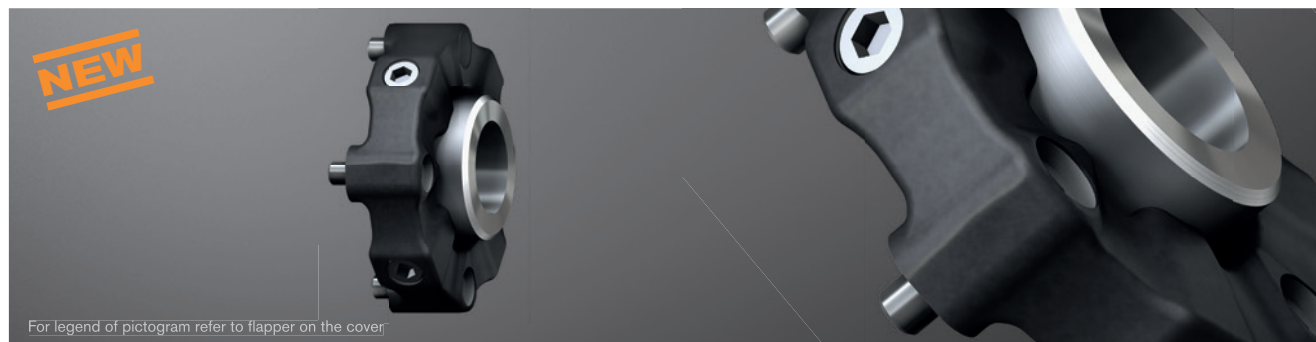
Size	Cap screw DIN EN ISO 4762 - 12.9		Tightening torque TA
	M1 / axial	M2 / radial	[Nm]
12	M10 x 30	M10 x 30	71
24	M12 x 35	M12 x 35	123
32	M12 x 35	M12 x 35	123
48	M14 x 40	M14 x 40	195
60	M16 x 50	M16 x 50	302
86	M16 x 50	M16 x 50	302
125	M20 x 65	M20 x 65	592
200	M20 x 65	M20 x 65	592
280	M20 x 65	M20 x 65	592
360	M20 x 80	M20 x 80	592
560	M24 x 90	M20 x 90	1,017 / 592

Ordering example:	EVOLASTIC® 48	E	S
	Coupling size	Type	Elastomer hardness

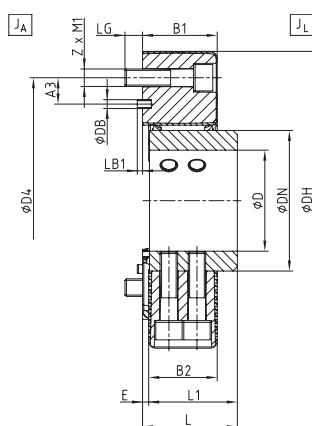
EVOLASTIC® EH

Highly flexible couplings

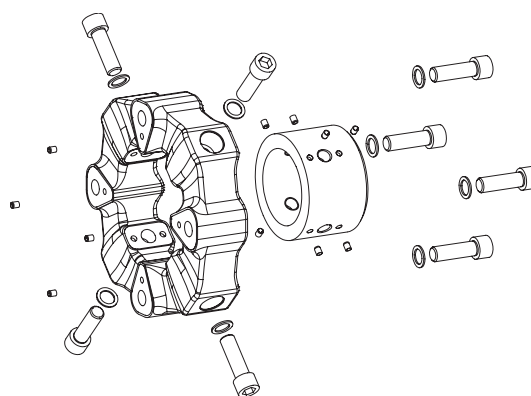
Individual element + shaft connection



Size 12 - 280



Size 360 - 560



EVOLASTIC®

Highly flexible
shaft couplings

NEW

EVOLASTIC® type EH																		
Size	Dimensions [mm]															Mass moment of inertia [kgm²] ¹⁾		Weight [kg] ¹⁾
	Max. finish bore D	DH	DN	B1	B2	E	L	L1	D4	Z x Pitch	M1	A3	LG	LB1	DB	JA	JL	
12	38	122	60	32	28	4	46	42	100	3 x 120°	M10	12	10	4	4	0.0006	0.0009	1.04
24	46	150	70	42	36	6	56	50	125	3 x 120°	M12	18	12	4	5	0.0016	0.0021	1.76
32	46	150	70	42	36	6	56	50	125	4 x 90°	M12	18	12	4	5	0.0020	0.0030	1.95
48	55	170	85	46	40	6	61	55	140	4 x 90°	M14	18	14	5	5	0.0040	0.0050	2.90
60	65	200	100	58	50	8	74	66	165	3 x 120°	M16	20	16	5	5	0.0070	0.0110	4.55
86	65	200	100	58	50	8	74	66	165	4 x 90°	M16	20	16	5	5	0.0090	0.0120	5.03
125	85	257	125	70	63	7	88	80	215	3 x 120°	M20	25	20	5	8	0.0240	0.0340	8.77
200	85	257	125	70	63	7	88	80	215	4 x 90°	M20	25	20	5	8	0.0300	0.0400	9.80
280	105	299	145	80	72	8	102	94	250	4 x 90°	M20	25	20	5	8	0.0560	0.0730	13.54
360	115	340	160	85	78	7	108	100	280	4 x 90°	M20	30	20	6	10	0.0960	0.1320	18.85
560	120	363	170	105	95	10	135	125	300	4 x 90°	M24	40	24	6	10	0.1530	0.2080	26.34

¹⁾ With max. bore

BoWex-ELASTIC® HEW Compact

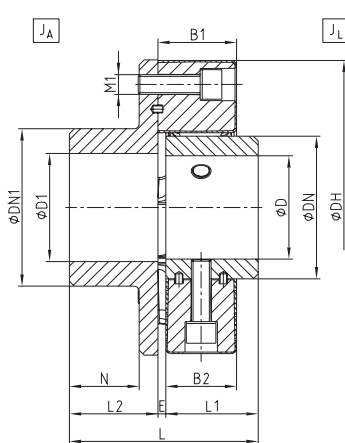
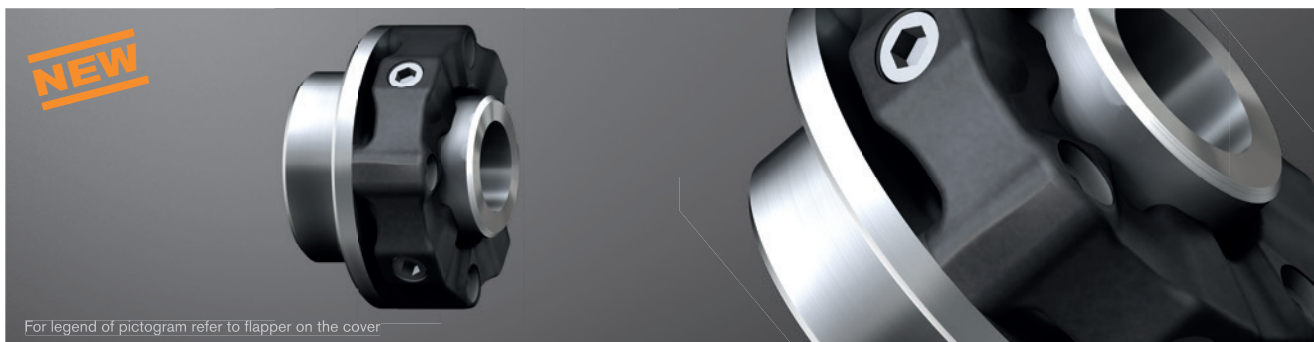
Ordering
example:

EVOLASTIC® 48	EH	S	1.0	Ø52
Coupling size	Type	Elastomer hardness	Hub type	Finish bore

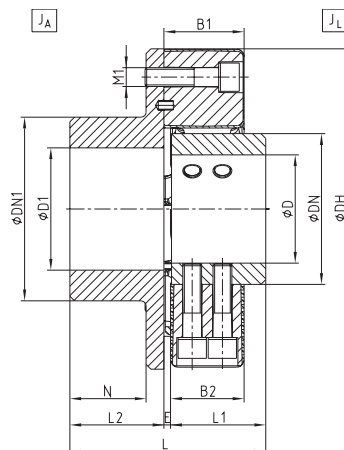
EVOLASTIC® E2H

Highly flexible couplings

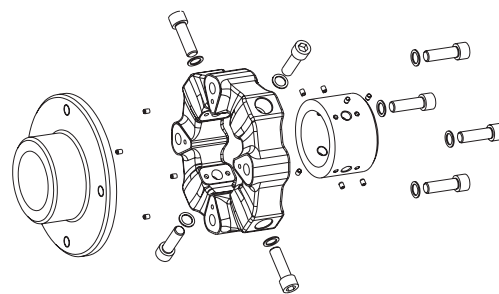
shaft-to-shaft connection



Size 12 - 280



Size 360 - 560



NEW

EVOLASTIC® type E2H																
Size	Dimensions [mm]													Mass moment of inertia [kgm ²] ¹⁾		Weight [kg] ¹⁾
	Max. finish bore		DH	DN	DN1	B1	B2	E	N	L	L1	L2	M1	J _A	J _L	
	D	D1														
12	38	55	122	60	80	32	28	4	32	88	42	42	M10	0.0030	0.0010	2.38
24	46	70	150	70	100	42	36	6	38	106	50	50	M12	0.0081	0.0021	4.22
32	46	70	150	70	100	42	36	6	38	106	50	50	M12	0.0090	0.0030	4.40
48	55	85	170	85	115	46	40	6	41	116	55	55	M14	0.0160	0.0050	6.21
60	65	100	200	100	140	58	50	8	50	140	66	66	M16	0.0360	0.0110	10.39
86	65	100	200	100	140	58	50	8	50	140	66	66	M16	0.0370	0.0120	10.83
125	85	110	260	125	160	70	63	7	60	168	80	80	M20	0.1110	0.0340	20.17
200	85	110	260	125	160	70	63	7	60	168	80	80	M20	0.1160	0.0400	21.15
280	105	110	300	145	160	80	72	8	70	192	94	90	M20	0.1960	0.0730	28.30
360	115	130	340	160	195	85	78	7	80	208	100	100	M20	0.3540	0.1320	40.66
560	120	140	370	170	200	105	95	10	100	260	125	125	M24	0.5890	0.2080	56.56

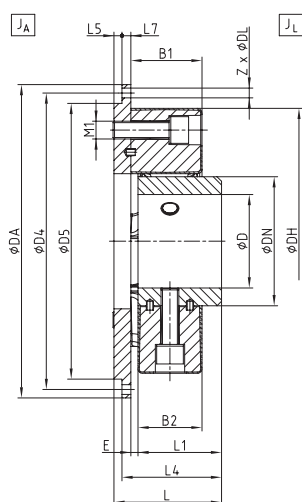
¹⁾ With max. bore

Ordering example:	EVOLASTIC® 48	E2H	S	1.0	Ø52	1.0	Ø52
	Coupling size	Type	Elastomer hardness	Hub type	Finish bore	Hub type	Finish bore

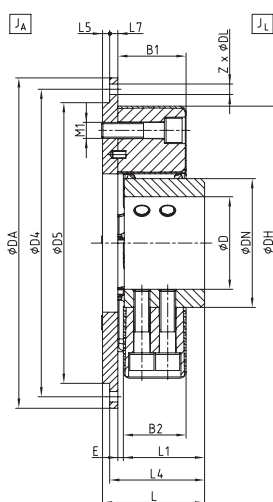
EVOLASTIC® EFH

Highly flexible couplings

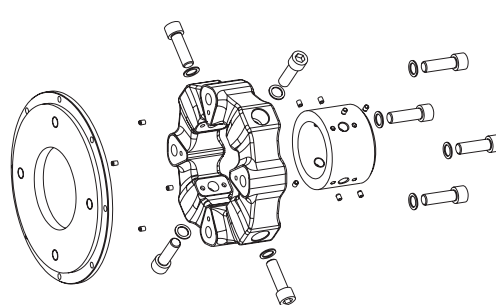
flange-to-shaft connection



Size 12 - 280



Size 360 - 560



Flange dimensions according to SAE J620 [mm]				
Size	DA	D4	Z	DL
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13

EVOLASTIC® type EFH																						
Size	Flange connection acc. to SAE - J620						Dimensions [mm]												Mass moment of inertia			Weight [kg] ¹⁾
																			[kgm²] ¹⁾			
	6.5"	7.5"	8"	10"	11.5"	14"	Max. finish bore D	DH	DN	B1	B2	E	L	L1	L4	L5	L7	M1	D5	J _A	J _L	
12	●						38	122	60	32	28	4	56	42	52	4	6	M10	180	0.013	0.001	3.26
		●																	190	0.020	0.001	3.78
24	●						46	150	70	42	36	6	68	50	62	6	6	M12	180	0.016	0.002	4.26
		●																	190	0.023	0.002	4.82
32	●						46	150	70	42	36	6	68	50	62	6	6	M12	180	0.016	0.003	4.44
		●																	190	0.023	0.003	5.00
48		●													67	8	6		190	0.026	0.005	6.03
			●				55	170	85	46	40	6	75	55	71	4	10	M14	200	0.034	0.005	6.62
				●															260	0.091	0.005	9.91
60				●			65	200	100	58	50	8	90	66	84	6	10	M16	270	0.103	0.011	12.07
					●														310	0.165	0.011	14.49
86					●		65	200	100	58	50	8	90	66	84	6	10	M16	270	0.105	0.012	12.52
						●													360	0.166	0.012	14.94
125					●		85	260	125	70	63	7	107	80	98	9	10	M16	270	0.129	0.034	16.72
						●													310	0.199	0.034	19.57
200						●													270	0.135	0.039	17.64
							85	260	125	70	63	7	107	80	98	9	10	M20	310	0.205	0.039	20.50
																			405	0.572	0.039	30.01
280					●		105	300	145	80	72	8	121	94	112	9	10	M20	310	0.226	0.072	23.54
						●													405	0.593	0.072	33.05
360						●	115	340	160	85	78	7	127	100	118	9	10	M20	405	0.628	0.130	37.55
560						●	120	363	170	105	95	10	160	125	145	15	10	M24	405	0.794	0.203	49.06

¹⁾ With max. bore

Ordering example:

EVOLASTIC® 48	EFH	S	8	1.0	Ø52
Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

EVOLASTIC®

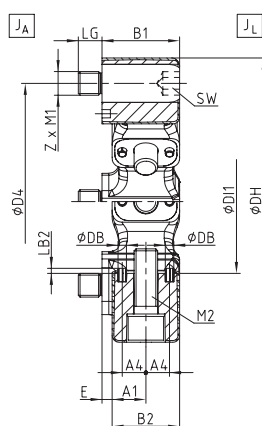
Highly flexible shaft couplings

BoWex-ELASTIC® HEW Compact

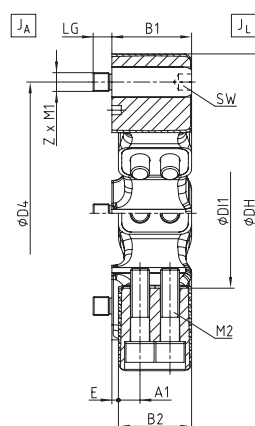
EVOLASTIC® EP

Highly flexible couplings

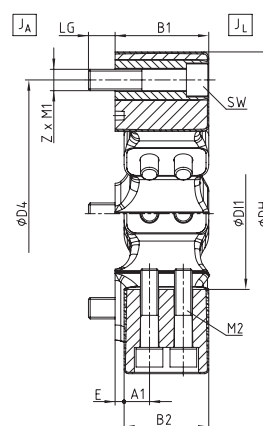
Pluggable elastomer - available in various kinds of Shore hardness



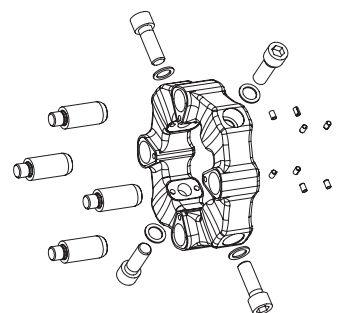
Size 12 - 280



Size 360



Size 560



NEW	EVOLASTIC® type EP															
	Size	Dimensions [mm]											Mass moment of inertia [kgm²]		Weight [kg]	
		DH	DI1	B1	B2	E	D4	Z x Pitch	LG	DB	A1	A4	LB2	JA		JL
	12	122	60	32	28	4	100	3 x 120°	10	4	14.0	10.0	-	0.001	0.001	0.55
	24	150	70	42	36	6	125	3 x 120°	12	5	18.0	13.5	5	0.002	0.001	1.03
	32	150	70	42	36	6	125	4 x 90°	12	5	18.0	13.5	5	0.003	0.002	1.26
	48	170	85	46	40	6	140	4 x 90°	14	5	20.0	14.0	5	0.005	0.003	1.74
	60	200	100	58	50	8	165	3 x 120°	16	5	25.0	18.0	5	0.009	0.007	1.52
	86	200	100	58	50	8	165	4 x 90°	16	5	25.0	18.0	5	0.010	0.008	3.08
	125	260	125	70	63	7	215	3 x 120°	20	8	31.5	22.5	5	0.028	0.022	5.16
	200	260	125	70	63	7	215	4 x 90°	20	8	31.5	22.5	5	0.036	0.028	6.35
NEW	280	300	145	80	72	8	250	4 x 90°	20	8	36.0	22.5	5	0.068	0.050	8.71
NEW	360	340	160	85	78	7	280	4 x 90°	20	-	2 x 23.0	-	-	0.110	0.096	12.21
NEW	560	363	170	105	95	10	300	4 x 90°	30	-	2 x 28.5	-	-	0.203	0.145	17.67

Delivery condition:

EVOLASTIC® couplings type EP are supplied with a mounting kit consisting of cap screws, screw locking washers, locking pins and positioning sleeves. With the connection design make sure sufficient screw-in depth. For the locking pin provide for an adhesive (e. g. Loctite® 243).

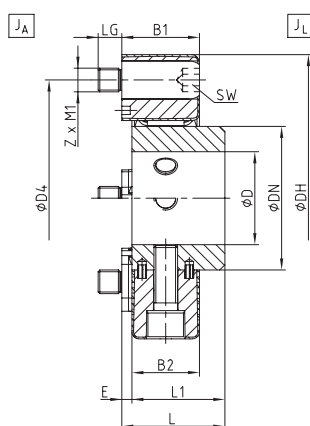
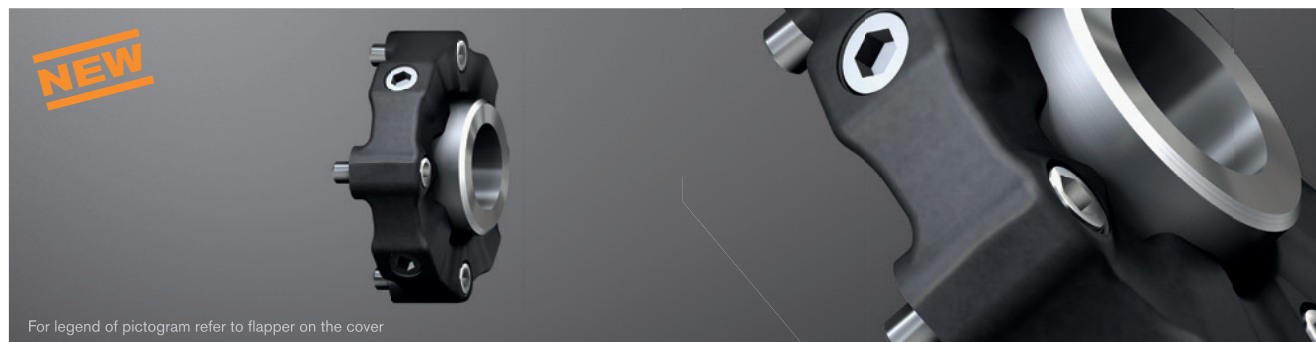
Size	Pin			Cap screw radial DIN EN ISO 4762 - 12.9	
	M1 / axial	SW	Tightening torque [Nm]	M2 / radial	Tightening torque [Nm]
12	M10	8	71	M10 x 30	71
24	M12	10	123	M12 x 35	123
32	M12	10	123	M12 x 35	123
48	M14	12	195	M14 x 40	195
60	M16	14	302	M16 x 50	302
86	M16	14	302	M16 x 50	302
125	M20	17	592	M20 x 65	592
200	M20	17	592	M20 x 65	592
280	M20	17	592	M20 x 65	592
360	M20	17	592	M20 x 80	592
560	M24	19	1017	M20 x 90	592

Ordering example:	EVOLASTIC® 48	EP	S
	Coupling size	Type	Elastomer hardness

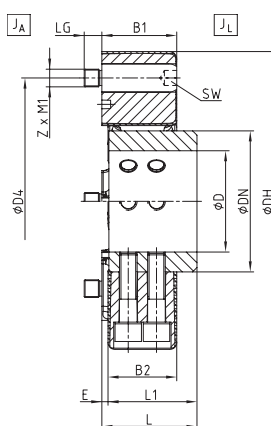
EVOLASTIC® EHP

Highly flexible couplings

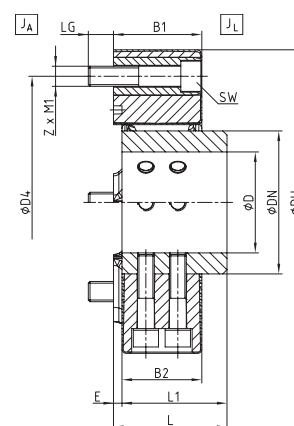
Pluggable elastomer + shaft connection



Size 12 - 280



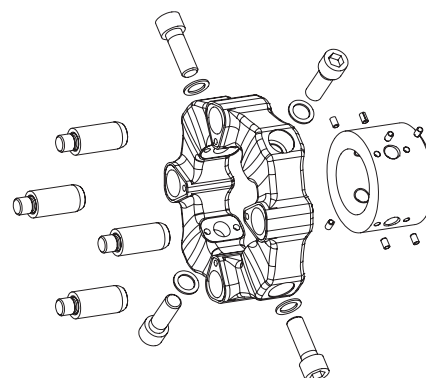
Size 360



Size 560

NEW	EVOLASTIC® type EHP																
	Size	Dimensions [mm]													Mass moment of inertia [kgm ² ¹⁾		Weight [kg] ¹⁾
		Max. finish bore D	DH	DN	B1	B2	E	L	L1	D4	Z x Pitch	LG	M1	SW	J _A	J _L	
	12	38	122	60	32	28	4	46	42	100	3 x 120°	10	M10	8	0.001	0.001	1.09
	24	46	150	70	42	36	6	56	50	125	3 x 120°	12	M12	10	0.002	0.002	1.85
	32	46	150	70	42	36	6	56	50	125	4 x 90°	12	M12	10	0.003	0.003	2.08
	48	55	170	85	46	40	6	61	55	140	4 x 90°	14	M14	12	0.004	0.005	3.07
	60	65	200	100	58	50	8	74	66	165	3 x 120°	16	M16	14	0.009	0.010	4.79
	86	65	200	100	58	50	8	74	66	165	4 x 90°	16	M16	14	0.010	0.012	5.32
	125	85	260	125	70	63	7	88	80	215	3 x 120°	20	M20	17	0.028	0.024	9.15
	200	85	260	125	70	63	7	88	80	215	4 x 90°	20	M20	17	0.036	0.039	10.30
NEW	280	105	300	145	80	72	8	102	94	250	4 x 90°	20	M20	17	0.068	0.076	14.29
NEW	360	115	340	160	85	78	7	108	100	280	4 x 90°	20	M20	17	0.110	0.131	19.44
NEW	560	120	363	170	105	95	10	135	125	300	4 x 90°	30	M24	19	0.203	0.203	28.41

¹⁾ With max. bore



Ordering example:

EVOLASTIC® 48	EHP	S	1.0	Ø52
Coupling size	Type	Elastomer hardness	Hub type	Finish bore

EVOLASTIC®

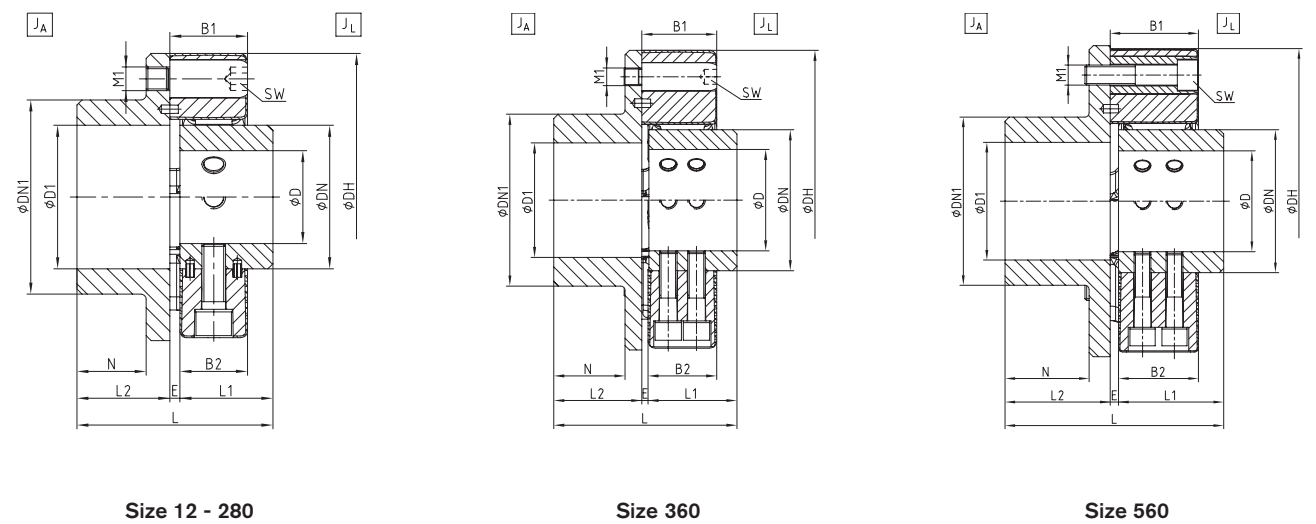
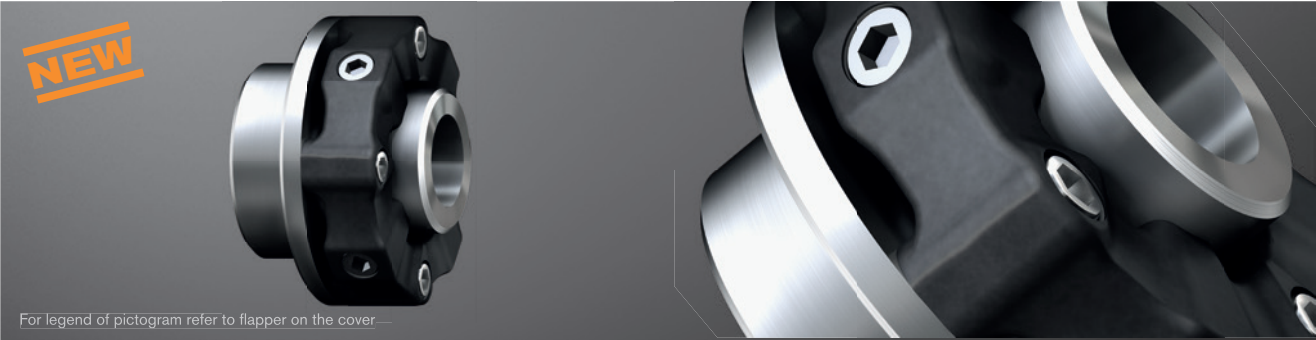
Highly flexible shaft couplings

BoWex-ELASTIC® HEW Compact

EVOLASTIC® E2HP

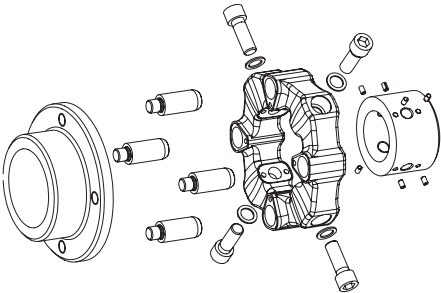
Highly flexible couplings

Shaft-to-shaft connection, plug-in



EVOLASTIC® type E2HP																	
Size	Dimensions [mm]														Mass moment of inertia [kgm²] ¹⁾		Weight [kg] ¹⁾
	Max. finish bore		DH	DN	DN1	B1	B2	E	N	L	L1	L2	M1	SW	J _A	J _L	
	D	D1															
12	38	55	122	60	80	32	28	4	32	88	42	42	M10	8	0.003	0.001	2.44
24	46	70	150	70	100	42	36	6	38	106	50	50	M12	10	0.009	0.002	4.26
32	46	70	150	70	100	42	36	6	38	105	50	50	M12	10	0.009	0.003	4.53
48	55	85	170	85	115	46	40	6	41	116	55	55	M14	12	0.016	0.005	6.41
60	65	100	200	100	140	58	50	8	50	140	66	66	M16	14	0.038	0.010	10.62
86	65	100	200	100	140	58	50	8	50	140	66	66	M16	14	0.039	0.012	11.13
125	85	110	260	125	160	70	63	7	60	168	80	80	M20	17	0.115	0.034	20.55
200	85	110	260	125	160	70	63	7	60	168	80	80	M20	17	0.123	0.039	21.65
280	105	110	300	145	160	80	72	8	70	192	94	90	M20	17	0.208	0.073	29.05
360	115	130	340	160	195	85	78	7	80	208	100	100	M20	17	0.368	0.104	41.25
560	120	140	363	170	200	105	95	10	100	260	125	125	M24	19	0.640	0.203	58.62

¹) With max. bore

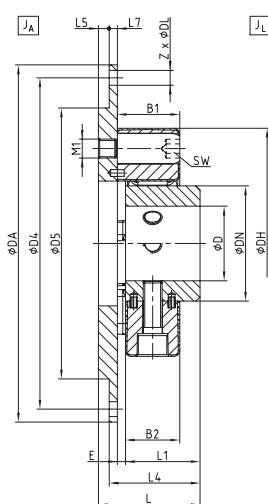


Ordering example:	EVOLASTIC® 48	E2HP	S	1.0	Ø52	1.0	Ø52
	Coupling size	Type	Elastomer hardness	Hub type	Finish bore	Hub type	Finish bore

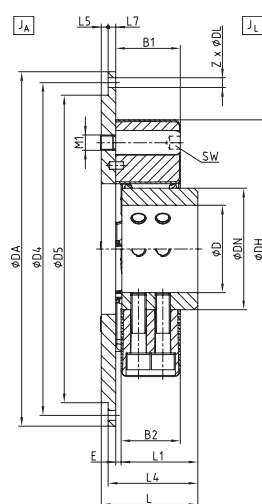
EVOLASTIC® EFHP

Highly flexible couplings

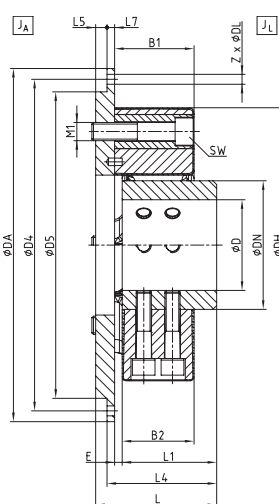
Flange-to-shaft connection, pluggable



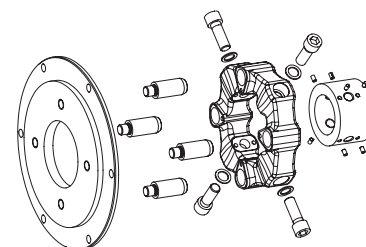
Size 12 - 280



Size 360



Size 560



Flange dimensions according to SAE J620 [mm]				
Size	DA	D4	Z	DL
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13

EVOLASTIC® type EFHP																								
Size	Flange connection acc. to SAE - J620						Dimensions [mm]													Mass moment of inertia		Weight [kg] ¹⁾		
							Max. finish bore D	DH	DN	B1	B2	E	L	L1	L4	L5	L7	M1	SW	D5	[kgm²] ¹⁾			
	6.5"	7.5"	8"	10"	11.5"	14"															J _A		J _L	
NEW	12	●					38	122	60	32	28	4	56	42	52	4	6	M10	8	180	0.014	0.001	3.33	
			●																	190	0.020	0.001	3.84	
	24	●					46	150	70	42	36	6	68	50	62	6	6	M12	10	180	0.016	0.002	4.30	
			●																	190	0.249	0.002	4.86	
	32	●					46	150	70	42	36	6	68	50	62	6	6	M12	10	180	0.017	0.003	4.57	
			●																	190	0.024	0.003	5.13	
			●																	190	0.027	0.005	6.20	
	48			●			55	170	85	46	40	6	75	55		67	8	6	M14	12	200	0.035	0.005	6.80
					●											71	4	10			260	0.091	0.005	10.09
	60					●	65	200	100	58	50	8	90	66	84	6	10	M16	14	270	0.105	0.011	12.30	
NEW					●															310	0.166	0.011	14.73	
	86					●	65	200	100	58	50	8	90	66	84	6	10	M16	14	270	0.107	0.012	12.82	
						●														310	0.168	0.012	15.24	
	125					●	85	260	125	70	63	7	107	80	98	9	10	M20	17	270	0.134	0.034	17.10	
						●														310	0.204	0.034	19.95	
						●														270	0.141	0.039	18.20	
	200					●	85	260	125	70	63	7	107	80	98	9	10	M20	17	310	0.212	0.039	21.06	
																				405	0.578	0.039	30.57	
	280					●	105	300	145	80	72	8	121	94	112	9	10	M20	17	310	0.239	0.072	24.35	
						●														405	0.606	0.072	33.87	
NEW	360					●	115	340	160	85	78	7	127	100	118	9	10	M20	17	405	0.642	0.130	38.25	
NEW	560					●	120	363	170	105	95	10	160	125	145	15	10	M24	19	405	0.847	0.203	51.35	

¹⁾ With max. bore

Ordering example:

EVOLASTIC® 48	EFHP	S	8	1.0	Ø55
Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

EVOLASTIC®

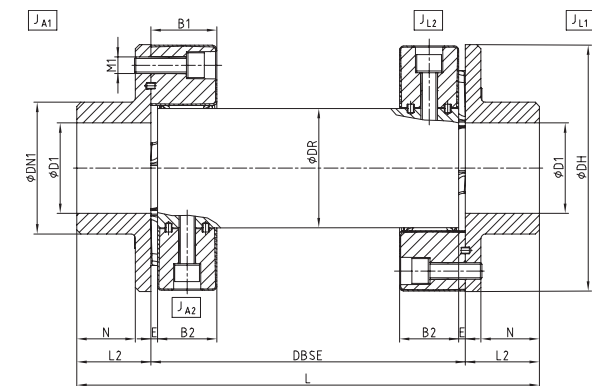
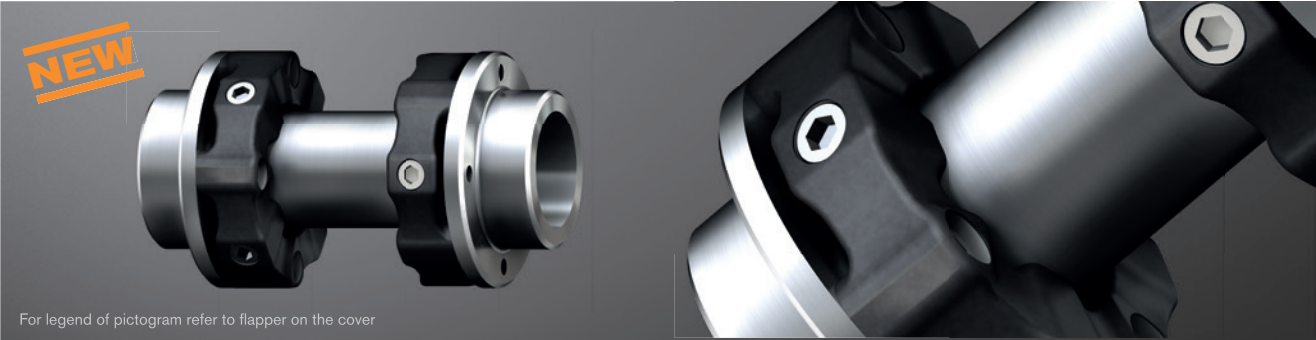
Highly flexible shaft couplings

BoWex-ELASTIC® HEW Compact

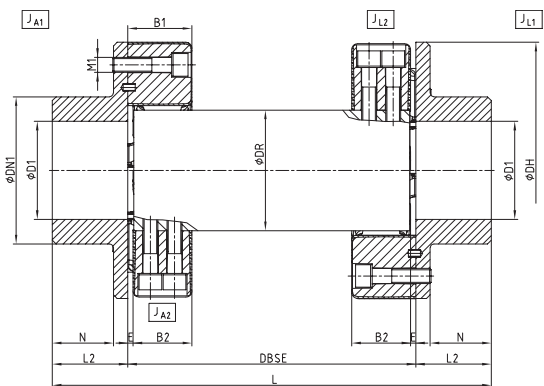
EVOLASTIC® D2H

Highly flexible couplings

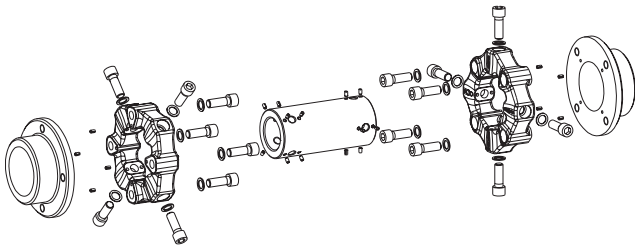
Double-cardanic shaft-to-shaft connection



Size 12 - 280



Size 360 - 560



EVOLASTIC® type D2H												
Size	Dimensions [mm]										Mass moment of inertia [kgm²] ¹)	
	Max. finish bore D1	DH	DN1	DR	B1	B2	E	L2	N	M1	JA1	JL1
12	55	122	80	60	32	28	4	42	32	M10	0.003	0.003
24	70	150	100	70	42	36	6	50	38	M12	0.008	0.008
32	70	150	100	70	42	36	6	50	38	M12	0.009	0.009
48	85	170	115	85	46	40	6	55	41	M14	0.016	0.016
60	100	200	140	100	58	50	8	66	50	M16	0.036	0.036
86	100	200	140	100	58	50	8	66	50	M16	0.037	0.037
125	110	260	160	125	70	63	7	80	60	M20	0.111	0.111
200	110	260	160	125	70	63	7	80	60	M20	0.116	0.116
280	110	300	160	145	80	72	8	94	70	M20	0.196	0.196
360	130	340	195	160	85	78	7	100	80	M20	0.354	0.354
560	140	370	200	170	105	95	10	125	100	M24	0.589	0.589

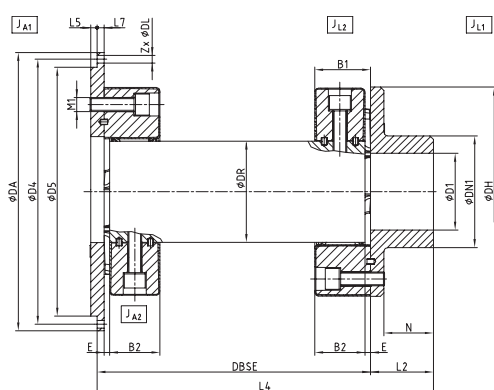
¹) With max. bore
 Dimension L and DBSE as well as total weight depend on the mounting length
 Mass moments JA2 and JL2 depend on the mounting length and are available on request

Ordering example:	EVOLASTIC® 48	D2H	140	S	1.0	Ø52	1.0	Ø52
	Coupling size	Type	Shaft distance DBSE	Elastomer hardness	Hub type	Finish bore	Hub type	Finish bore

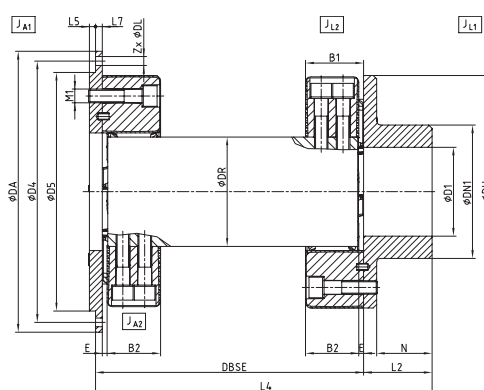
EVOLASTIC® DFH

Highly flexible couplings

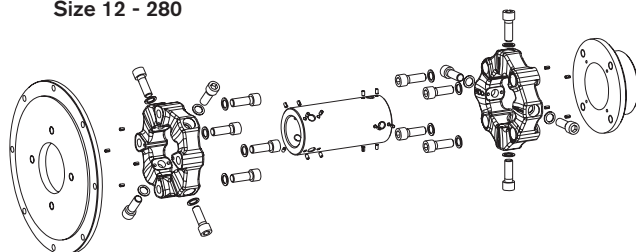
Double-cardanic flange-to-shaft connection



Size 12 - 280



Size 360 - 560



Flange dimensions according to SAE J620 [mm]				
Size	DA	D4	Z	DL
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13

EVOLASTIC® type DFH																		
Size	Flange connection acc. to SAE - J620						Dimensions [mm]										Mass moment of inertia [kgm ²] ¹⁾	
	6.5"	7.5"	8"	10"	11.5"	14"	Max. finish bore D1	DH	DN1	DR	B1	B2	E	L5	L7	L2	N	M1
12	●	●					55	122	80	60	32	28	4	4	6	42	32	M10
24	●	●					70	150	100	70	42	36	6	6	6	50	38	M12
32	●	●					70	150	100	70	42	36	6	6	6	50	38	M12
48		●	●				85	170	115	85	46	40	6	8	6	55	41	M14
60			●	●			100	200	140	100	58	50	8	6	10	66	50	M16
86			●	●	●		100	200	140	100	58	50	8	6	10	66	50	M16
125			●	●	●		110	260	160	125	70	63	7	9	10	80	60	M20
200			●	●	●		110	260	160	125	70	63	7	9	10	80	60	M20
280			●	●	●		110	300	160	145	80	72	8	9	10	94	70	M20
360			●	●	●		130	340	195	160	85	78	7	9	10	100	80	M20
560			●	●	●		140	370	200	170	105	95	10	15	10	125	100	M24

¹⁾ With max. bore

Dimension L4 and DBSE as well as total weight depend on the mounting length

Mass moments JA2 and JL2 depend on the mounting length and are available on request

Ordering example:

EVOLASTIC® 48	DFH	140	S	8	1.0	Ø52
Coupling size	Type	Shaft distance DBSE	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

EVOLASTIC®

Highly flexible shaft couplings

BoWex-ELASTIC® HEW Compact

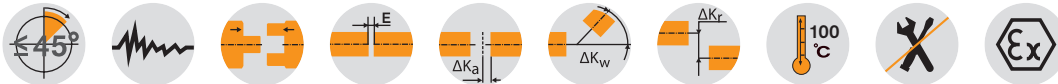
BoWex-ELASTIC® HEW Compact

Curved-tooth gear coupling®

Compensating for large displacements, very compact design



For legend of pictogram refer to flapper on the cover



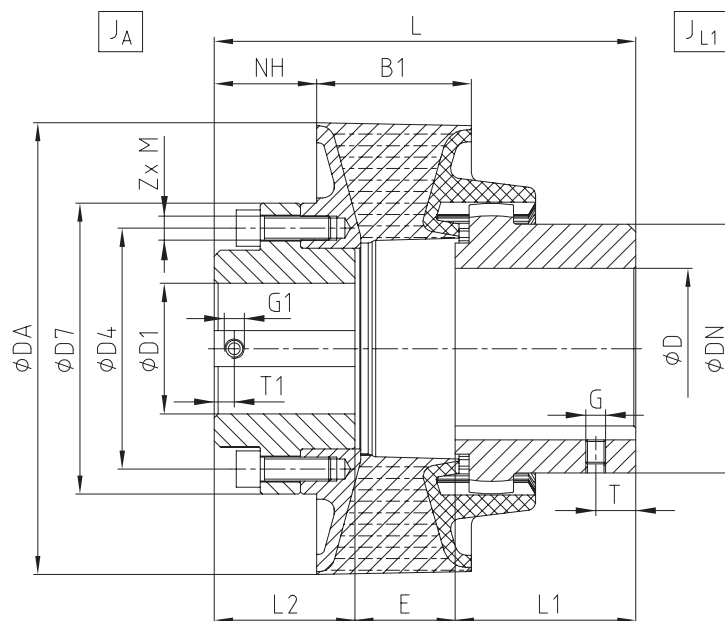
BoWex-ELASTIC® type HEW Compact																						
Size	Dimensions [mm]																		Weight with pilot bored coupling [kg]	Mass moment of inertia with pilot bored coupling [kgm²]		
	Max. finish bore		L		L1		L2	E		DA	DN	DN1	D4	D7	B1	NH	Z	M				
	D	D1	HEW1	HEW2	HEW1	HEW2		HEW1	HEW2													
42-130	42	42	118	98	42	42	42	34	14	131	65	65	78	90	45	37	6	M6	3.4	0.003	0.001	0.001
60-180	65	60	145	122	55	55	60	30	7	180	98	85	110	130	44	47	8	M10	9.0	0.014	0.006	0.006
80-225	90	75	210	158	90	70	70	50	18	225	124	100	120	145	77	51	10	M12	18.9	0.035	0.029	0.021
100-305	100	100	258	187	110	70	90	58	17	305	152	170	175	200	90	73	16	M12	40.2	0.152	0.087	0.068
125-365	125	125	328	240	140	100	120	68	20	365	192	170	205	230	105	90	12	M16	75.0	0.360	0.260	0.192

Technical data												
Coupling size	Elastomer hardness [Shore A]	Torque [Nm]			Perm. speed n _{max} [rpm]	Perm. damping power			Dynamic torsion spring stiffness C _{dyn} . [Nm/rad]	Relative damp- ing ψ	Resonance factor V _R ≈2·Π/ψ	Radial spring stiffness C _r [N/mm]
		T _K	T _K max.	with 10 Hz T _{KW}		P _{KW}						
						60 °C	80 °C	90 °C				
42 HEW Compact	T50	200	400	50	7300	30	18	12	780	0.8	7.9	178
	T65	270	540	68					2400	1.2	5.2	600
	T70	320	640	80					2900	1.2	5.2	710
65 HEW Compact	T50	550	1100	138	5500	55	33	22	2850	0.8	7.9	379
	T65	740	1500	185					7800	1.2	5.2	955
	T70	860	1700	215					9500	1.2	5.2	1240
80 HEW Compact	T50	1250	2500	313	4400	90	54	36	5000	0.8	7.9	420
	T65	1600	3200	400					13000	1.2	5.2	1090
	T70	1900	3800	475					16500	1.2	5.2	1450
100 HEW Compact	T50	2750	5500	688	3200	150	90	60	17000	0.8	7.9	760
	T65	3900	7800	975					44000	1.2	5.2	1850
	T70	4500	9000	1125					50000	1.2	5.2	2250
125 HEW Compact	T50	5500	11000	1375	2900	220	132	88	25000	0.8	7.9	750
	T65	7500	15000	1875					62000	1.2	5.2	1930
	T70	8400	16800	2100					70000	1.2	5.2	2300

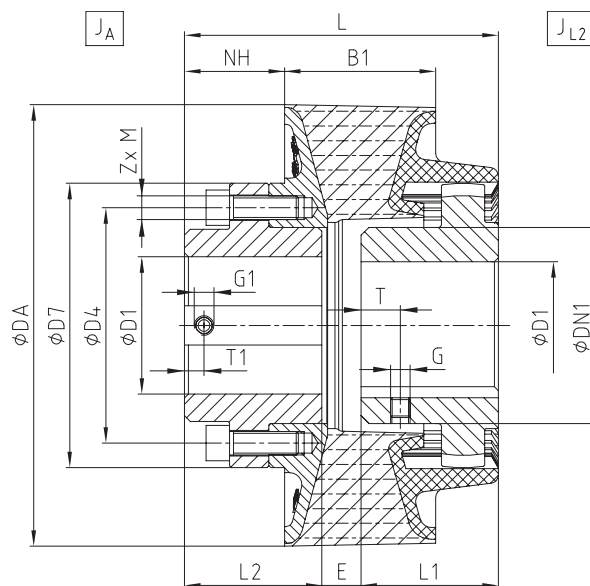
Ordering example:

BoWex® 65 HEW Compact	T50	d ₁ Ø40	d ₂ Ø65
Size and type of coupling	Elastomer hardness	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)	Finish bore H7 keyway to DIN 6885 sheet 1 (JS9)

BoWex-ELASTIC® HEW1 Compact



BoWex-ELASTIC® HEW2 Compact (with reduced hub)



Displacements – type HEW Compact															
BoWex-ELASTIC® size	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	T50	T65	T70
Max. axial displacement ΔK_a [mm]	± 2			± 2			± 2			± 2			± 2		
Max. radial displacement with n=1500 rpm ΔK_r [mm]	± 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]	± 0.55	± 0.5	± 0.25	± 0.8	± 0.75	± 0.35	± 0.9	± 0.85	± 0.5	± 1.1	± 1	± 0.5	± 1.25	± 1.15	± 0.55
Max. angular displacement with n=1500 rpm ΔK_w [degree]	± 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]	± 0.5	± 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

EVOLASTIC®

Highly flexible
shaft couplings

BoWex-ELASTIC® HEW Compact



flange couplings

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BoWex®

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MONOLASTIC®

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BoWex-ELASTIC®

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BoWex® FLE-PAC



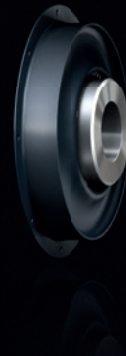
MONOLASTIC®



BoWex-ELASTIC®



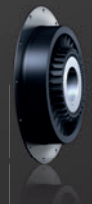
SINULASTIC®



FLANGE COUPLINGS

TYPES AND OPERATING DESCRIPTION

Properties of flange couplings

				
Product	BoWex® FLE-PA/-PAC	MONOLASTIC®	BoWex-ELASTIC®	SINULASTIC®
Type	Torsionally stiff flange coupling	Flexible flange coupling	Highly flexible flange coupling	Highly flexible flange coupling
Properties				
Torsionally stiff	●			
Torsionally flexible		●		
Highly flexible			●	●
Damping vibrations		●	●	●
Maintenance-free	●	●	●	●
Axial plug-in	●	●	●	●
Special features/applications				
Variant diversity	very high	high	very high	very high (type A, B, T, V)
Flange dimension	SAE standard and special dimensions	type 3/4 hole, SAE standard and special dimensions	SAE standard and special dimensions	SAE standard and special dimensions
internal spline	see standard programme of BoWex® hubs	for SAE or DIN pump shafts	see standard programme of BoWex® hubs	Type B
Applications	hydrostatic drives of construction machines, agricultural machines, ...	hydrostatic drives of construction machines, agricultural machines, ...	generators, splitterboxes, water pumps, piston compressors, agricultural machines, gensets, mill drives, separator drives, ...	generators, gensets, splitterboxes, traction drives, hydraulic pumps, piston compressors, ...
Performance data				
Max. rated torque T _{KN} [Nm]	6,600	1,850	70,000	25,000
Max. speed n [rpm]	6,000	6,000	6,200	3,800
Flange (standard and special)				
Material	fibre-glass reinforced polyamide (PA)	natural rubber	natural rubber	natural rubber, EPDM, silicone
	combination of polyamide with carbon fibre share and steel flange (PAC)			
Elastomer hardness	torsionally stiff	65, 70 Shore A	various kinds of hardness for vibration adaptation of drives	miscellaneous: S, M, H, U
Flange (standard)				
Temperature range [°C] min./max.	-25 / +130 (PA)	-40 / +100	-40 / +100	-40 / +120
	-25 / +130 (PAC)			
Engine power [kW]				
Max.	800	250	5,000	3,500

● ≈ Standard

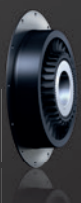
○ ≈ On request

* ≈ Depending on size

FLANGE COUPLINGS

TYPES AND OPERATING DESCRIPTION

Product finder of flange couplings

				
Product	BoWex® FLE-PA/-PAC	MONOLASTIC®	BoWex-ELASTIC®	SINULASTIC®
Type	Torsionally stiff flange coupling	Flexible flange coupling	Highly flexible flange coupling	Highly flexible flange coupling
Geometries				
Design	extremely short	short	short	short
max. radial displacement	0.5 mm	1 mm	9.5 mm	3 mm
shaft diameter min./max. [mm]	20 / 125	20 / 60	21 / 275	20 / 240
Types (extract)				
Intermediate shaft types » bridging larger shaft distances	–	–	HE-ZS	Type B and V
shaft-to-shaft connection		–	HEW1 and HEW2, HEW-ZS	○
flange-to-shaft connection	Standard	Standard	HE1, HE2, HE3 and HE4, HE-ZS	●
For cardan shafts » connecting couplings for I. C.-engines	–	–	HEG1 and HEG2	
Combination with pump mounting flange	●	●	●	●
Certifications / type examinations				
ATEX 			●	○
Bureau Veritas 	●		●	○
DNV/GL 			●	○
GOST R / GOST TR 	●	●	●	○

● ≈ Standard

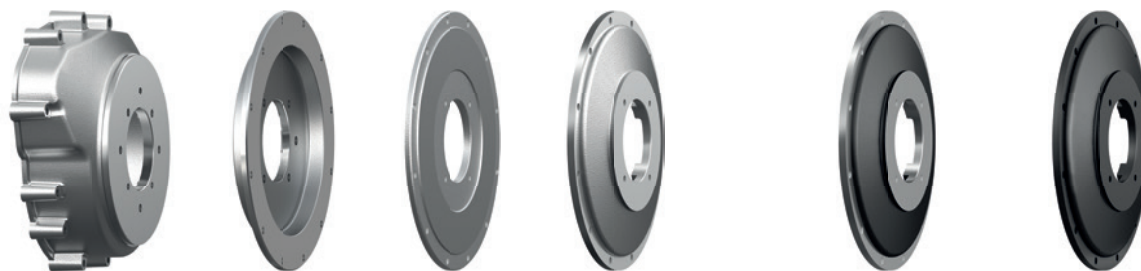
Please note: Pump mounting flanges



For connecting hydraulic pumps to the diesel engine, KTR supplies mounting flanges according to SAE connection dimensions sizes SAE 6 to SAE 1. These flanges are made of steel and EN-GJL-250 for hydraulic pumps with flange connections according to SAE-A, -B, -C, -D and -E as types with 2 and 4 holes.

Pump connection housings made of EN-GJL-250 to be mounted directly to the back plate of the engine.

Miscellaneous pump mounting flange designs



Electrogalvanized and (white) passivated

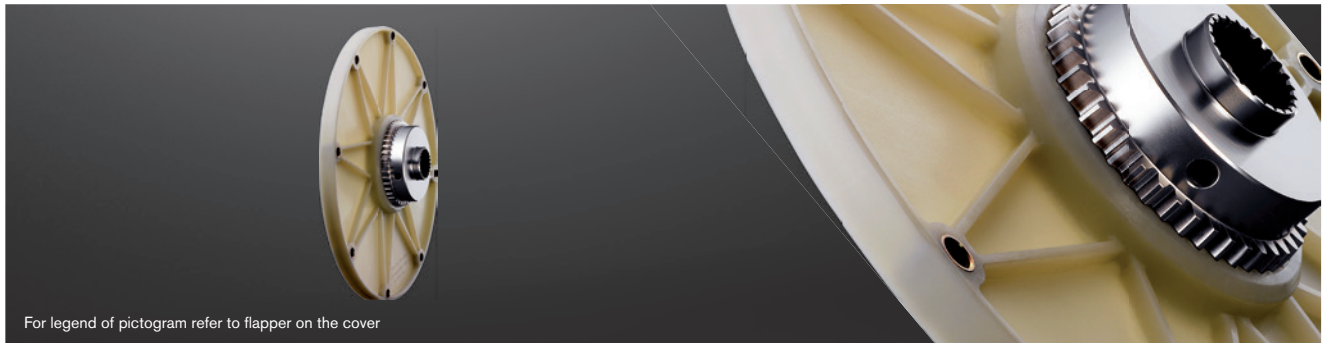
Primed
(machined surfaces bright)

CDP

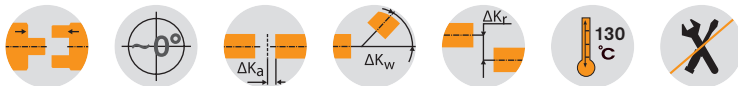
BoWex® FLE-PA

Torsionally stiff flange couplings

Axial plug-in, maintenance-free, torsionally stiff



For legend of pictogram refer to flapper on the cover



BoWex® FLE-PA – Dimensions/nominal dimension acc. to SAE

Size	Pilot bore	Finish bore d		Dimensions [mm]								Special length l1 max.	Nominal size acc. to SAE (Dg)						Max. axial displacement [mm]
		min.	Max.	D	D1	I1	I3	I7	I8	I10	I11		6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	
48	-	20	48	68	100	50	41	50	20	13	48	up to 60	●	●	●	●			± 2
T 48	13	15	48	68	100	50	38	45	20	13	46	-	●	●	●	●			± 1
T 55	17	20	55	85	115	50	37	48	24	13	48	-	●	●	●	●			± 2
65 / T 65	21	30	65	96	132	55	45	54	27	21	51	up to 70			●	●	●		± 2
T 70	26	30	70	100	153	60	48	56	30	21	57	-				●			± 2
80 / T 80	31	35	90	124	170	90	78	87	30	21	87	-				●	●		± 2
100 / T 100	38	40	100	152	265	110	78	108	35	21	110	-					●	●	± 2
125 / T 125	45	50	125	192	250	140	113	140	50	28	97	-					●	●	± 2

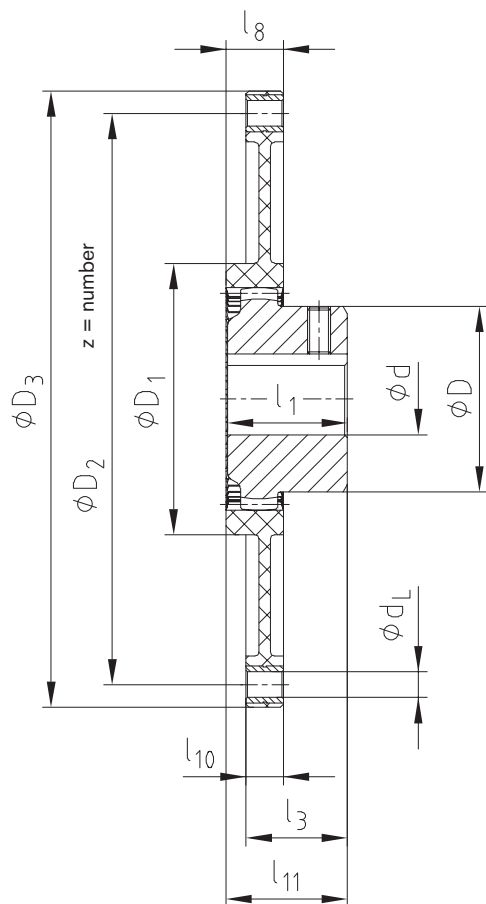
Special flange dimensions see page 222 et seqq. and on request

Technical data of BoWex® FLE-PA – Torques/weights/mass moments of inertia/torsion spring stiffness

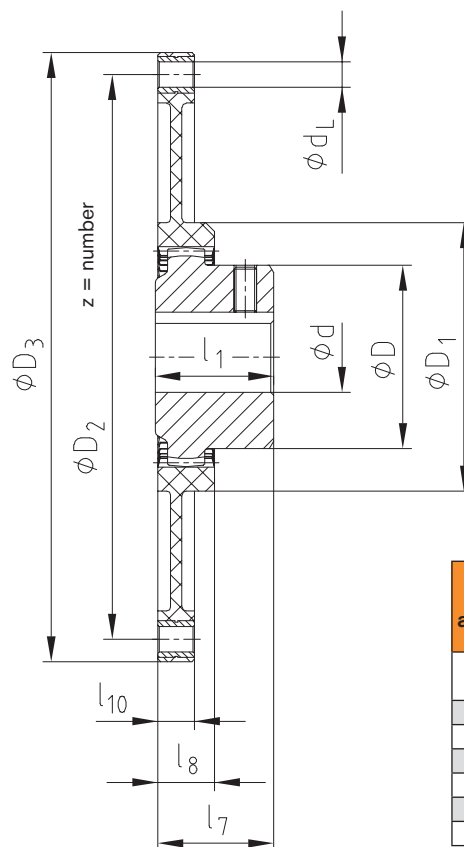
Size	Torque TK [Nm]			Weight/mass moment of inertia J	Hub with max. bore	FLE-PA flanges according to SAE						Dynamic torsion spring stiffness with +60 °C/ψ = 0.4 [Nm/rad]			
	TKN	TK max.	TKW			6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	0.30 TKN	0.50 TKN	0.75 TKN	1.00 TKN
48	240	600	120	[kg]	0.79	0.32	0.43	0.51	0.64	-	-	35 x 10³	75 x 10³	105 x 10³	125 x 10³
				[kgm²]	0.0007	0.0021	0.0035	0.0049	0.0085	-	-				
T 48	300	750	150	[kg]	0.79	0.32	0.43	0.51	0.64	-	-	40 x 10³	86 x 10³	120 x 10³	143 x 10³
				[kgm²]	0.0007	0.0021	0.0035	0.0049	0.0085	-	-				
T 55	450	1125	225	[kg]	1.20	0.34	0.62	0.45	0.646	-	-	90 x 10³	140 x 10³	170 x 10³	195 x 10³
				[kgm²]	0.0016	0.0022	0.0053	0.0044	0.0086	-	-				
65	650	1600	325	[kg]	1.50	-	-	0.63	0.64	0.89	-	110 x 10³	160 x 10³	200 x 10³	230 x 10³
				[kgm²]	0.0027	-	-	0.0064	0.0065	0.012	-				
T 65	800	2000	400	[kg]	1.60	-	-	0.63	0.64	0.89	-	130 x 10³	190 x 10³	240 x 10³	280 x 10³
				[kgm²]	0.0035	-	-	0.0064	0.0065	0.012	-				
T 70	1000	2500	500	[kg]	2.60	-	-	-	0.941	-	-	165 x 10³	315 x 10³	345 x 10³	368 x 10³
				[kgm²]	0.0059	-	-	-	0.0132	-	-				
80	1200	3000	600	[kg]	5.20	-	-	-	1.05	1.12	-	200 x 10³	410 x 10³	580 x 10³	700 x 10³
				[kgm²]	0.0151	-	-	-	0.015	0.022	-				
T 80	1500	3750	750	[kg]	5.20	-	-	-	1.05	1.12	-	240 x 10³	450 x 10³	638 x 10³	770 x 10³
				[kgm²]	0.0151	-	-	-	0.015	0.022	-				
100	2050	5150	1025	[kg]	9.37	-	-	-	-	1.16	8.45	500 x 10³	700 x 10³	856 x 10³	950 x 10³
				[kgm²]	0.0401	-	-	-	-	0.021	0.234				
T 100	2500	6250	1250	[kg]	9.37	-	-	-	-	1.16	8.45	600 x 10³	830 x 10³	960 x 10³	1070 x 10³
				[kgm²]	0.0401	-	-	-	-	0.021	0.234				
125	4250	10700	2125	[kg]	19.73	-	-	-	-	2.09	9.85	1280 x 10³	1885 x 10³	2280 x 10³	2665 x 10³
				[kgm²]	0.1359	-	-	-	-	0.043	0.306				
T 125	5300	13250	2650	[kg]	19.73	-	-	-	-	2.09	9.85	1600 x 10³	2250 x 10³	2700 x 10³	3200 x 10³
				[kgm²]	0.1359	-	-	-	-	0.043	0.306				

Mounting procedure, screw type with property class, tightening torques as per KTR assembly instructions (see www.ktr.com).

Short mounting version



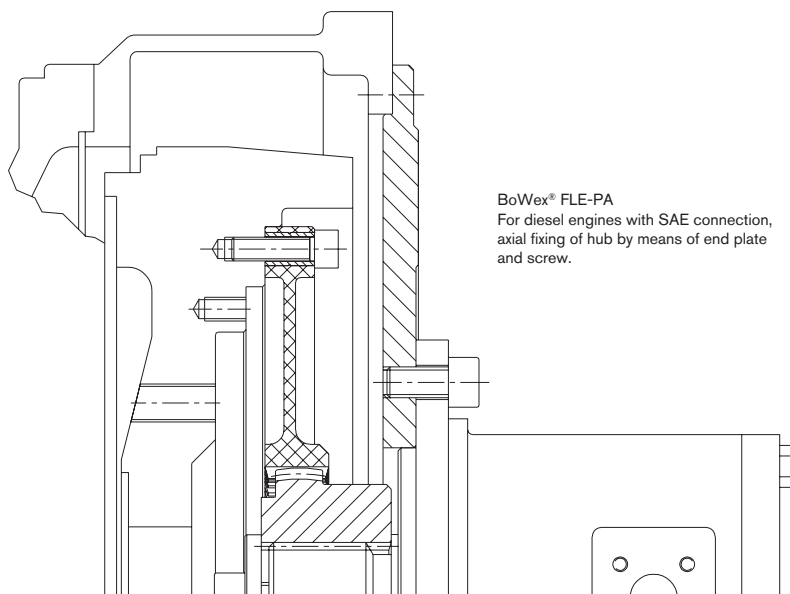
Long mounting version



Flange dimensions
according to SAE J620 [mm]

Size	D ₃	D ₂	z	d _L
6 1/2"	215.9	200.02	6	9
7 1/2"	241.3	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13

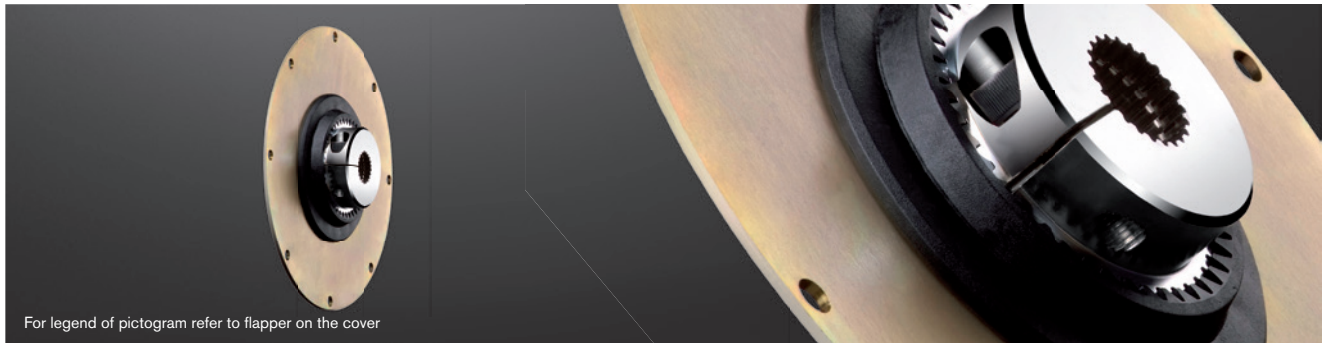
Example of installation



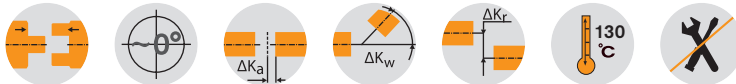
BoWex® FLE-PAC

Torsionally stiff flange couplings

Axial plug-in, extremely short design, carbon-fibre reinforced material



For legend of pictogram refer to flapper on the cover



BoWex® FLE-PAC – Dimensions/nominal dimension to SAE

Size	Pilot bore	Finish bore d		Dimensions [mm]							Special length l ₁ max.	Nominal size acc. to SAE (D ₃)						Max. axial displacement [mm]
		min.	Max.	D	D ₁	I1	I3	I7	I8	I10		6 ½"	7 ½"	8"	10"	11 ½"	14"	
48 / T 48	13	15	48	68	110	50	35	46	25	3	up to 60	●	●	●	●			± 3
T 55	17	20	55	85	148	50	32	42	28	3	-	●	●	●	●			± 3
65 / T 65	21	30	65	96	165	55	36	46	32	4	up to 70	●	●	●	●	●		± 3
80 / T 80	31	35	90	124	220	90	72	76	35	4	-				●	●	●	± 3
100 / T 100	38	40	100	152	280	110	85	102	47	5	-					●	●	± 3
125 / T 125	45	50	125	192	250	140	113	140	50	28	-					●	●	± 3

Special flange dimensions deviating from SAE standard are also available.

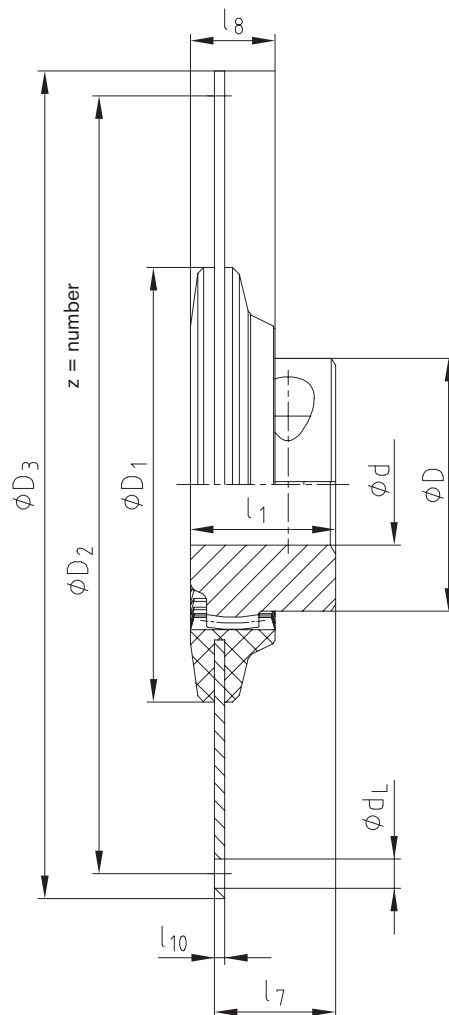
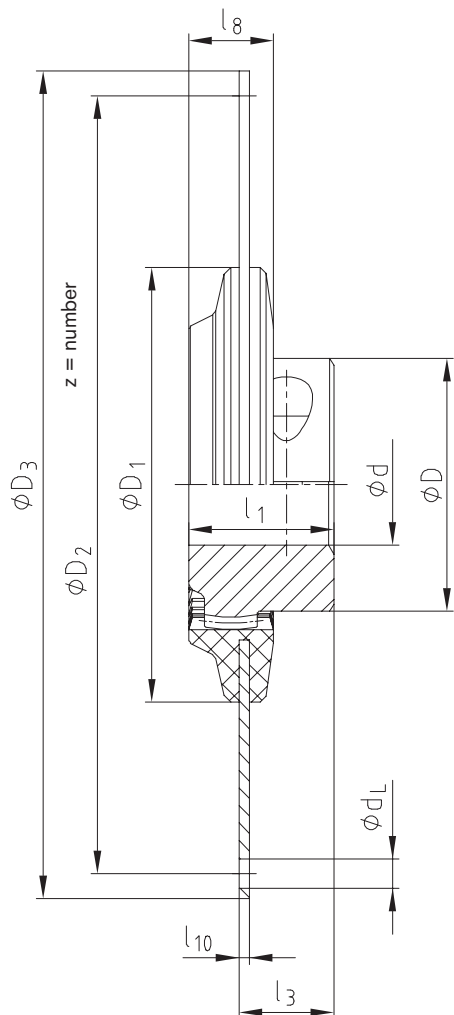
Technical data of BoWex® FLE-PAC – Torques/weights/mass moments of inertia/torsion spring stiffness

Size	Torque T _K [Nm]			Weight/mass moment of inertia J	Hub with max. bore	FLE-PAC flanges according to SAE						Dynamic torsion spring stiffness with +60 °C/ψ = 0.45 [Nm/rad]			
	T _{KN}	T _{K max.}	T _{KW}			6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	0.30 T _{KN}	0.50 T _{KN}	0.75 T _{KN}	1.00 T _{KN}
48	300	600	150	[kg]	0.79	0.77	0.98	1.19	1.73			64 x 10 ³	95 x 10 ³	114 x 10 ³	132 x 10 ³
				[kgm ²]	0.0007	0.0049	0.0077	0.0109	0.0221						
T 48	370	740	185	[kg]	0.79	0.77	0.98	1.19	1.73			91 x 10 ³	129 x 10 ³	155 x 10 ³	182 x 10 ³
				[kgm ²]	0.0007	0.0049	0.0077	0.0109	0.0221						
T 55	550	1100	275	[kg]	1.20	0.74	0.95	1.16	1.7			181 x 10 ³	258 x 10 ³	312 x 10 ³	358 x 10 ³
				[kgm ²]	0.0016	0.0049	0.0077	0.0109	0.0222						
65	800	1600	400	[kg]	1.50	0.93	1.2	1.48	2.20	2.83		214 x 10 ³	329 x 10 ³	397 x 10 ³	451 x 10 ³
				[kgm ²]	0.0027	0.0065	0.0101	0.0145	0.0294	0.0467					
T 65	1000	2000	500	[kg]	1.60	0.93	1.2	1.48	2.20	2.83		256 x 10 ³	381 x 10 ³	461 x 10 ³	516 x 10 ³
				[kgm ²]	0.0035	0.0065	0.0101	0.0145	0.0294	0.0467					
80	1500	3000	750	[kg]	5.20				2.27	2.90	5.20	486 x 10 ³	713 x 10 ³	923 x 10 ³	1156 x 10 ³
				[kgm ²]	0.0151				0.0312	0.0485	0.1462				
T 80	1850	3700	925	[kg]	5.20				2.27	2.90	5.20	556 x 10 ³	815 x 10 ³	1065 x 10 ³	1329 x 10 ³
				[kgm ²]	0.0151				0.0312	0.0485	0.1462				
100	2550	5100	1275	[kg]	9.37					3.35	6.22	679 x 10 ³	929 x 10 ³	1218 x 10 ³	1457 x 10 ³
				[kgm ²]	0.0401					0.0606	0.1828				
T 100	3100	6200	1550	[kg]	9.37					3.35	6.22	767 x 10 ³	1030 x 10 ³	1343 x 10 ³	1594 x 10 ³
				[kgm ²]	0.0401					0.0606	0.1828				
125	5350	10700	2675	[kg]	19.73					2.09	9.85	1538 x 10 ³	2098 x 10 ³	2528 x 10 ³	2980 x 10 ³
				[kgm ²]	0.1359					0.043	0.306				
T 125	6600	13200	3300	[kg]	19.73					2.09	9.85	1887 x 10 ³	2495 x 10 ³	3035 x 10 ³	3629 x 10 ³
				[kgm ²]	0.1359					0.043	0.306				

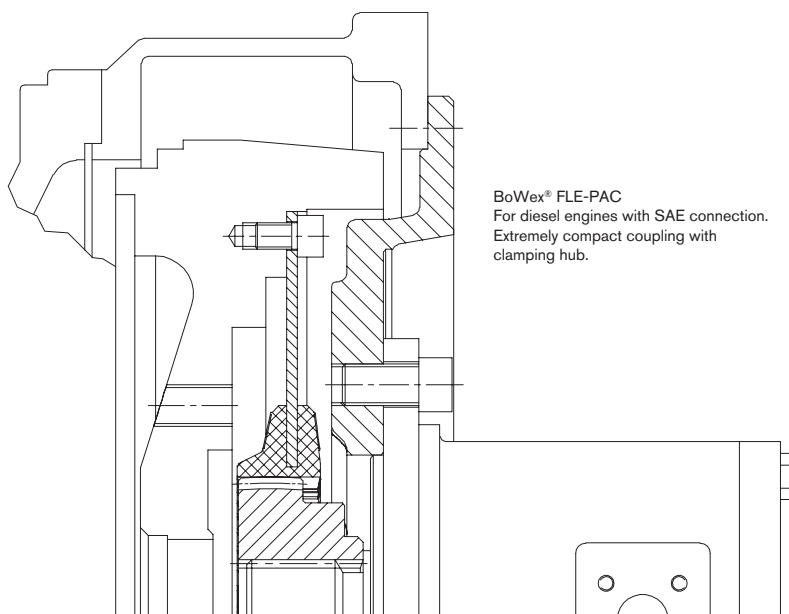
Mounting procedure, screw type with property class, tightening torques as per KTR assembly instructions (see www.ktr.com).

Short mounting version

Long mounting version



Flange dimensions according to SAE J620 [mm]				
Size	D ₃	D ₂	z	d _L
6 1/2"	215.9	200.02	6	9
7 1/2"	241.3	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	14

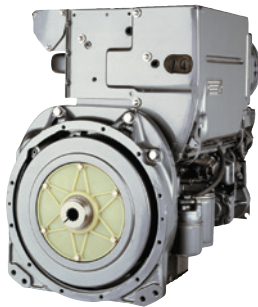


BoWex® FLE-PAC
For diesel engines with SAE connection.
Extremely compact coupling with
clamping hub.

BoWex® FLE-PA / FLE-PAC

Torsionally stiff flange couplings

Selection according to SAE standard



Determination of coupling

Determination of coupling size

Table 1

Connection dimension of coupling

Table 2

Hub type/mounting length

Table 3

SAE pump mounting flange

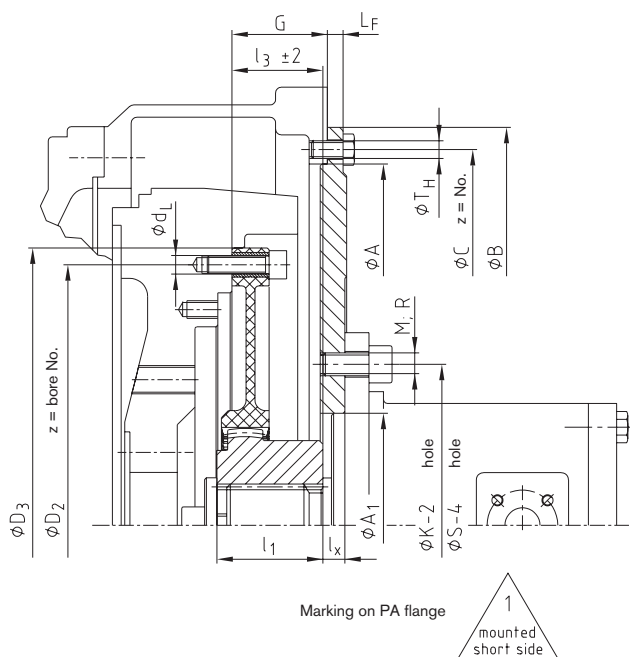
Flange size according to SAE 617

Table 4

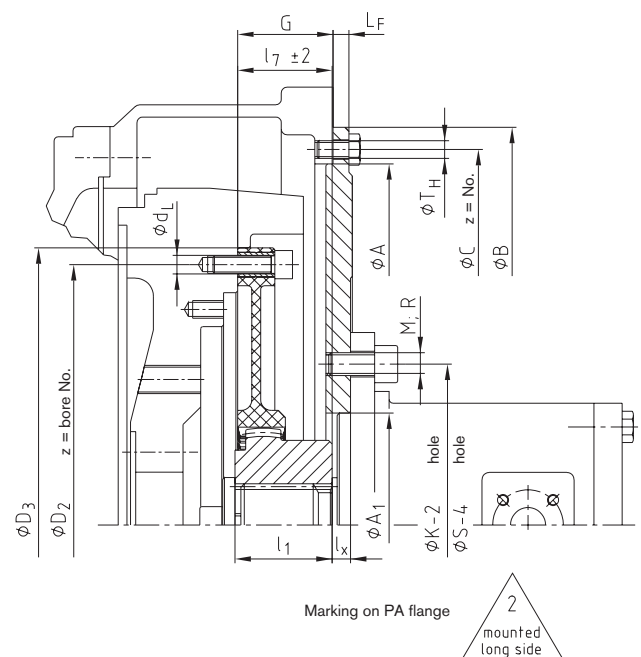
Connection flange of hydraulic pump

Table 5

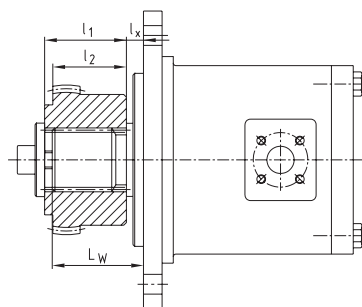
Short mounting version of coupling (l₃)



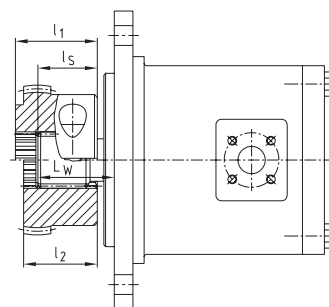
Long mounting version of coupling (l₇)



Spline hub



Clamping hub



Determination of mounting length l₃ or l₇

SAE shaft	$l_3 / l_7 = G + L_F - L_W + l_S$
DIN shaft	$l_3 / l_7 = G + L_F - l_X$

If axial fixing of the hub by means of an end plate and a screw is not possible for a pump shaft with involute spline, a clamping hub should be used.

Mounting instructions:

The flange can be fastened to the engine flywheel by means of socket head cap screws according to DIN EN ISO 4762 strength class 8.8 or by hexagon head screws strength class 8.8. We recommend screws are loctited in position.

Screw tightening torque of FLE-PA flange on the flywheel

M8	25 Nm
M10	49 Nm
M12	86 Nm

Screw tightening torque of spline clamping hubs DIN EN ISO 4762

42/48	M10	49 Nm
T55/65/T70	M12	86 Nm
80/100/125	M16	210 Nm

BoWex® FLE-PA / FLE-PAC

Torsionally stiff flange couplings

Mounting dimensions according to SAE standard

1. Selection of coupling for diesel engine									
Diesel engine power		Coupling size	Flywheel acc. to SAE			Pump mounting flange		Driving shaft of pump	
kW	PS		G			LF			
up to 40	up to 55	48 FLE-PA	6 1/2"	30.15	1.19"	9.5	0.375"		
			7 1/2"	30.15	1.19"				
			8	62	2.44"				
			10	54	2.12"				
up to 75	up to 100	T55 FLE-PA	6 1/2"	30.15	1.19"	9.5	0.375"		
			7 1/2"	30.15	1.19"				
			8	62	2.44"				
			10	54	2.12"				
up to 90	up to 120	65 FLE-PA	8	62	2.44"	9.5	0.375"		
			10	54	2.12"				
			11 1/2"	39.6	1.56"				
			10	54	2.12"				
up to 150	up to 200	T70 FLE-PA	10	54	2.12"	9.5	0.375"		
			10	54	2.12"				
			11 1/2"	39.6	1.56"				
			10	54	2.12"				
up to 180	up to 240	80 FLE-PA	10	54	2.12"	9.5	0.375"		
			11 1/2"	39.6	1.56"				
			11 1/2"	39.6	1.56"				
			14	25.4	1"				
up to 285	380	100 FLE-PA	11 1/2"	39.6	1.56"	12.7	0.5"		
			14	25.4	1"				
			11 1/2"	39.6	1.56"				
			14	25.4	1"				
up to 540	720	125 FLE-PA	11 1/2"	39.6	1.56"				
			14	25.4	1"				
			11 1/2"	39.6	1.56"				
			14	25.4	1"				

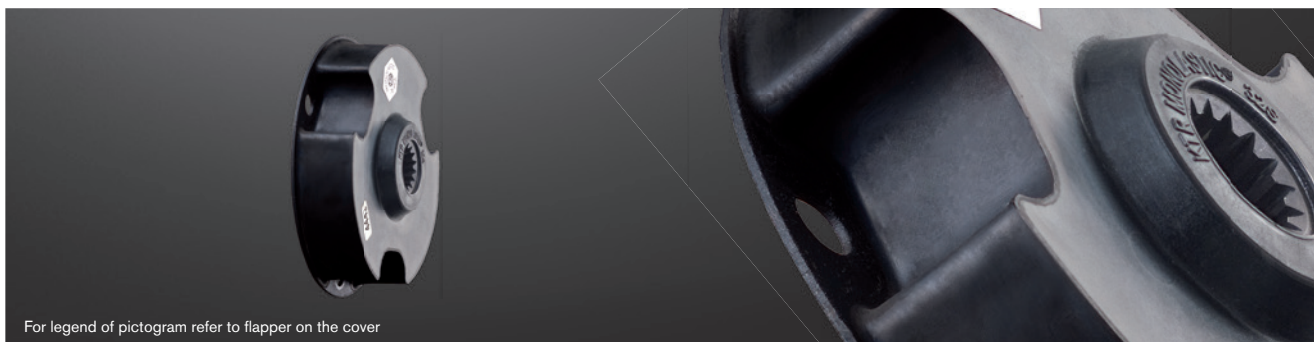
2. Dimensions of coupling flange according to SAE J620 [mm]				
Nominal size	D ₃	D ₂	z = number	d _L
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	14

3. Selection of coupling hubs - Determination of mounting length l ₃ or l ₇														
BoWex® coupling size	Pump shaft to SAE J 498 and DIN 5480	Spline hub	Spline clamping hub	Dimensions of coupling hub [mm]			Mounting length of coupling l ₃ or l ₇							
							Flange size 6 1/2" and 7 1/2"		Flange size 8"		Flange size 10"		Flange size 11 1/2"	
				l ₁	l ₂	l ₃	K	L	K	L	K	L	K	L
42	SAE-16/32 DP PI-S 3/4" z = 11	x	x	42	-	33	33	42						
42	SAE-16/32 DP PB-S 1/8" z = 13	x	x	42	-	-	33	42						
42	SAE-16/32 DP PB-BS 1" z = 15	x	x	42	-	27	33	42						
48	SAE-16/32 DP	x	x	50	-	45	41	50	50	41	50			
65	PA-S 1 3/8" z = 21	x	x	50	-	48			54	45	54	41		
65	SAE-12/24 DP PC-S 1 1/4" z = 14	x	x	55	-	44			54	45	54	41		
65	SAE-16/32 DP PD-S 1 1/2" z = 23	x	x	-	49	45					53	41		
80	SAE-16/32 DP PE-S 1 3/4" z = 27	x	x	55	-	-						33	44	
42	25 x 1.25 x 18	x	x	42	-	-	33	42						
42	DIN 5480	x	x	42	-	-	33	42						
42		x	x	42	-	-	33	42						
48	30 x 2 x 14	x	x	50	-	-	41	50						
48	DIN 5480	x	x	50	-	-	41	50	50		50			
48		x	x	46	-	-	37	46						
65	35 x 2 x 16	x	x	55	-	-					54	39		
65	DIN 5480	x	x	60	-	-			50	59	50	59	39	
65		x	x	55	-	-					54	39		
65	40 x 2 x 18	x	x	55	-	-					54	39		
65	DIN 5480	x	x	55	-	-			54	45	54	39		
65	45 x 2 x 21	x	x	-	64	-			60	69	60	69	39	
65	DIN 5480	x	x	55	-	-			54	45	54	39		
80	50 x 2 x 24	x	x	55	-	-						37	42	
	DIN 5480	x	x	55	-	-								

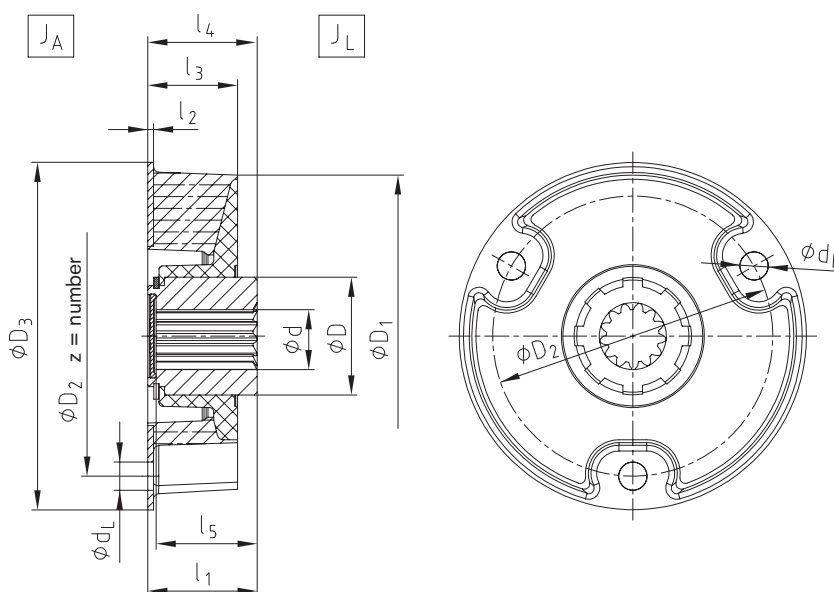
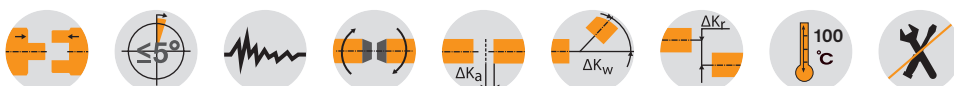
Shown above is a small overview of splines available, other SAE or DIN splines are also available. KTR splines are designed for shaft tolerances SAE class 5 resp. DIN 5480 9g.

Ordering example: Coupling FLE-PA/FLE-PAC				
BoWex® 48 FLE-PA	7 1/2"	P663301	SAE-4	B-2L
Coupling size	SAE connection of coupling	Code of coupling hub	Pump mounting flange for engine housing	Pump flange acc. to SAE 2 holes/4 holes standard metric fastening thread
Table 1	Table 2	Table 3	Table 4	Table 5

Type with 3 holes (EP 0853203/U.S. Patent 6,117,017)



For legend of pictogram refer to flapper on the cover



MONOLASTIC®																
Size	Elastomer hardness [Shore A]	Torque [Nm]			Dimensions [mm]											
		T _{KN}	T _{K max.}	T _{KW}	d	D	D ₁	D ₂	z	d _L	D ₃	l ₁	l ₂	l ₃	l ₄	l ₅
22	T65	40	100	20	20	34	93	80	3	8.10	100	33	1.5	32	34	30
28	T65	70	175	35	25	42	115	100	3	10.10	124	40	2	32	40	38
32	T65	160	400	80	32	50	140	125	3	12.10	150	42	2	42	43	38
50-140	T70	260	650	130	32	50	167	140	3	14.10	175	46	3	35	46	43
50-165	T70	300	750	150	32	50	175	165	3	16.15	200	46	3	35	46	43
50-170	T70	300	750	150	32	50	175	170	3	16.15	200	46	3	35	46	43
60-165	T70	400	1000	200	48	68	191	165	3	16.15	205	50	3	40	55	46

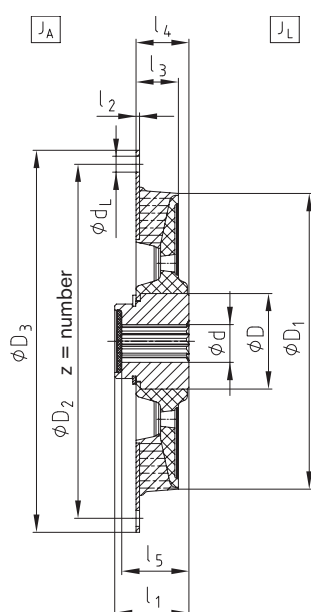
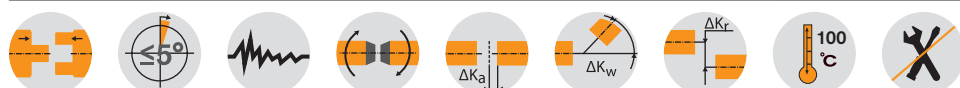
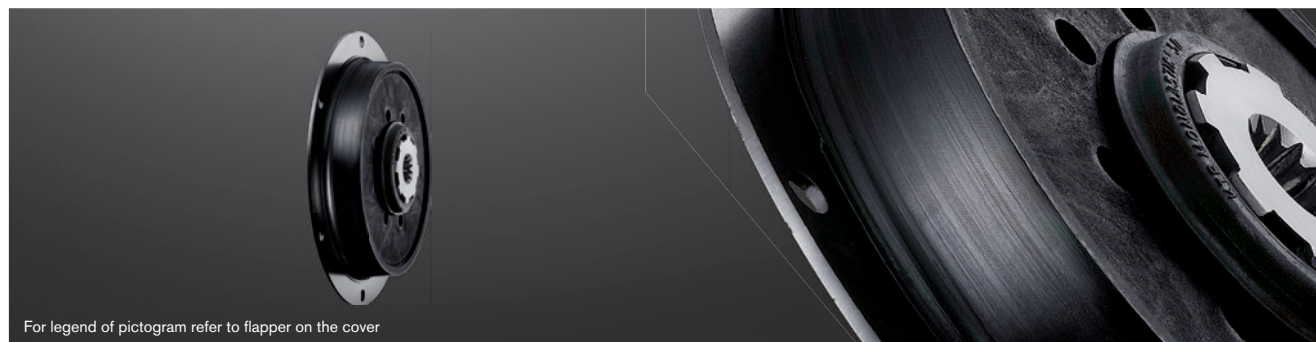
Technical data									
Size	Elastomer hardness [Shore A]	C _{dyn.} with 60 °C [Nm/rad]	Perm. damping power with 60 °C P _{KW} [W]	Max. displacement with 2200 rpm ΔK _r [mm]	Perm. angular displacement with 2200 rpm ΔK _w [°]	Radial spring stiffness C _r [N/mm]	Mass moment of inertia [kgm ²]		Perm. operating speed n _{max.} [rpm]
							J _A	J _L	
22	T65	600	10	0.6		200	0.00017	0.00010	6000
28	T65	900	15	0.6		300	0.00054	0.00033	6000
	T70	1300		0.5		400			
32	T65	1800	25	0.6		400	0.00120	0.00081	6000
	T70	2400		0.5	1	500			
50-140		4200	35			1365	0.00210	0.00130	6000
50-165	T70	5600	40	0.5		1550	0.00250	0.00130	6000
50-170									
60-165	T70	7800	40	0.5		1500	0.00599	0.00358	6000

T = Temperature-stable rubber compound. The technical data specified apply for an ambient temperature of T = 60 °C.

MONOLASTIC®

One-piece, flexible flange couplings

Type SAE (EP 0853203/U.S. Patent 6,117,017)



Flange dimensions
according to SAE J620 [mm]

Size	D ₃	D ₂	z	d _L
6 1/2"	215.9	200.02	6	9
7 1/2"	241.3	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11

MONOLASTIC®																	
Size	Elastomer hardness [Shore A]	Torque [Nm]			Dimensions [mm]								MONOLASTIC® flanges according to SAE				
		T _{KN}	T _{K max.}	T _{KW}	dmax.	D	D ₁	l ₁	l ₂	l ₃	l ₄	l ₅	6 1/2"	7 1/2"	8"	10"	11 1/2"
30	T65	200	400	100	25	42	120	39	2	21	30	36	X	X			
	T70	250	500	125													
50	T65	350	700	175	32	50	167	42	2	24	30	38	X	X	X	X	
	T70	450	900	225													
G50	T70	600	1200	300	32	50	178	42	2	24	36	38		X	X	X	
	T65	750	1500	375													
65	T70	1000	2000	500	48	68	200	45	3	32	45	42				X	X
	T65	1500	3000	750													
75	T65	1500	3000	750	60	90	265	58	3	35	50	54				X	X
	T70	1850	3700	925													

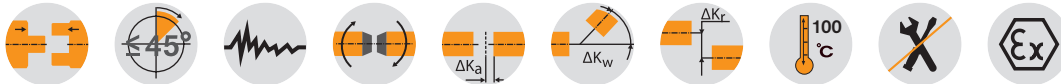
Technical data										
Size	Elastomer hardness [Shore A]	C _{dyn.} with 60 °C [Nm/rad]	Perm. damping power with 60 °C P _{KW} [W]	Max. displacement with 2200 rpm ΔK _r [mm]	Perm. angular displacement with 2200 rpm ΔK _w [°]	Radial spring stiffness C _r [N/mm]	Mass moment of inertia [kgm²]			Perm. operating speed n _{max.} [rpm]
							J _A		J _L	
30	T65	3750	25	0.5	1	1150	6 ½"	0.0038	0.00030	6000
	T70	4875				1500	7 ½"	0.0057		
50	T65	9000	35	0.5	1	1300	8"	0.0078	0.00120	6000
	T70	12000				1700	10"	0.0153		
G50	T70	17500	40	0.5	1	1910	7 ½"	0.0060	0.00120	6000
							8"	0.0080		
							10"	0.0162		
65	T65	14000	45	0.5	1	1900	10"	0.0238	0.00380	6000
	T70	18000				2450	11 ½"	0.0368		
75	T65	34000	80	0.5	1	1850	10"	0.0272	0.01450	6000
	T70	42000				2400	11 ½"	0.0402		

T = Temperature-stable rubber compound. The technical data specified apply for an ambient temperature of T = 60 °C.

BoWex-ELASTIC® HE1 - HE4

Highly flexible flange couplings

Axial plug-in, available in different kinds of hardness

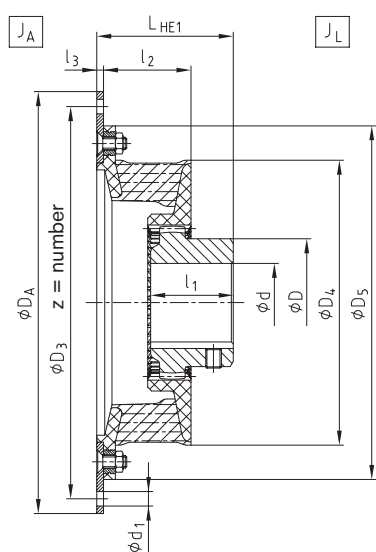


BoWex-ELASTIC® Type HE1 - HE4																										
Size	Bore d [mm]		Flange connection acc. to SAE - J620						Dimensions [mm]												Type HE1 / HE2			Type HE3 / HE4		
																					Weight with max. bore [kg]	Mass moment of inertia with max. bore [kgm²]		Weight with max. bore [kg]	Mass moment of inertia with max. bore [kgm²]	
	Pilot bored	Max.	6 1/2"	7 1/2"	8"	10"	11 1/2"	14"	l3 HE1/ HE2	l3 HE3/ HE4	D5	l2 HE1/ HE2	l2 HE3/ HE4	D4	D	l1	LHE1	LHE2	LHE3	LHE4		JA	JL		JA	JL
42 HE	-	42	●	●	●				4	2	180	44.5	37	145	65	42	70	50	55	40	1.8 2.8 2.3	0.0074 0.0172 0.0119	0.0016 0.0016 0.0021	1.8 - 1.9	0.0071 - 0.0070	0.0021 - 0.0022
48 HE	-	48	●	●	●		●		4	2	198	45	37	163	68	50	78	50	68	42	2.6 3.4 4.9 5.7	0.0170 0.0342 0.0424 0.0647	0.0021 0.0021 0.0069 0.0069	2.1 2.5 - 3.9	0.0103 0.0201 - 0.0147	0.0022 0.0022 - 0.0075
65 HE	21	65			●		●		5	-	244	55.5	-	205	96	55	85	62	-	-	-	-	-	-	-	-
G 65 HE	21	65			●		●		-	3	-	-	45	205	96	55	-	-	73	50	-	-	-	4.1 4.6 3.8	0.0281 0.0423 0.0163	0.0075 0.0075 0.0093
GG 65 HE	21	65			●		●		-	3	-	-	45	220	96	55	-	-	73	50	-	-	-	4.4 4.9	0.0294 0.0439	0.0093 0.0093
80 HE	31	90				●		●	-	4	316	70	56	265	124	90	126 132	74 80	112	60	8.1 10.2 9.7	0.0239 0.0765 0.0426	0.0307 0.0307 0.0471	9.1 - 11.1	0.0414 - 0.0713	0.0305 - 0.0472
G 80 HE	31	90					●	●	-	4	356	80	66	300	124	90	136 142	80 84	122	70	14.7	0.2851	0.0471	-	-	-
GG 80 HE	31	90					●	●	-	4	-	-	71	302	124	90	-	-	130	80	-	-	-	11.9	0.0768	0.0498
100 HE	38	100						●	-	4	-	-	76	350	152	110	142	90	150	82	-	-	-	18.3	0.2028	0.1104
G 100 HE	38	100						●	-	4	-	-	76	350	152	65	-	-	102	85	-	-	-	16	0.2172	0.1013

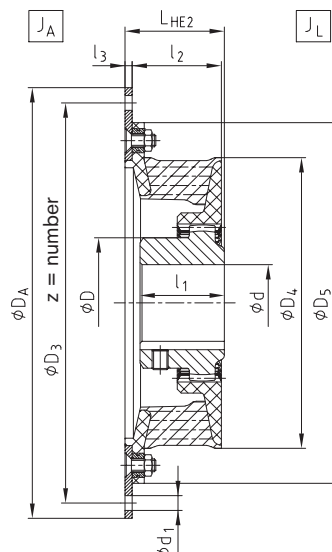
Other flange connections on request

Technical data													
Size	Elastomer hardness [Shore A]	Torque [Nm]				Perm. damping power P _{KW} [W]			Perm. operating speed n _{max} [rpm]	Dynamic torsion spring stiffness C _{dyn} [Nm/rad]	Relative damping ψ	Resonance factor V _R ≈ 2 • π / ψ	Radial spring stiffness C _r [N/mm]
		T _{KN}	T _K max. 10,000 LA [Nm]	T _K max. 50,000 LA [Nm]	with 10 Hz T _{KW}	60 °C	80 °C	90 °C					
42 HE	T40	165	395	330	41				6200	550	0.6	10.5	142
	T50	205	490	410	51	26.0	15.6	10.4		850	0.8	7.9	219
	T65	260	625	520	65					2700	1.2	5.2	697
48 HE	T40	250	600	500	63				5600	850	0.6	10.5	176
	T50	315	755	630	79	36.0	21.6	14.4		1300	0.8	7.9	269
	T65	400	960	800	100					3500	1.2	5.2	724
65 HE	T40	440	1050	880	110				4500	1600	0.6	10.5	209
	T50	550	1320	1100	138	60.0	36.0	24.0		2200	0.8	7.9	288
	T65	720	1730	1440	180					6000	1.2	5.2	784
G 65 HE	T40	540	1300	1080	135				4300	2350	0.6	10.5	294
	T50	700	1700	1400	175	68.0	40.8	27.2		3000	0.8	7.9	375
	T65	890	2140	1780	223					8500	1.2	5.2	1063
GG 65 HE	T40	750	1800	1500	188				4000	3650	0.6	10.5	420
	T50	960	2300	1920	240	76.0	45.6	30.4		4800	0.8	7.9	550
	T65	1250	3000	2500	313					13500	1.2	5.2	1550
80 HE	T40	950	2280	1900	238				3600	4500	0.6	10.5	351
	T50	1300	3120	2600	325	120.0	72.0	48.0		6500	0.8	7.9	507
	T65	1750	4200	3500	438					18000	1.2	5.2	1404
G 80 HE	T40	1600	3850	3200	400				3000	7500	0.6	10.5	476
	T50	2200	5280	4400	550	180.0	108.0	72.0		12000	0.8	7.9	762
	T65	2900	6960	5800	725					32000	1.2	5.2	2031
GG 80 HE	T40	2000	4800	4000	500				3000	9200	0.6	10.5	660
	T50	2750	6600	5500	688	196.0	117.6	78.4		14200	0.8	7.9	1020
	T65	3600	8650	7200	900					39600	1.2	5.2	2800
100 HE	T40	2500	6000	5000	625				2700	12000	0.6	10.5	460
	T50	3250	7800	6500	813	210.0	126.0	84.0		19000	0.8	7.9	730
	T65	4250	10200	8500	1063					48000	1.2	5.2	1840
G 100 HE	T40	3000	7200	6000	750				2700	14200	0.6	10.5	584
	T50	3800	9120	7600	950	215.0	129.0	86.0		22600	0.8	7.9	935
	T65	5000	12000	10000	1250					57000	1.2	5.2	2350

Ordering example:	BoWex-ELASTIC® 42					
	Coupling size	Type	Elastomer hardness	Flange Ø D _A according to SAE or special	Mounting length L _{HE}	Unbored or with finish bore

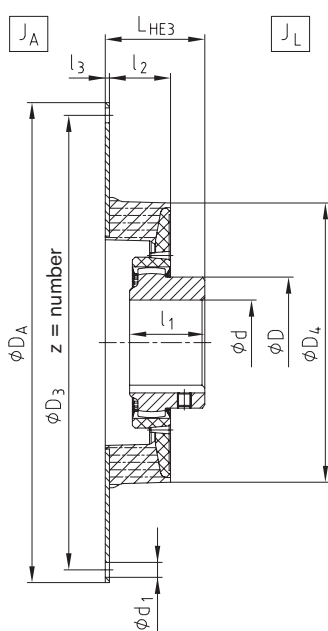


Type HE1

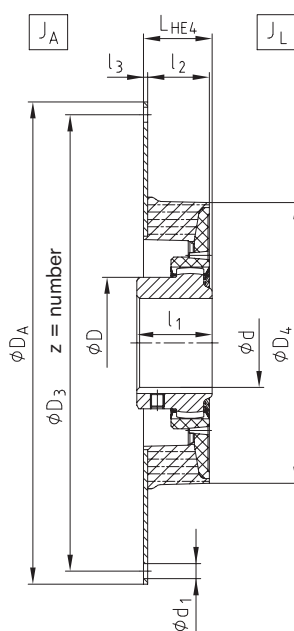


Type HE2

Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D3	z	d1
6 1/2"	215.90	200.02	6	9
7 1/2"	241.30	222.25	8	9
8"	263.52	244.47	6	11
10"	314.32	295.27	8	11
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13



Type HE3



Type HE4

Displacements																
Size		42 HE			48 HE			65 HE G65 HE GG65 HE			80 HE G80 HE GG80 HE			100 HE G100 HE		
Elastomer hardness [Shore A]		T40	T50	T65	T40	T50	T65	T40	T50	T65	T40	T50	T65	T40	T50	T65
Perm. radial displacement ΔK_r [mm]	n=1500 rpm	1.1	1.0	0.5	1.2	1.1	0.5	1.6	1.5	0.7	1.8	1.7	0.8	2.2	2.0	1.0
	max. 1)	3.6	3.3	1.5	3.8	3.5	1.7	5.1	4.7	2.2	5.7	5.3	2.4	6.5	6.0	3.0
Perm. angular displacement ΔK_w [°]	n=1500 rpm	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5
	n=3000 rpm	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25
Perm. angular displacement ΔK_w [°]	max. 1)	1.5			1.5			1.5			1.5			1.5		
Perm. axial displacement ΔK_a [mm]		± 2			± 2			± 2			± 2			± 3		

¹⁾ For short-term start-up operation

Mounting procedure, screw type with property class, tightening torques as per KTR assembly instructions (see www.ktr.com).

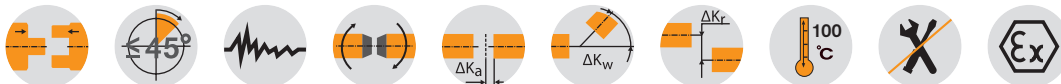
BoWex-ELASTIC® HE3 / HE4 / HE-D

Highly flexible flange couplings

Axial plug-in, available in different kinds of hardness



For legend of pictogram refer to flapper on the cover



BoWex-ELASTIC® Type HE3, HE4 and HE-D

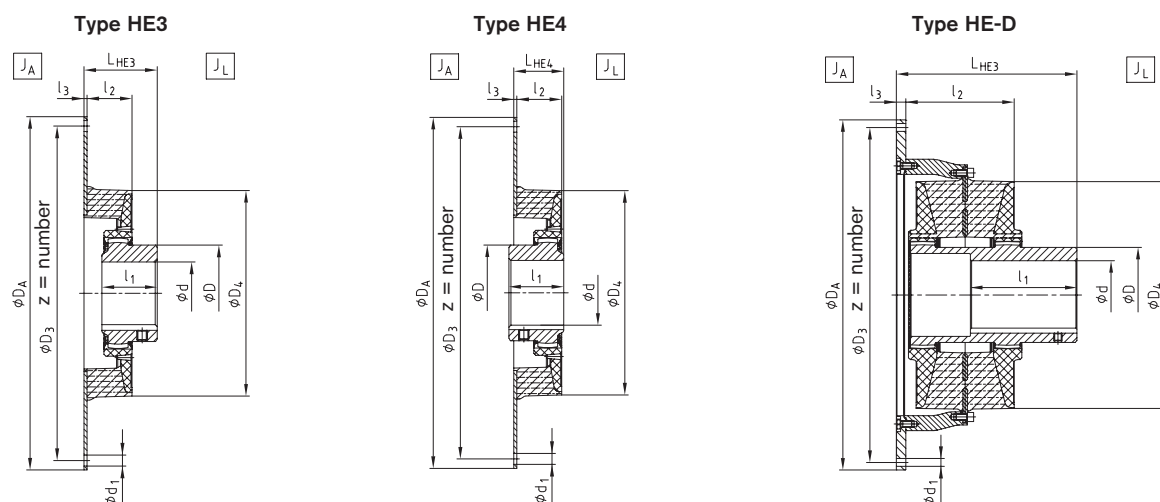
Size	Bore d [mm]		Flange connection acc. to SAE - J620							Dimensions [mm]							Weight with max. bore [kg]	Mass moment of inertia with max. bore [kgm²]	
	Pilot bored	Max.	14"	16"	18"	21"	24"	Ø800	Ø885	I3	I2	D4	D	I1	LHE3	LHE4		J _A	J _L
125 HE	45	125	•	•						6	92	416	192	140	186	103	33.1	0.3142	0.2750
G125 HE	45	125		•	•					6	89	440	192	140	192	109	34.8	0.4231	0.2750
150 HE	44	160			•	•				6	140	470	225	150	179	91	36.6	0.4634	0.3264
150 HE-D	44	160			•	•				-	286	470	225	275	205	160	39.5	0.6812	0.3264
G150 HE	44	160			•	•				6	140	504	225	150	205	160	46.8	0.7277	0.5414
G150 HE-D	44	160			•	•				-	286	504	225	275	291	-	51.5	1.2120	0.5414
200 HE	46	180			•	•	•			6	149	568	250	175	240	160	113	3.0045	1.0738
200 HE-D	46	180			•	•	•			-	325	568	250	298	310	-	155	6.4399	1.0738
G200 HE	46	180			•	•	•			6	149	600	250	175	240	160	51.9	0.8164	0.6500
G200 HE-D	46	180			•	•	•			-	325	600	250	298	310	-	56.6	1.3007	0.6500
240 HE	80	240					•	•		8	172	772	326	200	270	205	123	3.1820	1.291
275 HE	80	275						•	•	10	185	810	372	240	312	215	165	6.6173	1.291

Technical data

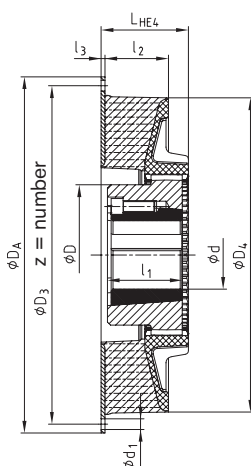
Size	Elastomer hardness [Shore A]	Torque [Nm]				Perm. damping power P _{KW} [W]			Perm. operating speed n _{max} [rpm]	Dynamic torsion spring stiffness C _{dyn} [Nm/rad] 60 °C	Relative damping ψ	Resonance factor V _R ≈ 2 • π / ψ	Radial spring stiffness C _r [N/mm]
		T _{KN} [Nm]	T _K max. 10,000 LA [Nm]	T _K max. 50,000 LA [Nm]	T _{KW} [Nm]	60 °C	80 °C	90 °C					
125 HE	T40	3500	10500	7000	875					20000	0.6	10.5	625
	T50	4800	11400	9600	1200	221	133	88	2300	30000	0.8	7.9	988
	T70	6800	20400	13600	1700					54000	1.2	5.2	2434
G125 HE	T40	4800	14400	7200	1200					34000	0.6	10.5	890
	T50	6600	19800	9900	1650	240	144	96	2250	51000	0.8	7.9	1305
	T70	10000	30000	15000	2500					98000	1.2	5.2	1915
150 HE	T50	8000	24000	12000	2000	262	157	105	2200	67500	0.8	7.9	714
	T70	14000	42000	21000	3500					140000	1.2	5.2	2500
	T50	16000	48000	24000	4000	524	314	210	2200	134000	0.8	7.9	1428
150 HE-D	T70	28000	84000	42000	7000					279000	1.2	5.2	5000
	T50	10000	30000	15000	2500	278	167	111	2100	85000	0.8	7.9	1485
	T70	18000	54000	27000	4500					160000	1.2	5.2	5874
G150 HE-D	T50	20000	60000	30000	5000					170000	0.8	7.9	2970
	T70	36000	108000	54000	9000	556	334	222	2100	320000	1.2	5.2	11748
	T50	14500	43500	21750	3625					119000	0.8	7.9	1720
200 HE	T70	25000	75000	37500	6250	308	185	123	1900	241000	1.2	5.2	6769
	T50	29000	87000	43500	7250					238000	0.8	7.9	3440
	T70	50000	150000	75000	12500	616	370	246	1900	482000	1.2	5.2	13538
G200 HE	T50	17500	52500	26250	4375	324	194	130	1800	139000	0.8	7.9	1952
	T70	30000	90000	45000	7500					281500	1.2	5.2	7708
	T50	35000	105000	52500	8750					278000	0.8	7.9	3904
G200 HE-D	T70	60000	180000	90000	15000	648	388	260	1800	563000	1.2	5.2	15416
	T50	29000	87000	43500	7250					259000	0.8	7.9	2326
	T70	49000	147000	73500	12250	372	223	149	1500	521000	1.2	5.2	9160
240 HE	T50	42000	126000	63000	10500					375000	0.8	7.9	2950
	T70	70000	210000	105000	17500	410	246	164	1500	758000	1.2	5.2	11785

Ordering example:

BoWex-ELASTIC® 125	HE3	T40	14"	186	U
Coupling size	Type	Elastomer hardness	Flange Ø D _A according to SAE or special	Mounting length L _{HE}	Unbored or with finish bore



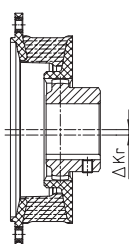
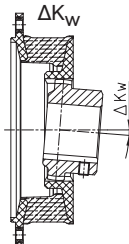
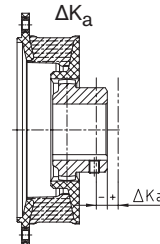
Type HE4 with taper clamping sleeve

Flange dimensions
according to SAE J620 [mm]

Nominal size	D _A	D ₃	z	d ₁
14"	466.72	438.15	8	13
16"	517.50	489.00	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø800 ¹⁾	800	770	32	17
Ø885 ¹⁾	885	855	36	17

¹⁾ Flange connection differing from SAE standard, dimensions in mm.

Displacements

Radial displacement ΔK_r Angular displacement ΔK_w Axial displacement ΔK_a 

Displacements																
Size		125 HE G125 HE			150 HE G150 HE			200 HE G200 HE			240 HE			275 HE		
Elastomer hardness [Shore A]		T40	T50	T70	T40	T50	T70	T40	T50	T70	T40 Sh	T50	T70	T40	T50	T70
Perm. radial displacement ΔK_r [mm]	n=1500 rpm	2.5	2.3	1.1	2.8	2.5	1.3	3.0	2.7	1.5	3.2	2.9	1.6	3.4	3.1	1.8
	max. ²⁾	7.5	6.9	3.3	8.0	7.5	4.0	8.5	8.0	4.5	9.0	8.5	5.0	9.5	9.0	5.5
Perm. angular displacement ΔK_w [°]	n=1500 rpm	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5	1.0	0.75	0.5
	n=3000 rpm	0.5	0.4	0.25	–	–	–	–	–	–	–	–	–	–	–	–
Perm. angular displacement ΔK_w [°]	max. ²⁾	1.5			1.5			1.5			1.5			1.5		
Perm. axial displacement ΔK_a [mm]		± 3			± 4			± 4			± 4			± 4		

²⁾ For short-term start-up operation

Mounting procedure, screw type with property class, tightening torques as per KTR assembly instructions (see www.ktr.com).

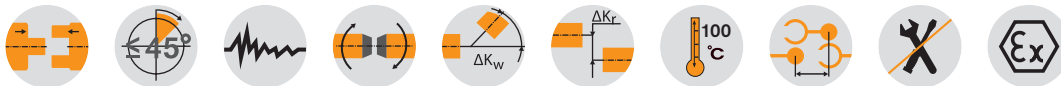
BoWex-ELASTIC® HE-ZS and HEW

Highly flexible flange couplings

With drop-out center design piece for pump drives, highly flexible shaft-to-shaft coupling



For legend of pictogram refer to flapper on the cover



BoWex-ELASTIC® Type HE-ZS																												
Size	Max. finish bore d4	Flange connection acc. to SAE - J620 D _A for HE-ZS										Dimensions [mm]								Drop-out center design piece HE-ZS L _Z [mm]					Weight with max. bore [kg]	Mass moment of inertia [kgm²]		
		6 ½"	7 ½"	8"	10"	11 ½"	14"	16"	18"	21"	24"	D ₁	D ₄	D ₅	D ₇	D ₈	I ₁	I ₂	I ₃	I ₆	100	120	140	180		250	J _A	J _L
48 ³⁾	28	●																48	10		●	●				2.9 ¹⁾	0.0026	0.0033
			●									160	164	200	78	45	40				37	●	●			3.6 ¹⁾	0.0106	0.0033
				●														37	4		37	●	●			3.9 ¹⁾	0.0148	0.0033
					●																	●	●			4.6 ¹⁾	0.0298	0.0033
G65 ³⁾	45				●																		●			7.3 ¹⁾	0.0242	0.0129
						●						205		110	72	60	48	3	56				●	●		8.9 ²⁾	0.0372	0.0150
80 ³⁾	65				●							265	266	318	145	100	80	70	11	76			●	●		13.7 ²⁾	0.0211	0.0497
						●												11	6				●	●		15.9 ²⁾	0.0726	0.0497
G80 ³⁾	65					●						300	302	358	145	100	80	80	11	76			●			14.6 ²⁾	0.0402	0.0634
							●											6					●	●		19.5 ²⁾	0.2251	0.0634
100 ³⁾	95						●					350		202	148	110	80	4	106				●	●		29.8 ²⁾	0.1951	0.1779
125 ⁴⁾	100						●					416		225	165	120	99	6	116				●	●		41.7 ²⁾	0.3013	0.3363
G125 ⁴⁾	120							●						225	165	120	95	6	116				●	●		43.6 ²⁾	0.4123	0.3363
									●			440		225	165	120	95	6	116				●	●		45.6 ²⁾	0.4781	0.3700
150 ⁴⁾	135								●					245	185	140	140	6	136				●			63.2	0.6918	0.6647
										●				245	185	140	140	6	136					●		67.9	1.1410	0.6647
G150 ⁴⁾	135									●				245	185	140	140	6	136				●			68.3	0.7540	0.7677
											●			504		245	185	140	140	6	136			●		73.0	1.2460	0.7677
200 ⁴⁾	150													270	205	160	149	6	156				●			98.7	1.5348	1.4109
												●											●			101.7	1.9138	1.4109
G200 ⁴⁾	150													270	205	160	149	6	156				●			103.5	1.7270	1.6401
												●											●			106.6	2.1060	1.6401

¹⁾ with L_Z 120

²⁾ with L_Z 100

³⁾ For technical data see page 224

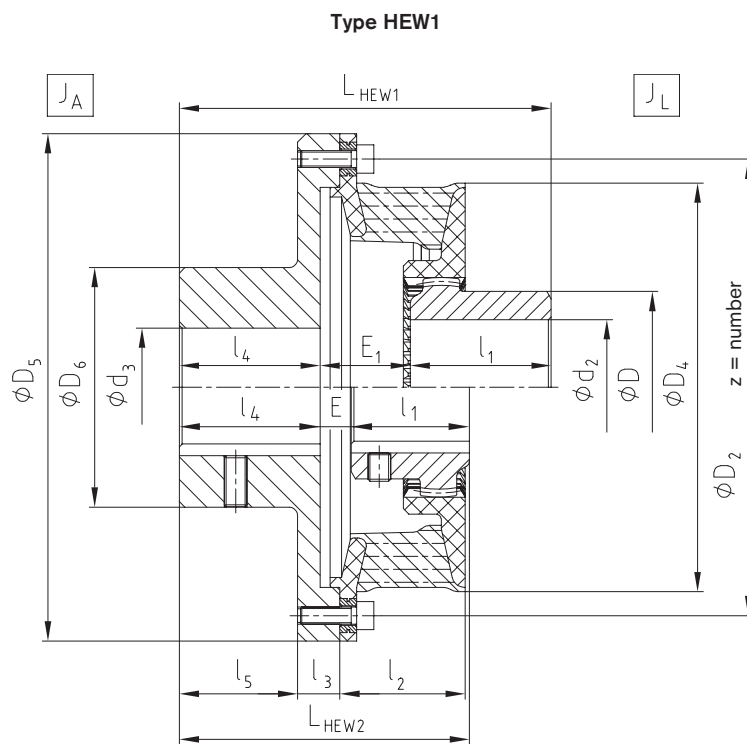
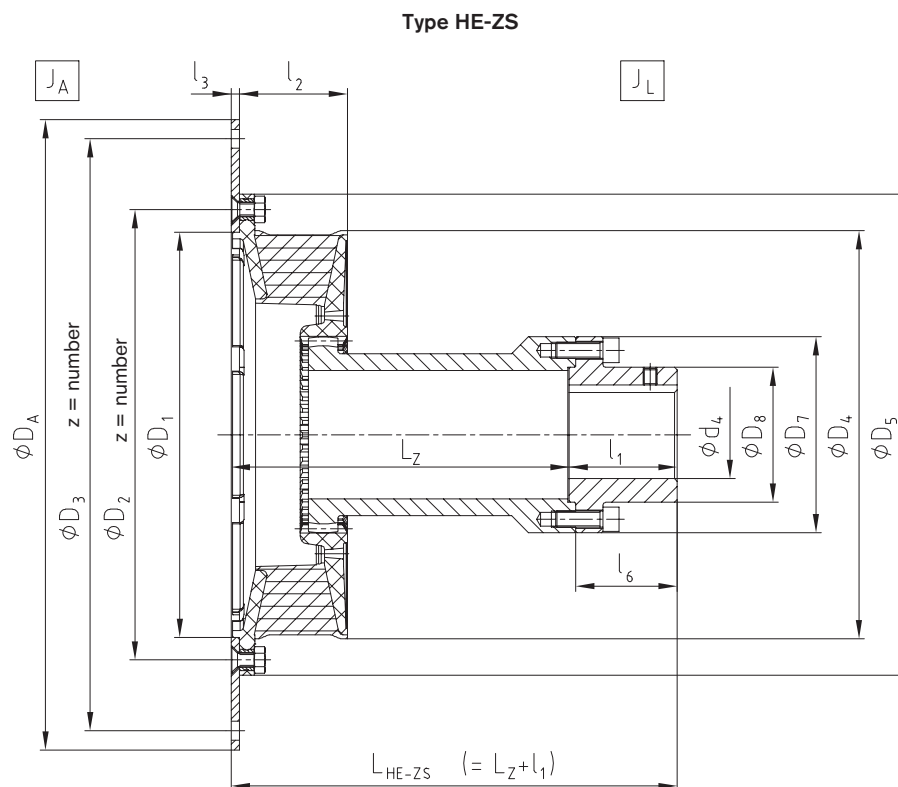
⁴⁾ For technical data see page 226

BoWex-ELASTIC® Type HEW																					
Size	Max. finish bore		Dimensions [mm]																Weight with max. bore [kg]	Mass moment of inertia [kgm²]	
	d ₂	d ₃	D	D ₂	z x M	D ₄	D ₅	D ₆	I1	I2	I3	I4	I5	E	E ₁	LHEW1	LHEW2	J _A		J _L	
42	48	50	68	162	6	M6	146	180	85	50	45	15	50	42	4	32	132	104	4.3	0.0121	0.0015
48 ³⁾	48	55	68	180	8	M6	164	200	92	50	45	17	55	45	4	32	137	109	5.5	0.0204	0.0019
65 ³⁾	65	75	96	224	8	M8	205	245	125	70	55	28	75	63	5	42	187	150	13.2	0.0752	0.0071
80 ³⁾	90	80	124	295.27	8	M10	266	318	130	90	70	17	80	70	5	45	215	160	19.7	0.1449	0.0285
G80 ³⁾	90	95	124	333.4	8	M10	302	358	145	90	80	22	90	78	5	55	235	185	25.9	0.2748	0.0422
100 ³⁾	100	110	152	438.15	8	M12	350	478	158	110	80	14	111.5	113	26	57	278	207	48.5	0.8356	0.1050
125 ⁴⁾	125	125	192	438.15	8	M12	416	478	175	140	99	14	170	158	-	45	355	-	67.2	0.9498	0.2617
G125 ⁴⁾	125	125	192	489	8	M12	440	530	175	140	95	14	170	158	-	45	355	-	76.6	1.4492	0.3034
150 ⁴⁾	160	160	225	542.9	6	M16	470	585	225	150	100	18	160	145	-	70	380	-	110	2.7206	0.5303
G150 ⁴⁾	160	160	225	542.9	6	M16	504	585	225	150	108	18	160	145	-	70	380	-	113.4	2.7809	0.5861
200 ⁴⁾	180	200	250	641.35	12	M16	568	683	280	175	149	26	220	214	-	85	480	-	195	6.6418	1.1406
G200 ⁴⁾	180	200	250	641.35	12	M16	600	683	280	175	149	26	220	214	-	85	480	-	200	6.6099	1.3419

³⁾ For technical data see page 224

⁴⁾ For technical data see page 226

Other sizes available. Please consult with us.



Type HEW2

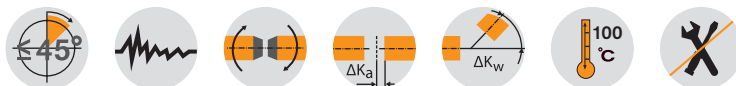
BoWex-ELASTIC® HEG

Highly flexible flange couplings

Cardan shaft connecting coupling



For legend of pictogram refer to flapper on the cover



BoWex-ELASTIC® Type HEG1 and type HEG2																																
Size	Flywheel connection acc. to SAE-J620					Metric flange connection HEG1 dimensions [mm]										MECHANICS cardan shaft connection HEG2 dimensions [mm]										Dimensions [mm]				Weight [kg]	Mass moment of inertia	
	8"	10"	11 1/2"	14"	16"	58	65	75	90	100	120	150	180	l4	L	2 C	4 C	5 C	6 C	7 C	8,5 C	8 C	L1	D4	l2	l3	JA [kgm²]	JL [kgm²]				
48 1)	●					●	●	●						8	58.5										163	43.5	8	7	0.03	0.006		
		●				●	●	●								●	●	●									8	0.06	0.006			
G65 1)		●						●	●	●				8	66		●	●	●						71	205	48.0	10	12	0.07	0.02	
			●					●	●	●	●					●	●	●									14	0.10	0.02			
80 1)		●						●	●	●	●			10	88.5			●	●	●					104	265	68.5	23	21	0.11	0.06	
			●					●	●	●	●						●	●	●								12	23	0.17	0.06		
G80 1)			●						●	●	●	●		10	96				●	●	●				110	302	74.0	23	26	0.18	0.09	
				●					●	●	●	●						●	●	●							12	33	0.48	0.09		
100 1)				●						●	●	●	●	12	98					●	●			128	350	78.0	16	41	0.63	0.19		
125 2)				●						●	●	●	●	12	111						●	●		135	416	96.0	18	56	0.74	0.42		
					●					●	●	●	●								●	●					12	59	0.97	0.42		

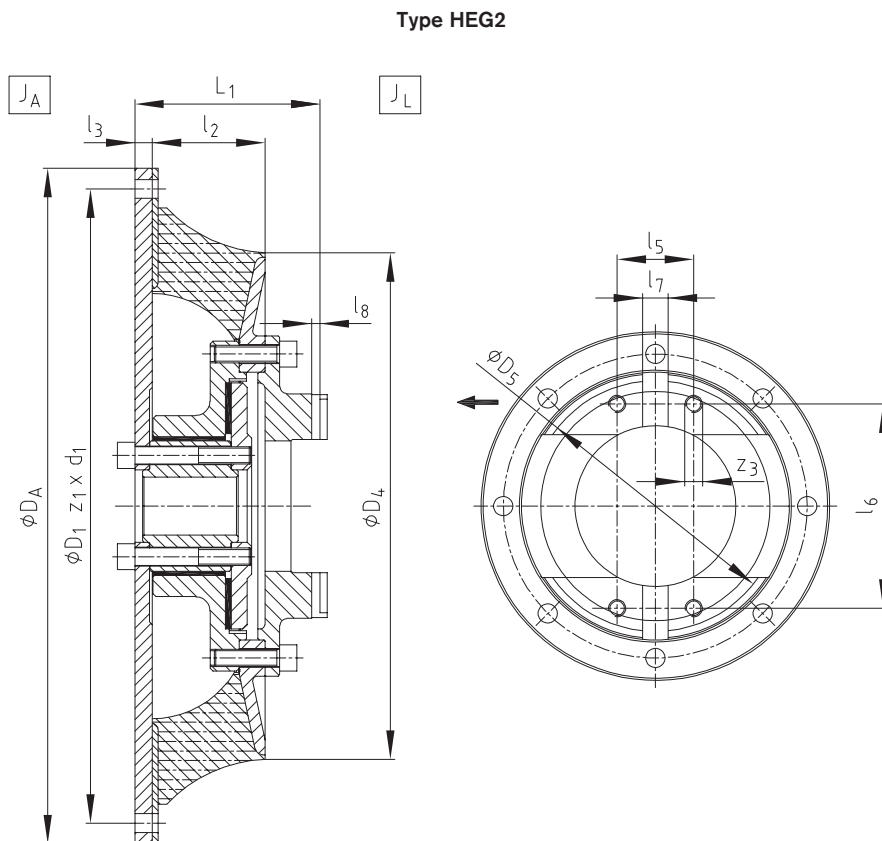
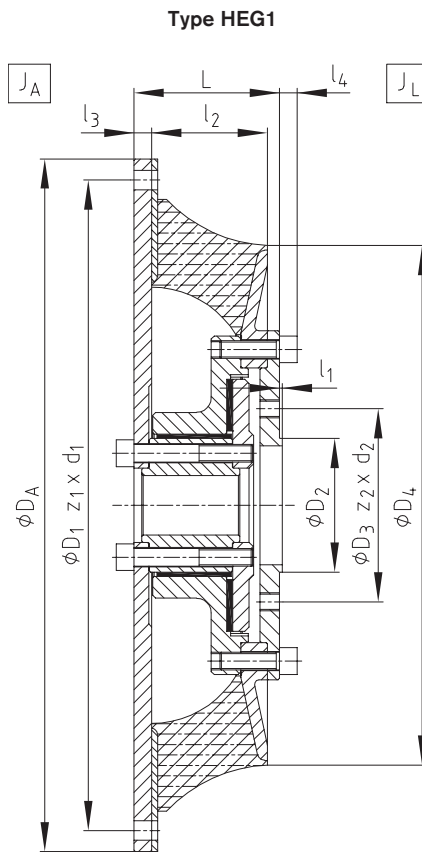
¹⁾ For technical data see page 224

²⁾ For technical data see page 226

Flywheel connection acc. to SAE-J620					Metric flange connection HEG1 [mm]						MECHANICS cardan shaft connection HEG2 [mm]						
Size	DA	D1	z1	d1	Size	D2	l1	D3	z2	d2	Size	D5	l5	l6	l7	l8	z3
8"	263.52	244.47	6	11	58	30	1.0	47.0	4	M5	2 C	79.35	33.3	59.5	9.50	3.8	M8
10"	314.32	295.27	8	11	65	35	1.0	52.0	4	M6	4 C	107.92	36.5	87.3	9.50	3.8	M8
11 1/2"	352.42	333.37	8	11	75	42	1.5	62.0	6	M6	5 C	115.06	42.9	88.9	14.26	5.1	M10
14"	466.72	438.15	8	14	90	47	2.0	74.5	4	M8	6 C	140.46	42.9	114.3	14.26	5.1	M10
16"	517.50	489.00	8	14	100	57	2.0	84.0	6	M8	7 C	148.39	49.2	117.5	15.85	6.0	M12
					120	75	2.0	101.5	8	M10	8,5 C	165.08	71.4	123.8	15.85	6.0	M12
					150	90	2.5	130.0	8	M12	8 C	206.32	49.2	174.6	15.85	6.0	M12
					180	110	3.0	155.5	8	M14							

BoWex-ELASTIC® type HEG has a maintenance-free plain bearing compensating for the radial loads generated by the cardan shaft. Moreover, the coupling has a friction disk which is axially prestressed by the elastomer part. The elastomer part is made of natural rubber via vulcanizing.

The permanent friction provides the coupling with excellent damping properties considerably reducing the high vibratory torques generated in the coupling during the starting process and passing through resonance.



SINULASTIC®

Highly flexible flange coupling

Description of product and application

SINULASTIC® is a modularly structured series of highly flexible flange couplings based on a disk-shaped coupling body. Four practical basic versions with individual properties cover a wide range of applications primarily for diesel engine drives, but also general drive tasks.

The main task of the coupling is reducing torsional vibrations resulting from excitations of the I. C.-engine during standard operation and misfire operation as well as protecting the drive from overload. It is a good option both for variable speed and constant speed drives, while a supercritical selection of the drive train above resonance level is always made. Particularly for the series the coupling disk requires the smallest possible axial mounting space.

Depending on the type the coupling is pluggable and compensates for displacements resp. tolerances moderately to very well. It is a non-slip or shear type and radially mountable.

The elastomer element is available in various qualities for all types. It is composed of natural rubber compounds optimised over many years (SN, MN, HN, UN up to 80 °C) or upon request of synthetical EPDM material for higher temperatures (SE, ME, HE, UE up to 100 °C) as well as silicone rubber (SC, MC up to 120 °C). The various kinds of rubber hardness cover one application and torque range per size. The vibratory properties of the four types are compatible within one size.

A wide standard portfolio of hub connections covers a large variety of shaft configurations on the driven side while special connections can be implemented.



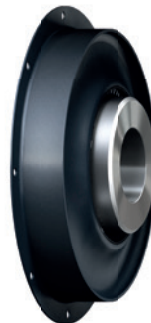
SINULASTIC® - The types



A



T



B



V

SINULASTIC® A is the evolution design of the renowned disk coupling with plug-in spline between elastomer and flange ring as well as hub vulcanized on. The tooth shape that is subject to high loads particularly with alternating loads in the contact area between engine flange and rubber was extensively optimized, the new sinusoidal tooth shape being eponymous for the series. For the first time the engine flange was executed by a deep-drawn sheet metal section creating a beneficial and smooth surface to the elastomer. Another benefit is the tight contact gap for easy mountability with simultaneously highly sound and defined form fit.

In contrast to type A a Taperlock shaft connection as a standard version with feather key is used with SINULASTIC® T. The modular concept makes use of the plug-in ability of type A on the flange side.

Type B and V make use of a deep-drawn and inherently stable flange ring that the elastomer part is externally vulcanized on. This results in a low-cost solution for high speeds and overloads.

In combination with the renowned BoWex® inner hub the SINULASTIC® B as an all-rounder of the overall series is formed. The so-called BoWex® hub defines a pluggable connection resistant to high loads as well as favourable adaptations on the driven side up to long driving shaft systems owing to the potentials for particularly high displacements. The hub and connection variants of BoWex®-ELASTIC are fully compatible with the elastomer elements of this series.

SINULASTIC® V is favourably used where the ability for axial plug-in is not required. A resulting radial assembly is realised by a split ring on the hub side.

The slim wasteline shape of the elastomer elements of this type allows for significant displacements in axial, radial and angular direction without any wear, while the coupling element is suitable both for not flange-mounted assembly, i. e. for system configurations set up freely and as a shaft coupling with cardanic misalignment.

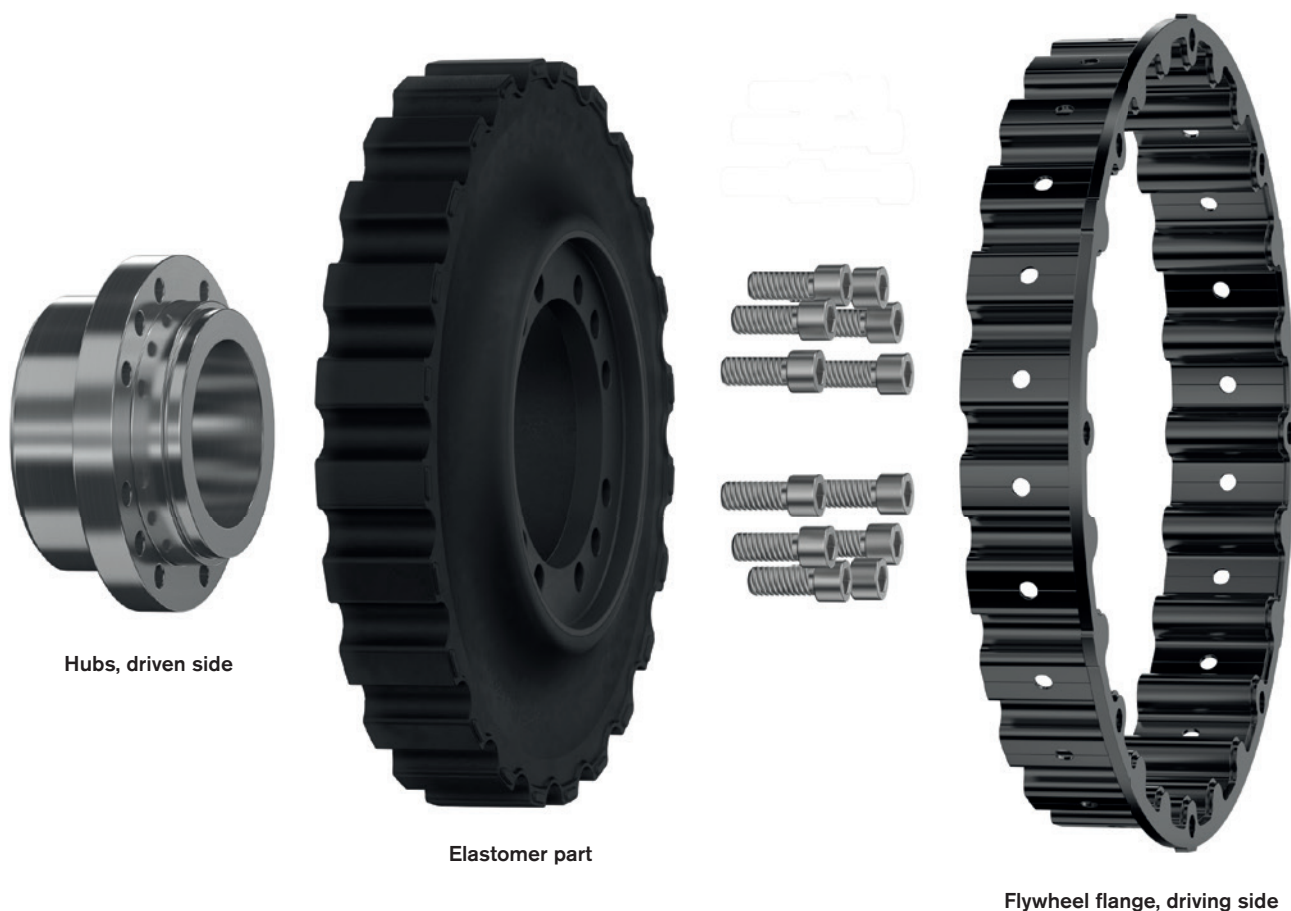
SINULASTIC®

Highly flexible couplings

Properties of types by comparison

Properties of types by comparison			
Properties	SINULASTIC® A SINULASTIC® T	SINULASTIC® V	SINULASTIC® B
Rated torque T_{KN}	Compatible within the series		
Maximum torque T_{Kmax}	$\geq 2x T_{KN}$	$3x T_{KN}$	$3x T_{KN}$
Vibratory properties, e. g. torsional stiffness	Compatible within the series		
Materials ¹⁾	Natural rubber compounds up to 80 °C for hardness ranges WN, SN, MN and HN, synthetical EPDM up to 100 °C for hardness ranges WE, SE, ME and HE, silicone rubber up to 120°C in the hardness ranges SC and MC.		
Plug-in	Yes	No	Yes
Radial assembly	Partially possible	Yes	No
Mounting length	++	Ø	++
Axial displacement	++	+	++
Radial displacement	Ø	+	+
Angular displacement	Ø	++	++
Standard	For flywheel flange and shaft connection (SAE J620, DIN 5480 et seqq., DIN 6281, etc.)		
special solutions	Bearing-mounted intermediate coupling, with failure protection, combination with shifting unit		Cardanic offset joint, failure protection, shaft systems
	Application-specific shaft connections of elastomer elements		

¹⁾The standard materials and availabilities depend on the size and type, special compounds available on request



BoWex® FLE-PA/-PAC

MONOLASTIC®

BoWex-ELASTIC®

SINULASTIC®

Flange
couplings

SINULASTIC®

Highly flexible flange coupling

Technical data of natural rubber (NR)

Technical data														
Size	Elastomer type	Torque [Nm] ¹⁾				Dynamic torsion spring stiffness C _{dyn} [Nm/rad] ²⁾		Relative damping ψ [-]		Perm. damping power [W] ³⁾			Operating speed [rpm]	
		T _{KN}	T _{Kmax}	T _{Kmax1}	T _{KW}	30 °C	60 °C	30 °C	60 °C to 80 °C	30 °C	60 °C	80 °C	n	η _{max.}
20	SN	1800	2700	3600	720	7500	6150	1.00	0.70	210	130	80	2700	3000
	MN	2000	3000	4000	800	11500	9430	1.10	0.77	240	149	91	2700	3000
	HN	2500	3750	7500	1000	18500	15170	1.30	0.91	270	167	103	3240	3600
	UN	2850	4275	8550	1140	22000	18040	1.40	0.98	290	180	110	3240	3600
	WN	2000	3000	4000	800	9800	8036	0.90	0.63	240	149	91	2340	2600
28	SN	2200	3300	4400	880	12500	10250	1.00	0.70	260	161	99	2340	2600
	MN	2800	4200	5600	1120	17000	13940	1.10	0.77	270	167	103	2340	2600
	HN	3400	5100	10200	1360	24000	19680	1.30	0.91	290	180	110	2520	2800
	UN	3750	5625	11250	1500	30000	24600	1.40	0.98	310	192	118	2520	2800
38	SN	3100	4650	6200	1240	15000	12300	1.00	0.70	275	171	105	2520	2800
	MN	3800	5700	7600	1520	22000	18040	1.10	0.77	300	186	114	2520	2800
	HN	4600	6900	13800	1840	35000	28700	1.30	0.91	330	205	125	2880	3200
	UN	5100	7650	15300	2040	41000	33620	1.40	0.98	350	217	133	2880	3200
53	SN	4200	6300	8400	1680	17000	13940	1.00	0.70	285	177	108	2340	2600
	MN	5300	7950	10600	2120	28000	22960	1.10	0.77	325	202	124	2340	2600
	HN	6200	9300	18600	2480	45500	37310	1.30	0.91	370	229	141	2700	3000
	UN	7000	10500	21000	2800	52000	42640	1.40	0.98	400	248	152	2700	3000
96	SN	8100	12150	16200	3240	75000	61500	1.00	0.70	480	298	182	2070	2300
	MN	10000	15000	20000	4000	100000	82000	1.10	0.77	500	310	190	2070	2300
	HN	11200	16800	33600	4480	135000	110700	1.30	0.91	510	316	194	2250	2500
	UN	13200	19800	39600	5280	175000	143500	1.40	0.98	520	322	198	2250	2500
114	SN	10000	15000	20000	4000	90000	73800	1.00	0.70	500	310	190	2070	2300
	MN	11400	17100	22800	4560	125000	102500	1.10	0.77	530	329	201	2070	2300
	HN	13400	20100	40200	5360	160000	131200	1.30	0.91	550	341	209	2250	2500
	UN	15600	23400	46800	6240	190000	155800	1.40	0.98	560	347	213	2250	2500
140	SN	13000	19500	26000	5200	106000	86920	1.00	0.70	540	335	205	1890	2100
	MN	14000	21000	28000	5600	149000	122180	1.10	0.77	550	341	209	1890	2100
	HN	16200	24300	48600	6480	235000	192700	1.30	0.91	570	353	217	2070	2300
	UN	19000	28500	57000	7600	330000	270600	1.40	0.98	590	366	224	2070	2300
180	SN	16000	24000	32000	6400	132000	108240	1.00	0.70	620	384	236	1890	2100
	MN	18000	27000	36000	7200	185000	151700	1.10	0.77	630	391	239	1890	2100
	HN	22000	33000	66000	8800	295000	241900	1.30	0.91	650	403	247	2070	2300
	UN	25000	37500	75000	1000	380000	311600	1.40	0.98	670	415	255	2070	2300

- ¹⁾ T_{KN} Torque that can be continuously transmitted over the full speed range
T_{Kmax} Transient torque peaks (e. g. resonance passage), max. 100,000 load alternations pulsating / 50,000 load alternations vibratory
T_{Kmax1} Impact loads rarely, max. 1,000 load alternations
For selection consider DIN 740 part II (operating factor, temperature factor), parameters for an ambient temperature of 20 °C.
²⁾ Referring to 0.5 T_{KN}
³⁾ Here permanent damping power. Twice the damping power figure is permissible for one hour.

Technical data of synthetical rubber (EPDM)

Technical data														
Size	Elastomer type	Torque [Nm] ¹⁾				Dynamic torsion spring stiffness C _{dyn} . [Nm/rad] ²⁾	Relative damping ψ [-]			Perm. damping power [W] ³⁾			Operating speed [rpm]	
		T _{KN}	T _{Kmax}	T _{Kmax1}	T _{KW}	60 °C - 100 °C	30 °C	80 °C	100 °C	30 °C	80 °C	100 °C	n	n _{max.}
20	SE	1800	2700	3600	720	Data available on request.	30 °C	80 °C	100 °C	30 °C	80 °C	100 °C	2700	3000
	ME	2000	3000	4000	800								2700	3000
	HE	2500	3750	7500	1000								3240	3600
	UE	2850	4275	8550	1140								3240	3600
28	SE	2200	3300	4400	880								2340	2600
	ME	2800	4200	5600	1120								2340	2600
	HE	3400	5100	10200	1360								2520	2800
	UE	3750	5625	11250	1500								2520	2800
38	SE	3100	4650	6200	1240								2520	2800
	ME	3800	5700	7600	1520								2520	2800
	HE	4600	6900	13800	1840								2880	3200
	UE	5100	7650	15300	2040								2880	3200
53	SE	4200	6300	8400	1680								2340	2600
	ME	5300	7950	10600	2120								2340	2600
	HE	6200	9300	18600	2480								2700	3000
	UE	7000	10500	21000	2800								2700	3000
96	SE	8100	12150	16200	3240								2070	2300
	ME	10000	15000	20000	4000								2070	2300
	HE	11200	16800	33600	4480								2250	2500
	UE	13200	19800	39600	5280								2250	2500
114	SE	10000	15000	20000	4000	2070	2300							
	ME	11400	17100	22800	4560	2070	2300							
	HE	13400	20100	40200	5360	2250	2500							
	UE	15600	23400	46800	6240	2250	2500							
140	SE	13000	19500	26000	5200	1890	2100							
	ME	14000	21000	28000	5600	1890	2100							
	HE	16200	24300	48600	6480	2070	2300							
	UE	19000	28500	57000	7600	2070	2300							
180	SE	16000	24000	32000	6400	1890	2100							
	ME	18000	27000	36000	7200	1890	2100							
	HE	22000	33000	66000	8800	2070	2300							
	UE	25000	37500	75000	10000	2070	2300							

- ¹⁾ T_{KN} Torque that can be continuously transmitted over the full speed range
T_{Kmax} Transient torque peaks (e. g. resonance passage), max. 100,000 load alternations pulsating / 50,000 load alternations vibratory
T_{Kmax1} Impact loads rarely, max. 1,000 load alternations
For selection consider DIN 740 part II (operating factor, temperature factor), parameters for an ambient temperature of 20 °C.
²⁾ Referring to 0.5 T_{KN}
³⁾ Here permanent damping power. Twice the damping power figure is permissible for one hour.

SINULASTIC®

Highly flexible couplings

Technical data of silicone rubber (SI)

Technical data																				
Size	Elastomer type	TKN RT ³⁾	Torque [Nm] with an ambient temperature of +80 °C ¹⁾				Dynamic torsion spring stiffness C _{dyn.} [Nm/rad] ²⁾					Relative damping ψ [-]			Perm. damping power [W] ³⁾				Operating speed [rpm]	
			TKN	TK _{max}	TK _{max1}	TK _W	10%	25%	50%	75%	100%	30 °C	100 °C	120 °C	30 °C	80 °C	100 °C	120 °C	n	η _{max.}
20	SC	1800	1385	2077	2769	554													2700	3000
	MC	2000	1538	2308	3077	615													2700	3000
28	SC	2200	1692	2538	3385	677													2340	2600
	MC	2800	2154	3231	4308	862													2340	2600
38	SC	3100	2385	3577	4769	954													2520	2800
	MC	3800	2923	4385	5846	1169													2520	2800
53	SC	4200	3231	4846	6462	1292													2340	2600
	MC	5300	4077	6115	8154	1631													2250	2500
96	SC	8100	6231	9346	12462	2492													2070	2300
	MC	9600	7385	11077	14769	2954													2070	2300
114	SC	9200	7077	10615	14154	2831													2070	2300
	MC	11400	8769	13154	17538	3508													2070	2300
140	SC	12500	9615	14423	19231	3846													1890	2100
	MC	14000	10769	16154	21538	4308													1890	2100
180	SC	16000	12308	18462	24615	4923													1890	2100
	MC	18000	13846	20769	27692	4800													1890	2100

- ¹⁾ TKN Torque that can be continuously transmitted over the full speed range
TK_{max} Transient torque peaks (e. g. resonance passage), max. 100,000 load alternations pulsating / 50,000 load alternations vibratory
TK_{max1} Impact loads rarely, max. 1,000 load alternations
For selection consider DIN 740 part II (operating factor, temperature factor)
²⁾ Referring to 0.5 TKW
³⁾ Reference value with an ambient temperature of +20 °C

BoWex® FLE-PA/-PAC

MONOLASTIC®

BoWex-ELASTIC®

Flange couplings

SINULASTIC®

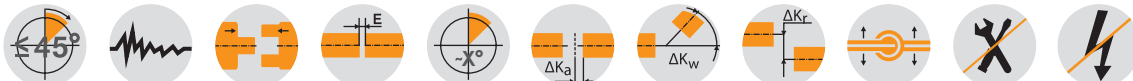


New materials	
Synthetical rubber (EPDM)	Silicone rubber (SI)
• Max. ambient temperature: +100 °C	• Max. ambient temperature: +120 °C
• Long service life	• Very good resistance to media with oils and greases
• Low decline of torsion spring stiffness	• Lightly progressive torsion spring stiffness
• High weather and aging resistance	• High weather and aging resistance
• Resuming high damping work	• Resuming very high damping work

SINULASTIC® A

Highly flexible flange coupling

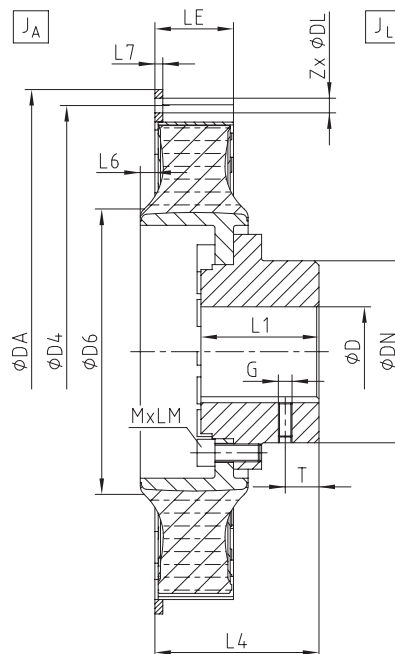
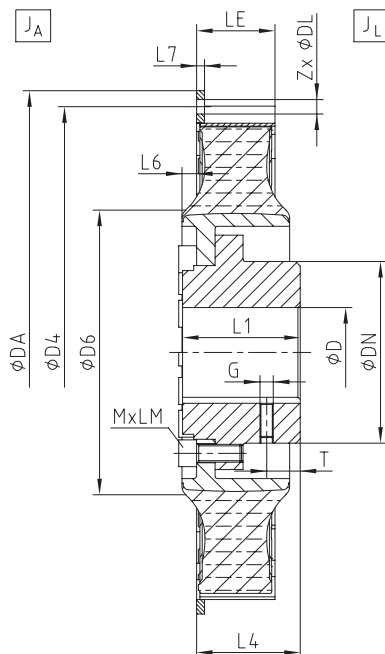
Pluggable disk coupling with optimal tooth contact



Type AK

Type AL

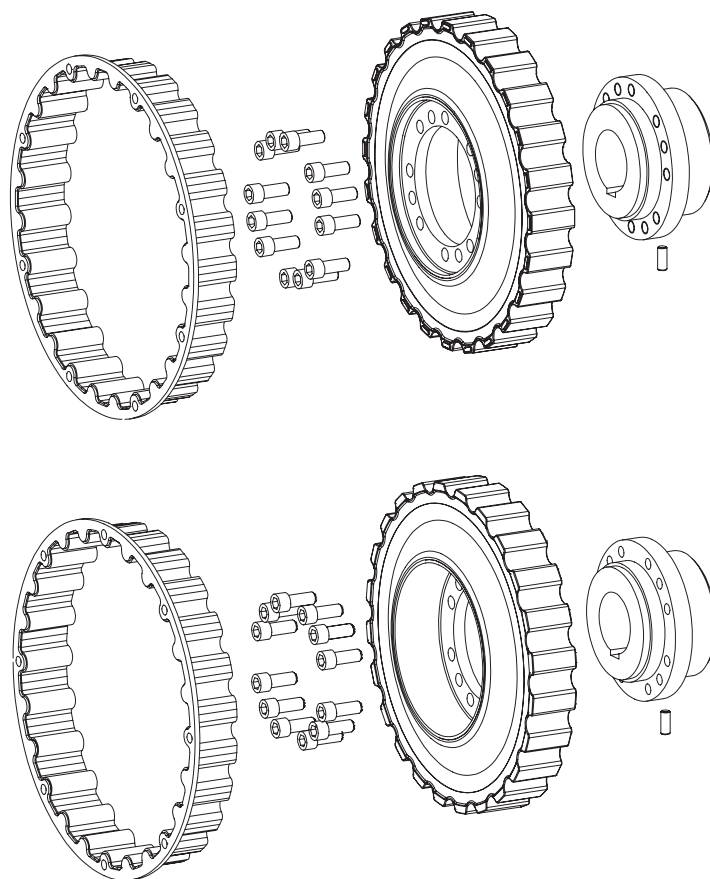
Types AK and AL specify the standard with variable hub connections as a short or long version



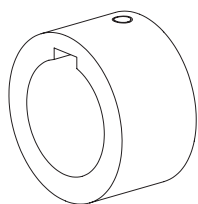
Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D4	Z	DL
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø475	475	450	12	11

SINULASTIC® type AK / AL																					
Size	Flange connection acc. to SAE - J620						Dimensions [mm]											Mass moment of inertia [kgm²] ¹⁾		Weight [kg] ¹⁾	
							Max. finish bore D	DN	D6	LE	L1	L4		L6	L7	MxLM	G				T
	AK	AL																			
			11 ½"	14"	18"	21"						24"	Ø475					JA	JL		
20	●						80	112	164	65	75	90.5 +3.5/-4.5	127.5 +3.5/-4.5	5.5	41.0 13.6	M12x30	M10	30	0.0947 0.1353 0.1873	0.0533 0.0533 0.1667	13.70 14.79 21.89
		●					115	162	244	44	90	93.5 ±3	109 ±3	7.0	7.0	M16x40	M12	35	0.4968 0.2013	0.1667 0.1667	26.54 22.15
	28		●																0.2444 0.5539	0.1994 0.1994	25.53 30.18
38			●				115	162	244	58	100	93.5 ±3	123 ±3	7.0	7.0	M16x40	M12	35	0.2584 0.2906	0.1994 0.2378	25.79 29.44
		●					115	162	247	70	105	92.5 ±3	146 ±3	13.0	7.0	M16x40	M12	40	0.6000 0.3046	0.2378 0.2378	34.09 29.70
	53			●															0.7310 1.5407	1.0321 1.0321	63.86 72.34
96				●			175	248	352	84	150	129 ±4	192 ±4	1.0	11.0	M20x50	-	-	2.2186 0.8367	1.0321 1.1212	77.90 68.00
					●		175	248	352	98	150	129 ±4	206 ±4	1.0	11.0	M20x50	-	-	1.6464 2.3243	1.1212 1.1212	76.48 82.05
	114				●														1.6664 2.5280	2.1577 2.1577	101.52 108.59
140					●		175	248	431	94	200	200 ±3.5	280 ±3.5	3.0	14.0	M20x60	-	-	1.9539 2.8167	2.4188 2.4188	109.82 116.90
						●	175	248	431	114	200	200 ±3.5	300 ±3.5	3.0	14.0	M20x60	-	-			
	180					●															

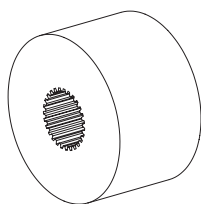
¹) With max. bore



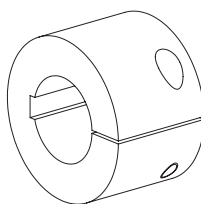
Types of hubs type AK / AL ¹⁾



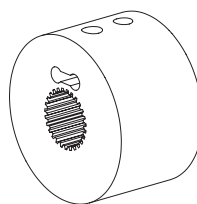
Type 1.0
with feather keyway
and setscrew
(acc. to standard AK, AL)



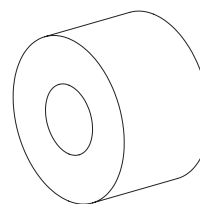
Type 1.3
spline toothed



Type 2.1
clamping hub
single slot with
feather keyway



Type 3.1
spline/clamping hub N



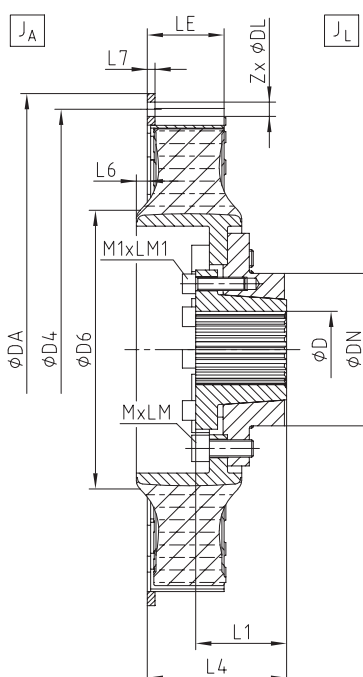
Type 8.0
taper interference fit

Type 8.1
cylindrical
interference fit

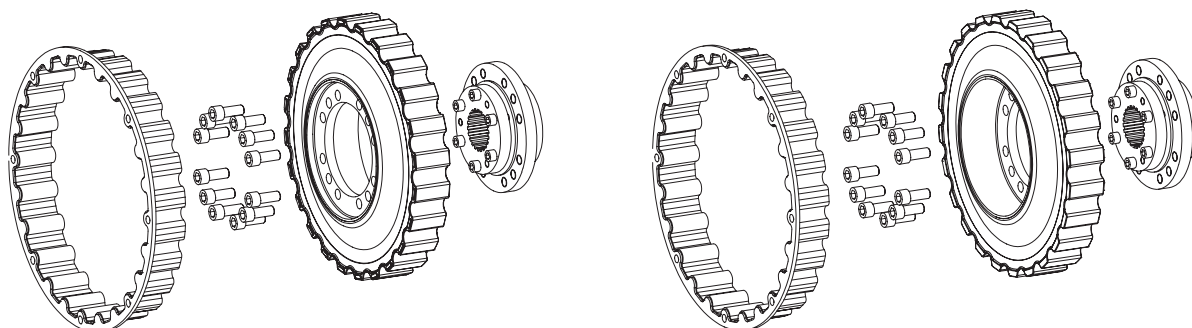
¹⁾ Dimensions and type may differ depending on size, other types of hubs on request

Type ALC / AKC

Types AKC and ALC specify the hub type as a spline clamping ring hub



Flange dimensions according to SAE J620 [mm]					
Nominal size	DA	D4	Z	DL	
11 1/2"	352.42	333.37	8	11	
14"	466.72	438.15	8	13	
18"	571.50	542.90	6	17	
21"	673.10	641.35	12	17	
24"	733.42	692.15	12	21	
Ø475	475	450	12	11	

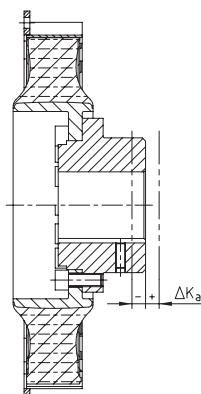


¹⁾ With max. bore

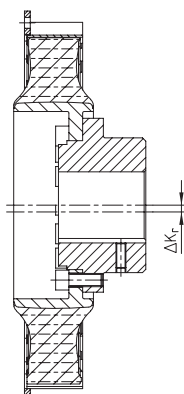
SINULASTIC® A

Highly flexible flange coupling

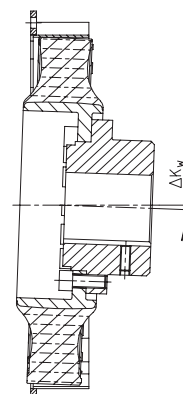
Displacements



Axial displacement



Radial displacement



Angular displacement

SINULASTIC® A size		20	28	38	53	96	114	140	180
Perm. axial displacement ΔK_a [mm] ²⁾		±2.0	±3.0	±3.0	±3.0	±3.0	±3.0	±3.0	±3.0
Perm. radial displacement ΔK_r [mm]	1500 rpm	0.8	1.1	1.1	1.1	1.25	1.25	1.5	1.5
	$n_{max.}$	0.6	0.8	0.8	0.8	0.9	0.9	1.1	1.1
	max. ¹⁾	1.6	2.2	2.2	2.2	2.5	2.5	3.0	3.0
Perm. angular displacement ΔK_w [degree]	1500 rpm	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4
	$n_{max.}$	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3
	max. ¹⁾	1.1	0.9	0.9	0.9	0.8	0.8	0.6	0.6

¹⁾With assembly, for a short time resp. rarely with downtime or start-up operation as well as exceptional load conditions.

²⁾Plug-in fit in the tooth contact allows for alternative mounting lengths

BoWex® FLE-PA/-PAC

MONOLASTIC®

Flange
couplings

BoWex-ELASTIC®

SINULASTIC®

Ordering
example:

SINULASTIC® 53	ALC	M	14	1.3	DIN 5480 - 60x2x28
Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

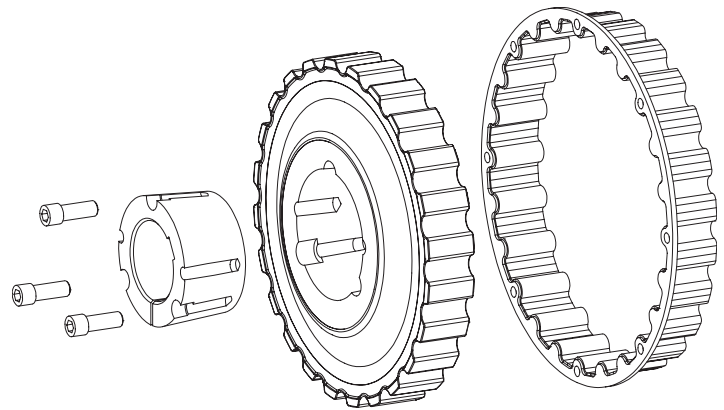
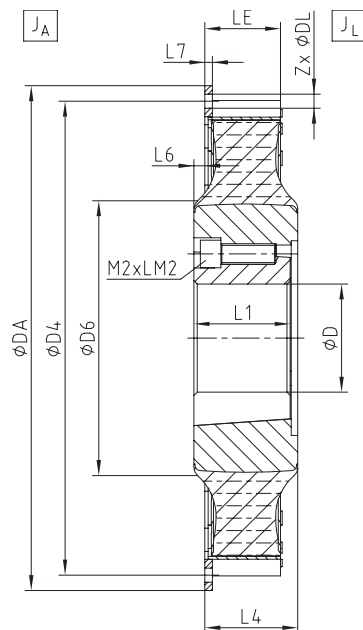
SINULASTIC® T

Highly flexible flange coupling

Pluggable disk coupling with optimal tooth contact



Type T specifies the hub type as Taperlock shaft connection

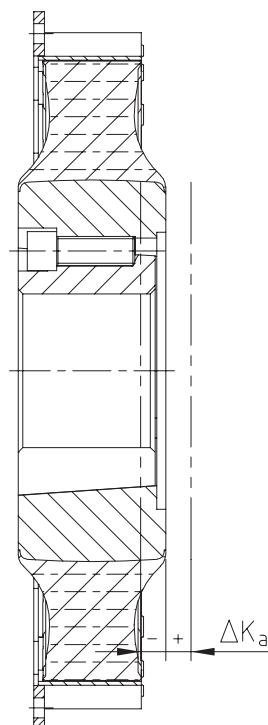


Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D4	Z	DL
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø475	475	450	12	11

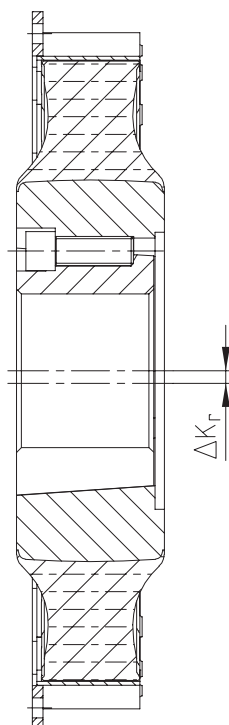
SINULASTIC® type T																				
Size	Flange connection acc. to SAE - J620						Dimensions [mm]									Taper clamping sleeve		Mass moment of inertia [kgm²] ¹⁾		Weight [kg] ¹⁾
							Finish bore D		D6	LE	L1	L4	L6	L7	M2xLM2	Type				
	Pilot bored	Max.																		
	11 1/2"	14"	18"	21"	24"	Ø475														
20	●					35	90	164	60	63.5	70.5 +3.5/-4.5	5.5	41.0	1/2"x38	3525	0.0947	0.0568	13.75		
		●											13.6			0.1353	0.0568	14.83		
28		●				35	90	244	44	63.5	57.0 ± 3	7.0	7.0	1/2"x38	3525	0.1873	0.1919	24.37		
			●													0.4968	0.1919	29.02		
						●											0.2013	0.1919	24.63	
38		●				40	110	244	58	76.2	70.0 ± 3	7.0	7.0	5/8"x44	4030	0.2444	0.2404	28.68		
			●													0.5539	0.2404	33.33		
						●											0.2584	0.2404	28.93	
53		●												3/4"x50	4535	0.2906	0.2993	33.72		
			●			55	125	247	70	89.0	83.0 ± 3	13.0	7.0			0.6000	0.2993	38.36		
					●											0.3046	0.2993	33.97		

¹⁾ With max. bore

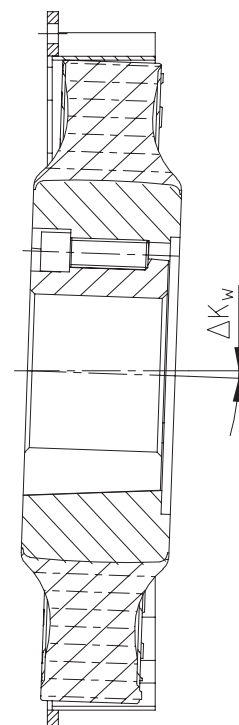
Displacements



Axial displacement



Radial displacement



Angular displacement

SINULASTIC® T size		20	28	38	53
Perm. axial displacement ΔK_a [mm] ²⁾		±2.0	±3.0	±3.0	±3.0
Perm. radial displacement ΔK_r [mm]	1500 rpm	0.8	1.1	1.1	1.1
	$n_{max.}$	0.6	0.8	0.8	0.8
	max. ¹⁾	1.6	2.2	2.2	2.2
Perm. angular displacement ΔK_w [degree]	1500 rpm	0.7	0.6	0.6	0.6
	$n_{max.}$	0.5	0.4	0.4	0.4
	max. ¹⁾	1.1	0.9	0.9	0.9

¹⁾ With assembly, for a short time resp. rarely with downtime or start-up operation as well as exceptional load conditions.

²⁾ Plug-in fit in the tooth contact allows for alternative mounting lengths

Ordering example:

SINULASTIC® 53	T	M	14	1.0	Ø75
Coupling size	Type	Elastomer hard- ness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

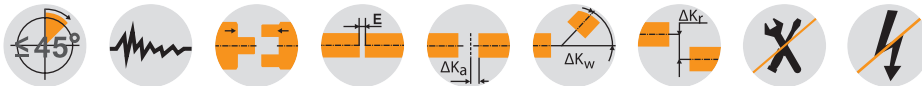
SINULASTIC® B

Highly flexible flange coupling

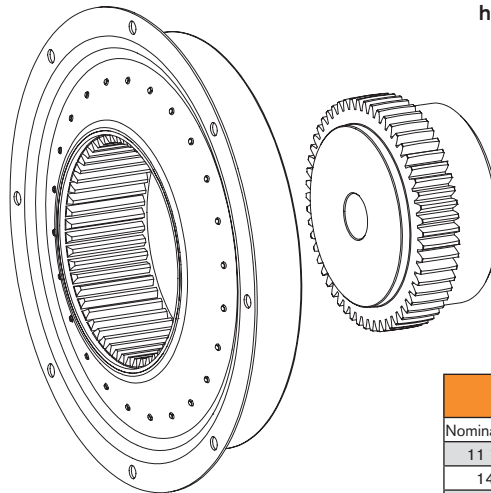
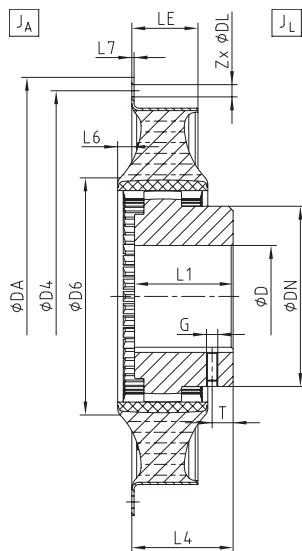
Disk coupling pluggable inside



For legend of pictogram refer to flapper on the cover



Type B specifies a type pluggable in the hub for variable use and high potential for offset

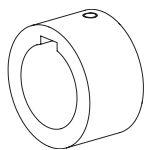


Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D4	Z	DL
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø475	475	450	12	11

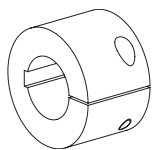
SINULASTIC® type B																			
Size	Flange connection acc. to SAE - J620						Dimensions [mm]										Mass moment of inertia [kgm²] ¹⁾		Weight [kg] ¹⁾
	11 ½"	14"	18"	21"	24"	Ø475	Max. finish bore D	DN	D6	LE	L1	L4	L6	L7	G	T	J _A	J _L	
20	●						80	124	169	60.0	75	80.5 ±21	8.5	2.0	M10	20	0.0625	0.0336	9.67
		●															0.1114	0.0336	10.82
28		●		●			125	200	244	38.0	140	129 ±7	10.0	2.5	M10	20	0.1159	0.1978	27.15
						●											0.2291	0.1978	28.82
38																	0.1213	0.1978	27.24
		●															0.1524	0.2121	28.95
			●				125	200	245	52.0	140	136 ±14	10.0	2.5	M16	40	0.2655	0.2121	30.62
						●											0.1578	0.2121	29.05
53		●															0.1944	0.2298	31.10
			●				125	200	247	70.5	140	143 ±20	15.0	2.5	M16	40	0.3075	0.2298	32.77
						●											0.1998	0.2298	31.20
96			●														0.3857	0.5413	41.23
				●			160	225	352	69.0	150	131.5 ±12	7.0	2.5	-	-	0.5741	0.5413	43.18
					●												0.7318	0.5413	44.46
114			●														0.4591	0.5979	44.33
				●			160	225	352	83.0	150	138.5 ±19	7.0	2.5	-	-	0.6475	0.5979	46.28
					●												0.8052	0.5979	47.56
140				●													0.8816	1.8772	83.39
					●		240	326	431	81.0	200	175 ±11	10.0	3.0	-	-	1.0708	1.8772	84.93
180				●													1.0905	2.0154	88.66
					●		240	326	431	101.0	200	185 ±21	10.0	3.0	-	-	1.2796	2.0154	90.19

¹⁾ With max. bore

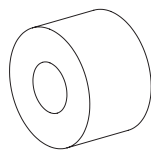
Types of hubs type B ¹⁾



Type 1.0
with feather keyway
and setscrew



Type 2.1
clamping hub
single slot with
feather keyway

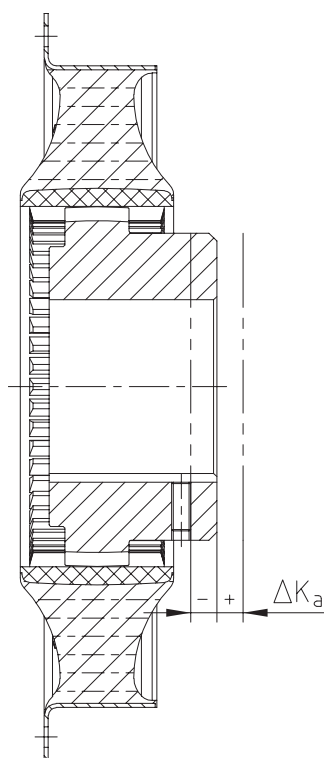


Type 8.0
taper interference fit

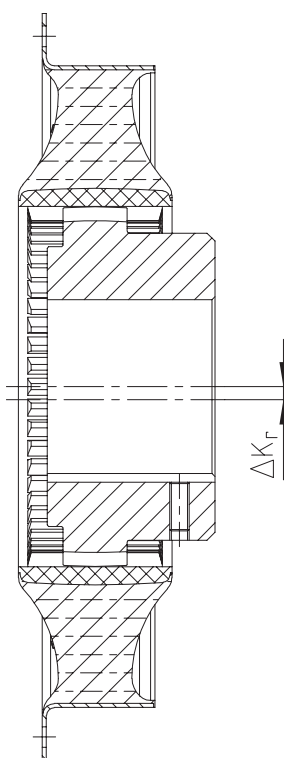
Type 8.1
cylindrical
interference fit

¹⁾ Dimensions and type may differ depending on size, other types of hubs on request

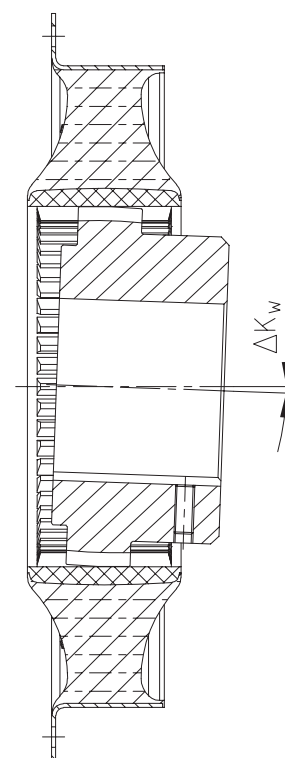
Displacements



Axial displacement



Radial displacement



Angular displacement

SINULASTIC® B size		20	28	38	53	96	114	140	180
Perm. axial displacement ΔK_a [mm]		±2	±3	±3.0	±3.0	±4.0	±4.0	±4.0	±4.0
Perm. radial displacement ΔK_r [mm]	1500 rpm	0.8	1.1	1.1	1.1	1.25	1.25	1.5	1.5
	n_{max}	0.6	0.8	0.8	0.8	0.9	0.9	1.1	1.1
	$max. ^{1)}$	1.6	2.2	2.2	2.2	2.5	2.5	3.0	3.0
Perm. angular displacement ΔK_w [degree]	1500 rpm	1.0	0.8	0.8	0.8	0.7	0.7	0.6	0.6
	n_{max}	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4
	$max. ^{1)}$	2.0	1.6	1.6	1.6	1.4	1.4	1.2	1.2

¹⁾ With assembly, for a short time resp. rarely with downtime or start-up operation as well as exceptional load conditions.

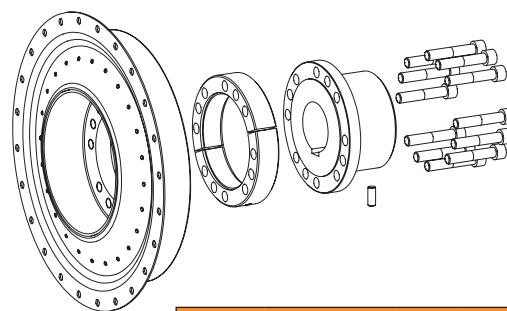
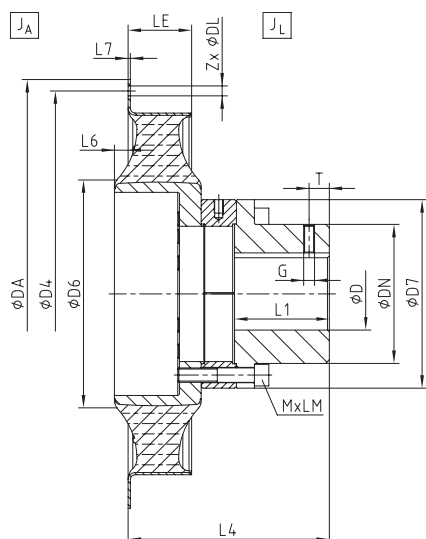
Ordering example:	SINULASTIC® 53	B	M	14	1.3	DIN 5480 - 60x2x28
	Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore

Highly flexible flange coupling

Radially mountable disk coupling



Type V specifies a radially replaceable type for not flange-mounted drives set up freely

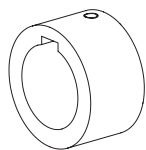


Flange dimensions according to SAE J620 [mm]				
Nominal size	DA	D4	Z	DL
11 1/2"	352.42	333.37	8	11
14"	466.72	438.15	8	13
18"	571.50	542.90	6	17
21"	673.10	641.35	12	17
24"	733.42	692.15	12	21
Ø475	475	450	12	11

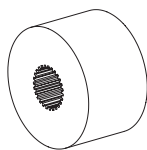
SINULASTIC® type V																																									
Size	Flange connection acc. to SAE - J620						Dimensions [mm]												Mass moment of inertia [kgm ²] ¹⁾		Weight [kg]																				
	11 ½"	14"	18"	21"	24"	Ø475	Max. finish bore D	DN	D6	D7	LE	L1	L4	L6	L7	MxLM	G	T	J _A	J _L																					
																			0.0625	0.0650		0.1114	0.0612	0.1159	0.2148	0.2291	0.2053	0.1213	0.2053	0.1524	0.2379	0.2655	0.2274	0.1578	0.2274	0.1944	0.2751	0.3075	0.2690	0.1998	0.2690
20	●						70	100	145	145	60.0	75	196	8.5	2.0	M12x90	M10	20	0.0625	0.0650	16.22																				
		●											181						0.1114	0.0612	16.40																				
			●										191						0.1159	0.2148	27.33																				
28				●			110	154	244	209	38.0	100	181	10.0	2.5	M16x90	M10	20	0.2291	0.2053	27.85																				
						●							181						0.1213	0.2053	26.28																				
													205						0.1524	0.2379	29.77																				
38					●		110	154	245	209	52.0	100	195	10.0	2.5	M16x90	M16	40	0.2655	0.2274	30.16																				
						●							195						0.1578	0.2274	28.59																				
													229						0.1944	0.2751	33.62																				
53							110	154	247	209	70.5	105	223	15.0	2.5	M16x90	M16	40	0.3075	0.2690	34.55																				
						●							223						0.1998	0.2690	32.97																				
																			0.3857	1.1404	68.98																				
96						●	160	235	352	300	69.0	150	249	7.0	2.5	M20x80	-	-	0.5741	1.1404	70.93																				
																			0.7318	1.1404	72.21																				
																			0.4591	1.2304	72.97																				
114							160	235	352	300	83.0	150	263	7.0	2.5	M20x80	-	-	0.6475	1.2304	74.92																				
																			0.8052	1.2304	76.20																				
																			0.8816	2.1530	97.56																				
140							165	235	431	300	81.0	200	314	10.0	3.0	M20x80	-	-	1.0708	2.1530	99.10																				
																			1.0905	2.3954	104.94																				
180							165	235	431	300	101.0	200	334	10.0	3.0	M20x80	-	-	1.2796	2.3954	106.47																				

1) With max. bore

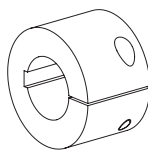
Types of hubs type V ¹⁾



Type 1.0
with feather keyway
and setscrew



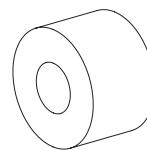
Type 1.3
spline toothing



Type 2.1
clamping hub
single slot with
feather keyway



Type 3.1
spline/clamping hub N

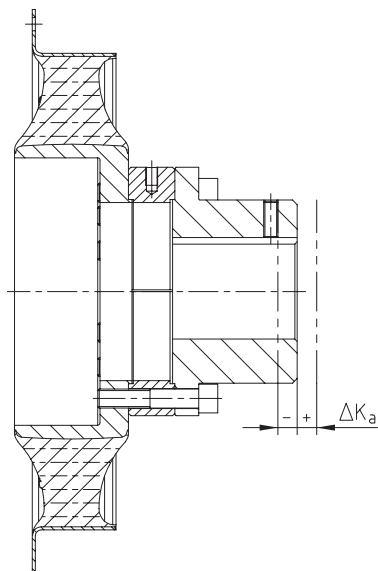


Type 8.0
taper interference fit

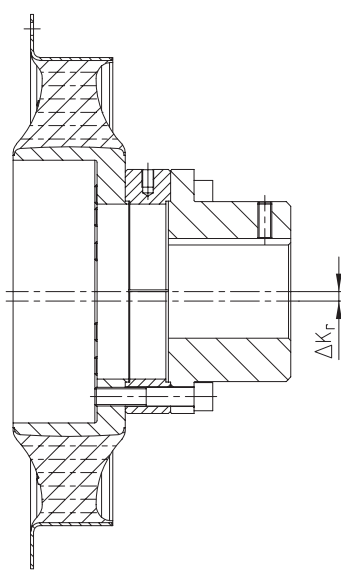
Type 8.1
cylindrical
interference fit

¹⁾Dimensions and type may differ depending on size, other types of hubs on request

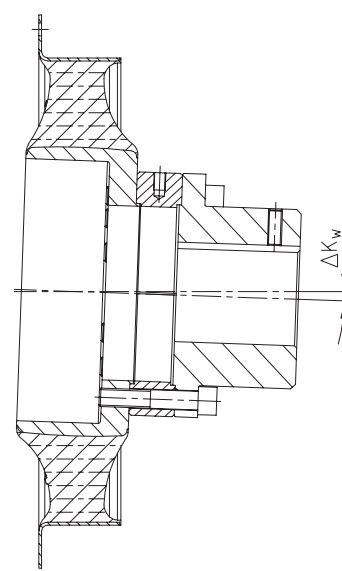
Displacements



Axial displacement



Radial displacement



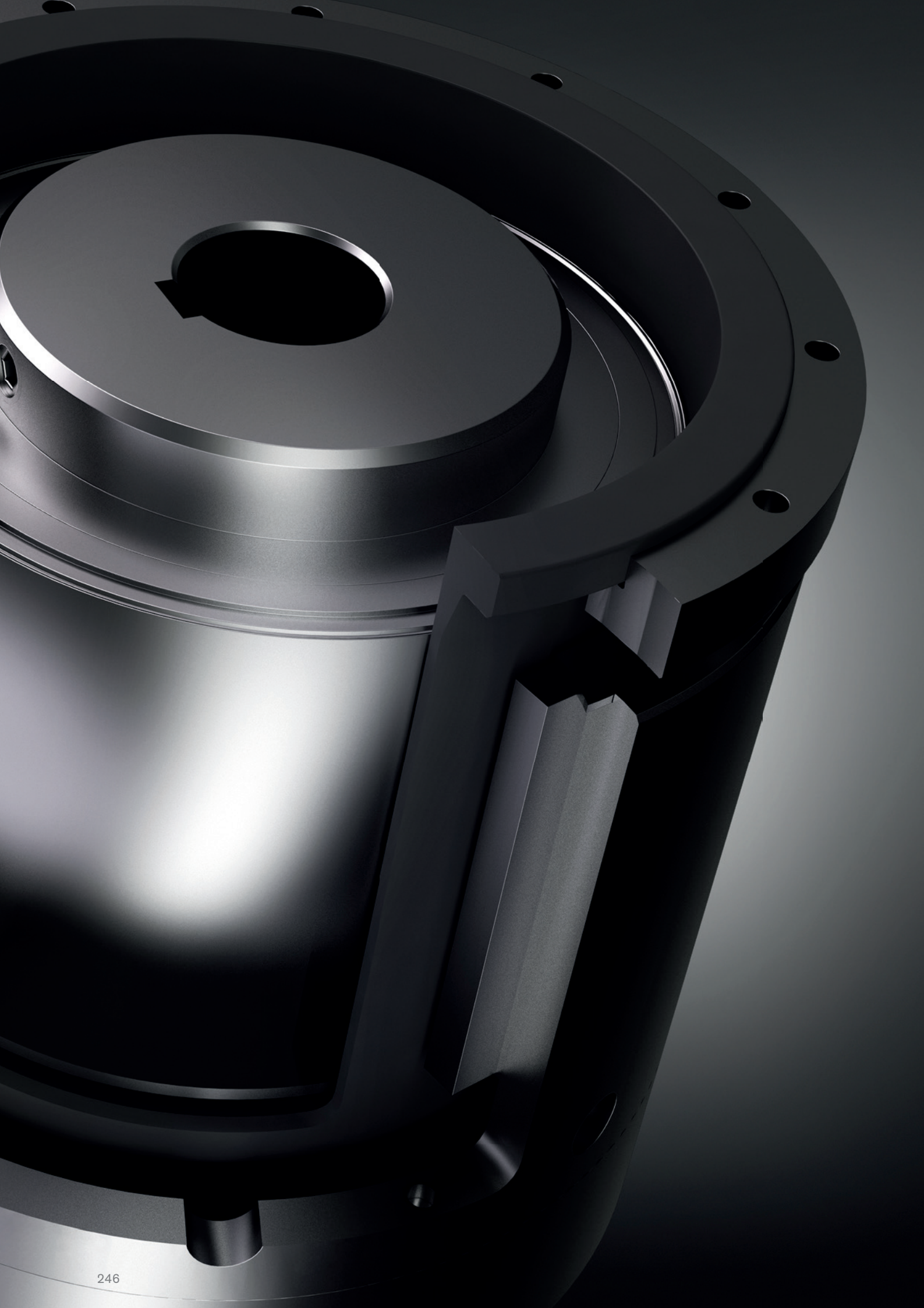
Angular displacement

SINULASTIC® V size		20	28	38	53	96	114	140	180
Perm. axial displacement ΔK_a [mm]		±2	±3	±3.0	±3.0	±4.0	±4.0	±4.0	±4.0
Perm. radial displacement ΔK_r [mm]	1500 rpm	0.8	1.1	1.1	1.1	1.25	1.25	1.5	1.5
	η_{max}	0.6	0.8	0.8	0.8	0.9	0.9	1.1	1.1
	max. ¹⁾	1.6	2.2	2.2	2.2	2.5	2.5	3.0	3.0
Perm. angular displacement ΔK_w [degree]	1500 rpm	1.0	0.8	0.8	0.8	0.7	0.7	0.6	0.6
	η_{max}	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4
	max. ¹⁾	2.0	1.6	1.6	1.6	1.4	1.4	1.2	1.2

¹⁾With assembly, for a short time resp. rarely with downtime or start-up operation as well as exceptional load conditions.

Ordering example:

SINULASTIC® 53	V	M	14	1.0	Ø60
Coupling size	Type	Elastomer hardness	Flange ØDA acc. to SAE or special	Hub type	Finish bore



Magnetic couplings

Types and operating description 248

MINEX®-S

Containment shroud – material stainless steel	250
Containment shroud – material Hastelloy	252
Containment shroud – material PEEK	254
Containment shroud – material oxide ceramics	256
Conversion kits and customised subassemblies	258
Other types	259



MINEX®-H

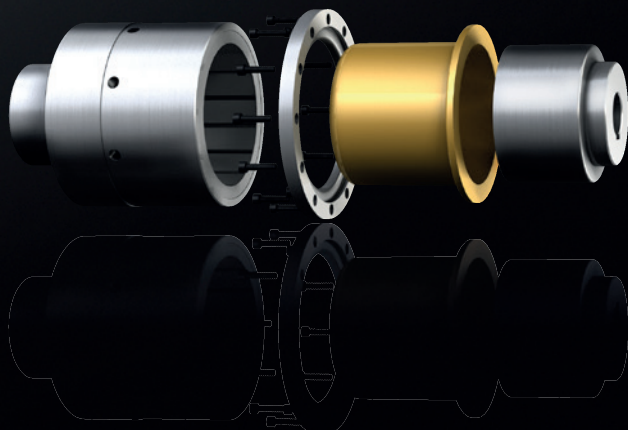
Hysteresis coupling 260

Please note: Higher pressure resistance

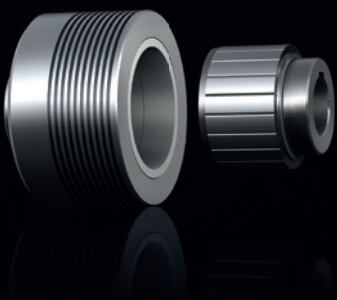


Years of experience with applications at customer sites and additional test series in the KTR test field in Rheine enabled us to determine potentials allowing for an increase of pressure resistance with some sizes of this series.

MINEX®-S



MINEX®-H



MAGNETIC COUPLINGS

TYPES AND OPERATING DESCRIPTION

General information



General description

MINEX®-S magnetic couplings transmit the torque without contact through magnetic forces between the internal and external rotor. They ensure hermetic separation between driving and driven side in pumps and agitators sealing hazardous liquids and gases reliably. As a result they prevent serious leakages operating as a reliable alternative to usual dynamic shaft seals.

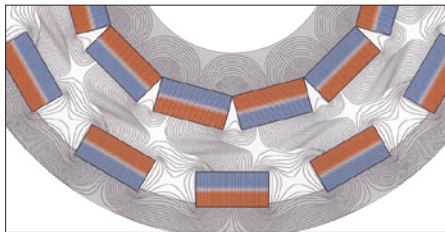
Internal rotor



External rotor



Run of flux lines



Operation/Design

The coupling consists of an external and an internal rotor. The external rotor has high-quality, permanent magnets of changing polarity on the inner side while the internal rotor has got them on the outside.

The external rotor is usually fixed on the drive side and the magnets are bonded in the keyways. The magnets of the internal rotor on the driven side are fully encapsulated.

Torque transmission

In their non-operative states the north and south poles of the rotors face each other and the magnetic field is completely symmetric. It is only when the rotors are twisted that the magnetic field lines are deflected, hence the torque is transmitted through the air gap. Then there is a synchronous operation under a constant torsion angle. If the maximum coupling torque and the maximum torsion angle are exceeded, the power transmission is interrupted.

Containment shroud



Sealing function

The containment shroud that is fixed on the housing separates internal and external rotor from each other.

It ensures a completely leak-proof separation of product space and atmosphere.

The sealing is made statically, e. g. with a flat gasket or an O-ring, thus eliminating the need to use dynamically loaded sealing elements.

As a standard KTR supplies both metallic and non-metallic containment shrouds. The metallic types cover the widest application range, yet causing eddy current losses which might require cooling measures. If eddy current losses can be entirely excluded, the energy-efficient alternative materials PEEK and ceramics are available.

Use in potentially explosive atmospheres

MINEX® couplings are suitable for power transmission in drives in potentially explosive atmospheres. The types with metallic, ceramic and PEEK containment shrouds are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

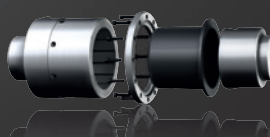
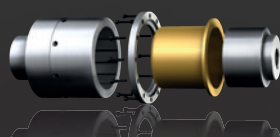
Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



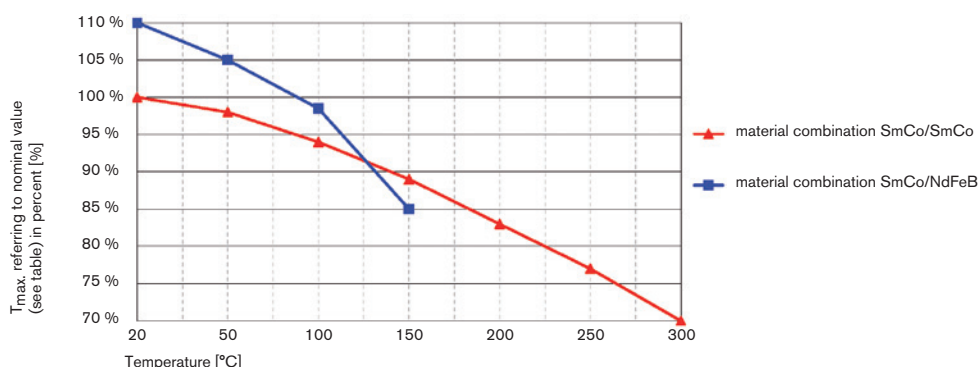
MAGNETIC COUPLINGS

TYPES AND OPERATING DESCRIPTION

Properties of magnetic couplings

			
Product	Type with metallic containment shroud	Type with containment shroud made of PEEK CFRP	Type with containment shroud made of oxide ceramics
Type	Permanent-magnetic synchronous coupling		
Properties			
Permanent-magnetic	●	●	●
Contactless	●	●	●
Maintenance-free	●	●	●
Torsionally flexible	●	●	●
Low-vibration	●	●	●
Special features/applications			
	most common type covering the widest performance range particularly suitable for pump drives/ applications with liquids high $t_{\max}$ [°C] and $p_{\max}$ [bar]	no eddy current losses energy-efficient and economic particularly suitable for dry running	
		for average requirements on $t_{\max}$ [°C] and $p_{\max}$ [bar]	high $t_{\max}$ [°C] and $p_{\max}$ [bar]
Torque range T_{KN} [Nm]			
Max.	1,000	600	600
Max. pressure resistance [bar]			
$p_{\max}$.	up to 90 bars depending on size	up to 16 bars with 130 °C	up to 40 bars depending on size
Geometries			
shaft diameter min./max. [mm]	Ø5 pilot bored	Ø5 pilot bored	Ø5 pilot bored
Max. temperature resistance [°C]			
$t_{\max}$.	150/300 depending on magnet material	130	300
Certifications/type examinations			
ATEX 	●	CFRP reinforcement	GRP reinforcement
		●	
	for further details see catalogue pages 250 - 253	for further details see catalogue pages 254 - 255	for further details see catalogue pages 256 - 257

Torque reduction with temperature increase



Temporary torque reduction with increased temperature for alternative material combinations [%].

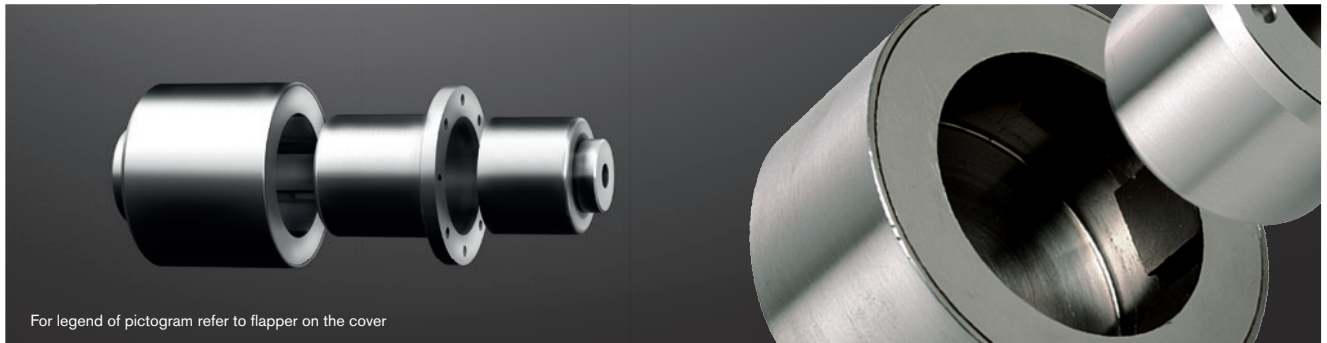
Please note:

KTR recommends to use NdFeB magnets for the external rotor, provided that the operating temperature falls below 150 °C.

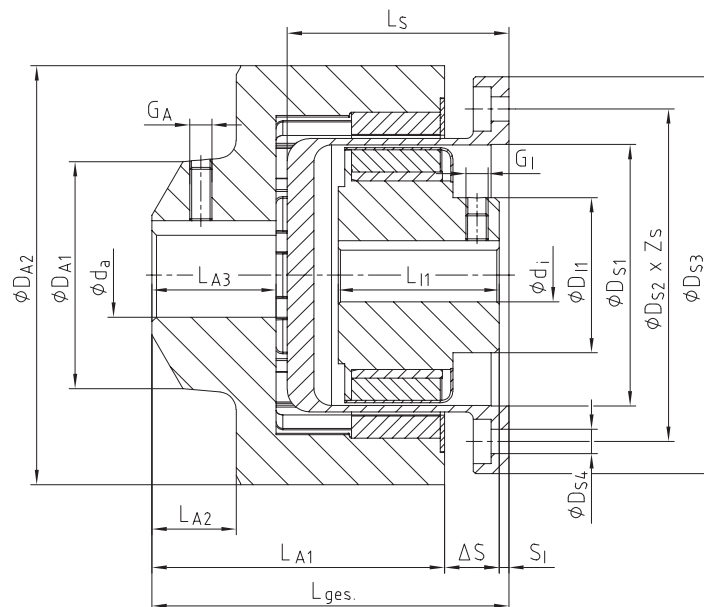
MINEX®-S

Magnetic couplings

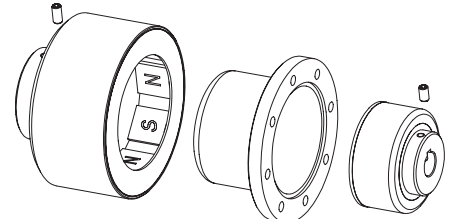
Containment shroud – material stainless steel



For legend of pictogram refer to flapper on the cover



External rotor Containment shroud Internal rotor



Technical data – Internal rotor and containment shroud

Size	TK max [Nm] with 20 °C	Dimensions [mm]												
		Internal rotor							Containment shroud					
		Finish bore ¹⁾ d _i		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S
		min.	Max.				min.	Max.						
SA 22/4	0.15	5	9	20	20	M3	2.0	2.0	21.5	38	46	4.5	8	29
SA 34/10	1	5	12	20	22	M3	2.0	5.5	34	46	55	4.5	4	30.5
SA 46/6	3	8	16	28	33	M4	6.5	7.0	46	64	78	4.5	8	45
SA 60/8	7	12	22	35	36.3	M5	1.7	5.5	59	75	83.5	5.5	8	50
SB 60/8	14			36	56	M5	0.0	4.0			89			70.3

Technical data – External rotor and general

Size	Dimensions [mm]										
	External rotor									General	
	Finish bore ¹⁾ d_a		$DA1$	$DA2$	GA	$LA1$	$LA2$	$LA3$	ΔS	L_{total}	
	min.	Max.								min.	Max.
SA 22/4	5	11	18	38	M4	35	8.5	11	5	42	42
SA 34/10	5	14	22	53	M4	38.8	10.5	13	5.3	46	49.5
SA 46/6	5	24	40	69.5	M5	53	16	22	9	69	69.5
SA 60/8	9	32	50	94.5	M6	66	19	28	12	80	83.3
SB 60/8	9	38			M8	93.3	15	30		105.2	109.2

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9]

Ordering example:	MINEX® SA 60/8	NdFeB	$d_i \text{ } \varnothing 20 \text{ mm}$	$d_a \text{ } \varnothing 24 \text{ mm}$
	Coupling size	NdFeB – $t_{max.} = 150 \text{ } ^\circ\text{C}$ Sm2Co17 – $t_{max.} = 300 \text{ } ^\circ\text{C}$	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)	

Examples of application

MINEX® couplings with containment shroud made of stainless steel are the most common type for pump drives and other applications with liquids in the lower performance range. Subject to their high resistance to pressure and temperature they cover a wide application range. The magnetic rotors are available from stock in an unbored resp. pilot bored design. If requested, the parts can be finish bored according to ISO fit H7 and provided with a feather keyway to DIN 6885 sheet 1 [JS9].

Inside the rotating magnetic field metallic containment shrouds generally cause losses of eddy current which are converted into heat and which may require cooling measures. On applications with pumps the generated heat can usually be dissipated by the conveyed medium. If higher pressure resistance than covered by the KTR standard is required, KTR provides for customised special solutions.

Typical applications: gear pumps, centrifugal pumps, screw spindle pumps, agitators, PU foaming lines

Use in potentially explosive atmospheres

MINEX® couplings with containment shroud made of stainless steel are suitable for power transmission in drives used in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

If the couplings operate in potentially explosive atmospheres, the user has to provide for special measures. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



Technical data – Materials, temperature and pressure resistance

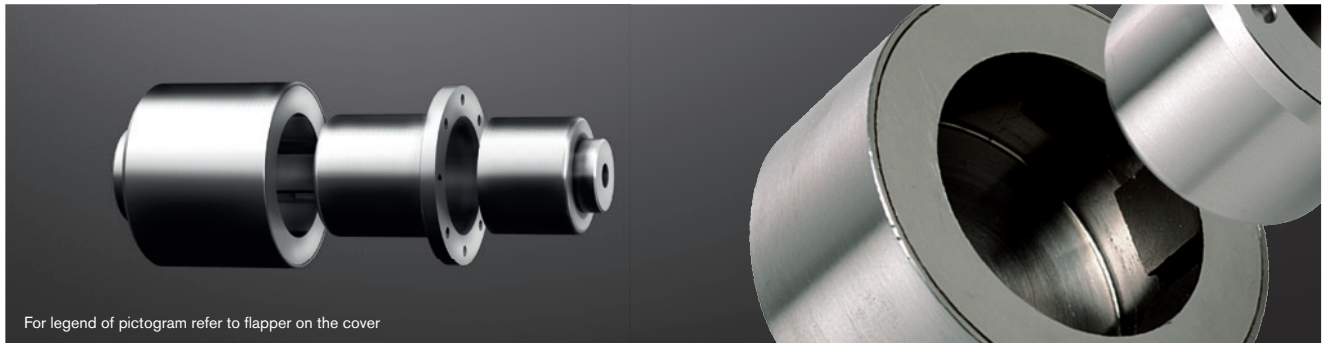
Size	TK max [Nm] with 20 °C	Internal rotor			Containment shroud			External rotor (+ flange hub optionally)		
		Standard material		Max. temperature	Standard material		Max. pressure	Standard material		Max. temperature
		Hub	Magnets	t _{max} . [°C]	Hub	Cont. shroud	P _N /P _{max} . [bar]	Hub	Magnets	t _{max} . [°C]
SA 22/4	0.15	1.4462	NdFeB	150	1.4571	1.4571	60/90	S355J2	NdFeB	150
SA 34/10	1	1.4462	NdFeB	150	1.4571	1.4571	16/24	S355J2	NdFeB	150
SA 46/6	3	1.4571	Sm2Co17	300	1.4571	1.4571	16/24	S355J2	Sm2Co17	300
SA 60/8	7	1.4571	Sm2Co17	300	1.4571	1.4571	40/60	S355J2	Sm2Co17*	300
SB 60/8	14	1.4571	Sm2Co17	300	1.4571	1.4571	40/60	S355J2	Sm2Co17*	300

*) External rotor alternatively available with magnets made of NdFeB (t_{max}. = 150 °C)

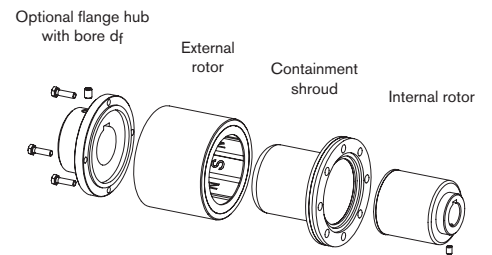
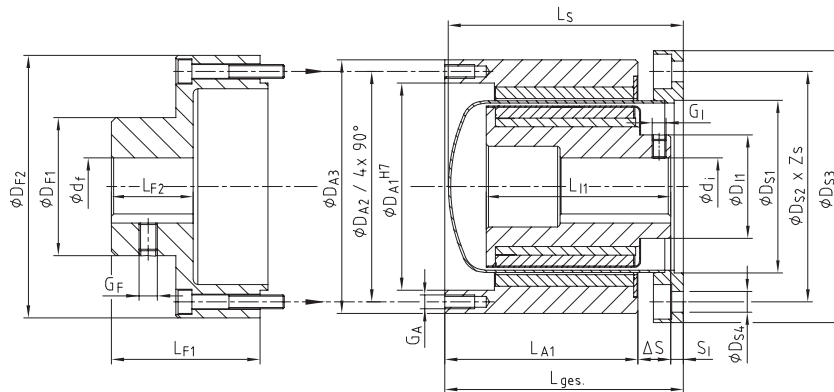
MINEX®-S

Magnetic couplings

Containment shroud – material Hastelloy



For legend of pictogram refer to flapper on the cover



Technical data – Materials, temperature and pressure resistance

Size	TK max [Nm] with 20 °C	Internal rotor			Containment shroud			External rotor (+ flange hub optionally)		
		Standard material		Max. temperature	Standard material		Max. pressure	Standard material		Max. temperature
		Hub	Magnets	t _{max.} [°C]	Hub	Cont. shroud	P _N /P _{max.} [bar]	Hub	Magnets	t _{max.} [°C]
SA 75/10	10	1.4571	Sm2Co17	300	1.4571	2.4602**	25/37.5	S355J2	Sm2Co17*	300
SB 75/10	24	1.4571	Sm2Co17	300	1.4571	2.4602**	25/37.5	S355J2	Sm2Co17*	300
SC 75/10	40	1.4571	Sm2Co17	300	1.4571	2.4602**	25/37.5	S355J2	Sm2Co17*	300
SB 110/16	60	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SC 110/16	95	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SB 135/20	100	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SC 135/20	145	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SD 135/20	200	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17*	300
SC 165/24	210	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17	300
SD 165/24	280	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17	300
SE 165/24	370	1.4571	Sm2Co17	300	1.4571	2.4856	25/37.5	S355J2	Sm2Co17	300
SD 200/30	460	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SE 200/30	600	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SD 250/38	670	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SE 250/38	820	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300
SF 250/38	1000	1.4571	Sm2Co17	300	1.4571	2.4856	16/24	S355J2	Sm2Co17	300

*) External rotor alternatively available with magnets made of NdFeB ($t_{\text{max.}} = 150^\circ\text{C}$)

**) Containment shroud size 75 alternatively available made of stainless steel 1.4571 ($P_N/P_{\text{max.}} = 16/24$ bars)

Ordering example:

MINEX® SB 75/10	NdFeB	$d_i \text{ } \varnothing 20 \text{ mm}$	$d_a \text{ } \varnothing 24 \text{ mm}$	Hastelloy
Coupling size	NdFeB – $t_{\text{max.}} = 150^\circ\text{C}$ Sm2Co17 – $t_{\text{max.}} = 300^\circ\text{C}$	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)		Containment shroud type Stainless steel 1.4571 or Hastelloy

Examples of application

MINEX® couplings with containment shroud made of Hastelloy are the most common type for pump drives and other applications with liquids in the medium and higher performance range. Subject to their high resistance to pressure and temperature they cover a wide application range.

Inside the rotating magnetic field metallic containment shrouds generally cause losses of eddy current which are converted into heat and which may require cooling measures. On applications with pumps the generated heat can usually be dissipated by the conveyed medium. If higher pressure resistance than covered by the KTR standard is required, KTR provides for customised special solutions.

Typical applications: gear pumps, centrifugal pumps, screw spindle pumps, agitators, PU foaming lines

Use in potentially explosive atmospheres

MINEX® couplings with containment shroud made of Hastelloy are suitable for power transmission in drives used in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

If the couplings operate in potentially explosive atmospheres, the user has to provide for special measures. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



Technical data – External rotor and general																												
Size	Dimensions [mm]																											
	Internal rotor							Containment shroud						External rotor					Flange hub						General			
	Finish bore ¹⁾		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S	D _{A1}	D _{A2}	D _{A3}	L _{A1}	G _A	d _f max.	D _{F1}	D _{F2}	L _{F1}	L _{F2}	G _F	ΔS	Total length ²⁾ (with flange hub)		
	d _i min.	d _i max.				min.	Max.																			min.	Max.	
SA 75/10				39.5			46.5										41.3								12.2	140	164.5	
SB 75/10	12	32	45	58	M6	4	26.5	75	100	118	9	8	102	90	100	110	61.3	M6	42	60	114	64.5	35.5	M8		142		
SC 75/10				80			4.0										83.8								14.2	166.5	166.5	
SB 110/16				65			35.0										61.3									183.5		
SC 110/16	14	55	80	85	M8	4	15.0	110	133	153	9	12	115	126	135	145	81.3	M6	55	85	150	99.5	59.5	M10	18.7	203.5	214.5	
SB 135/20				65			50.5										70.3											
SC 135/20	20	70	90	85	M10	4	30.5	135	158	178	9	16	139	150	160	170	90.3	M6	70	100	170	65.5	48.5	M12	18.2	190.5	204.5	
SD 135/20				110			8.0										110.3								20.7	200.5		
SC 165/24				85			61.5										90.3								18.2		233	247
SD 165/24	24	80	110	110	M12	6	39.0	163.5	192	218	11	12	170	180	188	198	110.3	M6	75	110	198	77	60	M16	20.7			
SE 165/24				130			19.0										130.3									20.7	234	
SD 200/30																												
SE 200/30	38	90	130	135	M16	6	24.0	200	252	278	11	12	180	212	222	232	130.3	M6	80	120	232	120	98	M12	25.7	282	300	
SD 250/38				115			46.0										110.3										282	
SE 250/38	38	100	165	135	M16	6	26.0	255	285	315	13.5	12	182	272	282	292	130.3	M6	100	150	300	140	93	M16	25.7	302	322	
SF 250/38				155			6.0										150.3										322	

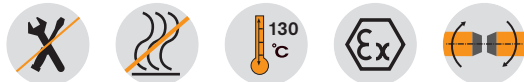
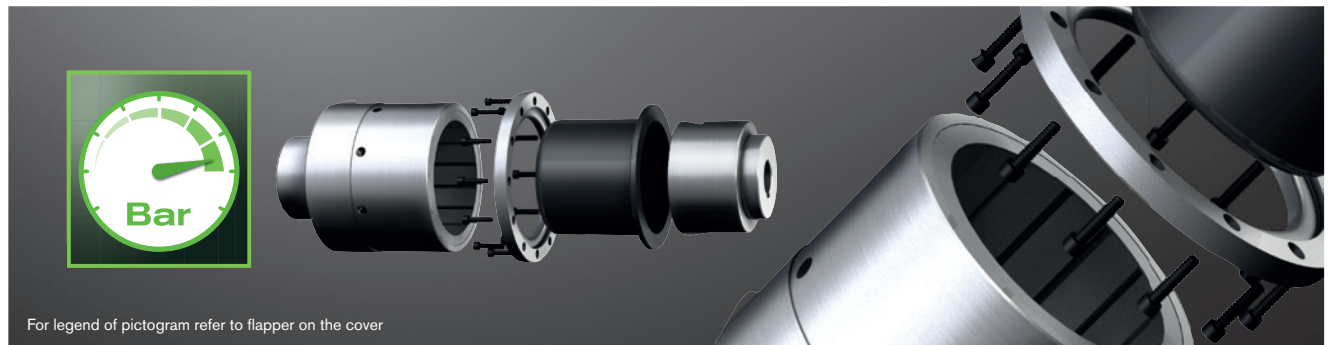
¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9]

²⁾ Total length without flange hub = L_S

MINEX®-S

Magnetic couplings

Containment shroud – material PEEK



Technical data – Internal rotor and containment shroud													
Size	Dimensions [mm]												
	Internal rotor						Containment shroud						
	Finish bore ¹⁾ d _f		D _{I1}	L _{I1}	G _I	S _I		D _{S1}	D _{S2}	D _{S3}	D _{S4}	Z _S	L _S = L _{total}
	min.	Max.				min.	Max.						
SA 75/10				39.5		30.5	54.5						
SB 75/10	12	32	45	58	M6	8.5	35.5	-	100	118	9	8	108
SC 75/10				80		5.5	13.5						
SB 110/16				65		4	25						
SC 110/16	14	55	80	85	M8	2	5	140	151	168	9	12	115
SB 135/20				65		38.5	48						
SC 135/20	20	70	90	85	M10	18.5	28	157	167	180	6.6	12	144
SD 135/20				110		4	4						
SC 165/24				85			32						
SD 165/24	24	80	110	110	M12	4	8	196	210	228	9	12	156
SE 165/24				130		-6	-6						165
SD 200/30	38	100	130	135	M16	2	4	229	246	265	9	12	183
SE 200/30													

Technical data – External rotor, flange hub and general														
Size	Dimensions [mm]													
	External rotor					Flange hub						General		
	DA1	DA2	DA3	LA1	GA	Max. finish bore ¹⁾ d _f	DF1	DF2	LF1	LF2	GF	ΔS	Total length ²⁾ (with flange hub)	
													min.	Max.
SA 75/10				41.3										
SB 75/10	90	100	110	61.3	M6	42	60	114	64.5	35.5	M8	12.2	148.5	172.5
SC 75/10				83.8								14.2	168	172.5
SB 110/16				61.3	M6	55	85	153	87.5	45.5	M10	18.7	172.5	193.5
SC 110/16	130	138	150	81.3									191.5	193.5
SB 135/20				70.3									216	225.5
SC 135/20	158	167	176	90.3	M6	70	100	176	89	67	M12	18.2	216	225.5
SD 135/20				110.3								20.7	224	224
SC 165/24				90.3								18.5	231	234.8
SD 165/24	186	195	204	110.3	M6	75	110	204	94	70	M16	21	231	233.3
SE 165/24				130.3									254.3	254.3
SD 200/30	212	222	232	130	M6	90	120	232	133	98	M16	25.7	288	290
SE 200/30														

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9] ²⁾ Total length without flange hub = L_S

Technical data									
Size	T _K max [Nm] with 20 °C	Internal rotor		Containment shroud				External rotor (+ flange hub optionally)	
		Standard material		Standard material		Max. pressure	Max. temperature	Standard material	
		Hub	Magnets	Clamping ring	Cont. shroud	P _N [bar]	t _{max.} [°C]	Hub	Magnets
SA 75/10	10	1.4571	Sm2Co17	-	PEEK	16	130	S355J2	NdFeB
SB 75/10	24	1.4571	Sm2Co17	-	PEEK	16	130	S355J2	NdFeB
SC 75/10	40	1.4571	Sm2Co17	-	PEEK	16	130	S355J2	NdFeB
SB 110/16	70	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB
SC 110/16	100	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB
SB 135/20	110	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB
SC 135/20	155	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB
SD 135/20	210	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB
SC 165/24	220	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB
SD 165/24	300	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB
SE 165/24	390	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB
SD 200/30	460	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB
SE 200/30	600	1.4571	Sm2Co17	Aluminium	PEEK	16	130	S355J2	NdFeB

■ = 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 pressure resistance with some sizes of this series.

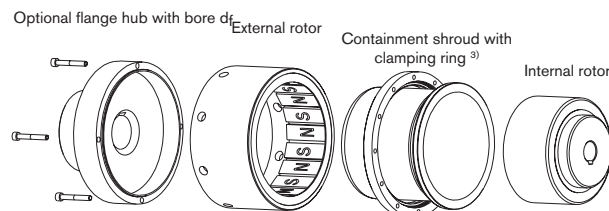
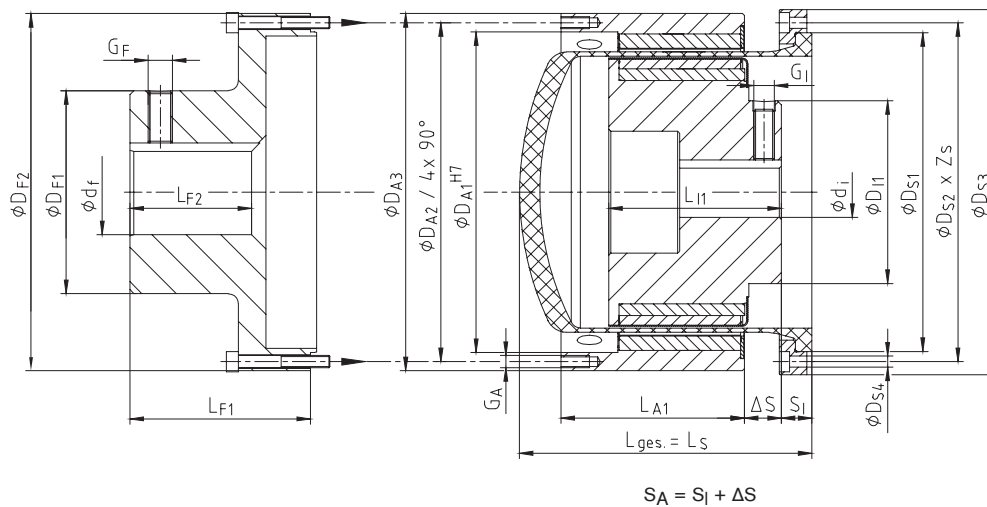
Ordering example:	MINEX® SB 75/10	NdFeB	d _i Ø20 mm	d _a Ø24 mm	PEEK
	Coupling size	NdFeB – t _{max.} = 150 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)		Containment shroud type

Examples of application

MINEX® couplings with containment shroud made of PEEK are an economic, energy-efficient alternative to the metallic types. They do not generate any eddy current losses and as a result do not generate any heat so that usually expensive cooling measures can be done without. Moreover, they are characterized by low susceptibility to fracture, low weight and easy handling.

They are ideally suitable for applications with low demands on temperature and pressure resistance.

Typical applications: vacuum pumps, fan drives, compressors, agitators, PU foaming lines



³⁾ Containment shroud size 75 also available as a one-piece design!

Use in potentially explosive atmospheres

MINEX® couplings with containment shrouds made of carbon fibre reinforced PEEK are suitable for power transmission in drives in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

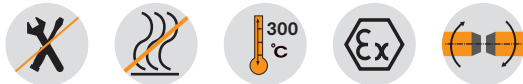
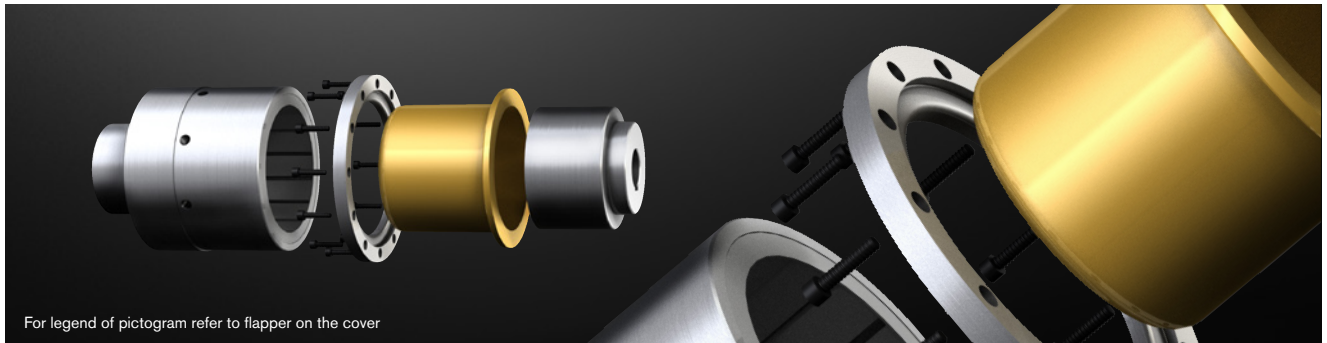
If the couplings operate in potentially explosive atmospheres, the user has to provide for special measures. Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



MINEX®-S

Magnetic couplings

Containment shroud – material oxide ceramics



Technical data – Internal rotor and containment shroud

Size	Dimensions [mm]												
	Internal rotor												
	Finish bore ¹⁾ d _i		D _{I1}	L _{I1}	G _I	S _I		Containment shroud					
	min.	Max.				min.	Max.	DS ₁	DS ₂	DS ₃	DS ₄	Z _S	LS = L _{total}
SB 60/8	12	22	36	56	M5	1	21	75	82	99	5.5	6	92
SC 60/8				76			2						
SB 75/10	12	32	45	58	M6	6.5	30.5	89	100	118	9	8	108
SC 75/10				80			8.5						
SB 110/16	14	55	72	65	M8	4	28.0	132	151	168	9	12	115
SC 110/16				85			9.0						
SB 135/20				65			46.5						
SC 135/20	20	70	90	85	M10	4	26.5	157	167	180	6.6	12	143
SD 135/20				110			4.0						
SC 165/24				85			28.0						
SD 165/24	24	90	110	110	M12	4	4.0	196	210	228	9	12	150
SE 165/24				130			17.0						185
SD 200/30													
SE 200/30	38	90	130	135	M16	4	4.0	229	246	265	9	12	185

Technical data – External rotor, flange hub and general

Size	Dimensions [mm]											General			
	External rotor					Flange hub						ΔS	Total length ²⁾ (with flange hub)		
	DA ₁	DA ₂	DA ₃	LA ₁	GA	Max. finish bore ¹⁾ d _f	DF ₁	DF ₂	LF ₁	LF ₂	GF		min.	Max.	
SB 60/8	76	84	94	79.5	M6	38	60	94	42	38	M6	12.5	135	156	
SC 60/8															
SB 75/10	90	100	110	61.3	M6	42	80	114	84.5	35.5	M6	11.9	148.5	170.4	
SC 75/10				83.8									170.5		
SB 110/16	130	138	150	61.3	M6	55	85	153	87.5	45.5	M10	18.7	171.5	195.5	
SC 110/16				81.3									191.5	196.5	
SB 135/20	158	167	176	70.3	M6	70	100	176	89	67	M12	18.2	215	224	
SC 135/20				90.3									215	224	
SD 135/20				110.3									20.7	220	220
SC 165/24				90.3									18.5	225	230.5
SD 165/24	186	195	204	110.3	M6	75	110	204	94	70	M16	20.7	229	229	
SE 165/24				130.3									260	260	
SD 200/30	212	222	232	130.3	M6	80	120	240	120	88	M16	25.7	280	280	
SE 200/30															

¹⁾ Bores H7 with keyway to DIN 6885 sheet 1 [JS9]

²⁾ Total length without flange hub = L_S

Technical data

Size	T _K max [Nm] with 20 °C	Internal rotor			Containment shroud			External rotor (+ flange hub optionally)		
		Standard material		Max. temperature t _{max.} [°C]	Standard material		Max. pressure P _N /P _{max.} [bar]	Standard material		Max. temperature t _{max.} [°C]
		Hub	Magnets		Hub	Cont. shroud		Hub	Magnets	
SB 60/8	14	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SC 60/8	22	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SB 75/10	24	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SC 75/10	40	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	40/60	S355J2	Sm2Co17	300
SB 110/16	70	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SC 110/16	100	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SB 135/20	110	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SC 135/20	155	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SD 135/20	210	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SC 165/24	220	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SD 165/24	300	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SE 165/24	390	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SD 200/30	460	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300
SE 200/30	600	1.4571	Sm2Co17	300	Aluminium	ZrO2MgO	25/37.5	S355J2	Sm2Co17	300

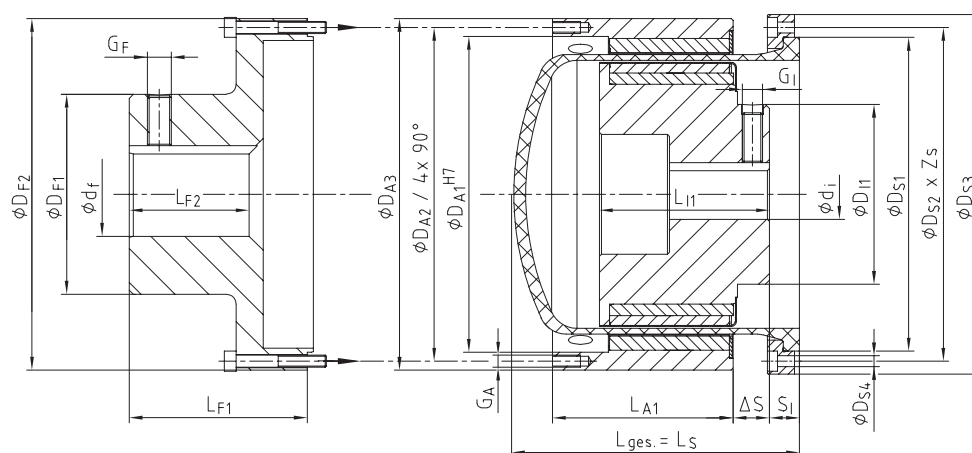
Ordering
example:

MINEX® SB 135/20	NdFeB	d _i Ø20 mm	d _a Ø24 mm	Oxide ceramics ZrO ₂ MgO
Coupling size	NdFeB – t _{max.} = 150 °C Sm2Co17 – t _{max.} = 300 °C	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)		Containment shroud type

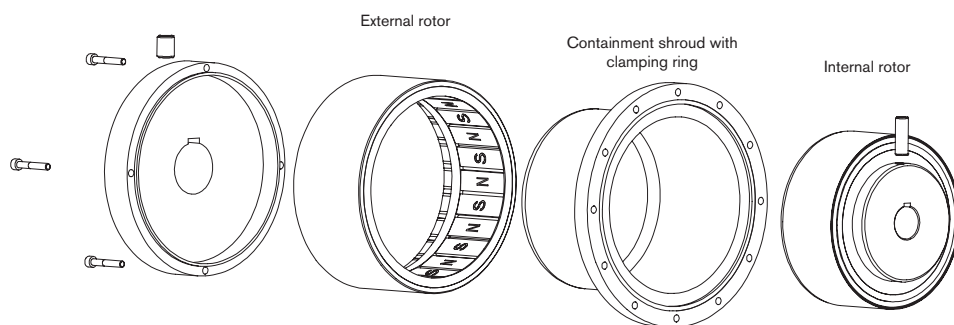
Examples of application

Like with the types with containment shroud made of PEEK, MINEX® couplings with containment shroud made of ceramics are an economic, energy-efficient alternative to the metallic types. Again they do not generate any eddy current losses and as a result do not generate any heat so that usually expensive cooling measures can be done without. Compared to PEEK, the containment shrouds made of ceramics are characterized by higher resistance to pressure and an excellent temperature resistance.

Typical applications: vacuum pumps, fan drives, compressors, agitators, PU foaming lines



Optional flange hub with bore d_f



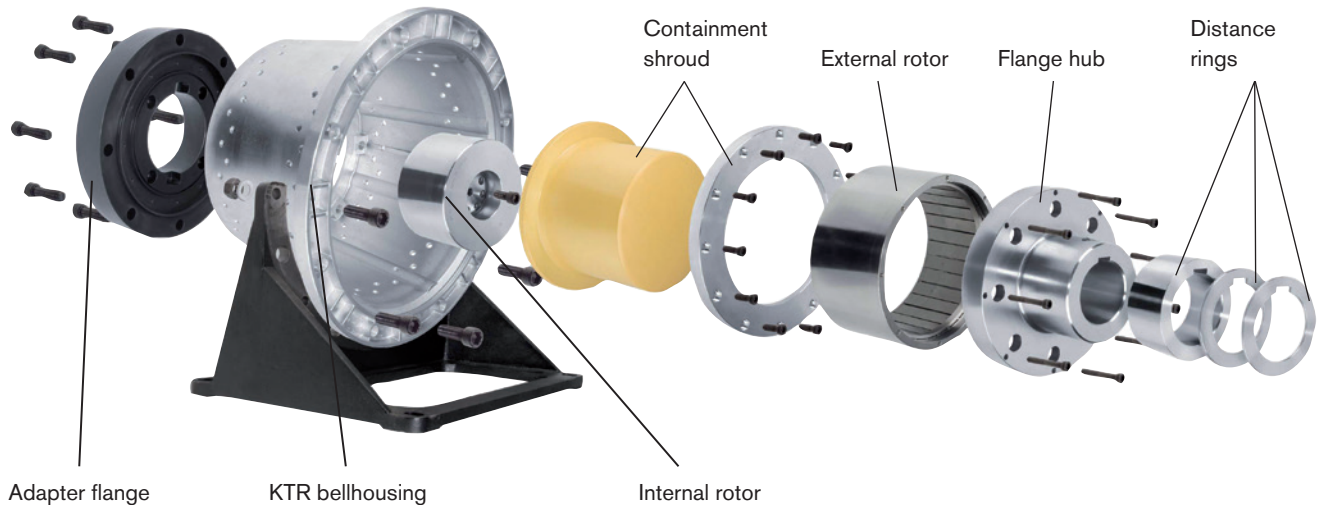
Use in potentially explosive atmospheres

MINEX® couplings with containment shrouds made of oxide ceramics are suitable for power transmission in drives used in potentially explosive atmospheres. They are assessed and approved as components of category II according to EU directive 2014/34/EU and thus suitable for the use in potentially explosive atmospheres of zone 2G.

Please read through our information included in the respective type examination certificate and the operating and assembly instructions at www.ktr.com.



Conversion kits and customised subassemblies



On request KTR provides customised special solutions in combination with KTR hydraulic components, allowing to easily retrofit existing systems with MINEX®-S.

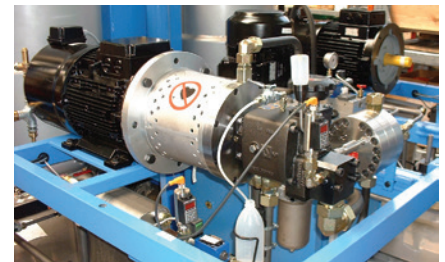
Conversion kits for PUR foaming processes

When conveying and proportioning the media polyol and isocyanate in the processing plants for PUR, ambient air has to be prevented from penetrating into the process, since otherwise adverse reactions may be generated.

For a reliable sealing of such drives KTR provides standard conversion kits, among others for axial piston pumps type REXROTH A2VK/A7VK and ROTARY POWER C series offering the following benefits:

- maintenance-free operation
- downtimes are considerably reduced
- no more problems with sealing
- better efficiency and process reliability

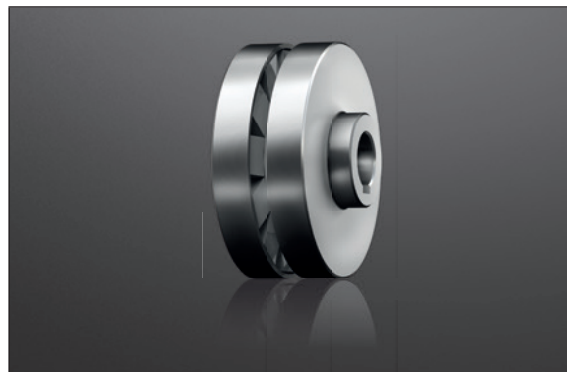
The subassemblies are available for all motor-pump-combinations and in various materials.



Maintenance-free sealing of proportioning pumps for polyol and isocyanate in high-pressure reaction moulding machines

Pump data		Motor data (4 poles, n=1500 rpm)			Coupling data		
Pump	Type	Motor	Power [kW]	Torque T _N	Size	Max. torque T _{K max}	Bellhousings
REXROTH A2VK/A7VK	A2/A7VK-12	132 S	5.5	35 Nm	SB 110/16	60 Nm	PL 300/13/...
		132 M	7.5	48 Nm	SC 110/16	95 Nm	
		160 M	11	70 Nm	SC 135/20	145 Nm	
	A2/A7VK-28	160 M	11	70 Nm	SC 135/20	145 Nm	PL 350/7/...
		160 L	15	96 Nm	SD 135/20	200 Nm	
		180 M	18.5	118 Nm	SD 135/20	200 Nm	
	A2/A7VK-55	160 L	15	96 Nm	SC 165/24	210 Nm	PL 350/7/...
		180 M	18.5	118 Nm	SC 165/24	210 Nm	
		180 L	22	144 Nm	SD 165/24	280 Nm	PL350/7/...
		200 L	30	196 Nm	SE 165/24	280 Nm	
		225 S/M	37/45	240/292 Nm	SE 165/24	370 Nm	PL450/3/...
		225 S/M	37/45	240/292 Nm	SE 165/24	370 Nm	
ROTARY POWER C-Range	C 01	100L	2.2	14 Nm	SB 75/10	24 Nm	PK 250/13/...
		132 M	7.5	48 Nm	SC 110/16	95 Nm	
	C 04	132 S	5.5	35 Nm	SB 110/16	60 Nm	PL300/13/...
		132 M	7.5	48 Nm	SC 110/16	95 Nm	
	C 07	160 L	15	96 Nm	SD 135/20	200 Nm	PL 350/7/...
		180 M	18.5	118 Nm	SD 135/20	200 Nm	
	C20	180 M	18.5	118 Nm	SD 135/20	200 Nm	PL 350/7/...

Other types



Disk coupling

With this type the magnets are arranged opposite each other in axial direction. Thus this type is able to transmit the torque through plane walls. Furthermore it provides the following benefits:

- compact
- drive of applications in closed liquid containers
- torque setting via air gap

Applications: Pumps, agitators, compressors, fans, swivel drives

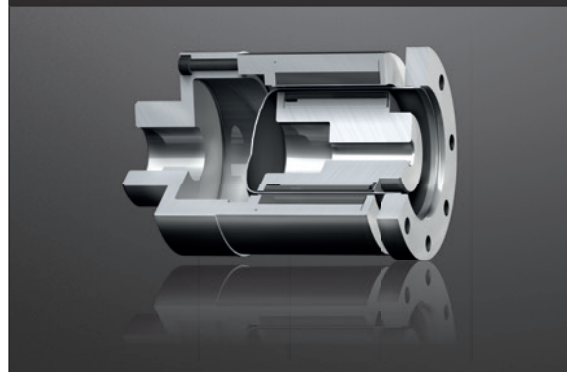
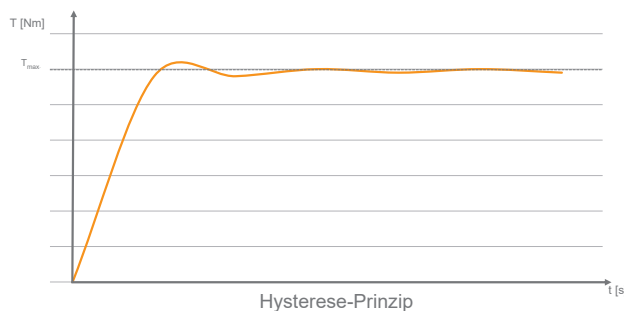


Hysteresis coupling MINEX®-H

Different from the MINEX®-S magnetic coupling this type switches to slipping operation once the maximum transmittable torque has been achieved, while it continues to transmit T_{max} as a holding torque.

- wear-free torque limitation
- maintenance-free & load-holding
- very good repeatability of torque
- applicable as a coupling or brake

Applications: roller conveyors, winder drives, capping machines, etc.



MINEX®-S fully made of stainless steel

If requested, KTR supplies MINEX®-S fully made of stainless steel. The magnets of the external rotor are encapsulated just like with the internal rotor.

Applications: offshore, marine, etc.



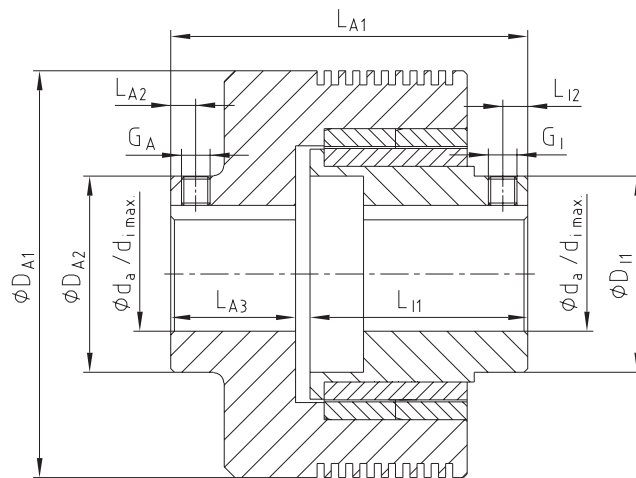
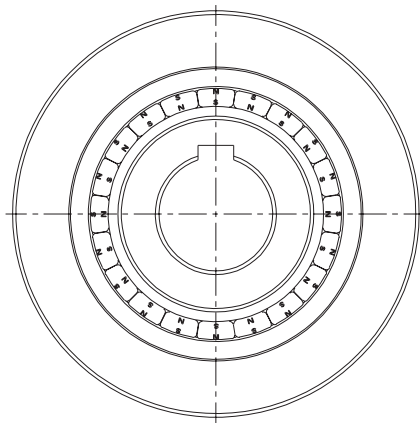
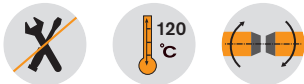
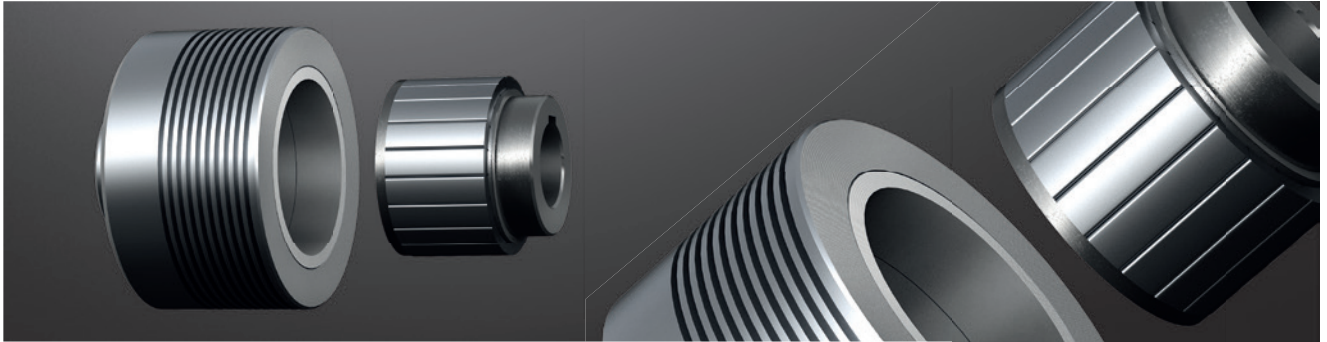
customised special solutions

If requested, KTR supplies MINEX®-S in combination with the plain bearing required for the driven shaft.

MINEX®-H

Magnetic couplings

Hysteresis coupling



Technical data															
Size	Overload torque T _{max.} 20 °C [Nm]	Finish bore d _a /d _i max. [mm]	Dimensions [mm]										permissible power loss P _V perm. 20 °C [W]	Max. speed n _{max.} [rpm]	Max. temperature t _{max.} [°C]
			DA1	DA2	LA1	LA2	LA3	DI1	LI1	LI2	GA	GI			
HA 48/12	1.2	16	82	35	80	7	35	35	41	7	M4	M4	80	1800	120
HB 48/12	2.4	16	82	35	100	7	35	35	61	7	M4	M4	88	1800	120
HA 60/16	2	22	94	45	80	7	35	45	41	7	M5	M5	87	1800	120
HB 60/16	4	22	94	45	100	7	35	45	61	7	M5	M5	96	1800	120
HA 71/20	3	32	114	55	80	7	35	55	41	7	M8	M8	98	1800	120
HB 71/20	6	32	114	55	100	7	35	55	61	7	M8	M8	110	1800	120

Technical selection:

$$P_V = \frac{T_{\text{max. 20 °C}} \cdot n_{\text{Slip}}}{9.55} \quad * Z \leq P_V \text{ perm. 20 °C}$$

$$Z = \frac{t_{\text{Slip}}}{t_{\text{Cycle}}}$$

P_V = Power loss [W]
 $T_{\text{max. 20 °C}}$ = Transmittable torque [Nm]
 $P_V \text{ all. 20 °C}$ = Permissible power loss [W]
 n_{Slip} = Slip speed [1/min]
 Z = Cycle factor (continuous slip operation $Z=1$)
 t_{Slip} = Slip time [s]
 t_{Cycle} = Cycle time [s]

Ordering
example:

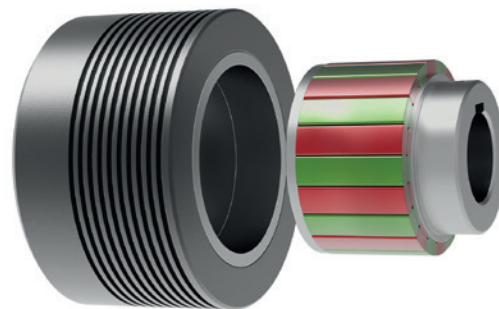
MINEX® HB 60/16	d _i Ø18 mm	d _a Ø20 mm
Coupling size	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)	

Torque curve with overload

The MINEX®-H transmits the torque contactlessly by means of magnetic forces and serves as a wear-free torque limiter in case of overload.

Function standard mode:

The torque is transmitted from the drive to the output element contactlessly by means of magnetic forces. The speed is synchronously transmitted as long as the operating torque is below the selection torque (slip torque).

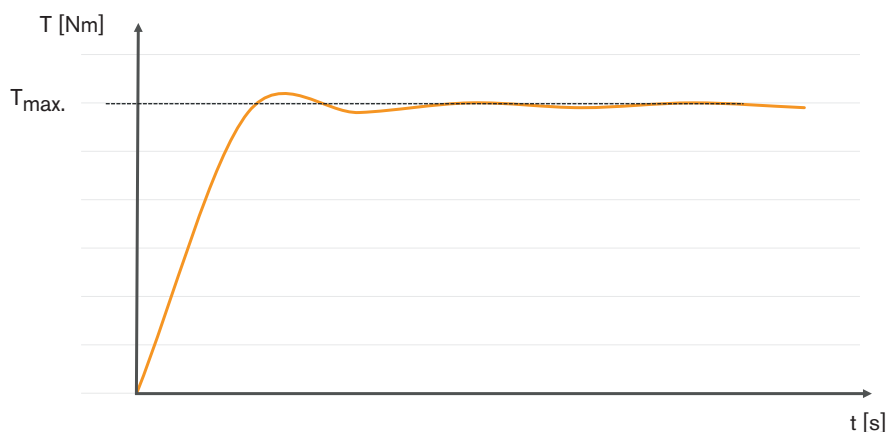


MINEX®-S

Function overload mode:

As soon as the operating torque exceeds the selection torque, the coupling slips and a relative speed sets in between the drive and output side. At this moment the polarity of the hysteresis material is continuously reversed and it heats up. The selection torque is almost constant in case of an overload. As the relative speed increases, the slip torque increases due to the eddy current effect.

Torque curve with overload



Characteristics:

- Contactless torque transmission by means of magnetic forces
- Wear-free torque limitation
- Maintenance-free
- Load-holding
- Very good repeatability of torque
- Applicable as a coupling or brake

Examples of application:



Filling systems



Film winder



Materials handling



Medical technology



Unwinding and winding equipment



Torque limiters

Types and operating description	264
Selection of torque limiters	265

RUFLEX®		SYNTEX®	
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KTR-SI		SYNTEX®-NC / KTR-SI Compact	
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KTR-SI with torsionally flexible ROTEX®	277	Hub type	294
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KTR-SI FRE with torsionally flexible ROTEX®	279	With torsionally stiff TOOLFLEX® S	296
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KTR-SI FRA flange type FT	282	KTR-SI Compact	
KTR-SI FRA with torsionally flexible POLY-NORM®	283	Flange type	297
		With backlash-free ROTEX® GS	298

RUFLEX®



KTR-SI



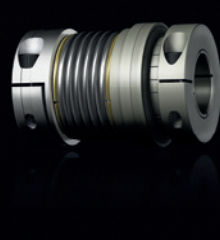
KTR-SI FRA



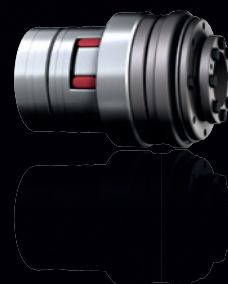
SYNTEX®



SYNTEX®-NC



KTR-SI Compact



TORQUE LIMITERS

TYPES AND OPERATING DESCRIPTION

Properties of torque limiters

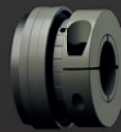
							
Product	RUFLEX®	KTR-SI	KTR-SI FRE	KTR-SI FRA	SYNTEX®	SYNTEX®-NC	KTR-SI Compact
Type	Torque limiter	Overload system	Overload system	Overload system	Backlash-free overload system		
Torque limitation							
Friction (load-retaining)	●						
Ratchet coupling		●	●	●	●	●	●
Synchronous ratcheting SK/SR (load-separating)		●			●	●	●
Ratcheting DK (load-separating)		●			●	●	●
Idle rotation FR/FRE/FRA (load-separating)		●	●	●			
Fail-safe SGR (no mechanical separation)		●					
Properties							
Backlash-free					●	●	●
High repeatability		●	●	●	●	●	●
Quick separation with overload						●	●
Signal by limit switch/sensor		●	●	●	●	●	●
Torque setting possible when in place	●	●	●	●	●	●	●
Torque range T _{KN} [Nm]							
min. - max.	0.5 - 12,000	2.5 - 8,200	1,000 - 60,000 (and above)	5 - 3,000	6 - 400	2 - 550	3 - 3,100
Max. bore [mm]							
	140	100	200 (and above)	80	50	60	80
Shaft-hub-connection							
Positive locking	●	●	●	●	●	●	●
Frictionally engaged			●		●	●	●
Speed n _{max} [rpm]							
	10,000	6,000	3,300	3,600	1,500	3,500	4,000
Special features							
	high power density, low price	hardened surfaces, solid design	modular design, for high torques	re-engagement by reversing the direction of rotation	for tailor-made solutions, low cost, ideally suitable for bigger quantities	high power density, light-weight design	hardened surfaces, solid design
Applications							
	slowly rotating drives such as sprocket or toothed belt drives, conveyors, rotary feeders, ...	rugged drive situations, e. g. crushers, ...	shredders, extruders, steel mills, test benches	shredders, extruders, materials handling, ...	customised design, packaging machines, linear drives, ...	dynamic drives, packaging machines, machine tools, linear drives, ...	packaging machines, special purpose machines, materials handling, ...

● ≈ Standard

TORQUE LIMITERS

TYPES AND OPERATING DESCRIPTION

Product finder of torque limiters

							
Product	RUFLEX®	KTR-SI	KTR-SI FRE	KTR-SI FRA	SYNTEX®	SYNTEX®-NC	KTR-SI Compact
Type	Torque limiter	Overload system	Overload system	Overload system	Backlash-free overload system		
Types (extract)							
Combined with:							
» Sprocket/toothed belt pulley/flange	●	●	●	●	●	●	●
» ROTEX® torsionally flexible jaw coupling	●	●	●				
» BoWex® torsionally stiff curved-tooth gear coupling®	●						
» TOOLFLEX® torsionally stiff metal bellow-type coupling						●	
» ROTEX® GS backlash-free jaw coupling					●	●	●
» POLY-NORM® torsionally flexible jaw coupling				●			
» RADEX®-N torsionally stiff steel laminae coupling	○	○	○				
» RADEX®-NC torsionally stiff servo laminae coupling						○	
» GEARex® all-steel gear coupling			○				
Integrated ball bearing			●			●	●

● ≈ Standard
○ ≈ On request

Information on selection of torque limiters

To make sure that the torque limiter is not released with process-related torque peaks, the switching torque of the coupling should at least be 30 % above the maximum operating torque (see diagramme).

Torque limiters and overload systems that re-engage automatically should be used with reduced speed only after having applied higher release torques. Frequent or continuous slipping or ratcheting increases the wear on the torque limiter.

After the torque limiter separated driving from driven side in case of overload, it may take some time before the drive stops due to large inertias in the drive train. This may generate higher wear on the torque limiter and the overload system re-engaging automatically. That is why we recommend to use the overload system KTR-SI as an idle rotation type (page 272 et seqq.) for drives with larger inertias or higher speeds.

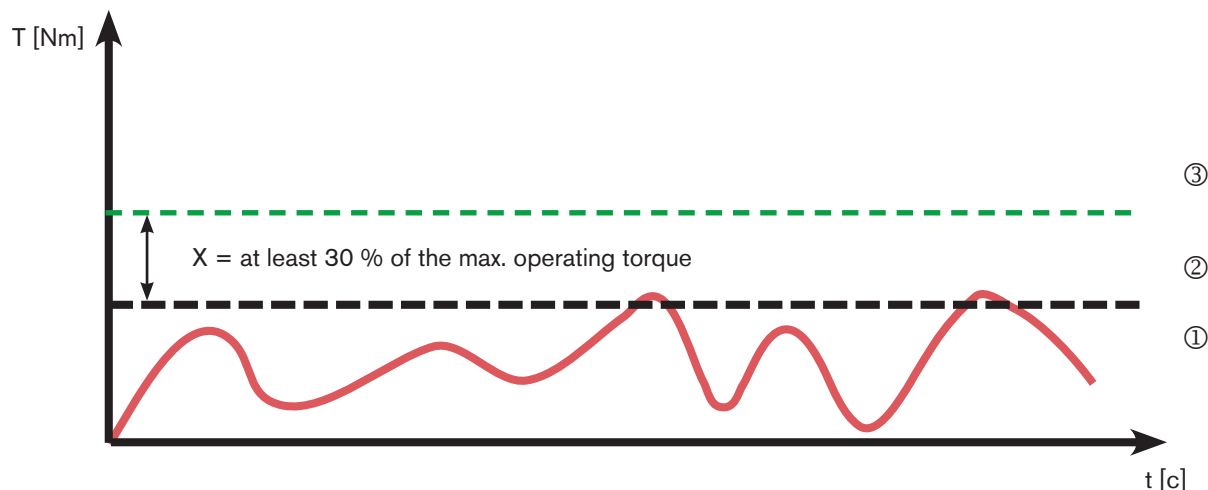
We basically recommend electronic monitoring of the torque limiters to disconnect the drive immediately in case of overload.

We will be pleased to assist you with any technical questions about the selection of torque limiters.

For that purpose we dispose of state-of-the-art simulation and calculation programs. Here the principle applies: The more detailed the data provided, the more accurate the calculation results.

Unless otherwise specified, our feather keyways are designed acc. to DIN 6885 sheet 1 [JS9]. The shaft-hub-connection needs to be verified by the customer.

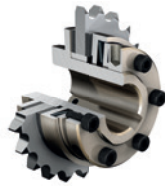
A smooth operation is only ensured if the overload torque set exceeds the maximum operating torque of the machine (see diagramme).



- ① Torque curve of the machine
- ② Max. operating torque arising on the machine
- ③ Torque set on the coupling

Design and operation

- Load-retaining overload protection up to 12.000 Nm (standard)
- Available with various drive components (e. g. sprocket) and combinations (e. g. ROTEX®)
- Asbestos-free and rust-proof friction lining for dry running
- High wear capacity, long service life
- High-quality plain bush with dry lubricant
- Torque setting possible when in place



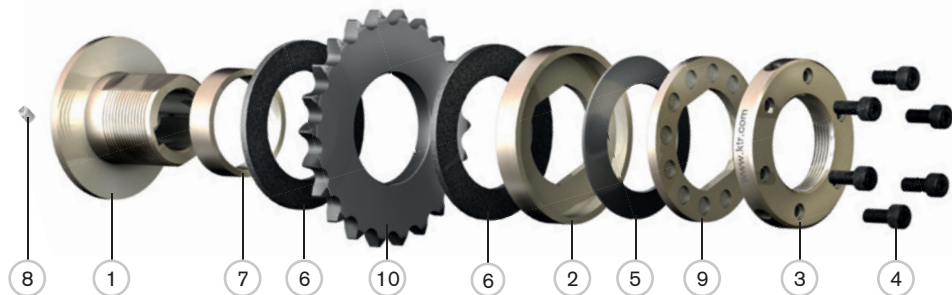
- Protection of the nut by locking in 12 different positions
- Easy assembly and torque setting
- Coupling components made of steel, large safety reserves
- Corrosion protection by zinc-coated and passivated surfaces
- Rust-proof and acid-proof type on request
- High power density due to high-quality disk springs and friction linings

The RUFLEX® modular system provides solutions for your drive, too.

The combination with the proven KTR couplings and the integration of customised drive components (e. g. sprockets) allows for an overload protection optimally adapted to the respective application.

Various disk spring layerings and high-quality friction linings ensure high power density even with only small mounting space.

RUFLEX® consists of the following components:



List of components:

- | | |
|-------------------------|------------------------------------|
| ① Hub | ⑥ Friction lining |
| ② Pressure ring | ⑦ Plain bush |
| ③ Setting nut | ⑧ Setscrew |
| ④ Torque setting screws | ⑨ Lock washer |
| ⑤ Disk spring | ⑩ Drive component (e. g. sprocket) |

Disk spring layerings:



1TF

- Small specific load on friction linings
- For small to medium torques
- Long service life of friction linings



1TFD

- Small specific load on friction linings
- Torques like with type 1TF
- Only small decrease of torque even with a longer period of friction
- Precision torque adjustment due to double spring excursion



2TF

- Standard specific load of friction linings
- Medium wear and decrease of torque with longer slipping periods
- Double torque due to double disk spring layering



2TFD

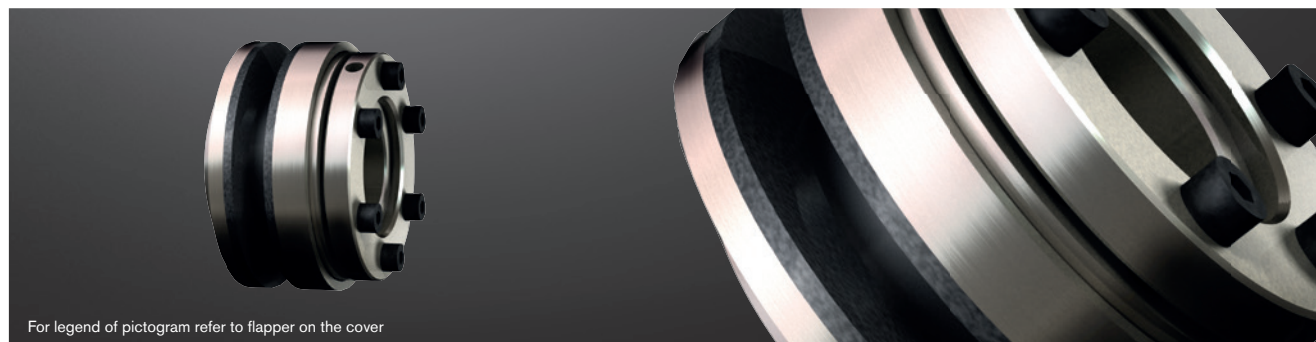
- Standard specific load of friction linings
- Torques like with type 2TF
- Only small decrease of torque even with a longer period of friction
- Precision torque adjustment due to double spring excursion



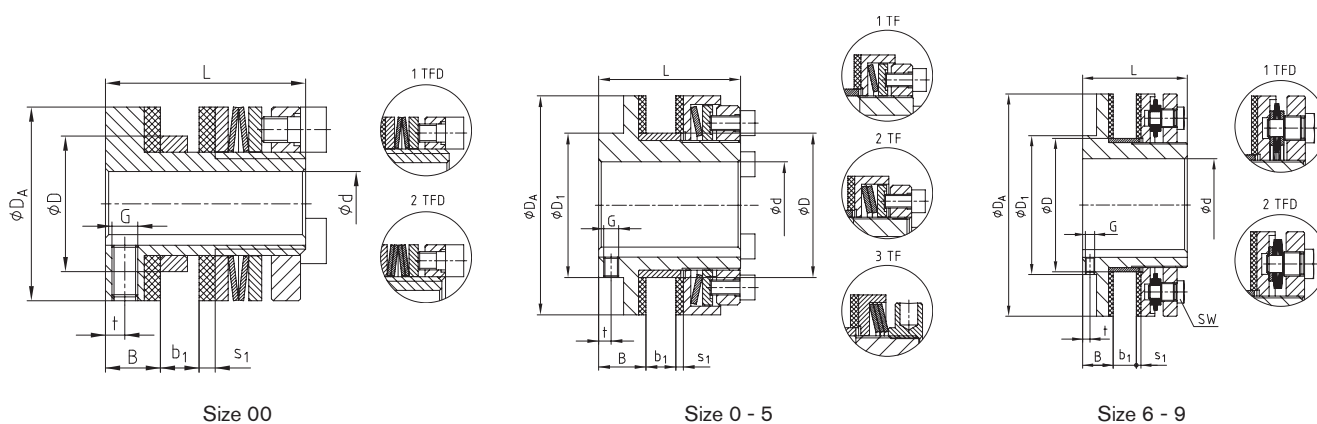
3TF

- High specific load on friction linings
- High wear and decrease of torque with longer slipping periods
- Applicable only in special cases for designs with only limited dimensions

Standard width of drive component



For legend of pictogram refer to flapper on the cover



Technical data – dimensions																
Size	Max. speed ⁴⁾ [rpm]	Torques [Nm]			Dimensions [mm]											
					Bore d		D ²⁾	D ₁	D _A	B	Drive component b ₁		s ₁	L	Setscrew	
		1TF	2TF	3TF ³⁾	Pilot bore	Max.					min.	Max.			t	G
00	10000	(0.5) ⁵⁾ 1-3	2-5	–	–	10	21	–	30	8.5	2	6	2.5	31	3	M4
0	8500	2-10	4-20	–	–	19 (20) ¹⁾	35	45	45	8.5	2	6	2.5	33	3	M4
01	6600	5-35	10-70	–	–	22	40	40	58	16	3	8	3	45	4	M5
1	5600	20-75	40-150	130-200	–	25	44	45	68	17	3	10	3	52	5	M5
2	4300	25-140	50-280	250-400	–	35	58	58	88	19	4	12	3	57	5	M6
3	3300	50-300	100-600	550-800	–	45	72	75	115	21	5	15	4	68	5	M6
4	2700	90-600	180-1200	1100-1600	–	55	85	90	140	23	6	18	4	78	5	M8
5	2200	400-800	800-1600	1400-2100	–	65	98	102	170	29	8	20	5	92	8	M8
6	1900	300-1200	600-2400	–	38	80	116	120	200	31	8	23	5	102	8	M8
7	1600	600-2200	1200-4400	–	45	100	144	150	240	33	8	25	5	113	8	M10
8	1300	900-3400	1800-6800	–	58	120	170	180	285	35	8	25	5	115	8	M10
9	1000	2500-6000	6000-12000	–	65	140	237	225	350	53	16	28	6	162	11	M12

¹⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

²⁾ Bore tolerance (drive component): F8 with size 00 - 4, H8 with size 5 - 9

³⁾ With clamping setting nut to be used on types limited in dimensions only

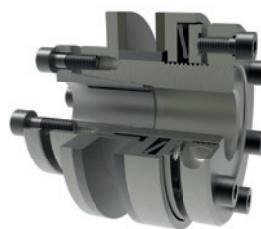
⁴⁾ See comments on page 265

⁵⁾ With special disk spring

On request:



- With clamping setting nut for size 0 - 5 (standard with 3TF)
- For radial torque setting



- With taper sleeve (hub type 4.5)
- Frictionally engaged shaft-hub-connection

Ordering example:	RUFLEX® 1	2TF	b ₁ 10	d Ø20
	Type/size	Disk spring layering	Width of drive component b ₁	Finish bore

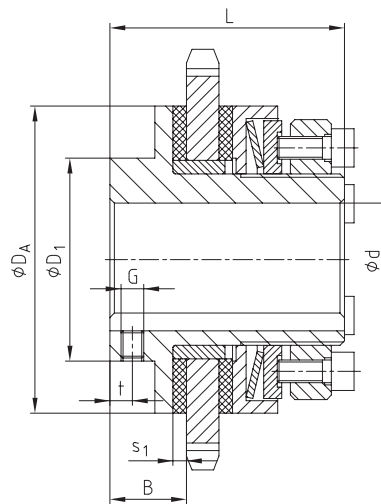
RUFLEX®

Torque limiters

With sprocket



For legend of pictogram refer to flapper on the cover



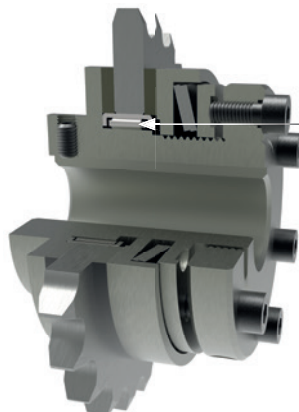
Technical data – dimensions													
Size ⁴⁾	Max. speed ³⁾ [rpm]	Torques [Nm]			Dimensions [mm]								
					Max. bore	D1	DA	B	s1	L	Setscrew		Standard sprocket ²⁾
		1TF	2TF	3TF ¹⁾	d						t	G	
01	6600	5-35	10-70	–	22	40	58	16	3	45	4	M5	06 B-1 ($\frac{3}{8} \times \frac{7}{32}$) z = 23
1	5600	20-75	40-150	130-200	25	45	68	17	3	52	5	M5	08 B-1 ($\frac{1}{2} \times \frac{5}{16}$) z = 22
2	4300	25-140	50-280	250-400	35	58	88	19	3	57	5	M6	08 B-1 ($\frac{1}{2} \times \frac{5}{16}$) z = 27
3	3300	50-300	100-600	550-800	45	75	115	21	4	68	5	M6	12 B-1 ($\frac{3}{4} \times \frac{7}{16}$) z = 22
4	2700	90-600	180-1200	1100-1600	55	90	140	23	4	78	5	M8	16 B-1 (1 x 17.02) z = 21

¹⁾ With clamping setting nut to be used on types limited in dimensions only

²⁾ Review minimum number of teeth required / Other sprockets available on request.

³⁾ See comments on page 265

⁴⁾ Other sizes on request



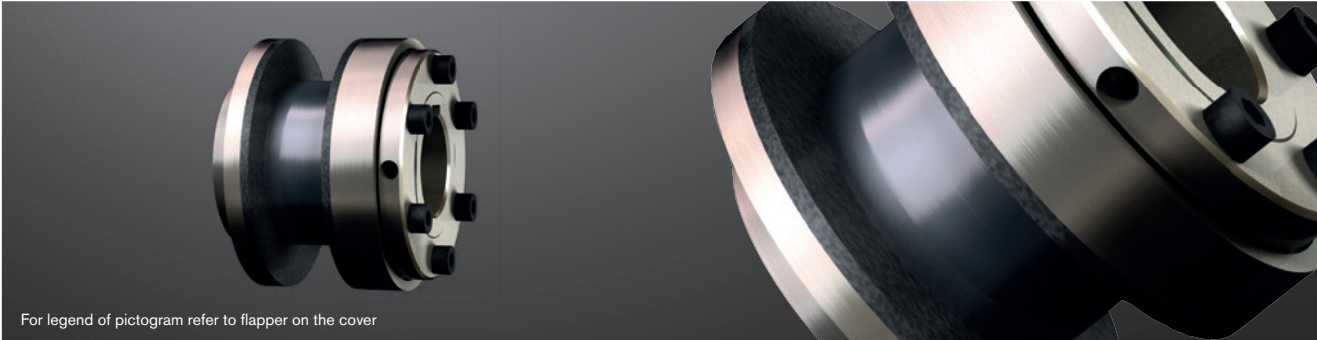
Special type:

- If requested, available with needle bearing instead of slide bush
- For high radial loads on the sprocket
- With high speeds or long slipping periods

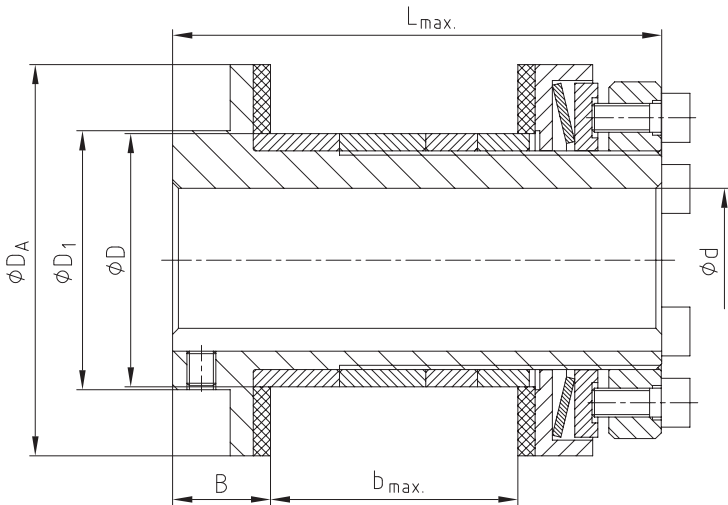
Ordering example:

RUFLEX® 1	2TF	d Ø20	08 B -1 ($\frac{1}{2} \times \frac{5}{16}$), z = 29	100 Nm
Type/size	Disk spring layering	Finish bore	Sprocket	Torque set

Max. type



For legend of pictogram refer to flapper on the cover

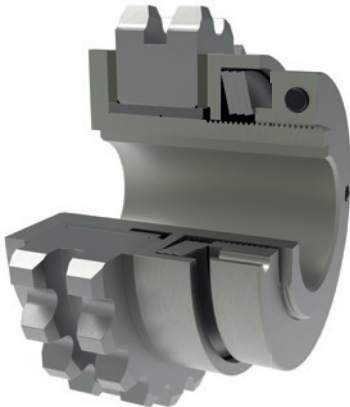


Technical data – dimensions											
Size	Max. speed ³⁾ [rpm]	Torques [Nm]			Dimensions [mm]						
		1TF	2TF	3TF ²⁾	Max. bore d	D1	DA	B	Max. b	D ¹⁾	Max. L
01	6600	5-35	10-70	–	22	40	58	16	33	40	70
1	5600	20-75	40-150	130-200	25	45	68	17	43	44	85
2	4300	25-140	50-280	250-400	35	58	88	19	54	58	100
3	3300	50-300	100-600	550-800	45	75	115	21	62	72	115
4	2700	90-600	180-1200	1100-1600	55	90	140	23	91.5	85	154

¹⁾ Bore tolerance (drive component): F8

²⁾ With clamping setting nut to be used on types limited in dimensions only

³⁾ See comments on page 265



Example:

- RUFLEX® max. with sprocket assembled
- Available as a complete subassembly with preset torque

Ordering example:	RUFLEX® max. 1	2TF	b 35	d Ø20
	Type/size	Disk spring layering	Width of drive component b	Finish bore

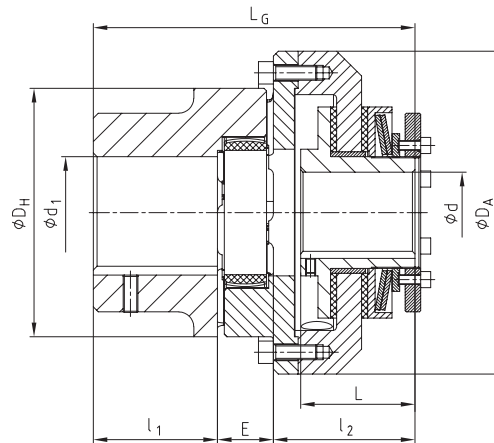
RUFLEX®

Torque limiters

With torsionally flexible ROTEX®



For legend of pictogram refer to flapper on the cover



Technical data – dimensions																
RUFLEX® size	ROTEX® size	RUFLEX® Torques [Nm]			ROTEX® ³⁾ Torques [Nm]		Dimensions [mm]									
							Bore d		Max. bore d ₁	D _H	D _A	l ₁	l ₂	E	L	L _G
		1TF	2TF	3TF ²⁾	T _{KN}	T _{K max}	Pilot bore	Max.								
00	14	(0.5) ⁴⁾ 1-3	2-5	–	12.5	25	–	10	16	30	44	11	35	13	31	59.5
0	19	2-10	4-20	–	17	34	–	19 (20) ¹⁾	25	40	63	25	37	16	33	78
01	24	5-35	10-70	–	60	120	–	22	35	55	80	30	50	18	45	98
1	28	20-75	40-150	130-200	160	320	–	25	40	65	98	35	58	20	52	113
2	38	25-140	50-280	250-400	325	650	–	35	48	80	120	45	64	24	57	133
3	48	50-300	100-600	550-800	525	1050	–	45	62	105	162	56	82	28	68	166
4	75	90-600	180-1200	1100-1600	1920	3840	–	55	95	160	185	85	80	40	78	205
5	90	400-800	800-1600	1400-2100	3600	7200	–	65	110	200	260	100	114	45	92	259
6	100	300-1200	600-2400	–	4950	9900	38	80	115	225	285	110	130	50	102	290
7	110	600-2200	1200-4400	–	7200	14400	45	100	125	255	330	120	142	55	113	317
8	140	900-3400	1800-6800	–	12800	25600	58	120	160	320	410	155	152	65	115	372
9	160	2500-6000	6000-12000	–	19200	38400	65	140	185	370	460	175	199	75	161	449

¹⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

²⁾ With clamping setting nut to be used on types limited in dimensions only

³⁾ See selection of ROTEX® couplings on page 14 et seqq.

⁴⁾ With special disk spring

Ordering example:	RUFLEX® 1	2TF	d Ø20	ROTEX® 28	98 ShA	d ₁ Ø25	100 Nm
	Type/size	Disk spring layering	RUFLEX® bore	Type/size	Spider	ROTEX® bore	Torque set

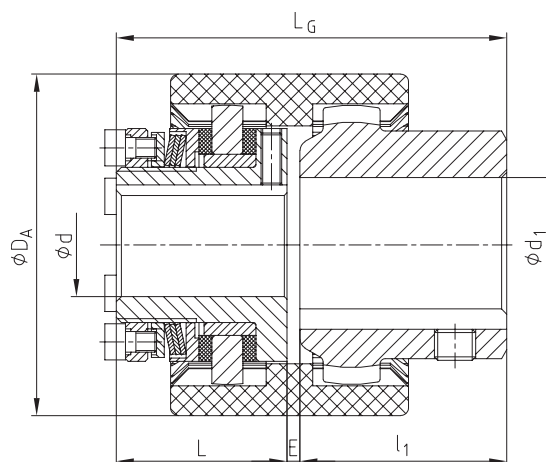
RUFLEX®

Torque limiters

With torsionally stiff BoWex®



For legend of pictogram refer to flapper on the cover



Technical data – dimensions													
RUFLEX® size	BoWex® size	RUFLEX® Torques [Nm]			BoWex® ³⁾ Torques [Nm]		Dimensions [mm]						
		1TF	2TF	3TF ²⁾	T _{KN}	T _{K max}	Max. bore		D _A	l ₁	L	E	L _G
d	d ₁												
00	19	(0.5) ⁴⁾ 1-3	2-5	–	16	32	10	19	48	25.0	31	2.5	58.5
0	28	2-10	4-20	–	45	90	19 (20) ¹⁾	28	66	40.0	33	2.5	75.5
01	38	5-35	10-70	–	80	160	22	38	83	35.5	45	1.0	81.5
1	48	20-75	40-150	130-200	140	280	25	48	95	45.5	52	1.0	98.5
2	65	25-140	50-280	250-400	380	760	35	65	132	64.0	57	1.0	122

¹⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

²⁾ With clamping setting nut to be used on types limited in dimensions only

³⁾ See selection of BoWex® couplings on page 14 et seqq.

⁴⁾ With special disk spring

Ordering example:

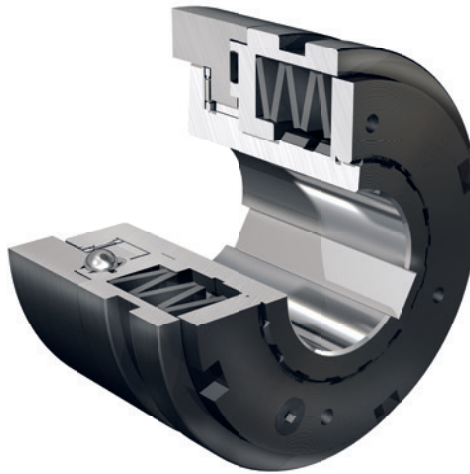
RUFLEX® 1	1TF	d Ø20	BoWex® 48	d ₁ Ø25	50 Nm
Type/size	Disk spring layering	RUFLEX® bore	Type/size	BoWex® bore	Torque set

KTR-SI

Overload systems

Design and operation

- Overload protection up to 8,200 Nm
- Available as a ratchet, synchronous, idle rotation and fail-safe design with the same dimensions
- Reduction of torque peaks
- High response accuracy, even after a long operating period
- Disconnection of the drive with overload by retrieving limit switch
- Automatically operative (DK, SR, SGR)

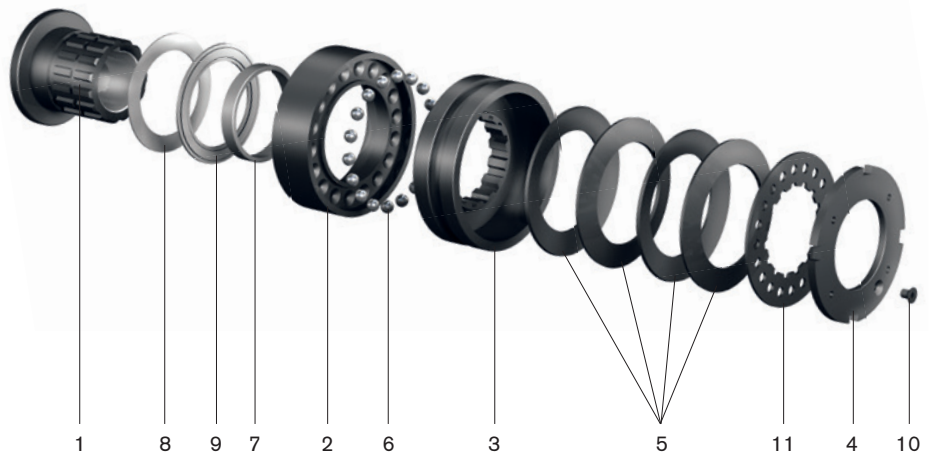


- Available in various types (e. g. with needle bearing) and combinations (e. g. with torsionally flexible ROTEX®)
- Easy assembly and torque setting
- Maintenance-free
- Insensitive to oil and grease
- Long service life due to high-quality materials

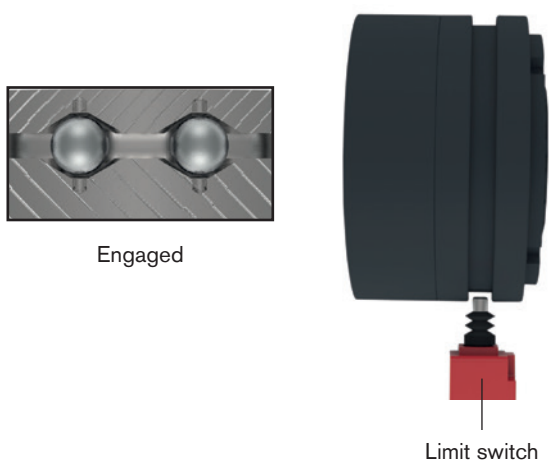
In case of overload the ratchet components (balls resp. rollers) leave their indentations, and a relative motion between the driving and driven side is generated. Damages caused by overload are reliably prevented in this way. The shift ring (3) makes an axial motion to the engagement travel „H“ activating the limit switch or proximity initiator. The signal can be used for controlling or disconnecting the drive. For restarting we would recommend to electrically bypass the limit switch or proximity switch for a short time.

Com- ponent Description

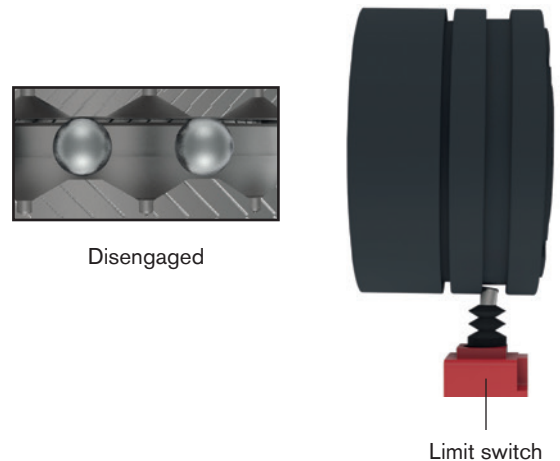
- 1 Hub
- 2 Flange ring
- 3 Shifting ring
- 4 Setting nut
- 5 Disk spring
- 6 Ball bearing cage
- 7 Plain bush
- 8 Axial disk
- 9 Axial needle bearing
- 10 Setscrew
- 11 Lock washer



No signal with normal operation



Signal with overload

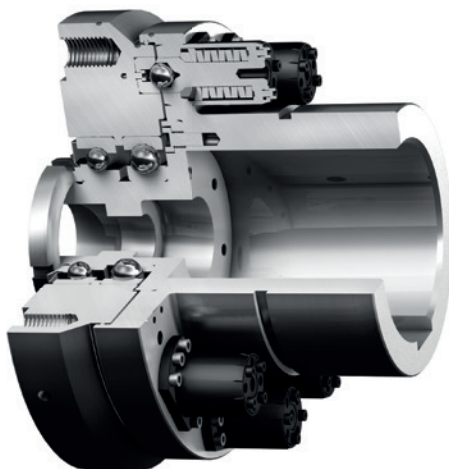


KTR-SI FRE

Idle rotation overload system

Design and operation

- Setting range up to 60,000 Nm (higher torques available on request)
- Idle rotation overload system (load-separating)
- High repeatability

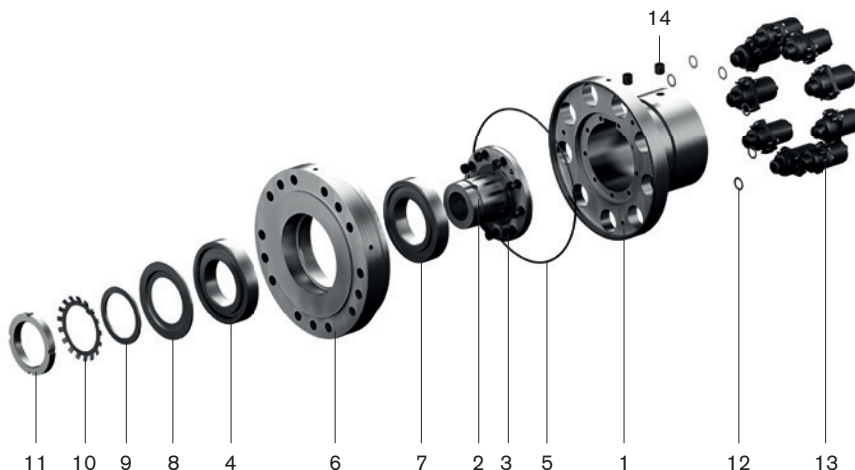


- flange type to connect toothed belt pulleys or sprockets
- Combination with ROTEX®, GEARex® or RADEX®-N as a shaft-to-shaft connection
- The intelligent further development of shear pin couplings and hydraulic clamping sets

The core of the overload system is formed by the idle rotation elements. They uncouple the driving and driven side in case of overload while protecting the drive train from damages. After eliminating the overload, the idle rotation segments are manually re-engaged so that the drive is released again. In order to set the coupling to the requested release torque, a defined pre-stress is generated on the disk springs in each idle rotation element via the setting nut. The number of idle rotation elements varies depending on the required release torque. If requested, the coupling can be preset by the manufacturer. It is also possible to individually adapt the coupling when in place.

Component Description

- 1 Hub
- 2 Bearing flange
- 3 Cap screw
- 4 Angular ball bearing
- 5 O-ring
- 6 KTR-SI FRE connection flange
- 7 Groove ball bearing
- 8 NILOS ring
- 9 Supporting disk
- 10 Safety plate
- 11 Groove nut
- 12 Shim ring
- 13 Idle rotation element
- 14 Setscrew



RUFLEX®

KTR-SI

SYNTEX®

SYNTEX®-NC

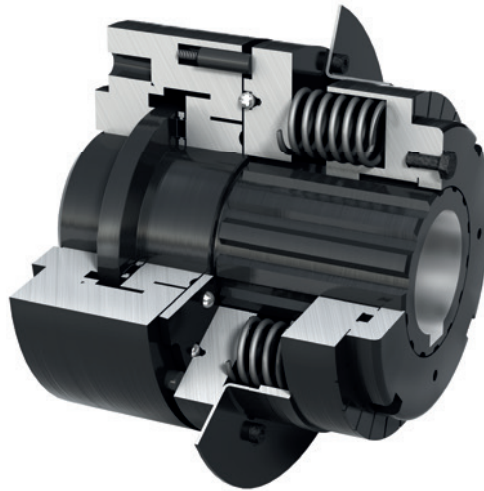
KTR-SI Compact

Torque
limiters

Idle rotation overload system with automatic re-engagement when reversing the direction of rotation

Design and operation

- Overload protection up to 3,000 Nm
- Idle rotation overload system (load-separating)
- Re-engagement by reversing the direction of rotation, thus optimally suitable for positions difficult to access



- flange type to connect toothed belt pulleys or sprockets
- Combination with torsionally flexible POLY-NORM® as a shaft-to-shaft connection

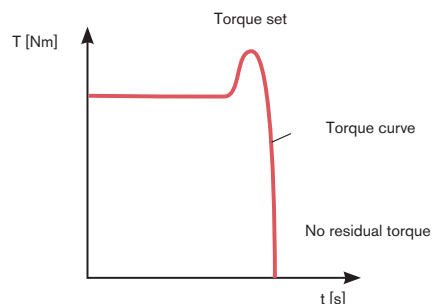
Component Description

- 1 Connection flange
- 2 Plain bearing
- 3 Axial disk
- 4 Hub
- 5 Axial bearing
- 6 Bearing flange
- 7 Flange ring
- 8 Balls
- 9 Shifting ring
- 10 Disk springs
- 11 Pressure ring
- 12 Lock washer
- 13 Setting nut



Operating principles

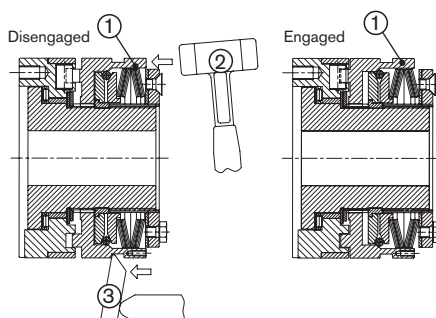
1. Idle rotation design FR/FRE/FRA



Operating principle of KTR-SI idle rotation couplings:

When achieving the torque set, the coupling rotates. Driving and driven side keep separated due to the idle rotation mechanism, the resulting flywheel mass can slow down in idle state. After eliminating the overload, the coupling can be re-engaged. The re-engagement is effected manually or via a device respectively automatically.

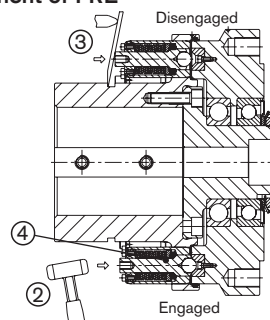
Re-engagement of FR



Re-engagement of the idle rotation coupling:

Re-engagement is generated by axial pressure on the shifting ring (1). Dependent on the existing resources, accessibility etc., re-engagement can be made in different ways: By several blows of a plastic hammer (2) axially on the shifting ring (see above), via assembly levers (3) or a pneumatic or hydraulic engagement device (automated engagement procedure).

Re-engagement of FRE



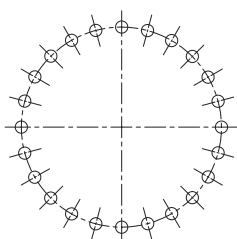
Re-engagement of idle rotation elements:

After eliminating the overload, driving and driven side are aligned to each other first. By means of a plastic hammer (2) or a tyre lever (3) the idle rotation elements (4) are manually re-engaged. Re-engagement can be loudly heard. The overload coupling is ready for use again.

Re-engagement of FRA

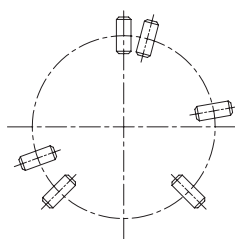
After eliminating the overload the KTR-SI FRA can be re-engaged by reversing the direction of rotation with slow speed (>50 rpm).

2. Ratchet design DK



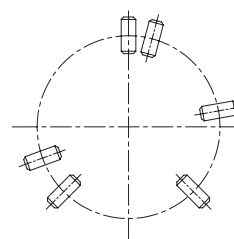
Any engagement after an overload. After eliminating the overload, the balls automatically re-engage with the next following ball indentation.

3. Synchronous design SR



Synchronous engagement after an overload. After eliminating the overload, the balls re-engage automatically after a rotation of 360° . Driving and driven side are always placed in the same position to each other. Other degrees of re-engagement, for example 180° , are also possible.

4. Fail-safe design SGR

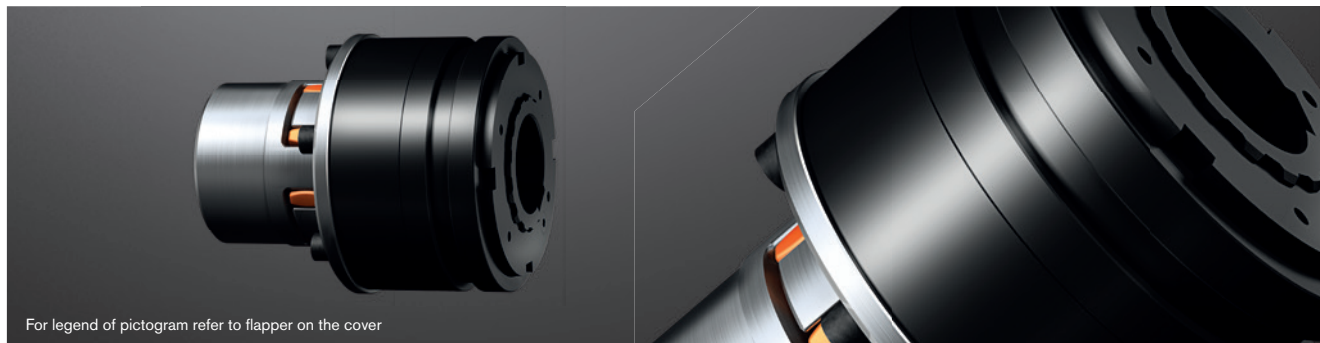


The fail-safe design is purely intended for torque measurement without any ratcheting operation. In case of overload a signal is generated by a limit switch along with mechanical separation of driving and driven side = ratcheting is not possible.

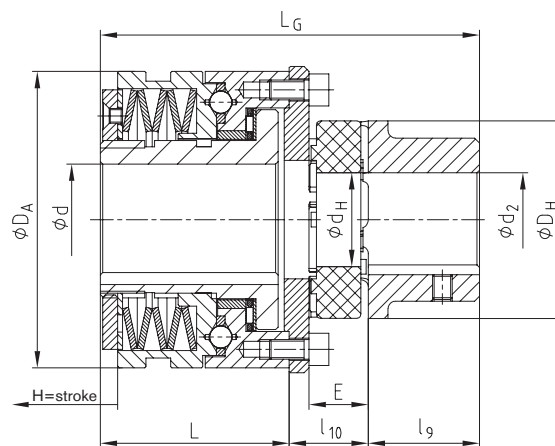
KTR-SI

Overload systems

With torsionally flexible ROTEX®



For legend of pictogram refer to flapper on the cover



Technical data

KTR-SI size	Torques [Nm]											
	Type DK				Type SR and SGR				Type FR			
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	
0	2.5-5	5-20	—	20-40	5-10	10-40	—	—	5-10	10-20	20-40	
1	6-12	12-25	25-55	55-100	12-25	25-50	50-100	—	12-25	25-50	50-100	
2	12-25	25-50	50-120	120-200	25-50	50-100	100-200	—	25-50	50-100	100-200	
3	25-50	50-100	100-250	200-450	50-100	100-200	200-450	—	50-100	100-200	200-450	
4	50-100	100-200	200-500	500-1000	100-200	200-400	400-800	800-2000	100-200	200-400	400-800	
5	85-250	230-600	300-1000	600-2000	170-450	350-900	600-1800	1200-3400	170-450	350-900	600-1800	
6	180-480	360-960	720-1950	1600-3300	300-750	600-1500	1200-3000	2900-5800	—	—	—	
7	250-520	500-1050	1000-2100	2000-3600	550-1100	1100-2200	2200-4400	3000-8200	—	—	—	

Technical data – dimensions

KTR-SI size	ROTEX® size	ROTEX® 1) Torque [Nm]		Max. bore		Dimensions [mm]								H=stroke		
		98 ShA												Type		
		T _{KN}	T _{K max}	d	d ₂	d _H	D _H	D _A	l ₉	l ₁₀	E	L	L _G	DK	SR	FR
0	19	17	34	20	25	18	40	55	25	22	16	38.5	85.5	1.4	1.2	1.6
	28	160	320		40	30	65		35	28.5	20		102			
1	24	60	120	25	35	27	55	82	30	24	18	52	106	2.3	1.8	2.3
	38	325	650		48	38	80		45	32.5	24		129.5			
2	28	160	320	35	40	30	65	100	35	28	20	61	124	2.4	2.0	3.0
	48	525	1050		62	51	105		56	38	28		155			
3	38	325	650	45	48	38	80	120	45	32	24	78	155	2.7	2.2	3.5
	55	685	1370		74	60	120		65	43	30		186			
4	48	525	1050	55	62	51	105	146	56	38	28	100	194	3.7	2.5	3.8
	75	1920	3840		95	80	160		85	56.5	40		241.5			
5	55	685	1370	65 (70) 2)	70	60	120	176	65	44	30	113.5	222.5	4.6	3.0	4.5
	90	3600	7200		110	100	200		100	62	45		275.5			
6	100	4950	9900	80	115	113	225	200	110	72	50	119	301	5.0	3.5	–
7	110	7200	14400	100 (110) 2)	125	127	255	240	120	78	55	141	339	5.5	4.0	–

¹⁾ See selection of ROTEX® couplings on page 14 et seqq.

²⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

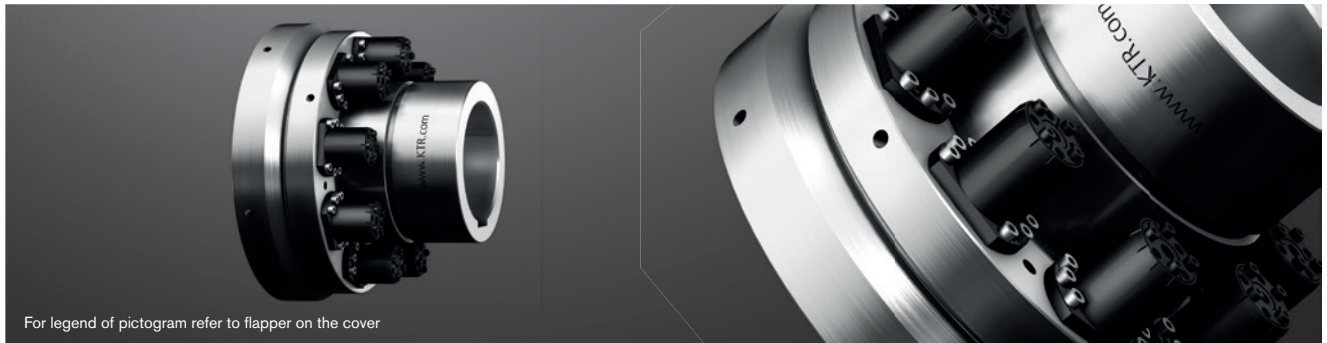
Ordering example:

KTR-SI 2	DK	T2	d Ø20	ROTEX® 28	98 ShA	d ₂ Ø25	40 Nm
Type/size	Type (DK/SR/SGR/FR)	Disk spring layering	KTR-SI bore	Type/size	Spider	ROTEX® bore	Torque set

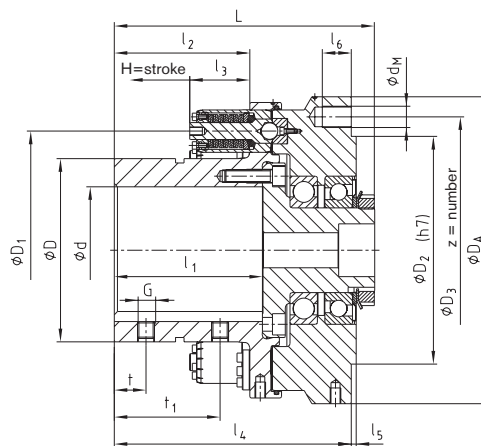
KTR-SI FRE

Idle rotation overload system

Flange type



For legend of pictogram refer to flapper on the cover



Torques [Nm]							
Size	Type of element	3 idle rotation elements		6 idle rotation elements		9 idle rotation elements	
		min.	Max.	min.	Max.	min.	Max.
9	1T1	800	2600	–	–	–	–
	1T2	1000	4000	2000	8000	–	–
	1T3	2400	5500	4800	11000	–	–
12	1T2	1300	5000	2600	10000	3900	15000
	1T3	2900	6700	5800	13400	8700	20100
15	1T2	1700	6000	3400	12000	5100	18000
	1T3	3500	8200	7000	16400	10500	24600
20	2T2	5000	15000	10000	30000	15000	45000
	2T3	13100	20000	26300	40000	39400	60000

Technical data – dimensions																								
Size ¹⁾	Max. bore	Dimensions [mm]																		Max. permissible forces on the flange connection ²⁾ [kN]		Speed ³⁾ [rpm]	Weight with max. bore [kg]	
		d	D	D1	D2	D3	DA	l1	l2	l3	l4	l5	l6	G	t	t1	L	dM	z	pitch	H=stroke			Radial
	9	90	135	185	200	225	260	120	110	56.7	197	2.5	17.5	M12	25	75	213.5	12	12	12x30°	5.2	18	13	3300
12	120	173	225	215	252	290	140	128	56.7	224	4.5	27.5	M16	30	100	246	20	15	20x18°	5.2	26	18	2300	57
15	150	215	270	245	282	324	170	160	56.7	258	4.5	27.5	M20	40	120	281	20	15	20x18°	5.2	30	20	2050	81
20	200	285	370	330	375	460	220	200	89.4	341	5	33.0	M20	50	150	366	24	18	24x15°	8.9	50	40	1550	211

¹⁾ Other sizes on request

²⁾ Larger forces on request

³⁾ Higher speeds on request, see comments on page 265



Special type:

- KTR-SI FRE with sprocket
- Available as a complete subassembly with preset torque

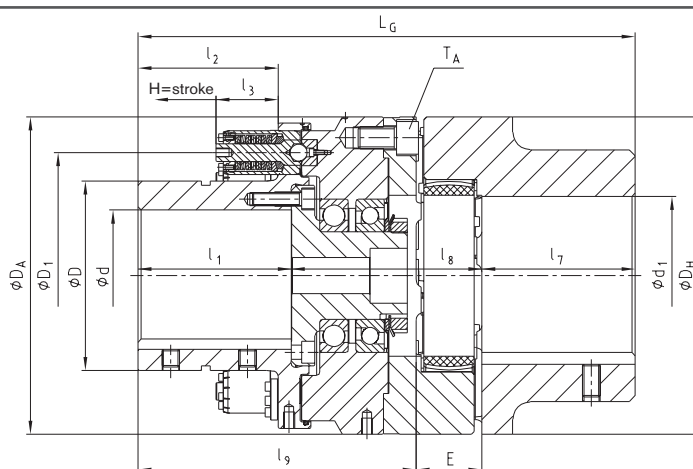
Ordering example:

KTR-SI FRE 12	1T2	9	d Ø85	7500 Nm
Type/size	Type of element	Number of idle rotation elements	KTR-SI FRE bore	Torque set

KTR-SI FRE

Idle rotation overload system

With torsionally flexible ROTEX®



Torques [Nm]

Size	Type of element	3 idle rotation elements		6 idle rotation elements		9 idle rotation elements	
		min.	Max.	min.	Max.	min.	Max.
9	1T1	800	2600	—	—	—	—
	1T2	1000	4000	2000	8000	—	—
	1T3	2400	5500	4800	11000	—	—
12	1T2	1300	5000	2600	10000	3900	15000
	1T3	2900	6700	5800	13400	8700	20100
15	1T2	1700	6000	3400	12000	5100	18000
	1T3	3500	8200	7000	16400	10500	24600
20	2T2	5000	15000	10000	30000	15000	45000
	2T3	13100	20000	26300	40000	39400	60000

Technical data – dimensions

Technical data – dimensions																						
Size ¹⁾	ROTEX®			Max. bore		Dimensions [mm]														T _A [Nm]	Speed ²⁾ [rpm]	Weight with max. bore [kg]
	Size	Torque ³⁾ [Nm] 64 ShD		d	d ₁																	
		T _{KN}	T _{K max}																			
		D	D ₁			D _H	D _A	l ₁	l ₂	l ₃	l ₇	l ₈	l ₉	E	L _G	H=stroke						
9	90	4500	9000	90	110	135	185	200	260	120	110	56.7	100	133	217	45	362	5.2	117	3300	59	
12	125	12500	25000	120	145	173	225	290	290	146	130	56.7	140	165	254	60	454	5.2	560	2300	106	
15	140	16000	32000	150	160	215	270	320	324	170	160	56.7	155	176	292	65	512	5.2	560	2050	147	
20	180	35000	70000	200	200	285	370	420	460	220	200	88.4	195	227	381	85	661	8.9	970	1550	349	

¹⁾ Other sizes on request

²⁾ Higher speeds on request, see comments on page 265

³⁾ See selection of ROTEX® couplings on page 14 et seqq.

Special type:



- KTR-SI FRE with torsionally flexible pin & bush coupling REVOLUX® KX-D and limitation of axial backlash
- KTR-SI FRE with torsionally stiff all-steel gear coupling GEARex® and integrated brake disk
- KTR-SI FRE with torsionally stiff laminae coupling RADEX®-N and integrated brake disk

Ordering
example:

KTR-SI FRE 12	1T3	9	d Ø85	ROTEX® 125	98 ShA	d ₁ Ø85	12000 Nm
Type/size	Type of element	Number of idle rotation elements	KTR-SI FRE bore	Type/size	Spider	ROTEX® bore	Torque set

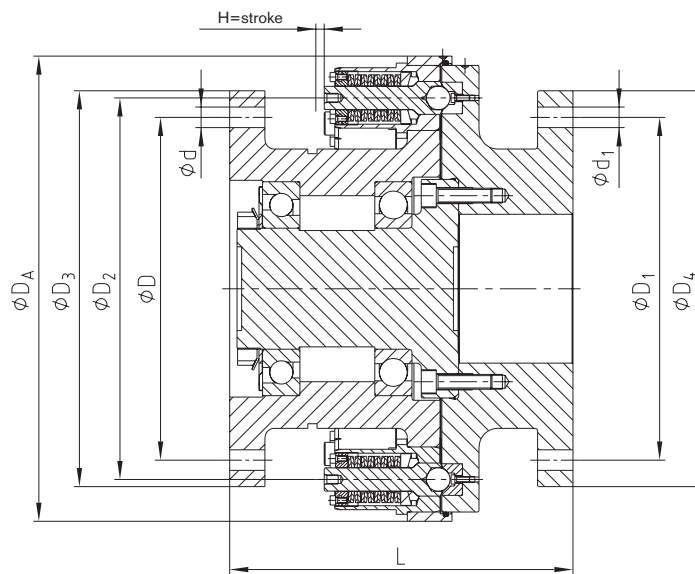
KTR-SI FRE

Idle rotation overload system

Customised type (on request)



For legend of pictogram refer to flapper on the cover



Torques [Nm]									
Size	Type of element	3 idle rotation elements		6 idle rotation elements		9 idle rotation elements		12 idle rotation elements	
		min.	Max.	min.	Max.	min.	Max.	min.	Max.
00-1	1T1	1200	3800	2400	7600	3600	11400	–	–
	1T2	1700	6000	3400	1200	5100	18000	–	–
	1T3	3500	8200	7000	16400	10500	24600	–	–
00-2	2T1	–	–	6800	17200	10200	25800	13600	34400
	2T2	–	–	11700	31900	17550	47850	23400	63800
	2T3	–	–	21200	43000	32400	64500	42400	86000
00-3	3T1	–	–	23000	78000	34500	117000	46000	156000
	3T2	–	–	47000	108000	70500	162000	94000	216000

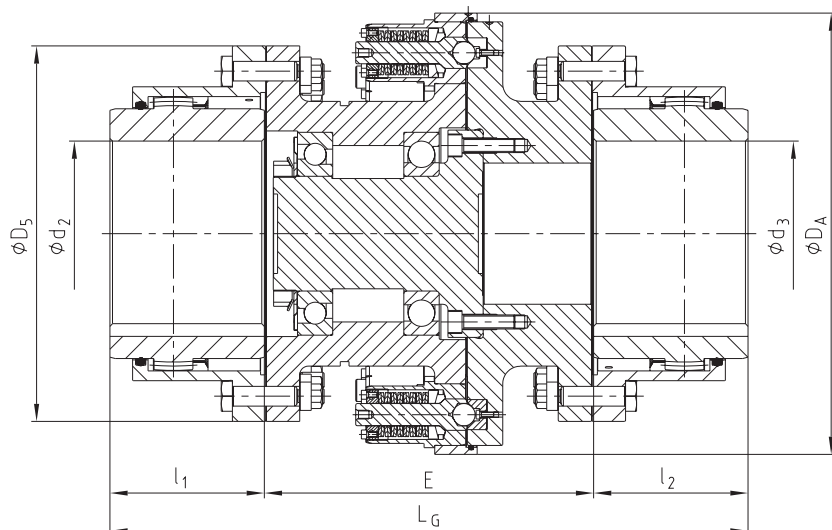
Technical data – dimensions																				
Size	GEARex®			RADEX®-N			Max. bore				Dimensions [mm]									
	Size	Torque [Nm]		Size	Torque [Nm]		d2, d3	d4	d5	d, d1	D, D1	D2	D3, D4	D5	D6	DA	l1, l2	l3	l4	E
		TKN	TKmax.		TKN	TKmax.														
00-1	35	17000	34000	136	17500	35000	133	135	140	custom-ised	custom-ised	270	custom-ised	280	300	324	105	135	126	256
00-2	55	65000	130000	208	70000	140000	210	200	250	410	425.5	425.5	500	175	200	245	373	custom-ised	custom-ised	466
00-3	85	225000	450000	288	200000	400000	325	290	350	540	585	567	655	292	280	335	416	1000	E+17+18	5.2

Ordering example:

KTR-SI FRE 00-2	T2	6	Ø350	Ø400	349	25000 Nm
Type/size	Type of element	Number of idle rotation elements	Flange diameter ØD3	Flange diameter ØD4	Total length L	Torque set

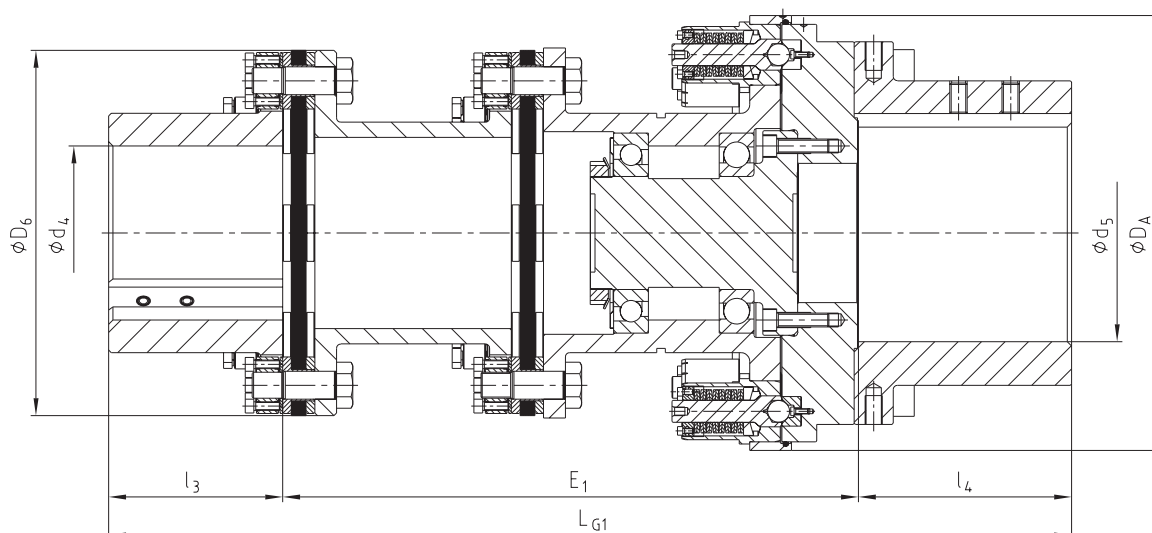
Other types and combinations available on request.

Type 00 with GEARex®



KTR-SI

Type 00 with RADEX®-N



SYNTEX®

SYNTEX®-NC

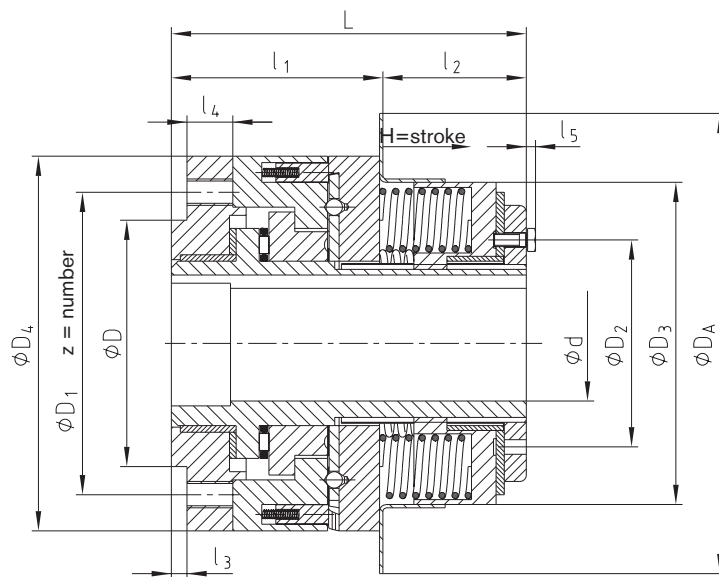
Torque
limiters

KTR-SI Compact

KTR-SI FRA

Idle rotation overload system with automatic re-engagement when reversing the direction of rotation

Flange type FT



Torques [Nm]				
Size	T1	T2	T3	T4
2	5-20	15-70	40-135	80-260
3	24-104	57-360	110-540	245-730
4	45-210	145-435	340-960	465-1320
5	90-415	240-640	490-1880	1060-3000

Technical data – dimensions																		
Size	Bore d		Dimensions [mm]														Speed ¹⁾ [rpm]	Weight with max. bore [kg]
	Pilot bore	Max.	D j7	D1	D2	D3	D4	DA	l1	l2	l3	l4	l5	L	z	H=stroke		
2	22	35	75	92	70	98	114	140	63	45	4.7	14	-	108	6xM8	2.8	3600	5
3	22	45	95	114	77	131	149	184	69	42	4.7	15	3.5	111	7xM10	3.5	3600	10
4	25	55	122	144	88	147	166	203	75	46	4.7	15	4.0	121	8xM12	3.5	2000	13
5	30	80	155	184	152	196	223	279	94	70	6.3	23	2.3	164	8xM16	4.4	2000	32

¹⁾ See comments on page 265

Ordering example:	KTR-SI FRA 3	FT	T3	d Ø35	300 Nm
	Type/size	Type	Torque setting range	KTR-SI FRE bore	Torque set

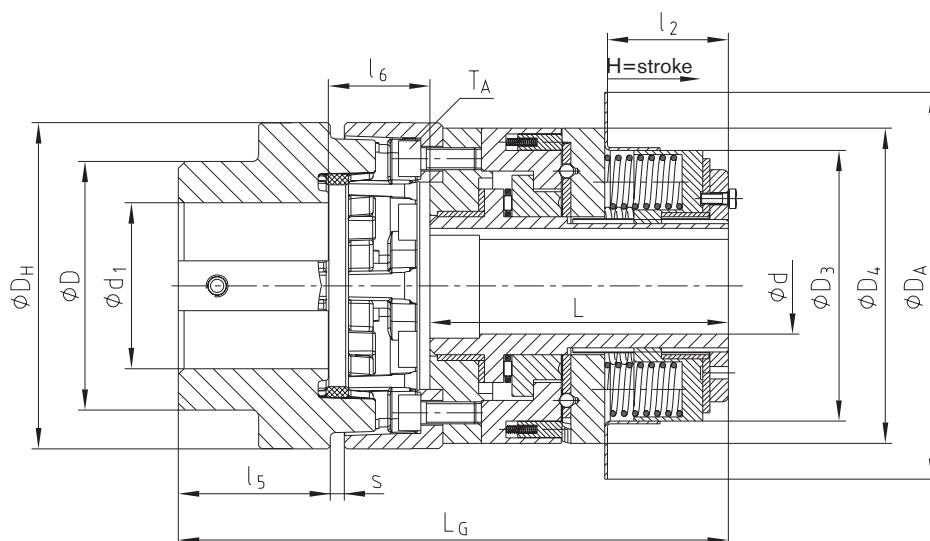
KTR-SI FRA

Idle rotation overload system with automatic re-engagement when reversing the direction of rotation

With torsionally flexible POLY-NORM®



For legend of pictogram refer to flapper on the cover



Torques [Nm]

KTR-SI FRA size	T1	T2	T3	T4
2	5-20	15-70	40-135	80-260
3	24-104	57-360	110-540	245-730
4	45-210	145-435	340-960	465-1320
5	90-415	240-640	490-1880	1060-3000

Technical data – dimensions

KTR-SI FRA size	POLY-NORM®			Max. bore		Dimensions [mm]														T _A [Nm]	Speed ¹⁾ [rpm]	Weight with max. bore [kg]
	Size	Torque [Nm]		d	d ₁	D	D ₃	D ₄	D _H	D _A	l ₁	l ₂	l ₅	l ₆	s	L _G	L	H=stroke				
		T _{KN}	T _{K max}																			
2	55	300	600	35	60	90	98	114	118	140	108	45	55	27	5	189.3	108	2.8	23	3600	9	
3	75	850	1700	45	70	123	131	149	158	184	111	42	75	33.8	5	218.8	111	3.5	46	3600	18	
4	85	1350	2700	55	80	139	147	166	182	203	121	46	85	52.6	5	257.6	121	3.5	79	2000	25	
5	100	3900	7800	80	90	165	196	223	224	279	164	70	100	63.2	6	326.2	164	4.4	195	2000	51	

¹⁾ See comments on page 265

Ordering example:

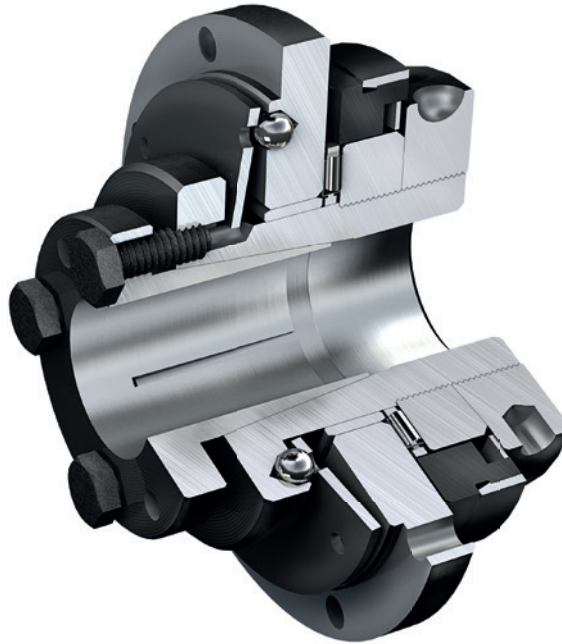
KTR-SI FRA 3	T3	d Ø35	POLY-NORM® 75	AR	d ₁ Ø45	300 Nm
Type/size	Torque setting range	KTR-SI FRA bore	Type/size	Type	POLY-NORM® bore	Torque set

SYNTEX®

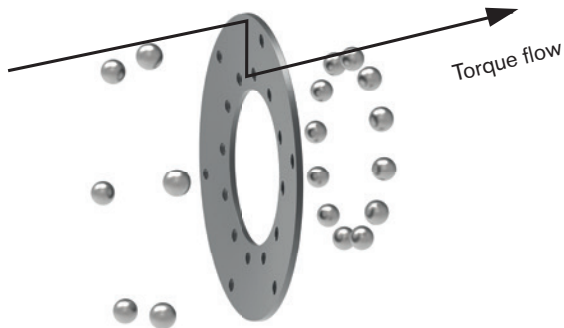
Backlash-free overload systems

Design and operation

- Backlash-free, torsionally rigid overload protection up to 400 Nm, suitable for reversing operation
- Disconnection of the drive in case of overload
- Reduction of torque peaks
- High response accuracy, even after a long operating period
- Easy integration of customer components
- Compact design, low mass moment of inertia
- User-variable due to modular system
- Special disk springs available for special applications



- Low-cost protection even for simple drives
- Easy assembly and torque setting
- Maintenance-free
- Insensitive to oil and grease
- Long service life due to small internal loads
- Backlash-free shaft-hub-connections
- Any or synchronous re-engagement
- Automatically ready for operation again



SYNTEX® is an overload system with positive locking operation. The punched disk spring is a component serving for transmitting the torque.

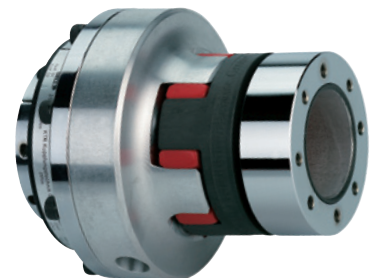
SYNTEX®
Overload system with mounting flange



SYNTEX®
Overload system with sprocket



SYNTEX®
Overload system with ROTEX® GS



Operating principles

Ratchet design DK



If the torque set is exceeded, a relative movement is generated between the driving and driven side. The transmittable torque is reduced to a low residual figure.

The balls leave the indentations of the disk spring. After eliminating the overload, the balls engage automatically with the next following ball indentation of the disk spring.

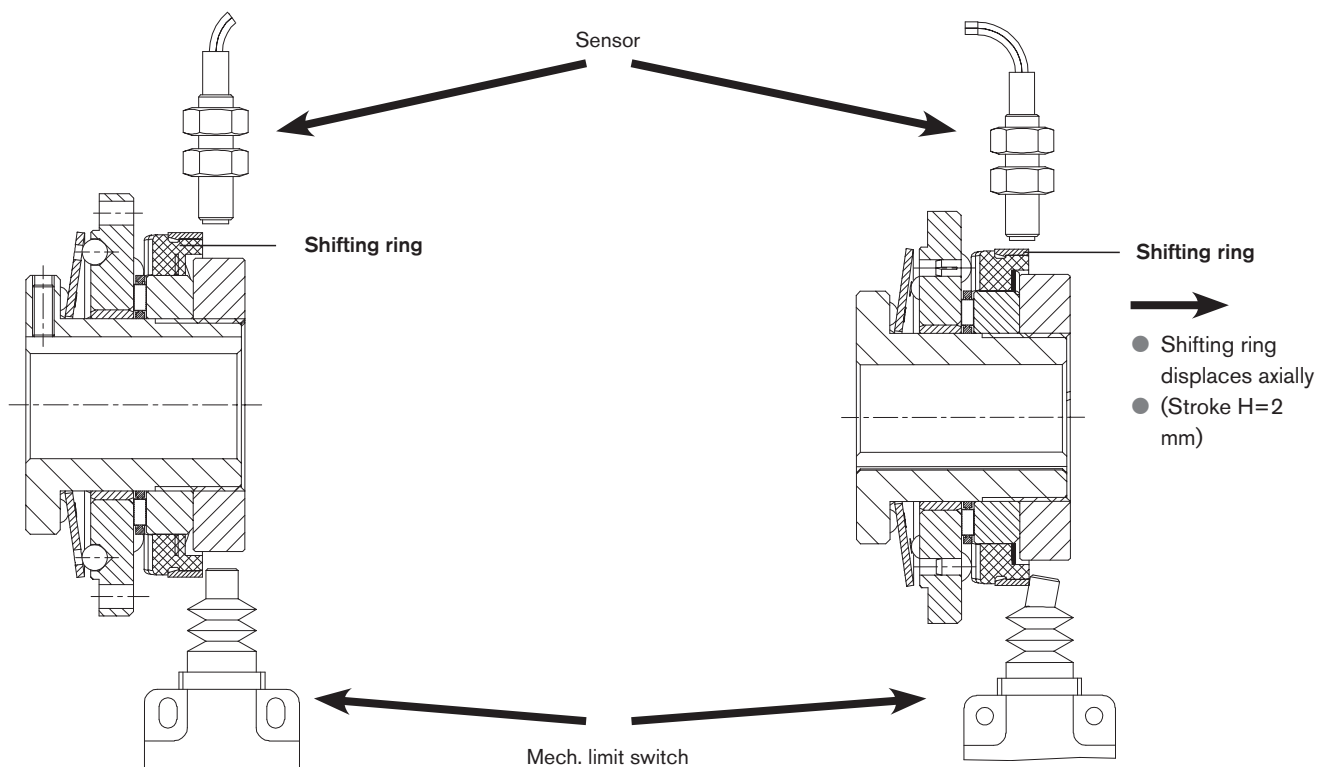
Synchronous design SK



If the torque set is exceeded, a relative movement is generated between the driving and driven side. The transmittable torque is reduced to a low residual figure.

The balls leave the indentations of the disk spring. After eliminating the overload, the balls re-engage automatically with the disk springs after a rotation of 360° subject to their special pitch. Driving and driven side are always in the same position to each other (other degrees of re-engagement, for example 180°, are also possible).

Signal by limit switch or sensor in case of overload



Normal operation:

No signal by sensor or mechanical limit switch.

In case of overload:

The axial motion of the shifting ring activates the sensor resp. mechanical limit switch. The resulting signal can be used for control operation (e. g. motor stop).

SYNTEX®

Backlash-free overload systems

Flange type



For legend of pictogram refer to flapper on the cover



Technical data – dimensions

Size	Torques [Nm]				Max. speed ¹⁾ [rpm]	Dimensions [mm]															
	Ratchet design DK		Synchronous design SK			Max. bore d	D	D ₁	D ₂	D ₃	D ₄	D _A	l ₁	l ₂	l ₃	l ₄	l ₅	d _L	L	z	H=stroke
	DK1	DK2	SK1	SK2																	
20	6-20	15-30	10-20	20-65	1500	20	48	54	61.5	65	71	80	8	2	16	6	35	4.5	45	8	2
25	20-60	45-90	25-65	40-100	1500	25	60	68	80	81	89	98	8	2	17	8	39	5.5	50	8	2
35	25-80	75-150	30-100	70-180	1000	35	75	78	91	102	110	120	10	2	21	10	42	5.5	60	12	2
50	60-180	175-300	80-280	160-400	1000	50	105	108	121	142	152	162	12	2	25	13	56	6.6	70	12	2

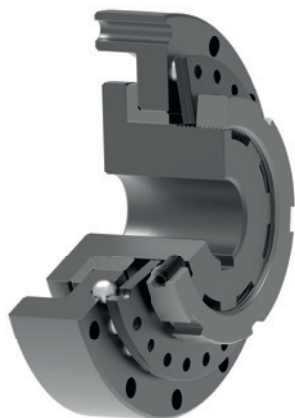
Dimensions – Hub type 4.5

Size	Dimensions [mm]							Tightening torque T _A [Nm]
	d ₁ max.	l ₆	l ₇	l ₈	L ₁	s	Clamping screws	
20	20	9	3.5	23	54	3	4 x M5	8.5
25	25	11	4.0	28	61	4	4 x M6	14
35	35	10	4.0	31	70	4	4 x M6	14
50	50	12	4.0	37	82	6	4 x M6	14

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 4.5

Size	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø23	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50
20	45	62	71	81	92	103	115	127														
25		72	83	95	107	120	133	148	179	196	213	231										
35									127	139	152	165	207	237	270	323						
50																238	281	311	343	394	448	486

¹⁾ See comments on page 265



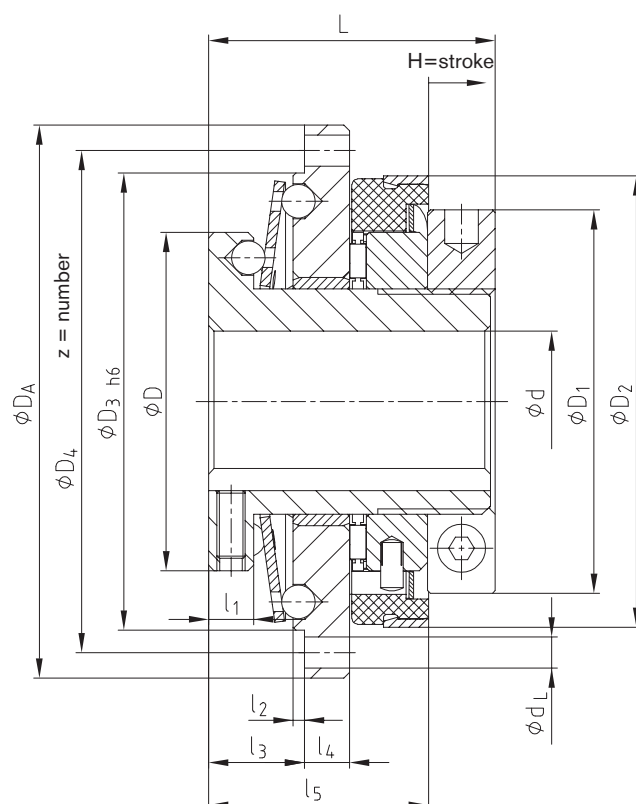
Special type:

- SYNTEX® 35 spec. with integrated flange
- Performance range up to 360 Nm
- Adjustment of flange to ambient components possible

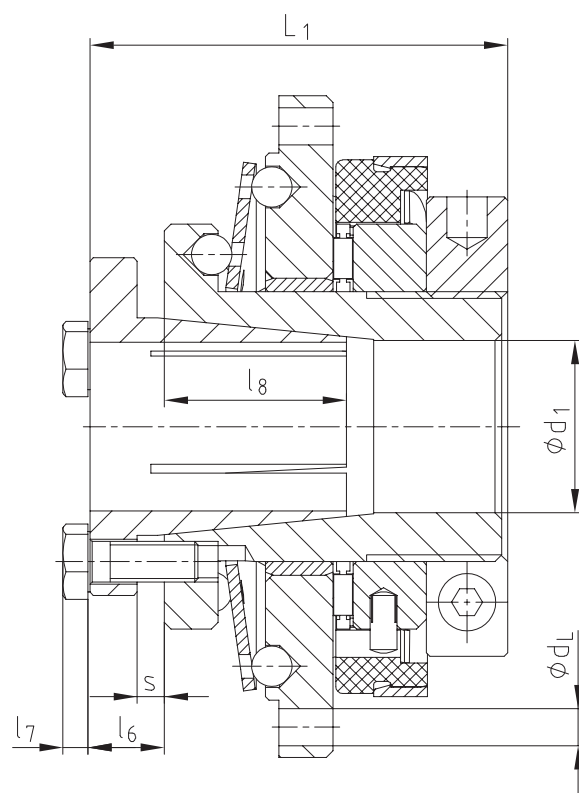
Ordering example:

SYNTEX® 25	d Ø20	DK1	1.0	45 Nm
Type/size	Bore	Type (DK/SK)	Hub type	Torque set

Hub type 1.0



Hub type 4.5



SYNTEX®

Backlash-free overload systems

With sprocket



For legend of pictogram refer to flapper on the cover



Technical data – dimensions

Size	Torque [Nm]				Max. speed ²⁾ [rpm]	Dimensions [mm]									
	Ratchet design DK		Synchronous design SK			Max. bore d	Standard sprocket ¹⁾	D	D ₁	D ₂	l ₁	l ₃	l ₅	L	H=stroke
	DK1	DK2	SK1	SK2											
20	6-20	15-30	10-20	20-65	1500	20	06 B-1 (³ / ₈ x ⁷ / ₃₂) z = 25	48	54	61.5	8	14	33	45	2
25	20-60	45-90	25-65	40-100	1500	25	08 B-1 (¹ / ₂ x ⁵ / ₁₆) z = 24	60	68	80	8	15	37	50	2
35	25-80	75-150	30-100	70-180	1000	35	08 B-1 (¹ / ₂ x ⁵ / ₁₆) z = 29	75	78	91	10	19	41	60	2
50	60-180	175-300	80-280	160-400	1000	50	12 B-1 (³ / ₄ x ⁷ / ₁₆) z = 27	105	108	121	12	23	52	70	2

Dimensions – Hub type 4.5

Size	Dimensions [mm]							Tightening torque T _A [Nm]
	d _{1 max.}	l ₆	l ₇	l ₈	L ₁	s	Clamping screws	
20	20	9	3.5	23	54	3	4 x M5	8.5
25	25	11	4.0	28	61	4	4 x M6	14
35	35	10	4.0	31	70	4	4 x M6	14
50	50	12	4.0	37	82	6	4 x M6	14

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 4.5

Size	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø23	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50
20	45	62	71	81	92	103	115	127														
25		72	83	95	107	120	133	148	179	196	213	231										
35									127	139	152	165	207	237	270	323						
50																238	281	311	343	394	448	486

¹⁾ z = min. number of teeth required / Other sprockets available on request

²⁾ See comments on page 265



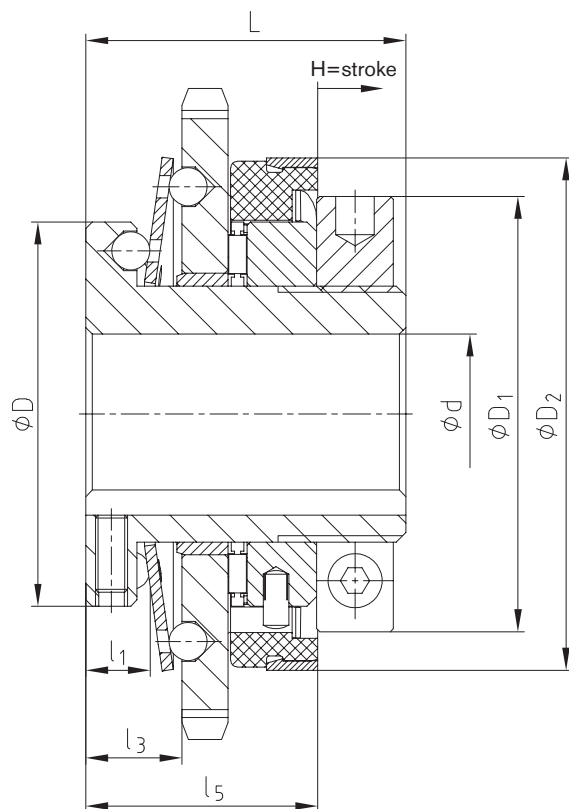
Special type:

- Standard SYNTEX® with integrated toothed belt pulley or sprocket
- Available ready for assembly with the torque set
- Reduction of components by integration of components
- Available both as a ratchet and synchronous design
- torque setting possible while in place
- Finish bore according to ISO fit H7, feather keyway according to DIN 6885, sheet 1 [JS9]
- Also available with a frictionally engaged shaft-hub-connection (hub type 4.5)

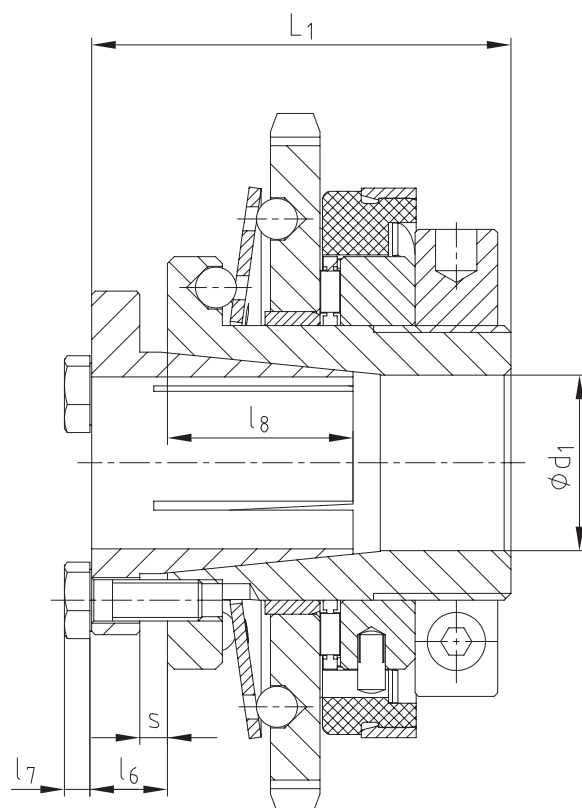
Ordering example:

SYNTEX® 25	DK1	1.0	d Ø20	08 B-1 ($\frac{1}{2} \times \frac{5}{16}$) z = 29	45 Nm
Type/size	Type (DK/SK)	Hub type	Bore	Sprocket	Torque set

Hub type 1.0



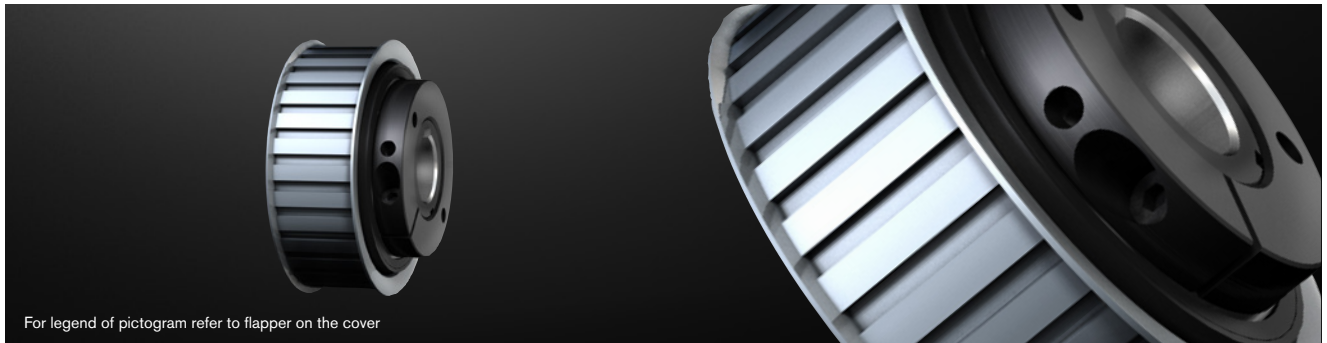
Hub type 4.5



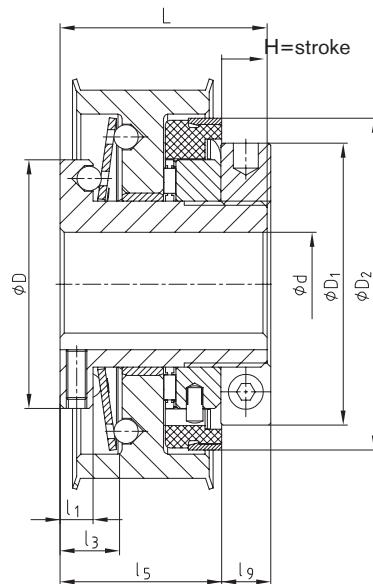
SYNTEX®

Backlash-free overload systems

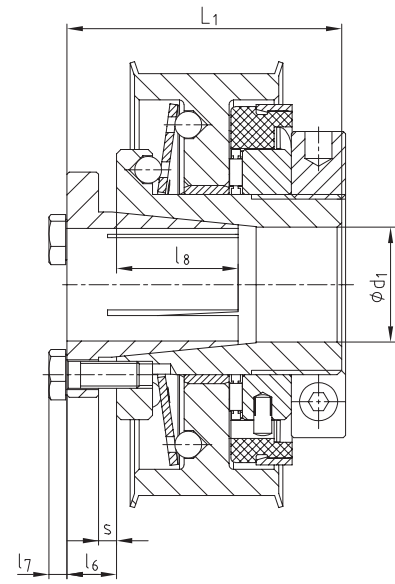
With toothed belt pulley



Hub type 1.0



Hub type 4.5



Technical data – dimensions

Size	Torques [Nm]				Max. speed ²⁾ [rpm]	Dimensions [mm]											
	Ratchet design DK		Synchronous design SK			Max. bore		Toothed belt pulley		D	D ₁	D ₂	l ₁	l ₃	l ₅	L	H=stroke
	DK1	DK2	SK1	SK2		d	T10 ¹⁾	AT10 ¹⁾									
20	6-20	15-30	10-20	20-65	1500	20	T10, z = 24	AT10, z = 24	48	54	61.5	8	14	35	45	2	
25	20-60	45-90	25-65	40-100	1500	25	T10, z = 30	AT10, z = 30	60	68	80	8	15	39	50	2	
35	25-80	75-150	30-100	70-180	1000	35	T10, z = 36	AT10, z = 36	75	78	91	10	19	42	60	2	
50	60-180	175-300	80-280	160-400	1000	50	T10, z = 48 ³⁾	AT10, z = 48 ³⁾	105	108	121	12	23	56	70	2	

Dimensions – Hub type 4.5

Size	Max. bore	Dimensions [mm]						Clamping screws	Tightening torque T _A [Nm]
	d ₁	l ₆	l ₇	l ₈	l ₉	L ₁	s		
20	20	9	3.5	23	10	54	3	4 x M5	8.5
25	25	11	4.0	28	11	61	4	4 x M6	14
35	35	10	4.0	31	13	70	4	4 x M6	14
50	50	12	4.0	37	14	82	6	4 x M6	14

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 4.5

Size	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø23	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50
20	45	62	71	81	92	103	115	127														
25		72	83	95	107	120	133	148	179	196	213	231										
35									127	139	152	165	207	237	270	323						
50																238	281	311	343	394	448	486

¹⁾ z = min. number of teeth required / Other sizes available on request

²⁾ See comments on page 265

³⁾ Without flanged wheel

Ordering example:

SYNTEX® 25	DK1	1.0	d Ø20	AT10, z = 24	32	45 Nm
Type/size	Type (DK/SK)	Hub type	Bore	Toothed belt pulley	Width of toothed belt pulley	Torque set

SYNTEX®

Backlash-free overload systems

With backlash-free ROTEX® GS

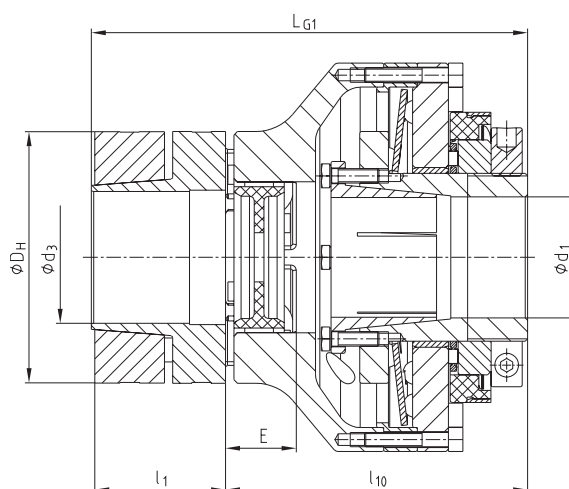
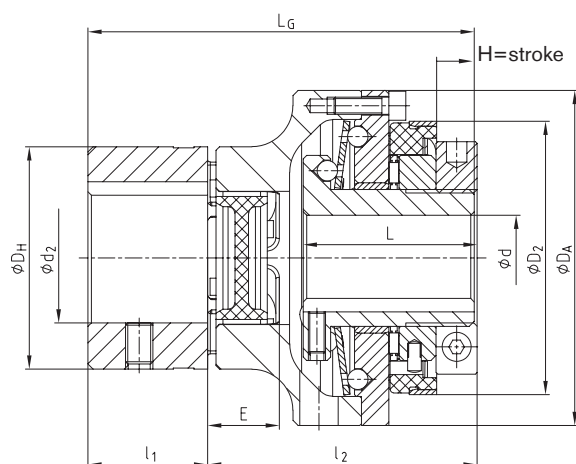


Hub type 1.0

Hub type 1.0

Hub type 6.0

Hub type 4.5



Technical data – dimensions

SYNTEX® size	ROTEX® GS size	Torques [Nm]						Max. speed ²⁾ [rpm]	Dimensions [mm]														
		Ratchet design DK		Synchronous design SK		ROTEX® GS ¹⁾ 98 ShA-GS			Max. bore				D ₂	D _H	D _A	l ₁	l ₂	l ₁₀	E	L	L _G	L _{G1}	H=stroke
		DK1	DK2	SK1	SK2	T _{KN}	T _{K max}		d	d ₁	d ₂	d ₃											
20	24	6-20	15-30	10-20	20-65	60	120	1500	20	20	28	28 ³⁾	61.5	55	80	30	70	83	18	45	100	113	2
25	28	20-60	45-90	25-65	40-100	160	320	1500	25	25	38	38 ³⁾	80	65	98	35	78	91	20	50	113	126	2
35	38	25-80	75-150	30-100	70-180	325	650	1000	35	35	45	48 ³⁾	91	80	120	45	91	105.5	24	60	136	150.5	2
50	48	60-180	175-300	80-280	160-400	525	1050	1000	50	50	62	55 ³⁾	121	105	162	56	111	126	28	70	167	182	2

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 4.5

Size	Ø12	Ø14	Ø15	Ø16	Ø17	Ø18	Ø19	Ø20	Ø22	Ø23	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50
20	45	62	71	81	92	103	115	127														
25		72	83	95	107	120	133	148	179	196	213	231										
35									127	139	152	165	207	237	270	323						
50																238	281	311	343	394	448	486

¹⁾ See selection of ROTEX® GS couplings on page 22 et seqq.

²⁾ See comments on page 265

³⁾ For transmittable friction torques T_R [Nm] of ROTEX® GS hub type 2.8 or 6.0 refer to mounting instructions of ROTEX® GS

Ordering example:

SYNTEX® 25	DK1	1.0	d Ø20	ROTEX® GS 28	98 ShA-GS	1.0	d ₂ Ø25	50 Nm
Type/size	Type	Hub type	Bore	Type/size	Spider	Hub type	ROTEX® GS bore	Torque set

SYNTEX®-NC / KTR-SI Compact

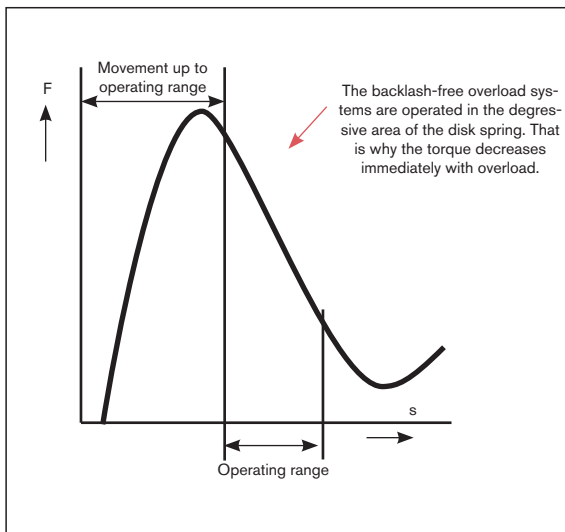
Backlash-free overload systems

Design and operation

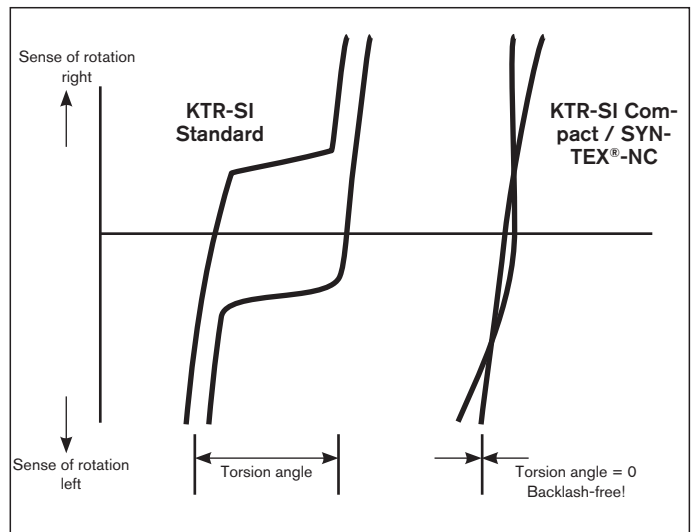
The design of the backlash-free overload systems SYNTEX®-NC and KTR-SI Compact is based on a spring-preloaded and positive-locking ball engagement principle allowing for high repeatability and short response times. Moreover, an integrated groove ball bearing provides for the option of direct assembly of toothed belt pulleys, special flanges or other components. Main applications are latest machine tools, control and positioning technology as well as packaging machines and special purpose machinery.

Both systems make use of disk springs with a degressive spring characteristic curve the preset prestress of which drops during the disengaging process. As a result driving and driven end are reliably separated from each other within some milliseconds with the wear on the components being simultaneously reduced to a minimum.

Spring characteristic curve



What does backlash-free mean?



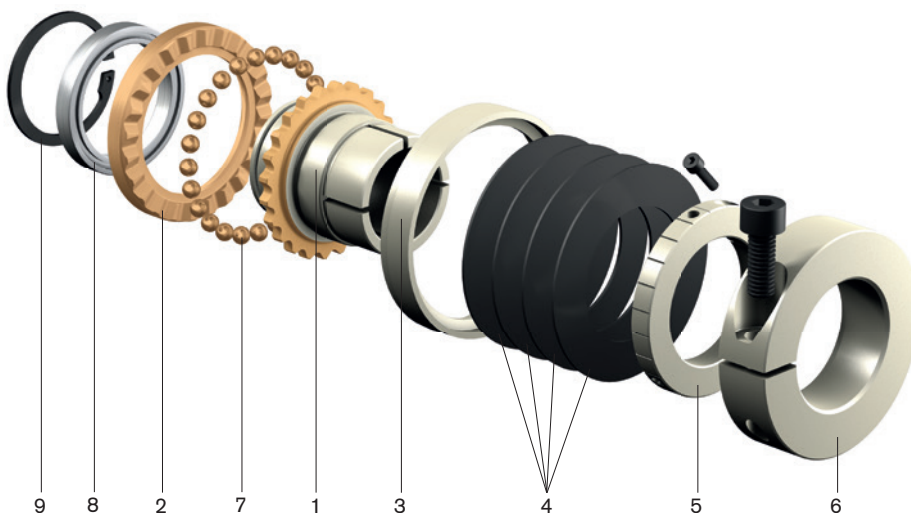
Ratchet design DK

Any engagement after an overload. After eliminating the overload, the balls automatically re-engage with the next following ball indentation.

Synchronous design SK

Synchronous engagement after an overload. After eliminating the overload, the balls re-engage automatically with the disk springs after a rotation of 360°. Driving and driven side are always placed in the same position to each other. Other degrees of re-engagement, for example 180°, are also possible.

● = The core of the backlash-free overload systems



List of components:

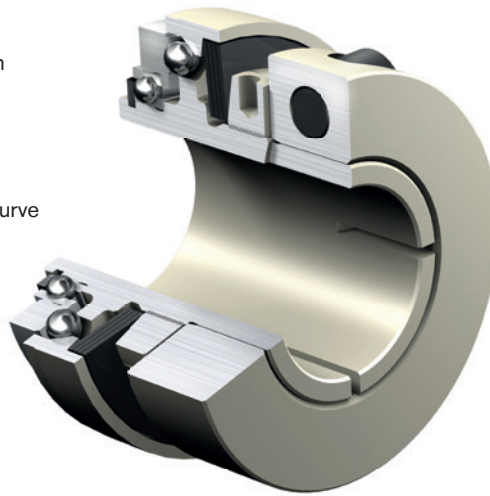
1. Hub with keyway to DIN (type 1.0) or with clamping ring (type 6.1)
2. Flange ring
3. Shifting ring
4. Disk spring
5. Setting nut
6. Clamping ring
7. Balls
8. Groove ball bearing
9. Circlip

SYNTEX®-NC / KTR-SI Compact Backlash-free overload systems

Operating principle

SYNTEX®-NC

- Overload protection up to 550 Nm
- Backlash-free torque transmission
- Light-weight design
- Degressive spring characteristic curve
- Low mass moment of inertia
- Large bore diameters
- Short response times
- High power density



- Clamping ring design easy to assemble
- Available both as a ratchet (DK) and synchronous design (SK)
- Backlash-free shaft-hub-connection
- In combination with the backlash-free, torsionally flexible ROTEX® GS or backlash-free, torsionally stiff TOOLFLEX®
- Direct assembly of toothed belt pulleys, as an example, possible (integrated groove ball bearing)

RUFLEX®

KTR-SI

KTR-SI Compact

- Overload protection up to 3,100 Nm
- Backlash-free overload system with a degressive spring characteristic curve
- Solid design
- Accurate disengagement with high repeatability
- Accurate backlash-free torque transmission even in case of wear
- Shifting ring with setting scale for accurate torque setting



- Easy torque setting by torque scale on the coupling
- Connection flange with ball bearing
- Hardened ratchet surfaces for a long service life
- Backlash-free shaft-hub-connection via taper bush
- Can be used with the proven ROTEX® GS as a shaft-to-shaft connection

SYNTEX®

SYNTEX®-NC

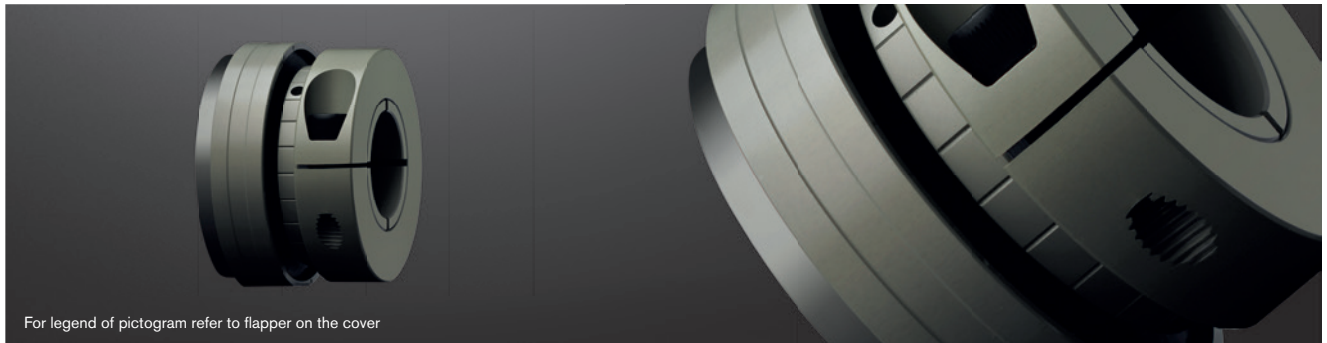
KTR-SI Compact

Torque
limiters

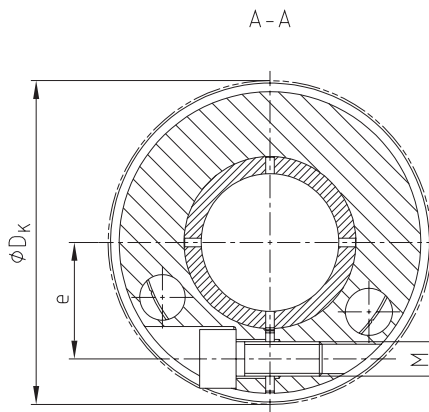
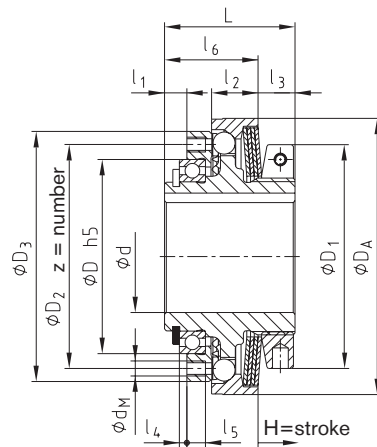
SYNTEX®-NC

Backlash-free overload systems

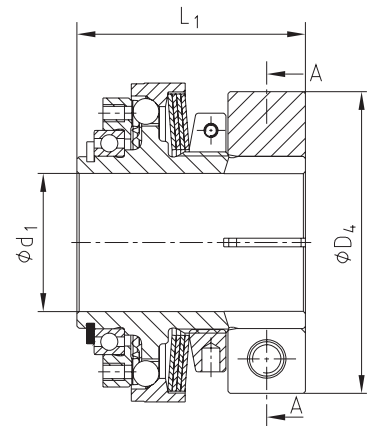
Hub type



Hub type 1.0 (keyway acc. to DIN 6885)



Hub type 6.1 (clamping ring)



Technical data – dimensions

Size	Max. speed ³⁾ [rpm]	Torques [Nm]			Max. bore d	Dimensions [mm]													
		T1	T2	T3		D h5	D1	D2	D3	DA	l1	l2	l3	l4	l5	l6	L	z x dM	H=stroke
15	3500	2-3.5	3.5-7	7-14	12	32	33	37	42	42	5.0	7.0	9.2	2	4	18.8	28	12xM3	0.8
25	3000	9-15	20-35	40-65	20 (22) ¹⁾	42	50	48	56	61	5.5	11.5	9.1	2	5	23.9	33	8xM4	1.2
32	3000	25-38	50-75	100-150	27 (30) ¹⁾	52	60	60	67	74	6	12.5	9.9	2	5	25.1	35	8xM4	1.5
42	2500	30-65	60-135	120-265	36 (38) ¹⁾	65	72	75	83	90	7	16	11.2	2	6	31.8	43	8xM5	1.5
60 ⁴⁾	2000	70-140	120-180	220-550	50	90	96	100	113	116	8	21	11.8	2	7	38.2	52	12xM6	1.8

Dimensions – Hub type 6.1

Size	Bore d ₁		Dimensions [mm]						Weight with max. bore [kg]	Mass moment of inertia ²⁾ J _{total} [kgm ²]
	Pilot bore	Max.	D ₄	DK	L ₁	e	M	T _A [Nm]		
15	7.5	15	40	43	38	15	M4	1.7	0.124	0.029 x 10 ⁻³
25	9.5	25	55	-	45	21	M6	14	0.282	0.14 x 10 ⁻³
32	13.5	32	70	-	53	27	M8	34	0.471	0.35 x 10 ⁻³
42	18.5	42	86	91.2	63	33	M10	67	0.815	0.95 x 10 ⁻³
60 ⁴⁾	24	60	112	119.4	75	45	M12	115	3.04	5.9 x 10 ⁻³

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 6.1

Size	Ø8	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø36	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60
15	8	12	14	16	22	24																				
25		30	35	42	55	62	69	48	53	58	69	80	86													
32						74	83	104	114	125	148	116	125	153	172	192										
42										149	178	209	225	275	310	264	309	324	356	389	422					
60 ⁴⁾													247	310	356	405	485	513	571	633	394	452	514	558	675	803

¹⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

²⁾ With max. bore

³⁾ See comments on page 265

⁴⁾ Material steel

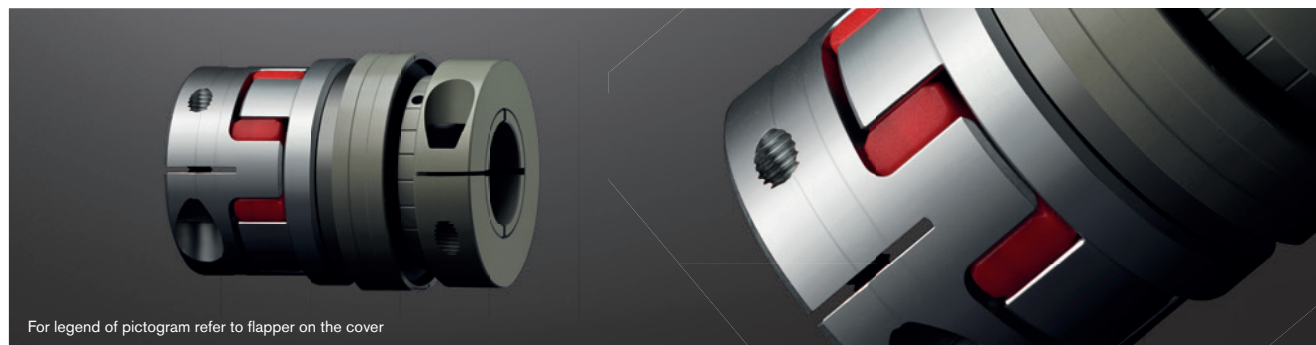
Ordering example:

SYNTEX®-NC 32	SK	6.1	T3	d ₁ Ø25	120
Type/size	Type (DK/SK)	Hub type	Disk springs	Bore	Torque set

SYNTEX®-NC

Backlash-free overload systems

With backlash-free ROTEX® GS



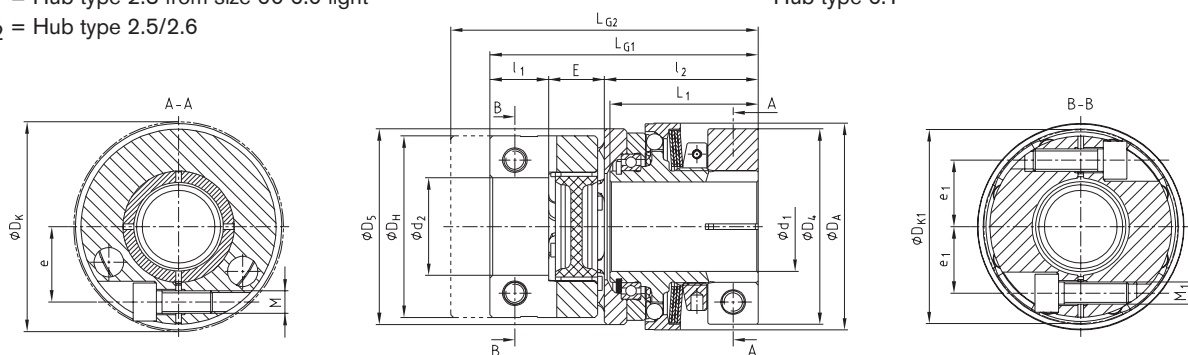
For legend of pictogram refer to flapper on the cover



L_{G1} = Hub type 2.8 from size 60 6.0 light

L_{G2} = Hub type 2.5/2.6

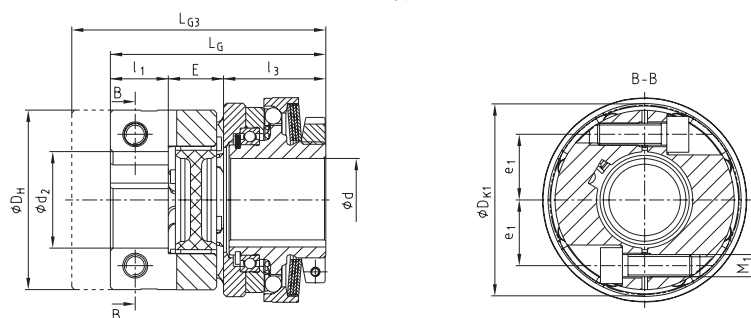
Hub type 6.1



L_G = Hub type 2.9 from size 60 1.0

LG3 = Hub type 2.5/2.6

Hub type 1.0



Technical data – dimensions

Size	ROTEX® GS size 1)	Torques [Nm]			Max. speed 2)	Max. bore				Dimensions [mm]																		
		T1	T2	T3		d	d1	d2	D5	DH	DK	DK1	DA	l1	l2	l3	E	e	e1	LG	L1	LG1	LG2	LG3	M	TA [Nm]	M1	TA1 [Nm]
15	19	2-3.5	3.5-7	7-14	3500	12	15	24 3)	45	40	-	46.7	42	17	40	30	16	15	15.5	63	38	73	81	71	M4	1.7	M5	6
25	24	9-15	20-35	40-65	3000	20 (22)4)	25	32 3)	58	55	-	57.5	61	18	47.5	35.5	18	21	20	71.5	45	83.5	95.5	83.5	M6	14	M6	10
32	28	25-38	50-75	100-150	3000	27 (30)4)	32	35 3)	70	65	-	69	74	21	55	37	20	27	23.8	78	53	96	110	92	M8	34	M8	25
42	38	30-65	60-135	120-265	2500	36 (38)4)	42	45 3)	88	80	91.2	86	90	26	66	46	24	33	30.5	96	63	116	135	115	M10	67	M10	49
60 5)	48	70-140	120-280	220-550	2000	50	60	55 3)	113	105	119.4	-	116	56	83	60	28	45	-	144	75	167	167	144	M12	115	M10	49

Transmittable friction torques T_R [Nm] (clearance H7/h6) of hub type 6.1

Size	Ø8	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø36	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60
15	8	12	14	16	22	24																				
25		30	35	42	55	62	69	48	53	58	69	80	86													
32						74	83	104	114	125	148	116	125	153	172	192										
42										149	178	209	225	275	310	264	309	324	356	389	422					
60 ⁵⁾													247	310	356	405	485	513	571	633	394	452	514	558	675	800

¹⁾ See selection of ROTEX® GS couplings on page 22 et seqq.

2) See comments on page 265.

³⁾ For transmittable friction torques T_R [Nm] of ROTEX® GS hub type 2.8 or 6.0 refer to mounting instructions of ROTEX® GS

⁴⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

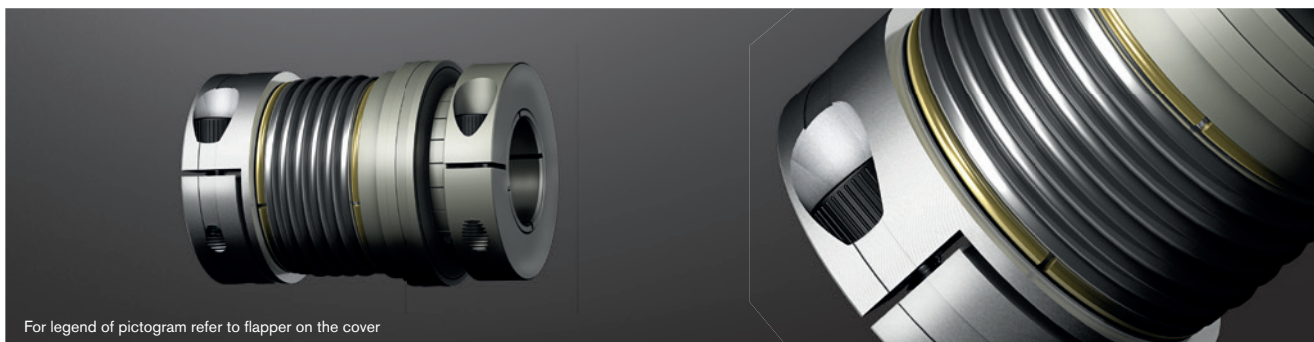
5) Material steel

Ordering example:	SYNTEX®-NC 32	SK	6.1	T3	d ₁ Ø25	28	2.8	d ₂ Ø20	120
	Type/size	Type	Hub type	Disk springs	SYNTEX®-NC bore	ROTEX® GS size	Hub type	ROTEX® GS bore	Torque set

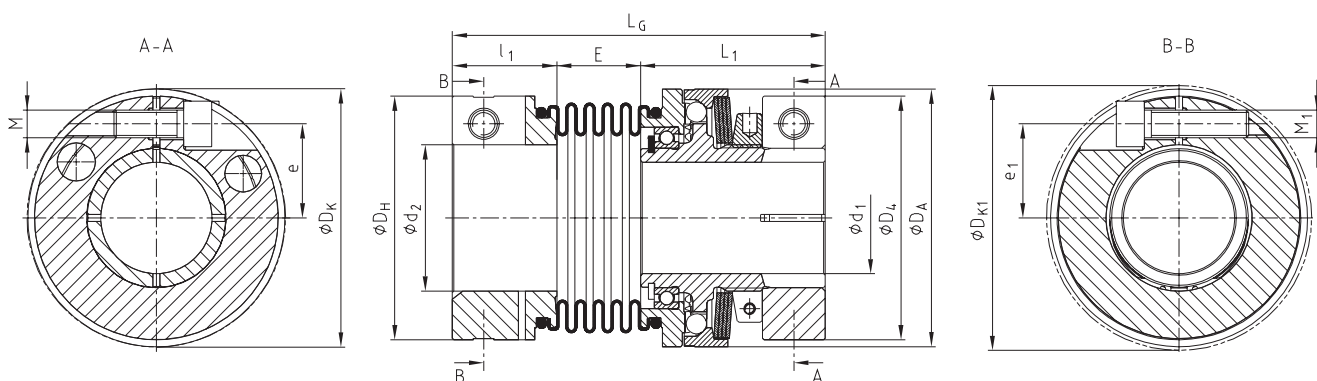
SYNTEX®-NC

Backlash-free overload systems

With torsionally stiff TOOLFLEX® S



For legend of pictogram refer to flapper on the cover



Technical data – dimensions																							
Size	TOOLFLEX® size 1)	Torques [Nm]			Speed 2) [rpm]	Max. bore		Dimensions [mm]															
		T1	T2	T3		d ₁	d ₂	D ₄	D _H	D _A	DK	DK ₁	l ₁	L ₁	E	e	e ₁	L _G	M	T _A [Nm]	M ₁	T _{A1} [Nm]	
15	20	2-3.5	3.5-7	7-14	3500	15	20 3)	40	40	52	43	43.5	21.5	38	16.5	15	14.5	76	M4	1.7	M5	6	
25	38	9-15	20-35	40-65	3000	25	38 3)	55	65	61	-	72.6	25.5	45	18	21	25	88	M6	14	M8	25	
32	42	25-38	50-75	100-150	3000	32	42 3)	70	70	74	-	76.1	30	53	24	27	27	107	M8	34	M8	25	
42	45	30-65	60-135	120-265	2500	42	45 3)	86	83	90	91.2	89	32	63	22.5	33	30	114	M10	67	M10	49	
60 4)	65	70-140	120-280	220-550	2000	60	65 3)	112	125	140	119.4	127.1	45	84	36	45	45	165	M12	115	M14	185	

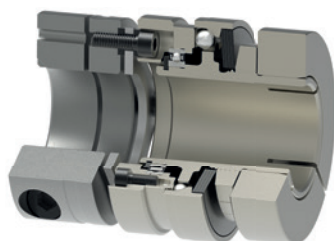
Transmittable friction torques TR [Nm] (clearance H7/h6) of hub type 6.1																								
Size	Ø8	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø36	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50
15	8	12	14	16	22	24																		
25		30	35	42	55	62	69	48	53	58	69	80	86											
32						74	83	104	114	125	148	116	125	153	172	192								
42										149	178	209	225	275	310	264	309	324	356	389	422			
60 4)													247	310	356	405	485	513	571	633	394	452	514	558

1) See selection of TOOLFLEX® couplings on page 22 et seqq.

2) See comments on page 265

3) For transmittable friction torques TR [Nm] of TOOLFLEX® hub type 2.5 refer to mounting instructions of TOOLFLEX®

4) Material steel



Special type:

- SYNTEX®-NC with RADEX®-NC

Ordering example:	SYNTEX®-NC 32	SK	6.1	T3	d1 Ø25	42-S	2.5	d2 Ø20	120
	Type/size	Type	Hub type	Disk springs	SYNTEX®-NC bore	TOOLFLEX® size	Hub type	TOOLFLEX® bore	Torque set

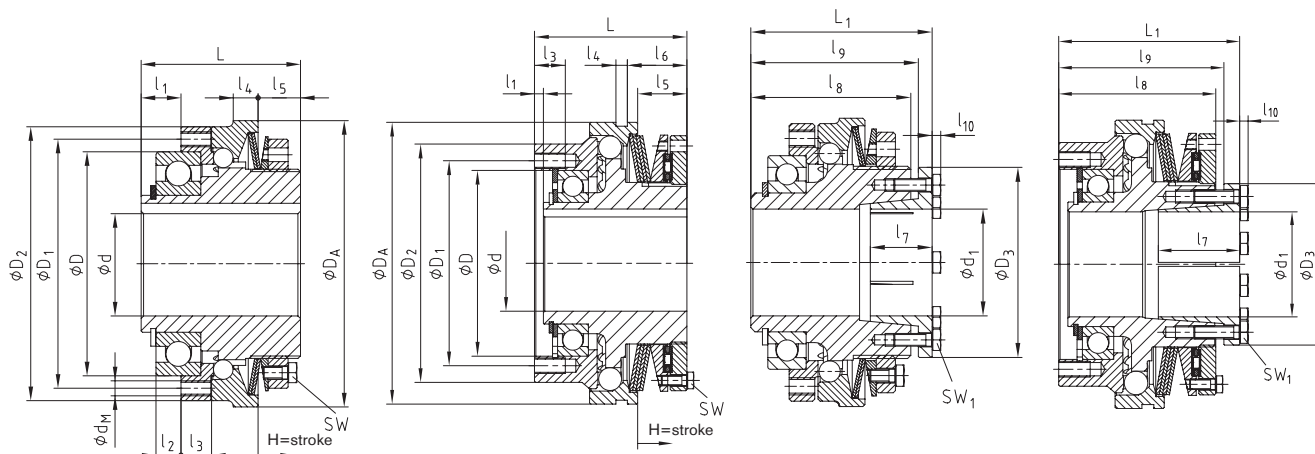
RUFLEX®

KTR-SI



Hub type 4.5
with taper sleeve

Size 4



SYNTEX®-NC

Technical data – dimensions																			
Size	Speed ¹⁾ [rpm]	Torque [Nm]			Dimensions [mm]														
		T1	T2	T3	Bore d	D _{h5}	D ₁	D ₂	D _A	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	L	d _M	SW	H=stroke
01	4000	3-14	6-28	13-56	8-20	47	56	65	70	8	5	7.5	7	12	-	40	8xM4	7	1.2
0	3000	9-35	18-70	40-140	10-25 (30) ³⁾	62	71	80	85	11	7	8.0	8	14	-	48	8xM5	7	1.5
1	2500	19-65	38-130	78-260	14-30 (35) ³⁾	75	85	95	100	14	9	10.5	9	16	-	59	8xM6	8	1.8
2	2000	35-110	80-220	160-440	18-40 (45) ³⁾	90	100	110	115	16	10	12	10	17	-	64	8xM6	10	2.0
3	1200	80-200	160-400	320-800	24-50	100	116	130	135	18	10	12	12	21	-	75	8xM8	10	2.2
4	400	230-730	460-1590	960-3100	40-75	145 ^{H7}	160	186	220	7	-	24	9	38.5	46.5	119	6xM12	13	3.0

Torque limiters

Dimensions – Hub type 4.5									
Size	Bore ²⁾	Dimensions [mm]							
	d ₁	D ₃	l ₇	l ₈	l ₉	l ₁₀	L ₁	SW ₁	T _A [Nm]
01	10-20	40.5	26	40	42	2.8	47	7	3
	19-25	42							
0	15-20	40.5	26	46	48	2.8	53	7	4.6
	19-30	57							
1	19-30	57	40	57	60	4	56	10	10
	32-40	64							
2	32-50	73.5	29	63	66.5	4	73	10	10
	32-50	73.5							
3	55-60	89	44	75	78	4	86	10	10
	50-60	96.5							
4	65-80	123	62	119	125.5	5.5	133.5	13	28

³⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

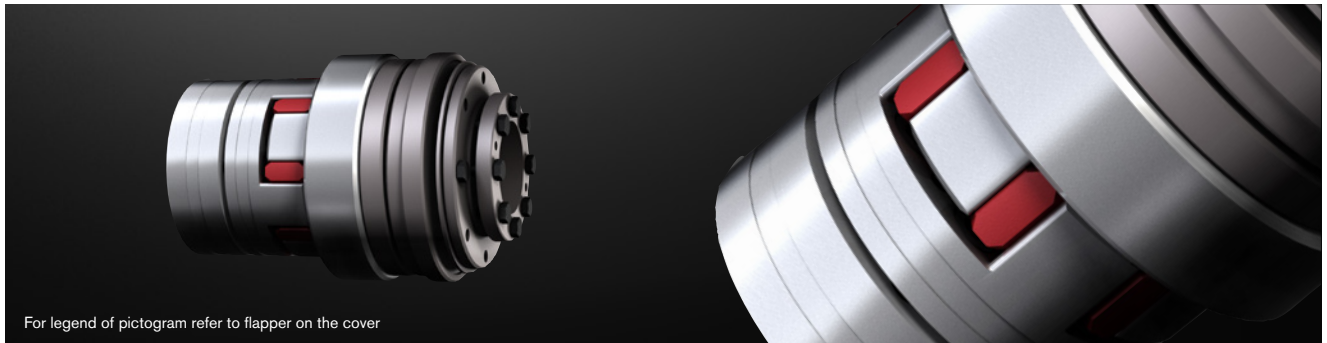
KTR-SI Compact

KTR-SI Compact 2	DK	4.5	T2	d ₁ Ø40	150 Nm
Type/size	Type (DK/SK)	Hub type	Disk springs	Bore	Torque set

KTR-SI Compact

Backlash-free overload systems

With backlash-free ROTEX® GS

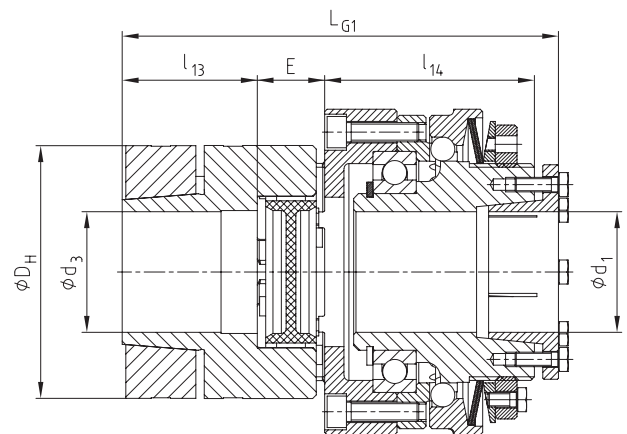
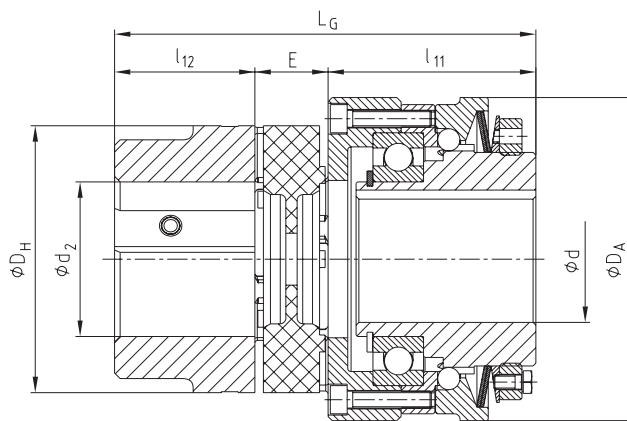


Hub type 1.0

Hub type 1.0

Hub type 6.0

Hub type 4.5



Technical data – dimensions

Size	Max. speed ¹⁾ [rpm]	Torques [Nm]			ROTEX® GS size ²⁾	Max. bore				Dimensions [mm]								
		T1	T2	T3		d	d ₁	d ₂	d ₃	D _H	D _A	l ₁₁	l ₁₂	l ₁₃	l ₁₄	E	L _G	L _{G1}
01	4000	3-14	6-28	13-56	24	20	25	28	20	55	70	47	30	30	47	18	95	102
0	3000	9-35	18-70	40-140	28	25	30	38	38	65	85	56.5	35	35	54.5	20	111.5	119.5
1	2500	19-65	38-130	78-260	38	30	40	45	48	80	100	69	45	45	67	24	138	146
2	2000	35-110	80-220	160-440	42	40 (45) ³⁾	50	55	51	95	115	74	50	50	73	26	150	159
3	1200	80-210	160-400	320-800	48	50	60	62	55	105	135	87	56	56	87	28	171	182
4	400	230-730	460-1590	960-3100	75	75	80	80	80	160	220	158.5	85	85	139.5	40	283.5	302.5

¹⁾ See comments on page 265

²⁾ See selection of ROTEX® GS couplings on page 22 et seqq.

³⁾ The figure in brackets specifies the max. bore with keyway to DIN 6885 sheet 3 (low-rise design)

Ordering example:

KTR-SI Compact 1	DK	T2	4.5	d ₁ Ø25	6.0 / d ₃ Ø25	150 Nm
Type/size	Type (DK/SK)	Disk spring	KTR-SI hub type	KTR-SI bore	ROTEX® GS hub type/bore	Torque set

Notes

RUFLEX®

KTR-SI

SYNTEX®

SYNTEX®-NC

KTR-SI Compact

Torque limiters



Clamping elements and precision joints

CLAMPEX®		
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KTR 130 and KTR 131	312	
KTR 150	314	
KTR 200 and KTR 201	316	
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	for easy and quick assembly	
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	Type G and GD with plain bearing	342
	Type H and HD with needle bearing	343
	Type GA and HA plain and needle bearing (extendable)	344
	Type X and XD with plain bearing	345
	made of stainless steel	
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	Accessories (protection bushings)	347

Internal clamping elements

External clamping elements

Shaft couplings

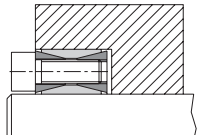
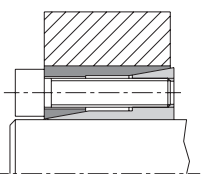
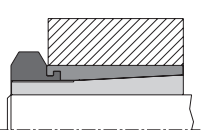
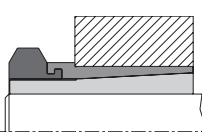
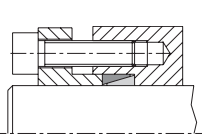
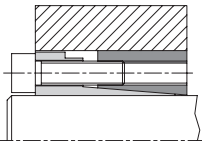
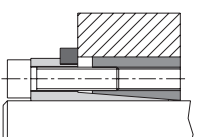
Precision joints



CLAMPEX® CLAMPING ELEMENTS

TYPES AND OPERATING DESCRIPTION

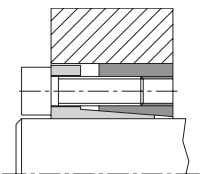
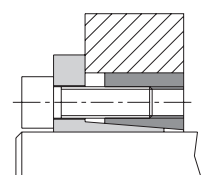
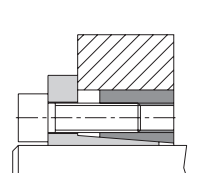
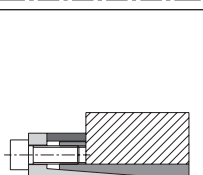
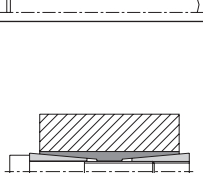
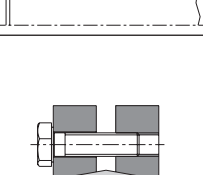
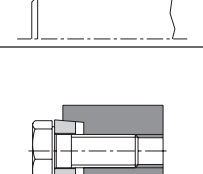
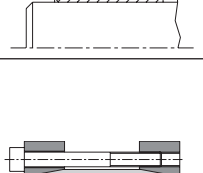
Properties of clamping elements

Type	Series	Shaft diameter [mm]	Transmittable torque T [Nm]	Centering of hub to shaft via the clamping element	Centering between hub and shaft required	Axial displacement of hub during assembly of clamping element	Details on page
Internal clamping elements	 KTR 100	17 – 1,000	260 – 3,017,100		●		308 309
	 KTR 105	5 – 50	5 – 1,900	●		●	310 311
	 KTR 130	5 – 50	10 – 2,320	●		●	312 313
	 KTR 131	5 – 35	10 – 836	●		●	312 313
	 KTR 150	6 – 440	2 – 215,000		●	●*	314 315
	 KTR 200	20 – 200	530 – 68,000	●		●	316 317
	 KTR 201	20 – 200	320 – 48,800	●			316 317

* Depending on mounting position

CLAMPEX® CLAMPING ELEMENTS

TYPES AND OPERATING DESCRIPTION

Type	Series	Shaft diameter [mm]	Transmittable torque T [Nm]	Centering of hub to shaft via the clamping element	Centering between hub and shaft required	Axial displacement of hub during assembly of clamping element	Details on page
Internal clamping elements	 KTR 203	18 — 400	370 — 487,000	●		●	318 319
	 KTR 206	18 — 400	290 — 342,000	●			318 319
	 KTR 225	14 — 50	287 — 1,796	●			320 321
	 KTR 250	6 — 130	11 — 25,000	●			322 323
	 KTR 400	24 — 600	700 — 1,640,000	●		●	324 325
External clamping elements	 KTR 603	10 — 420	28 — 1,460,000	●			326 - 329
	 KTR 620	13 — 700	70 — 7,394,000	●			330 - 333
Shaft couplings	 KTR 700	10 — 100	62 — 8,350	●			334 335

CLAMPEX®

Clamping nuts

KTR Precision joints

Clamping sets

Guide for selection

1. Which properties of a clamping set are required?

- Shall shaft and hub be centered to each other by the clamping set?
- Is axial displacement of the hub permissible during assembly of the clamping set?

For an explanation of the properties specified above see CLAMPEX® selection guide on page 306.

2. Which dimensions of clamping sets are required?

- Internal diameter of clamping set
- External diameter of clamping set
- Length of clamping set

For dimensions of clamping sets see catalogue on page 309 et seqq.

3. How much torque and/or axial force needs to be transmitted?

The following safety factors are recommended by KTR:

- ≥ 1.5 between the maximum torque of machine and the transmittable torque of clamping set.
- ≥ 2.0 between the rated torque of machine and the transmittable torque of clamping set.

4. Are shaft and hub suitable for the clamping set connection?

Calculation of the components is possible via the following methods:

- Formula for calculation of components see page 305.
- Review of components as well as the entire application via KTR CLAMPEX® online tool at www.KTR.com.

5. Other selection criteria

For questions about the following subjects, please contact the KTR engineering department.

- The clamping set is to be mounted on a shaft with a feather keyway.
- Simultaneous transmission of torque and axial force.
- The clamping set is radially loaded.
- The clamping set is loaded on bending.
- High circumferential speeds (from 30 m/s).
- Low/high operating temperatures (below -20 °C or above +50 °C).
- Shaft with bore (hollow shaft).
- Clamping set in a corrosion-protected design.
- Use in potentially explosive atmosphere (ATEX).
- Concentricity and axial run-out accuracies.
- Notch impact factors.

Table of screws						
Dimension M	Preload force F_V and tightening torque T_A with $\mu_{total} = 0.14$					
	Preload force F_V [N]			Tightening torque T_A [Nm]		
	8.8	10.9	12.9	8.8	10.9	12.9
M3	2210	3110	3730	1.34	1.89	2.25
M4	3900	5450	6550	2.9	4.1	4.9
M5	6350	8950	10700	6	8.5	10
M6	9000	12600	15100	10	14	17
M8	16500	23200	27900	25	35	41
M10	26200	36900	44300	49	69	83
M12	38300	54000	64500	86	120	145
M14	52500	74000	88500	135	190	230
M16	73000	102000	123000	210	295	355
M18	88000	124000	148000	290	405	485
M20	114000	160000	192000	410	580	690
M22	141000	199000	239000	550	780	930
M24	164000	230000	276000	710	1000	1200
M27	215000	302000	363000	1050	1500	1800
M30	262000	368000	442000	1450	2000	2400

Selection

Symbol	Definition resp. explanation
$\sigma_{N0.2}$	Yield point of hub material [N/mm ²]
$\sigma_{W0.2}$	Yield point of shaft material [N/mm ²]
C	Specific heat capacity C of hub type (see illustration on page 323)
d	Internal diameter of clamping element [mm]
d_{iW}	Internal diameter of hollow shaft [mm]
D	External diameter of clamping element [mm]
D_N	Required external diameter of hub [mm]
T	Transmittable torque [Nm]
T_S	Peak torque to be transmitted [Nm]
T_A	Screw tightening torque [Nm]
B2/B3	Length of clamping element [mm]

Symbol	Definition resp. explanation
L/L ₁	Hub length [mm]
P_N	Surface pressure generated on the clamping element/hub [N/mm ²]
P_W	Surface pressure generated on the clamping element/shaft [N/mm ²]
C _W	d_{iW}/d -> Ratio of internal diameter of hollow shaft/clamping element
C_N	D/D_N -> Ratio of external diameter of clamping element/hub
F_a	Axial force generated during operation [kN]
F_{ax}	Transmittable axial force [kN]
F_V	Preload force [N]
P_O	Setting force for clamping element [N]
P_S	Clamping force for clamping element [N]
P_A	$P_O + P_S$ = Total force for clamping element [N]

The transmission data are parameters found out by calculations. Subject to the friction coefficient variation which is subjected to physical properties, small deviations with the transmission figures may arise.

1. Fatigue strength and shape stability of components subjected to torsion and bending load

The stress concentration figures β_k for the clamping elements press fits are worked out similarly to those of pressure oil fits. Stress concentration factors on request.

2. Transmittable torque T

The transmittable torque T always has to be above the biggest torque peak T_S , which may arise on the joints. The torque peaks occurring with acceleration of electric motors as well as additional axial forces F_a have to be considered.

$$T \geq \sqrt{T_S [Nm]^2 + (F_a [kN] \cdot \frac{d [mm]}{2})^2}$$

3. Transmittable axial force F_{ax}

The maximum transmittable axial force F_{ax} specified in the tables has to be reduced accordingly with additional torque transmission.

$$F_{ax} [kN] = 2 \cdot \frac{T [Nm]}{d [mm]}$$

4. Calculation of external diameter of hub D_N

The required external diameter of hub D_N depends on the hub geometry, the yield point of the hub material and the surface pressure between clamping element and hub. In order to simplify the calculation, the table on page 323 specifies correction values which allow to calculate D_N .

$$D_N [mm] \geq D \cdot \text{correction value } x$$

Those external diameters of hubs which cannot be calculated based on the table are calculated via the following formula:

$$D_N \geq D \cdot \sqrt{\frac{\sigma_{N0.2} + P_N \cdot C}{\sigma_{N0.2} - P_N \cdot C}}$$

Tangential stress on the internal diameter of hub

$$\sigma_{tiN} \approx P_N \cdot \frac{(1 + C_N^2)}{(1 - C_N^2)} \cdot C$$

For clamping connections with hollow shafts the required internal diameter of the hollow shaft d_{iW} is calculated based on the following formula:

$$d_{iW} \leq d \cdot \sqrt{\frac{\sigma_{W0.2} - 2 \cdot P_W \cdot 0.8}{\sigma_{W0.2}}}$$

Tangential stress on the internal diameter of shaft

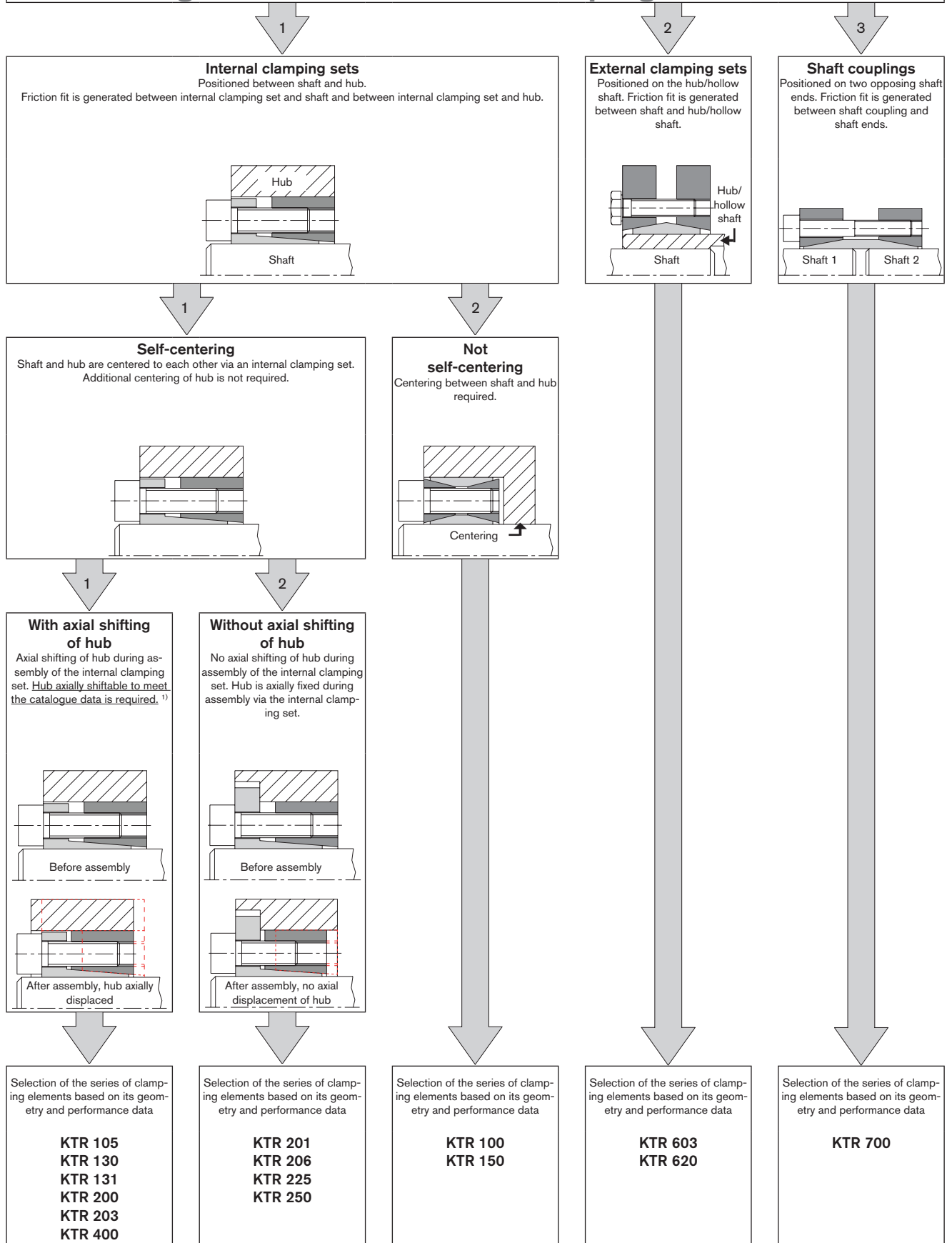
$$\sigma_{tiW} \approx \frac{2 \cdot P_W}{(C_W^2 - 1)}$$

Selection of hub material with external clamping sets KTR 603 and KTR 620

The hub material should have a yield strength R_e of ≥ 350 N/mm². For applications with additional bending load, Q + T steel such as 42CrMo4 should be used.

Selection guide

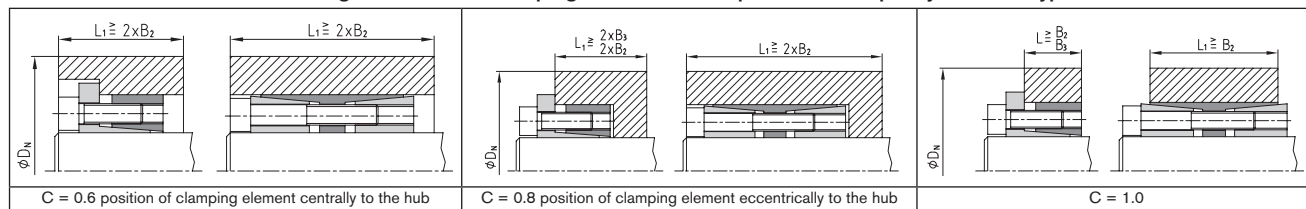
Selection guide for CLAMPEX® clamping elements



¹⁾ Does not apply for KTR 400

Calculation of hubs

Mounting conditions of clamping elements with specific heat capacity C of hub type



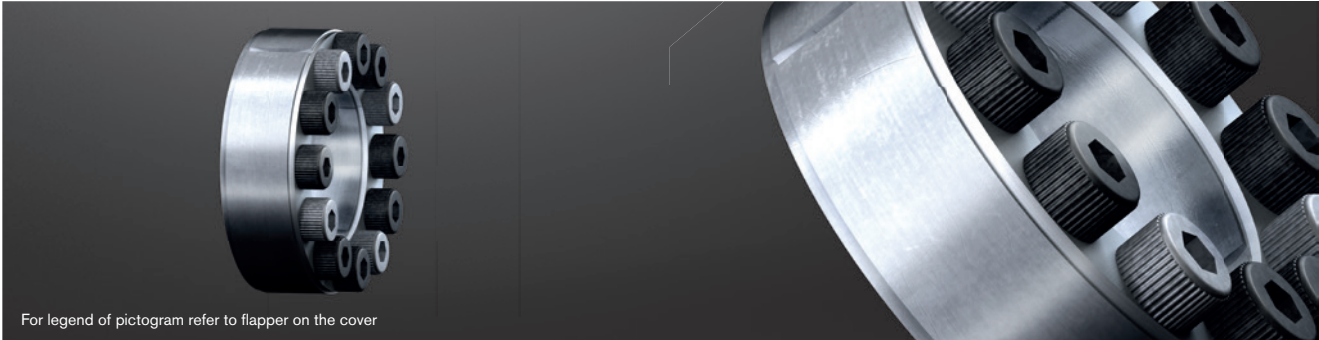
Selection table for the calculation of the external diameter of hub D_N required (correction value x)

Surface pressure between clamping element and hub		Average yield point of material $\sigma 0.2$ in N/mm ² (more accurate stiffness figures depending on diameter as specified by the manufacturer)										
		150	180	200	220	250	270	300	350	400	450	600
		Hub materials										
P_N [N/mm ²]	Specific heat capacity C of hub type	GJL 200	GJL 250 GE 200	GJL 300 GJMB-350	GE 240	GJS 400-15 GE 260 AW-2007	E295 C 35	GJS 500-7 GE 300 S355J2	GJS 600-3 C 45	GJS 700-2 C 60	Q & T steel	Q & T steel
65	C = 0.6	1.30	1.25	1.22	1.20	1.18	1.15	1.13	1.11	1.10	1.09	1.07
	C = 0.8	1.44	1.35	1.30	1.28	1.24	1.22	1.20	1.16	1.14	1.12	1.09
	C = 1.0	1.60	1.45	1.40	1.35	1.30	1.28	1.24	1.20	1.18	1.16	1.12
70	C = 0.6	1.34	1.26	1.24	1.22	1.18	1.16	1.15	1.12	1.11	1.10	1.07
	C = 0.8	1.48	1.38	1.34	1.30	1.25	1.23	1.20	1.18	1.15	1.13	1.10
	C = 1.0	1.65	1.50	1.45	1.40	1.34	1.30	1.26	1.22	1.20	1.17	1.13
75	C = 0.6	1.30	1.28	1.25	1.23	1.20	1.18	1.16	1.14	1.12	1.11	1.08
	C = 0.8	1.52	1.42	1.36	1.32	1.28	1.25	1.22	1.18	1.16	1.14	1.11
	C = 1.0	1.74	1.55	1.48	1.42	1.36	1.33	1.30	1.25	1.20	1.18	1.13
80	C = 0.6	1.39	1.31	1.28	1.25	1.21	1.20	1.18	1.15	1.13	1.11	1.08
	C = 0.8	1.58	1.45	1.39	1.35	1.30	1.27	1.24	1.20	1.18	1.15	1.11
	C = 1.0	1.81	1.61	1.53	1.46	1.39	1.36	1.31	1.26	1.22	1.20	1.14
85	C = 0.6	1.42	1.34	1.30	1.27	1.23	1.21	1.19	1.16	1.14	1.12	1.09
	C = 0.8	1.63	1.49	1.42	1.38	1.32	1.29	1.26	1.22	1.19	1.16	1.12
	C = 1.0	1.90	1.67	1.57	1.50	1.42	1.39	1.34	1.28	1.24	1.21	1.15
90	C = 0.6	1.46	1.36	1.32	1.28	1.25	1.22	1.20	1.17	1.15	1.13	1.09
	C = 0.8	1.69	1.53	1.46	1.40	1.34	1.31	1.28	1.23	1.20	1.18	1.13
	C = 1.0	2.00	1.73	1.62	1.54	1.46	1.41	1.36	1.30	1.26	1.22	1.16
95	C = 0.6	1.49	1.39	1.34	1.30	1.26	1.24	1.21	1.18	1.15	1.14	1.10
	C = 0.8	1.75	1.57	1.49	1.43	1.37	1.34	1.30	1.25	1.21	1.19	1.14
	C = 1.0	2.11	1.80	1.68	1.59	1.49	1.44	1.39	1.32	1.27	1.24	1.17
100	C = 0.6	1.53	1.41	1.36	1.32	1.28	1.25	1.22	1.19	1.16	1.14	1.11
	C = 0.8	1.81	1.61	1.53	1.46	1.39	1.36	1.31	1.26	1.22	1.20	1.14
	C = 1.0	2.24	1.87	1.73	1.63	1.53	1.48	1.41	1.34	1.29	1.25	1.18
105	C = 0.6	1.56	1.44	1.39	1.34	1.29	1.27	1.24	1.20	1.17	1.15	1.11
	C = 0.8	1.88	1.66	1.56	1.50	1.42	1.38	1.33	1.28	1.24	1.21	1.15
	C = 1.0	2.38	1.95	1.79	1.68	1.56	1.51	1.44	1.36	1.31	1.27	1.19
110	C = 0.6	1.60	1.47	1.41	1.36	1.31	1.28	1.25	1.21	1.18	1.16	1.12
	C = 0.8	1.96	1.71	1.60	1.53	1.44	1.40	1.35	1.29	1.25	1.22	1.16
	C = 1.0	2.55	2.04	1.86	1.73	1.60	1.54	1.47	1.38	1.33	1.28	1.20
115	C = 0.6	1.64	1.50	1.43	1.36	1.33	1.30	1.26	1.22	1.19	1.17	1.12
	C = 0.8	2.04	1.76	1.64	1.56	1.47	1.43	1.37	1.31	1.26	1.23	1.17
	C = 1.0	2.75	2.13	1.93	1.79	1.64	1.58	1.50	1.41	1.34	1.30	1.21
120	C = 0.6	1.69	1.53	1.46	1.40	1.34	1.31	1.28	1.23	1.20	1.18	1.13
	C = 0.8	2.13	1.81	1.69	1.60	1.50	1.45	1.39	1.33	1.28	1.24	1.18
	C = 1.0	3.00	2.24	2.00	1.84	1.69	1.61	1.53	1.43	1.36	1.31	1.22
125	C = 0.6	1.73	1.56	1.48	1.43	1.36	1.33	1.29	1.24	1.21	1.18	1.13
	C = 0.8	2.24	1.87	1.73	1.63	1.53	1.48	1.41	1.34	1.29	1.25	1.18
	C = 1.0	3.32	2.35	2.08	1.91	1.73	1.65	1.56	1.45	1.38	1.33	1.24
130	C = 0.6	1.78	1.59	1.51	1.45	1.38	1.35	1.30	1.25	1.22	1.19	1.14
	C = 0.8	2.35	1.93	1.78	1.67	1.56	1.50	1.44	1.36	1.30	1.27	1.19
	C = 1.0	3.74	2.49	2.17	1.97	1.78	1.69	1.59	1.48	1.40	1.35	1.25
135	C = 0.6	1.83	1.62	1.54	1.47	1.40	1.36	1.32	1.27	1.23	1.20	1.15
	C = 0.8	2.48	2.00	1.83	1.71	1.59	1.53	1.46	1.38	1.32	1.28	1.20
	C = 1.0	4.36	2.65	2.27	2.04	1.83	1.73	1.62	1.50	1.42	1.36	1.26
140	C = 0.6	1.88	1.66	1.56	1.50	1.42	1.38	1.33	1.28	1.24	1.21	1.15
	C = 0.8	2.63	2.07	1.88	1.75	1.62	1.55	1.48	1.39	1.33	1.29	1.21
	C = 1.0	5.39	2.83	2.38	2.12	1.88	1.78	1.66	1.53	1.44	1.38	1.27
145	C = 0.6	1.94	1.69	1.59	1.52	1.44	1.40	1.35	1.29	1.25	1.22	1.16
	C = 0.8	2.80	2.15	1.94	1.80	1.65	1.58	1.50	1.41	1.35	1.30	1.22
	C = 1.0	7.68	3.05	2.50	2.21	1.94	1.82	1.69	1.55	1.46	1.40	1.28
150	C = 0.6	2.00	1.73	1.62	1.54	1.46	1.41	1.36	1.30	1.26	1.23	1.16
	C = 0.8	3.00	2.24	2.0	1.84	1.69	1.61	1.53	1.43	1.36	1.31	1.23
	C = 1.0	-	3.32	2.65	2.30	2.00	1.87	1.73	1.58	1.48	1.41	1.29
155	C = 0.6	2.06	1.77	1.65	1.57	1.48	1.43	1.38	1.31	1.27	1.24	1.17
	C = 0.8	3.25	2.33	2.06	1.89	1.72	1.65	1.55	1.45	1.38	1.33	1.23
	C = 1.0	-	3.66	2.80	2.40	2.06	1.92	1.77	1.61	1.51	1.43	1.30
160	C = 0.6	2.13	1.81	1.69	1.60	1.50	1.45	1.39	1.33	1.28	1.24	1.18
	C = 0.8	3.55	2.43	2.13	1.94	1.76	1.67	1.58	1.47	1.39	1.34	1.24
	C = 1.0	-	4.12	3.00	2.52	2.13	1.98	1.81	1.64	1.53	1.45	1.31
165	C = 0.6	2.21	1.86	1.72	1.62	1.52	1.47	1.41	1.34	1.29	1.25	1.18
	C = 0.8	3.96	2.55	2.21	2.00	1.80	1.71	1.60	1.49	1.41	1.35	1.25
	C = 1.0	-	4.80	3.23	2.65	2.21	2.04	1.86	1.67	1.55	1.47	1.33

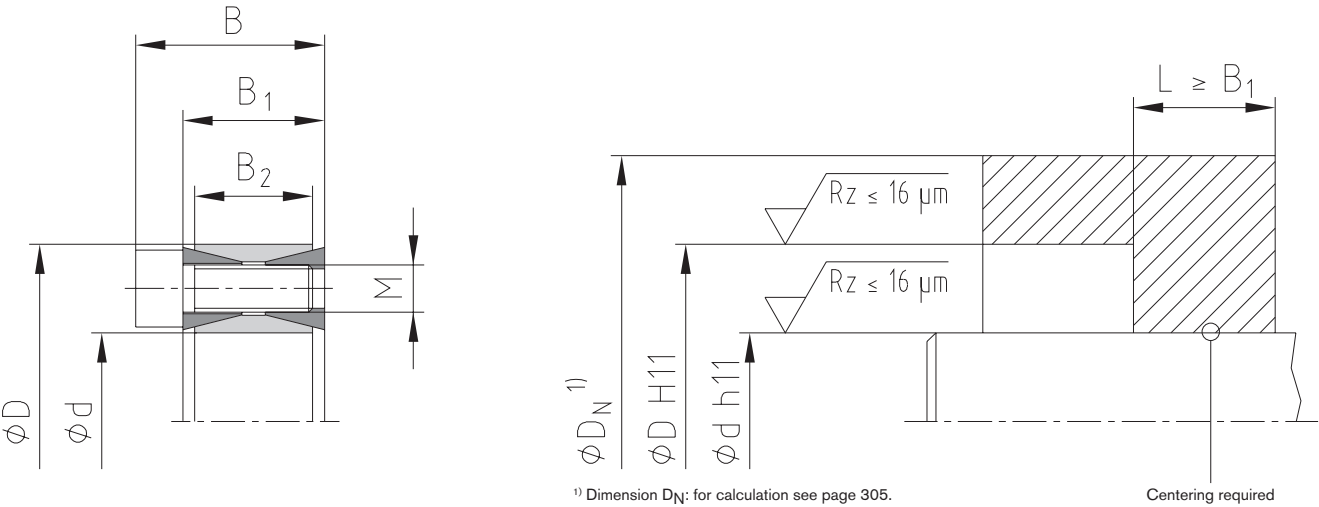
CLAMPEX® KTR 100

Clamping elements

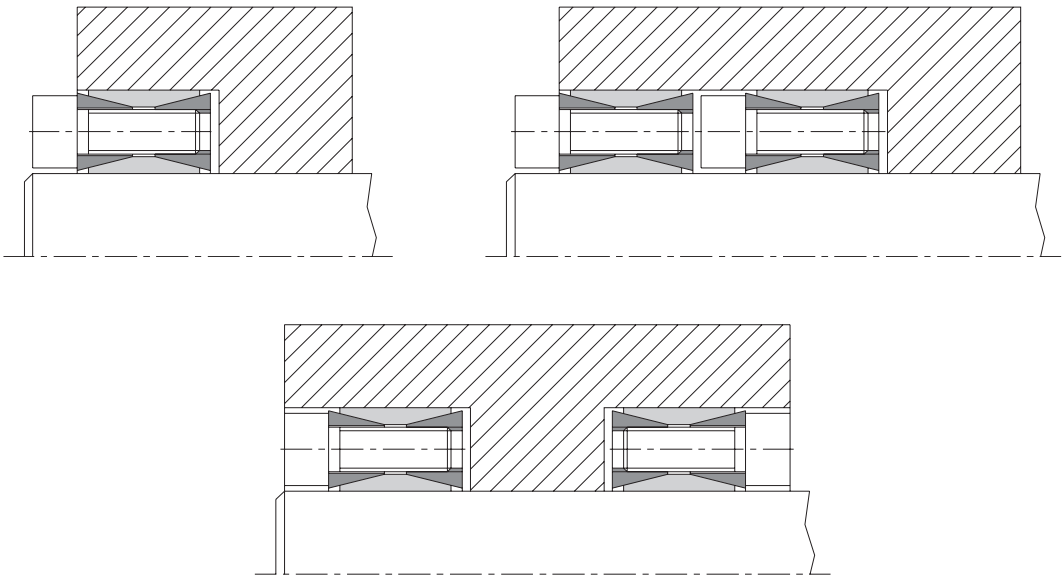
Not self-centering, suitable for large shaft and hub tolerances



For legend of pictogram refer to flapper on the cover



Example of application of hub type



● Sizes of clamping elements available from stock.
 1) These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax} , P_W and P_N decreasing proportionately.

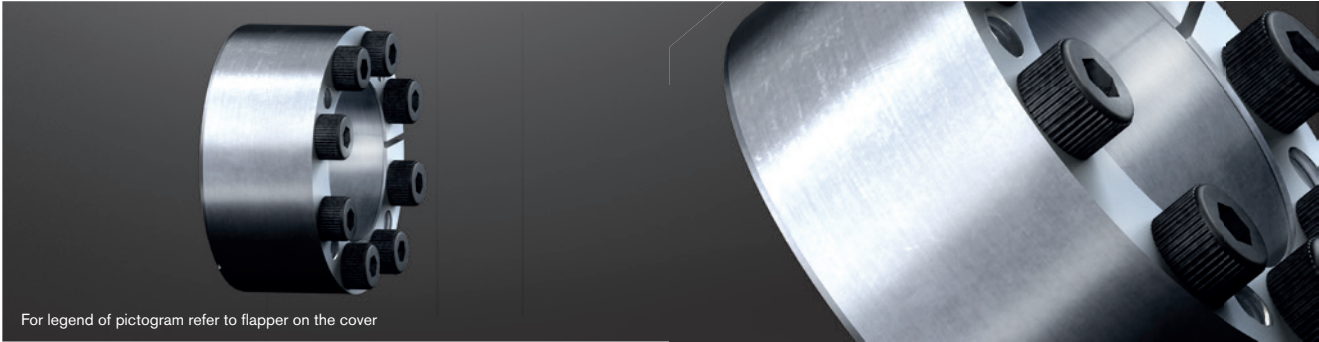
Ordering example:	KTR 100	50	x	80
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 100													
d x D [mm]	Dimensions [mm]			Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{\text{total}}=0.14$				Transmittable torque or axial force		Surface pressure between clamping element		Weight [~kg]	Stock pro- gramme
	B	B ₁	B ₂	M	Length	z = number	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]		
17 x 47	26	20	17	M6	18	8	16	260	31	281	102	0.2	
18 x 47	26	20	17	M6	18	8	16	280	31	270	103	0.2	
19 x 47	26	20	17	M6	18	8	16	290	31	251	101	0.2	●
20 x 47	26	20	17	M6	18	8	16	310	31	242	103	0.2	●
22 x 47	26	20	17	M6	18	8	16	340	31	219	103	0.2	●
24 x 50	26	20	17	M6	18	8	16	370	31	200	96	0.3	●
25 x 50	26	20	17	M6	18	8	16	390	31	195	97	0.3	●
28 x 55	26	20	17	M6	18	12	16	650	46	259	132	0.3	●
30 x 55	26	20	17	M6	18	12	16	700	47	243	132	0.3	●
32 x 60	26	20	17	M6	18	12	16	750	47	229	122	0.3	●
35 x 60	26	20	17	M6	18	12	16	820	47	209	122	0.3	●
38 x 65	26	20	17	M6	18	15	16	1100	58	238	139	0.4	●
40 x 65	26	20	17	M6	18	15	16	1170	59	228	140	0.3	●
42 x 75	32	24	20	M8	22	12	40	1670	80	251	141	0.6	●
45 x 75	32	24	20	M8	22	12	40	1790	80	234	141	0.5	●
48 x 80	32	24	20	M8	22	12	40	1900	79	219	131	0.6	●
50 x 80	32	24	20	M8	22	12	40	1990	80	211	132	0.6	●
55 x 85	32	24	20	M8	22	15	40	2740	100	240	155	0.6	●
60 x 90	32	24	20	M8	22	15	40	2990	100	220	147	0.7	●
65 x 95	32	24	20	M8	22	15	40	3240	100	203	139	0.8	●
70 x 110	38	28	24	M10	25	15	78	5550	159	250	159	1.3	●
75 x 115	38	28	24	M10	25	15	78	5950	159	234	152	1.2	●
80 x 120	38	28	24	M10	25	15	78	6350	159	219	146	1.4	●
85 x 125	38	28	24	M10	25	15	78	6740	159	206	140	1.4	●
90 x 130	38	28	24	M10	25	15	78	7140	159	195	135	1.5	●
95 x 135	38	28	24	M10	25	18	78	9000	189	220	155	1.6	●
100 x 145	44	32	26	M12	30	15	135	11600	232	237	163	2.2	●
110 x 155	44	32	26	M12	30	15	135	12750	232	215	153	2.3	●
120 x 165	44	32	26	M12	30	16	135	14800	247	210	153	2.4	●
130 x 180	50	38	34	M12	30	20	135	20150	310	186	134	3.5	●
140 x 190	50	38	34	M12	30	22	135	23850	341	190	140	3.8	●
150 x 200	50	38	34	M12	30	24	135	27850	371	193	145	4.0	●
160 x 210	50	38	34	M12	30	26	135	32200	403	196	150	4.4	●
170 x 225	58	44	38	M14	45	22	215	40300	474	195	147	5.7	●
180 x 235	58	44	38	M14	45	24	215	46600	518	201	154	6.0	●
190 x 250	66	52	46	M14	45	28	215	57300	603	183	139	8.0	●
200 x 260	66	52	46	M14	45	30	215	71000	710	205	157	8.2	●
220 x 285	72	56	50	M16	50	26	335	93200	847	204	158	11.0	●
240 x 305	72	56	50	M16	50	30	335	117300	978	216	170	12.2	
260 x 325	72	56	50	M16	50	34	335	144000	1108	226	181	13.2	
280 x 355	84	66	60	M18	60	32	465	177700	1269	200	158	19.2	
300 x 375	84	66	60	M18	60	36	465	214100	1427	210	168	20.5	
320 x 405	98	78	72	M20	70	36	660	295800	1849	213	168	29.6	
340 x 425	98	78	72	M20	70	36	660	314300	1849	200	160	31.1	
360 x 455	112	90	84	M22	80	36	900	413300	2296	201	159	42.2	
380 x 475	112	90	84	M22	80	36	900	436300	2296	191	153	44.0	
400 x 495	112	90	84	M22	80	36	900	459300	2297	181	147	46.0	
420 x 515	112	90	84	M22	80	40	900	535800	2551	192	156	50.0	
440 x 545	130	102	96	M24	90	40	1130	647600	2944	185	149	64.6	
460 x 565	130	102	96	M24	90	40	1130	677000	2943	177	144	67.4	
480 x 585	130	102	96	M24	90	42	1130	741800	3091	178	146	71.0	
500 x 605	130	102	96	M24	90	44	1130	809500	3238	179	148	72.6	
520 x 630	130	102	96	M24	90	45	1130	861000	3312	176	145	80	
540 x 650	130	102	96	M24	90	45	1130	894000	3311	169	141	82	
560 x 670	130	102	96	M24	90	48	1130	989000	3532	174	146	85	
580 x 690	130	102	96	M24	90	50	1130	1067000	3679	175	147	88	
600 x 710	130	102	96	M24	90	50	1130	1103800	3679	169	143	91	
620 x 730	130	102	96	M24	90	52	1130	1186200	3826	171	145	93	
640 x 750	130	102	96	M24	90	54	1130	1271600	3974	172	146	96	
660 x 770	130	102	96	M24	90	56	1130	1359900	4121	173	148	99	
680 x 790	130	102	96	M24	90	56	1130	1401100	4121	167	144	102	
700 x 810	130	102	96	M24	90	60	1130	1545400	4415	174	151	104	
720 x 830	130	102	96	M24	90	60	1130	1589500	4415	169	147	107	
740 x 850	130	102	96	M24	90	62	1130	1688100	4562	170	148	110	
760 x 870	130	102	96	M24	90	64	1130	1789700	4710	171	150	113	
780 x 890	130	102	96	M24	90	65	1130	1865500	4783	169	149	116	
800 x 910	130	102	96	M24	90	66	1130	1942700	4857	168	147	118	
820 x 930	130	102	96	M24	90	68	1130	2051600	5004	169	149	121	
840 x 950	130	102	96	M24	90	70	1130	2163500	5151	169	150	124	
860 x 970	130	102	96	M24	90	72	1130	2278300	5298	170	151	127	
880 x 990	130	102	96	M24	90	74	1130	2396000	5445	171	152	129	
900 x 1010	130	102	96	M24	90	75	1130	2483600	5519	169	151	132	
920 x 1030	130	102	96	M24	90	76	1130	2572600	5593	168	150	135	
940 x 1050	130	102	96	M24	90	78	1130	2697700	5740	169	151	138	
960 x 1070	130	102	96	M24	90	80	1130	2825800	5887	169	152	140	
980 x 1090	130	102	96	M24	90	81	1130	2920700	5961	168	151	143	
1000 x 1110	130	102	96	M24	90	82	1130	3017100	6034	167	150	146	

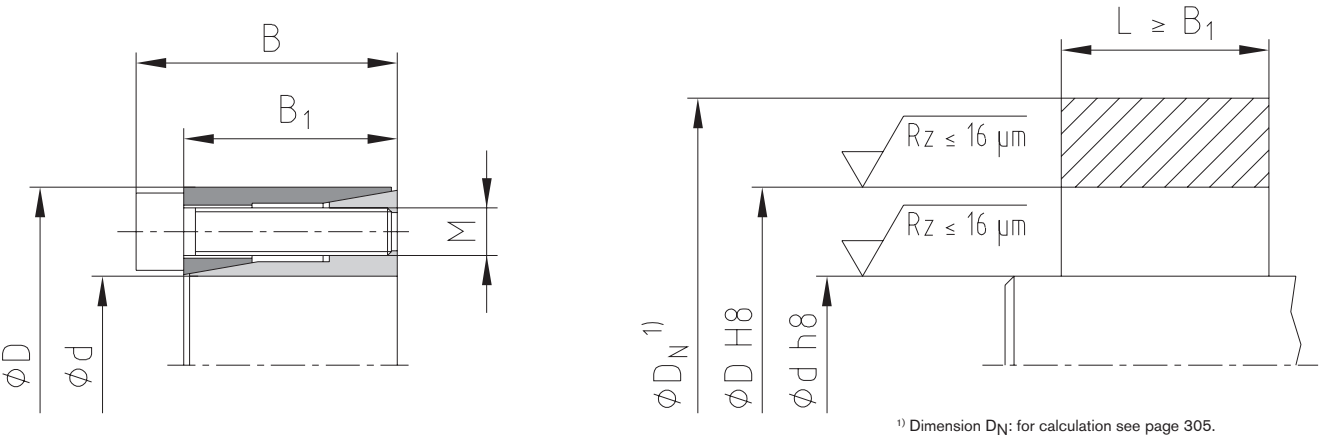
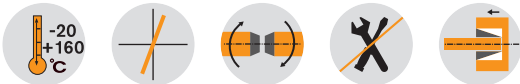
CLAMPEX® KTR 105

Clamping elements

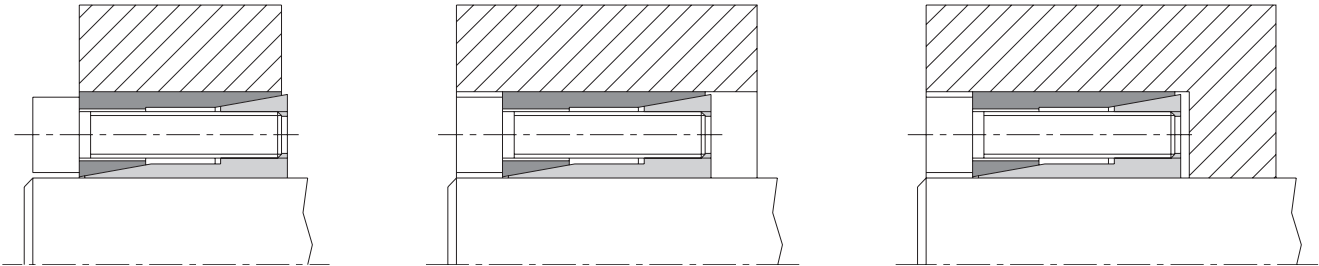
Self-centering clamping element in a compact design



For legend of pictogram refer to flapper on the cover



Example of application of hub type



Ordering example:	KTR 105	8	x	18
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 105												
d x D [mm]	Dimensions [mm]		Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{\text{total}}=0.14$				Transmittable torque or axial force		Surface pressure between clamping element		Weight [~kg]	Stock programme
	B	B1	M	Length	z = number	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]		
5 x 16	13.5	11	M2.5	10	3	1.2	5	2	177	55	0.01	●
6 x 16	13.5	11	M2.5	10	3	1.2	6	2	147	55	0.01	●
6.35 x 16	13.5	11	M2.5	10	3	1.2	6	2	132	52	0.01	●
7 x 17	13.5	11	M2.5	10	3	1.2	8	2	144	59	0.01	●
8 x 18	13.5	11	M2.5	10	3	1.2	10	3	138	61	0.02	●
9 x 20	15.5	13	M2.5	12	4	1.2	15	3	140	63	0.02	●
9.53 x 20	15.5	13	M2.5	12	4	1.2	15	3	125	60	0.02	●
10 x 20	15.5	13	M2.5	12	4	1.2	15	3	114	57	0.02	●
11 x 22	15.5	13	M2.5	12	4	1.2	18	3	113	56	0.02	●
12 x 22	15.5	13	M2.5	12	4	1.2	20	3	105	57	0.02	●
14 x 26	20	17	M3	16	4	2.1	35	5	105	57	0.04	●
15 x 28	20	17	M3	16	4	2.1	40	5	94	51	0.04	●
16 x 32	21	17	M4	16	4	4.9	70	9	132	66	0.07	●
17 x 35	25	21	M4	20	4	4.9	75	9	125	61	0.09	●
18 x 35	25	21	M4	20	4	4.9	80	9	119	61	0.09	●
19 x 35	25	21	M4	20	4	4.9	85	9	114	62	0.08	●
20 x 38	26	21	M5	20	4	9.7	150	15	153	81	0.1	●
22 x 40	26	21	M5	20	4	9.7	160	15	135	74	0.1	●
24 x 47	32	26	M6	25	4	16.5	250	21	154	78	0.2	●
25 x 47	32	26	M6	25	4	16.5	260	21	147	78	0.2	●
28 x 50	32	26	M6	25	6	16.5	440	31	198	111	0.2	●
30 x 55	32	26	M6	25	6	16.5	470	31	185	101	0.3	●
32 x 55	32	26	M6	25	6	16.5	500	31	173	100	0.25	●
35 x 60	37	31	M6	30	8	16.5	730	42	166	97	0.35	●
38 x 65	37	31	M6	30	8	16.5	800	42	155	90	0.4	●
40 x 65	37	31	M6	30	8	16.5	840	42	147	90	0.4	●
42 x 75	44	36	M8	35	6	40	911	43	125	70	0.7	●
45 x 75	44	36	M8	35	8	40	1300	58	155	93	0.6	●
48 x 80	44	36	M8	35	8	40	1824	76	191	115	0.7	●
50 x 80	44	36	M8	35	8	40	1900	76	183	115	0.7	●

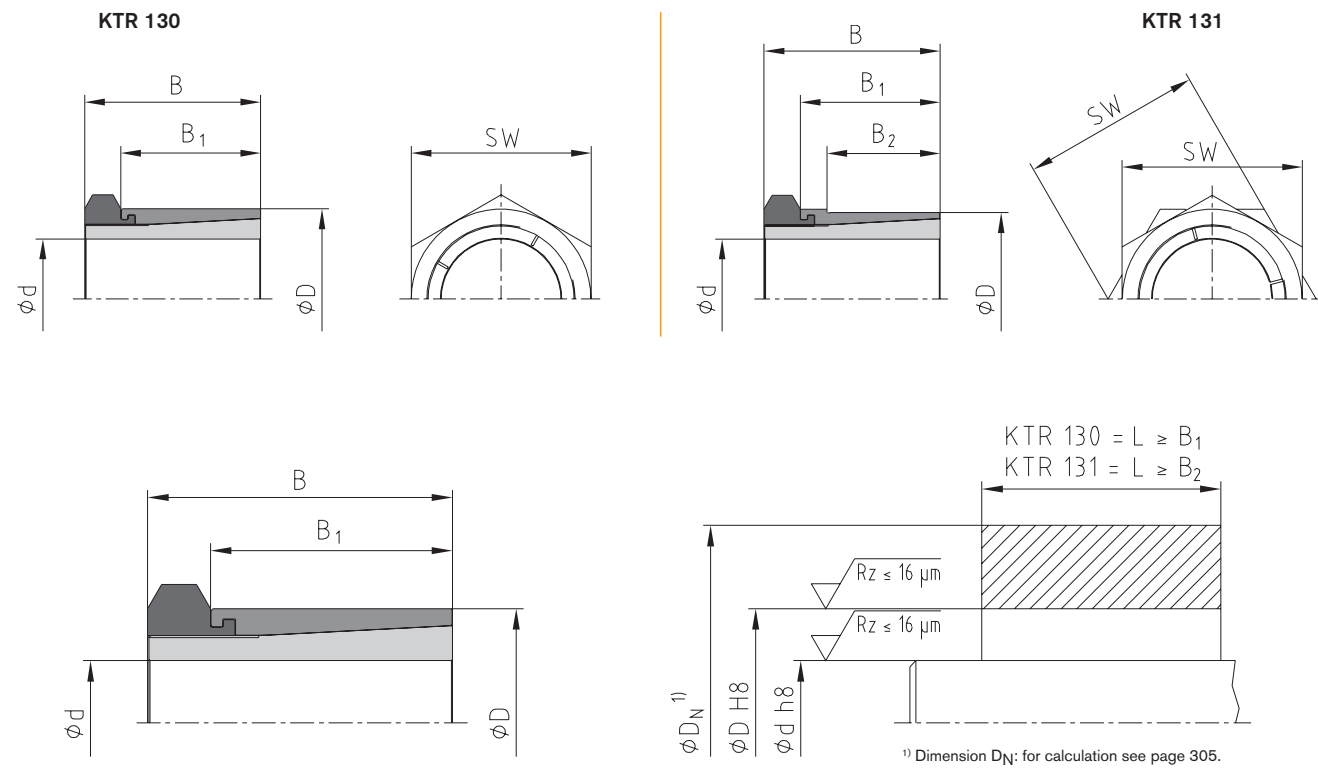
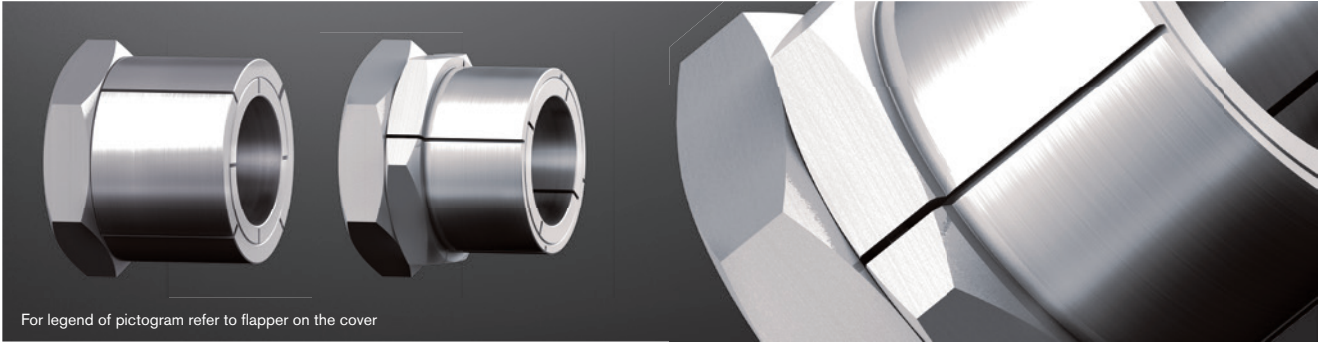
● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

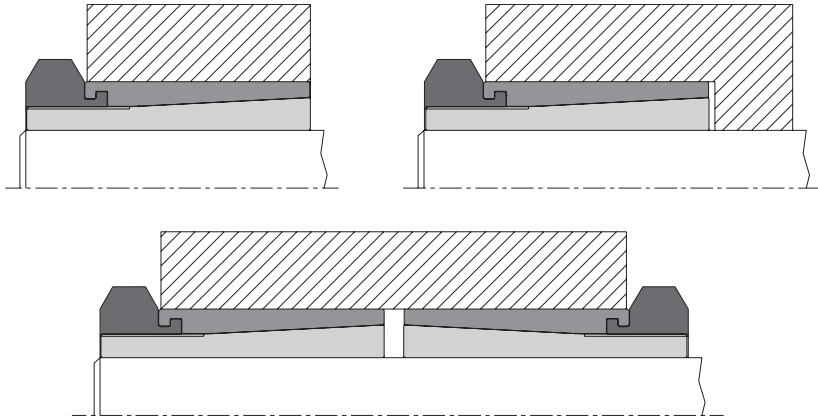
CLAMPEX® KTR 130 and KTR 131

Clamping elements

Self-centering clamping elements with a central clamping nut for easy assembly/disassembly



Example of application of hub type



Ordering example:	KTR 130	18	x	35
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 130

d x D [mm]	Dimensions [mm]		Hexagon nut		Transmittable torque or axial force		Surface pressure between clamping element		Weight [~kg]	Stock programme
	B	B ₁	Width across flats SW	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]		
5 x 14	19	15	14	10	10.1	4.0	264	96	0.02	●
6 x 14	19	15	14	10	12.1	4.0	220	96	0.02	●
8 x 16	22	17	17	17	23.4	5.8	179	91	0.02	●
9 x 20	24	19	22	35	43.2	9.7	248	112	0.04	●
10 x 20	24	19	22	35	48.6	9.7	223	112	0.05	●
12 x 22	24	19	22	44	65.3	10.9	206	117	0.05	●
14 x 26	28	22	27	65	93.0	13.3	178	99	0.08	●
15 x 26	28	22	27	65	99.0	13.3	166	99	0.08	●
16 x 26	28	22	27	65	106	13.3	156	99	0.07	●
18 x 35	36	27	36	161	223	24.8	224	125	0.2	●
19 x 35	36	27	36	161	235	24.8	212	125	0.2	●
20 x 35	36	27	36	161	248	24.8	201	125	0.2	●
22 x 42	41	30	46	250	349	31.8	197	110	0.3	●
24 x 42	41	30	46	250	381	31.8	180	110	0.3	●
25 x 42	41	30	46	250	397	31.8	173	110	0.3	●
30 x 47	44	33	50	355	605	40.4	162	110	0.4	●
32 x 55	51	38	55	490	764	47.8	166	102	0.6	●
35 x 55	51	38	55	490	836	47.8	151	102	0.6	●
40 x 62	58	43	65	800	1329	66.5	152	98	0.8	●
45 x 65	63	48	65	900	1605	71.0	142	98	0.9	●
48 x 75	73	58	75	1290	2227	92.0	121	77	1.5	●
50 x 75	73	58	75	1290	2320	92.0	116	77	1.4	●

● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

CLAMPEX® – KTR 131

d x D [mm]	Dimensions [mm]			Hexagon nut/ counter hexagon nut		Transmittable torque or axial force		Surface pressure between clamping element		Weight [~kg]	Stock programme
	B	B ₁	B ₂	Width across flats SW	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]		
5 x 12	19	15	9	14	10	10.1	4.0	264	119	0.02	●
6 x 12	19	15	9	14	10	12.1	4.0	220	119	0.02	●
8 x 14	22	17	11	17	17	23.4	5.8	179	121	0.02	●
10 x 18	24	19	12	22	35	48.6	9.7	221	127	0.04	●
12 x 20	24	19	12	22	44	65.3	10.9	206	128	0.04	●
14 x 24	28	22	15	27	65	93.0	13.3	178	107	0.08	●
15 x 24	28	22	15	27	65	99.0	13.3	166	107	0.07	●
16 x 24	28	22	15	27	65	106	13.3	156	107	0.07	●
18 x 30	36	27	17	36	161	223	24.8	224	145	0.2	●
19 x 30	36	27	17	36	161	235	24.8	212	145	0.2	●
20 x 30	36	27	17	36	161	248	24.8	201	145	0.15	●
22 x 38	41	30	20	46	250	349	31.8	197	122	0.35	●
24 x 38	41	30	20	46	250	381	31.8	180	122	0.3	●
25 x 38	41	30	20	46	250	397	31.8	173	122	0.3	●
30 x 42	44	33	23	50	355	605	40.4	162	123	0.35	●
32 x 50	51	38	28	55	490	764	47.8	166	112	0.55	●
35 x 50	51	38	28	55	490	836	47.8	151	112	0.5	●

● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

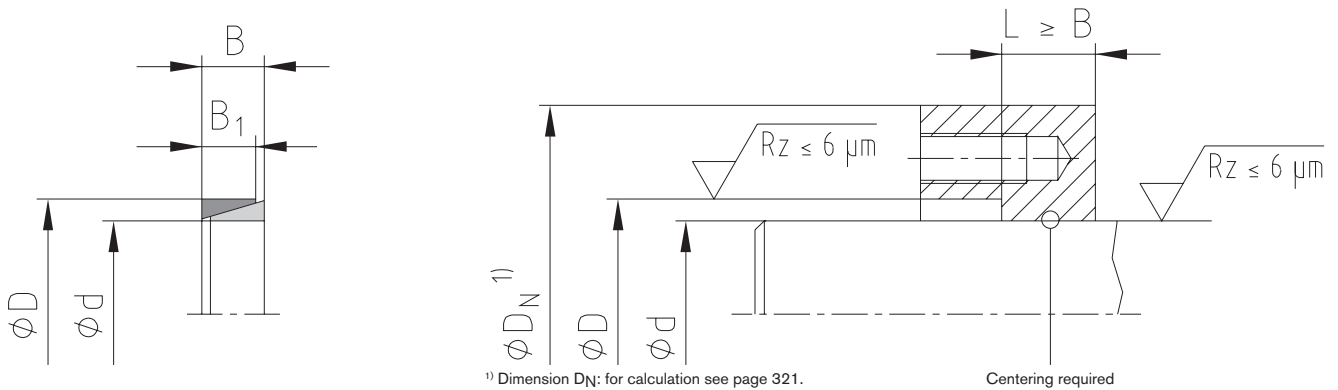
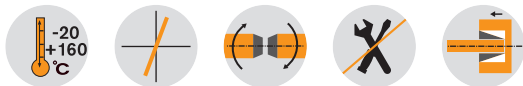
CLAMPEX® KTR 150

Clamping elements

Not self-centering clamping element with minimum dimensions



For legend of pictogram refer to flapper on the cover

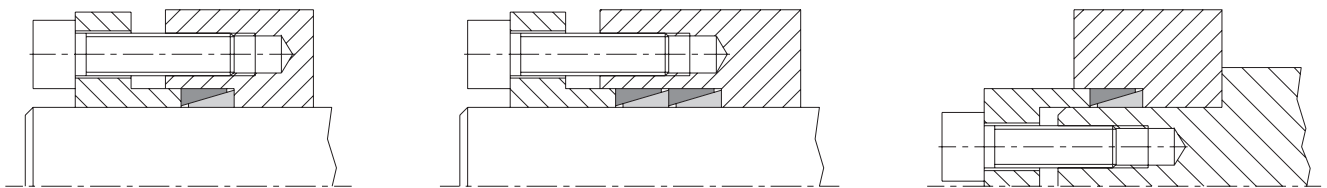


Tolerances for d and D

$d \leq 38 \text{ mm} = d \text{ h6/D H7}$

$d > 38 \text{ mm} = d \text{ h8/D H8}$

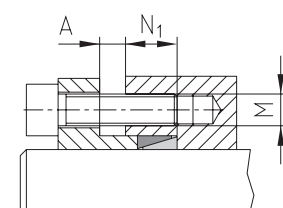
Example of application of hub type



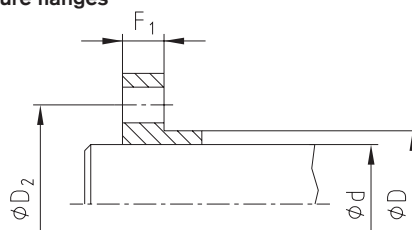
Up to four clamping elements can be installed one after another.

The torques rise as follows:

1 clamping element	$T = T_{\text{catalogue}} \times 1.00$
2 clamping elements	$T = T_{\text{catalogue}} \times 1.55$
3 clamping elements	$T = T_{\text{catalogue}} \times 1.85$
4 clamping elements	$T = T_{\text{catalogue}} \times 2.02$



Pressure flanges



Recommended dimensions of pressure flanges:

$N_1 [\text{mm}] \geq 1.5 \cdot B$
$D_2 [\text{mm}] = D + 12 + M$
$F_1 [\text{mm}] = M \cdot 1.3 \text{ (with screws 8.8)}$
$F_1 [\text{mm}] = M \cdot 1.8 \text{ (with screws 10.9/12.9)}$

Ordering
example:

KTR 150	60	x	68
Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 150															
d x D [mm]	Dimensions [mm]		Distance dimension A [mm]				Clamping force required for clamping screws $\mu_{total}=0.14$			Transmittable torque or axial force		Surface pressure be- tween clamping element		Weight [~kg]	Stock pro- gramme
	B	B ₁	Clamping elements				P _O [kN]	P _S [kN]	P _A = P _O +P _S [kN]	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm²]	Hub P _N [N/mm²]		
			1	2	3	4									
6 x 9	4.5	3.7	3	3	3	4	0	3	3	2	0.6	80	53	0.0015	●
7 x 10	4.5	3.7	3	3	3	4	0	5	5	4	1	117	82	0.0014	●
8 x 11	4.5	3.7	3	3	3	4	0	6	6	5	1	112	81	0.0015	●
9 x 12	4.5	3.7	3	3	3	4	8	8	16	8	1	142	106	0.0017	●
10 x 13	4.5	3.7	3	3	3	4	7	9	16	10	2	143	110	0.0018	●
12 x 15	4.5	3.7	3	3	3	4	7	8	15	11	1	110	88	0.0022	●
13 x 16	4.5	3.7	3	3	3	4	6	10	16	13	2	110	90	0.0023	●
14 x 18	6.3	5.3	3	4	4	5	11	15	26	22	3	112	87	0.0049	●
15 x 19	6.3	5.3	3	4	4	5	11	15	26	25	3	111	88	0.0053	●
16 x 20	6.3	5.3	3	4	4	5	10	15	25	26	3	102	81	0.0055	●
17 x 21	6.3	5.3	3	4	4	5	10	16	26	30	3	104	84	0.0058	●
18 x 22	6.3	5.3	3	4	4	5	9	17	26	33	3	102	83	0.0061	●
19 x 24	6.3	5.3	3	4	4	5	13	19	32	40	4	111	88	0.0078	●
20 x 25	6.3	5.3	3	4	4	5	12	20	32	44	4	110	88	0.0082	●
22 x 26	6.3	5.3	3	4	4	5	9	21	30	50	4	103	87	0.0072	●
24 x 28	6.3	5.3	3	4	4	5	8	26	34	68	5	118	101	0.0079	●
25 x 30	6.3	5.3	3	4	4	5	10	27	37	75	6	120	100	0.01	●
28 x 32	6.3	5.3	3	4	4	5	7	30	37	90	6	115	101	0.009	●
30 x 35	6.3	5.3	3	4	4	5	8	31	39	100	6	111	95	0.012	●
32 x 36	6.3	5.3	3	4	4	5	8	34	42	120	7	117	104	0.01	●
35 x 40	7	6.0	3	4	4	5	13	42	55	160	9	115	101	0.02	●
36 x 42	7	6.0	4	5	5	6	15	43	58	170	9	116	99	0.02	●
38 x 44	7	6.0	4	5	5	6	14	46	60	190	10	116	100	0.02	●
40 x 45	8	6.6	4	5	5	6	14	53	67	230	11	116	103	0.02	●
42 x 48	8	6.6	4	5	5	6	16	57	73	260	12	118	104	0.03	●
45 x 52	10	8.6	4	5	5	6	26	80	106	390	17	119	103	0.05	●
48 x 55	10	8.6	4	5	5	6	25	82	107	430	17	115	100	0.05	●
50 x 57	10	8.6	4	5	5	6	24	86	110	470	18	116	102	0.05	●
55 x 62	10	8.6	4	5	5	6	22	97	119	580	21	118	105	0.05	●
56 x 64	12	10.4	4	5	5	6	29	122	151	740	26	120	105	0.07	
60 x 68	12	10.4	4	5	6	7	27	129	156	840	28	119	105	0.07	●
63 x 71	12	10.4	4	5	6	7	26	134	160	920	29	118	105	0.08	●
65 x 73	12	10.4	4	5	6	7	25	142	167	1000	30	121	108	0.08	●
70 x 79	14	12.2	4	5	6	7	31	171	202	1300	37	115	102	0.11	●
71 x 80	14	12.2	4	5	6	7	31	181	212	1400	39	121	107	0.11	
75 x 84	14	12.2	4	5	6	7	34	184	218	1500	40	116	104	0.12	●
80 x 91	17	15.0	5	6	7	8	48	241	289	2100	52	116	102	0.12	●
85 x 96	17	15.0	5	6	7	8	45	260	305	2400	56	117	104	0.2	●
90 x 101	17	15.0	5	6	7	8	43	276	319	2700	60	118	105	0.2	●
95 x 106	17	15.0	5	6	8	9	41	290	331	3000	63	118	105	0.22	●
100 x 114	21	18.7	5	6	8	9	61	386	447	4200	84	119	105	0.4	●
110 x 124	21	18.7	5	6	8	9	65	393	458	4700	85	110	98	0.4	●
120 x 134	21	18.7	5	6	8	9	60	391	451	5100	85	100	90	0.5	●
130 x 148	28	25.3	6	7	9	11	96	573	669	8100	124	101	88	0.85	●
140 x 158	28	25.3	6	7	9	11	89	618	707	9400	134	101	89	0.91	●
150 x 168	28	25.3	6	7	9	11	84	674	758	11000	146	103	92	0.97	
160 x 178	28	25.3	6	7	9	11	79	833	912	14500	181	119	107	1.02	
170 x 191	33	30.0	7	8	10	12	118	1054	1172	19500	229	119	106	1.5	
180 x 201	33	30.0	7	8	10	12	112	1082	1194	21200	235	116	104	1.6	
190 x 211	33	30.0	7	9	10	12	106	1166	1272	24100	253	118	106	1.7	
200 x 224	38	34.5	7	9	11	13	133	1425	1558	31000	310	119	106	2.3	
210 x 234	38	34.5	7	9	11	13	127	1532	1659	35000	333	122	110	2.5	
220 x 244	38	34.5	7	9	11	13	122	1587	1709	38000	345	121	109	2.5	
230 x 257	43	39.5	7	9	12	14	165	1579	1744	39500	343	100	90	3.4	
240 x 267	43	39.5	7	9	12	14	158	1801	1959	47000	391	110	99	3.5	
250 x 280	48	44.0	8	10	13	16	188	1912	2100	52000	416	100	90	4.7	
260 x 290	48	44.0	8	10	13	16	181	1997	2178	56500	434	101	90	4.8	
270 x 300	48	44.0	8	10	13	16	174	2077	2251	61000	451	101	91	4.9	
280 x 313	53	49.0	9	11	14	17	205	2381	2586	72500	517	100	90	6.3	
290 x 323	53	49.0	9	11	14	17	221	2457	2678	77500	534	100	90	6.5	
300 x 333	53	49.0	9	11	14	17	214	2544	2758	83000	553	100	90	6.7	
320 x 360	65	59.0	10	15	20	25	291	3275	3566	114000	712	100	89	10.9	
340 x 380	65	59.0	10	15	20	25	275	3474	3749	128500	755	100	89	11.5	
360 x 400	65	59.0	10	15	20	25	261	3677	3938	144000	800	100	90	12.2	
380 x 420	65	59.0	10	15	20	25	269	3870	4139	160000	842	100	90	12.8	
400 x 440	65	59.0	10	15	20	25	256	4091	4347	178000	890	100	91	13.5	
420 x 460	65	59.0	10	15	20	25	244	4290	4534	196000	933	100	91	14.1	
440 x 480	65	59.0	10	15	20	25	234	4492	4726	215000	977	100	92	14.7	

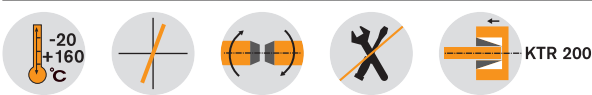
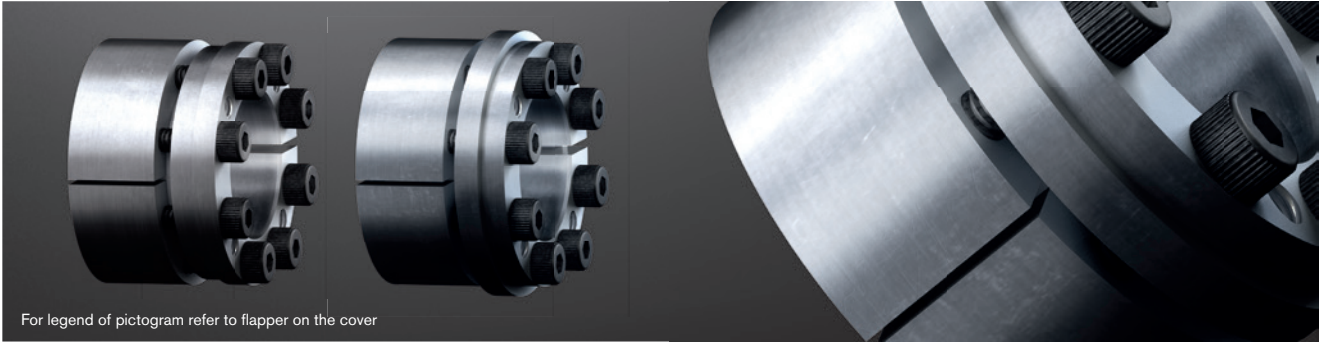
● Sizes of clamping elements available from stock.
Other sizes on request.

P_A = Total force
P_O = Setting force
P_S = Clamping force

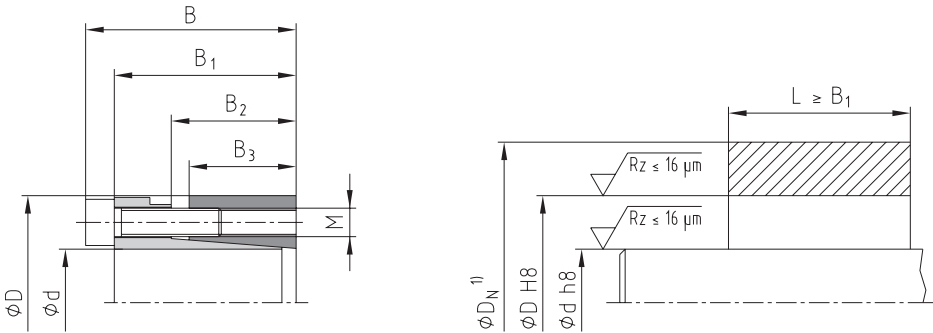
CLAMPEX® KTR 200 and KTR 201

Clamping elements

Self-centering clamping elements with a wide range of applications

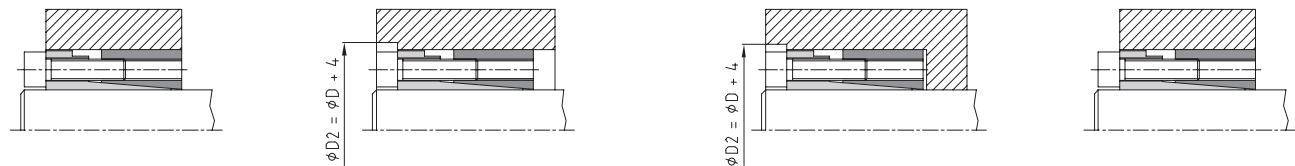


KTR 200

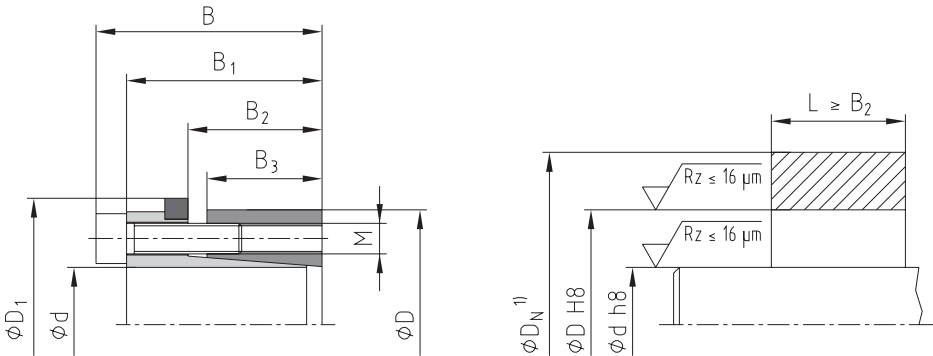


¹⁾ Dimension D_N: for calculation see page 305.

Example of application of hub type

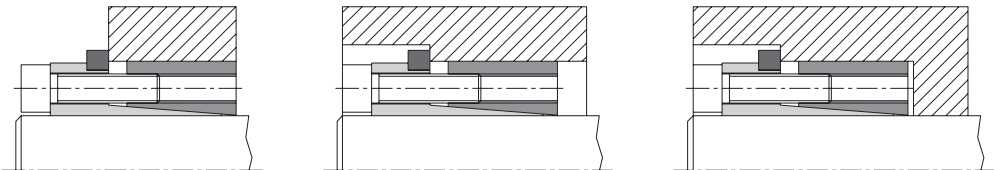


KTR 201



¹⁾ Dimension D_N: for calculation see page 305.

Example of application of hub type

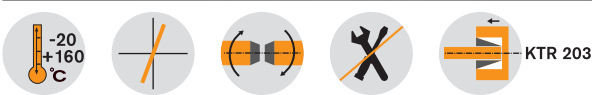
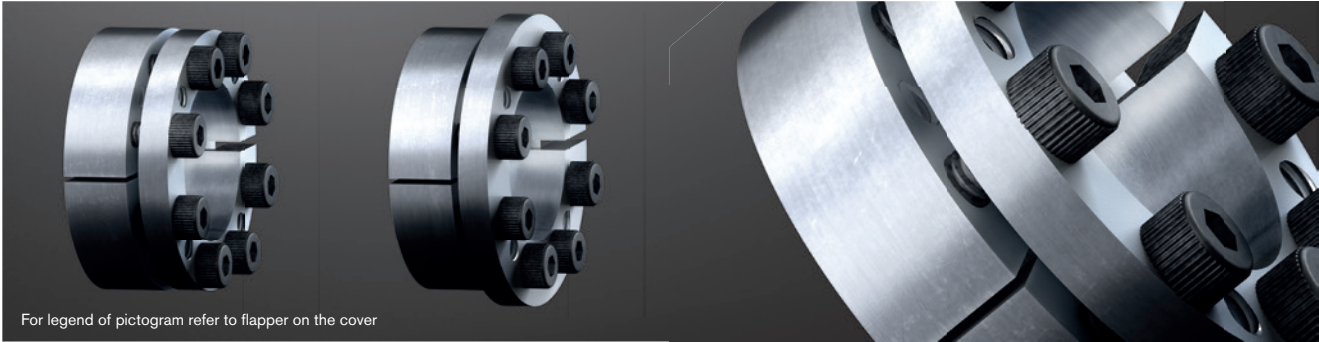


Ordering example:	KTR 200	40	x	65
	Series	Size of internal diameter d		Size of external diameter D

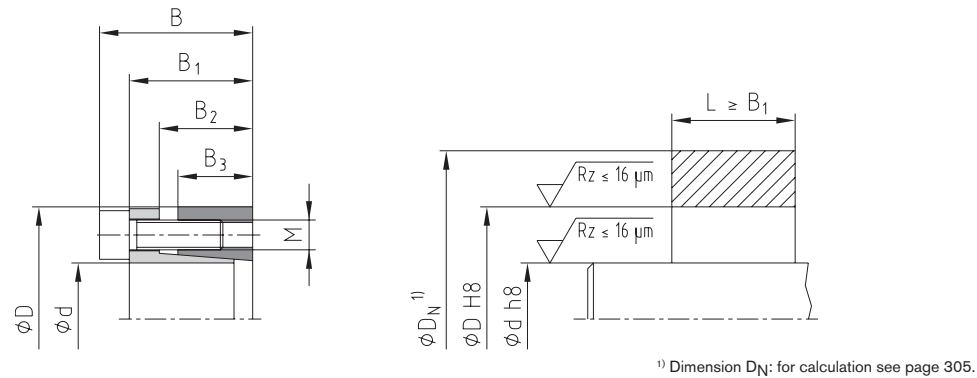
CLAMPEX® KTR 203 and KTR 206

Clamping elements

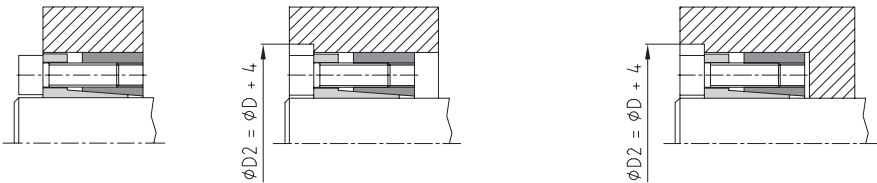
Self-centering clamping elements as a compact alternative to KTR 200/201



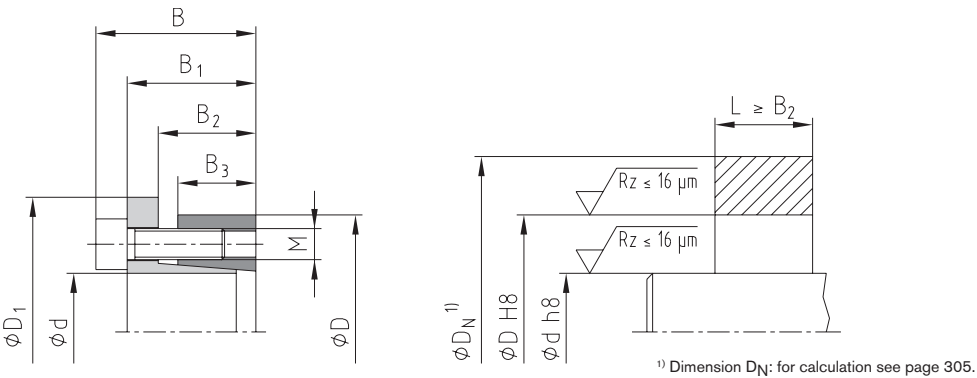
KTR 203



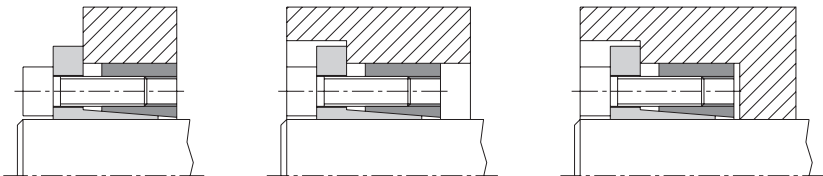
Example of application of hub type



KTR 206



Example of application of hub type



Ordering example:	KTR 203	40	x	65
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 203 and KTR 206

d x D [mm]	Dimensions [mm]					Clamping screws DIN EN ISO 4762 - 12.9 μtotal=0.14					KTR 203				Weight [~kg]		Stock programme	KTR 206				Weight [~kg]	Stock programme
											Transmittable torque or axial force		Surface pressure between clamping element					Transmittable torque or axial force		Surface pressure between clamping element			
	B	B ₁	B ₂	B ₃	D ₁	M	Length	z = number	T _A [Nm] ¹⁾		T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]					
									KTR 203	KTR 206													
18 x 47	34	28	22	17	53	M6	20	6	14	17	370	41	356	136	0.3			290	32	279	107	0.3	
19 x 47	34	28	22	17	53	M6	20	6	14	17	390	41	337	136	0.3			300	32	259	105	0.3	
20 x 47	34	28	22	17	53	M6	20	6	14	17	410	41	320	136	0.3	●		320	32	250	106	0.3	●
22 x 47	34	28	22	17	53	M6	20	6	14	17	450	41	290	136	0.3	●		350	32	226	106	0.3	●
24 x 50	34	28	22	17	56	M6	20	6	14	17	490	41	265	127	0.3	●		390	33	211	101	0.3	●
25 x 50	34	28	22	17	56	M6	20	6	14	17	510	41	255	127	0.3	●		400	32	200	100	0.3	●
28 x 55	34	28	22	17	61.4	M6	20	6	14	17	570	41	227	116	0.3	●		450	32	179	91	0.4	●
30 x 55	34	28	22	17	61.4	M6	20	6	14	17	610	41	212	115	0.3	●		490	33	170	93	0.3	●
32 x 60	34	28	22	17.5	67	M6	20	8	14	17	880	55	261	139	0.4	●		700	44	207	111	0.3	●
35 x 60	34	28	22	17.5	67	M6	20	8	14	17	960	55	238	139	0.3	●		760	43	188	110	0.4	●
38 x 65	34	28	22	17.5	72	M6	20	8	14	17	1000	53	210	123	0.4	●		820	43	172	101	0.5	●
40 x 65	34	28	22	17.5	72	M6	20	8	14	17	1100	55	208	128	0.4	●		870	44	165	101	0.4	●
42 x 75	41	33	25	20	84	M8	25	8	35	41	2200	105	331	185	0.6	●		1700	81	256	143	0.7	●
45 x 75	41	33	25	20	84	M8	25	8	35	41	2400	107	314	189	0.6	●		1800	80	236	141	0.7	●
48 x 80	41	33.5	24	20	89	M8	25	8	35	41	2500	104	288	173	0.7			1900	79	219	131	0.8	●
50 x 80	41	33.5	24	20	89	M8	25	8	35	41	2600	104	276	172	0.7	●		2000	80	212	133	0.8	●
55 x 85	41	33.5	24	20	94	M8	25	8	35	41	2900	105	254	165	0.7	●		2200	80	193	125	0.9	●
60 x 90	41	33.5	24	20	99	M8	25	8	35	41	3100	103	228	152	0.8	●		2400	80	177	118	0.9	●
65 x 95	41	33.5	24	20	104	M8	25	8	35	41	3400	105	213	146	0.8	●		2600	80	163	112	0.9	●
70 x 110	50	40	29	24	119	M10	30	8	70	83	6000	171	271	172	1.5	●		4600	131	208	132	1.6	●
75 x 115	50	40	29	24	124	M10	30	8	70	83	6400	171	252	164	1.6	●		5000	133	196	128	1.7	●
80 x 120	50	40	29	24	129	M10	30	8	70	83	6800	170	235	157	1.7	●		5300	133	183	122	1.9	●
85 x 125	50	40	29	24	134	M10	30	10	70	83	9000	212	275	187	1.8	●		7000	165	214	146	2.0	●
90 x 130	50	40	29	24	139	M10	30	10	70	83	9600	213	262	181	1.9	●		7400	164	202	140	2.0	●
95 x 135	50	40	29	24	144	M10	30	10	70	83	10200	215	250	176	2.0			7800	164	191	134	2.3	
100 x 145	56	44	31	25.5	154	M12	30	8	115	145	12000	240	250	172	2.6	●		9700	194	202	139	2.8	●
110 x 155	56	44	31	25.5	164	M12	30	8	115	145	13000	236	224	159	2.8			10700	195	184	131	3.1	●
120 x 165	56	44	31	26	174	M12	30	9	115	145	16000	267	227	165	3.6			13100	218	186	135	3.2	●
130 x 180	64	52	39	34	189	M12	30	12	115	145	23000	354	212	153	4.4			19000	292	175	127	4.6	●
140 x 190	68	54	39	34	199	M14	40	9	185	230	25000	357	199	147	4.9			20500	293	163	120	5.0	
150 x 200	68	54	39	34	209	M14	40	10	185	230	30000	400	208	156	5.2			24500	327	170	127	5.2	
160 x 210	68	54	39	34	219	M14	40	12	185	230	38800	485	236	180	5.6			31300	391	191	145	5.6	
170 x 225	78	64	49	44	234	M14	40	12	185	230	41300	486	172	130	6.9			33200	391	139	105	6.5	
180 x 235	78	64	49	44	244	M14	40	12	185	230	43700	486	163	125	8.5			35000	389	130	100	8.5	
190 x 250	78	64	49	43.5	259	M14	40	15	185	230	57700	607	195	148	9.0			46500	489	157	119	9.0	
200 x 260	78	64	49	43.5	269	M14	40	15	185	230	60700	607	185	142	9.6			49000	490	149	115	9.6	
220 x 285	88	72	57	50	294	M16	40	12	290	360	77300	703	169	131	13.4			57100	519	125	97	14.0	
240 x 305	88	72	57	50	314	M16	40	15	290	360	105400	878	194	153	14.5			77800	648	143	113	15.1	
260 x 325	88	72	57	50	334	M16	40	18	290	360	137000	1054	215	172	16.1			101200	778	159	127	16.2	
280 x 355	102	84	66	60	364	M18	50	16	400	480	160300	1145	181	143	23.4			113300	809	128	101	25.6	
300 x 375	102	84	66	60	384	M18	50	18	400	480	193200	1288	190	152	25.3			136500	910	134	107	25.5	
320 x 405	121	101	81	74	414	M20	50	18	580	690	269300	1683	189	149	36.9			191000	1194	134	106	37.9	
340 x 425	121	101	81	74	434	M20	50	21	580	690	333800	1964	207	166	39.0			237000	1394	147	118	38.3	
360 x 455	138	116	93	86	464	M22	60	18	780	930	375700	2087	179	141	54.0			264000	1467	126	99	53.3	
380 x 475	138	116	93	86	484	M22	60	21	780	930	462700	2435	198	158	56.2			325000	1711	139	111	57.6	
400 x 495	138	116	93	86	504	M22	60	21	780	930	487000	2435	188	152	58.9			342000	1710	132	107	60.3	

● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

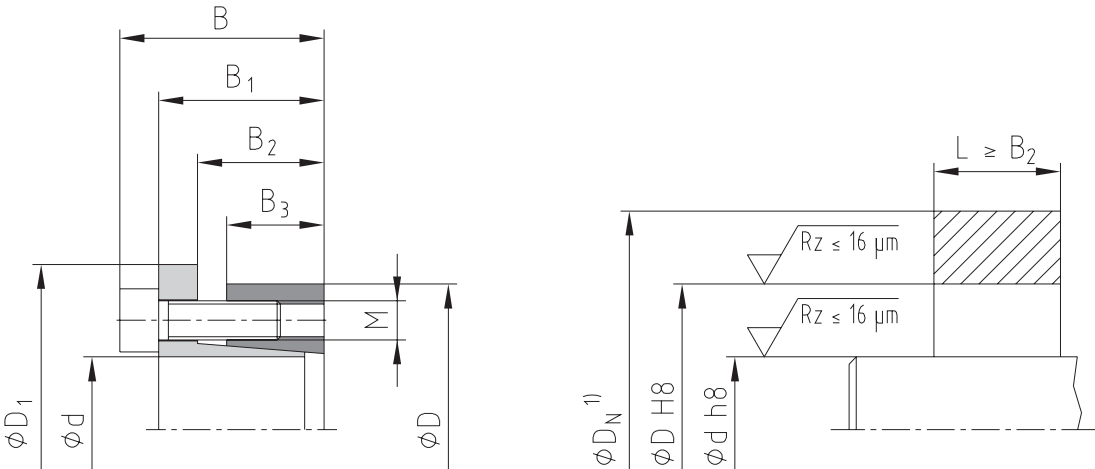
CLAMPEX® KTR 225

Clamping elements

Self-centering, combination of a hub Ø with various shaft Ø

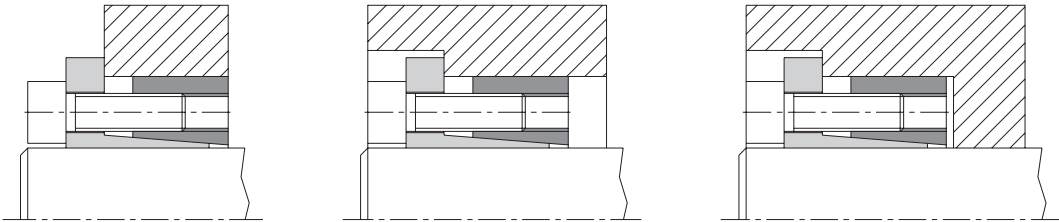


For legend of pictogram refer to flapper on the cover

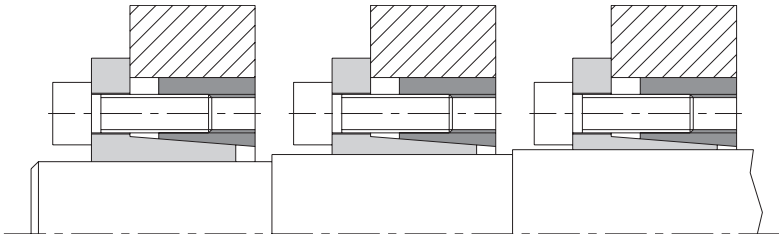


¹⁾ Dimension D_N : for calculation see page 305.

Example of application of hub type



To fasten one size of hubs on different shaft diameters



Ordering example:	KTR 225	28	x	65
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 225															
d x D [mm]	Dimensions [mm]					Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{total}=0.14$				Transmittable torque or axial force		Surface pressure be- tween clamping element		Weight [~kg]	Stock pro- gramme
	B	B ₁	B ₂	B ₃	D ₁	M	Length	z = number	T _A ¹⁾ [Nm]	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/ mm ²]		
14 x 55	38	30	22	17	62	M8	25	4	41	287	41	457	116	0.5	●
16 x 55	38	30	22	17	62	M8	25	4	41	329	41	401	117	0.5	●
18 x 55	38	30	22	17	62	M8	25	4	41	370	41	356	117	0.5	●
19 x 55	38	30	22	17	62	M8	25	4	41	390	41	337	116	0.5	●
20 x 55	38	30	22	17	62	M8	25	4	41	410	41	320	116	0.5	●
22 x 55	38	30	22	17	62	M8	25	4	41	451	41	291	116	0.5	●
24 x 55	38	30	22	17	62	M8	25	4	41	492	41	267	116	0.4	●
25 x 55	38	30	22	17	62	M8	25	4	41	513	41	256	116	0.4	●
28 x 55	38	30	22	17	62	M8	25	4	41	575	41	229	117	0.4	●
30 x 55	38	30	22	17	62	M8	25	4	41	616	41	214	117	0.4	●
24 x 65	38	30	22	17	72	M8	25	5	41	616	51	334	123	0.7	●
25 x 65	38	30	22	17	72	M8	25	5	41	641	51	320	123	0.7	●
28 x 65	38	30	22	17	72	M8	25	5	41	718	51	286	123	0.6	●
30 x 65	38	30	22	17	72	M8	25	5	41	770	51	267	123	0.6	●
32 x 65	38	30	22	17	72	M8	25	5	41	821	51	250	123	0.6	●
35 x 65	38	30	22	17	72	M8	25	5	41	898	51	229	123	0.5	●
38 x 65	38	30	22	17	72	M8	25	5	41	975	51	211	123	0.5	●
40 x 65	38	30	22	17	72	M8	25	5	41	1026	51	200	123	0.5	●
30 x 80	41	33	25	20	88	M8	25	7	41	1077	72	317	119	1.1	
32 x 80	41	33	25	20	88	M8	25	7	41	1150	72	298	119	1.1	
35 x 80	41	33	25	20	88	M8	25	7	41	1257	72	272	119	1.0	
38 x 80	41	33	25	20	88	M8	25	7	41	1364	72	251	119	1.0	
40 x 80	41	33	25	20	88	M8	25	7	41	1436	72	238	119	0.9	●
42 x 80	41	33	25	20	88	M8	25	7	41	1509	72	227	119	0.9	
45 x 80	41	33	25	20	88	M8	25	7	41	1616	72	212	119	0.9	
48 x 80	41	33	25	20	88	M8	25	7	41	1723	72	198	119	0.8	
50 x 80	41	33	25	20	88	M8	25	7	41	1796	72	191	119	0.8	●

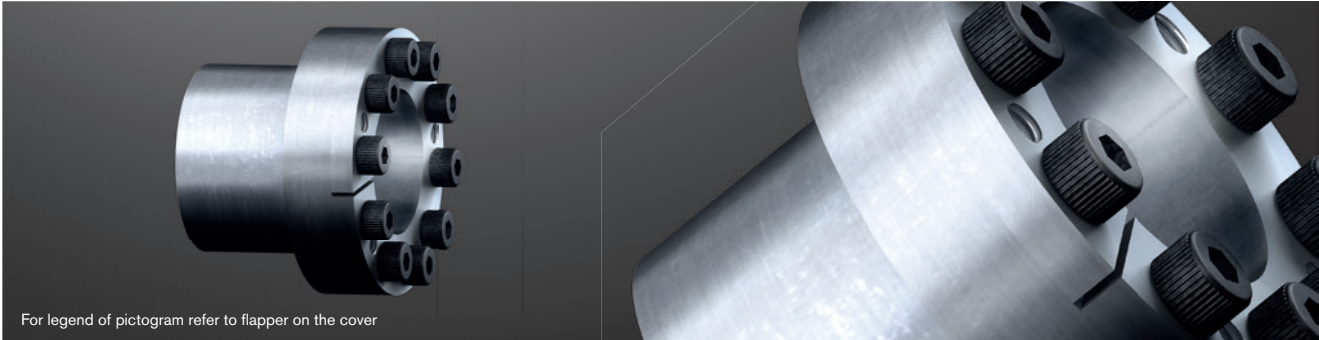
● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

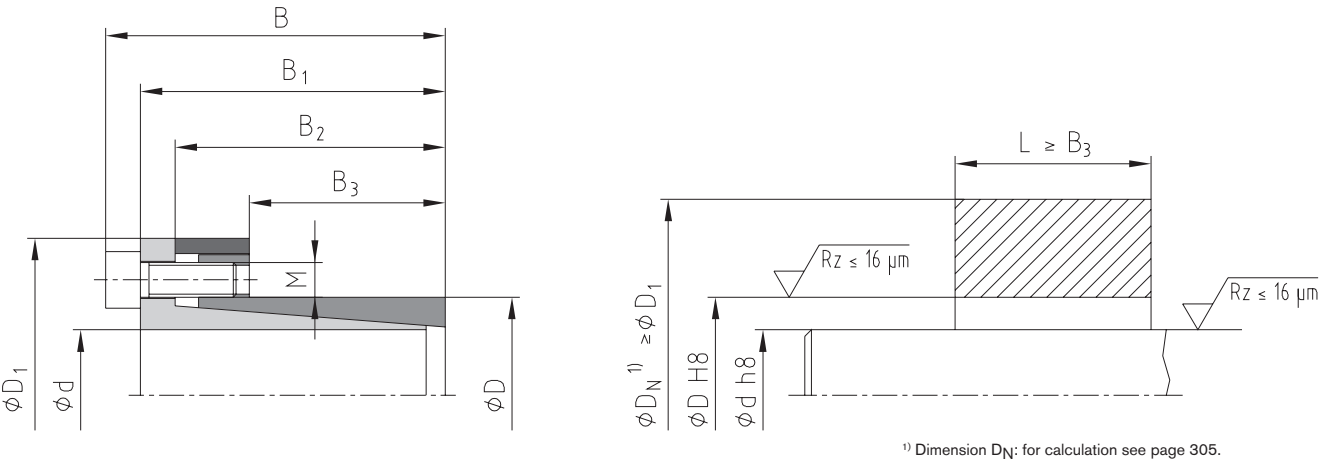
CLAMPEX® KTR 250

Clamping elements

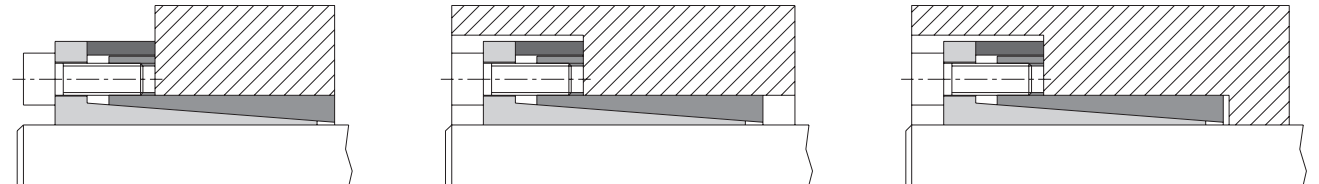
Self-centering clamping element, particularly suitable for thin-walled hubs



For legend of pictogram refer to flapper on the cover



Example of application of hub type



Ordering example:	KTR 250	28	x	39
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 250															
d x D [mm]	Dimensions [mm]					Clamping screws DIN EN ISO 4762 - 12.9 $\mu_{\text{total}}=0.14$				Transmittable torque or axial force		Surface pressure be- tween clamping element		Weight [~kg]	Stock pro- gramme
	B	B ₁	B ₂	B ₃	D ₁	M	Length	z = number	T _A [Nm] ¹⁾	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/ mm ²]		
6 x 14	24.5	21.5	18.5	10	25	M3	10	4	2.6	11	4	162	69	0.05	●
8 x 15	29	25	21.5	11.5	27	M4	10	3	5.6	26	7	187	100	0.05	●
9 x 16	30	26	22.5	14	28	M4	10	4	5.6	37	8	173	97	0.06	●
10 x 16	30	26	22.5	14	29	M4	10	4	5.6	42	8	159	99	0.16	●
11 x 18	30	26	22.5	13.5	32	M4	10	4	5.6	50	9	162	99	0.18	●
12 x 18	30	26	22.5	13.5	32	M4	10	4	5.6	55	9	150	100	0.18	●
14 x 23	30	26	22.5	14	38	M4	10	6	5.6	100	14	193	118	0.20	●
15 x 24	42	36	28.5	16	44	M6	18	4	15	145	19	214	134	0.2	●
16 x 24	42	36	28.5	16	44	M6	18	4	15	155	19	201	134	0.3	●
17 x 25	42	36	28.5	16	45	M6	18	4	15	162	19	186	126	0.2	●
17 x 26	44	38	31	18	47	M6	18	4	17	180	21	184	120	0.2	●
18 x 26	44	38	31	18	47	M6	18	4	17	200	22	182	126	0.2	●
19 x 27	44	38	31	18	48	M6	18	4	17	210	22	171	121	0.3	●
20 x 28	44	38	31	18	49	M6	18	4	17	220	22	162	116	0.2	●
22 x 32	51	45	38	25	54	M6	18	4	17	250	23	110	75	0.3	●
24 x 34	51	45	38	25	56	M6	18	4	17	270	23	99	70	0.3	●
25 x 34	51	45	38	25	56	M6	18	4	17	280	22	95	70	0.3	●
28 x 39	51	45	38	25	61	M6	18	6	17	480	34	130	93	0.4	●
30 x 41	51	45	38	25	62	M6	18	6	17	510	34	120	88	0.4	●
32 x 43	51	45	38	25	65	M6	18	8	17	730	46	151	113	0.5	●
35 x 47	56	50	43	30	69	M6	18	8	17	800	46	115	86	0.5	●
38 x 50	56	50	43	30	72	M6	18	8	17	860	45	105	80	0.6	●
40 x 53	56	50	43	30	75	M6	18	8	17	900	45	99	75	0.6	●
42 x 55	65	57	49	32	78	M8	22	8	41	1800	86	169	129	0.9	●
45 x 59	73	65	57	40	85	M8	22	8	41	1900	84	124	95	1.0	●
48 x 62	78	70	62	45	87	M8	22	8	41	2000	83	102	79	1.0	●
50 x 65	78	70	62	45	92	M8	22	10	41	2600	104	123	94	1.3	●
55 x 71	83	75	67	50	98	M8	22	10	41	2900	105	102	79	1.5	●
60 x 77	83	75	67	50	104	M8	22	10	41	3100	103	91	71	1.7	●
65 x 84	83	75	67	50	111	M8	22	10	41	3400	105	85	66	1.9	●
70 x 90	101	91	80	60	119	M10	25	10	83	5800	166	105	81	2.9	●
75 x 95	101	91	80	60	126	M10	25	10	83	6200	165	97	77	2.3	●
80 x 100	106	96	85	65	131	M10	25	12	83	8000	200	102	82	3.3	●
85 x 106	106	96	85	65	137	M10	25	12	83	8500	200	96	77	3.6	●
90 x 112	106	96	85	65	143	M10	25	15	83	11200	249	113	91	3.9	●
95 x 120	106	96	85	65	153	M10	25	15	83	11800	248	107	84	4.5	●
100 x 125	114	102	89	65	162	M12	30	12	145	14600	292	119	95	5.5	●
110 x 140	140	128	114	90	180	M12	30	12	145	16000	291	78	61	8.0	●
120 x 155	140	128	114	90	198	M12	30	12	145	17400	290	71	55	10.5	●
130 x 165	140	128	114	90	208	M12	30	16	145	25000	385	87	69	11.9	●

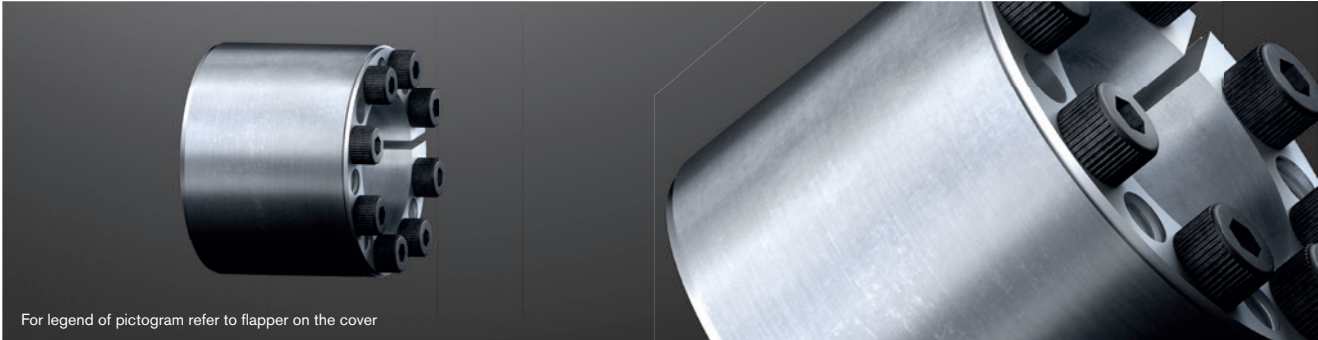
● Sizes of clamping elements available from stock.

¹⁾ These are the maximum screw tightening torques. They can be reduced by a maximum of 40 % of the above-mentioned figures with T, F_{ax}, P_W and P_N decreasing proportionately.

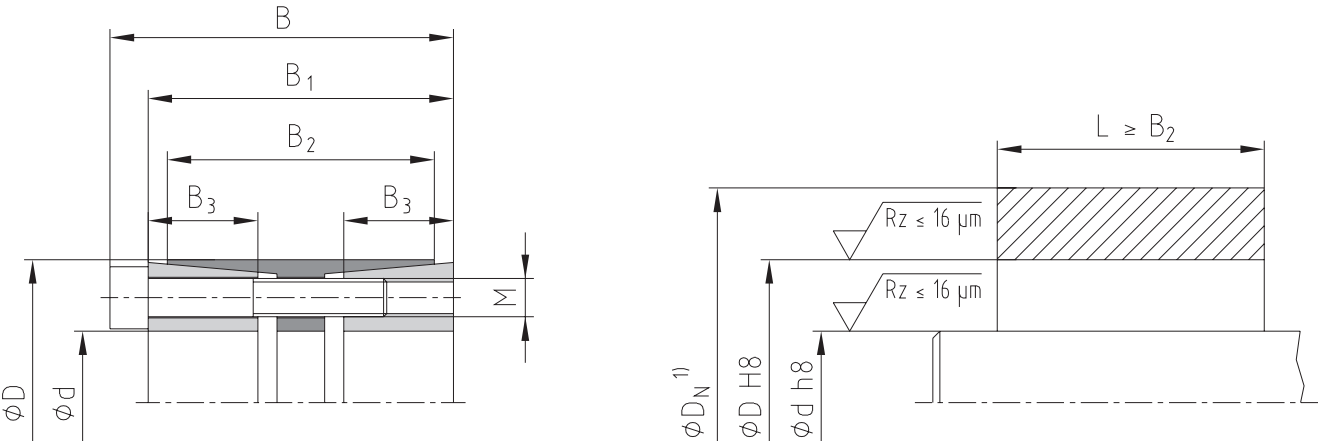
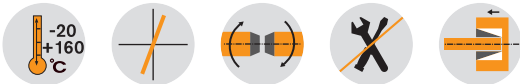
CLAMPEX® KTR 400

Clamping elements

Self-centering clamping element with highest transmission performance

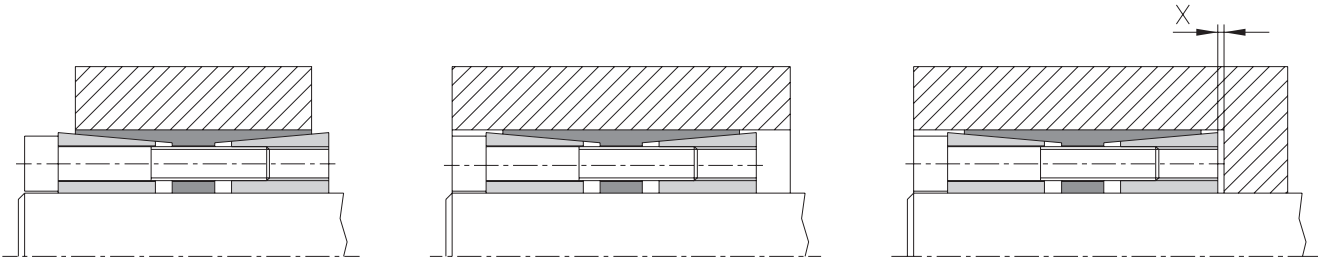


For legend of pictogram refer to flapper on the cover



¹⁾ Dimension DN: for calculation see page 305.

Example of application of hub type



Formula to calculate space x for disassembly:

$$x = \frac{B_1 - B_2}{2}$$

Ordering example:	KTR 400	100	x	145
	Series	Size of internal diameter d		Size of external diameter D

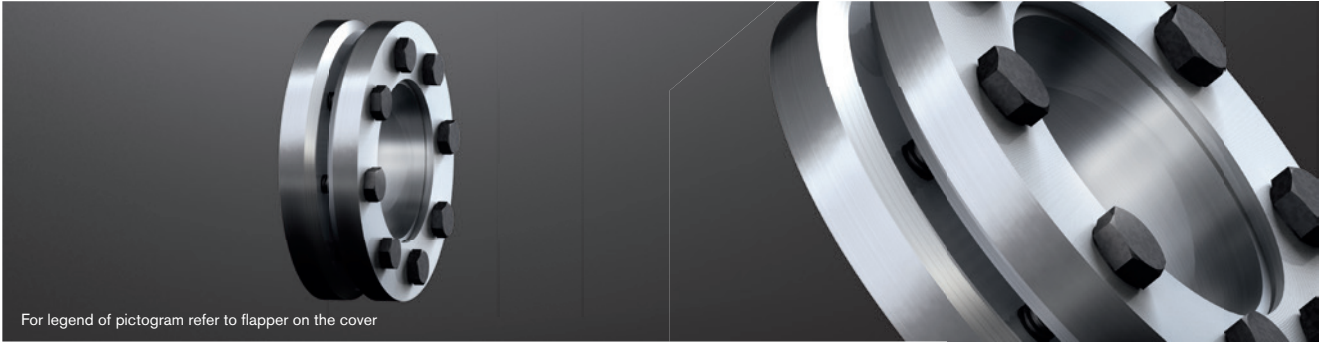
CLAMPEX® – KTR 400

d x D ¹⁾ [mm]					Standard applications in industry										Applications with components subjected to bending and torsion stress										Weight [-kg]	Stock programme		
					Clamping screws DIN EN ISO 4762 - 12.9 μ _{total} =0.14					Transmittable torque or axial force		Surface pressure between clamp- ing element			Clamping screws DIN EN ISO 4762 - 12.9 μ _{total} =0.14					Transmittable torque or axial force		Transmit- table bending moment		Surface pressure between clamp- ing element				
					M	z = num- ber	Length	T _A ²⁾ [Nm]	T [Nm]	F _{ax} [kN]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]	M	z = num- ber	Length	T _A [Nm]	T [Nm]	F _{ax} [kN]	M _b perm. [Nm]	Shaft P _W [N/mm ²]	Hub P _N [N/mm ²]							
24 x 50	51	45	41	16	M6	6	35	17	700	58	202	92	M6	6	35	14	460	38	420	230	93	0.5	●	●	●	●	●	●
25 x 50	51	45	41	16	M6	6	35	17	730	58	194	92	M6	6	35	14	470	38	430	222	94	0.5	●	●	●	●	●	●
28 x 55	51	45	41	16	M6	8	35	17	1100	79	233	112	M6	8	35	14	740	53	490	257	110	0.5	●	●	●	●	●	●
30 x 55	51	45	41	16	M6	8	35	17	1180	79	217	112	M6	8	35	14	790	53	520	243	112	0.5	●	●	●	●	●	●
32 x 60	51	45	41	16	M6	8	35	17	1270	79	206	103	M6	8	35	14	830	52	560	230	104	0.8	●	●	●	●	●	●
35 x 60	51	45	41	16	M6	8	35	17	1390	79	188	104	M6	8	35	14	890	51	610	214	106	0.7	●	●	●	●	●	●
38 x 65	51	45	41	16	M6	10	35	17	1880	99	216	119	M6	10	35	14	1250	66	660	240	119	1.1	●	●	●	●	●	●
40 x 65	51	45	41	16	M6	10	35	17	1980	99	205	119	M6	10	35	14	1300	65	700	230	120	1.1	●	●	●	●	●	●
40 x 75	51	45	41	16	M8	8	35	41	2850	143	296	149	M8	8	35	35	2030	102	700	320	142	1.1	●	●	●	●	●	●
42 x 75	51	45	41	16	M8	8	35	41	3000	143	282	149	M8	8	35	35	2120	101	730	307	142	1.2	●	●	●	●	●	●
45 x 75	51	45	41	16	M8	8	35	41	3250	144	266	151	M8	8	35	35	2260	100	780	289	145	1.1	●	●	●	●	●	●
48 x 80	70	62	58	23	M8	8	55	41	3450	144	173	98	M8	8	55	35	2160	90	1700	202	101	1.5	●	●	●	●	●	●
50 x 80	70	62	58	23	M8	8	55	41	3600	144	166	98	M8	8	55	35	2220	89	1770	196	102	1.4	●	●	●	●	●	●
55 x 85	70	62	58	23	M8	8	55	41	3950	144	151	92	M8	8	55	35	2350	85	1950	182	98	1.5	●	●	●	●	●	●
60 x 90	70	62	58	23	M8	10	55	41	5400	180	173	109	M8	10	55	35	3380	113	2130	202	113	1.6	●	●	●	●	●	●
65 x 95	70	62	58	23	M8	10	55	41	5850	180	160	103	M8	10	55	35	3560	110	2310	190	109	1.7	●	●	●	●	●	●
70 x 110	86	76	70	28	M10	10	60	83	10200	291	197	118	M10	10	60	69	6620	189	3650	222	120	3.1	●	●	●	●	●	●
75 x 115	86	76	70	28	M10	10	60	83	10950	292	184	113	M10	10	60	69	6970	186	3920	210	117	3.3	●	●	●	●	●	●
80 x 120	86	76	70	28	M10	12	60	83	14000	350	207	130	M10	12	60	69	9210	230	4180	231	131	3.5	●	●	●	●	●	●
85 x 125	86	76	70	28	M10	12	60	83	15000	353	197	126	M10	12	60	69	9710	228	4440	220	129	3.6	●	●	●	●	●	●
90 x 130	86	76	70	28	M10	12	60	83	15800	351	185	121	M10	12	60	69	10000	222	4700	210	124	3.8	●	●	●	●	●	●
95 x 135	86	76	70	28	M10	12	60	83	16800	354	176	117	M10	12	60	69	10500	221	4960	201	122	4.0	●	●	●	●	●	●
100 x 145	110	98	92	35	M12	12	80	145	26000	520	197	121	M12	12	80	120	16850	337	8580	219	124	6.1	●	●	●	●	●	●
110 x 155	110	98	92	35	M12	12	80	145	28600	520	179	114	M12	12	80	120	18000	327	9440	203	118	6.6	●	●	●	●	●	●
120 x 165	110	98	92	35	M12	14	80	145	36300	605	191	124	M12	14	80	120	23350	389	10300	214	128	7.1	●	●	●	●	●	●
130 x 180	128	114	108	41	M14	12	90	230	46000	708	176	114	M14	12	90	190	29950	461	15300	201	119	10.0	●	●	●	●	●	●
140 x 190	128	114	108	41	M14	14	90	230	57800	826	191	126	M14	14	90	190	37200	531	16500	214	129	10.6	●	●	●	●	●	●
150 x 200	128	114	108	41	M14	16	90	230	70800	944	204	136	M14	16	90	190	46400	619	17700	226	139	11.2	●	●	●	●	●	●
160 x 210	128	114	108	41	M14	16	90	230	75500	944	191	130	M14	16	90	190	48600	608	18800	214	133	11.9	●	●	●	●	●	●
170 x 225	162	146	136	52	M16	14	110	355	95900	1128	169	114	M16	14	110	295	59100	695	32000	196	119	17.6	●	●	●	●	●	●
180 x 235	162	146	136	52	M16	15	110	355	108800	1209	171	117	M16	15	110	295	67500	750	33900	198	122	18.5	●	●	●	●	●	●
190 x 250	162	146	136	52	M16	16	110	355	122500	1289	173	117	M16	16	110	295	76100	801	35800	199	122	21.4	●	●	●	●	●	●
200 x 260	162	146	136	52	M16	16	110	355	128900	1289	164	113	M16	16	110	295	78600	786	37700	192	118	22.4	●	●	●	●	●	●
220 x 285	162	146	136	52	M16	18	110	355	171800	1562	181	120	M16	18	110	295	105000	955	41400	195	126	26.6	●	●	●	●	●	●
240 x 305	162	146	136	52	M16	20	110	355	208000	1733	184	125	M16	20	110	295	128000	1067	45200	198	130	28.7	●	●	●	●	●	●
260 x 325	166	150	134	55	M16	21	110	355	237000	1823	169	117	M16	21	110	295	142000	1092	51000	187	123	31.2	●	●	●	●	●	●
280 x 355	197	177	165	66	M20	18	130	690	340000	2429	174	119	M20	18	130	580	208000	1486	81300	192	125	46.8	●	●	●	●	●	●
300 x 375	197	177	165	66	M20	20	130	690	405000	2700	181	125	M20	20	130	580	252000	1680	87100	198	130	69.7	●	●	●	●	●	●
320 x 405	197	177	165	66	M20	21	130	690	453000	2831	178	121	M20	21	130	580	280000	1750	92900	196	127	60.5	●	●	●	●	●	●
340 x 425	197	177	165	66	M20	22	130	690	504900	2970	176	121	M20	22	130	580	311000	1829	98700	193	127	63.9	●	●	●	●	●	●
360 x 455	224	203	190	76	M22	21	150	930	626000	3478	169	115	M22	21	150	780	381000	2117	138500	189	121	86.8	●	●	●	●	●	●
380 x 475	224	203	190	76	M22	22	150	930	692000	3642	167	115	M22	22	150	780	420000	2211	146000	188	122	91.0	●	●	●	●	●	●
400 x 495	224	203	190	76	M22	24	150	930	795000	3975	173	121	M22	24	150	780	489000	2445	154000	194	127	95.3	●	●	●	●	●	●
420 x 515	224	203	190	76	M22	24	150	930	835000	3976	165	116	M22	24	150	780	505000	2405	161500	186	123	100	●	●	●	●	●	●
440 x 535	224	203	190	76	M22	24	150	930	875000	3977	158	112	M22	24	150	780	517000	2350	169000	178	120	105	●	●	●	●	●	●
460 x 555	224	203	190	76	M22	24	150	930	914000	3974	151	108	M22	24	150	780	530000	2304	177000	172	117	109	●	●	●	●	●	●
480 x 575	224	203	190	76	M22	28	150	930	1113000	4638	169	121	M22	28	150	780	678000	2825	184500	189	128	114	●	●	●	●	●	●
500 x 595																												

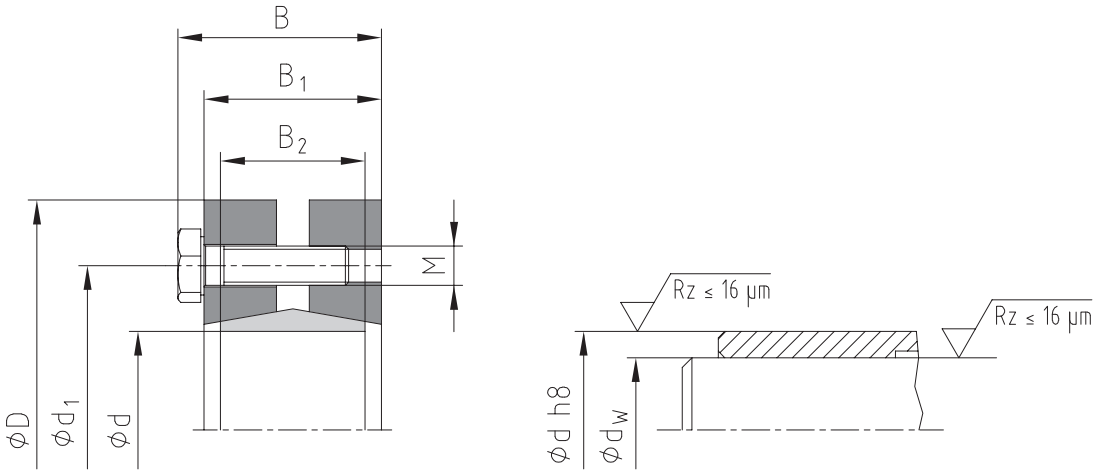
CLAMPEX® KTR 603

Clamping elements

Three-part external clamping set for applications on hollow shafts



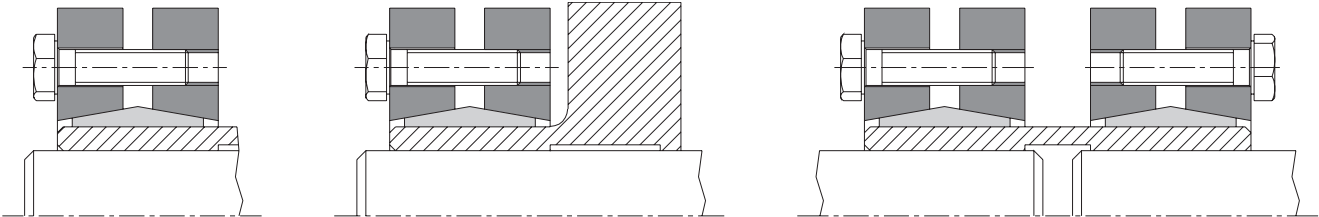
For legend of pictogram refer to flapper on the cover



Tolerances for d_w

For d_w from 10 to 30 mm	H6 / j6
For d_w from 31 to 50 mm	H6 / h6
For d_w from 51 to 80 mm	H6 / g6
For d_w from 81 to 500 mm	H7 / g6

Example of application of hub type



Ordering example:	KTR 603	44	x	80
	Series	Size of internal diameter d		Size of external diameter D

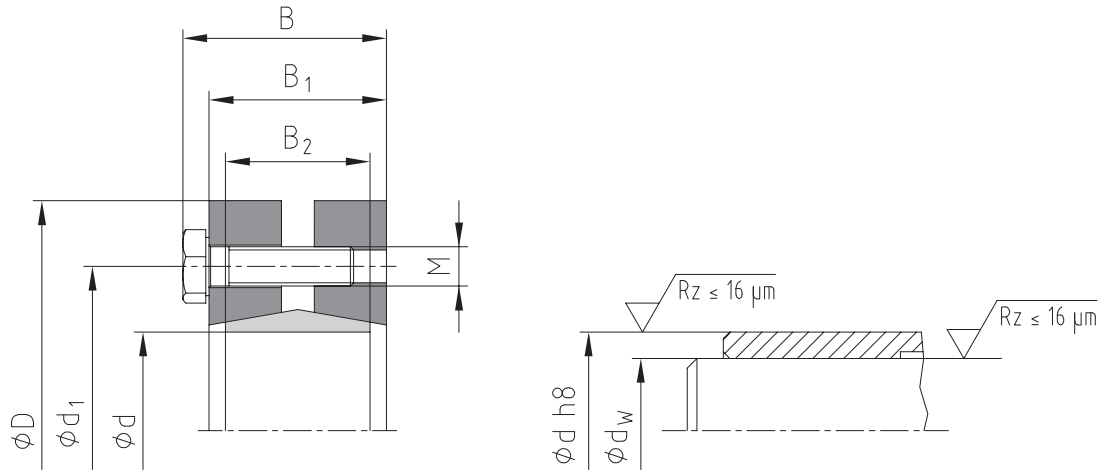
CLAMPEX® – KTR 603														
d x D [mm]	Shaft diameter d _w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4014 - 10.9 μ _{total} =0.10				Surface pressure of clamping element/hollow shaft P _H [N/mm²]	Weight [~kg]	Stock programme
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]			
14 x 38	10	28	6											
	11	38	7	14.5	11	9	24	M5	10	4	3.5	388	0.1	●
	12	50	8											
16 x 41	12	50	8											
	13	70	11	18.5	15	11	26	M5	14	5	4	310	0.2	●
	14	90	13											
24 x 50	19	180	19											
	20	210	21	22.5	19	14	36	M5	18	6	5	286	0.2	●
	21	250	24											
30 x 60	24	310	26											
	25	340	27	24.5	21	16	44	M5	18	6	6	233	0.3	●
	26	380	29											
36 x 72	28	460	33											
	30	590	39	27	23	18	52	M6	20	5	12	307	0.4	●
	31	630	41											
44 x 80	32	630	39											
	35	780	45	29	25	20	61	M6	22	7	12	317	0.6	●
	36	860	48											
50 x 90	38	940	49											
	40	1100	55	31	27	22	70	M6	22	8	12	289	0.8	●
	42	1300	62											
55 x 100	42	1200	57											
	45	1500	67	34	30	23	75	M6	25	8	12	252	1.1	●
	48	1900	79											
62 x 110	48	1800	75											
	50	2200	88	34	30	23	86	M6	25	10	12	279	1.3	●
	52	2400	92											
68 x 115	50	2000	80											
	55	2500	91	34	30	23	86	M6	25	10	12	255	1.4	●
	60	3100	103											
75 x 138	55	2500	91											
	60	3200	107	37.5	32	25	100	M8	30	7	30	273	1.8	●
	65	3900	120											
80 x 145	60	3200	107											
	65	3900	120	37.5	32	25	100	M8	30	7	30	256	2.6	●
	70	4600	131											
85 x 155	65	4800	148											
	70	6100	174	44.5	39	30	114	M8	35	10	30	285	3.9	
	75	7400	197											
90 x 155	65	4700	145											
	70	6000	171	44.5	39	30	114	M8	35	10	30	217	3.8	●
	75	7200	192											
100 x 170	70	6900	197											
	75	7500	200	49.5	44	34	124	M8	35	12	30	227	4.7	●
	80	9000	225											
110 x 185	75	7200	192											
	80	9000	225	56.5	50	39	136	M10	40	9	59	215	6.0	●
	85	11000	259											
115 x 188	80	8500	213											
	85	10000	235	56.5	50	39	141	M10	40	9	59	209	5.0	
	90	12000	267											
120 x 215	80	10500	263											
	85	13200	311	58.5	52	42	160	M10	40	12	59	271	5.9	
	90	14400	320											
125 x 215	85	11000	259											
	90	13000	289	58.5	52	42	160	M10	40	12	59	222	8.5	●
	95	15000	316											
130 x 215	90	13700	304											
	95	15800	333	58.5	52	42	160	M10	40	12	59	227	9.0	
	100	18200	364											
140 x 230	95	15000	316											
	100	17000	340	67.5	60	46	175	M12	45	10	100	209	11	
	105	20000	381											

● Sizes of clamping elements available from stock.
Other sizes on request.

CLAMPEX® KTR 603

Clamping elements

Three-part external clamping set for applications on hollow shafts



CLAMPEX® – KTR 603														
d x D [mm]	Shaft diameter d _W [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4014 - 10.9 μ _{total} =0.10				Surface pressure of clamping element/hollow shaft	Weight [~kg]	Stock programme
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]	P _H [N/mm ²]		
155 x 265	105	20000	381											
	110	23000	418	71.5	64	50	192	M12	50	12	100	212	15	
	115	26000	452											
160x 265	110	22500	409											
	115	25500	443	71.5	64	50	192	M12	50	12	100	204	14	
	120	28600	477											
165 x 290	115	36000	626											
	120	39000	650	81	71	56	210	M16	60	8	250	269	24	
	125	44000	704											
170 x 290	120	31700	528											
	125	35800	573	81	71	56	210	M16	60	8	250	216	24	
	130	40000	615											
175 x 300	125	40000	640											
	130	44000	677	81	71	56	220	M16	60	8	250	253	16	
	135	49000	726											
180 x 300	130	36800	566											
	135	42000	622	81	71	56	220	M16	60	8	250	211	16	
	140	46000	657											
185 x 330	135	55000	815											
	140	60000	857	96	86	71	236	M16	65	10	250	231	35	
	145	65000	897											
190 x 330	140	53300	761											
	145	58500	807	96	86	71	236	M16	65	10	250	201	35	
	150	63500	847											
195 x 350	140	66000	943											
	150	76000	1013	96	86	71	246	M16	65	12	250	259	38	
	155	82000	1058											
200 x 350	150	73700	983											
	155	79800	1030	96	86	71	246	M16	65	12	250	240	41	
	160	85800	1073											
220 x 370	160	95000	1188											
	165	102000	1236	114	104	88	270	M16	80	15	250	216	54	
	170	110000	1294											
240 x 405	170	120000	1412											
	180	140000	1556	121.5	109	92	295	M20	80	12	490	239	67	
	190	160000	1684											
250 x 405	180	160000	1778											
	190	180000	1895	120.5	108	92	295	M20	85	14	490	263	64	
	200	200000	2000											
260 x 430	190	165000	1737											
	200	185000	1850	132.5	120	103	321	M20	90	14	490	225	82	
	210	204000	1943											

● Sizes of clamping elements available from stock.
Other sizes on request.

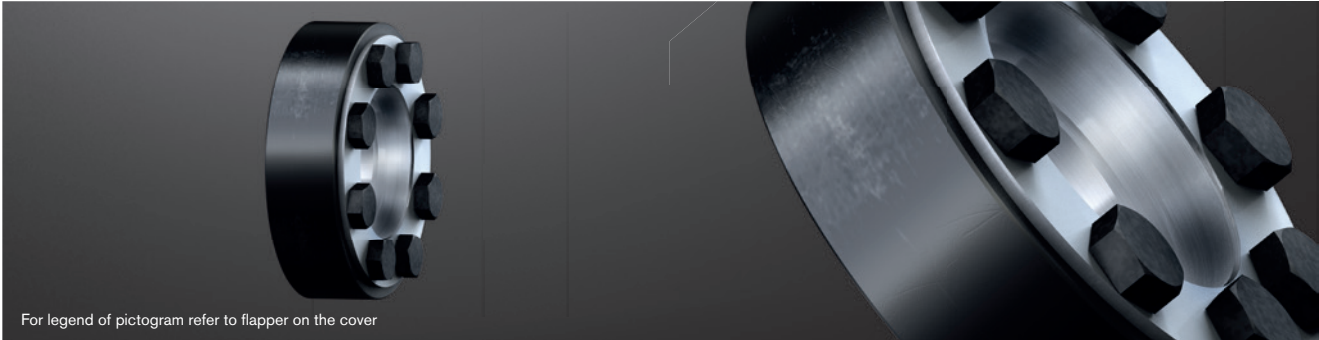
CLAMPEX® – KTR 603														
d x D [mm]	Shaft diameter d _w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4014 - 10.9 μ _{total} =0.10				Surface pressure of clamping element/hollow shaft	Weight [~kg]	Stock programme
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]	P _H [N/mm ²]		
280 x 460	210	216000	2057											
	220	245000	2227	146.5	134	114	346	M20	100	16	490	217	102	
	230	270000	2348											
300 x 485	230	274000	2383											
	240	296000	2467	154.5	142	122	364	M20	100	18	490	209	118	
	245	316000	2580											
320 x 520	240	311000	2592											
	250	340000	2720	154.5	142	122	386	M20	100	20	490	219	131	
	260	375000	2885											
330 x 520	250	352000	2816											
	260	385000	2962	154.5	142	122	386	M20	100	22	490	224	126.1	
	270	420000	3111											
340 x 570	250	389000	3112											
	260	422000	3246	168.5	156	134	408	M20	110	24	490	227	186	
	270	459000	3400											
350 x 580	270	443000	3281											
	280	480000	3429	174.5	162	140	432	M20	110	24	490	212	195	
	285	500000	3509											
360 x 590	280	462000	3300											
	290	500000	3448	174.5	162	140	432	M20	110	24	490	204	204	
	300	530000	3533											
380 x 645	290	570000	3931											
	300	610000	4067	183	168	144	458	M24	120	20	840	224	239	
	310	660000	4258											
390 x 660	300	625000	4167											
	310	670000	4323	183	168	144	468	M24	120	21	840	229	260	
	320	720000	4500											
400 x 680	315	671000	4260											
	320	695000	4344	183	168	144	480	M24	120	21	840	222	280	
	330	745000	4515											
420 x 690	330	782000	4739											
	340	841000	4947	203	188	164	504	M24	130	24	840	211	316	
	350	902000	5154											
440 x 750	340	805000	4735											
	350	861000	4920	217	202	177	527	M24	140	24	840	190	408	
	360	920000	5111											
460 x 770	360	1000000	5556											
	370	1073000	5800	217	202	177	547	M24	140	28	840	210	420	
	380	1141000	6005											
480 x 800	380	1175000	6184											
	390	1250000	6410	228	213	188	570	M24	140	30	840	206	505	
	400	1312000	6560											
500 x 850	400	1314000	6570											
	410	1382000	6741	230	213	188	590	M27	150	24	1250	205	575	
	420	1460000	6952											

● Sizes of clamping elements available from stock.
Other sizes on request.

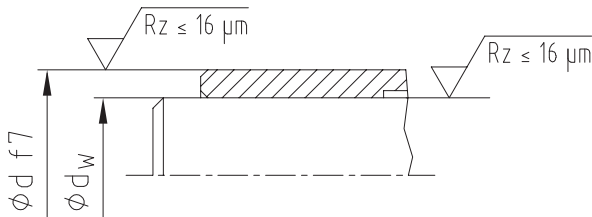
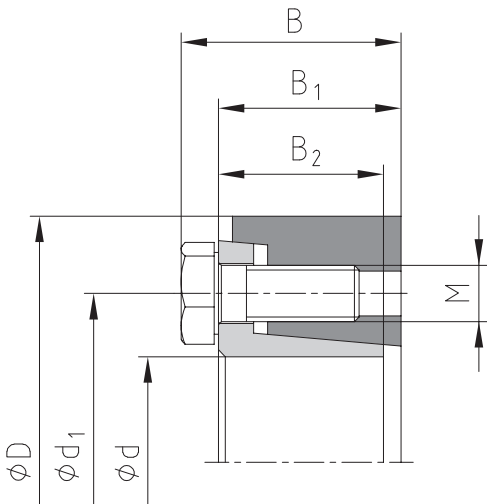
CLAMPEX® KTR 620

Clamping elements

Two-part external clamping set for applications on hollow shafts

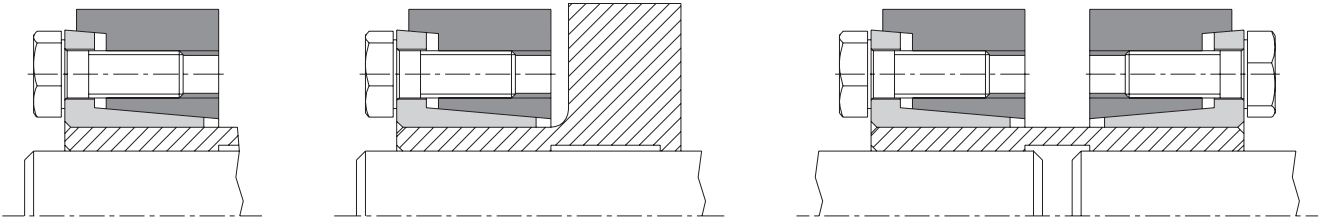


For legend of pictogram refer to flapper on the cover



Tolerances for d_w
 $d_w \leq \varnothing 160 = h6/H7$
 $d_w > \varnothing 160 = g6/H7$

Example of application of hub type



Ordering example:	KTR 620	55	x	100
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 620														
d x D [mm]	Shaft diameter d _W [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4017 - 12.9 ¹⁾ μ _{total} =0.10				Surface pressure of clamping element/hollow shaft	Weight [~kg]	Stock programme
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]	P _H [N/mm ²]		
16 x 41	13	70	11	19.5	15.3	13.5	28	M6	12	3	13	254	0.1	
	14	90	13											
18 x 44	15	80	11	19.5	15.3	13.5	30	M6	12	4	13	222	0.1	
	16	110	14											
20 x 47	17	150	18	19.5	15.3	13.5	32	M6	12	4	13	274	0.1	●
	18	175	19											
24 x 50	19	165	17	22	18.22	16	36	M6	16	5	13	243	0.2	●
	20	215	22											
	22	280	25											
26 x 51.5	20	200	20	22	18.05	16	38	M6	16	5	13	238	0.2	
	22	260	24											
	24	330	28											
30 x 60	24	370	31	24	20.26	18	44	M6	16	6	13	255	0.3	●
	25	420	34											
	26	465	36											
36 x 72	27	480	36	27.5	22.1	20	52	M8	20	5	30	250	0.5	●
	30	650	43											
	33	835	51											
38 x 72	27	480	36	27.5	22.1	20	54	M8	20	5	30	240	0.5	●
	30	645	43											
	33	765	46											
40 x 80	34	830	49	29.5	24.22	22	61	M8	20	6	30	209	0.6	●
	35	770	44											
44 x 80	37	880	48	29.5	24.22	22	61	M8	20	6	30	192	0.6	●
	38	1130	59											
50 x 90	40	1260	63	31.5	26.1	23.5	68	M8	20	8	30	212	0.8	●
	42	1400	67											
	42	1300	62											
55 x 100	45	1600	71	34.5	29	26	72	M8	20	8	30	195	1.1	●
	48	1900	79											
60 x 110	48	1700	71	34.5	29.25	26	80	M8	20	9	30	191	1.3	●
	50	1950	78											
	52	2160	83											
62 x 110	48	1700	71	34.5	29.25	26	80	M8	20	9	30	189	1.3	●
	50	1950	78											
	52	2160	83											
68 x 115	50	1900	76	35	29.4	26	86	M8	20	9	30	206	1.3	●
	55	2500	91											
	60	3150	105											
75 x 138	55	2700	98	37.5	30.7	27	100	M10	25	10	60	211	2.3	●
	60	3400	113											
	65	4100	126											
80 x 141	60	3300	110	37.5	31.1	27	104	M10	25	10	60	215	2.3	●
	65	4100	126											
	70	4950	141											
85 x 155	65	5500	169	44.5	38.2	34	114	M10	25	11	60	216	3.2	
	70	6400	183											
	75	7300	195											
90 x 155	65	5500	169	44.5	38.2	34	114	M10	25	11	60	223	3.2	●
	70	6600	189											
	75	7900	211											
95 x 170	70	6200	177	50	43.45	39	124	M10	30	14	60	182	4.3	
	75	7400	197											
	80	8600	215											
100 x 170	70	6200	177	50	43.45	39	124	M10	30	14	60	176	4.3	●
	75	7400	197											
	80	8600	215											
105 x 185	80	10500	263	56.5	49.1	43.5	136	M12	35	12	100	208	5.8	
	85	11800	278											
	90	13700	304											
110 x 185	80	10500	263	56.5	49.1	43.5	136	M12	35	12	100	202	5.8	●
	85	11800	278											
	90	13700	304											
115 x 197	85	12500	294	60.5	53	48	147	M12	35	14	100	193	6.9	
	90	14100	313											
	95	16000	337											
120 x 197	85	12500	294	60.5	53	48	147	M12	35	14	100	189	6.9	
	90	14100	313											
	95	16000	337											

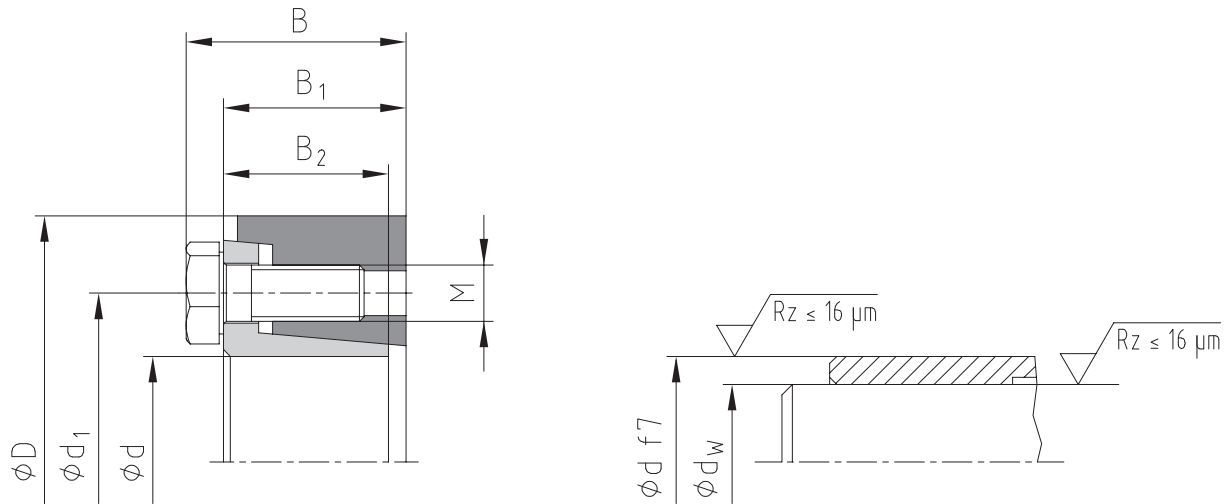
● Sizes of clamping elements available from stock.

¹⁾ DIN EN ISO

CLAMPEX® KTR 620

Clamping elements

Two-part external clamping set for applications on hollow shafts



CLAMPEX® – KTR 620														
d x D [mm]	Shaft diameter d _w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4017 - 12.9 μ _{total} =0.10				Surface pressure of clamping ele- ment/hollow shaft P _H [N/mm²]	Weight [~kg]	Stock pro- gramme
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]			
125 x 215	90	14500	322											
	95	16600	349	61	53.4	48	158	M12	35	14	100	196	8.7	●
	100	18800	376											
130 x 215	95	17000	358											
	100	18400	368	61	53.4	48	158	M12	35	14	100	187	9.4	
	110	22000	400											
130 x 230	95	18400	387											
	100	20800	416	66.5	57.5	51	165	M14	40	12	160	213	10.8	●
	110	26200	476											
135x 230	95	18400	387											
	100	20800	416	66.5	57.5	51	165	M14	40	12	160	209	10.8	
	110	26200	476											
140 x 230	100	19900	398											
	105	22200	423	67	57.8	51	172	M14	40	12	160	207	10.3	
	115	27800	483											
150 x 263	110	27000	491											
	120	32000	533	71	62.2	55	186	M14	40	14	160	202	15.2	
	125	36200	579											
155 x 263	110	27000	491											
	120	32000	533	71	62.2	55	186	M14	40	14	160	199	15.2	
	125	36200	579											
160 x 290	120	39000	650											
	130	48000	738	78.5	68.5	61	198	M16	45	12	250	215	21.5	
	135	51000	756											
165 x 290	120	39000	650											
	130	48000	738	78.5	68.5	61	198	M16	45	12	250	212	21.5	
	135	51000	756											
170 x 300	130	46500	715											
	140	53000	757	79	68.9	61	208	M16	50	14	250	212	22.5	
	145	59000	814											
175 x 300	130	46500	715											
	140	53000	757	79	68.9	61	208	M16	50	14	250	209	22.5	●
	145	59000	814											
180 x 320	140	66000	943											
	150	76000	1013	95	85	77.5	222	M16	50	16	250	210	32.7	
	155	83000	1071											
185 x 320	140	66000	943											
	150	76000	1013	95	85	77.5	222	M16	50	16	250	207	32.7	
	155	83000	1071											
190 x 340	150	82000	1093											
	160	91000	1138	98	87.7	77.5	238	M16	50	16	250	225	36.3	
	165	102000	1236											
195 x 340	150	82000	1093											
	160	91000	1138	98	87.7	77.5	238	M16	50	16	250	222	36.3	
	165	102000	1236											
200 x 340	150	82000	1093											
	160	91000	1138	98	87.7	77.5	238	M16	50	16	250	219	36.3	
	165	102000	1236											

● Sizes of clamping elements available from stock.

CLAMPEX® – KTR 620

d x D [mm]	Shaft diameter d _w [mm]	Transmittable torque or axial force		Dimensions [mm]				Clamping screws DIN EN ISO 4017 - 12.9 ²⁾ μ _{total} =0.10				Surface pressure of clamping ele- ment/hollow shaft	Weight [-kg]	Stock pro- gramme
		T [Nm]	F _{ax} [kN]	B	B ₁	B ₂	d ₁	M	Length	z = number	T _A [Nm]	P _H [N/mm ²]		
220 x 370	160	105000	1313	120	107.55	96.5	268	M20	60	15	480	205	53	
	170	122000	1435											
	180	138000	1533											
240 x 405	170	125000	1471	123.5	111.1	98	288	M20	60	16	480	214	66	
	180	145000	1611											
	200	182000	1820											
260 x 430	190	165000	1737	138	125.3	110.5	312	M20	60	16	480	202	82	
	200	190000	1900											
	220	238000	2164											
280 x 460	210	220000	2095	152.5	140	121	334	M20	60	18	480	193	103	
	220	245000	2227											
	240	300000	2500											
300 x 485	220	297000	2700	159	139.8	124	360	M24	70	16	840	205	120	
	230	330000	2870											
	250	399000	3192											
320 x 520	240	331000	2758	160.5	141.6	124	380	M24	70	18	840	190	138	
	250	365000	2920											
	270	437000	3237											
340 x 570	250	429000	3432	177.5	158.4	139	402	M24	70	18	840	195	189	
	260	469000	3608											
	280	556000	3971											
360 x 590	270	545000	4037	182	163	143	424	M24	70	20	840	216	207	
	280	592000	4229											
	290	694000	4786											
390 x 650	290	704000	4855	191	169.2	148	454	M27	70	18	1250	216	249	
	300	760000	5067											
	320	879000	5494											
420 x 670	320	827000	5169	208.4	186.4	166	486	M27	70	20	1250	184	285	
	330	876000	5309											
	350	1000000	5714											
440 x 710	340	1117000	6571	220	198	179	506	M27	70	21	1250	222	343	
	350	1190000	6800											
	370	1345000	7270											
460 x 750	360	1306000	7256	223	201	179	534	M27	70	21	1250	230	387	
	370	1386000	7492											
	390	1554000	7969											
470 x 705	370	950000	5135	241.6	219.6	200	538	M27	70	21	1250	151	340	
	380	1000000	5263											
	400	1150000	5750											
480 x 770	380	1557000	8195	247	223	201	552	M30	100	21	1650	223	449	
	390	1648000	8451											
	410	1818000	8868											
500 x 820	400	1653000	8265	241	217	198	572	M30	100	24	1650	214	515	
	410	1725000	8415											
	430	1915000	8907											
530 x 850	430	2048000	9526	262.3	238.3	216	606.5	M30	100	24	1650	208	585	
	440	2154000	9791											
	460	2374000	10322											
560 x 885	450	2306000	10249	266	242	220	632	M30	100	24	1650	212	636	
	460	2419000	10517											
	480	2654000	11058											
590 x 950	470	2735000	11638	281.5	257.5	236	664	M30	100	28	1650	211	805	
	480	2863000	11929											
	500	3128000	12512											
620 x 960	500	3150000	12600	307	283	258	706	M30	100	28	1650	201	853	
	520	3396000	13062											
	540	3689000	13663											
660 x 1020	530	3636000	13721	319	293	267	748	M33	130	28	2250	199	993	
	550	3942000	14335											
	570	4261000	14951											
700 x 1085	560	4189000	14961	318.5	292.5	263	788	M33	130	28	2250	187	1112	
	580	4520000	15586											
	600	4863000	16210											
750 x 1100	600	5281000	17603	346	320	280	850	M33	130	32	2250	202	1111	
	620	5672000	18297											
	650	6287000	19345											
800 x 1230	640	6091000	19034	359	333	296	900	M33	130	32	2250	202	1589	
	660	6511000	19730											
	700	7394000	21126											

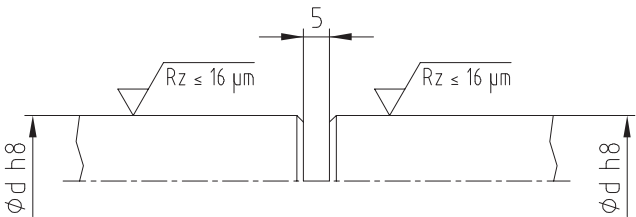
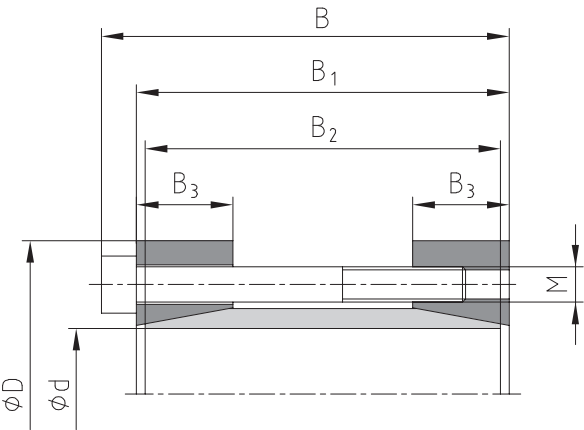
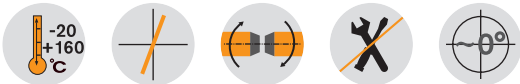
CLAMPEX® KTR 700

Clamping elements

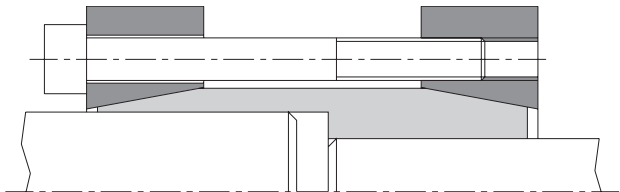
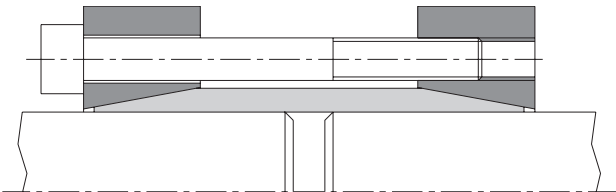
Rigid shaft coupling to connect two shaft ends



For legend of pictogram refer to flapper on the cover



Example of application



Type on request

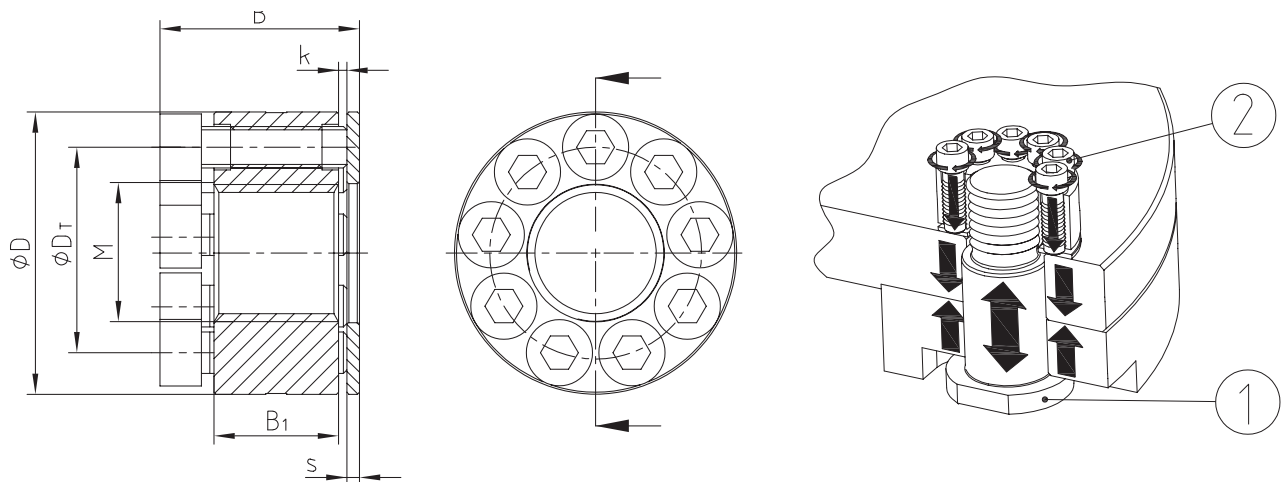
Ordering example:	KTR 700	35	x	75
	Series	Size of internal diameter d		Size of external diameter D

CLAMPEX® – KTR 700													
d x D [mm]	Dimensions [mm]				Clamping screws DIN EN ISO 4762 - 12.9 μ _{total} =0.14				Transmittable torque or axial force		Surface pressure of clamping element/ shaft	Weight [~kg]	Stock pro- gramme
	B	B ₁	B ₂	B ₃	M	Length	z = number	T _A [Nm]	T [Nm]	F _{ax} [kN]	P _W [N/mm²]		
10 x 35	42	38	36	15	M4	30	6	5.5	62	12	219	0.2	
11 x 35	42	38	36	15	M4	30	6	5.5	66	12	193	0.2	
12 x 35	42	38	36	15	M4	30	6	5.5	72	12	177	0.2	
14 x 35	42	38	36	15	M4	30	6	5	76	11	137	0.2	
15 x 45	56	50	47	15	M6	45	4	17	160	21	252	0.4	
16 x 45	56	50	47	15	M6	45	4	17	170	21	235	0.4	
17 x 45	56	50	47	15	M6	45	4	17	180	21	220	0.4	●
18 x 50	56	50	47	15	M6	45	4	17	190	21	207	0.5	
19 x 50	56	50	47	15	M6	45	4	17	200	21	196	0.4	
20 x 50	56	50	47	15	M6	45	4	17	220	22	195	0.4	●
22 x 55	66	60	57	18	M6	55	6	17	360	33	219	0.5	
24 x 55	66	60	57	18	M6	55	6	17	390	33	200	0.6	
25 x 55	66	60	57	18	M6	55	6	17	400	32	189	0.6	●
28 x 60	66	60	57	18	M6	55	6	17	390	28	147	0.8	
30 x 60	66	60	57	18	M6	55	6	17	420	28	138	0.7	●
32 x 75	83	75	72	20	M8	70	4	41	610	38	158	0.1	
35 x 75	83	75	72	20	M8	70	4	41	670	38	145	1.3	●
38 x 75	83	75	72	20	M8	70	4	41	730	38	134	1.2	
40 x 75	83	75	72	20	M8	70	4	41	760	38	126	1.2	●
42 x 85	93	85	81	22	M8	80	6	41	1170	56	160	1.8	
45 x 85	93	85	81	22	M8	80	6	41	1260	56	150	1.7	
48 x 90	93	85	81	22	M8	80	6	41	1360	57	142	1.9	
50 x 90	93	85	81	22	M8	80	6	41	1400	56	135	1.8	●
55 x 95	93	85	81	22	M8	80	8	41	2000	73	159	2.0	
60 x 100	93	85	81	22	M8	80	8	41	2260	75	151	2.2	●
65 x 105	93	85	81	22	M8	80	8	41	2500	77	143	2.6	
70 x 115	110	100	96	35	M10	80	8	83	3300	94	102	4.1	
75 x 120	110	100	96	35	M10	80	8	83	3500	93	94	4.3	
80 x 125	110	100	96	35	M10	80	7	75	3900	98	92	4.5	
90 x 136	110	100	96	35	M10	80	8	75	5100	113	95	5.2	
100 x 158	132	120	116	40	M12	100	8	130	8350	167	111	6.0	

● Sizes of clamping elements available from stock.

KTR Clamping nuts

Large screw connections for easy and quick assembly

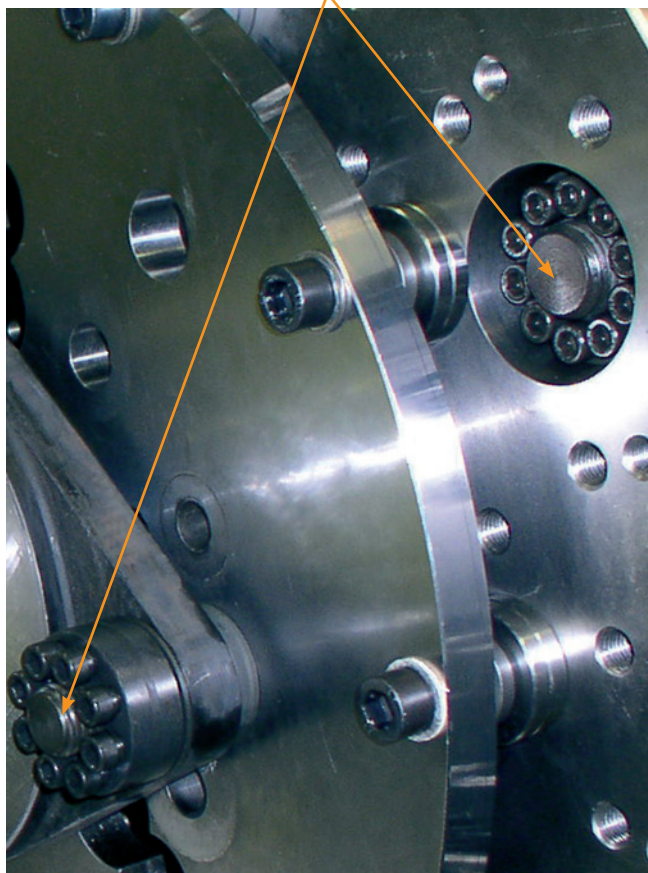


KTR Clamping nuts												
Size	Dimensions [mm]						Pressure screw pos. 2		Property class 8.8, screw pos. 1		Property class 10.9, screw pos. 1	
	D	D _T	B	B ₁	s	k	DIN EN ISO 4762	z = number	Tightening torque * [Nm]	Preload force [N]	Tightening torque * [Nm]	Preload force [N]
M24 x 3.0	52	39	36.0	20	3.0	1 - 2	M8	8	21	174000	30	249000
M27 x 3.0	57	42	41.0	25	3.0	1 - 2	M8	9	24	224000	30	280000
M30 x 3.5	65	48	43.0	25	3.0	1 - 2	M10	8	41	274000	60	401000
M33 x 3.5	68	51	48.0	30	3.0	1 - 2	M10	9	45	338000	60	451000
M36 x 4.0	80	58	50.0	30	3.0	1 - 2	M12	8	71	396000	105	586000
M42 x 4.5	86	64	55.0	35	3.0	1 - 2	M12	10	78	544000	105	732000
M48 x 5.0	90	72	60.0	40	3.0	1 - 2	M12	11	94	721000	105	806000
M52 x 5.0	100	79	66.5	42	4.5	1 - 2	M12	13	95	862000	105	952000
M56 x 5.5	108	83	75.5	45	4.5	1 - 2	M16	9	210	1001000	250	1192000
M60 x 5.5	112	86	80.5	48	4.5	1 - 2	M16	10	215	1139000	250	1325000
M64 x 6.0	120	92	84.0	52	8.0	1 - 2	M16	11	225	1311000	250	1457000
M72 x 6.0	142	107	98.0	58	8.0	1 - 2	M20	10	400	1696000	490	2077000
M80 x 6.0	164	122	103.0	64	8.0	1 - 2	M20	12	420	2137000	490	2493000

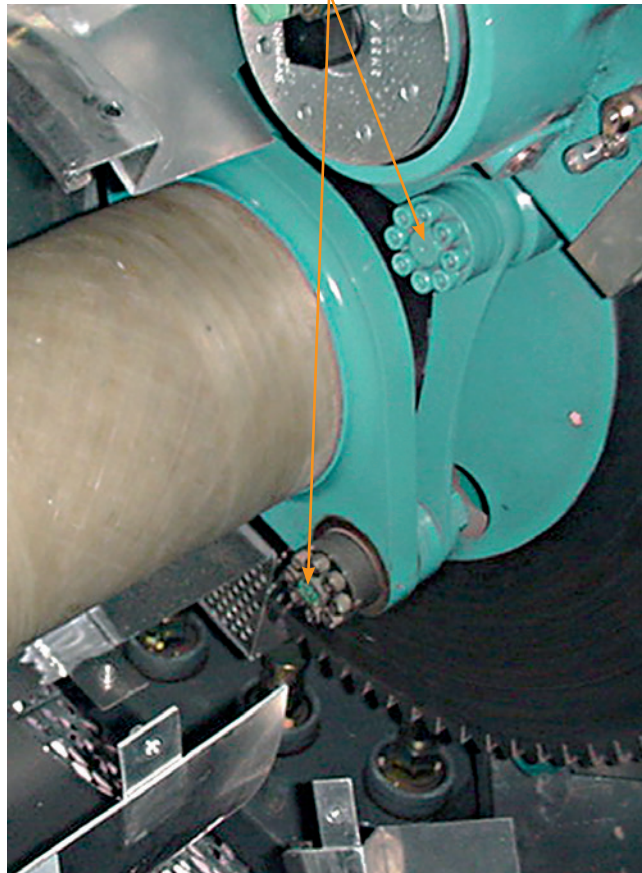
* per screw pos. 2

Ordering example:	KTR clamping nut	M33 x 3.5
	Description	Size

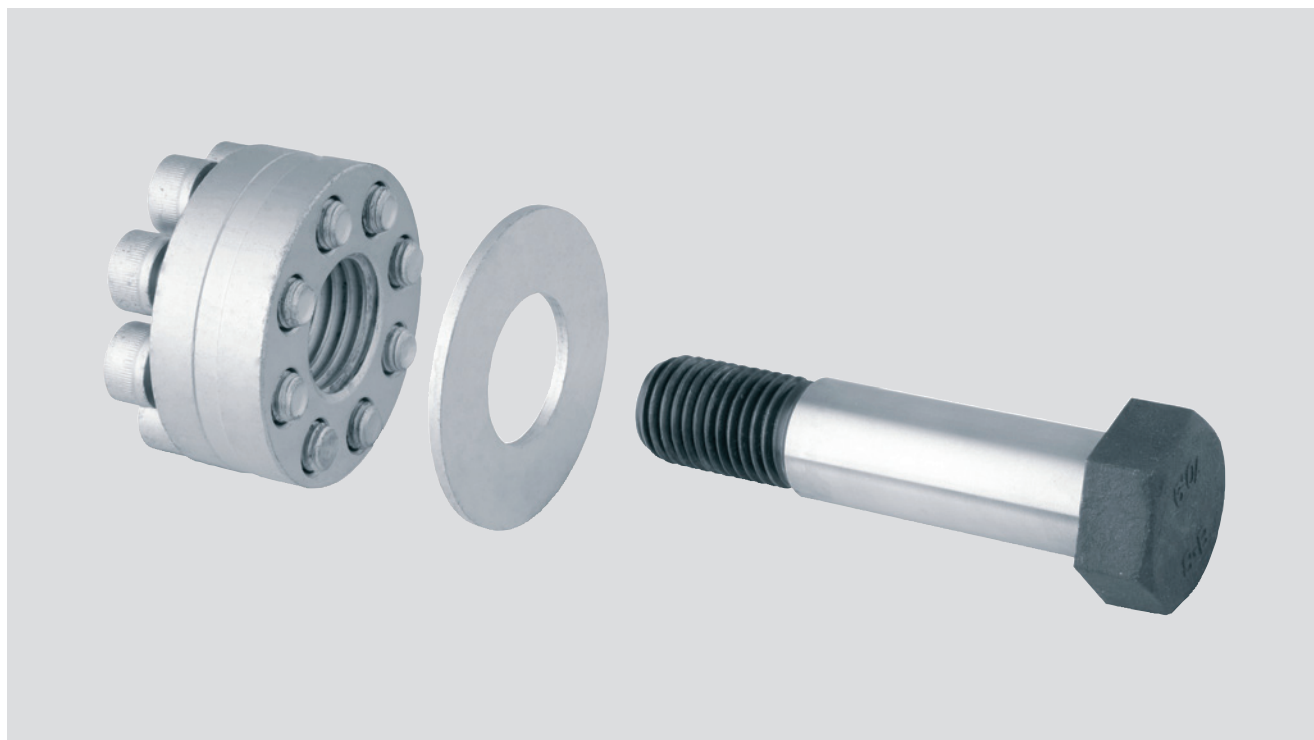
Used on 100 kNm test bench flanges



Used on couplings for wind turbines



Available as a complete unit including
dowel screw



Precision joints with plain and needle bearing series G and H according to DIN 808

Series G is provided with plain bearings, series H with needle bearings. Series H requires neither lubrication nor maintenance, since its bearings are permanently lubricated.

For low-speed applications (max. 1,000 rpm) precision joints with plain bearings (series G) are recommended. They are able to absorb shock loads, irregular rotation and relatively high torques. With high speeds, relatively low torques, reversing operation or big diffraction angles precision joints with needle bearings (series H) should be preferred. Considering the diffraction angle, they can be used up to a speed of 4,000 rpm.

The maximum diffraction angle is 45° for single joints and 90° for double joints.

Joints made of stainless steel series X according to DIN 808

Joints series X are fully made of stainless steel 1.4301. The maximum diffraction angle is 45° for single joints and 90° for double joints. The maximum permissible speed for series X is 300 rpm.

Selection criteria

The permissible torque transmission of a joint over a more or less long period considering constant and shock-free load mainly depends on the number of revolutions per minute and the diffraction angle.

The diagrammes on pages 340 - 341 were created based on such criteria.

The figures in the diagramme shall be considered as reference values referring to single joints only. With the selection of a double joint it must be considered that it is able to transmit a torque falling below that of a single joint of the same size by about 10 %. Every application has special properties, e. g. shock loads, change of direction of rotation, mass moment of inertia, start/stop operation, start-up characteristics etc. that have to be considered with the selection of the joint.

Instructions for correct assembly

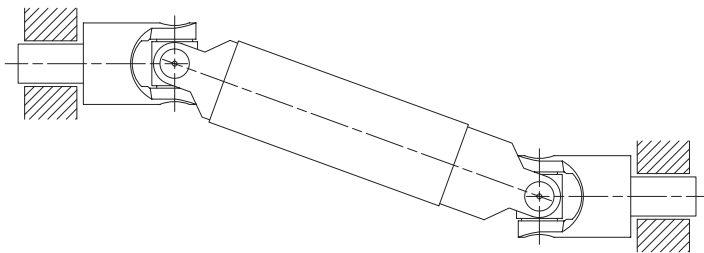


Illustration 1

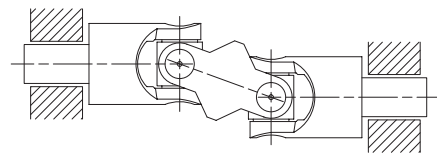


Illustration 2

In order to obtain consistent rotation between driving and driven shaft two single joints or one double joint have to be used. The bearing of the two shafts to be combined should be positioned as close as possible to the joints (see illustration 1 and 2).

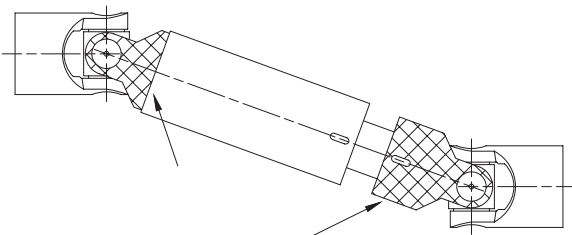


Illustration 3 (correct)

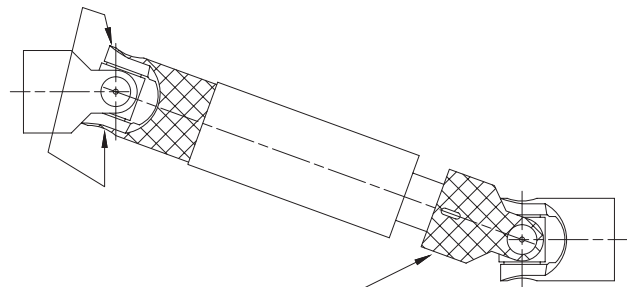


Illustration 4 (not correct)

When using two opposing single joints the identical fork position has to be observed. When using extendable joints it must be made sure that the markings applied are flush (see illustration 3 and 4).

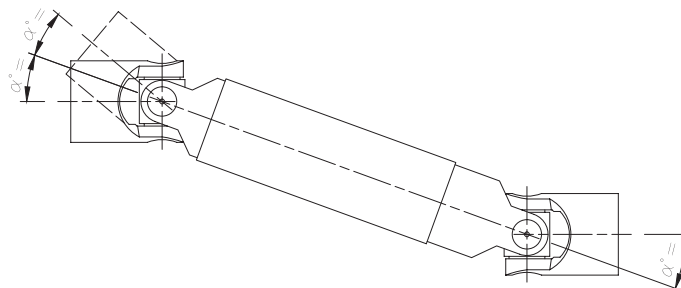
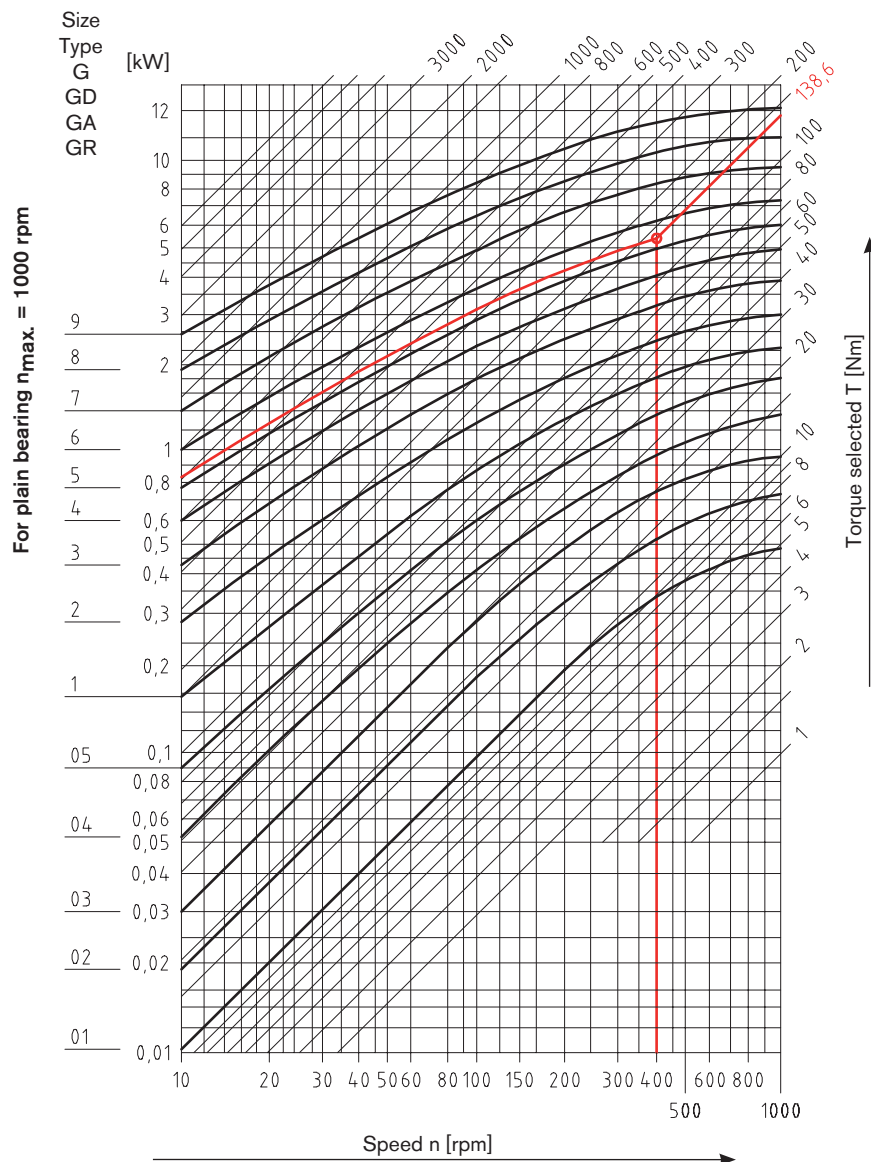


Illustration 5 (correct)

The diffraction angles α° must be identical (see illustration 5). The shafts may only be arranged in parallel or symmetrically to one another.

Selection and sizing according to DIN 808 with plain/needle bearing



Selection of type G, GD, GA, GR (max. 1000 rpm) ¹⁾

The selection of precision joints with plain bearing is based on the driving torque considering a correction factor which depends on the diffraction angle α and the operating speed.

For extendable joints the overall length and the speed need to be additionally considered for sizing (please consult with KTR).

$$\text{Driving torque } M_t \text{ [Nm]} = 9550 \cdot \frac{\text{Power [kW]}}{\text{Speed [rpm]}}$$

$$\text{Torque selected } T \text{ [Nm]} = \text{driving torque} \cdot \text{correction factor}$$

Additional review:

$$^{1)} \text{Diffraction angle } [^\circ] \cdot \text{speed [rpm]} \leq 40,000$$

Diffraction angle $[\alpha]$	5°	10°	15°	20°	25°	30°	35°	40°	45°
Correction factor	0.8	1.00	1.25	1.5	1.8	2.2	2.6	3.3	4.0

Details given:

Driving torque M_t

63 Nm

Diffraction angle

30°

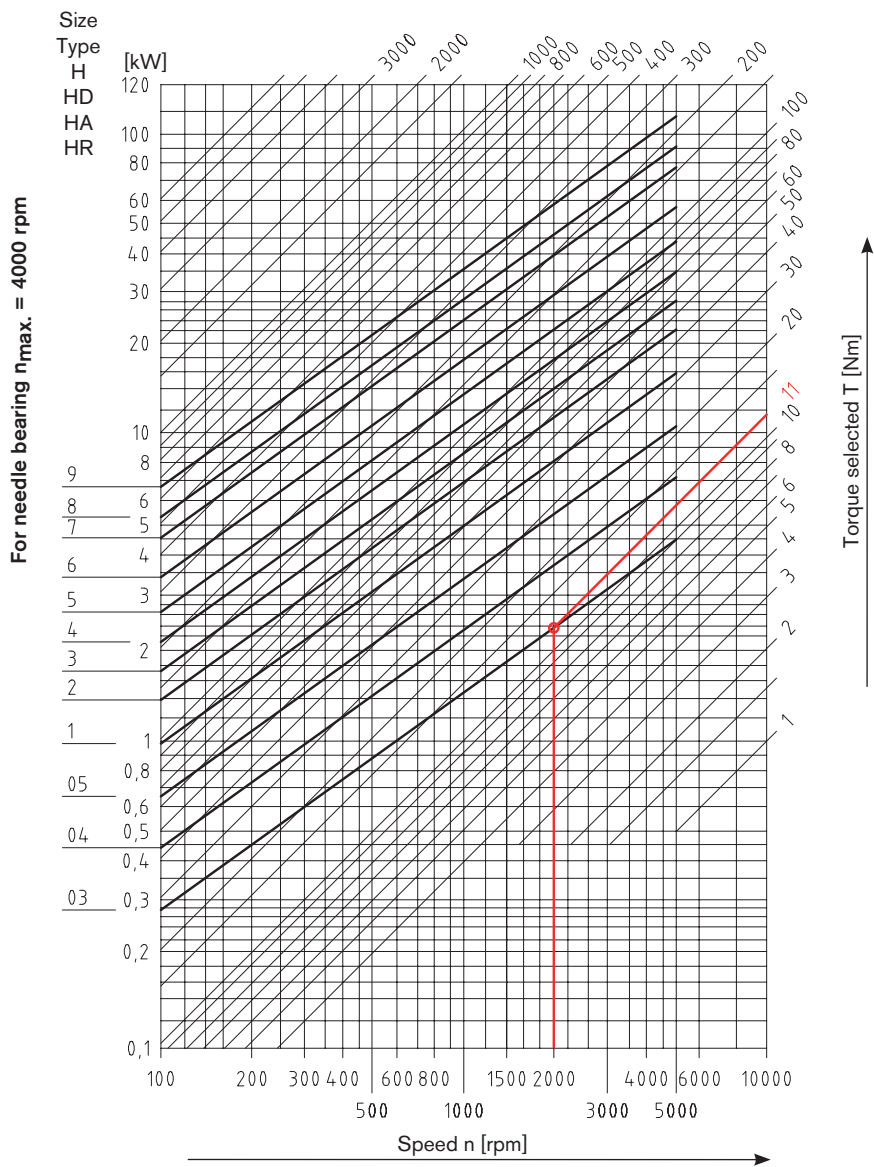
→ Correction factor for diffraction angle 2.2

Operating speed

400 rpm

$$\text{Torque selected } T \text{ [Nm]} = 63 \text{ Nm} \cdot 2.2 \rightarrow 138.6 \text{ Nm}$$

Selection based on table: [joint size 6](#)



CLAMPEX®

Clamping nuts

Selection of type H, HD, HA, HR (max. 4000 rpm) ¹⁾

The selection of precision joints with needle bearing is based on the driving torque considering a correction factor which depends on the diffraction angle α and the operating speed.

For extendable joints the overall length and the speed need to be additionally considered for sizing (please consult with KTR).

Driving torque M_t [Nm] = 9550 • $\frac{\text{Power [kW]}}{\text{Speed [rpm]}}$

Torque selected T [Nm] = driving torque • correction factor

Additional review:

¹⁾ Diffraction angle [°] • speed [rpm] ≤ 40,000

Diffraction angle [α]	5°	10°	15°	20°	25°	30°	35°	40°	45°
Correction factor	0.8	1.00	1.1	1.25	1.4	2.0	2.5	3.3	4.0

Details given:

Driving torque M_t 8.8 Nm
Diffraction angle 20° → Correction factor for diffraction angle 1.25
Operating speed 2000 rpm

Torque selected T [Nm] = 8.8 Nm • 1.25 → 11 Nm

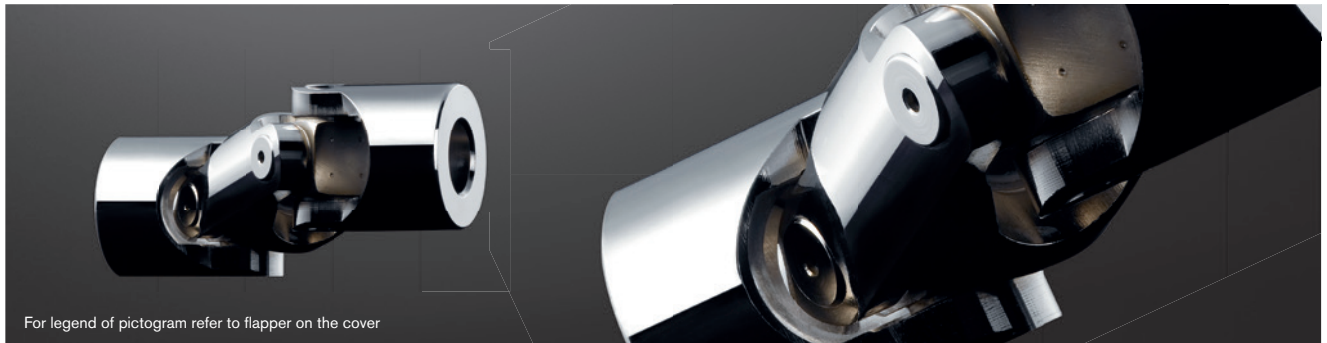
Selection based on table: joint size 03

KTR Precision joints

Clamping sets

KTR Precision joints type G and GD

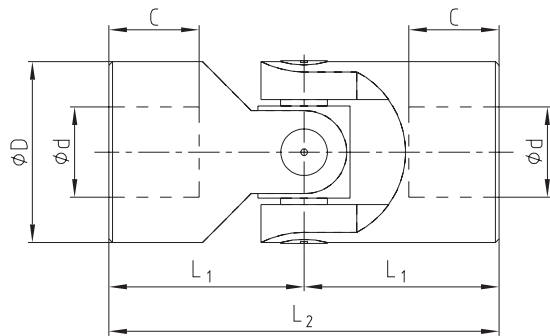
According to DIN 808 with plain bearing



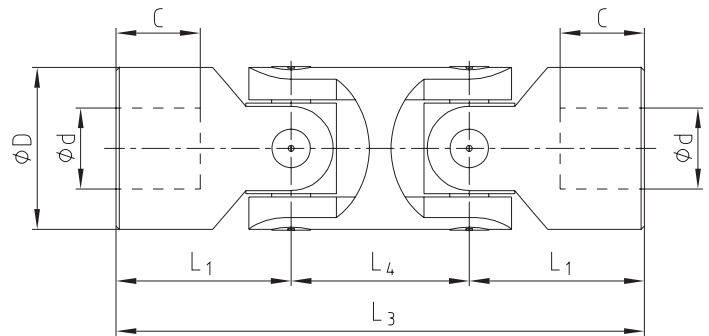
For legend of pictogram refer to flapper on the cover



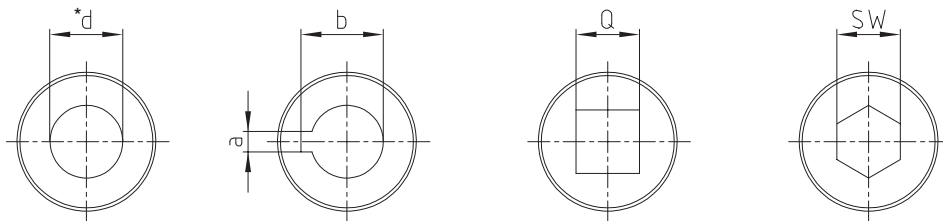
Precision single joint G



Precision double joint GD



Bore options:



* Standard type of bore, unless differently inquired/ordered

Type G and GD																
Types and size															Weight [kg]	
Size G	DIN designation G	Size GD	DIN designation GD	d (H7)	D	L ₂	L ₁	C	L ₄	L ₃	a (JS9)	b	Q (H10)	SW (H10)	G	GD
01 G	E6 x 16-G	01 GD	D6 x 16-G	6	16	34	17	8	22	56	2	7.0	6	6	0.05	0.08
02 G	E8 x 16-G	02 GD	D8 x 16-G	8	16	40	20	11	22	62	2	9.0	8	8	0.05	0.08
03 G	E10 x 22-G	03 GD	D10 x 22-G	10	22	48	24	12	26	74	3	11.4	10	10	0.10	0.15
04 G	E12 x 25-G	04 GD	D12 x 25-G	12	25	56	28	13	30	86	4	13.8	12	12	0.16	0.25
05 G	E14 x 28-G	05 GD	D14 x 28-G	14	28	60	30	14	36	96	5	16.3	14	14	0.20	0.40
1 G	E16 x 32-G	1 GD	D16 x 32-G	16	32	68	34	16	37	105	5	18.3	16	16	0.30	0.45
2 G	E18 x 36-G	2 GD	D18 x 36-G	18	36	74	37	17	40	114	6	20.8	18	18	0.45	0.70
3 G	E20 x 42-G	3 GD	D20 x 42-G	20	42	82	41	18	47	129	6	22.8	20	20	0.60	1.00
4 G	E22 x 45-G	4 GD	D22 x 45-G	22	45	95	47.5	22	50	145	6	24.8	22	22	0.95	1.55
5 G	E25 x 50-G	5 GD	D25 x 50-G	25	50	108	54	26	55	163	8	28.3	25	25	1.20	2.00
6 G	E30 x 58-G	6 GD	D30 x 58-G	30	58	122	61	29	68	190	8	33.3	30	30	1.85	2.90
6 G1	E32 x 58-G	6 GD1	D32 x 58-G	32	58	130	65	33	68	198	10	35.3	30	30	2.00	3.00
7 G	E35 x 70-G	7 GD	D35 x 70-G	35	70	140	70	33	72	212	10	38.3	-	-	3.15	4.75
8 G	E40 x 80-G	8 GD	D40 x 80-G	40	80	160	80	38	85	245	12	43.3	-	-	4.60	7.20
9 G	E50 x 95-G	9 GD	D50 x 95-G	50	95	190	95	46	100	290	14	53.8	-	-	7.60	12.0

Ordering example:

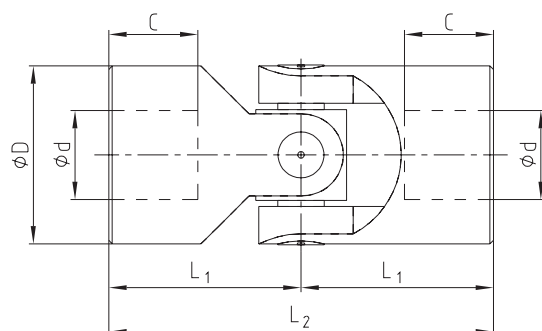
04 G	Ø12	Ø12 keyway to DIN
Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)

KTR Precision joints type H and HD

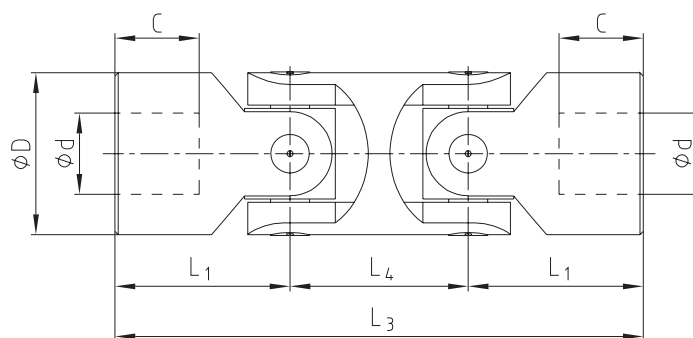
According to DIN 808 with needle bearing



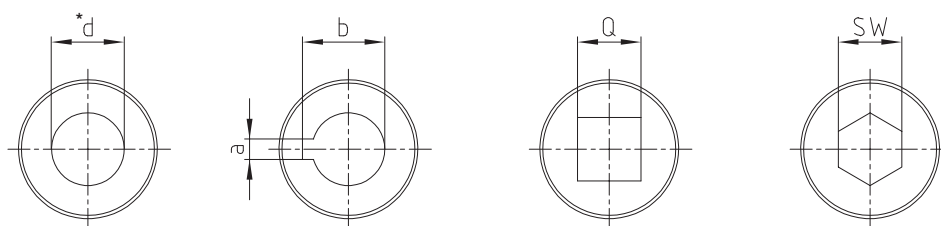
Precision single joint type H



Precision double joint type HD



Bore options:



* Standard type of bore, unless differently inquired/ordered

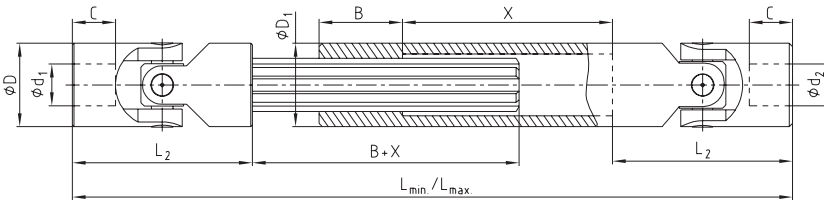
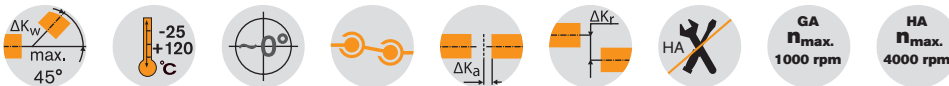
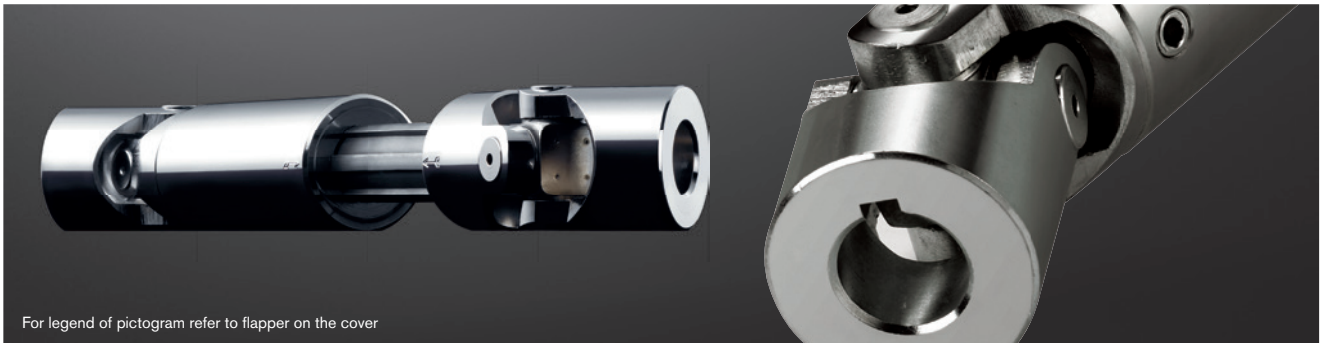
Type H and HD																
Types and size				Dimensions [mm]											Weight [kg]	
Size H	DIN designation H	Size HD	DIN designation HD	d (H7)	D	L ₂	L ₁	C	L ₄	L ₃	a (JS9)	b	Q (H10)	SW (H10)	H	HD
03 H	E10 x 22-W	03 HD	D10 x 22-W	10	22	48	24	12	26	74	3	11.4	10	10	0.10	0.15
04 H	E12 x 25-W	04 HD	D12 x 25-W	12	25	56	28	13	30	86	4	13.8	12	12	0.16	0.25
05 H	E14 x 28-W	05 HD	D14 x 28-W	14	28	60	30	14	36	96	5	16.3	14	14	0.20	0.40
1 H	E16 x 32-W	1 HD	D16 x 32-W	16	32	68	34	16	37	105	5	18.3	16	16	0.30	0.45
2 H	E18 x 36-W	2 HD	D18 x 36-W	18	36	74	37	17	40	114	6	20.8	18	18	0.45	0.70
3 H	E20 x 42-W	3 HD	D20 x 42-W	20	42	82	41	18	47	129	6	22.8	20	20	0.60	1.00
4 H	E22 x 45-W	4 HD	D22 x 45-W	22	45	95	47.5	22	50	145	6	24.8	22	22	0.95	1.55
5 H	E25 x 50-W	5 HD	D25 x 50-W	25	50	108	54	26	55	163	8	28.3	25	25	1.20	2.00
6 H	E30 x 58-W	6 HD	D30 x 58-W	30	58	122	61	29	68	190	8	33.3	30	30	1.85	2.90
6 H1	E32 x 58-W	6 HD1	D32 x 58-W	32	58	130	65	33	68	198	10	35.3	30	30	2.00	3.00
7 H	E35 x 70-W	7 HD	D35 x 70-W	35	70	140	70	33	72	212	10	38.3	-	-	3.15	4.75
8 H	E40 x 80-W	8 HD	D40 x 80-W	40	80	160	80	38	85	245	12	43.3	-	-	4.60	7.20
9 H	E50 x 95-W	9 HD	D50 x 95-W	50	95	190	95	46	100	290	14	53.8	-	-	7.60	12.00

Ordering example:

1 H	Ø16	Ø16 keyway to DIN
Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)

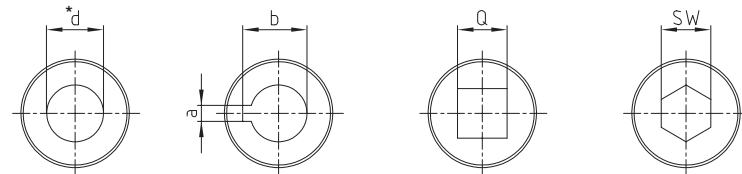
KTR Precision joints type GA and HA

According to DIN 808 with plain and needle bearing (extendable)



Preferred lengths									
Size	Dimensions [mm]								
	L _{min.} / L _{max.}								
03	140	160	180	230					
	170	200	240	330					
04	160	180	200	220	250	280	300		
	190	225	270	300	355	420	450		
05	170	180	200	220	250	280	300	350	400
	200	220	260	300	350	420	450	550	650
1	190	210	240	250	275	300	380	400	
	220	250	320	350	390	430	590	630	
2	230	250	270	290	300	400	500		
	280	320	370	400	415	620	820		
3	250	270	290	320	380	420	500		
	300	340	380	440	560	640	800		
4	250	270	290	330	350	470			
	280	320	350	430	470	710			
5	295	310	350	380	420	460	500		
	345	375	450	500	590	660	745		
6	330	350	370	400	450	500	540		
	380	420	455	510	620	720	795		

Bore options:



* Standard type of bore, unless differently inquired/ordered

Type GA with plain bearing $n_{\max.} = 1000 \text{ rpm}$ and type HA with needle bearing $n_{\max.} = 4000 \text{ rpm}$													
Size		Dimensions [mm]									Spline shaft	D ₁	
GA	HA	d ₁ , d ₂ (H7)	D	L ₂	C	L _{min.} / L _{max.} / X	B	a (JS9)	b	Q (H10)			SW (H10)
01 GA	-	6	16	34	8	← →	25	2	7.0	6	6	SW8	16
02 GA	-	8	16	40	11	← →	25	2	9.0	8	8	SW8	16
03 GA	03 HA	10	22	48	12	← →	30	3	11.4	10	10	11 x 14 Z6	22
04 GA	04 HA	12	25	56	13	← →	40	4	13.8	12	12	13 x 16 Z6	26
05 GA	05 HA	14	28	60	14	← →	40	5	16.3	14	14	13 x 16 Z6	29
1 GA	1 HA	16	32	68	16	← As specified by the customer →	40	5	18.3	16	16	16 x 20 Z6	32
2 GA	2 HA	18	36	74	17	← L _{min.} / L _{max.} →	40	6	20.8	18	18	18 x 22 Z6	37
3 GA	3 HA	20	42	82	18	← →	45	6	22.8	20	20	21 x 25 Z6	42
4 GA	4 HA	22	45	95	22	← →	45	6	24.8	22	22	23 x 28 Z6	47
5 GA	5 HA	25	50	108	26	← →	45	8	28.3	25	25	26 x 32 Z6	52
6 GA	6 HA	30	58	122	29	← →	50	8	33.3	30	30	32 x 38 Z8	58
7 GA	7 HA	35	70	140	33	← →	70	10	38.3	-	-	36 x 42 Z8	70
8 GA	8 HA	40	80	160	38	← →	80	12	43.3	-	-	42 x 48 Z8	80
9 GA	9 HA	50	95	190	46	← →	90	14	53.8	-	-	46 x 54 Z8	95

Calculation of mounting lengths L and X (stroke)

$$\text{Stroke X} \geq \frac{L_{\max.} - 2 \bullet L_2 - B}{2}$$

$$L_{\min.} \geq \frac{L_{\max.} + 2 \cdot L_2 + B}{2}$$

Minimum size $L_{\min.} = L_2 + B + X + L_2$

Ordering example:	3 GA	d ₁ = Ø20	d ₂ = Ø20 keyway to DIN	550/650
	Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)	Mounting length L _{min.} /L _{max.}

KTR Precision joints type X and XD

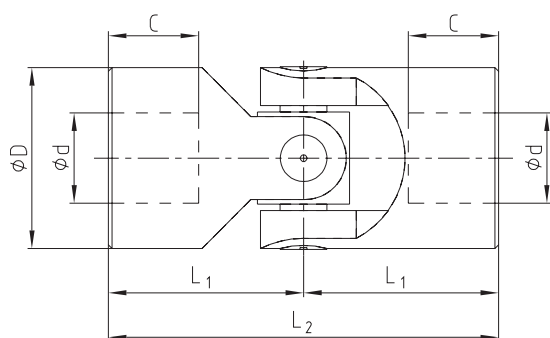
According to DIN 808 with plain bearing made of stainless steel 1.4301



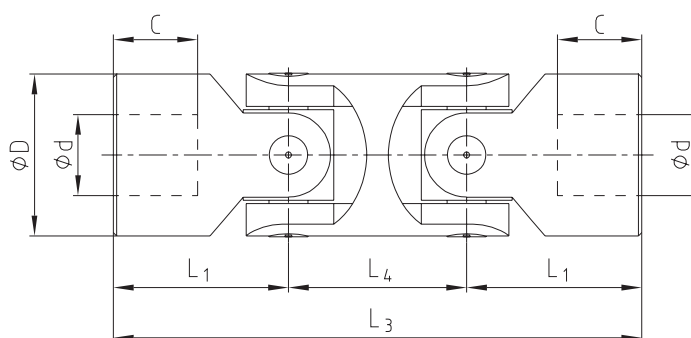
For legend of pictogram refer to flapper on the cover



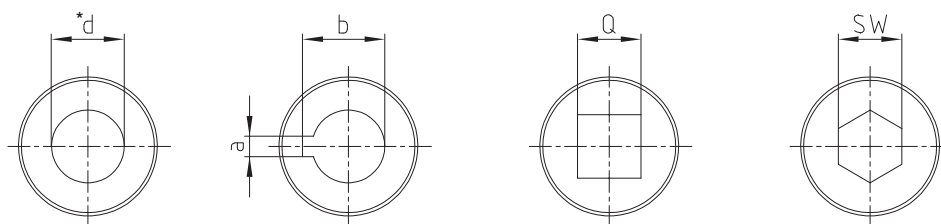
Precision single joint X



Precision double joint XD



Bore options:



* Standard type of bore, unless differently inquired/ordered

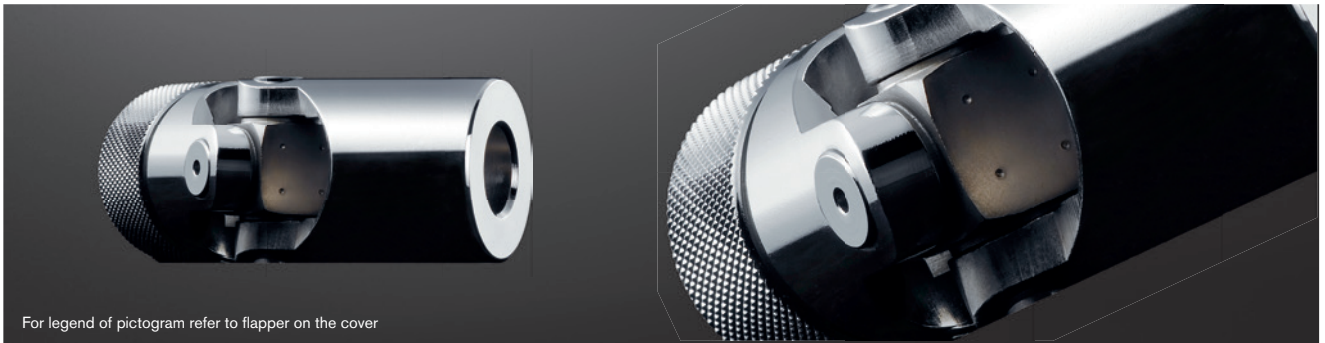
Type X and XD																
Types and size				Dimensions [mm]											Weight [kg]	
Size X	DIN designation X	Size XD	DIN designation XD	d (H7)	D	L ₂	L ₁	C	L ₄	L ₃	a (JS9)	b	Q (H10)	SW (H10)	X	XD
01 X	E6 x 16-G	01 XD	D6 x 16-G	6	16	34	17	8	22	56	2	7.0	6	6	0.05	0.08
02 X	E8 x 16-G	02 XD	D8 x 16-G	8	16	40	20	11	22	62	2	9.0	8	8	0.05	0.08
03 X	E10 x 22-G	03 XD	D10 x 22-G	10	22	48	24	12	26	74	3	11.4	10	10	0.10	0.15
04 X	E12 x 25-G	04 XD	D12 x 25-G	12	25	56	28	13	30	86	4	13.8	12	12	0.16	0.25
05 X	E14 x 28-G	05 XD	D14 x 28-G	14	28	60	30	14	36	96	5	16.3	14	14	0.20	0.40
1 X	E16 x 32-G	1 XD	D16 x 32-G	16	32	68	34	16	37	105	5	18.3	16	16	0.30	0.45
3 X	E20 x 42-G	3 XD	D20 x 42-G	20	42	82	41	18	47	129	6	22.8	20	20	0.60	1.00
5 X	E25 x 50-G	5 XD	D25 x 50-G	25	50	108	54	26	55	163	8	28.3	25	25	1.20	2.00
6 X	E30 x 58-G	6 XD	D30 x 58-G	30	58	122	61	29	68	190	8	33.3	30	30	1.85	2.90

Ordering example:

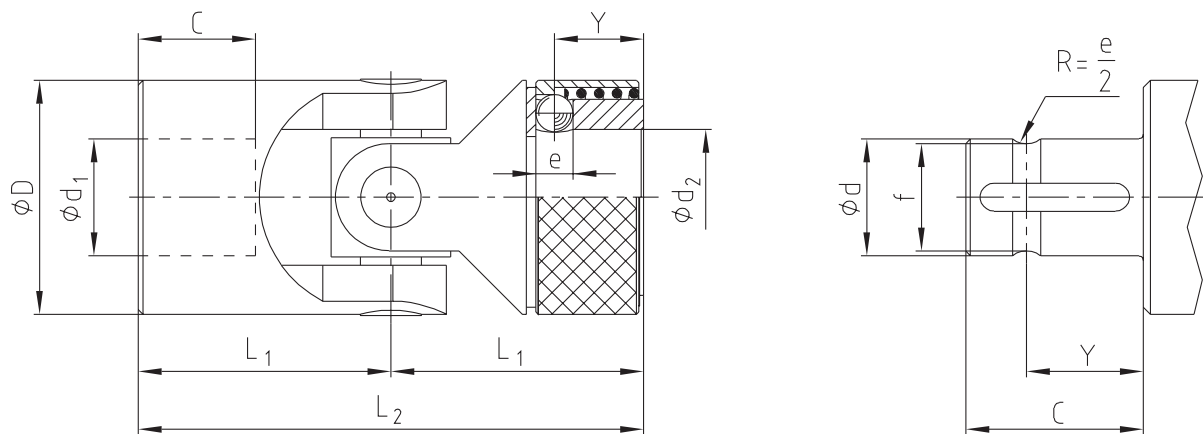
04 X	Ø12	Ø12 keyway to DIN
Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)

KTR Precision joints type GR and HR

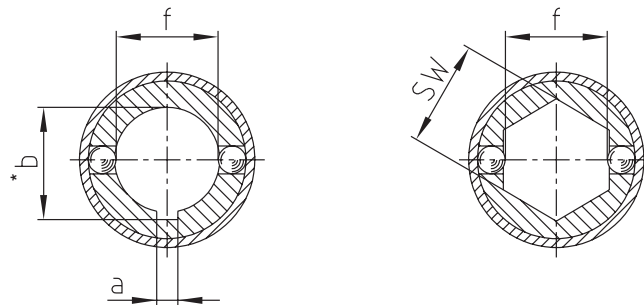
Plain and needle bearing with quick locking



For legend of pictogram refer to flapper on the cover



Bore options:



* Standard type of bore of quick locking, unless differently inquired/ordered

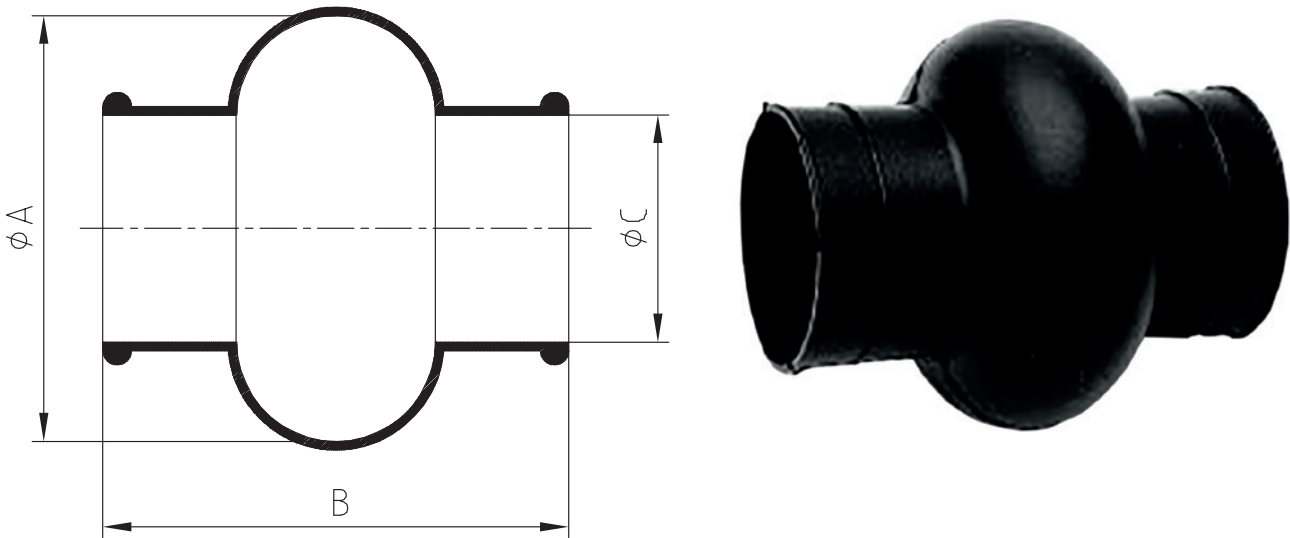
Type GR with plain bearing $n_{max.} = 1000$ rpm and type HR with needle bearing $n_{max.} = 4000$ rpm

Size		Dimensions [mm]											Weight [kg]
GR	HR	d_1, d_2 (H7)	D	L_2	L_1	C	Y	e	f	a (JS9)	b	SW (H10)	
02 GR	-	8	16	52	26	14	9.5	3.5	6.3	2	9.0	8	0.05
03 GR	03 HR	10	22	62	31	17	11.5	4.0	8.7	3	11.0	10	0.12
04 GR	04 HR	12	25	74	37	21	13.5	4.0	11.0	4	13.3	12	0.19
05 GR	05 HR	14	25	74	37	21	13.5	4.0	13.0	5	15.3	14	0.17
1 GR	1 HR	16	32	86	43	24	14.0	6.35	14.8	5	18.3	16	0.34
2 GR	2 HR	18	36	96	48	28	19.0	8.0	16.0	6	20.8	18	0.48
3 GR	3 HR	20	42	108	54	31	19.0	8.0	18.0	6	22.8	20	0.76
4 GR	4 HR	22	45	120	60	34	20.5	10.0	20.0	6	24.8	22	0.97
5 GR	5 HR	25	50	132	66	38	20.5	10.0	23.0	8	28.3	25	1.3
6 GR	6 HR	30	58	166	83	49	25.0	10.0	28.0	8	33.3	30	2.13

Ordering example:

03 HR	$d_1 = \emptyset 10$	$d_2 = \emptyset 10$ keyway to DIN
Size and type of joint	Finish bore (H7)	Finish bore (H7), feather keyway acc. to DIN 6885 sheet 1 (JS9)

Protection bushings



CLAMPEX®

Protection bushings				
Size	Precision joints	A	B	C
M 01	01 G, 01 X	28	34	15
M 02	02 G, 02 X, 02 GR	32	40	16.5
M 03	03 G, 03 H, 03 GA, 03 HA, 03 X, 03 GR, 03 HR	40	45	20.5
M 04	04 G, 04 H, 04 GA, 04 HA, 04 X, 04 GR, 04 HR	48	50	24.5
M 05	05 G, 05 H, 05 GA, 05 HA, 05 GR, 05 HR	52	56	27.5
M 1	1 G, 1 H, 1 GA, 1 HA, 1 X, 1 GR, 1 HR	56	65	30.5
M 2	2 G, 2 H, 2 GA, 2 HA, 2 GR, 2 HR	66	72	35.5
M 3	3 G, 3 H, 3 GA, 3 HA, 3 X, 3 GR, 3 HR	75	82	40.0
M 4	4 G, 4 H, 4 GA, 4 HA, 4 GR, 4 HR	84	95	45.0
M 5	5 G, 5 H, 5 GA, 5 HA, 5 X, 5 GR, 5 HR	92	108	50.0
M 6	6 G, 6 G1, 6 H, 6 H1, 6 GA, 6 HA, 6 X, 6GR, 6 HR	100	122	56.0

Clamping nuts



Torque measuring technology

Torque measuring shafts	
Types and operating description	350

DATAFLEX®	
Type 16/10, 16/30, 16/50	352
Type 32/100, 32/300, 32/500	354
Type 42/1000	356
Type 70/3000, 70/5000	358
Type 110/10000, 110/20000	360
Connection accessories	361

Torque measuring coupling hub

MONITEX® BT	
Type 28/200	362
Type 42/800	
DAC – analog output	364

DATAFLEX® 16



DATAFLEX® 32



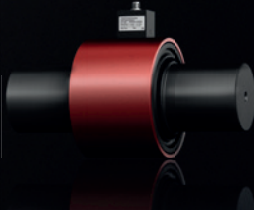
DATAFLEX® 42



DATAFLEX® 70



DATAFLEX® 110



MONITEX® BT 28/200



MONITEX® BT 42/800



TORQUE MEASURING TECHNOLOGY

TYPES AND OPERATING DESCRIPTION

Properties of torque measuring shafts

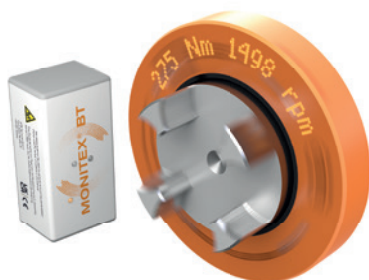
DATAFLEX® 16, 32, 42, 70, 110 – Dual-range measuring shaft providing for high precision



The KTR torque sensors type DATAFLEX® 16 to DATAFLEX® 110 cover a torque range from 10 Nm to 20,000 Nm.

The torque is measured using the approved technology of DMS wire strain gauges while processing contactlessly with a resolution of 24 bits. Thus, the inaccuracy of torque measuring is reduced to less than 0.1 % of the measuring range. By integrating a high-resolution speed sensor the new series combines four measurements in one: Measuring the torque, speed, rotation angle and rotation direction is part of the standard equipment. A new feature is the option to switch the measuring range of each measuring shaft to one fifth of the rated torque. This option allows to measure smaller torques precisely without changing the design.

MONITEX® BT 28/200, 42/800 – Torque measuring coupling hub



MONITEX® BT is a ROTEX® GS coupling hub with an integrated measuring system for measuring torque and speed. Subject to its short design the system can replace a standard ROTEX® hub in many cases while easy to assemble.

The inductive energy supply is implemented by an inductive head that is fitted radially to the coupling with a maximum distance of 10 mm. As soon as the system is switched on, the measured torque and speed data are sent by the MONITEX® BT via bluetooth and can be received by a smartphone, a tablet or a PC via the free MONITEX® BT app. Besides a digital-to-analog converter is available displaying the torque and speed data as voltage (± 10 V) and simultaneously as current (4-20 mA) (e. g. for existing controls).

Customised solutions and special designs



Besides KTR precision measuring shafts KTR manufactures and calibrates customised measuring shafts for measuring ranges up to 500 kNm. In this context key parameters such as measuring range, size, length and coupling type can be adjusted to the specifications. The torque is measured contactlessly so that bearings are not required.

Apart from customised torque sensors KTR provides special solutions with couplings equipped with torque measuring technology so that the design does not have to be modified.

TORQUE MEASURING TECHNOLOGY

TYPES AND OPERATING DESCRIPTION

Product finder of torque measuring shafts

								
Product	DATAFLEX® 16	DATAFLEX® 32	DATAFLEX® 42	DATAFLEX® 70	DATAFLEX® 110	MONITEX® BT 28/200	MONITEX® BT 42/800	customised
maintenance-free	●	●	●	●	●	●	●	●
For rotating applications	●	●	●	●	●	●	●	●
Dual-range measuring shaft	●	●	●	●	●	–	–	–
Measuring range 1 T_{KN} [Nm]	10, 30, 50	100, 300, 500	1000	3000, 5000	10000, 20000	200	800	up to 500000
Measuring range 2 T_{KN2} [Nm]	2, 6, 10	20, 60, 100	200	600, 1000	2000, 4000	–	–	–
Inaccuracy (% of T_{KN}/T_{KN2})	< 0.1/0.2	< 0.1/0.2	< 0.1/0.2	< 0.1/0.2	< 0.1/0.2	< 0.25	< 0.25	< 0.2
Torque output	-10 ... 10 V	-10 ... 10 V	-10 ... 10 V	-10 ... 10 V	-10 ... 10 V	Bluetooth, App, PC, -10 ... 10 V, 4 ... 20 mA ¹⁾		-10 ... 10 V, 4 ... 20 mA
Speed output								
Square-wave signal [pulses/rev.]	2 x 360	2 x 720	2 x 720	2 x 450	2 x 720	–	–	–
DC - direct voltage signal [0 ... 10V]	●	●	●	●	●	● ¹⁾	● ¹⁾	–
Direction signal	●	●	●	●	●	–	–	–
Maximum speed [rpm]	10,000	7,500	6,500	4,000	3,000	3500	3500	miscellaneous
Recommended coupling	RADEX®-NC 21, 26	RADEX®-NC 36 RADEX®-N 60	RADEX®-N 80	RADEX®-N 90, 115	as specified	ROTEX® GS 28	ROTEX® GS 42	as specified
Connection housing DF2	●	●	●	●	●	–	–	–

¹⁾ With DAC (digital-to-analog converter)

DATAFLEX® Connection housing DF2 (see page 361)



The connection housing DF2 can easily be combined with all DATAFLEX® torque measuring shafts disposing of a retainer for top hat rail assembly as well as terminal screws for an easy connection of external devices.

The following features save the purchase of expensive measuring amplifiers and converters:

- The torque output can be filtered over 5 steps so that short torque peaks in the display can be reduced.
- The pulsed outputs of the speed signals can be configured both for 5 V (TTL) and 24 V (HTL) controls. This makes the outputs compatible with data logging boards and SPS controls.
- In parallel with the pulse signal an integrated frequency voltage converter supplies a DC voltage from 0 – 10 V proportionally to the speed, the scaling of which can be individually adapted. This makes an expensive counter superfluous so that the signal can either be processed as a voltage or displayed.
- A direction signal indicates the rotational direction of the drive (with DATAFLEX® 16, 32, 42, 70 and 110).

MONITEX® BT DAC- Analog outputs (see page 364)



The DAC connects to the torque measuring MONITEX® BT coupling hub displaying the data for torque and speed as analog voltage and current. The DAC allows for integrating the MONITEX® BT torque and speed data in the control systems.

DATAFLEX® 16/10, 16/30, 16/50 DUAL-RANGE TORQUE SENSOR

for torques up to 50 Nm



For legend of pictogram refer to flapper on the cover



General properties

DATAFLEX® type	Measuring range 1 T _{KN} [Nm]	Measuring range 2 T _{KN2} [Nm]	Supply voltage [V]	Current consumption [mA]	Operating temperature range [°C]
16/10	-10 ... +10	-2 ... +2	24 ±4	<100	0 ... 55
16/30	-30 ... +30	-6 ... +6			
16/50	-50 ... +50	-10 ... +10			

Technical data of torque signal

DATAFLEX® type	Inaccuracy [%] ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [V _{ss}]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]
16/10	<0.1 / 0.2	-10 ... 10	2	0.05	360	2, 90° offset	5/24	0 ... 10, scalable	5/24
16/30									
16/50									

Technical data of speed signal

Mechanical data of torque measuring shaft

DATAFLEX® type	Static load limit ¹⁾ T _{K max} [%]	Breaking load T _{K break} ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C _T [Nm/rad]	Torsion angle with T _{KN} [°]	Mass moment of inertia [kgmm ²]	Max. speed ⁵⁾ [rpm]
16/10	150	300	1.07	12	1.1	0.7	910	0.63	22.6	10000
16/30			3.2	37	2.3		2840	0.61		
16/50			5.3	61	3.1		4100	0.7		

Mechanical data of combination of DATAFLEX® 16 and RADEX®-NC

DATAFLEX® type	Coupling			Mechanical data of combination			
	RADEX®-NC size	Clamping screw M		Mass moment of inertia [kgmm ²]	Torsion spring stiffness C _T [Nm/rad]	Weight [kg]	Max. speed ⁵⁾ [rpm]
		M	T _A [Nm]				
16/10	21	M6	10	323	870	1.30	10000
16/30					2500		
16/50	26	M8	25	800	3600	1.80	

¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

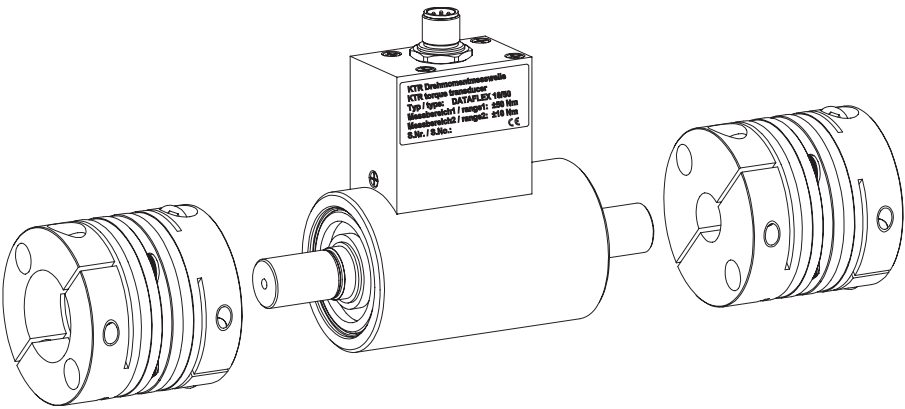
³⁾ Error in linearity incl. hysteresis

⁴⁾ See page 361: with connection housing DF2

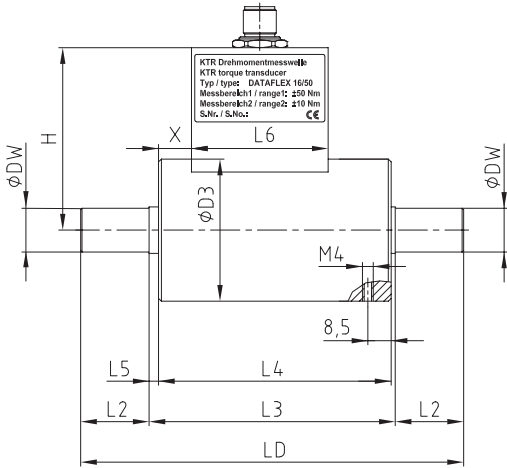
⁵⁾ Using RADEX®-NC 3.5 hubs, with other couplings 7500 rpm.

Ordering example:

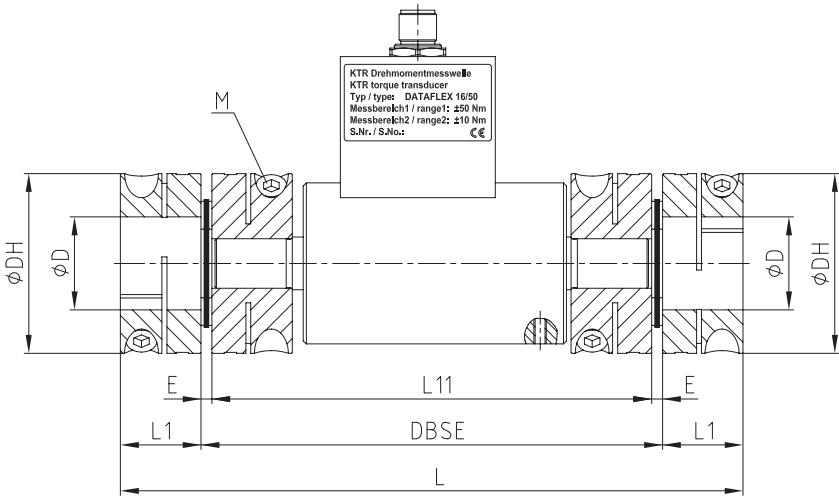
DATAFLEX® 16/30	DF2	2 m, 5 m and 10 m	RADEX®-NC 21 EK Ø16/20-Ø16/30
Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable	If any accessories are requested: coupling type, finish bores D/DW



DATAFLEX® 16



Combination of DATAFLEX® 16 with RADEX®-NC



Dimensions [mm] of torque measuring shaft and combination with RADEX®-NC HT couplings																		
DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-NC size	DH	D _{max}	DBSE	L	L1	L11	E
16/10	16	52	140	25	90	85	3.5	50	67	12	21	58	30	149	201	26	142	3.5
16/30											26	69	38	166	232	33	156	5.0
16/50																		

DATAFLEX® 32/100, 32/300, 32/500 DUAL-RANGE TORQUE SENSOR

for torques up to 500 Nm



For legend of pictogram refer to flapper on the cover



General properties										
DATAFLEX® type	Measuring range 1 T _{KN} [Nm]		Measuring range 2 T _{KN2} [Nm]		Supply voltage [V]		Current consumption [mA]		Operating temperature range [°C]	
32/100	-100 ... +100		-20 ... +20		24 ±4		< 100		0 ... 55	
32/300	-300 ... +300		-60 ... +60							
32/500	-500 ... +500		-100 ... +100							
Technical data of torque signal					Technical data of speed signal					
DATAFLEX® type	Inaccuracy (% of T _{KN} / T _{KN2}) ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [Vss]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]	
32/100	<0.1 / 0.2	-10 ... 10	2	0.05	720	2, 90° offset	5 / 24	0 ... 10, scalable	5 / 24	
32/300										
32/500										

Mechanical data of torque measuring shaft										
DATAFLEX® type	Static load limit ¹⁾ T _{K max} [%]	Breaking load T _{K break} ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C _T [Nm/rad]	Torsion angle with T _{KN} [°]	Mass moment of inertia [kgmm ²]	Max. speed ⁵⁾ [rpm]
32/100	150	300	11	110	5.0	1.9	18000	0.32	219	7500
32/300			32	320	10.4		46000	0.37	221	
32/500			53	530	14.6		60000	0.48	224	

Mechanical data of combination of DATAFLEX® 32 and RADEX®-NC								
DATAFLEX® type	Coupling				Mechanical data of combination			
	RADEX®-NC/RADEX®-N size	Setscrew/clamping screw			Mass moment of inertia [kgmm ²]	Torsion spring stiffness C _T [Nm/rad]	Weight [kg]	Max. speed ⁵⁾ [rpm]
		G	T	T _A [Nm]				
32/100	RADEX®-NC 36	M10	—	49	1097	15800	3.80	7500
32/300	RADEX®-N 60	M8	20	10	17900	49000	11.65	6700
32/500							11.70	

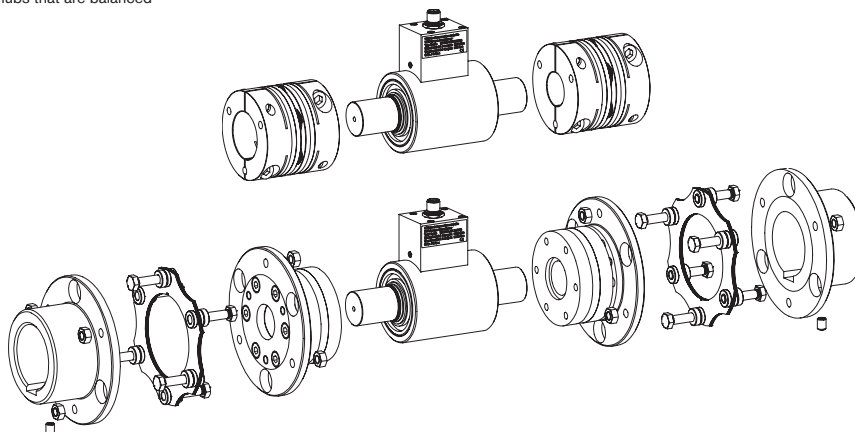
¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

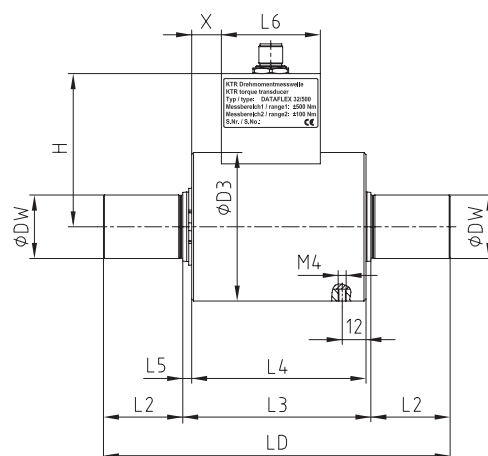
³⁾ Error in linearity incl. hysteresis

⁴⁾ See page 361: with connection housing DF2

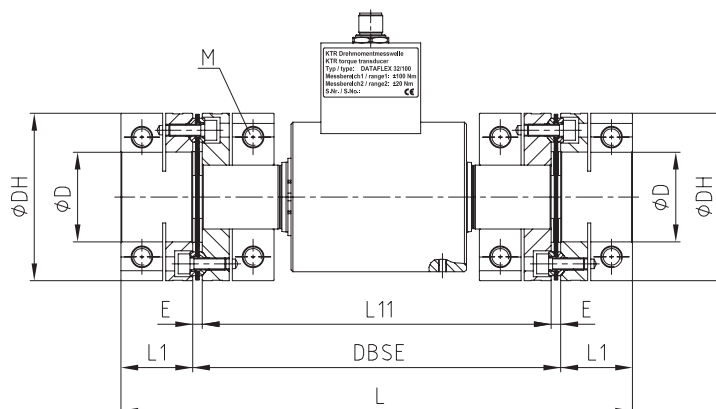
⁵⁾ With high speeds use coupling hubs that are balanced



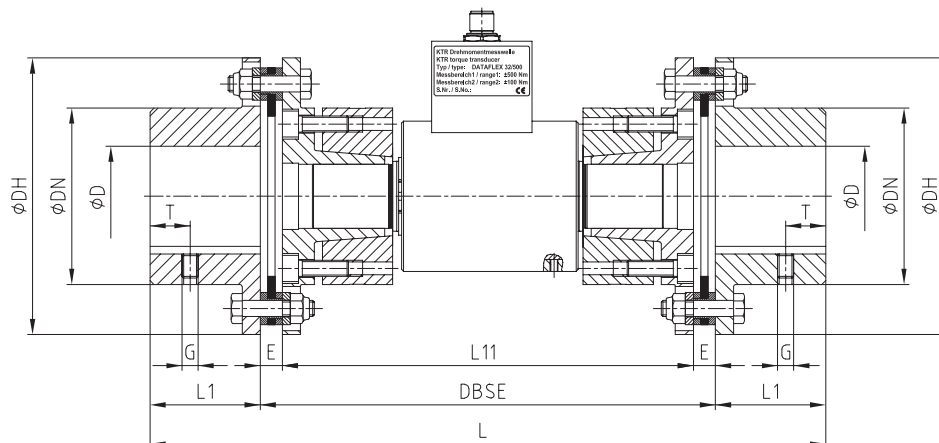
Ordering example:	DATAFLEX® 32/300	DF2	2 m, 5 m and 10 m	RADEX®-N 60 NN Ø32/50 keyway to DIN Ø32/60 keyway to DIN
	Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable	If any accessories are requested: coupling type, finish bores D/DW

DATAFLEX® 32

Combination of DATAFLEX® 32 with RADEX®-NC



Combination of DATAFLEX® 32 with RADEX®-N



Dimensions [mm] of torque measuring shaft and combination with RADEX®-NC HT couplings

Dimensions [mm] of torque measuring shaft and combination with RADEX®-NC HT couplings																		
DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-NC size	DH	D _{max}	DBSE	L	L1	L11	E
32/100	32	75	175	40	95	88	4.5	50	77.3	15	36	84	45	184.6	256.6	36	175	4.8

Dimensions [mm] of torque measuring shaft and combination with RADEX®-N couplings

Dimensions [mm] of torque measuring shaft and combination with RADEX®-N couplings																			
DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-N size	DH	DN	D _{max}	DBSE	L	L1	L11	E
32/300	32	75	175	40	95	88	4.5	50	77.3	15	60	138	88	60	227	337	55	205	11
32/500																			

DATAFLEX® 42/1000

DUAL-RANGE TORQUE SENSOR

for torques up to 1000 Nm



For legend of pictogram refer to flapper on the cover



General properties										
DATAFLEX® type	Measuring range 1 T _{KN} [Nm]	Measuring range 2 T _{KN2} [Nm]	Supply voltage [V]		Current consumption [mA]		Operating temperature range [°C]			
42/1000	-1000 ... +1000	-200 ... +200	24 ±4		<100		0 ... 55			
Technical data of torque signal					Technical data of speed signal					
DATAFLEX® type	Inaccuracy (% of T _{KN} / T _{KN2}) ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [V _{ss}]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]	
42/1000	<0.1 / 0.2	-10 ... 10	2	0.05	720	2, 90° offset	5 / 24	0 ... 10, scalable	5 / 24	
Mechanical data of torque measuring shaft										
DATAFLEX® type	Static load limit ¹⁾ T _{K max} [%]	Breaking load T _{K break} ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C _T [Nm/rad]	Torsion angle with T _{KN} [°]	Mass moment of inertia [kgmm ²]	Max. speed ⁵⁾ [rpm]
42/1000	150	300	107	780	24	3.43	132000	0.43	710	6500
Mechanical data of torque measuring shaft and combination with RADEX®-N couplings										
DATAFLEX® type	Coupling				Mechanical data of combination					
	RADEX®-N size	Setscrew			Mass moment of inertia [kgmm ²]	Torsion spring stiff- ness C _T [Nm/rad]	Weight [kg]	Max. speed ⁵⁾ [rpm]		
		G	T	T _A [Nm]						
42/1000	80	M10	20	17	61000	107000	23.1	5100		

¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

³⁾ Error in linearity incl. hysteresis

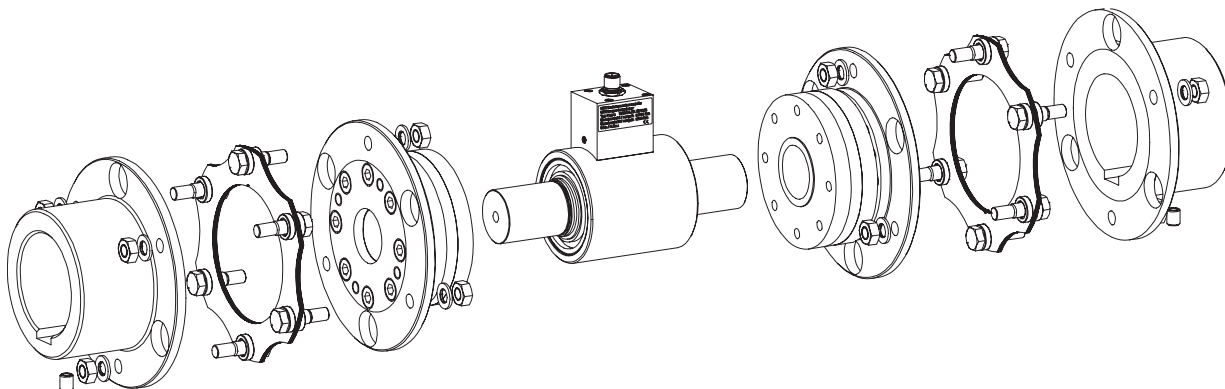
⁴⁾ See page 361: with connection housing DF2

⁵⁾ With high speeds use coupling hubs that are balanced

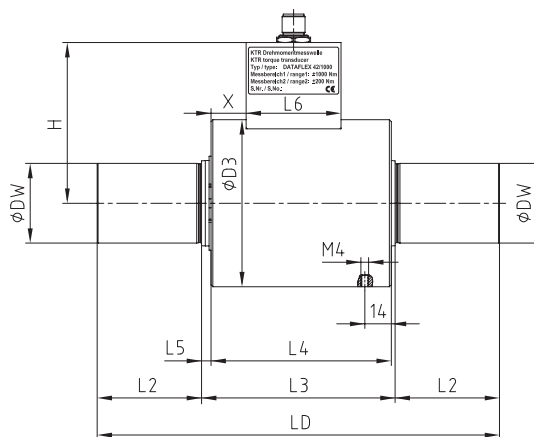
Ordering example:

DATAFLEX® 42/1000	DF2	2 m, 5 m and 10 m	RADEX®-N 80 NN Ø42/50 keyway to DIN Ø42/60 keyway to DIN
Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable	If any accessories are requested: coupling type, finish bores D/DW

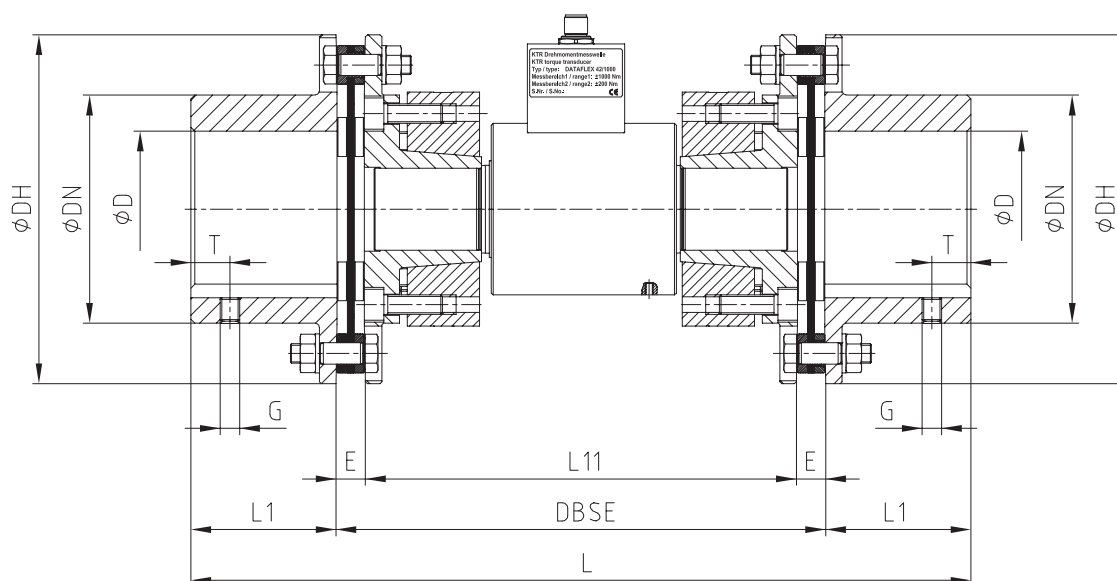
Components



DATAFLEX® 42



Combination of DATAFLEX® 42 with RADEX®-N



Dimensions [mm] of torque measuring shaft and combination with RADEX®-N couplings

DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-N size	DH	DN	D _{max}	DBSE	L	L1	L11	E
42/1000	42	88	212	55	102	95	5	50	84.7	18.5	80	179	117	80	250	400	75	222	14

DATAFLEX® 70/3000, 70/5000 DUAL-RANGE TORQUE SENSOR

for torques up to 5000 Nm



For legend of pictogram refer to flapper on the cover



General properties									
DATAFLEX® type	Measuring range 1 T _{KN} [Nm]	Measuring range 2 T _{KN2} [Nm]		Supply voltage [V]	Current consumption [mA]	Operating temperature range [°C]			
70/3000	-3000 ... +3000	-600 ... +600		24 ± 4	<100	0 ... 55			
70/5000	-5000 ... +5000	-1000 ... +1000							
Technical data of torque signal					Technical data of speed signal				
DATAFLEX® type	Inaccuracy (% of T _{KN} / T _{KN2}) ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [V _{ss}]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]
70/3000	< 0.1/0.2	-10 ... 10	2	0.05	450	2, 90° offset	5/24	0 ... 10, scalable	5/24
70/5000									

Mechanical data of torque measuring shaft										
DATAFLEX® type	Static load limit ¹⁾ T _{K max} [%]	Breaking load T _{K break} ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C _T [Nm/rad]	Torsion angle with T _{KN} [°]	Mass moment of inertia [kgmm ²]	Max. speed ⁵⁾ [rpm]
70/3000	150	300	320	1700	48	12.30	395000	0.44	7200	4000
70/5000			520	2800	66	12.45	500000	0.57	7300	

Mechanical data of combination of DATAFLEX® 70 and RADEX®-N								
DATAFLEX® type	Coupling				Mechanical data of combination			
	RADEX®-N size	Setscrew			Mass moment of inertia [kgmm²]	Torsion spring stiffness C _T [Nm/rad]	Weight [kg]	Max. speed ⁵⁾ [rpm]
		G	T	T _A [Nm]				
70/3000	90	M12	25	40	155200	283000	44.7	4000
70/5000	115		30		470000	389000	77.6	3400

¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

³⁾ Error in linearity incl. hysteresis

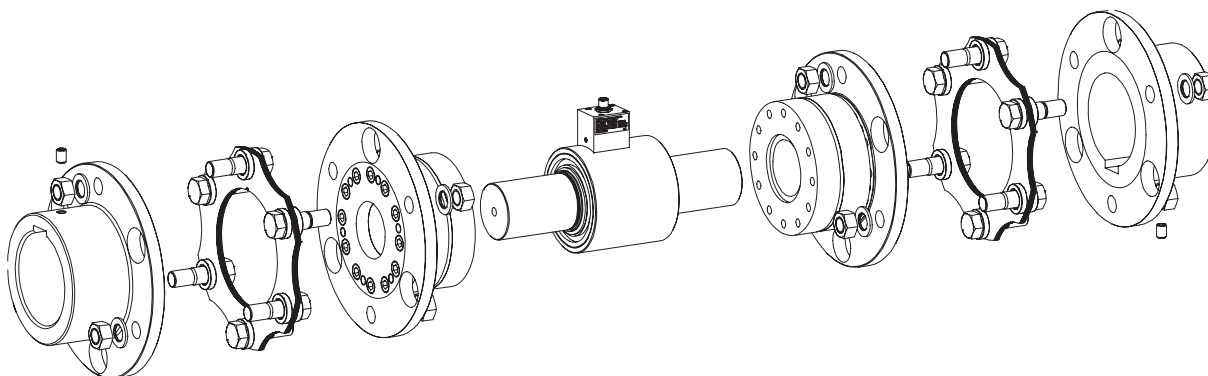
⁴⁾ See page 361: with connection housing DF2

⁵⁾ With high speeds use coupling hubs that are balanced

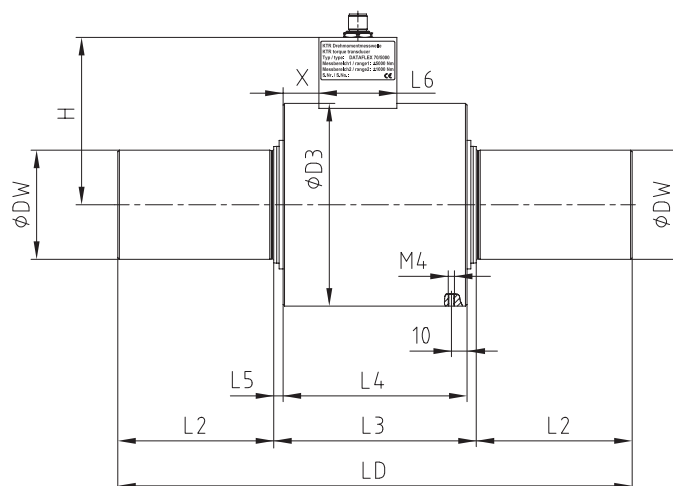
Ordering example:

DATAFLEX® 70/5000	DF2	2 m, 5 m and 10 m	RADEX®-N 115 NN Ø65/60 keyway to DIN Ø65/70 keyway to DIN
Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable	If any accessories are requested: coupling type, finish bores D/DW

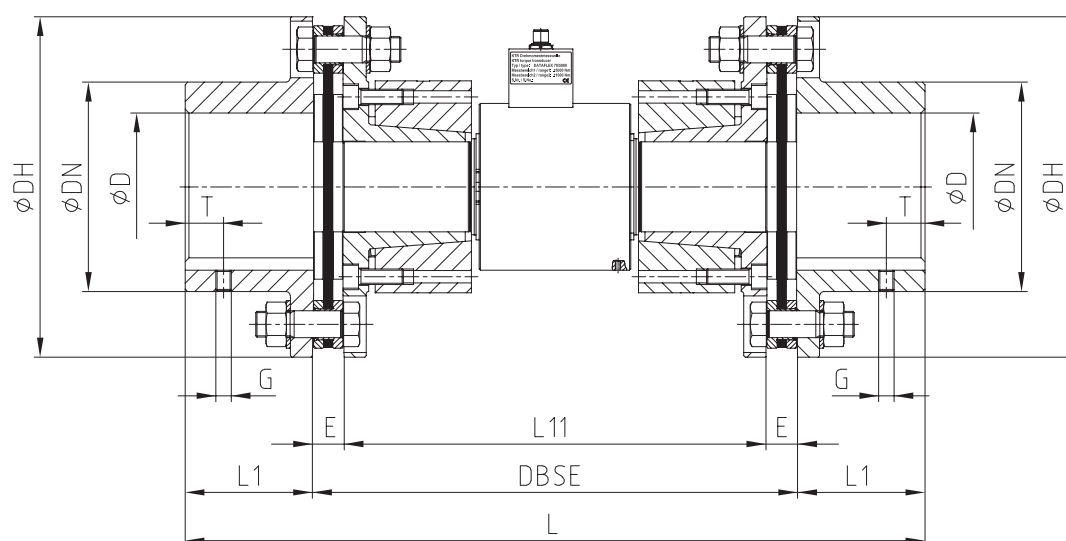
Components



DATAFLEX® 70



Combination of DATAFLEX® 70 with RADEX®-N



Dimensions [mm] of torque measuring shaft and combination with RADEX®-N couplings

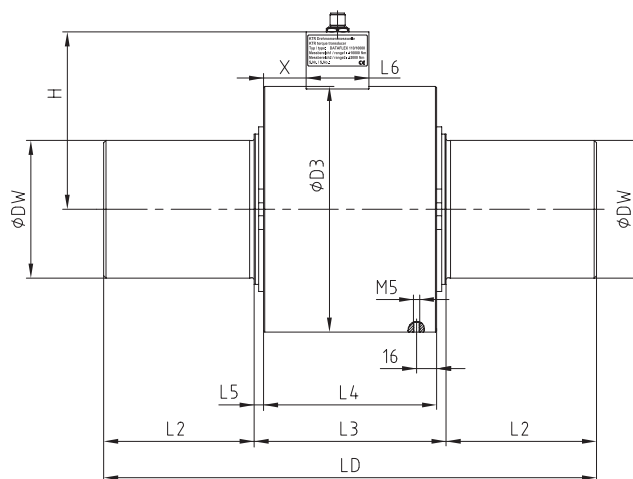
DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X	RADEX®-N size	DH	DN	D _{max}	DBSE	L	L1	L11	E
70/3000	70	130	330	100	130	118	6	50	107.35	23	90	210	132	90	360	520	80	330	15
70/5000											115	265	163	115	376	576	100		23

DATAFLEX® 110/10000, 110/20000 DUAL-RANGE TORQUE SENSOR

for torques up to 20000 Nm



DATAFLEX® 110



General properties

DATAFLEX® type	Measuring range 1 T_{KN} [Nm]	Measuring range 2 T_{KN2} [Nm]	Supply voltage [V]	Current consumption [mA]	Operating temperature range [°C]
110/10000	- 10000 ... + 10000	- 2000 ... + 2000	24 ± 4	< 100	0 ... 55
110/20000	- 20000 ... + 20000	- 4000 ... + 4000			

Technical data of torque signal

Technical data of speed signal

DATAFLEX® type	Inaccuracy (% of T_{KN}/T_{KN2}) ^{1), 2), 3)}	Output voltage [V]	Bandwidth [kHz]	Influence of temperature ¹⁾ [%/10 °C]	Resolution [pulses/rev.]	Number of channels	Square-wave signal ⁴⁾ [Vss]	Direct voltage signal ⁴⁾ [V]	Direction signal ⁴⁾ [V]
110/10000	< 0.1 / 0.2	-10 ... +10	2	0.05	720	2, 90° offset	5 / 24	0 ... 10, scalable	5 / 24
110/20000									

Mechanical data of torque measuring shaft

DATAFLEX® type	Static load limit ¹⁾ $T_{K \max}$ [%]	Breaking load T_K break [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C_T [Nm/rad]	Torsion angle with T_{KN} [°]	Mass moment of inertia [kgm²]	Max. speed ⁵⁾ [rpm]
110/10000	150	300	1033	4700	106	35.72	2270000	0.25	0.0562	3000
110/20000			2037	9300	166	36.20	3550000	0.32	0.0569	

Dimensions [mm] of torque measuring shaft

DATAFLEX® type	DW	D3	LD	L2	L3	L4	L5	L6	H	X
110/10000	110	196	393	120	153	138	7.5	50	141.4	34
110/20000										

¹⁾ Referring to T_{KN}

²⁾ Referring to T_{KN2}

³⁾ Error in linearity incl. hysteresis

⁴⁾ See page 361: with connection housing DF2

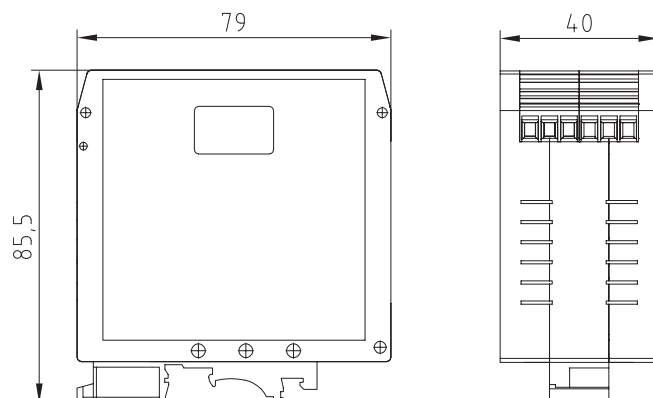
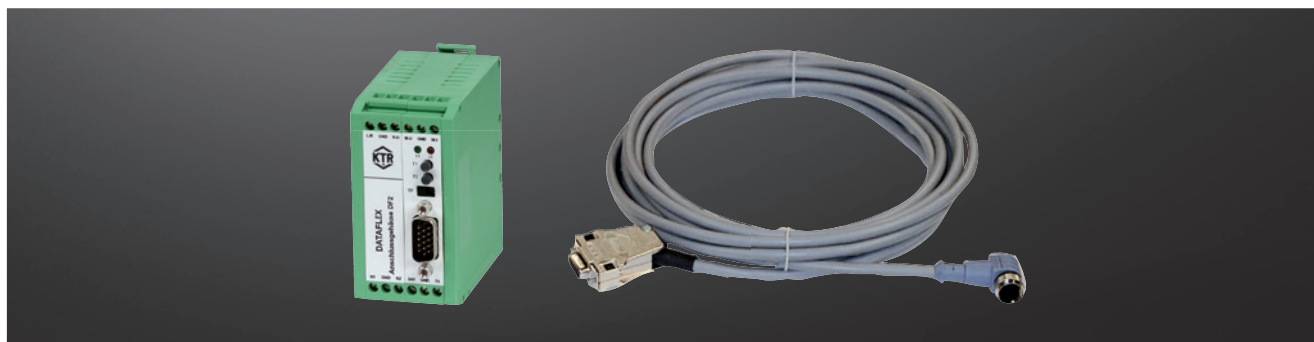
⁵⁾ With high speeds use coupling hubs that are balanced

Ordering example:

DATAFLEX® 110/10000	DF2	2 m, 5 m and 10 m
Type of measuring shaft with measuring range	Connection housing (is required)	Connection cable

DATAFLEX® CONNECTION ACCESSORIES OF TORQUE MEASURING SHAFTS

Connection housing DF2 and connection cable

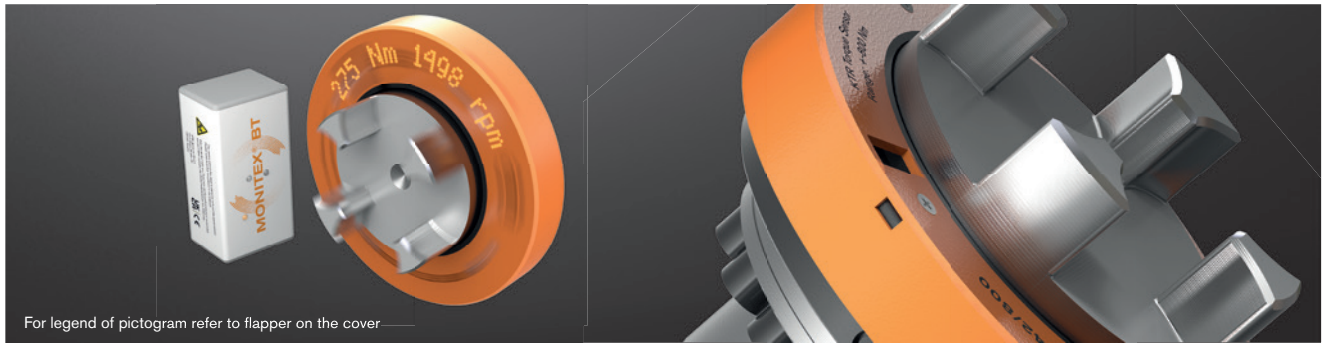


Connection cable and connection housing DF2						
Description	Function	DATAFLEX® 16	DATAFLEX® 32	DATAFLEX® 42	DATAFLEX® 70	DATAFLEX® 110
Connections DF2						
Input of operating voltage						
24 V	Supply voltage +	24 V DC ± 4V / 100mA max.				
GND	Supply voltage -					
Torque output						
M-U	Voltage output +	-10 V ... 10V				
GND		Ground of torque output				
M-I	Current output	-	-	-	-	-
Speed output pulse signal						
N1	Pulsed output speed track 1	HTL, TTL (24 V, 5 V, 360 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)	HTL, TTL (24 V, 5 V, 450 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)
GND		Ground of pulsed output				
N2	Pulsed output speed track 2	HTL, TTL (24 V, 5 V, 360 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)	HTL, TTL (24 V, 5 V, 450 pulses/rev.)	HTL, TTL (24 V, 5 V, 720 pulses/rev.)
Speed of direct voltage output						
R/L	Direction signal speed	HTL, TTL (24 V, 5 V, CW = 1)				
GND		Mass of direct voltage output speed				
N-U	Voltage output speed	0 V ... 10 V (scalable)				
Other connections / operating devices						
T1	Push button T1 - connection	External push button connection T1				
L1, L2	Signal LEDs	Condition monitoring				
T1, T2	Push button T1, T2	Push button for programming				
TP	Switch low pass	Filter for torque signal to be set in four levels				
Connection cable						
Lengths of connection cable		2, 5, 10 m, other lengths on request				

MONITEX® BT 28/200, 42/800

TORQUE MEASURING COUPLING HUB

For torques of 200 Nm and 800 Nm



General properties				
MONITEX® BT type	Coupling type	Supply voltage ²⁾ [V]	Current consumption ²⁾ [mA]	Operating temperature range [°C]
28/200	ROTEX® GS 28	24 ± 4	<200	0 ... 55
42/800	ROTEX® GS 42			

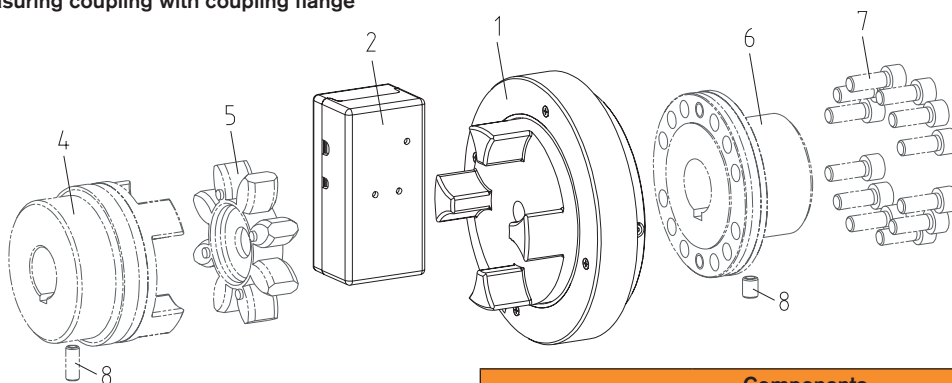
Technical data of torque signal					Technical data of speed signal			Technical data of display		
MONITEX® BT type	Measuring range T _{KN} [Nm]	Inaccuracy [% of T _{KN}]	Measuring frequency of App/Windows software/DAC [Hz]	Influence of temperature ¹⁾ [%/10 °C]	Measuring range [rpm]	Resolution [rpm]	Measuring frequency of App/Windows software/DAC [Hz]	Number of digits of torque	Number of digits of speed	Switch-on threshold [rpm]
28/200	-200 ... +200	±0.25	60/500/500	0.05	30-3500	1	3/5/5	3+1 decimals + ± sign	4	300
42/800	-800 ... +800									

Mechanical data of the coupling hub										
MONITEX® BT type	Static load limit ¹⁾ T _K max [%]	Breaking load T _K break ¹⁾ [%]	Max. bending torque [Nm]	Max. radial force [N]	Max. axial force [kN]	Weight [kg]	Torsion spring stiffness C _T [Nm/rad]	Torsion angle with T _{KN} [degrees]	Mass moment of inertia [kgmm ²]	Max. speed [rpm]
28/200	150	300	22	250	8	0.84	46000	0.25	765	3500
42/800			86	700	20	1.72	194000	0.24	2690	

¹⁾ Referring to rated torque T_{KN}

²⁾ MONITEX® BT inductive head

MONITEX® BT measuring coupling with coupling flange



Components		
Component	Quantity	Subassembly
1	1	MONITEX® BT measuring hub
2	1	MONITEX® BT inductive head (inductive current transmission)
3 ¹⁾	1	MONITEX® BT connection cable
4 ²⁾	1	ROTEX®/ROTEX® GS hub
5 ²⁾	1	ROTEX® GS spider
6 ²⁾	1	ROTEX® coupling flange N
7 ²⁾	see page 379	Cap screws DIN EN ISO 4762 - 12.9
8 ²⁾	2	Setscrew DIN EN ISO 4029
9 ^{1) 2)}	1	DAC (digital-to-analog-converter), see page 380

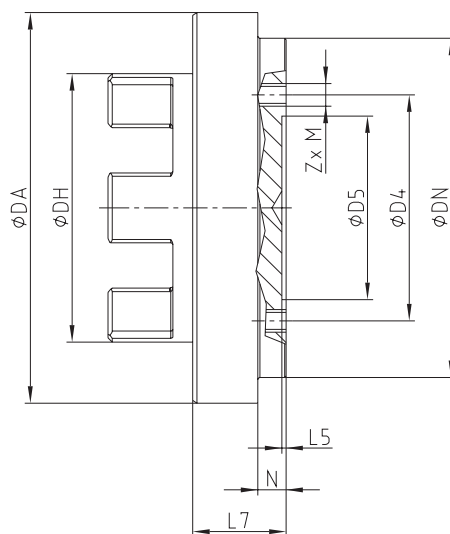
¹⁾ not graphically shown in the left image

²⁾ Optionally available

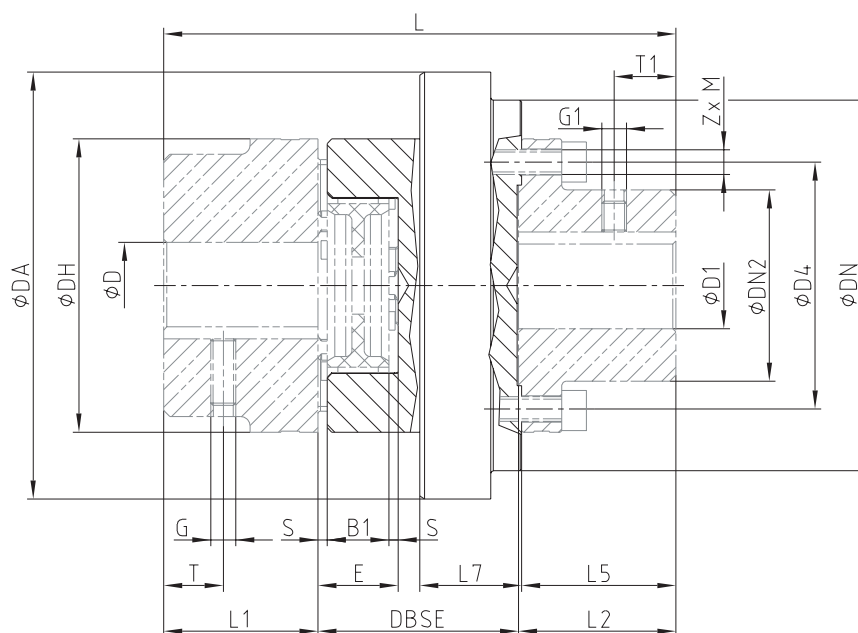
Ordering example:	MONITEX® BT 42/800	Inductive head	2 m	Ø38	ROTEX® GS 2.5 - Ø38	98 ShA-GS
	Measuring hub size	Inductive power supply	Connection cable	ROTEX® coupling flange N, finish bore	Hub type, finish bore	Spider hardness, see catalogue page 127

Components

MONITEX® BT measuring coupling



Dimensions [mm]									
MONITEX® BT type	DA	DH	DN	D4	D5	L5	L7	N	Z x M
28/200	112.4	65	90	54	44	1.5	28	10	8 x M6
42/800	138.4	95	120	80	65	1.5	33	10	12 x M8



Dimensions in mm									
MONITEX® BT type	ROTEX® GS size	Max. finish bore ¹⁾		DA	DH	DBSE	DN	DN2	D4
		D	D1						
28/200	28	38	30	112.4	65	54.5	90	42	54
42/800	42	55	45	138.4	95	65.0	120	62	80

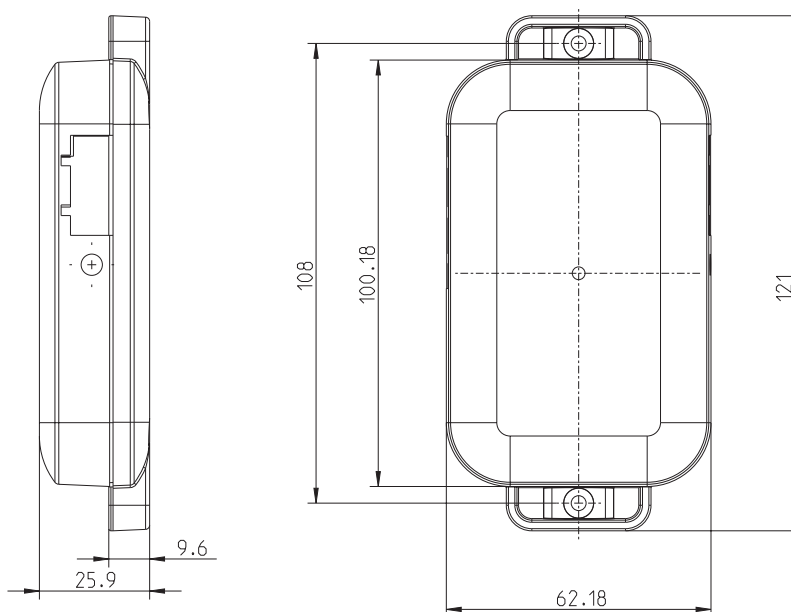
¹⁾ Special hubs on request

Dimensions in mm											
MONITEX® BT type	L	L1	L2	L5	L7	E	B1	S	Cap screws DIN EN ISO 4762		
									Number Z	M	T _A [Nm]
28/200	125	35	35.5	35	28	20	15	2.5	8	M6	17
42/800	166	50	51.0	50	33	26	20	3.0	12	M8	41

Setscrew DIN EN ISO 4029		
Size	28	42
Dimension G, G1 in mm	M8	M8
Dimension T, T1 in mm	15	20
Tightening torque T _A [Nm]	10	10

MONITEX® BT ACCESSORIES (TORQUE MEASURING COUPLING HUB)

DAC – analog output



The digital-to-analog converter (DAC) automatically connects to the torque measuring MONITEX® BT coupling hub displaying the torque and speed data as analog voltage and current. Besides the free app and Windows software, the signals can be directly connected to controls or existing data logging.

Electrical data		Output resistances	
Power supply [V DC]	24 ±4	Voltage outputs [Ohm]	1000
Max. current consumption [mA]	<100	Maximum current loop resistance [Ohm]	Max. 560
Torque outputs		Inaccuracies of converter	
Voltage output [V]	-10 ... +10	Voltage outputs ¹⁾ [%]	0.05
Current output [mA]	4 ... 20	Current outputs ¹⁾ [%]	0.1
Converter frequency [Hz]	500		
Torque outputs		Dimensions	
Voltage output [V]	0 ... 10	Dimensions [mm]	121 x 62 x 26
Current output [mA]	4 ... 20	Weight [g]	90
Converter frequency [Hz]	5		

¹⁾ Referring to upper range value

Scaling				
Type MONITEX® BT	Torque		Speed	
	Voltage output [Nm/V]	Current output [Nm/mA]	Voltage output [rpm/V]	Current output [rpm/mA]
MONITEX® BT 28	20	25	350	218.75
MONITEX® BT 42	80	100		

NOTES

Summary of literature

No matter if a perfect drive, a brake that takes effect, space-saving cooling or accurate hydraulics is required, if on land, by sea or at an airy height - KTR's product portfolio is just as manifold as its applications. The following catalogues and leaflets provide an overview. Available at www.ktr.com

Product catalogues



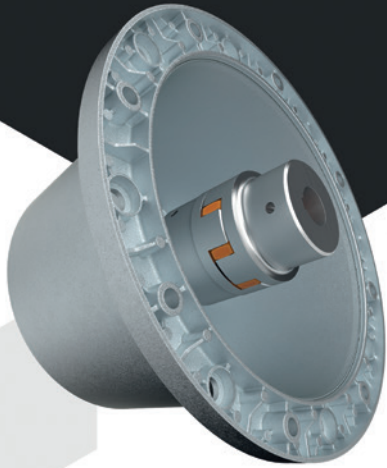
ATEX leaflet



Company leaflet



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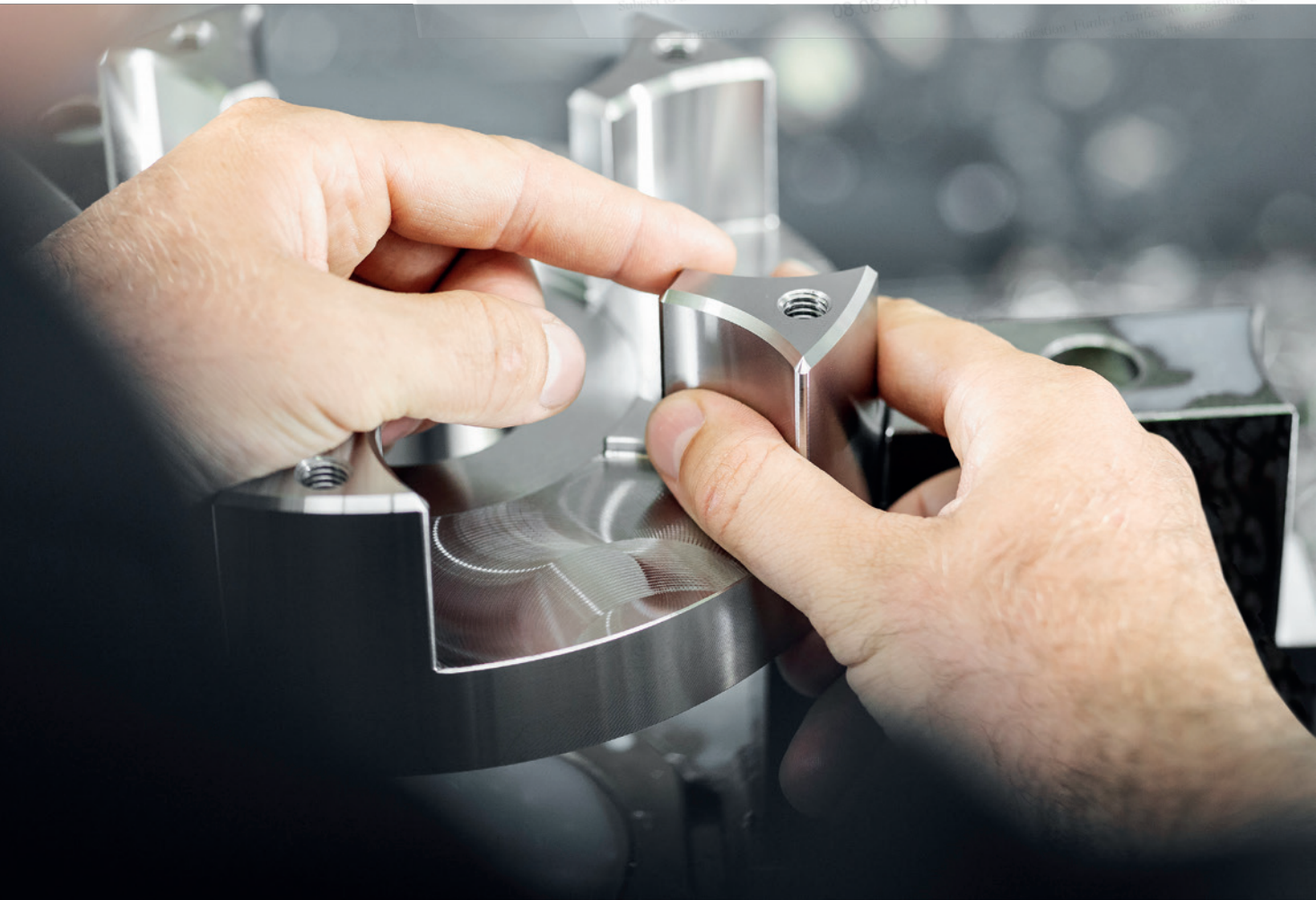
E-mail: p.benkard@ktr.com

For all representatives and sales partners refer to www.ktr.com.

Certificates and Approvals

Being one of the first companies in the field of drive technology, KTR was certified in accordance with DIN EN ISO 9001 already in 1993, including the plants in Poland, China, India and USA.

Currently KTR products have been approved by numerous internationally renowned societies for standardization and classification. Individual approvals by other societies can be implemented on request without fail.



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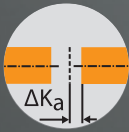
Light-weight



maintenance-free



torsionally flexible



Axial compensation



Protected against corrosion



Highly flexible



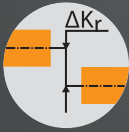
Angular compensation



Electrically insulating



Damping vibrations



Radial compensation



Maximum speed



Axial plug-in



Shiftable at standstill



No eddy current losses



Consider shaft distance



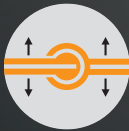
double-cardanic



Torque limiter slipping



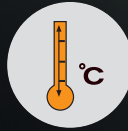
Relatively short shaft distance



Radial disassembly, ease of service



Torque limiter with synchronous ratcheting



Maximum operating temperature



standard drop-out centre lengths available



Torque limiter with idle rotation type



High speeds



Available in accordance with API



Hardened surface



backlash-free



Complying with ATEX
For details refer to our ATEX leaflet



Accuracy X %



non fail-safe type, separating, slipping



Certified in accordance with ABS



Consider axial displacement



Additional features compared to standard version