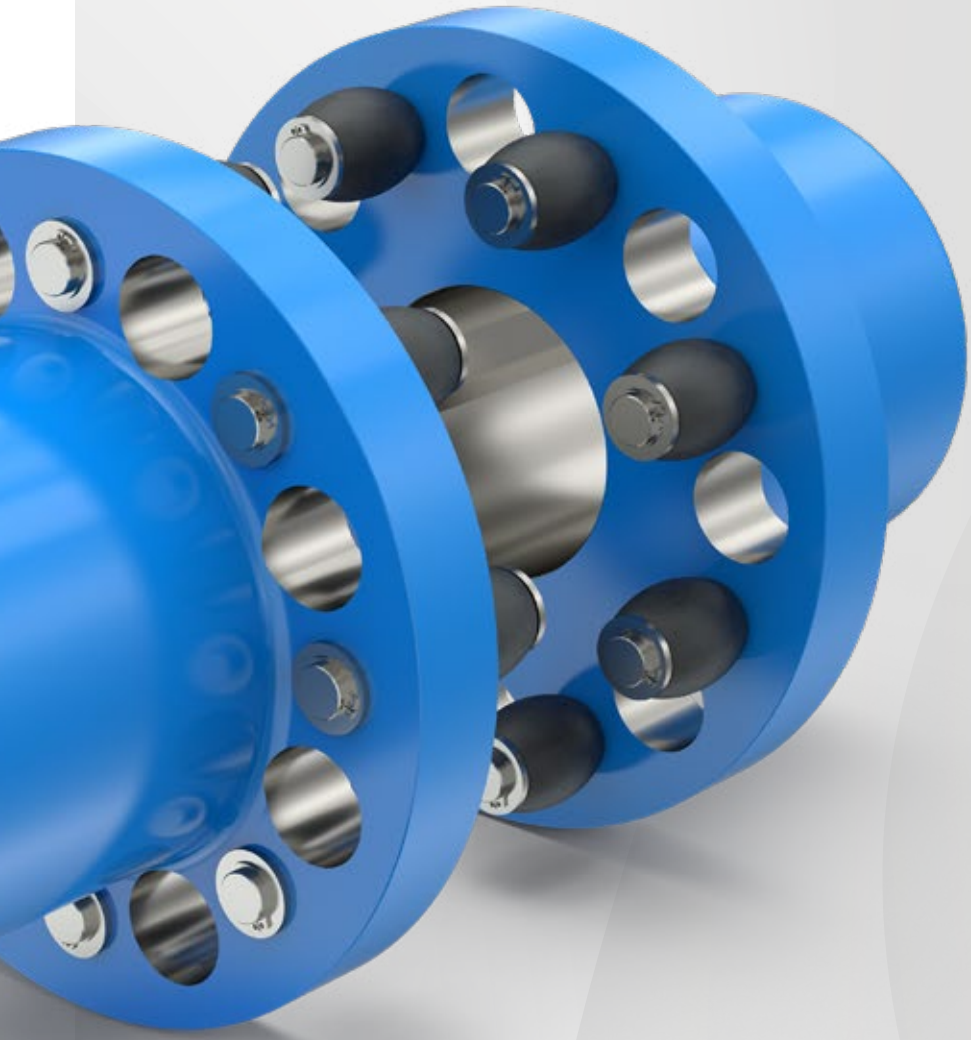
D2C
Designed to Customer

Reich



REIBO

Flexible Pin-type Coupling

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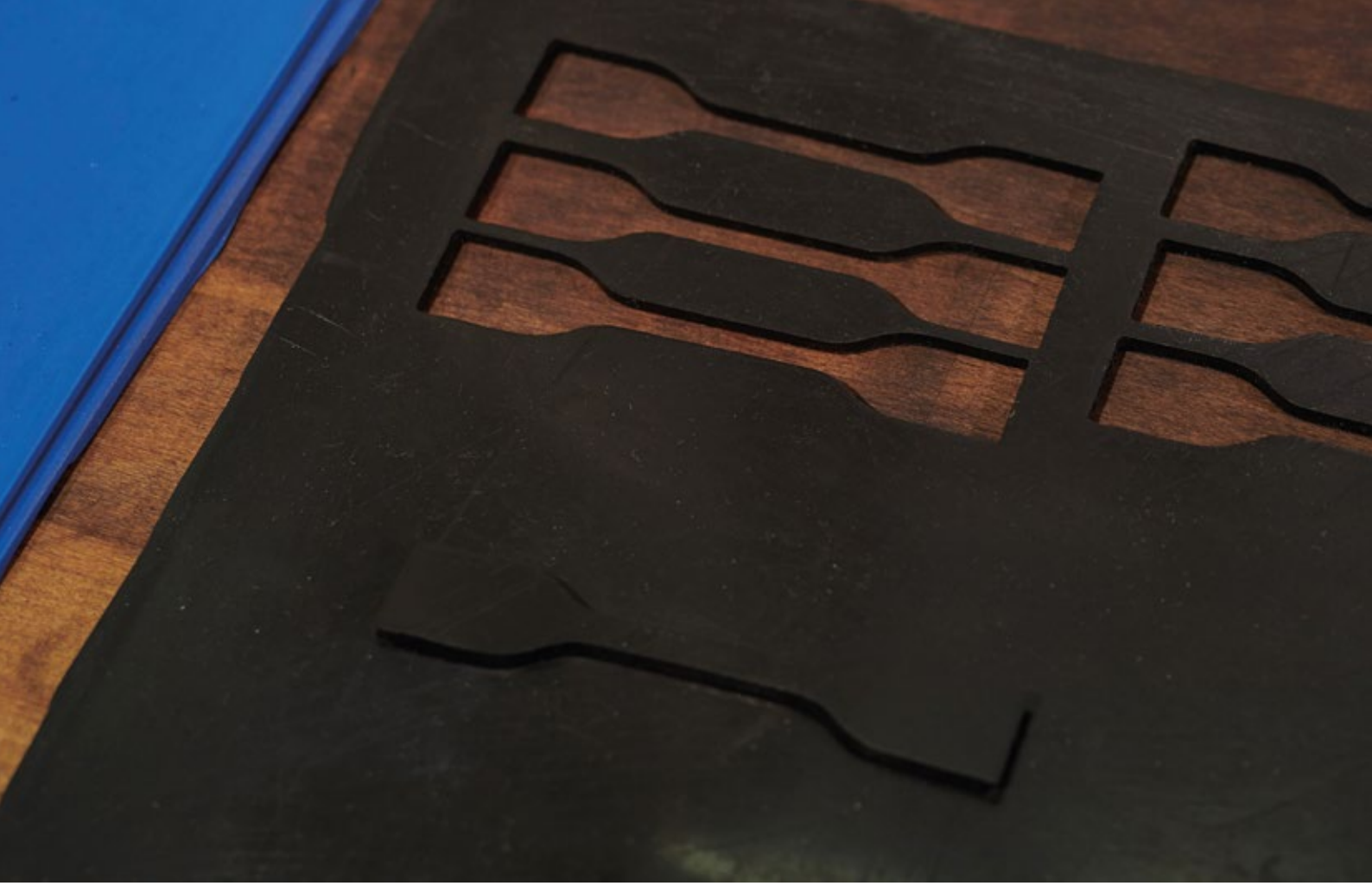
SIMPLY **POWERFUL.**



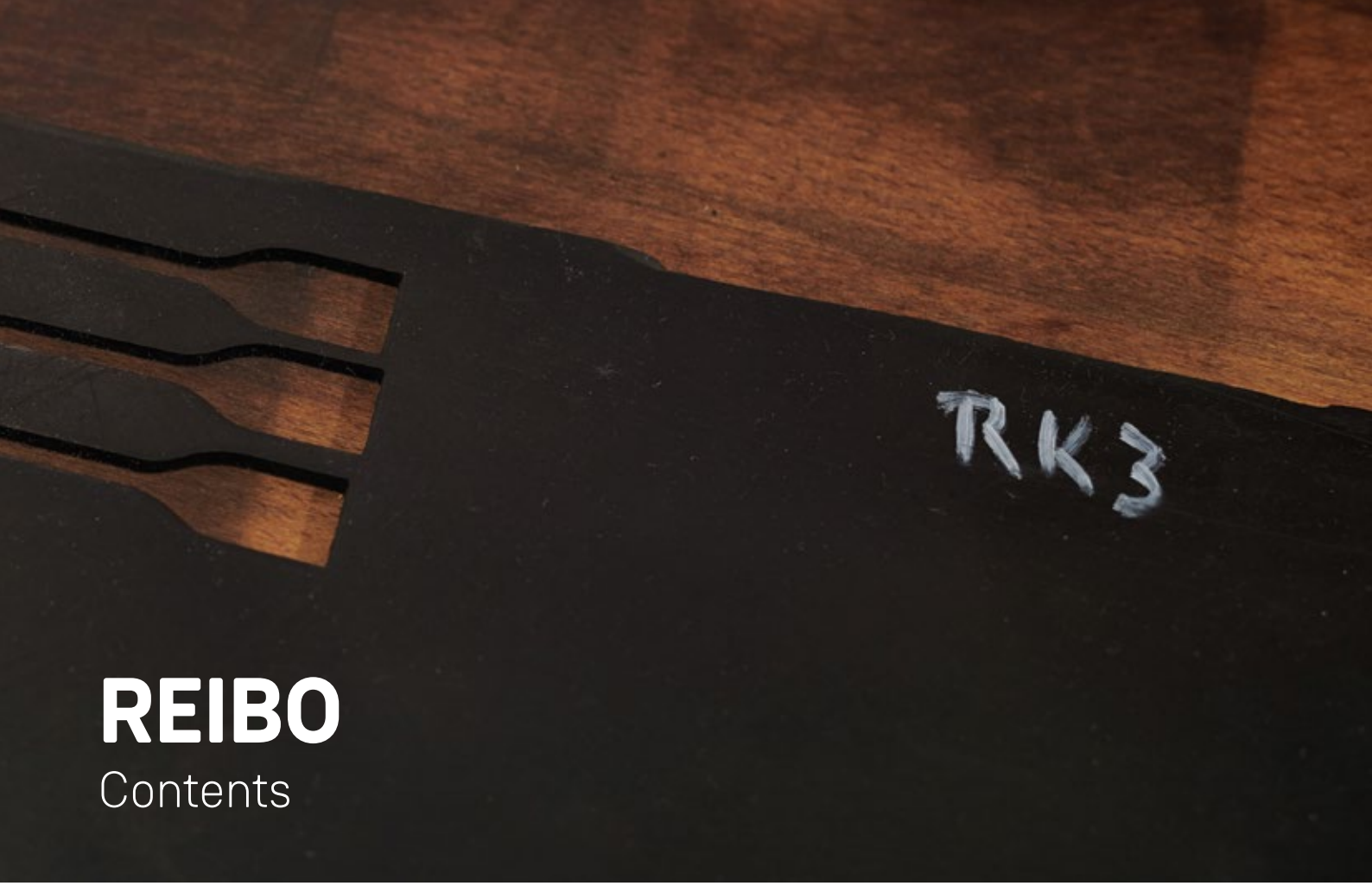
D2C – Designed to Customer

The guiding principle of Designed to Customer is the recipe for success behind REICH. In addition to the catalogue products, we supply our customers with couplings developed to their specific requirements. The designs are mainly based on modular components to provide effective and efficient customer solutions. The special nature of our close cooperation with our partners ranges from; consulting, development, design, manufacture and integration to existing environments, to customer-specific production, logistics concepts and after-sales service - worldwide.
This customer-oriented concept applies to both standard products and production in small batch sizes.

The company policy at REICH embraces, first and foremost, principles such as customer satisfaction, flexibility, quality, prompt delivery and adaptability to the requirements of our customers.

REICH supplies not only a coupling, but a solution:
Designed to Customer – SIMPLY **POWERFUL.**

D2C
Designed to Customer



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Flexible Pin-type Coupling

REIBO couplings are torsionally flexible pin-type couplings which compensate for radial, axial and angular shaft displacements. REIBO couplings are designed for positive (fail safe) torque transmission and for absorbing vibrations and torque surges.

The two coupling hubs are of identical design. Due to the alternate arrangement of the locating bores for the pin and buffer element, a maximum number of pins and buffers can be accommodated. Restoring forces generated by angular or radial displacement are minimized by the spherically formed buffers. Axial float is achieved through movement between the pin and the buffer element.

The REIBO coupling series comprises 18 sizes for a torque range from 350 to 350 000 Nm. Couplings for higher torques are available on request.

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Nominal torques from 350 Nm to 350 000 Nm

REIBO
Advantages and uses

Key features and benefits of the REIBO coupling:

➜ Compensation of axial, radial and angular displacements	➜ Your system achieves a high level of operational stability with reduced loads, thereby increasing your productivity.
➜ Damping of impacts and vibrations Quiet operation	➜ Increased productivity of your system through extended maintenance intervals
➜ Fail-safe	➜ Emergency operation can be provided for your machine or system. This prevents sudden shutdowns.
➜ Ease of assembly thanks to the plug-in axial design	➜ Fast installation, short repair times resulting in high economic efficiency
➜ Maintenance-free	➜ Little effort during the period of use Downtimes are reduced. Less maintenance means optimised operating costs
➜ Suited for ambient temperatures from -40 °C to +80 °C	➜ Global use possible under the toughest conditions
➜ Torque transmission up to 350 kNm	➜ Operational reliability with high torque transmission capacity Protection of connected components
➜ Reduced restoring forces due to crowned buffers	➜ Long service life due to protection of bearings in input and output, lower life cycle costs (LCC)
➜ Standard version shaft-hub connection designed as a key connection or cylindrical shaft according to standard	➜ Precision-fit and cost-effective solution (flexible and simple integration into the drive train)
➜ Available with brake drum or brake disc	➜ 2 in 1 function All from a single source
➜ Modular type using various standard designs or customised adaptations	➜ Optimum cost-benefit ratio Favourable investment costs, high economic efficiency

REIBO

General Technical Data

Standard Type

The torques specified for T_{KN} or $T_{K\,max}$ correspond to the definition for “Flexible Shaft Couplings DIN 740 Part 2”.

Coupling size	Technical details for the standard element version				Maximum shaft displacement [3] up to the specified speed			
	Nominal torque	Maximum torque	Relative damping [1]	max. speed [2]	Axial	Radial	Angular	at
	T_{KN} [Nm]	$T_{K\,max}$ [Nm]	Ψ -	n_{max} [min^{-1}]	ΔK_a [mm]	ΔK_r [mm]	ΔK_w [mm]	n [min^{-1}]
RB 120	350	800	1.2	5700	1.0	0.2	0.3	1000
RB 140	600	1380	1.2	4900	1.0	0.2	0.4	1000
RB 160	900	2070	1.2	4200	1.0	0.2	0.4	1000
RB 180	1300	3000	1.2	3800	1.3	0.2	0.5	1000
RB 200	1800	4150	1.2	3400	1.3	0.3	0.5	1000
RB 225	2600	6000	1.2	3000	1.3	0.3	0.6	1000
RB 250	4600	10600	1.2	2700	1.7	0.3	0.7	1000
RB 300	6500	15000	1.2	2200	1.7	0.3	0.8	1000
RB 350	10500	24000	1.2	2000	2.0	0.4	0.9	500
RB 400	14500	33400	1.2	1700	2.0	0.4	1.1	500
RB 450	21000	48300	1.2	1500	2.3	0.5	1.2	500
RB 500	28000	64400	1.2	1400	2.3	0.5	1.4	500
RB 550	36000	83000	1.2	1200	2.3	0.6	1.5	500
RB 630	75000	172500	1.2	1100	2.3	0.6	1.7	500
RB 680	95000	218500	1.2	1000	2.3	0.7	1.8	500
RB 800	146000	336000	1.2	800	2.3	0.8	2.2	300
RB 900	200000	460000	1.2	700	2.3	0.9	2.4	300
RB 1100	350000	800000	1.2	600	2.3	1.1	3.0	300

1) Dynamic torsional stiffness on request

2) Max. speeds refer to standard couplings of grey cast iron. higher rotational speeds can be obtained with other materials

3) For the recommended alignment tolerances see page 9

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Selection of the Coupling Size

The coupling size should be selected to ensure that the permissible coupling load is not exceeded in any operating condition encountered. For drives which are not subject to periodically recurring fatigue torques the coupling design may be selected based on the driving torque with reference to the corresponding service factors.

In selecting the coupling size the following should be satisfied:

The **nominal torque of the coupling T_{KN}** must be taken into account at every temperature and operating load of the coupling, whilst observing the service factors S (e.g: temperature factor S_t) shall be at least equal to the maximum nominal torque on the drive side T_{AN}; the temperature in the immediate vicinity of the coupling must be taken into account.

$$T_{KN} \geq T_{AN} \cdot S_m \cdot S_t \cdot S_z$$

The **nominal torque on the drive side T_{AN}** is calculated with the driving power P_{AN} and the coupling speed n_{AN}.

$$T_{AN}\,[Nm] = 9550 \frac{P_{AN}\,[kW]}{n_{AN}\,[min^{-1}]}$$

The **maximum torque capacity of the coupling, $T_{K\,max}$** shall be at least equal to the highest torque T_{max} encountered in operation while taking the temperature factor S_t into account.

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

Technical Note

The technical data applies only to the complete coupling or the corresponding coupling elements. It is the customer's/user's responsibility to ensure there are no inadmissible loads acting on any of the components. In particular, existing connections, e.g. bolted connections, must be checked with regard to the torques to be transmitted. If necessary, further measures, such as additional reinforcement with pins, may be necessary. It is the customer's/user's responsibility to make sure the dimensioning of the shaft and keyed or other connection, e.g. shrinking or clamping connection, is correct. All components that can rust are protected against corrosion as standard.

REICH have an extensive range of couplings and coupling systems to cover nearly every drive configuration. Customized solutions can be developed and manufactured even in small batches or as prototypes. In addition calculation programs are available for all necessary dimensioning.

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Service Factors

Load classification S_m

Prime mover	Load classification of the driven machine		
	G (uniform load)	M (medium load)	S (heavy load)
Electric motors, turbines, hydraulic motors	1.25	1.6	2.0
Combustion engines ≥ 4 cylinder Degree of uniformity ≥ 1:100	1.5	2.0	2.5

Start-up factor S_z

starting frequency per hour or daily period of operation	30 < 3 h	60 < 10 h	120 < 24 h	> 240 -
S_z	1.0	1.25	1.5	on request

Temperature factor S_t

Ambient temperature	-25 °C +30 °C	+40 °C	+60 °C	+80 °C	> +80 °C
S_t	1.0	1.1	1.3	1.6	on request

Calculation example

A coupling is required between an electric motor **(P = 160 kW at n = 980 min^{-1})** and a gearbox of a belt conveyor drive.

Operation is uniform = G : S_m = 1.25
Ambient temperature 40 °C : S_t = 1.1
Starting frequency 30/h : S_z = 1.0

$$T_{AN} = 9550 \frac{160\ kW}{980\ min^{-1}} = 1559\ Nm$$

$$T_{KN} \geq T_{AN} \cdot S_m \cdot S_t \cdot S_z$$
$$T_{KN} \geq 1559\ Nm \cdot 1.25 \cdot 1.1 \cdot 1.0 = 2144\ Nm$$

Selected coupling: RB 225 W at T_{KN} = 2600 Nm

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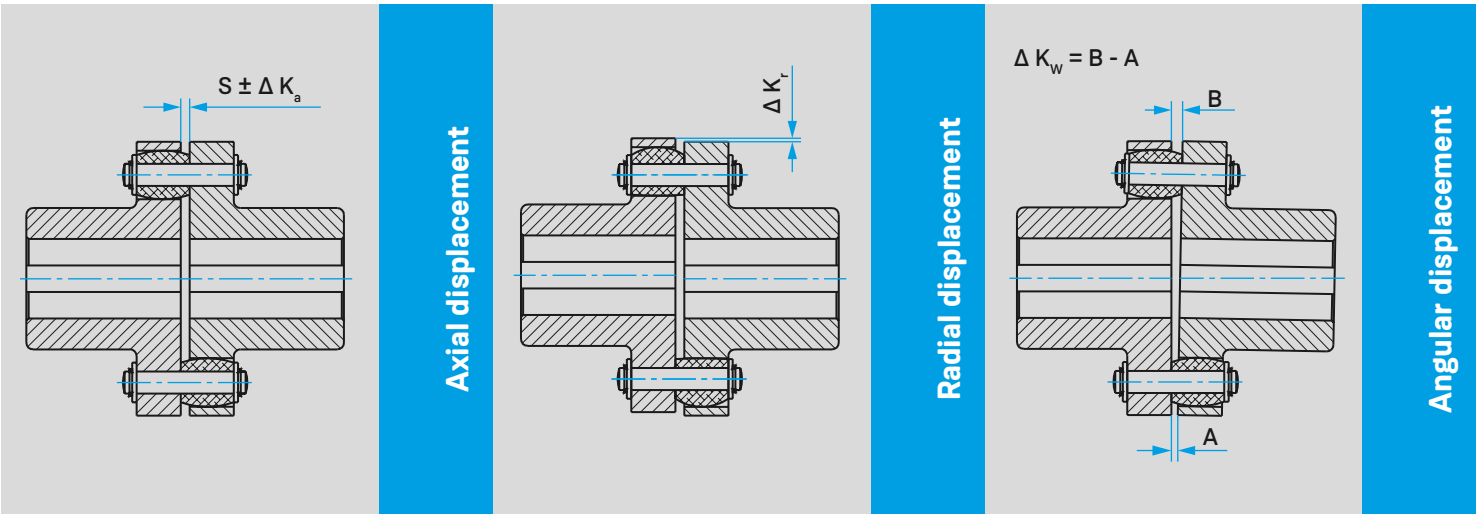
Permissible shaft displacement

The Δ K values specified for the maximum permissible shaft displacement (table page 6) are reference values only. The compensating capability of the coupling depends on the rotational speed and the coupling load. The displacement values must be reduced at higher speeds as shown by way of example in the table. As precise alignment of the coupling extends the service life of the flexible elements, the Δ K values should not be fully utilised to their maximum during alignment. It is recommended to use only a maximum of 20% of the permissible value during installation. Maximum shaft misalignment must not occur simultaneously in all directions during operation ($\Delta K_a + \Delta K_r + \Delta K_w \leq 100\%$).



Δ K_a, Δ K_r, Δ K_w see “General Technical Data”, page 6

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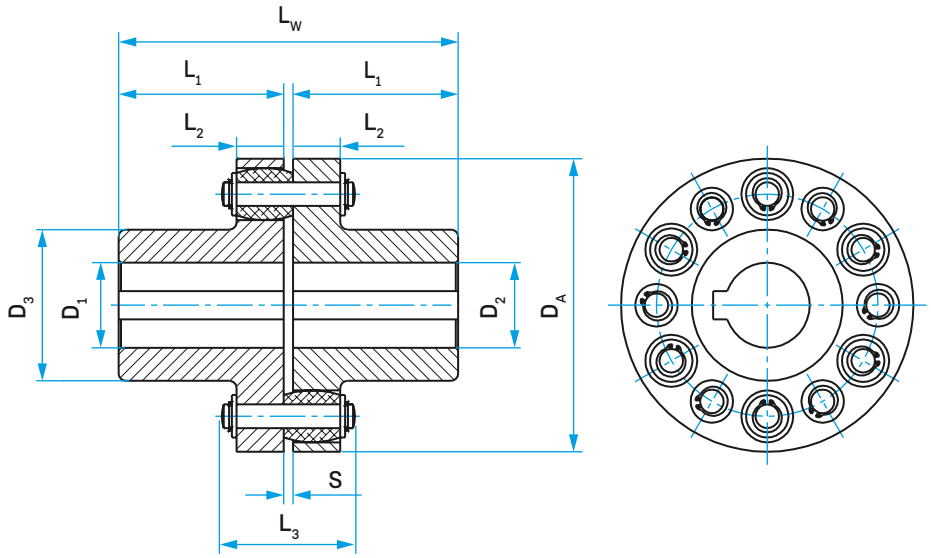
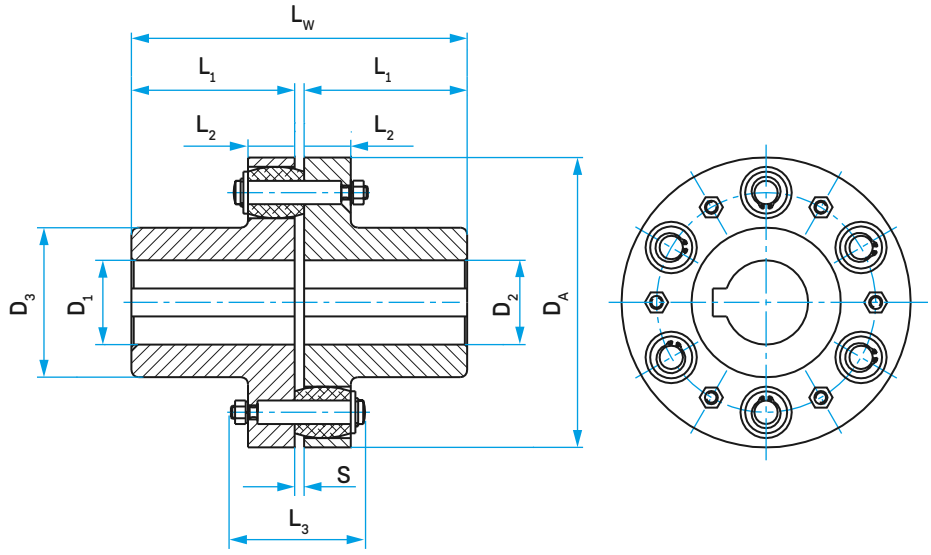
Type RB...W and RB...WE



Standard type RB...W
pin with circlip



Type RB...WE
pin with nut

Coupling details

Coupling size	D_1 / D_2		D_A	D_3	L_W	L_1	L_2	L_3	S	Number of pins	Moment of inertia	Mass
	prebored	max.									J	m
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	–	[kgm^2]	[kg]
RB 120	-	45	120	71	143	70	20	60	3	10	0.007	4.3
RB 140	-	55	140	85	163	80	20	60	3	14	0.014	6.7
RB 160	-	60	160	102	183	90	20	60	3	16	0.026	10.0
RB 180	-	65	180	103	204	100	25	80	4	12	0.043	12.5
RB 200	-	75	200	116	234	115	25	80	4	14	0.073	18.0
RB 225	40	90	225	145	264	130	25	80	4	16	0.140	26.3
RB 250	45	95	250	147	305	150	38	110	5	14	0.250	37.7
RB 300	50	110	300	182	365	180	38	110	5	16	0.590	64.2
RB 350	60	120	350	200	406	200	60	160	6	12	1.410	105
RB 400	70	140	400	232	446	220	60	160	6	14	2.540	147
RB 450	75	160	445	253	487	240	72	190	7	12	4.610	209
RB 500	75	180	495	288	527	260	72	190	7	14	7.300	266
RB 550	80	210	545	322	567	280	72	190	7	16	11.10	342
RB 630	130	250	625	375	567	280	90	260	7	14	22.30	500
RB 680	150	270	680	405	567	280	90	260	7	16	29.70	550
RB 800	180	280	795	420	607	300	90	260	7	20	55.00	780
RB 900	200	300	895	448	607	300	90	260	7	22	87.00	970
RB 1100	280	350	1100	550	807	400	100	260	7	28	227.00	1800

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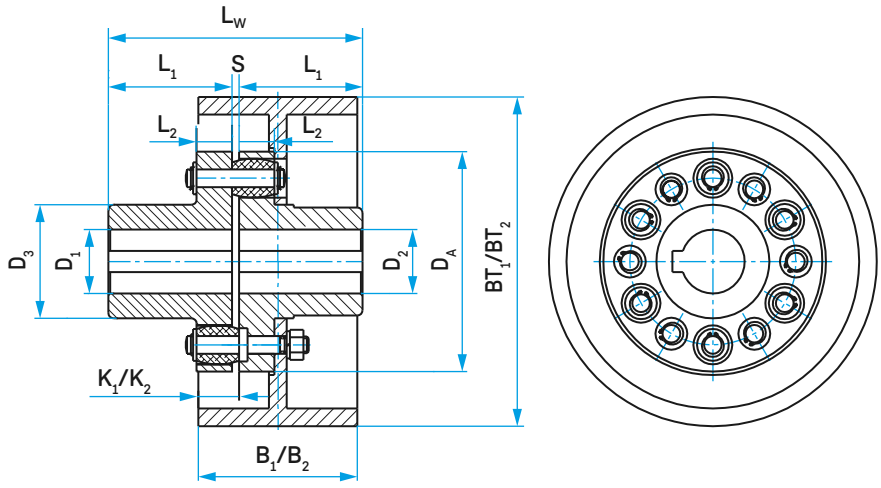
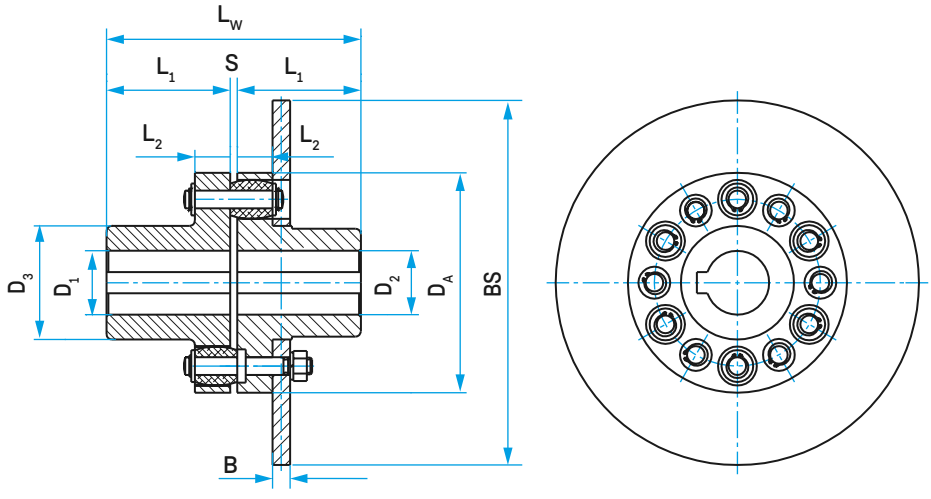
Type RB...WBT and RB...WBS



Design RB...WBT
with brake drum



Design RB...WBS
with brake disc

Coupling details

Coupling size	BT_1 [mm]	B_1 [mm]	K_1 [mm]	BT_2 [mm]	B_2 [mm]	K_2 [mm]
RB 140	-	-	11.0	200	75	13.5
RB 160	200	75	13.5	250	95	20.5
RB 180	250	95	15.5	315	118	27.0
RB 200	250	95	15.5	315	118	27.0
RB 225	315	118	27.0	400	150	43.0
RB 250	315	118	14.0	400	150	29.0
RB 300	400	150	29.0	500	190	47.0
RB 350	400	150	7.0	500	190	25.0
RB 400	500	190	25.0	630	236	46.0
RB 450	500	190	13.0	630	236	34.0
RB 500	630	236	34.0	710	265	45.5

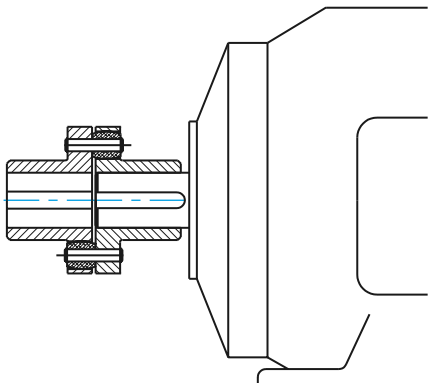
Mass for BS and B on request

REIBO
Assignment to IEC standard motors

REIBO couplings of GG for IEC three-phase motors with cage rotor to DIN 42673/1

The allocation takes into account the maximum boring capability of the coupling hubs and offers adequate safety for normal load cases; service factor S_{total} = 1.7. Operating conditions at uniform to medium load, 60 starts per hour and ambient temperatures up to approx. 40 °C are thus included therein.

Other load cases require a layout according to “Selection of the Coupling Size” (see page 7). Hubs of GGG or St yield smaller coupling sizes in places due to the larger boring capability.



Motor Size	Motor power at ~3 000 min^{-1}		Coupling Size RB	Motor power at ~1500 min^{-1}		Coupling Size RB	Motor power at ~ 1000 min^{-1}		Coupling Size RB	Motor power at ~ 750 min^{-1}		Coupling Size RB	Cyl. Shaft end D x L [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]		3 000 min^{-1}	≤ 1500 min^{-1}
160 M	11.0	35.0	120	11.0	70.0	120	7.5	72.0	120	4.0	51	120	42 x 110	
	15.0	48.0	120							5.5	70	120		
160 L	18.5	59.0	120	15.0	96.0	120	11.0	105.0	120	7.5	96	120		
180 M	22.0	70.0	140	18.5	118.0	140	-	-	-	-	-	-	48 x 110	
180 L	-	-	-	22.0	140.0	140	15.0	143.0	140	11.0	140	140		
200 L	30.0	96.0	140	30.0	191.0	140	18.5	177.0	140	15.0	191	140	55 x 110	
	37.0	118.0	140				22.0	210.0	140					
225 S	-	-	-	37.0	236.0	160	-	-	-	18.5	236	140	55 x 110	60 x 140
225 M	45.0	143.0	160	45.0	287.0	160	30.0	287.0	160	22.0	280	160		
250 M	55.0	175.0	160	55.0	350.0	180	37.0	353.0	180	30.0	382	180	60 x 140	65 x 140
280 S	75.0	239.0	180	75.0	478.0	200	45.0	430.0	200	37.0	471	200	65 x 140	75 x 140
280 M	90.0	287.0	180	90.0	573.0	200	55.0	525.0	200	45.0	573	200		
315 S	110.0	350.0	180	110.0	700.0	225	75.0	716.0	225	55.0	700	225	65 x 140	80 x 170
315 M	132.0	420.0	180	132.0	840.0	225	90.0	860.0	225	75.0	955	225		
315 L	160.0	509.0	180	160.0	1 019.0	225	110.0	1 051.0	225	90.0	1 146	225		
	200.0	637.0	180	200.0	1 273.0	225	132.0	1 261.0	225	110.0	1 401	225		
355 L	250.0	796.0	200	250.0	1 592.0	250	160.0	1 528.0	250	132.0	1 681	250	75 x 140	95 x 170
	315.0	1 003.0	200	315.0	2 006.0	250	200.0	1 910.0	250	160.0	2 037	250		
							250.0	2 388.0	250	200.0	2 547	250		
400 L	355.0	1 130.0	225	355.0	2 260.0	300	315.0	3 008.0	300	250.0	3 183	300	80 x 170	100 x 200
	400.0	1 273.0	225	400.0	2 547.0	300								

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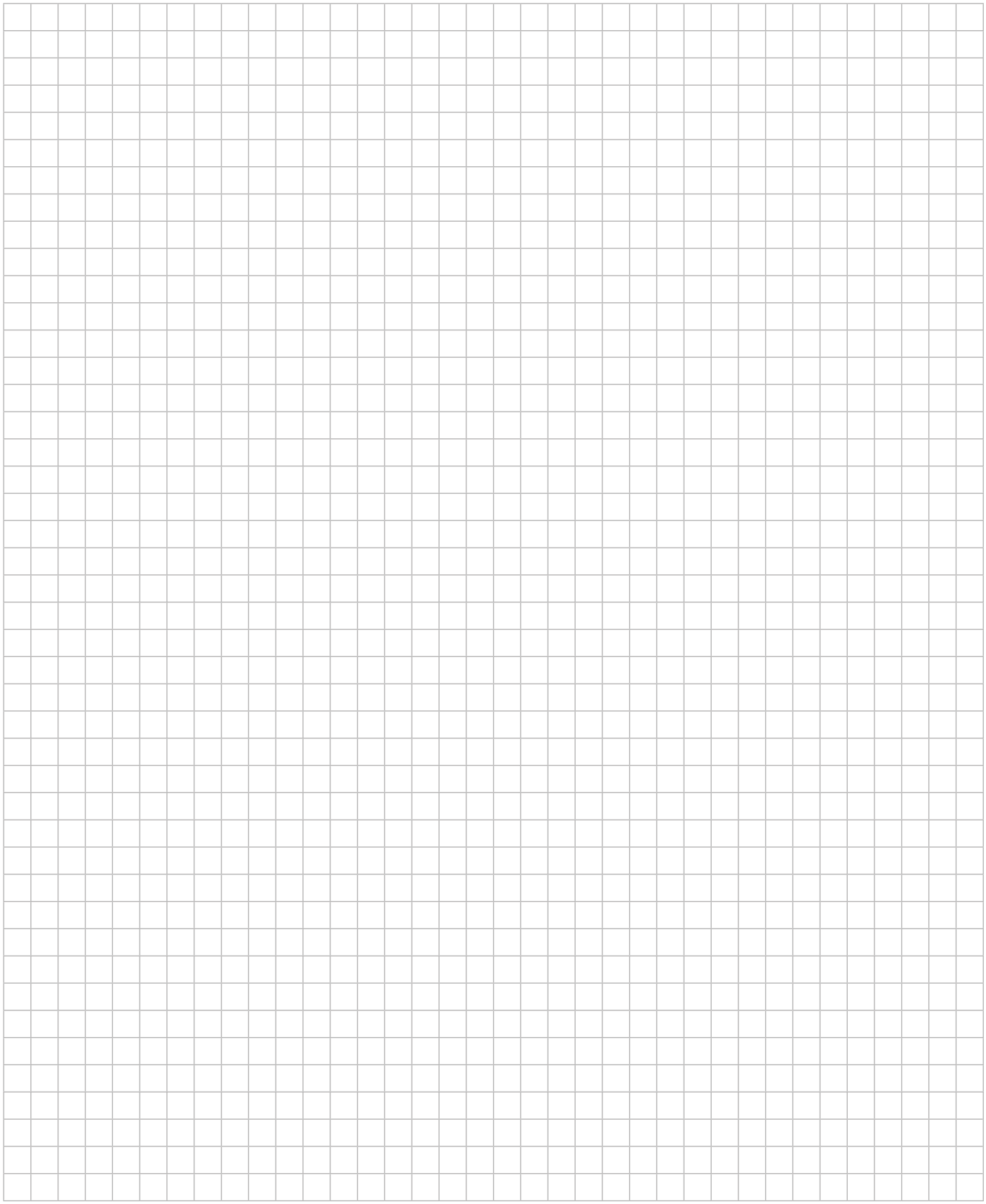
Notes



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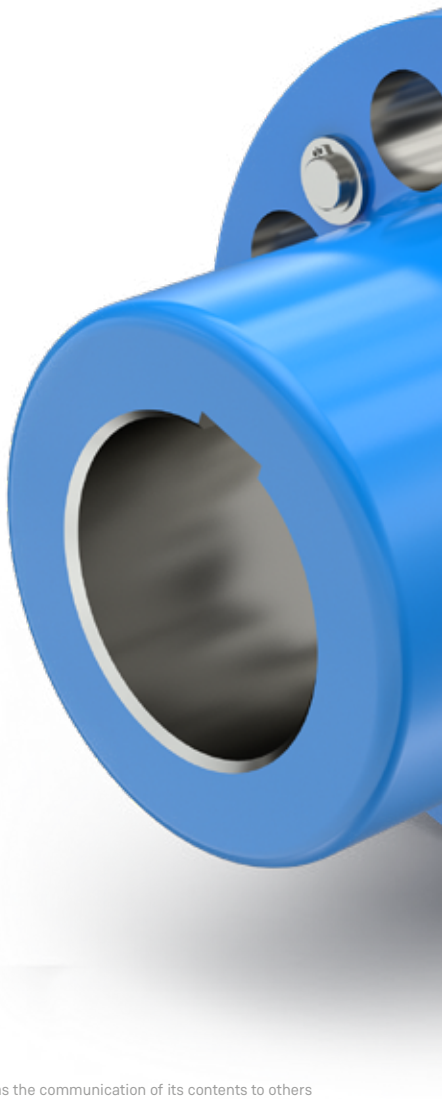

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