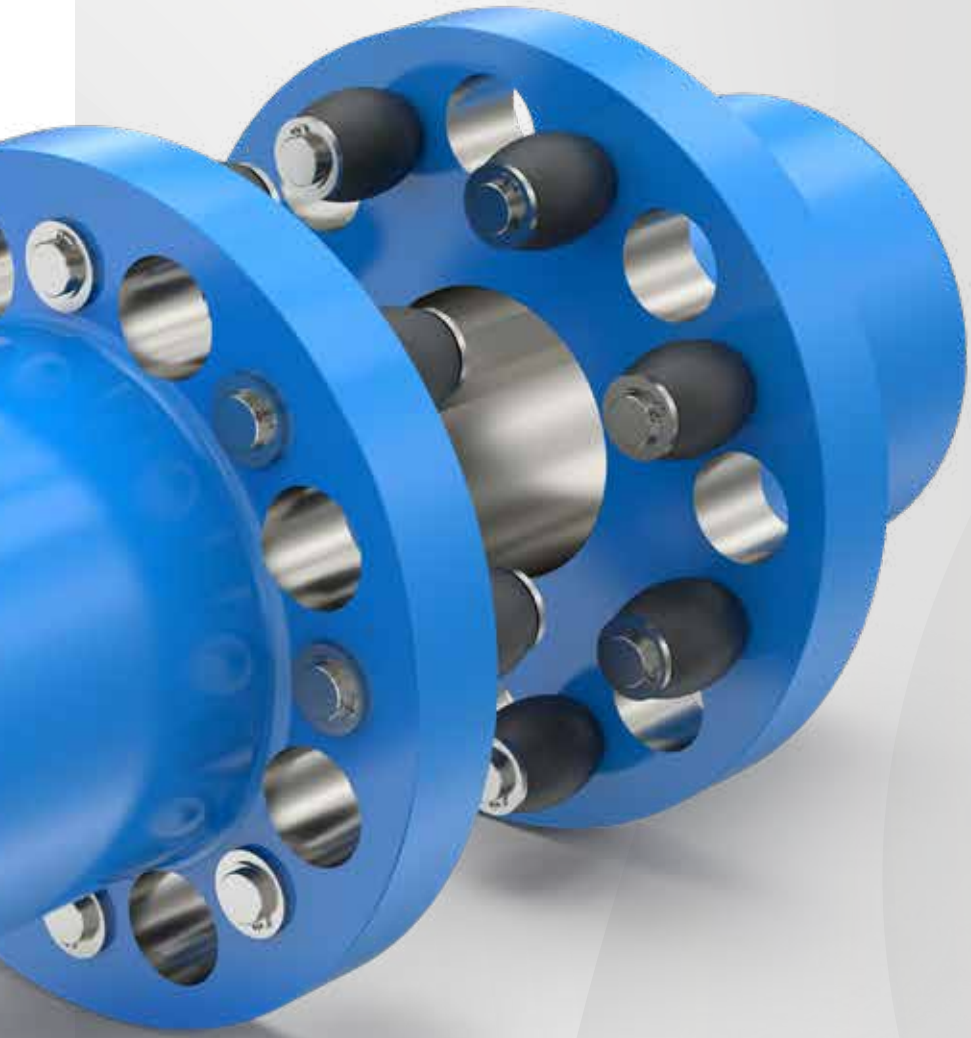
D2C
Designed to Customer

Reich



# REIBO

Flexible Pin-type Coupling

www.reich-kupplungen.com

SIMPLY **POWERFUL.**

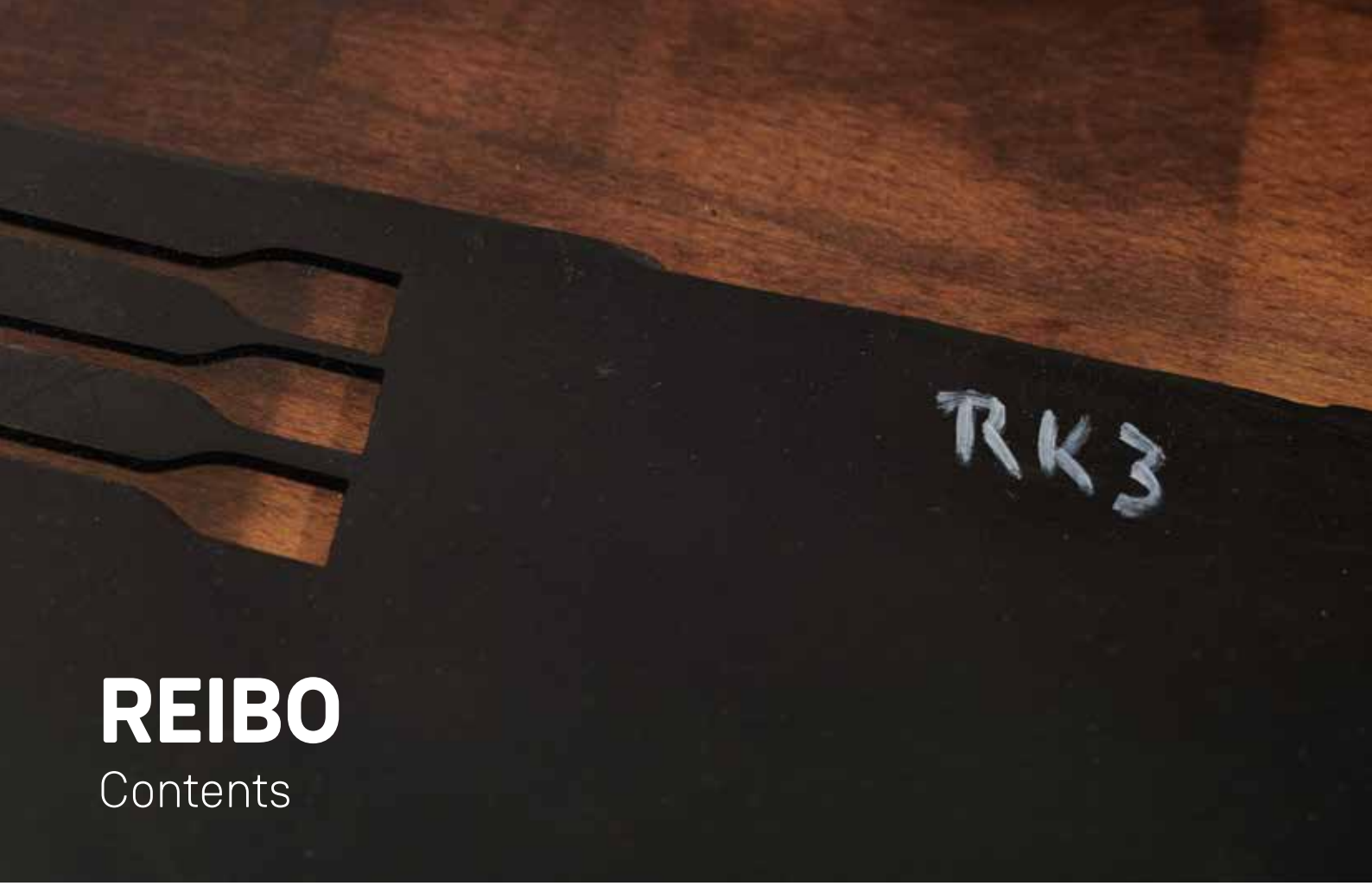
# D2C – Designed to Customer

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 provides you with not only a coupling, but a solution:
Designed to Customer – SIMPLY **POWERFUL.**

D2C
Designed to Customer




# REIBO

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## REIBO

## 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.

**REIBO**

Nominal torques from 350 Nm to 350 000 Nm

# REIBO
## Advantages

**Salient features and advantages of the REIBO coupling:**

- Compensation of axial, radial and angular displacements
- Damping shocks and vibrations
- Fail safe operation
- Ease of assembly and ease of alignment
- Plug-in mounting facility
- No maintenance required
- Available in different types or as special designs

# 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] | $\Psi$ - | $n_{max}$ [$min^{-1}$] | $\Delta K_a$ [mm] | $\Delta K_r$ [mm] | $\Delta K_w$ [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 | 360000 | 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

# REIBO

## 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.

# REIBO
## 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

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

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

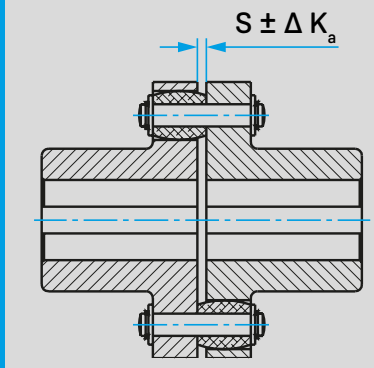
**Selected coupling: RB 225 W at $T_{KN}$ = 2600 Nm**

# REIBO

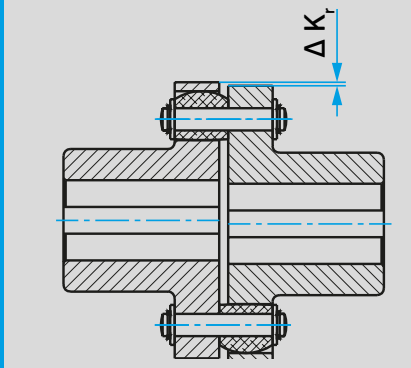
## Permissible shaft displacement

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 ($\Delta K_a + \Delta K_r + \Delta K_w \leq 100\%$).

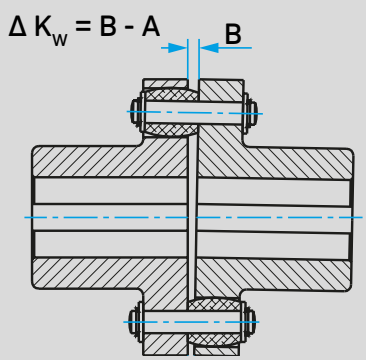
**Axial displacement**




**Radial displacement**



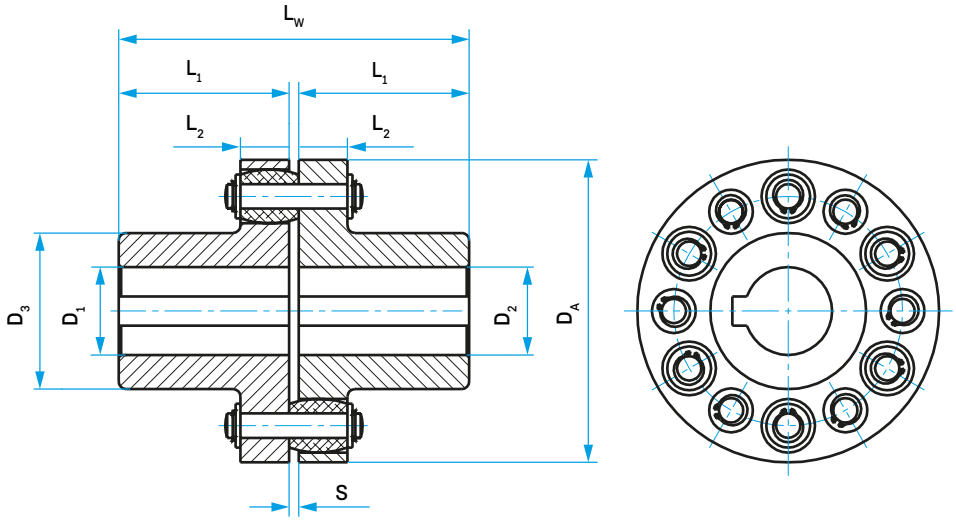

**Angular displacement**



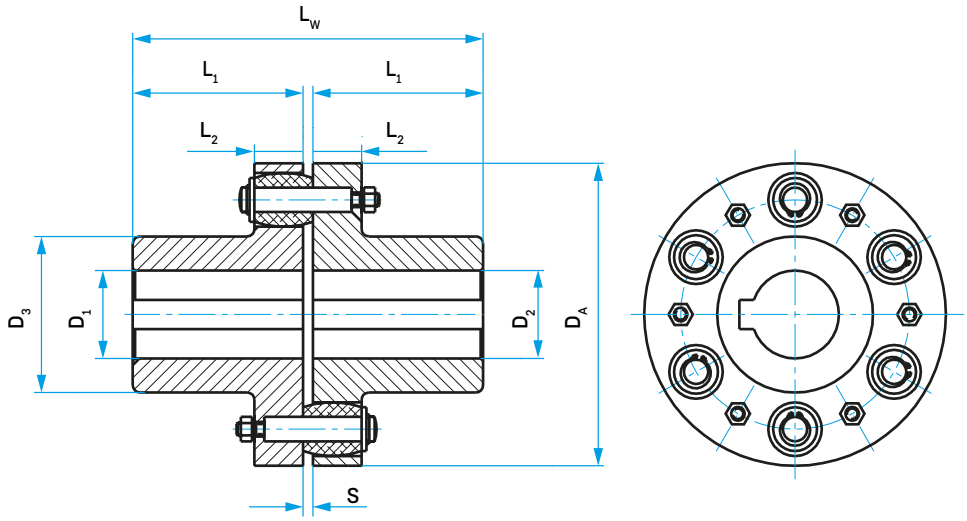

i Δ $K_a$, Δ $K_r$, Δ $K_w$ see “General Technical Data”, page 6

# REIBO

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




Standard type RB...W
pin with circlip



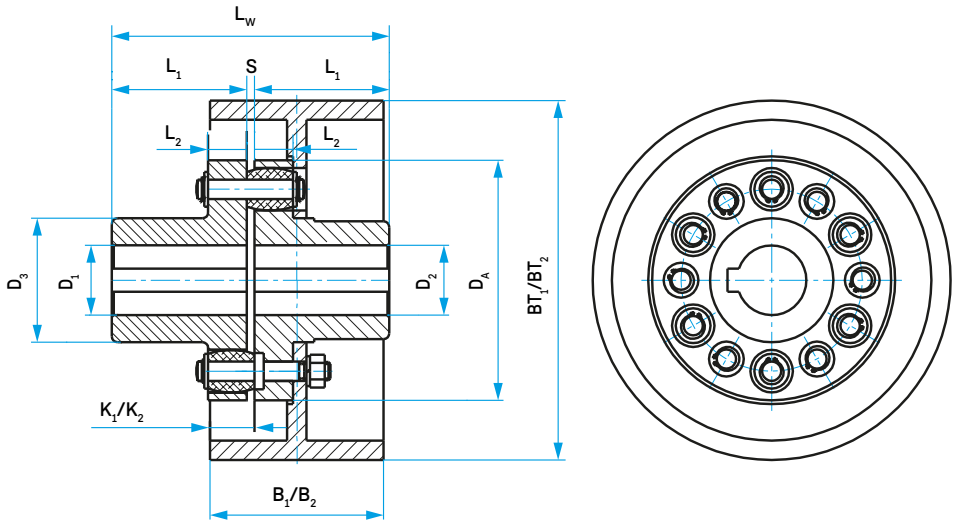

Type RB...WE
pin with nut

## Coupling details

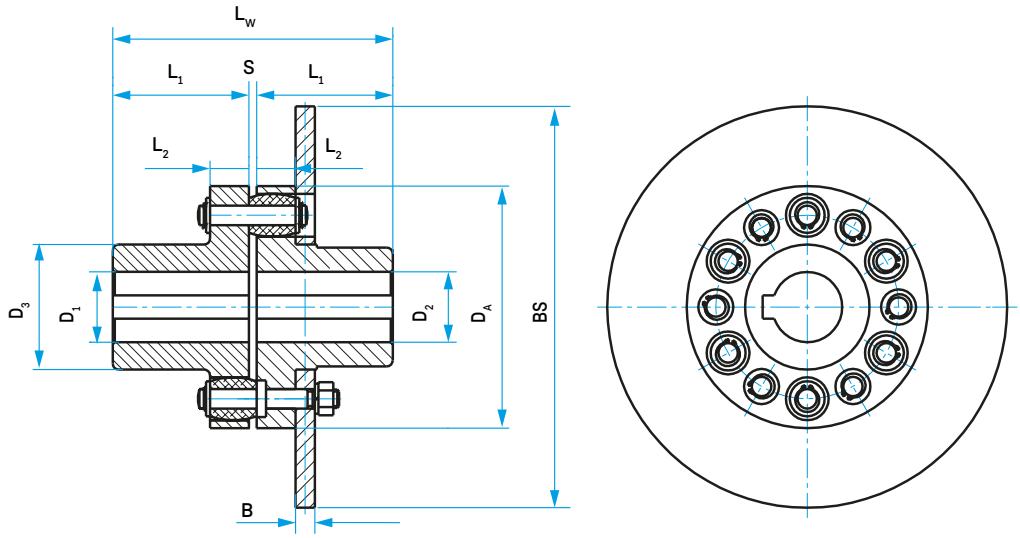
| Coupling size | $D_1$ / $D_2$ | | $D_A$ | $D_3$ | $L_W$ | $L_1$ | $L_2$ | S | Number of pins | Moment of inertia | Mass |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | prebored | max. | | | | | | | | J | m |
| | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | – | [kgm$^2$] | [kg] |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

# REIBO

## 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 |

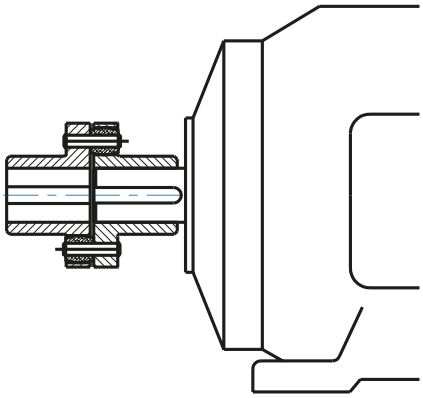
Mass for BS and B on request

# 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.

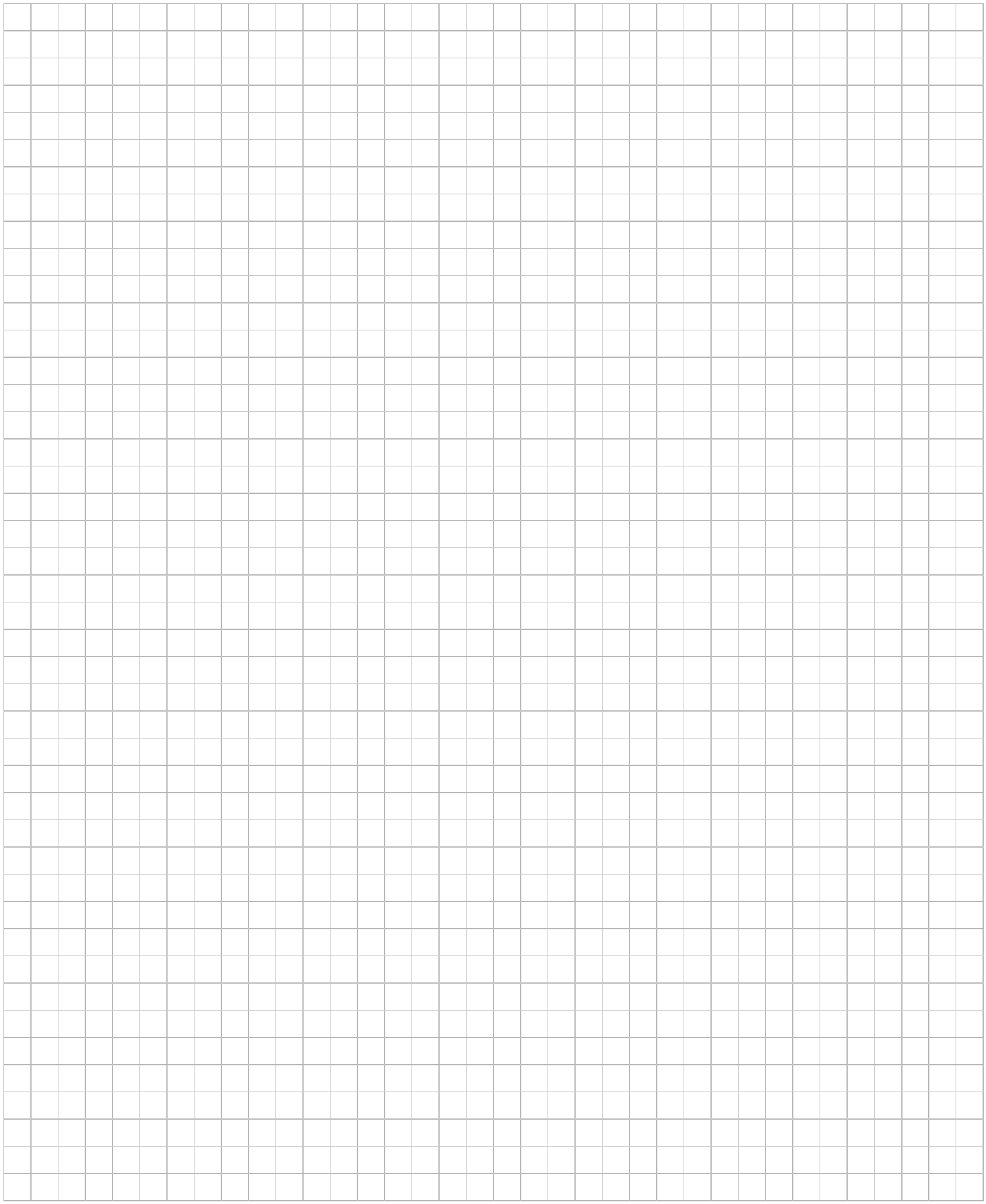
Other load cases require a layout according to “Selection of the Coupling Size” (see page 7). Hubs of GGG or St yield smaller coupling sizes in places due to the larger boring capability.



| Motor Size | Motor power at ~3000 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] | | 3000 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 | 1019.0 | 225 | 110.0 | 1051.0 | 225 | 90.0 | 1146 | 225 | | |
| | 200.0 | 637.0 | 180 | 200.0 | 1273.0 | 225 | 132.0 | 1261.0 | 225 | 110.0 | 1401 | 225 | | |
| 355 L | 250.0 | 796.0 | 200 | 250.0 | 1592.0 | 250 | 160.0 | 1528.0 | 250 | 132.0 | 1681 | 250 | 75 x 140 | 95 x 170 |
| | 315.0 | 1003.0 | 200 | 315.0 | 2006.0 | 250 | 200.0 | 1910.0 | 250 | 160.0 | 2037 | 250 | | |
| | | | | | | | 250.0 | 2388.0 | 250 | 200.0 | 2547 | 250 | | |
| 400 L | 355.0 | 1130.0 | 225 | 355.0 | 2260.0 | 300 | 315.0 | 3008.0 | 300 | 250.0 | 3183 | 300 | 80 x 170 | 100 x 200 |
| | 400.0 | 1273.0 | 225 | 400.0 | 2547.0 | 300 | | | | | | | | |

# REIBO

## Notes



# REIBO

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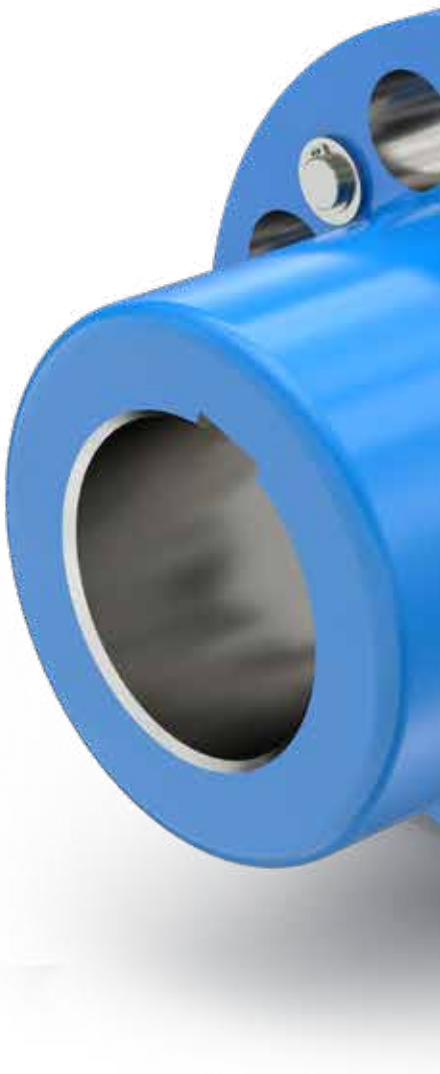

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