

## ERD MARINE COUPLINGS

general

Pre-compressed rubber blocks form the basis of all ERD coupling designs. Natural rubber of 55°-60°Sh.A hardness is the standard material, but alternative mixes are available and neoprene blocks are used where additional damping is required.

The blocks accommodate movement in all directions, making ERD couplings exceptionally tolerant of relative propeller shaft displacements in combination with flexible mounted propulsion engine and providing controlled torsional vibration excitation.

### advantages of a ERD marine coupling

- Reduction of torque fluctuations
- Damping of torsional vibrations
- Reduction of resonance symptoms
- Compensating of radial, axial and angular shaft displacements
- Isolation of vibration and noise transmission

### specification

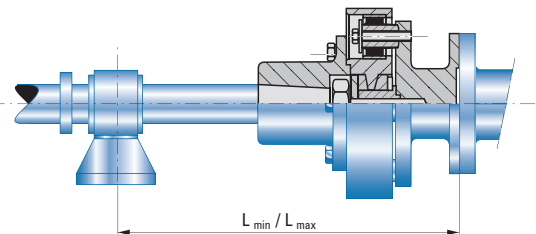
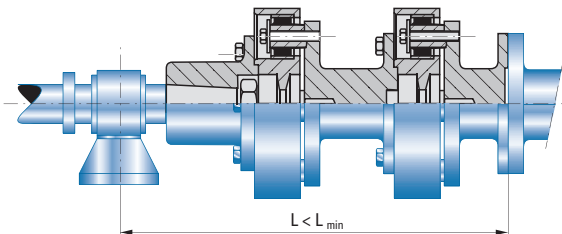
The ERD couplings are standard manufactured in steel and seawater resisting aluminium. Other materials e.g. non-magnetic stainless steel can be supplied if required. They can be supplied with (S) or without (G) propeller thrust capacity and will maintain drive in the event of damage occurring to the rubber elements.

All ERD Marine Couplings can be supplied with an Adaptor flange (F) or Adaptor shaft (A), to fit for instance reduction gear boxes such as: Hurth, Masson, Paragon, PRIM, Reintjes, Velvet, Twin Disc, ZF etc. All types can be supplied in a "Single" unit and in a "Twin" unit. In addition to the standard range, heavy duty and special couplings can be made to meet particular requirements.

### coupling selection, single or twin marine coupling?

When using a "Single" coupling, the free shaft end - the distance between the output flange of the reverse gear and the centre of the first propeller shaft bearing - must have a length between  $L_{min}$  and  $L_{max}$ :

$$L_{MIN} = 20 \times (d - 0.9) \text{ [cm]}$$



If the distance is less than the minimal required length a Twin (Cardanic) Coupling must be used, the first propeller shaft bearing should then be positioned directly behind the coupling. We advise you to contact our technical staff in doubtful cases. The technical data for the individual coupling sizes are listed in this catalogue.

## TECHNICAL DATA

### nominal torque $T_N$

The nominal torque  $T_N$  is the mean torque occurring in continuous service and calculated as follows:

$P_N$  - Nominal output in kW

$n_N$  - Nominal shaftspeed in  $\text{min}^{-1}$

$T_N$  - Nominal torque in kNm

### maximum torque $T_M$

The maximum torque  $T_M$  is the highest torque occurring during any normal drive condition, e.g. during starting, shock load, passing through criticals. For all applications a service factor must be taken into account. If a service factor greater than three is required, the initial selection should be made on the basis of the expected maximum torque.

### service factor for combustion engines

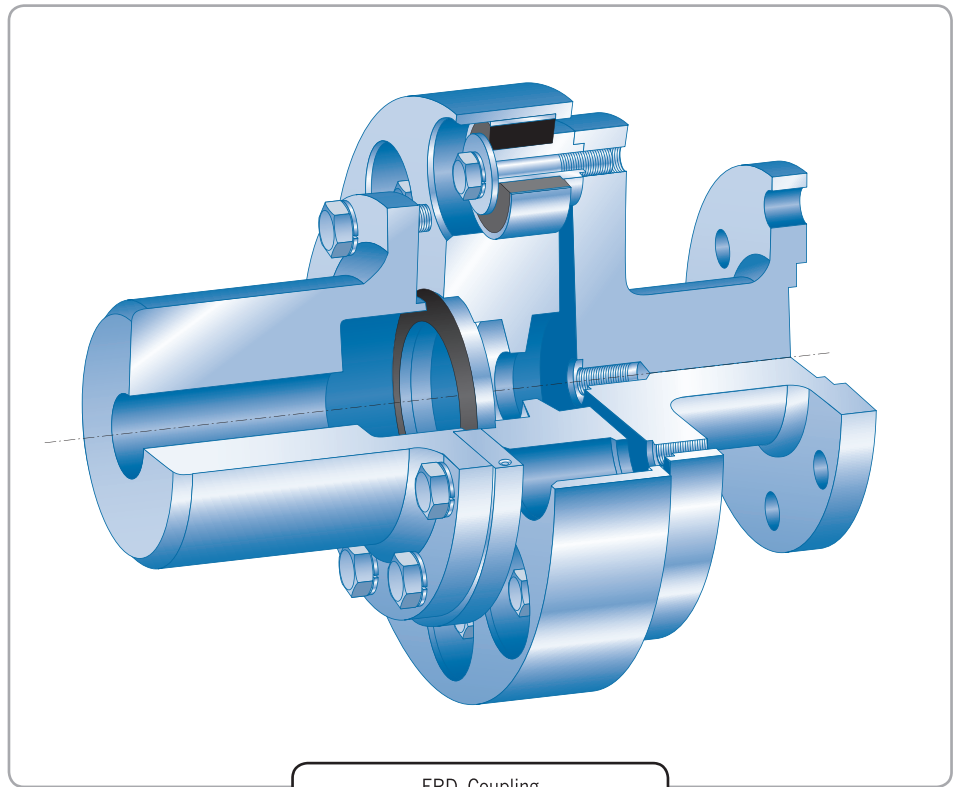
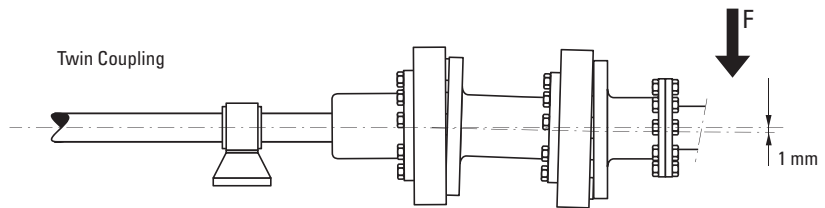
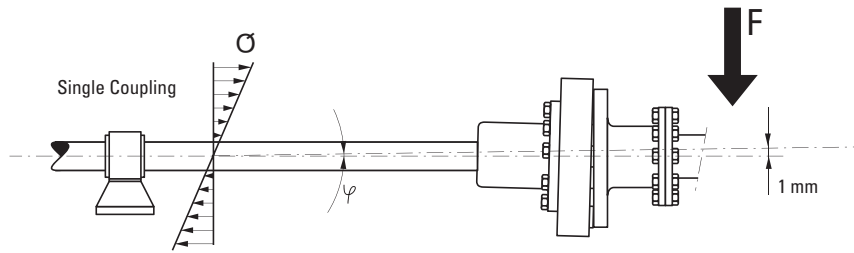
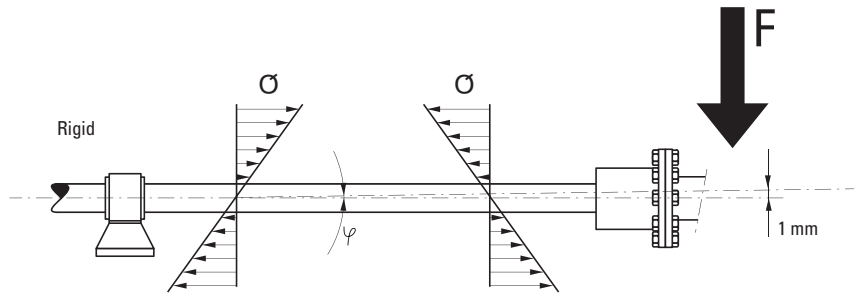
#### NUMBER OF CYLINDERS

|                  | NUMBER OF CYLINDERS |           |        |            |           |        |
|------------------|---------------------|-----------|--------|------------|-----------|--------|
|                  | < 6                 |           |        | ≥ 6        |           |        |
|                  | Engine RPM          |           |        | Engine RPM |           |        |
|                  | < 1200              | 1200-1800 | > 1800 | < 1200     | 1200-1800 | > 1800 |
| River Yachts     | 2.50                | 2.25      | 2.00   | 2.25       | 2.00      | 1.75   |
| Small Workboats  | 2.75                | 2.50      | 2.25   | 2.50       | 2.25      | 2.00   |
| Small Sea Yachts | 2.75                | 2.50      | 2.25   | 2.50       | 2.25      | 2.00   |
| Large Sea Yachts | 3.00                | 2.75      | 2.50   | 2.75       | 2.50      | 2.25   |
| Large Work Boats | 3.50                | 3.25      | 3.00   | 3.25       | 3.00      | 2.75   |

$$L_{MAX} = 2900 \times \sqrt{d/n} \text{ [cm]}$$

**FUNCTIONING**

function single or twin coupling  
compared to rigid

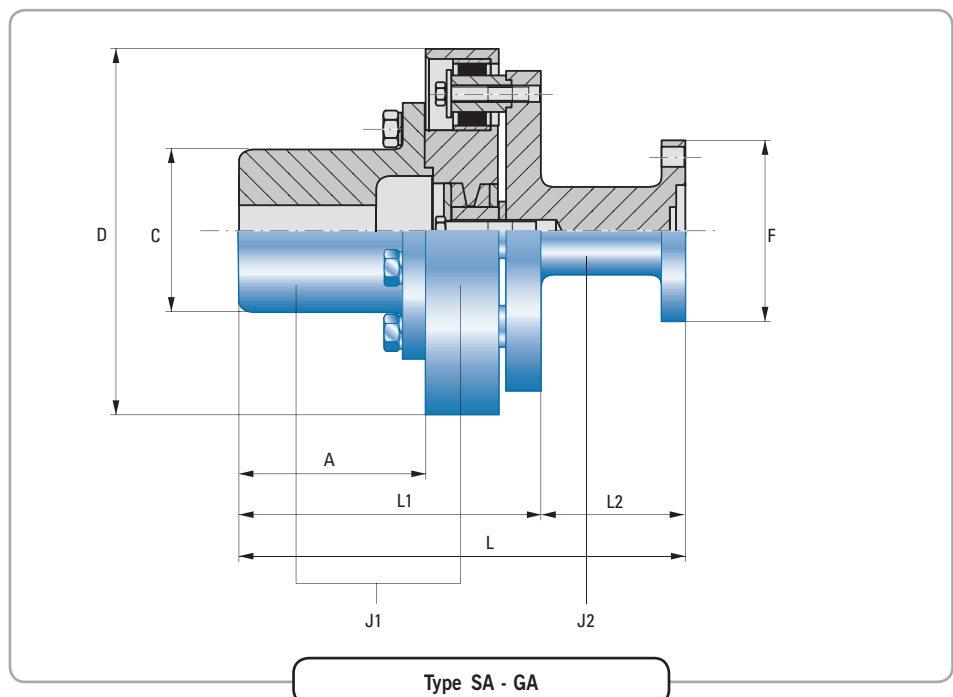


ERD Coupling

**DIMENSIONS AND TECHNICAL DATA**

single ERD coupling

| TYPE                                    |               | ERD 102 ERD 103 ERD 104 ERD 105 ERD 106 ERD 107 ERD 108 ERD 109 |                                 |                      |                      |                      |                           |                      |                      |                      |  |
|---|---------------|---|---------------------------------|----------------------|----------------------|----------------------|---------------------------|----------------------|----------------------|----------------------|--|
| Nominal torque                          | $T_N$         | kNm   | 0.75                            | 1.25                 | 2.20                 | 3.35                 | 4.05                      | 5.6                  | 7.3                  | 11.2                 |  |
| Maximum torque                          | $T_M$         | kNm   | 2.25                            | 3.75                 | 6.60                 | 10.05                | 12.15                     | 16.9                 | 21.9                 | 33.6                 |  |
| Permissible Vibratory torque            | $T_V$         | kNm   | 0.34                            | 0.56                 | 0.99                 | 1.51                 | 1.83                      | 2.53                 | 3.28                 | 5.04                 |  |
| Maximum Thrust Capacity <sup>1)</sup>   | S             | kN  | 30                              | 30                   | 30                   | 60                   | 60                        | 90                   | 90                   | 90                   |  |
| Dynamic Torsional Stiffness             | $C_{T\ dyn}$  | kNm/rad   | 70.8                            | 139.2                | 311.4                | 587.4                | 705                       | 329                  | 460                  | 807                  |  |
| Dynamic Radial Stiffness                | $C_{R\ dyn}$  | kN/m  | 12880                           | 19320                | 25760                | 32200                | 38640                     | 21000                | 25200                | 33600                |  |
| Dynamic Axial Stiffness <sup>2)</sup>   | $C_{AX\ dyn}$ | kN/m  | 1848                            | 2772                 | 3696                 | 4620                 | 5544                      | 4500                 | 5400                 | 7200                 |  |
| Dynamic Conical Stiffness <sup>2)</sup> | $C_{Con}$     | kNm/rad   | 7.4                             | 14.4                 | 32                   | 60                   | 72                        | 35                   | 49                   | 86                   |  |
| Dynamic Magnifier                       | V             | -   | 16                              |                      |                      |                      |                           |                      |                      |                      |  |
| Relative Damping                        | $\psi$        | -   | 0.4                             |                      |                      |                      |                           |                      |                      |                      |  |
| Maximum Angle                           | $\alpha$      | °   | 1° / 2° <sup>3)</sup>           |                      |                      |                      |                           |                      |                      |                      |  |
| Maximum Radial Displacement             | R             | mm  | 0.15 / 0.40 <sup>3)</sup>       |                      |                      |                      | 0.25 / 0.60 <sup>3)</sup> |                      |                      |                      |  |
| Maximum Axial Displacement              | $\Delta Ax$   | mm  | 1.20 / 3.20 <sup>3)</sup>       |                      |                      |                      | 2.00 / 4.80 <sup>3)</sup> |                      |                      |                      |  |
| Maximum RPM                             | n             | min <sup>-1</sup>   | 6000                            | 5400                 | 4500                 | 3875                 | 3875                      | 3600                 | 3300                 | 3000                 |  |
| Maximum Shaft Diameter                  | d             | mm  | 60                              | 70                   | 85                   | 95                   | 105                       | 110                  | 120                  | 135                  |  |
| A                                       |               | mm  | 100                             | 115                  | 150                  | 160                  | 175                       | 180                  | 180                  | 235                  |  |
| C                                       |               | mm  | 90                              | 105                  | 130                  | 145                  | 160                       | 170                  | 180                  | 200                  |  |
| D                                       |               | mm  | 220                             | 245                  | 295                  | 345                  | 345                       | 370                  | 395                  | 445                  |  |
| L <sub>1</sub>                          |               | mm  | 194                             | 209                  | 244                  | 254                  | 269                       | 333                  | 333                  | 388                  |  |
| L <sub>2</sub>                          |               | mm  | To be determined                |                      |                      |                      |                           |                      |                      |                      |  |
| F                                       |               | mm  | To be determined                |                      |                      |                      |                           |                      |                      |                      |  |
| L                                       |               | mm  | L <sub>1</sub> + L <sub>2</sub> |                      |                      |                      |                           |                      |                      |                      |  |
| Mass                                    | M1            | kg  | 9.85                            | 12.10                | 22.65                | 31.90                | 37.70                     | 58.0                 | 65.9                 | 94.0                 |  |
| Mass                                    | M2            | kg  | 7.20 <sup>4)</sup>              | 9.90 <sup>4)</sup>   | 13.55 <sup>4)</sup>  | 19.20 <sup>4)</sup>  | 19.90 <sup>4)</sup>       | 23.0 <sup>4)</sup>   | 37.0 <sup>4)</sup>   | 48.0 <sup>4)</sup>   |  |
| Mass Moment of Inertia                  | J1            | kgm <sup>2</sup>  | 0.0468                          | 0.0651               | 0.1546               | 0.2906               | 0.3225                    | 0.7016               | 0.9086               | 1.7493               |  |
| Mass Moment of Inertia                  | J2            | kgm <sup>2</sup>  | 0.0302 <sup>4)</sup>            | 0.0519 <sup>4)</sup> | 0.1139 <sup>4)</sup> | 0.2347 <sup>4)</sup> | 0.2468 <sup>4)</sup>      | 0.3871 <sup>4)</sup> | 0.5061 <sup>4)</sup> | 0.8622 <sup>4)</sup> |  |

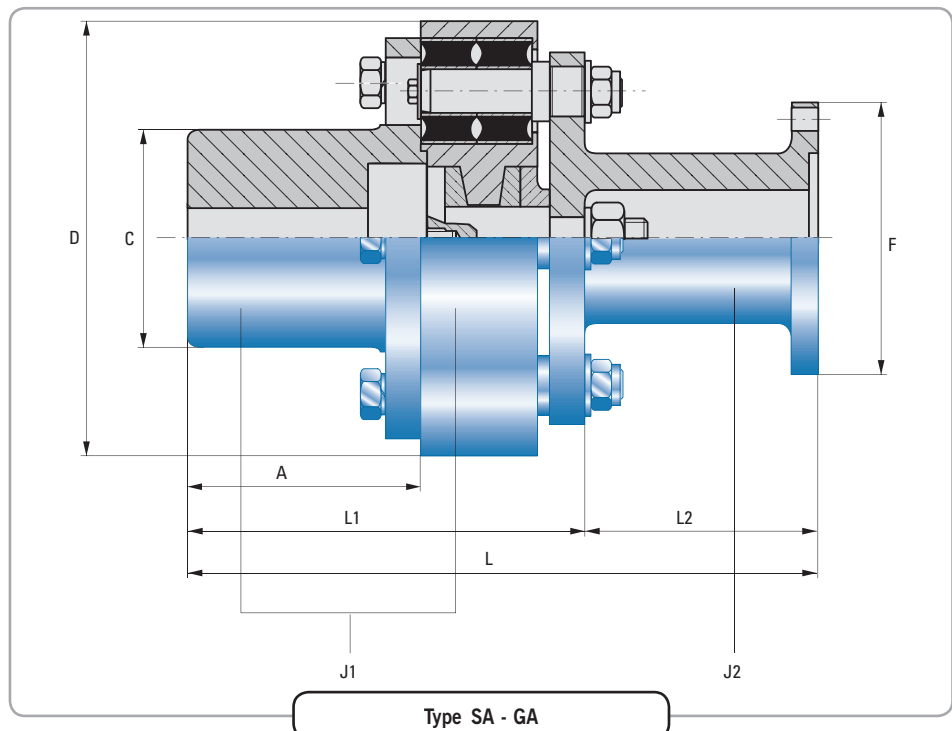


1) Only for SA Type    2) Only for GA Type    3) Continuous / Momentary    4) Plus part from adaptor shaft

**DIMENSIONS AND TECHNICAL DATA**

single ERD coupling

| TYPE                                    |               | ERD 110 ERD 111 ERD 112 |                                 |                      |                      |
|---|---------------|-------------------------|---------------------------------|----------------------|----------------------|
| Nominal torque                          | $T_N$         | kNm                     | 16.2                            | 24.5                 | 40.5                 |
| Maximum torque                          | $T_M$         | kNm                     | 48.6                            | 73.5                 | 121.5                |
| Permissible Vibratory torque            | $T_{Vv}$      | kNm                     | 7.29                            | 11.03                | 18.23                |
| Maximum Thrust Capacity <sup>1)</sup>   | S             | kN                      | 125                             | 125                  | 150                  |
| Dynamic Torsional Stiffness             | $C_{T\ dyn}$  | kNm/rad                 | 1134                            | 1942                 | 4253                 |
| Dynamic Radial Stiffness                | $C_{R\ dyn}$  | kN/m                    | 50400                           | 67200                | 84000                |
| Dynamic Axial Stiffness <sup>2)</sup>   | $C_{Ax\ dyn}$ | kN/m                    | 10800                           | 13440                | 18000                |
| Dynamic Conical Stiffness <sup>2)</sup> | $C_{Con}$     | kNm/rad                 | 162                             | 270                  | 520                  |
| Dynamic Magnifier                       | V             | -                       | 16                              |                      |                      |
| Relative Damping                        | $\psi$        | -                       | 0.4                             |                      |                      |
| Maximum Angle                           | $\alpha$      | °                       | 0.5° / 1° <sup>3)</sup>         |                      |                      |
| Maximum Radial Displacement             | $\Delta R$    | mm                      | 0.25 / 0.60 <sup>3)</sup>       |                      |                      |
| Maximum Axial Displacement              | $\Delta Ax$   | mm                      | 2.00 / 4.80 <sup>3)</sup>       |                      |                      |
| Maximum RPM                             | n             | min <sup>-1</sup>       | 3000                            | 2700                 | 2200                 |
| Maximum Shaft Diameter                  | d             | mm                      | 150                             | 160                  | 180                  |
| A                                       |               | mm                      | 240                             | 245                  | 290                  |
| C                                       |               | mm                      | 220                             | 240                  | 275                  |
| D                                       |               | mm                      | 445                             | 490                  | 600                  |
| L <sub>1</sub>                          |               | mm                      | 410                             | 415                  | 460                  |
| L <sub>2</sub>                          |               | mm                      | To be determined                |                      |                      |
| F                                       |               | mm                      | To be determined                |                      |                      |
| L                                       |               | mm                      | L <sub>1</sub> + L <sub>2</sub> |                      |                      |
| Mass                                    | M1            | kg                      | 112.0                           | 123.0                | 220.0                |
| Mass                                    | M2            | kg                      | 68.0 <sup>4)</sup>              | 71.0 <sup>4)</sup>   | 106.0 <sup>4)</sup>  |
| Mass Moment of Inertia                  | J1            | kgm <sup>2</sup>        | 2.0226                          | 2.6480               | 7.1960               |
| Mass Moment of Inertia                  | J2            | kgm <sup>2</sup>        | 1.3401 <sup>4)</sup>            | 1.4373 <sup>4)</sup> | 3.6745 <sup>4)</sup> |

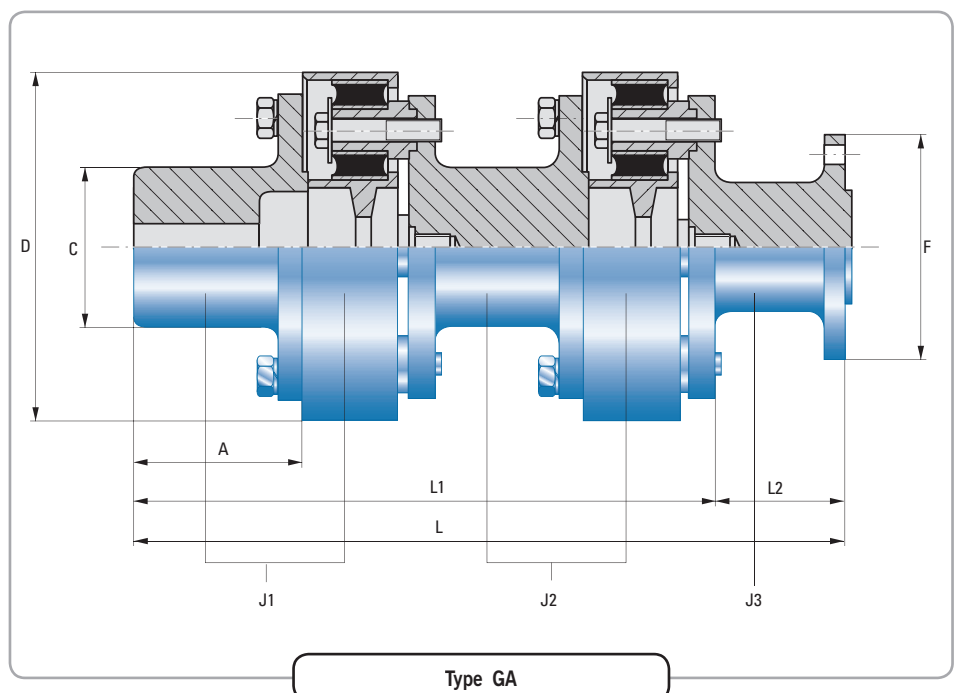


1) Only for SA Type    2) Only for GA Type    3) Continuous / Momentary    4) Plus part from adaptor shaft

**DIMENSIONS AND TECHNICAL DATA**

**twin ERD Coupling**

| TYPE                                    |               |                   | ERD 202                           | ERD 203              | ERD 204              | ERD 205              | ERD 206              | ERD 207              | ERD 208              | ERD 209              |  |
|---|---------------|-------------------|-----------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|
| Nominal torque                          | $T_N$         | kNm               | 0.75                              | 1.25                 | 2.20                 | 3.35                 | 4.05                 | 5.6                  | 7.3                  | 11.2                 |  |
| Maximum torque                          | $T_M$         | kNm               | 2.25                              | 3.75                 | 6.60                 | 10.05                | 12.15                | 16.9                 | 21.9                 | 33.6                 |  |
| Permissible Vibratory torque            | $T_V$         | kNm               | 0.34                              | 0.56                 | 0.99                 | 1.51                 | 1.83                 | 2.53                 | 3.28                 | 5.04                 |  |
| Dynamic Torsional Stiffness             | $C_{T\ dyn}$  | kNm/rad           | 35,4                              | 69.6                 | 155.7                | 293.7                | 352.5                | 165                  | 230                  | 404                  |  |
| Dynamic Radial Stiffness                | $C_{R\ dyn}$  | kN/m              | 267                               | 470                  | 950                  | 1632                 | 1798                 | 800                  | 810                  | 1390                 |  |
| Dynamic Axial Stiffness <sup>2)</sup>   | $C_{Ax\ dyn}$ | kN/m              | 924                               | 1386                 | 1848                 | 2310                 | 2772                 | 2250                 | 2700                 | 3600                 |  |
| Dynamic Conical Stiffness <sup>2)</sup> | $C_{Con}$     | kNm/rad           | 3.7                               | 7.2                  | 16                   | 30                   | 36                   | 17.5                 | 24.5                 | 43                   |  |
| Dynamic Magnifier                       | V             | -                 | 16                                |                      |                      |                      |                      |                      |                      |                      |  |
| Relative Damping                        | $\psi$        | -                 | 0.4                               |                      |                      |                      |                      |                      |                      |                      |  |
| Maximum Angle                           | $\alpha$      | °                 | $2^\circ / 4^\circ$ <sup>3)</sup> |                      |                      |                      |                      |                      |                      |                      |  |
| Maximum Radial Displacement             | $\Delta R$    | mm                | 6/12 <sup>3)</sup>                | 7/14 <sup>3)</sup>   | 7/14 <sup>3)</sup>   | 8/16 <sup>3)</sup>   | 8/16 <sup>3)</sup>   | 10/20 <sup>3)</sup>  | 12/24 <sup>3)</sup>  | 12/24 <sup>3)</sup>  |  |
| Maximum Axial Displacement              | $\Delta Ax$   | mm                | 2.40 / 6.40 <sup>3)</sup>         |                      |                      |                      |                      |                      | v                    |                      |  |
| Maximum RPM                             | n             | min <sup>-1</sup> | 4500                              | 4050                 | 3375                 | 2900                 | 2900                 | 2700                 | 2475                 | 2250                 |  |
| Maximum Shaft Diameter                  | d             | mm                | 60                                | 70                   | 85                   | 95                   | 105                  | 110                  | 120                  | 135                  |  |
| A                                       | mm            |                   | 100                               | 115                  | 150                  | 160                  | 175                  | 180                  | 180                  | 235                  |  |
| C                                       | mm            |                   | 90                                | 105                  | 130                  | 145                  | 160                  | 170                  | 180                  | 200                  |  |
| D                                       | mm            |                   | 220                               | 245                  | 295                  | 345                  | 345                  | 370                  | 395                  | 445                  |  |
| L <sub>1</sub>                          | mm            |                   | 391                               | 416                  | 461                  | 481                  | 506                  | 630                  | 681                  | 741                  |  |
| L <sub>2</sub>                          | mm            |                   | To be determined                  |                      |                      |                      |                      |                      |                      |                      |  |
| F                                       | mm            |                   | To be determined                  |                      |                      |                      |                      |                      |                      |                      |  |
| L                                       | mm            |                   | L <sub>1</sub> + L <sub>2</sub>   |                      |                      |                      |                      |                      |                      |                      |  |
| Mass                                    | M1            | kg                | 9.85                              | 12.10                | 22.65                | 31.90                | 37.70                | 58.0                 | 65.9                 | 94.0                 |  |
| Mass                                    | M2            | kg                | 17.55                             | 22.45                | 33.15                | 45.20                | 48.10                | 81.0                 | 88.0                 | 121.0                |  |
| Mass                                    | M3            | kg                | 7.20 <sup>4)</sup>                | 9.90 <sup>4)</sup>   | 13.55 <sup>4)</sup>  | 19.20 <sup>4)</sup>  | 19.90 <sup>4)</sup>  | 23.0 <sup>4)</sup>   | 37.0 <sup>4)</sup>   | 48.0 <sup>4)</sup>   |  |
| Mass Moment of Inertia                  | J1            | kgm <sup>2</sup>  | 0.0468                            | 0.0651               | 0.1546               | 0.2906               | 0.3225               | 0.7016               | 0.9086               | 1.7493               |  |
| Mass Moment of Inertia                  | J2            | kgm <sup>2</sup>  | 0.0750                            | 0.1062               | 0.2331               | 0.4439               | 0.4571               | 1.0457               | 1.3182               | 2.4762               |  |
| Mass Moment of Inertia                  | J3            | kgm <sup>2</sup>  | 0.0302 <sup>4)</sup>              | 0.0519 <sup>4)</sup> | 0.1139 <sup>4)</sup> | 0.2347 <sup>4)</sup> | 0.2468 <sup>4)</sup> | 0.3871 <sup>4)</sup> | 0.5061 <sup>4)</sup> | 0.8622 <sup>4)</sup> |  |



2) Only for GA Type

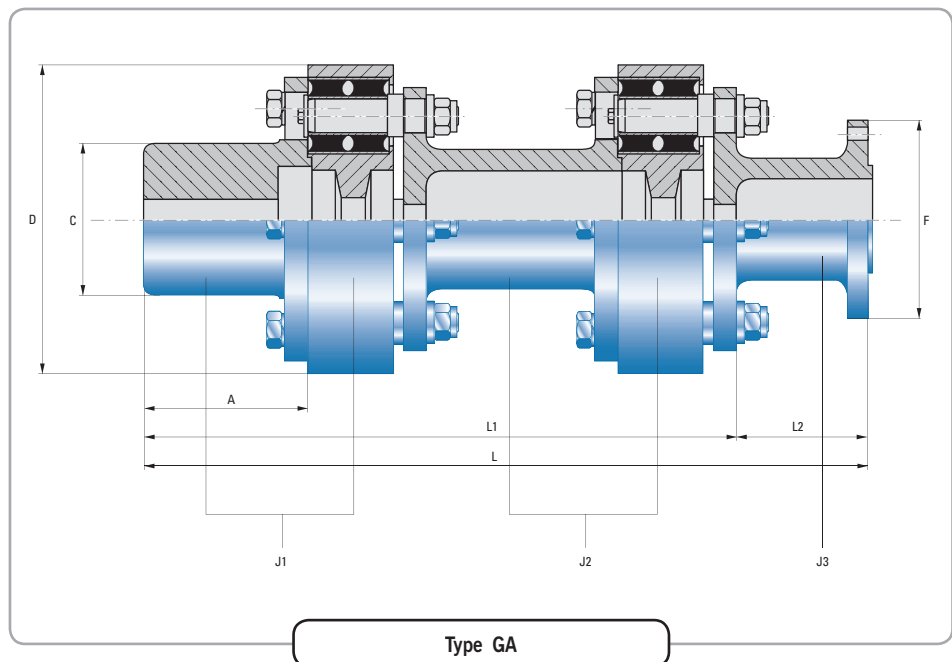
3) Continuous / Momentary

4) Plus part from adaptor shaft

**DIMENSIONS AND TECHNICAL DATA**

**twin ERD Coupling**

| TYPE                                    |               |                   | ERD 210                         | ERD 211              | ERD 212              |
|---|---------------|-------------------|---------------------------------|----------------------|----------------------|
| Nominal torque                          | $T_N$         | kNm               | 16.2                            | 24.5                 | 40.5                 |
| Maximum torque                          | $T_M$         | kNm               | 48.6                            | 73.5                 | 121.5                |
| Permissible Vibratory torque            | $T_{Vv}$      | kNm               | 7.29                            | 11.03                | 18.23                |
| Dynamic Torsional Stiffness             | $C_{T\ dyn}$  | kNm/rad           | 567                             | 971                  | 2126.5               |
| Dynamic Radial Stiffness                | $C_{R\ dyn}$  | kN/m              | 1600                            | 2600                 | 6050                 |
| Dynamic Axial Stiffness <sup>2)</sup>   | $C_{Ax\ dyn}$ | kN/m              | 5400                            | 6720                 | 9000                 |
| Dynamic Conical Stiffness <sup>2)</sup> | $C_{Con}$     | kNm/rad           | 81                              | 135                  | 260                  |
| Dynamic Magnifier                       | V             | -                 | 16                              |                      |                      |
| Relative Damping                        | $\psi$        | -                 | 0.4                             |                      |                      |
| Maximum Angle                           | $\alpha$      | °                 | 1° / 2° <sup>3)</sup>           |                      |                      |
| Maximum Radial Displacement             | $\Delta R$    | mm                | 8 / 16 <sup>3)</sup>            |                      |                      |
| Maximum Axial Displacement              | $\Delta Ax$   | mm                | 4.0 / 9.6 <sup>3)</sup>         |                      |                      |
| Maximum RPM                             | n             | min <sup>-1</sup> | 2250                            | 2025                 | 1650                 |
| Maximum Shaft Diameter                  | d             | mm                | 150                             | 160                  | 180                  |
| A                                       |               | mm                | 240                             | 245                  | 290                  |
| C                                       |               | mm                | 220                             | 240                  | 275                  |
| D                                       |               | mm                | 445                             | 490                  | 600                  |
| L <sub>1</sub>                          |               | mm                | 860                             | 870                  | 875                  |
| L <sub>2</sub>                          |               | mm                | To be determined                |                      |                      |
| F                                       |               | mm                | To be determined                |                      |                      |
| L                                       |               | mm                | L <sub>1</sub> + L <sub>2</sub> |                      |                      |
| Mass                                    | M1            | kg                | 112.0                           | 123.0                | 220.0                |
| Mass                                    | M2            | kg                | 174.0                           | 180.0                | 246.0                |
| Mass                                    | M3            | kg                | 68.0 <sup>4)</sup>              | 71.0 <sup>4)</sup>   | 106.0 <sup>4)</sup>  |
| Mass Moment of Inertia                  | J1            | kgm <sup>2</sup>  | 2.0226                          | 2.6480               | 7.1960               |
| Mass Moment of Inertia                  | J2            | kgm <sup>2</sup>  | 3.3893                          | 4.0249               | 10.5615              |
| Mass Moment of Inertia                  | J3            | kgm <sup>2</sup>  | 1.3401 <sup>4)</sup>            | 1.4373 <sup>4)</sup> | 3.6745 <sup>4)</sup> |



2) Only for GA Type

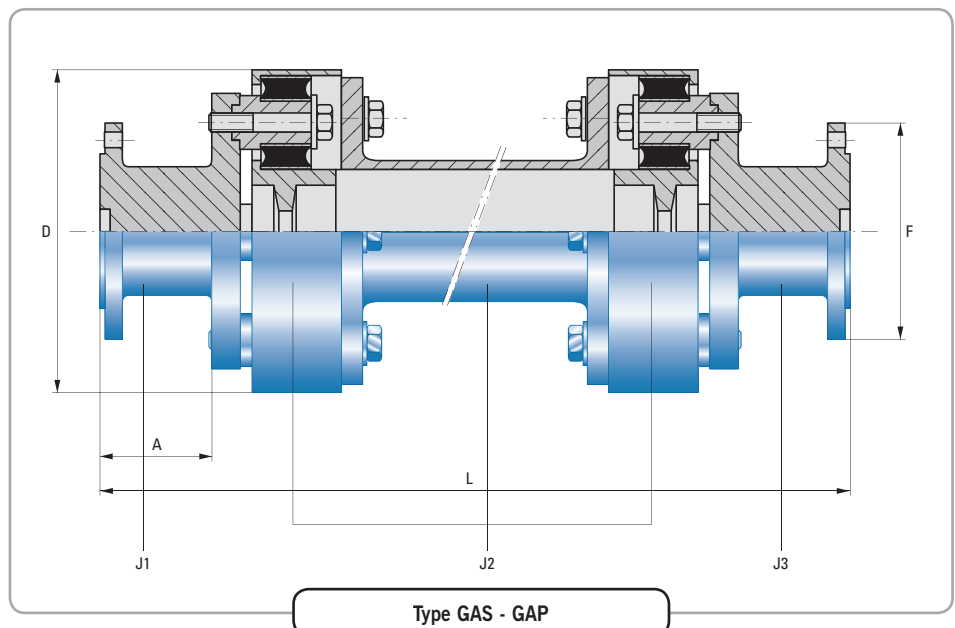
3) Continuous / Momentary

4) Plus part from adaptor shaft

**DIMENSIONS AND TECHNICAL DATA**

**twin ERD Coupling**

| TYPE                                    |               | ERD 202 ERD 203 ERD 204 ERD 205 ERD 206 ERD 207 ERD 208 ERD 209 |                                   |      |       |       |                         |      |      |      |
|---|---------------|---|-----------------------------------|------|-------|-------|-------------------------|------|------|------|
| Nominal torque                          | $T_N$         | kNm   | 0.75                              | 1.25 | 2.20  | 3.35  | 4.05                    | 5.6  | 7.3  | 11.2 |
| Maximum torque                          | $T_M$         | kNm   | 2.25                              | 3.75 | 6.60  | 10.05 | 12.15                   | 16.9 | 21.9 | 33.6 |
| Permissible Vibratory torque            | $T_W$         | kNm   | 0.34                              | 0.56 | 0.99  | 1.51  | 1.83                    | 2.53 | 3.28 | 5.04 |
| Dynamic Torsional Stiffness             | $C_{T\ dyn}$  | kNm/rad   | 35,4                              | 69.6 | 155.7 | 293.7 | 352.5                   | 165  | 230  | 404  |
| Dynamic Radial Stiffness                | $C_{R\ dyn}$  | kN/m  | Depending on application          |      |       |       |                         |      |      |      |
| Dynamic Axial Stiffness <sup>2)</sup>   | $C_{Ax\ dyn}$ | kN/m  | 924                               | 1386 | 1848  | 2310  | 2772                    | 2250 | 2700 | 3600 |
| Dynamic Conical Stiffness <sup>2)</sup> | $C_{Con}$     | kNm/rad   | 3.7                               | 7.2  | 16    | 30    | 36                      | 17.5 | 24.5 | 43   |
| Dynamic Magnifier                       | V             | -   | 16                                |      |       |       |                         |      |      |      |
| Relative Damping                        | $\psi$        | -   | 0.4                               |      |       |       |                         |      |      |      |
| Maximum Angle                           | $\alpha$      | °   | $2^\circ / 4^\circ$ <sup>3)</sup> |      |       |       |                         |      |      |      |
| Maximum Radial Displacement             | $\Delta R$    | mm  | Depending on application          |      |       |       |                         |      |      |      |
| Maximum Axial Displacement              | $\Delta Ax$   | mm  | 2.40 / 6.40 <sup>3)</sup>         |      |       |       | 4.0 / 9.6 <sup>3)</sup> |      |      |      |
| Maximum RPM                             | n             | min <sup>-1</sup>   | 4500                              | 4050 | 3375  | 2900  | 2900                    | 2700 | 2475 | 2250 |
| Maximum Shaft Diameter                  | d             | mm  | Depending on application          |      |       |       |                         |      |      |      |
| D                                       |               | mm  | 220                               | 245  | 295   | 345   | 345                     | 370  | 395  | 445  |
| F                                       |               | mm  | Depending on application          |      |       |       |                         |      |      |      |
| L                                       |               | mm  | Depending on application          |      |       |       |                         |      |      |      |
| Mass                                    | M1            | kg  | Depending on application          |      |       |       |                         |      |      |      |
| Mass                                    | M2            | kg  | Depending on application          |      |       |       |                         |      |      |      |
| Mass                                    | M3            | kg  | Depending on application          |      |       |       |                         |      |      |      |
| Mass Moment of Inertia                  | J1            | kgm <sup>2</sup>  | Depending on application          |      |       |       |                         |      |      |      |
| Mass Moment of Inertia                  | J2            | kgm <sup>2</sup>  | Depending on application          |      |       |       |                         |      |      |      |
| Mass Moment of Inertia                  | J3            | kgm <sup>2</sup>  | Depending on application          |      |       |       |                         |      |      |      |



2) Only for GA Type

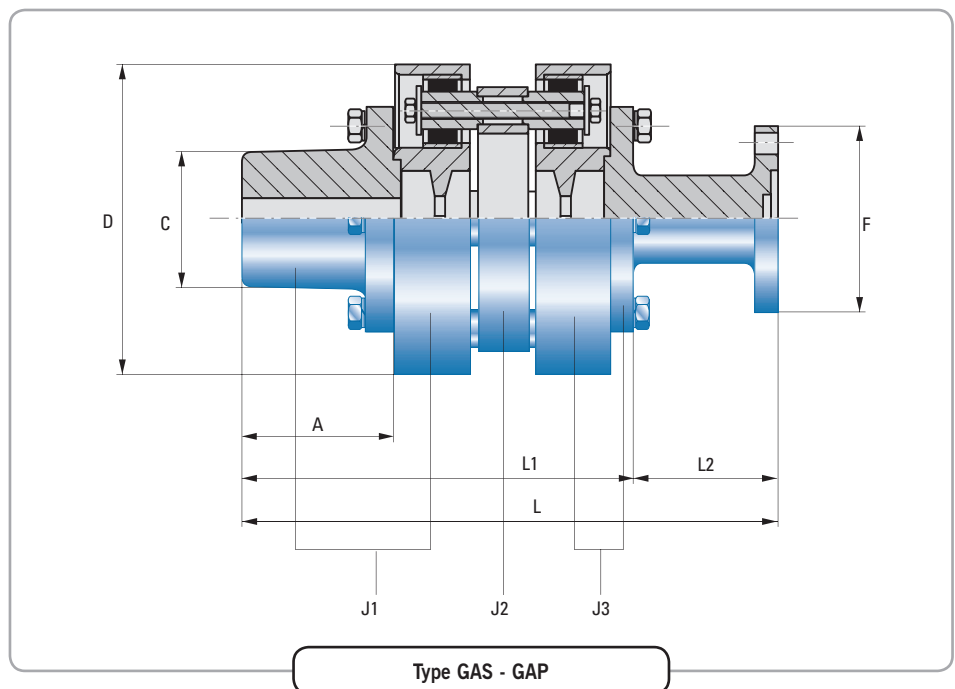
3) Continuous / Momentary

4) Plus part from adaptor shaft

**DIMENSIONS AND TECHNICAL DATA**

single ERD Coupling

| TYPE                                    |               |                   | ERD 202                           | ERD 203              | ERD 204              | ERD 205              | ERD 206              | ERD 207              | ERD 208                 | ERD 209              |  |
|---|---------------|-------------------|-----------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------------------------|----------------------|--|
| Nominal torque                          | $T_N$         | kNm               | 0.75                              | 1.25                 | 2.20                 | 3.35                 | 4.05                 | 5.6                  | 7.3                     | 11.2                 |  |
| Maximum torque                          | $T_M$         | kNm               | 2.25                              | 3.75                 | 6.60                 | 10.05                | 12.15                | 16.9                 | 21.9                    | 33.6                 |  |
| Permissible Vibratory torque            | $T_V$         | kNm               | 0.34                              | 0.56                 | 0.99                 | 1.51                 | 1.83                 | 2.53                 | 3.28                    | 5.04                 |  |
| Dynamic Torsional Stiffness             | $C_{T\ dyn}$  | kNm/rad           | 35,4                              | 69.6                 | 155.7                | 293.7                | 352.5                | 165                  | 230                     | 404                  |  |
| Dynamic Radial Stiffness                | $C_{R\ dyn}$  | kN/m              | 940                               | 1828                 | 4063                 | 7617                 | 9142                 | 1567                 | 2140                    | 3852                 |  |
| Dynamic Axial Stiffness <sup>2)</sup>   | $C_{Ax\ dyn}$ | kN/m              | 924                               | 1386                 | 1848                 | 2310                 | 2772                 | 2250                 | 2700                    | 3600                 |  |
| Dynamic Conical Stiffness <sup>2)</sup> | $C_{Con}$     | kNm/rad           | 3.7                               | 7.2                  | 16                   | 30                   | 36                   | 17.5                 | 24.5                    | 43                   |  |
| Dynamic Magnifier                       | V             | -                 | 16                                |                      |                      |                      |                      |                      |                         |                      |  |
| Relative Damping                        | $\psi$        | -                 | 0.4                               |                      |                      |                      |                      |                      |                         |                      |  |
| Maximum Angle                           | $\alpha$      | °                 | $2^\circ / 4^\circ$ <sup>3)</sup> |                      |                      |                      |                      |                      |                         |                      |  |
| Maximum Radial Displacement             | $\Delta R$    | mm                | 1.75 / 3.5 <sup>3)</sup>          |                      |                      |                      |                      |                      | 4.5 / 9.0 <sup>3)</sup> |                      |  |
| Maximum Axial Displacement              | $\Delta Ax$   | mm                | 2.40 / 6.40 <sup>3)</sup>         |                      |                      |                      |                      |                      | 4.0 / 9.6 <sup>3)</sup> |                      |  |
| Maximum RPM                             | n             | min <sup>-1</sup> | 4500                              | 4050                 | 3375                 | 2900                 | 2900                 | 2700                 | 2475                    | 2250                 |  |
| Maximum Shaft Diameter                  | d             | mm                | 60                                | 70                   | 85                   | 95                   | 105                  | 110                  | 120                     | 135                  |  |
| A                                       |               | mm                | 100                               | 115                  | 150                  | 160                  | 175                  | 180                  | 180                     | 235                  |  |
| C                                       |               | mm                | 90                                | 105                  | 130                  | 145                  | 160                  | 170                  | 180                     | 200                  |  |
| D                                       |               | mm                | 220                               | 245                  | 295                  | 345                  | 345                  | 370                  | 395                     | 445                  |  |
| L <sub>1</sub>                          |               | mm                | 305                               | 320                  | 355                  | 365                  | 380                  | 530                  | 530                     | 585                  |  |
| L <sub>2</sub>                          |               | mm                | To be determined                  |                      |                      |                      |                      |                      |                         |                      |  |
| F                                       |               | mm                | To be determined                  |                      |                      |                      |                      |                      |                         |                      |  |
| L                                       |               | mm                | L <sub>1</sub> + L <sub>2</sub>   |                      |                      |                      |                      |                      |                         |                      |  |
| Mass                                    | M1            | kg                | 10.694                            | 13.7                 | 24.329               | 32.852               | 38.254               | 59.715               | 67.994                  | 107.0                |  |
| Mass                                    | M2            | kg                | 8.814                             | 10.861               | 14.179               | 17.497               | 18.545               | 53.704               | 59.769                  | 71.899               |  |
| Mass                                    | M3            | kg                | 10.746 <sup>4)</sup>              | 12.99 <sup>4)</sup>  | 19.975 <sup>4)</sup> | 27.895 <sup>4)</sup> | 27.424 <sup>4)</sup> | 43.563 <sup>4)</sup> | 49.447 <sup>4)</sup>    | 62.467 <sup>4)</sup> |  |
| Mass Moment of Inertia                  | J1            | kgm <sup>2</sup>  | 0.045                             | 0.0674               | 0.1505               | 0.2716               | 0.2977               | 0.7237               | 0.9414                  | 1.8914               |  |
| Mass Moment of Inertia                  | J2            | kgm <sup>2</sup>  | 0.0512                            | 0.0819               | 0.1761               | 0.3244               | 0.3436               | 0.9072               | 1.1635                  | 1.6771               |  |
| Mass Moment of Inertia                  | J3            | kgm <sup>2</sup>  | 0.0566 <sup>4)</sup>              | 0.0833 <sup>4)</sup> | 0.1867 <sup>4)</sup> | 0.3605 <sup>4)</sup> | 0.3513 <sup>4)</sup> | 0.6797 <sup>4)</sup> | 0.8726 <sup>4)</sup>    | 1.3948 <sup>4)</sup> |  |

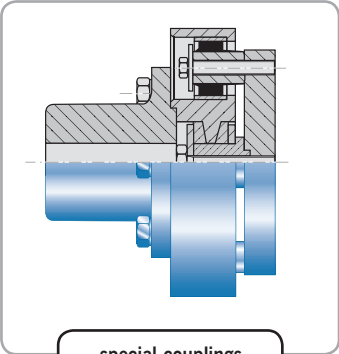


2) Only for GA Type

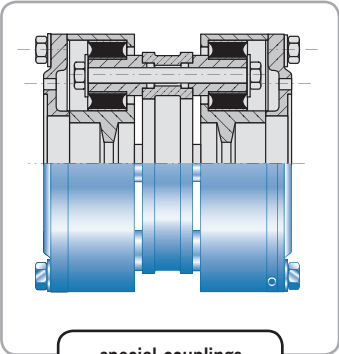
3) Continuous / Momentary

4) Plus part from adaptor shaft

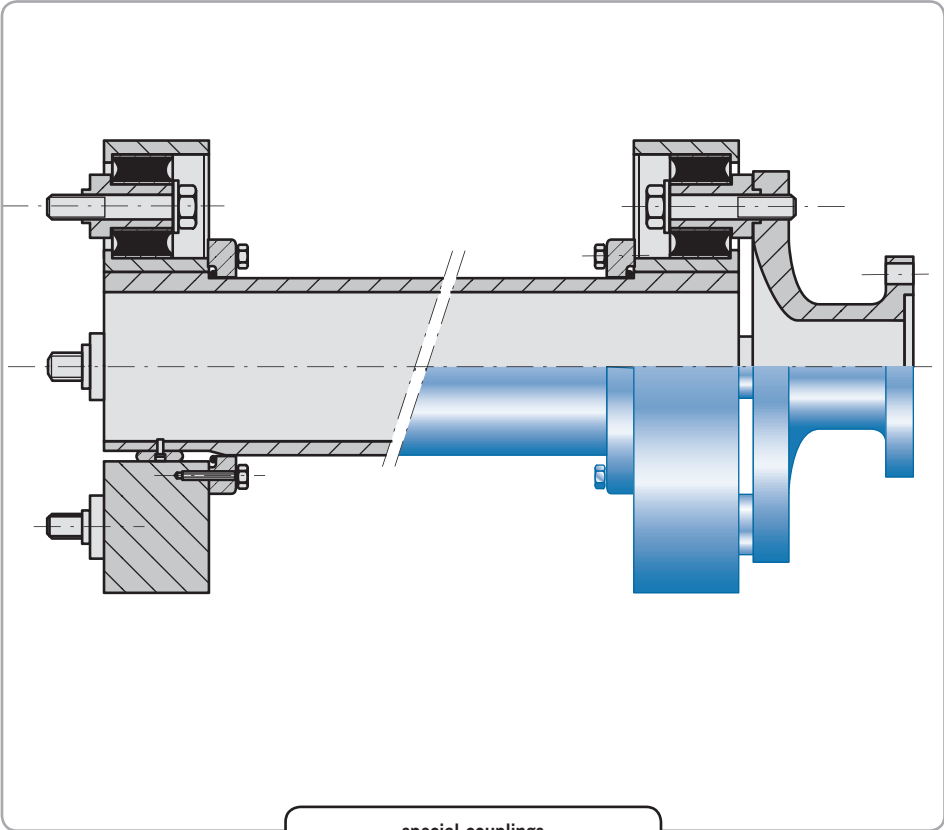
SPECIAL COUPLINGS



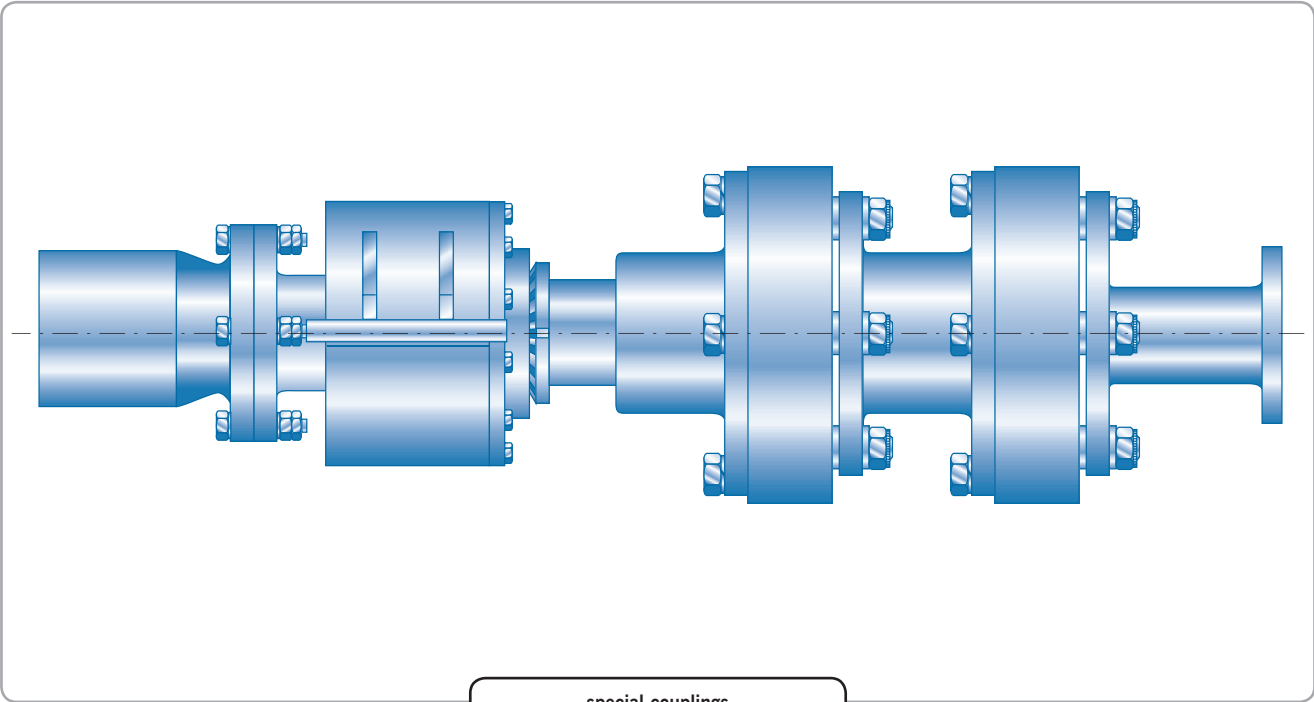
special couplings



special couplings



special couplings



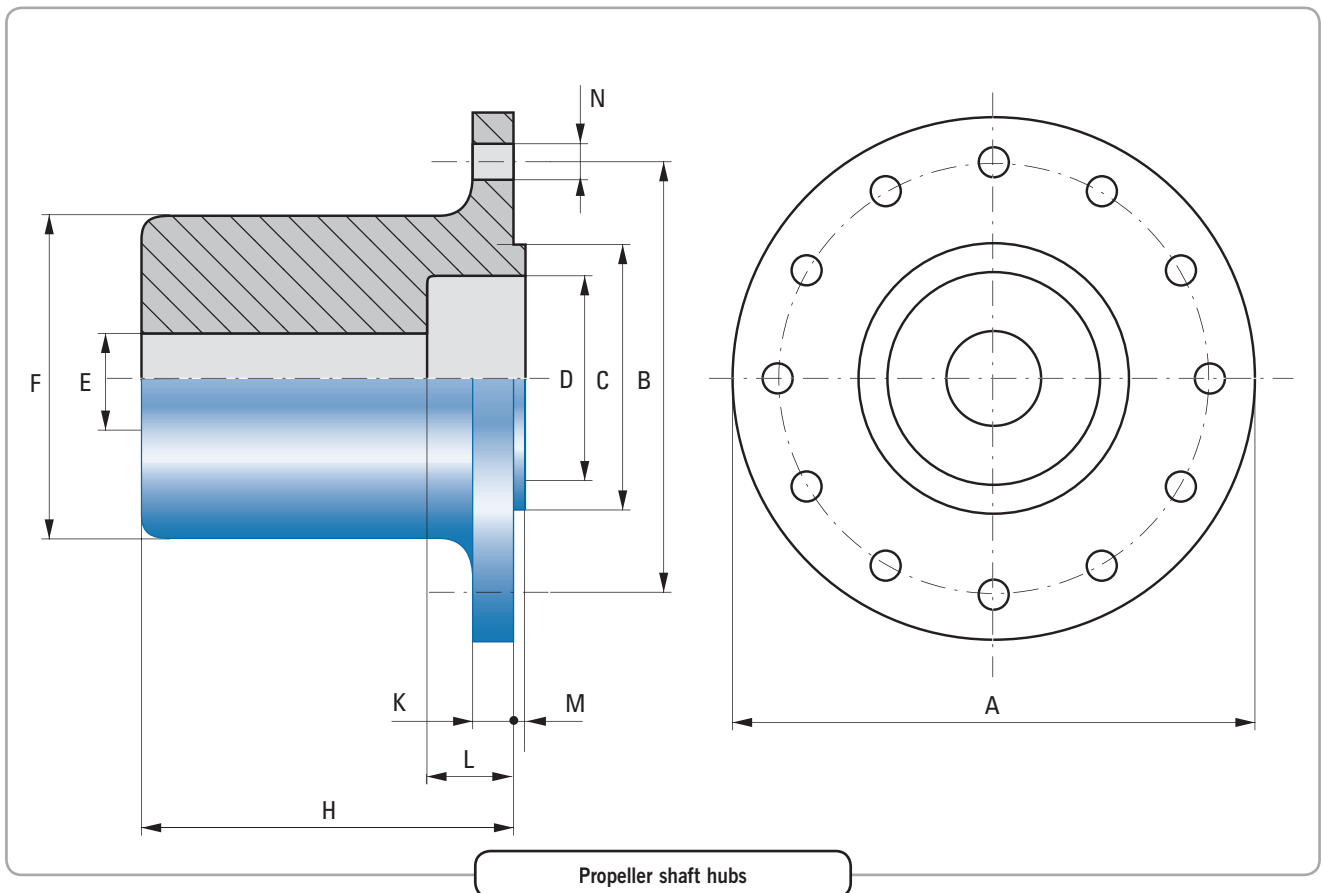
special couplings

**DIMENSIONS**

propeller shaft hubs

single and twin coupling  
type GF, SF, GA and SA

| TYPE | A (mm) | B (mm) | C (mm)         | D (mm) | E (mm) | F (mm) | H (mm) | K (mm)     | L (mm) | M (mm) | N (mm)     |
|------|--------|--------|----------------|--------|--------|--------|--------|------------|--------|--------|------------|
| 02   | ø160   | ø130   | ø100           | ø70    | ø25    | ø90    | 100    | 18         | 30     | 5      | 4 x ø14.5  |
| 03   | ø175   | ø145   | ø100           | ø80    | ø35    | ø105   | 115    | 18         | 40     | 5      | 6 x ø14.5  |
| 04   | ø205   | ø175   | ø100           | ø90    | ø40    | ø130   | 150    | 18         | 40     | 5      | 8 x ø14.5  |
| 05   | ø240   | ø200   | ø125           | ø100   | ø45    | ø145   | 160    | 20         | 40     | 5      | 10 x ø14.5 |
| 06   | ø250   | ø205   | ø125           | ø100   | ø45    | ø155   | 175    | 20         | 40     | 5      | 12 x ø14.5 |
| 07   | ø325   | ø275   | ø160           | ø120   | ø50    | ø170   | 180    | 25         | 45     | 5      | 5 x ø24.5  |
| 08   | ø350   | ø300   | ø160 / ø162 *) | ø125   | ø50    | ø180   | 180    | 25 / 26 *) | 50     | 5      | 6 x ø24.5  |
| 09   | ø430   | ø380   | ø160 / ø162 *) | ø140   | ø50    | ø200   | 235    | 25 / 26 *) | 55     | 5      | 8 x ø24.5  |
| 10   | ø410   | ø300   | ø180 / ø182 *) | ø155   | ø60    | ø220   | 240    | 35 / 36 *) | 55     | 5      | 6 x ø30.5  |
| 11   | ø475   | ø420   | ø220 / ø222 *) | ø180   | ø60    | ø240   | 245    | 35 / 36 *) | 65     | 5      | 8 x ø30.5  |
| 12   | ø585   | ø500   | ø300 / ø302 *) | ø190   | ø60    | ø275   | 290    | 40 / 41 *) | 75     | 5      | 10 x ø30.5 |



Propeller shaft hubs

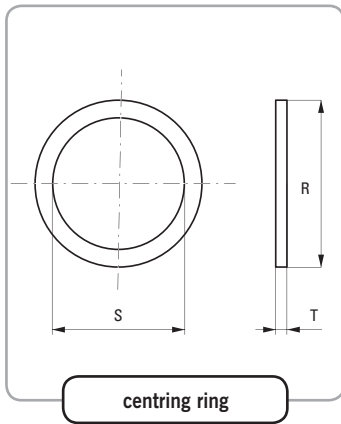
\*) Premachined at larger dimension

**DIMENSIONS**

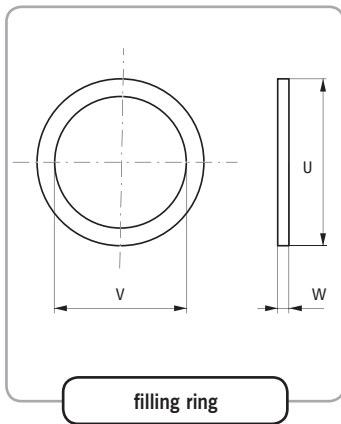
split, centring & filling ring

single and twin coupling  
type GF and SA

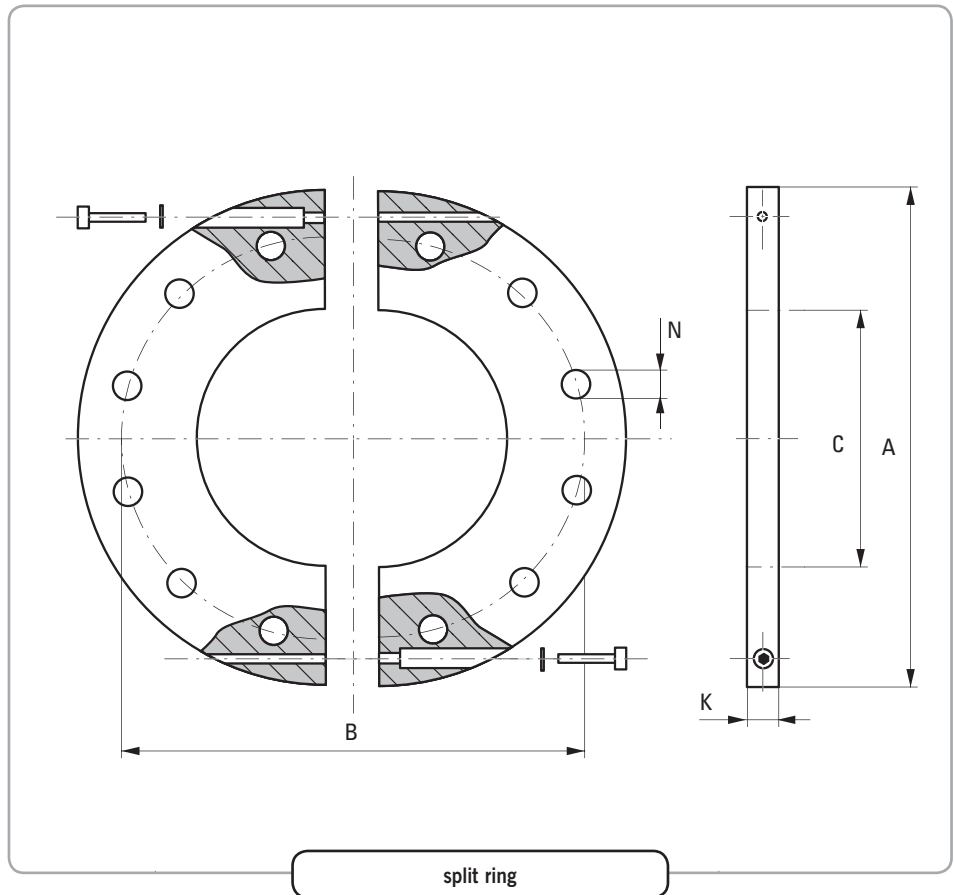
| TYPE | A (mm) | B (mm) | C (mm) | K (mm) | N (mm)           | R (mm) | S (mm) | T (mm) | U (mm) | V (mm) | W (mm) |
|------|--------|--------|--------|--------|------------------|--------|--------|--------|--------|--------|--------|
| 02   | 160    | 130    | 100    | 15     | 4 x $\phi 14.5$  | 100    | 80     | 9      | 100    | 80     | 6      |
| 03   | 175    | 145    | 100    | 15     | 6 x $\phi 14.5$  | 100    | 80     | 9      | 100    | 80     | 6      |
| 04   | 215    | 175    | 100    | 15     | 8 x $\phi 14.5$  | 100    | 80     | 9      | 100    | 80     | 6      |
| 05   | 245    | 200    | 125    | 15     | 10 x $\phi 14.5$ | 125    | 100    | 9      | 125    | 100    | 6      |
| 06   | 255    | 205    | 125    | 15     | 12 x $\phi 14.5$ | 125    | 100    | 9      | 125    | 100    | 6      |



centring ring



filling ring



split ring