



*your reliable partner*

## ROBA<sup>®</sup>-DSM

The Torque Measuring  
Machine Element



P.971005.V00.EN

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## Construction and Development

### Innovations for Your Success

With our innovative and economical solutions, we are able to set new records in the field of power transmission. Our many worldwide patents prove our constant ambition to develop better and technologically superior products.

Highly qualified engineers, high-performance 3D-CAD-systems and the most up-to-date FEM calculation aids used in our Development and Construction departments mean that our business is perfectly equipped to offer our customers effective solutions.

### Experts for all Power Transmission Questions

Exploit our know-how, gained by decades of experience in the development, production and application of power transmission products. Our experts in Construction and Development are happy to advise you personally and competently when selecting and dimensioning the drive solution you require.

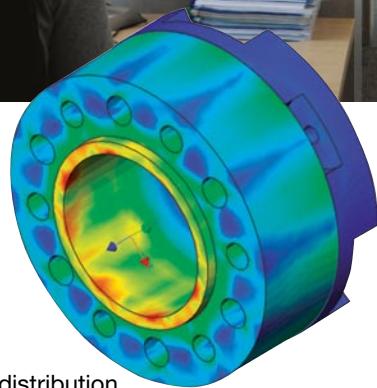
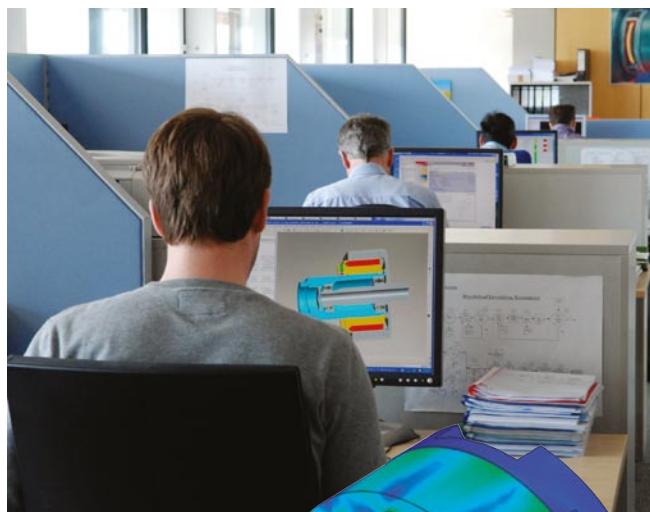


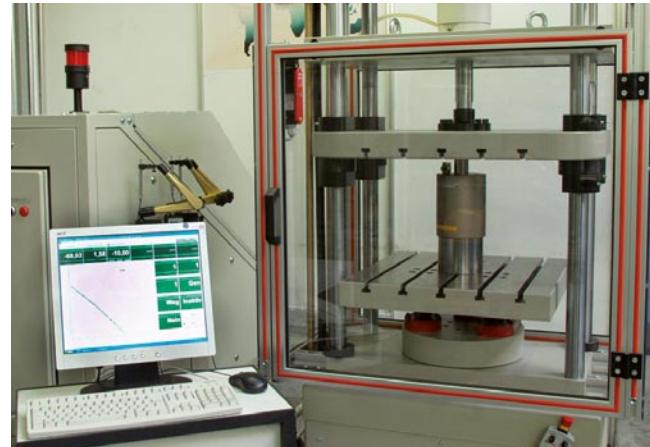
Illustration of the stress distribution in a backlash-free shaft connection

## From Prototype to Finished Product

**No mayr® product is released onto the market until it has proved its functional capabilities and reliability in extreme, long-term tests.**

The spectrum of testing stands is as varied as our range of products:

- Friction work test stands
- Wear test stands
- Noise measurement room with highly accurate noise measurement inspection devices
- Torque inspection stands up to 200.000 Nm
- Impact alternating load test stands
- Force test stands
- Linear movement test stands
- Continuous performance test stands
- Magnetic flow measurement test stands
- High-speed test stands up to 20.000 rpm
- Misalignment and angular misalignment test stands
- Load and measurement test stands for DC motors



## Product Data: Our 24-hour Service

Our website offers you detailed information 24 hours per day, 365 days per year with no delays. Here you can find not only the latest catalogues and technical documentation but also CAD-files for cost-saving construction of our products.

## Unsurpassed - Our Standard Program

For safety clutches, safety brakes, backlash-free shaft couplings and high-quality DC drives, we offer you a complete product range with market and branch optimised constructions and designs.

## A Worldwide Presence

Our Sales and Service network is constantly expanding. We guarantee you and your customers local representation almost all over the world. With eight branch firms in France, Switzerland, Italy, England, Poland, the USA, Singapore and China as well as around 30 representatives and eight subsidiaries in Germany, we provide local service for our customers in all important industrial areas.



## Total Quality Management

### Product Quality

Every delivery which leaves our firm has been subjected to a careful quality inspection, meaning that you are able to rely 100 % on *mayr®* products. If required, we pre-adjust our clutches and brakes accurately to the requested values and confirm the product characteristics with an Inspection Report.

### Quality Management

*mayr®* uses the term quality to describe its products and services. Certification of our quality management confirms the quality-consciousness of our colleagues at every level of the company.

Our integrated management system is certified according to **DIN EN ISO 9001:2000 (Quality)** and **DIN EN ISO 14001 (Environment)** and complies with the **OHSAS 18001/OHRIS (Occupational Health and Safety)** demands.



## Individual and Flexible Logistics

Flexible and optimally qualified colleagues ensure that your order is delivered according to schedule and with the most appropriate delivery method. We take into account your individual packaging and dispatch regulations as a matter of course. Our modern high rack warehouse has a permanently available stock of our wide standard product selection.

And if you are really in a hurry, simply use our uniquely-quick basic product delivery service!



## ROBA®-DSM – the measuring machine element

The torque measuring shaft coupling ROBA®-DSM is based on the tried and tested backlash-free ROBA®-DS disk pack coupling. The areas of application for this torque measurement coupling range from test stand construction through use in serial production machines right up to condition monitoring. The system permits uncomplicated condition monitoring of machines and systems. Machines can be optimally utilised through evaluation of the coupling data.

### Valuable data for maximum productivity

The ROBA®-DSM monitors machines and records the measurement values<sup>1)</sup>. From this data, important information can be obtained for the user:

- Machine performance data
- Unpermitted operating conditions lying outside the specifications (in case of a defect or reclaim)
- Utilisation or runtime of the machine
- Current operating conditions and condition changes to the machine for preventative maintenance purposes
- Dynamic maintenance intervals dependent on the utilisation

### Highlights and system advantages

- Direct PC connection possible (USB connection)
- Software for visualisation of the measurement values available as an option
- Use without bearings
- Wide temperature range from -20 ° to +70 °
- Simple installation and set-up
- Low space requirements on the drive line, no torque support required
- Resistant to vibrations and distance changes on the energy transmitter
- Housing and plug-in connector suitable for industrial purposes (protected against water spray)
- High measuring rate of 7000 measurements per second permits the recording of highly-dynamic loads
- Operation of extension sensor without battery via contactless power supply



Fig. 1

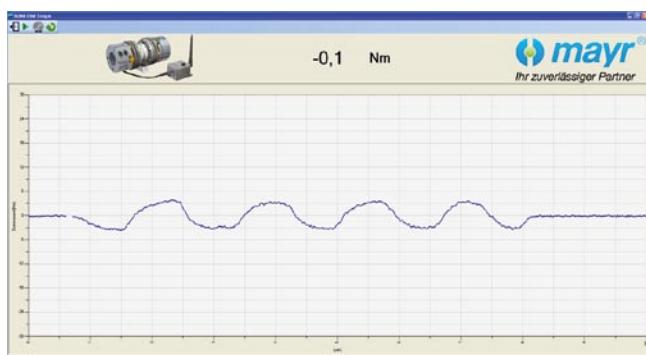


Fig. 2

### Order number

|  | HUB 1 | HUB 2 |  |
|--|-------|-------|--|
| Key hub, standard (Fig. 7)                   | 0     | 0     | Key hub, standard (Fig. 7)                   |
| Key hub, large (Fig. 8)                      | 1     | 1     | Key hub, large (Fig. 8)                      |
| Shrink disk hub / external clamping (Fig. 9) | 2     | 2     | Shrink disk hub / external clamping (Fig. 9) |
| Clamping ring hub (Fig. 11)                  | 4     | 4     | Clamping ring hub (Fig. 11)                  |
| Clamping hub (Figs. 1, 3 and 12)             | 5     | 5     | Clamping hub (Figs. 1, 3 and 12)             |
| Flange (Fig. 13)                             | 6     | 6     | Flange (Fig. 13)                             |
| Split clamping hub <sup>3)</sup> (Fig. 14)   | 8     | 8     | Split clamping hub <sup>3)</sup> (Fig. 14)   |
| Shrink disk hub, large (Fig. 10)             | 9     | 9     | Shrink disk hub, large (Fig. 10)             |

|  |  |
|--|--|
| <span style="font-size: 2em;">▼</span><br><span style="font-size: 1em;">— / 9 7 1 . —</span><br><span style="font-size: 1em;">▲</span> | <span style="font-size: 2em;">▼</span><br><span style="font-size: 1em;">— 5 / — / —</span><br><span style="font-size: 1em;">▲</span> |
|--|--|

|                           |  |  |
|---------------------------|--|--|
| <b>Sizes</b><br>16 to 160 | <b>Bore <sup>2)</sup></b><br><b>Hub 1 ø</b><br>(See Dimensions sheets pages 8 – 9) | <b>Bore <sup>2)</sup></b><br><b>Hub 2 ø</b><br>(See Dimensions sheets pages 8 – 9) |
|---------------------------|--|--|

Example: 16 / 971.005 / Hub 1 – ø 25 H<sup>7</sup> / Hub 2 – ø 30 H<sup>7</sup>

1) Recording of the measurement values possible only with the aid of appropriate software

2) Standard H7, other tolerances possible

3) For Type 971.885 (double-sided split clamping hub), radial installation/disassembly is not possible as the hubs are offset at an angle.

## ROBA®-DSM

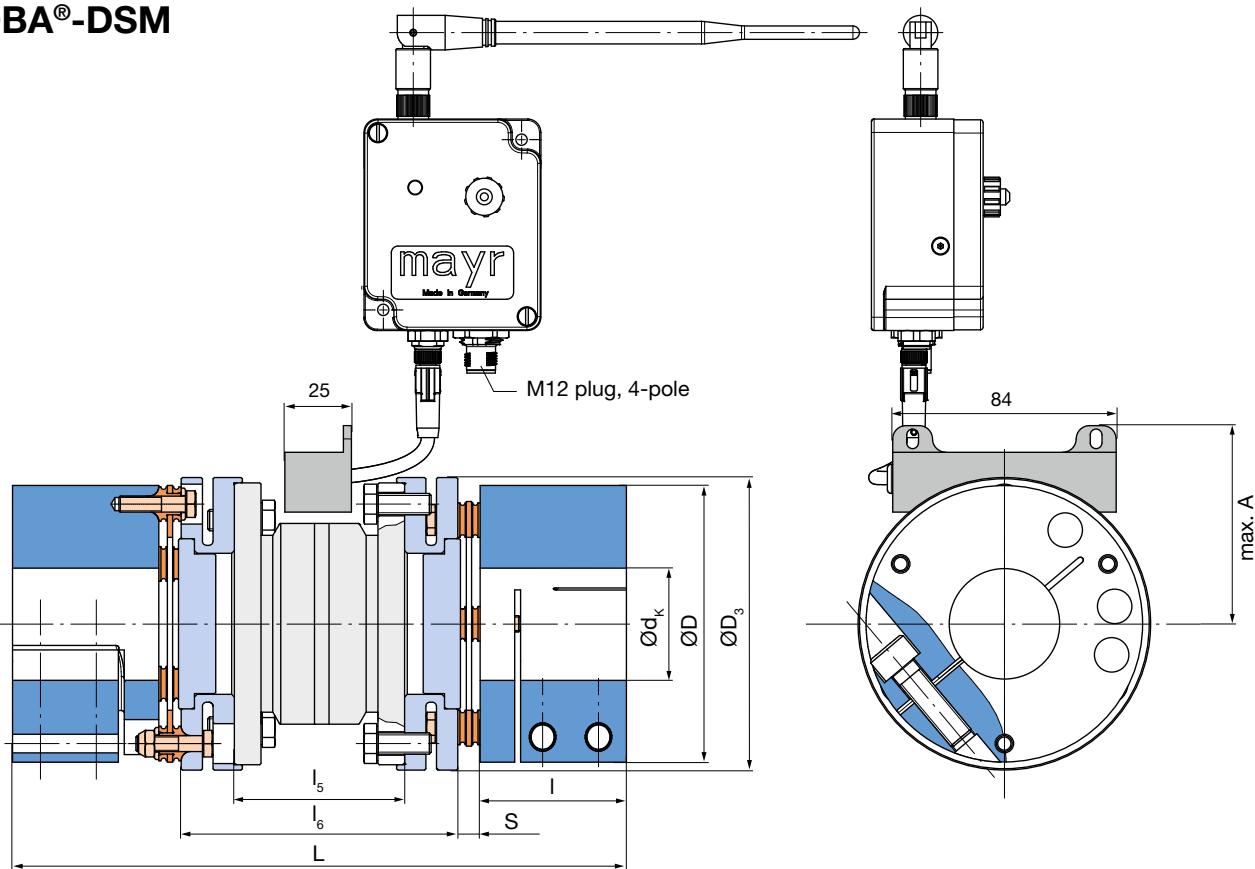


Fig. 3: Type 971.555 (for other mounting variants, see pages 7 – 9)

| Technical data and main dimensions                             |   |                  | Size |       |      |      |
|--|---|------------------|------|-------|------|------|
|  |   |                  | 16   | 40    | 100  | 160  |
| Nominal torque <sup>1) 2)</sup>                                | $T_{KN}$                                      | [Nm]             | 190  | 450   | 800  | 1600 |
| Peak torque <sup>3)</sup>                                      | $T_{KS}$                                      | [Nm]             | 285  | 675   | 1200 | 2400 |
| Ultimate torque  | $T_{KB}$                                      | [Nm]             | 570  | 1350  | 2400 | 4800 |
| Minimum hub bore Type 971.555 (Figs. 1 and 3) <sup>4) 5)</sup> | $d_{K\min}$                                   | [mm]             | 20   | 25    | 32   | 40   |
| Maximum hub bore Type 971.555 (Figs. 1 and 3) <sup>4) 5)</sup> | $d_{K\max}$                                   | [mm]             | 45   | 60    | 90   | 100  |
| Maximum speed  | $n_{\max}$                                    | [rpm]            | 9500 | 7000  | 5100 | 4300 |
| Permitted misalignments <sup>6)</sup>                          | Permitted axial displacement <sup>7) 8)</sup> | $\Delta K_a$     | [mm] | 0,8   | 1,1  | 1,5  |
|  | Permitted angular misalignment <sup>9)</sup>  | $\Delta K_w$     | [mm] | 0,7   | 0,7  | 0,7  |
|  | Permitted radial misalignment <sup>7)</sup>   | $\Delta K_r$     | [mm] | 1,1   | 1,3  | 1,6  |
| Spring rigidities  | Total torsional rigidity                      | [ $10^3$ Nm/rad] | 36,2 | 114,3 | 320  | 585  |
|  | Angular spring rigidity <sup>9)</sup>         | [Nm/rad]         | 229  | 298   | 1089 | 1990 |

### Mass moments of inertia J [ $10^{-3}$ kgm<sup>2</sup>]

| Size                           | 16   | 40   | 100   | 160   |
|--------------------------------|------|------|-------|-------|
| Clamping hub <sup>5) 10)</sup> | 0,74 | 3,64 | 16,94 | 34,32 |
| Disk pack                      | 0,08 | 0,26 | 1,19  | 3,27  |
| Adaptor flange                 | 0,38 | 1,67 | 7,06  | 15,36 |
| Extension sensor               | 0,51 | 2,21 | 7,97  | 20,04 |

### Weights [kg]

| Size                           | 16   | 40   | 100  | 160  |
|--------------------------------|------|------|------|------|
| Clamping hub <sup>5) 10)</sup> | 0,73 | 2,05 | 4,82 | 6,94 |
| Disk pack                      | 0,08 | 0,15 | 0,35 | 0,67 |
| Adaptor flange                 | 0,43 | 1,11 | 2,44 | 3,89 |
| Extension sensor               | 0,58 | 1,34 | 2,91 | 4,27 |

1) Other torques and construction sizes available on request.

### Dimensions [mm]

| Size        | 16    | 40    | 100  | 160   |
|-------------|-------|-------|------|-------|
| A           | 55,5  | 63,7  | 74,3 | 87,5  |
| D           | 77    | 104   | 143  | 167   |
| $D_3$       | 82    | 110   | 150  | 175   |
| $I_5^{(5)}$ | 40    | 55    | 75   | 85    |
| $I_6$       | 54    | 64    | 72   | 78    |
| $L^{(5)}$   | 178,2 | 230,8 | 292  | 329,2 |
| S           | 7,1   | 8,4   | 10   | 11,6  |

2) Valid for changing load direction as well as for max. permitted shaft misalignment. The following applies for split clamping hubs (Type 971.8\_5): Valid for unchanging load direction as well as for max. permitted shaft misalignment.

When the load direction changes, max. 60% of the stated nominal torque is permitted.

3) Valid for unchanging load direction, max. load cycles  $\leq 10^5$ .

4) Transmittable torques dependent on bore, see page 10.

5) For technical data on alternative mounting variations, see pages 8 – 9.

6) The permitted misalignments must not simultaneously reach their maximum values.

7) The values refer to couplings with 2 disk packs.

8) Only permitted as a static or virtually static value.

9) The values refer to 1 disk pack.

10) Mass moments of inertia and weights are valid for maximum bore.

## ROBA®-DSM measuring system

### ROBA®-DSM receiver

The ROBA®-DSM receiver establishes the contactless connection to the extension sensor and supplies it with energy via the ROBA®-DSM stator.

### ROBA®-DSM stator

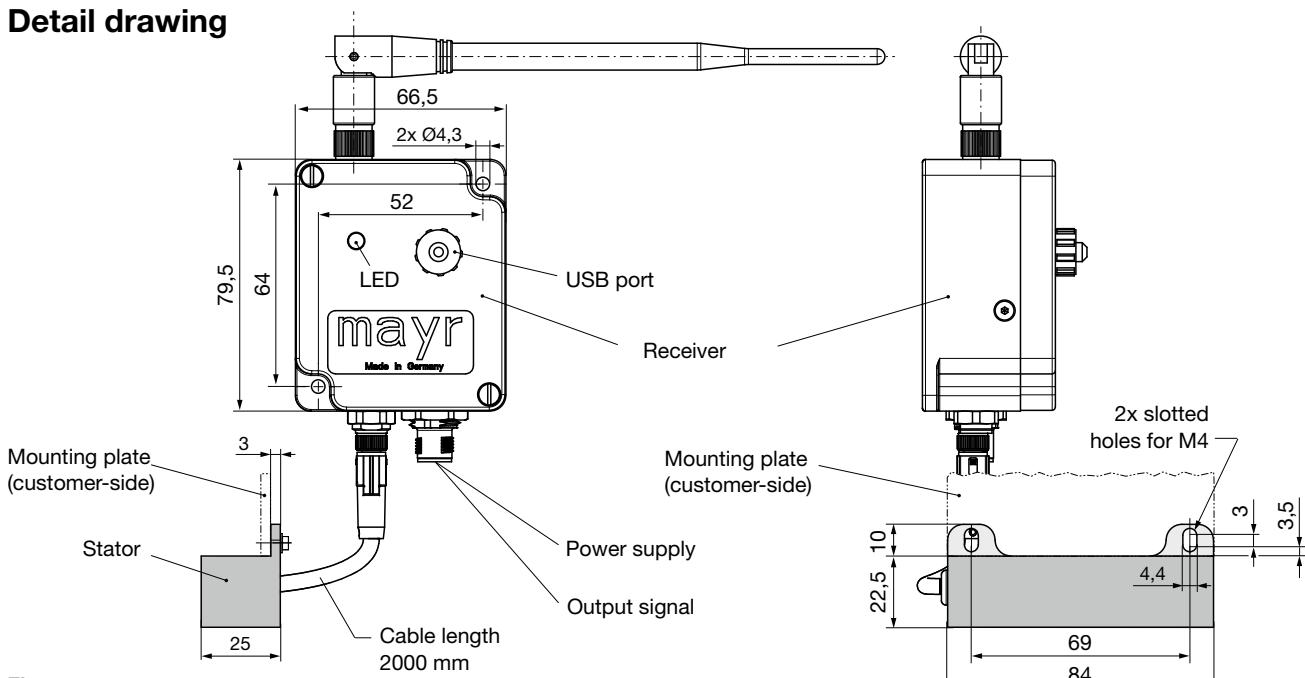
The stator must be aligned centrally to the extension sensor. The radial distance can total between 1 mm and 5 mm. After correct assembly, the LED on the ROBA®-DSM receiver lights up green and signalises correct data transfer. The extension sensor is rotated slowly by 360° for inspection purposes.

If the LED lights up red at different angular positions, please select a different mounting place for the ROBA®-DSM receiver.

### Technical data

|                                    |  |
|------------------------------------|--|
| Supply voltage:                    | 24 VDC ( $\pm 10\%$ )  |
| Max. current consumption:          | 1 A  |
| Measuring signal output:           | 0 ... $\pm 10$ V (rotational direction right positive, 10 V refers to $T_{KN}$ ) |
| Nominal temperature range:         | -20 °C to +70 °C   |
| Temperature drift, zero point:     | 0,04 % of final value / K  |
| Temperature drift, measured value: | 0,03 % of final value / K  |
| Max. total error:                  | < 1 % of final value   |
| Bandwidth:                         | 3 kHz (-3 dB)  |
| Max. dyn. load:                    | 100 % of $T_{KN}$  |
| Protection:                        | Receiver / stator IP65<br>Extension sensor IP52                                  |
| Permitted speed:                   | 0 ... $n_{max}$ (Technical data, page 5)   |

### Detail drawing



6

Fig. 5

### Electrical connection (Fig. 4)

- The ROBA®-DSM receiver is equipped manufacturer-side with a firmly installed 4-pole, A-encoded M12 plug.
- The voltage supply takes place via Pin 1 = +24 V  $\pm 10\%$  and Pin 3 = GND.
- The output signal is provided to Pin 4 =  $U_a$  torque 0 ...  $\pm 10$  V and Pin 2 = GND
- The digital measurement data can be read into a PC directly via the USB port using the mayr®-software.
- The radio ID and the radio channel can be set and the offset compensation can be carried out via the USB port using the service software.

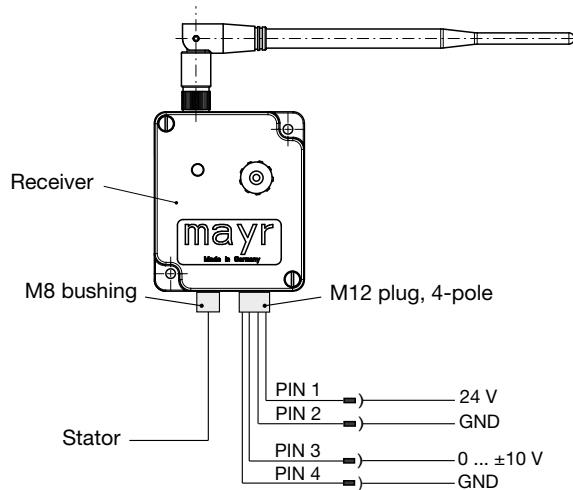


Fig. 4

## ROBA®-DSM configuration possibilities/standard designs

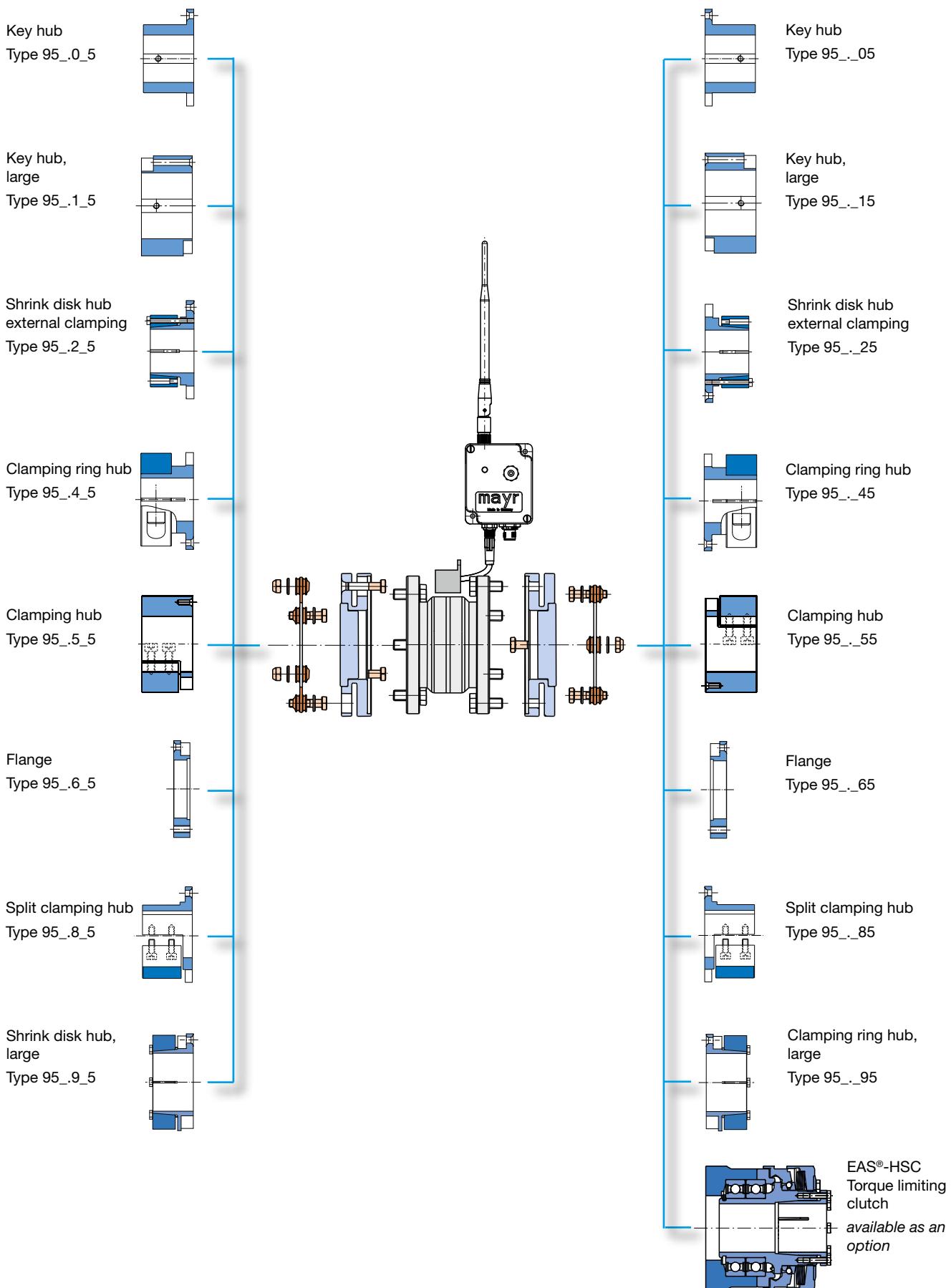


Fig. 6

## Key hub

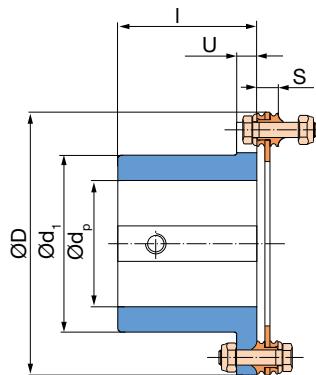


Fig. 7

### Dimensions [mm]

| Size              | 16    | 40    | 100 | 160   |
|-------------------|-------|-------|-----|-------|
| $d_p \text{ min}$ | 16    | 25    | 35  | 40    |
| $d_p \text{ max}$ | 32    | 50    | 70  | 80    |
| D                 | 77    | 104   | 143 | 167   |
| $d_1$             | 50    | 70    | 100 | 115   |
| L                 | 178,2 | 230,8 | 292 | 329,2 |
| I                 | 40    | 55    | 75  | 85    |
| S                 | 7,1   | 8,4   | 10  | 11,6  |
| U                 | 7     | 8     | 10  | 12    |

### Mass moment of inertia J [ $10^{-3} \text{ kgm}^2$ ]

| Size              | 16   | 40   | 100  | 160   |
|-------------------|------|------|------|-------|
| Hub <sup>1)</sup> | 0,27 | 1,16 | 6,18 | 12,51 |

### Weight [kg]

| Size              | 16   | 40   | 100  | 160  |
|-------------------|------|------|------|------|
| Hub <sup>1)</sup> | 0,46 | 1,02 | 2,83 | 4,25 |

1) Mass moment of inertia and weight are valid for maximum bore.

## Key hub, large

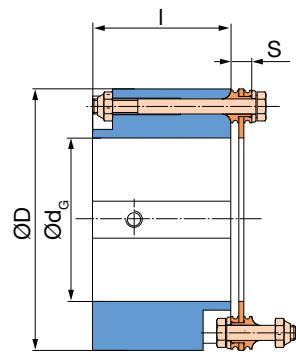


Fig. 8

### Dimensions [mm]

| Size              | 16    | 40    | 100 | 160   |
|-------------------|-------|-------|-----|-------|
| $d_G \text{ min}$ | 30    | 45    | 65  | 75    |
| $d_G \text{ max}$ | 45    | 65    | 95  | 110   |
| D                 | 77    | 104   | 143 | 167   |
| L                 | 178,2 | 230,8 | 292 | 329,2 |
| I                 | 40    | 55    | 75  | 85    |
| S                 | 7,1   | 8,4   | 10  | 11,6  |

### Mass moment of inertia J [ $10^{-3} \text{ kgm}^2$ ]

| Size              | 16   | 40   | 100   | 160   |
|-------------------|------|------|-------|-------|
| Hub <sup>1)</sup> | 0,86 | 3,89 | 18,12 | 36,00 |

### Weight [kg]

| Size              | 16   | 40   | 100  | 160  |
|-------------------|------|------|------|------|
| Hub <sup>1)</sup> | 0,87 | 2,08 | 4,94 | 7,23 |

1) Mass moment of inertia and weight are valid for maximum bore.

## Shrink disk hub / external clamping

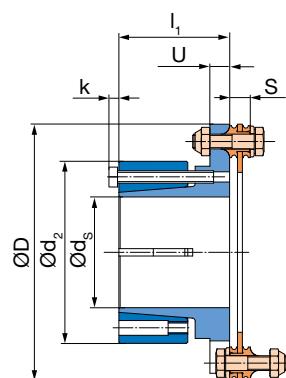


Fig. 9

### Dimensions [mm]

| Size                     | 16    | 40    | 100 | 160   |
|--------------------------|-------|-------|-----|-------|
| $d_{S \text{ min}}^{2)}$ | 14    | 25    | 35  | 40    |
| $d_{S \text{ max}}^{2)}$ | 26    | 45    | 55  | 65    |
| D                        | 77    | 104   | 143 | 167   |
| $d_2$                    | 53    | 74    | 104 | 118   |
| k                        | 3,5   | 3,5   | 5,5 | 5,5   |
| L                        | 168,2 | 210,8 | 252 | 279,2 |
| $I_1$                    | 35    | 45    | 55  | 60    |
| S                        | 7,1   | 8,4   | 10  | 11,6  |
| U                        | 7     | 8     | 10  | 12    |

### Mass moment of inertia J [ $10^{-3} \text{ kgm}^2$ ]

| Size              | 16   | 40   | 100  | 160   |
|-------------------|------|------|------|-------|
| Hub <sup>1)</sup> | 0,27 | 1,15 | 5,59 | 11,14 |

### Weight [kg]

| Size              | 16   | 40   | 100  | 160  |
|-------------------|------|------|------|------|
| Hub <sup>1)</sup> | 0,49 | 1,03 | 2,73 | 3,99 |

1) Mass moment of inertia and weight are valid for maximum bore.

2) Transmittable torques dependent on bore, see page 10.

## Shrink disk hub, large

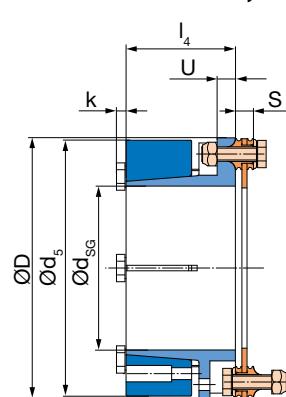


Fig. 10

### Dimensions [mm]

| Size                      | 16    | 40    | 100 | 160   |
|---------------------------|-------|-------|-----|-------|
| $d_{SG \text{ min}}^{2)}$ | 25    | 40    | 55  | 65    |
| $d_{SG \text{ max}}^{2)}$ | 45    | 60    | 90  | 100   |
| D                         | 77    | 104   | 143 | 167   |
| $d_5$                     | 77    | 100   | 143 | 162   |
| k                         | 3,5   | 3,5   | 5,5 | 5,5   |
| L                         | 168,2 | 210,8 | 252 | 279,2 |
| $I_4$                     | 40    | 50    | 60  | 70    |
| S                         | 7,1   | 8,4   | 10  | 11,6  |
| U                         | 7     | 8     | 10  | 12    |

### Mass moment of inertia J [ $10^{-3} \text{ kgm}^2$ ]

| Size              | 16   | 40   | 100   | 160   |
|-------------------|------|------|-------|-------|
| Hub <sup>1)</sup> | 0,78 | 2,88 | 13,77 | 27,35 |

### Weight [kg]

| Size              | 16   | 40   | 100  | 160  |
|-------------------|------|------|------|------|
| Hub <sup>1)</sup> | 0,79 | 1,71 | 3,92 | 6,08 |

1) Mass moment of inertia and weight are valid for maximum bore.

2) Transmittable torques dependent on bore, see page 10.

## Clamping ring hub

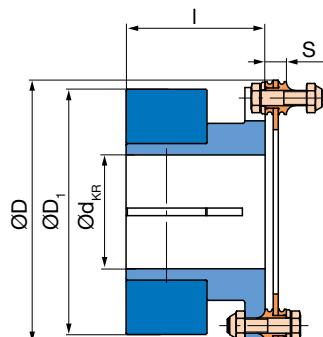


Fig. 11

### Dimensions [mm]

| Size                 | 16    | 40    | 100 | 160   |
|----------------------|-------|-------|-----|-------|
| $d_{KR \min}^{2)}$   | 20    | 25    | 32  | 40    |
| $d_{KR \max}^{2)}$   | 35    | 45    | 68  | 80    |
| <b>D</b>             | 77    | 104   | 143 | 167   |
| <b>D<sub>1</sub></b> | 73    | 97    | 135 | 158   |
| <b>L</b>             | 178,2 | 230,8 | 292 | 329,2 |
| <b>I</b>             | 40    | 55    | 75  | 85    |
| <b>S</b>             | 7,1   | 8,4   | 10  | 11,6  |

### Mass moment of inertia J [ $10^{-3}$ kgm $^2$ ]

| Size              | 16   | 40   | 100   | 160   |
|-------------------|------|------|-------|-------|
| Hub <sup>1)</sup> | 0,63 | 2,84 | 13,49 | 28,71 |

### Weight [kg]

| Size              | 16   | 40   | 100  | 160  |
|-------------------|------|------|------|------|
| Hub <sup>1)</sup> | 0,76 | 2,00 | 4,90 | 7,61 |

1) Mass moment of inertia and weight are valid for maximum bore.

2) Transmittable torques dependent on bore, see page 10.

## Clamping hub

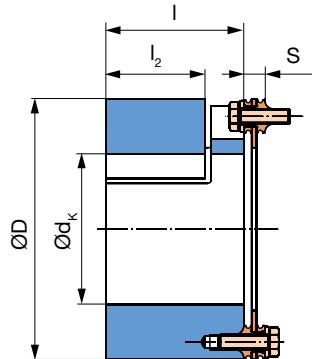


Fig. 12

### Dimensions [mm]

| Size                 | 16    | 40    | 100  | 160   |
|----------------------|-------|-------|------|-------|
| $d_K \min^{2)}$      | 20    | 25    | 32   | 40    |
| $d_K \max^{2)}$      | 45    | 60    | 90   | 100   |
| <b>D</b>             | 77    | 104   | 143  | 167   |
| <b>L</b>             | 178,2 | 230,8 | 292  | 329,2 |
| <b>I</b>             | 40    | 55    | 75   | 85    |
| <b>I<sub>2</sub></b> | 27    | 39,6  | 54,5 | 60    |
| <b>S</b>             | 7,1   | 8,4   | 10   | 11,6  |

### Mass moment of inertia J [ $10^{-3}$ kgm $^2$ ]

| Size              | 16   | 40   | 100   | 160   |
|-------------------|------|------|-------|-------|
| Hub <sup>1)</sup> | 0,74 | 3,64 | 16,94 | 34,32 |

### Weight [kg]

| Size              | 16   | 40   | 100  | 160  |
|-------------------|------|------|------|------|
| Hub <sup>1)</sup> | 0,73 | 2,05 | 4,82 | 6,94 |

1) Mass moment of inertia and weight are valid for maximum bore.

2) Transmittable torques dependent on bore, see page 10.

## Flange

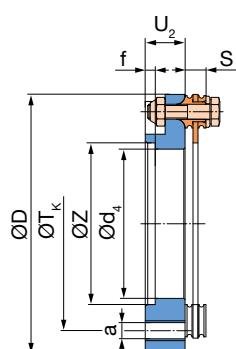


Fig. 13

### Dimensions [mm]

| Size     | 16     | 40      | 100     | 160     |
|----------|--------|---------|---------|---------|
| $Z^{H7}$ | 45     | 65      | 92      | 105     |
| <b>a</b> | 6 x M8 | 6 x M10 | 6 x M12 | 6 x M14 |
| <b>D</b> | 77     | 104     | 143     | 167     |
| $d_4$    | 40     | 60      | 85      | 100     |
| <b>f</b> | 4      | 4       | 5       | 5       |
| <b>L</b> | 128,2  | 156,8   | 182     | 215,2   |
| <b>S</b> | 7,1    | 8,4     | 10      | 11,6    |
| $T_K$    | 62     | 86      | 116     | 140     |
| $U_2$    | 15     | 18      | 20      | 28      |

### Mass moment of inertia J [ $10^{-3}$ kgm $^2$ ]

| Size                 | 16   | 40   | 100  | 160  |
|----------------------|------|------|------|------|
| Flange <sup>1)</sup> | 0,23 | 0,89 | 3,87 | 9,48 |

### Weight [kg]

| Size                 | 16   | 40   | 100  | 160  |
|----------------------|------|------|------|------|
| Flange <sup>1)</sup> | 0,26 | 0,52 | 1,16 | 2,10 |

1) Mass moment of inertia and weight are valid for maximum bore.

## Split clamping hub

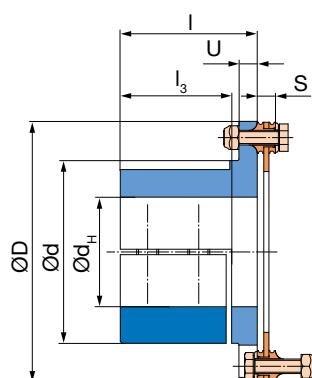


Fig. 14

### Dimensions [mm]

| Size                 | 16    | 40    | 100 | 160   |
|----------------------|-------|-------|-----|-------|
| $d_H \min^{2)} 3)$   | 18    | 25    | 35  | 40    |
| $d_H \max^{2)} 3)$   | 28    | 40    | 60  | 75    |
| <b>D</b>             | 77    | 104   | 143 | 167   |
| <b>d</b>             | 50    | 70    | 100 | 115   |
| <b>L</b>             | 178,2 | 230,8 | 292 | 329,2 |
| <b>I</b>             | 40    | 55    | 75  | 85    |
| <b>I<sub>3</sub></b> | 31    | 43    | 61  | 69    |
| <b>S</b>             | 7,1   | 8,4   | 10  | 11,6  |
| <b>U</b>             | 7     | 8     | 10  | 12    |

### Mass moment of inertia J [ $10^{-3}$ kgm $^2$ ]

| Size              | 16   | 40   | 100  | 160   |
|-------------------|------|------|------|-------|
| Hub <sup>1)</sup> | 0,25 | 1,20 | 6,31 | 12,49 |

### Weight [kg]

| Size              | 16   | 40   | 100  | 160  |
|-------------------|------|------|------|------|
| Hub <sup>1)</sup> | 0,47 | 1,21 | 3,17 | 4,45 |

1) Mass moment of inertia and weight are valid for maximum bore.

2) Transmittable torques dependent on bore, see page 10.

3) Optional keyway design according to DIN 6885 possible.

**Frictionally locking transmittable torques of shrink disk hubs, clamping ring hubs, clamping hubs and split clamping hubs – dependent on bore**

| Shrink disk hubs |               | Size |      |      |     |
|------------------|---------------|------|------|------|-----|
| Bore             |               | 16   | 40   | 100  | 160 |
| Ø14              | 157           | -    | -    | -    | -   |
| Ø16              | 179           | -    | -    | -    | -   |
| Ø20              | 240           | -    | -    | -    | -   |
| Ø22              | 269           | -    | -    | -    | -   |
| Ø25              | 312           | 438  | -    | -    | -   |
| Ø28              | -             | 491  | -    | -    | -   |
| Ø30              | -             | 526  | -    | -    | -   |
| Ø32              | -             | 600  | -    | -    | -   |
| Ø35              | -             | 669  | 1090 | -    | -   |
| Ø38              | -             | 741  | 1184 | -    | -   |
| Ø40              | -             | 796  | 1246 | 1794 | -   |
| Ø42              | Caution!      | 852  | 1320 | 1884 | -   |
| Ø45              | Observe       | 932  | 1500 | 2019 | -   |
| Ø50              | permitted     | 1692 | 2400 | -    | -   |
| Ø55              | peak torques  | 1889 | 2680 | -    | -   |
| Ø60              | for selected  | -    | 2967 | -    | -   |
| Ø65              | coupling size | -    | 3263 | -    | -   |

Frictionally locking transmittable torques

T<sub>R</sub> [Nm]

Shrink disk hubs

Suitable for H7 / g6

| Clamping ring hubs |               | Size |      |      |     |
|--------------------|---------------|------|------|------|-----|
| Bore               |               | 16   | 40   | 100  | 160 |
| Ø20                | 126           | -    | -    | -    | -   |
| Ø22                | 138           | -    | -    | -    | -   |
| Ø25                | 168           | 327  | -    | -    | -   |
| Ø28                | 201           | 366  | -    | -    | -   |
| Ø30                | 216           | 420  | -    | -    | -   |
| Ø32                | 230           | 470  | 785  | -    | -   |
| Ø35                | 251           | 515  | 859  | -    | -   |
| Ø38                | -             | 559  | 932  | -    | -   |
| Ø40                | -             | 588  | 1050 | 1256 | -   |
| Ø45                | -             | 661  | 1240 | 1413 | -   |
| Ø50                | -             | -    | 1378 | 1680 | -   |
| Ø55                | Caution!      | -    | 1516 | 1940 | -   |
| Ø60                | Observe       | -    | 1654 | 2117 | -   |
| Ø65                | permitted     | 1792 | 2293 | -    | -   |
| Ø68                | peak torques  | 1874 | 2399 | -    | -   |
| Ø70                | for selected  | -    | 2470 | -    | -   |
| Ø80                | coupling size | -    | 2822 | -    | -   |

Frictionally locking transmittable torques

T<sub>R</sub> [Nm]

Clamping ring hubs

Suitable for H7 / g6

| Shrink disk hubs, large |               | Size |      |      |     |
|-------------------------|---------------|------|------|------|-----|
| Bore                    |               | 16   | 40   | 100  | 160 |
| Ø25                     | 339           | -    | -    | -    | -   |
| Ø28                     | 404           | -    | -    | -    | -   |
| Ø30                     | 448           | -    | -    | -    | -   |
| Ø32                     | 492           | -    | -    | -    | -   |
| Ø35                     | 558           | -    | -    | -    | -   |
| Ø38                     | 620           | -    | -    | -    | -   |
| Ø40                     | 659           | 873  | -    | -    | -   |
| Ø42                     | 694           | 937  | -    | -    | -   |
| Ø45                     | 738           | 1036 | -    | -    | -   |
| Ø48                     | -             | 1132 | -    | -    | -   |
| Ø50                     | -             | 1195 | -    | -    | -   |
| Ø52                     | -             | 1255 | -    | -    | -   |
| Ø55                     | -             | 1338 | 2074 | -    | -   |
| Ø60                     | -             | 1454 | 2366 | -    | -   |
| Ø65                     | -             | -    | 2658 | 3246 | -   |
| Ø70                     | Caution!      | -    | 2943 | 3618 | -   |
| Ø75                     | Observe       | -    | 3213 | 3991 | -   |
| Ø80                     | permitted     | 3458 | 4353 | -    | -   |
| Ø85                     | peak torques  | 3666 | 4695 | -    | -   |
| Ø90                     | for selected  | 3828 | 5007 | -    | -   |
| Ø100                    | coupling size | -    | 5497 | -    | -   |

Frictionally locking transmittable torques

T<sub>R</sub> [Nm]

Shrink disk hubs, large

Suitable for H7 / g6

| Clamping hubs |               | Size |      |      |     |
|---------------|---------------|------|------|------|-----|
| Bore          |               | 16   | 40   | 100  | 160 |
| Ø20           | 183           | -    | -    | -    | -   |
| Ø22           | 202           | -    | -    | -    | -   |
| Ø25           | 229           | 604  | -    | -    | -   |
| Ø28           | 257           | 677  | -    | -    | -   |
| Ø30           | 275           | 725  | -    | -    | -   |
| Ø32           | 293           | 773  | 1102 | -    | -   |
| Ø35           | 321           | 846  | 1205 | -    | -   |
| Ø38           | 348           | 918  | 1309 | -    | -   |
| Ø40           | 367           | 967  | 1378 | 1839 | -   |
| Ø42           | 385           | 1015 | 1447 | 1931 | -   |
| Ø45           | 412           | 1087 | 1550 | 2069 | -   |
| Ø48           | -             | 1160 | 1653 | 2207 | -   |
| Ø50           | -             | 1208 | 1722 | 2299 | -   |
| Ø52           | -             | 1257 | 1791 | 2391 | -   |
| Ø55           | -             | 1329 | 1894 | 2529 | -   |
| Ø60           | -             | 1450 | 2066 | 2759 | -   |
| Ø65           | -             | -    | 2239 | 2989 | -   |
| Ø68           | -             | -    | 2342 | 3127 | -   |
| Ø70           | -             | -    | 2411 | 3219 | -   |
| Ø75           | Caution!      | -    | 2583 | 3449 | -   |
| Ø80           | Observe       | -    | 2755 | 3679 | -   |
| Ø85           | permitted     | -    | 2927 | 3909 | -   |
| Ø90           | peak torques  | -    | 3100 | 4139 | -   |
| Ø95           | for selected  | -    | -    | 4369 | -   |
| Ø100          | coupling size | -    | -    | 4599 | -   |

Frictionally locking transmittable torques

T<sub>R</sub> [Nm]

Clamping hubs

Suitable for H7 / g6

| Split clamping hubs, large |               | Size |      |      |     |
|----------------------------|---------------|------|------|------|-----|
| Bore                       |               | 16   | 40   | 100  | 160 |
| Ø18                        | 130           | -    | -    | -    | -   |
| Ø20                        | 144           | -    | -    | -    | -   |
| Ø22                        | 158           | -    | -    | -    | -   |
| Ø25                        | 180           | 326  | -    | -    | -   |
| Ø28                        | 202           | 365  | -    | -    | -   |
| Ø30                        | -             | 391  | -    | -    | -   |
| Ø32                        | -             | 418  | -    | -    | -   |
| Ø35                        | -             | 457  | 897  | -    | -   |
| Ø38                        | -             | 496  | 973  | -    | -   |
| Ø40                        | -             | 522  | 1025 | 1218 | -   |
| Ø42                        | -             | -    | 1076 | 1279 | -   |
| Ø45                        | -             | -    | 1153 | 1370 | -   |
| Ø50                        | -             | -    | 1281 | 1522 | -   |
| Ø55                        | Caution!      | -    | 1409 | 1675 | -   |
| Ø60                        | Observe       | -    | 1537 | 1827 | -   |
| Ø65                        | permitted     | -    | -    | 1979 | -   |
| Ø68                        | peak torques  | -    | -    | 2071 | -   |
| Ø70                        | for selected  | -    | -    | 2131 | -   |
| Ø75                        | coupling size | -    | -    | 2284 | -   |

Frictionally locking transmittable torques

T<sub>R</sub> [Nm]

Split clamping hubs, large

Suitable for H7 / g6

## Product Summary

### Safety Clutches/Overload Clutches

- EAS®-Compact®/EAS®-NC**  
Positive locking and completely backlash-free torque limiting clutches
- EAS®-smartic®**  
Cost-effective torque limiting clutches, quick installation
- EAS®-element clutch/EAS®-elements**  
Load-disconnecting protection against high torques
- EAS®-axial**  
Exact limitation of tensile and compressive forces
- EAS®-Sp/EAS®-Sm/EAS®-Zr**  
Load-disconnecting torque limiting clutches with switching function
- ROBA®-slip hub**  
Load-holding, frictionally locked torque limiting clutches
- ROBA®-contitorque**  
Magnetic continuous slip clutches



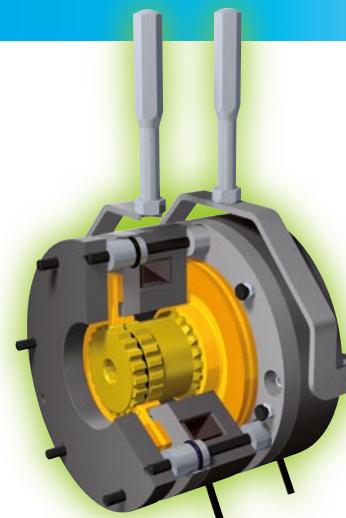
### Shaft Couplings

- smartflex®**  
Perfect precision couplings for servo and stepping motors
- ROBA®-ES**  
Backlash-free and damping for vibration-sensitive drives
- ROBA®-DS/ROBA®-D**  
Backlash-free, torsionally rigid all-steel couplings
- EAS®-control-DS**  
Cost-effective torque-measuring couplings



### Electromagnetic Brakes/Clutches

- ROBA-stop® standard**  
Multifunctional all-round safety brakes
- ROBA-stop®-M motor brakes**  
Robust, cost-effective motor brakes
- ROBA-stop®-S**  
Water-proof, robust monoblock brakes
- ROBA-stop®-Z/ROBA-stop®-silenzio®**  
Doubly safe elevator brakes
- ROBA®-diskstop®**  
Compact, very quiet disk brakes
- ROBA®-topstop®**  
Brake systems for gravity loaded axes
- ROBA®-linearstop**  
Backlash-free brake systems for linear motor axes
- ROBATIC®/ROBA®-quick/ROBA®-takt**  
Electromagnetic clutches and brakes, clutch brake units



### DC Drives

- tendo®-PM**  
Permanent magnet-excited DC motors
- tendo®-SC**  
1 quadrant and 4 quadrant transistor controllers



## Headquarters

**Chr. Mayr GmbH + Co. KG**  
**Eichenstrasse 1, D-87665 Mauerstetten**  
**Tel.: +49 83 41/8 04-0, Fax: +49 83 41/80 44 21**  
**www.mayr.com, E-Mail: info@mayr.com**



## Service Germany

**Baden-Württemberg**  
Esslinger Straße 7  
70771 Leinfelden-Echterdingen  
Tel.: 07 11/45 96 01 0  
Fax: 07 11/45 96 01 10

**Bavaria**  
Eichenstrasse 1  
87665 Mauerstetten  
Tel.: 0 83 41/80 41 04  
Fax: 0 83 41/80 44 23

**Chemnitz**  
Bornauer Straße 205  
09114 Chemnitz  
Tel.: 03 71/4 74 18 96  
Fax: 03 71/4 74 18 95

**Franken**  
Unterer Markt 9  
91217 Hersbruck  
Tel.: 0 91 51/81 48 64  
Fax: 0 91 51/81 62 45

**Hagen**  
Im Langenstück 6  
58093 Hagen  
Tel.: 0 23 31/78 03 0  
Fax: 0 23 31/78 03 25

**Kamen**  
Lünener Strasse 211  
59174 Kamen  
Tel.: 0 23 07/23 63 85  
Fax: 0 23 07/24 26 74

**North**  
Schiefer Brink 8  
32699 Extertal  
Tel.: 0 57 54/9 20 77  
Fax: 0 57 54/9 20 78

**Rhine-Main**  
Hans-Böckler-Straße 6  
64823 Groß-Umstadt  
Tel.: 0 60 78/7 82 53 37  
Fax: 0 60 78/9 30 08 00

## Branch office

**China**  
Mayr Zhangjiagang  
Power Transmission Co., Ltd.  
Changxing Road No. 16,  
215600 Zhangjiagang  
Tel.: 05 12/58 91-75 65  
Fax: 05 12/58 91-75 66  
info@mayr-ptc.cn

**Great Britain**  
Mayr Transmissions Ltd.  
Valley Road, Business Park  
Keighley, BD21 4LZ  
West Yorkshire  
Tel.: 0 15 35/66 39 00  
Fax: 0 15 35/66 32 61  
sales@mayr.co.uk

**France**  
Mayr France S.A.  
Z.A.L. du Minopole  
Rue Nungesser et Coli  
62160 Bully-Les-Mines  
Tel.: 03.21.72.91.91  
Fax: 03.21.29.71.77  
contact@mayr.fr

**Italy**  
Mayr Italia S.r.l.  
Viale Veneto, 3  
35020 Saonara (PD)  
Tel.: 0498/79 10 20  
Fax: 0498/79 10 22  
info@mayr-italia.it

**Singapore**  
Mayr Transmission (S) PTE Ltd.  
No. 8 Boon Lay Way Unit 03-06,  
TradeHub 21  
Singapore 609964  
Tel.: 00 65/65 60 12 30  
Fax: 00 65/65 60 10 00  
info@mayr.com.sg

**Switzerland**  
Mayr Kupplungen AG  
Tobeläckerstrasse 11  
8212 Neuhausen am Rheinfall  
Tel.: 0 52/6 74 08 70  
Fax: 0 52/6 74 08 75  
info@mayr.ch

**USA**  
Mayr Corporation  
4 North Street  
Waldwick  
NJ 07463  
Tel.: 2 01/4 45-72 10  
Fax: 2 01/4 45-80 19  
info@mayrcorp.com

## Representatives

**Australia**  
Regal Beloit Australia Pty Ltd.  
19 Corporate Ave  
03178 Rowville, Victoria  
Australien  
Tel.: 0 3/92 37 40 00  
Fax: 0 3/92 37 40 80  
salesAUvic@regalbeloit.com

**India**  
National Engineering  
Company (NENCO)  
J-225, M.I.D.C.  
Bhosari Pune 411026  
Tel.: 0 20/27 13 00 29  
Fax: 0 20/27 13 02 29  
nenco@nenco.org

**Japan**  
MATSUI Corporation  
2-4-7 Azabudai  
Minato-ku  
Tokyo 106-8641  
Tel.: 03/35 86-41 41  
Fax: 03/32 24 24 10  
k.goto@matsui-corp.co.jp

**Netherlands**  
Groneman BV  
Amarstraat 11  
7554 TV Hengelo OV  
Tel.: 074/2 55 11 40  
Fax: 074/2 55 11 09  
aandrijftechniek@groneman.nl

**Poland**  
Wamex Sp. z o.o.  
ul. Pozaryskiego, 28  
04-703 Warszawa  
Tel.: 0 22/6 15 90 80  
Fax: 0 22/8 15 61 80  
wamex@wamex.com.pl

**South Korea**  
Mayr Korea Co. Ltd.  
Room No.1002, 10th floor,  
Nex Zone, SK TECHNOPARK,  
77-1, SungSan-Dong,  
SungSan-Gu, Changwon, Korea  
Tel.: 0 55/2 62-40 24  
Fax: 0 55/2 62-40 25  
info@mayrkorea.com

**Taiwan**  
German Tech Auto Co., Ltd.  
No. 28, Fenggong Zhong Road,  
Shengang Dist.,  
Taichung City 429, Taiwan R.O.C.  
Tel.: 04/25 15 05 66  
Fax: 04/25 15 24 13  
abby@zfgta.com.tw

**Czech Republic**  
BMC - TECH s.r.o.  
Hviezdoslavova 29 b  
62700 Brno  
Tel.: 05/45 22 60 47  
Fax: 05/45 22 60 48  
info@bmc-tech.cz

## More representatives:

Austria, Belgium, Brazil, Canada, Denmark, Finland, Greece, Hongkong, Hungary, Indonesia, Israel, Luxembourg, Malaysia, New Zealand, Norway, Philippines, Romania, Russia, Slovakia, Slovenia, South Africa, Spain, Sweden, Thailand, Turkey

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