

THE COUPLING.



# TORSIONALLY STIFF METALLIC BELLOWS COUPLINGS

10,000 – 100,000 Nm

**BX**

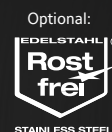
# INDUSTRIAL COUPLINGS



# BACKLASH FREE, TORSIONALLY STIFF METALLIC BELLOWS COUPLINGS 10,000- 100,000 Nm



## GENERAL INFORMATION ABOUT R+W BELLOWS COUPLINGS:



BELLOWS COUPLING  
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### SERVICE LIFE

R+W bellows couplings are fatigue resistant and wear free for an infinite service life, as long as the technical limits are not exceeded.

### FIT CLEARANCE

Overall shaft / hub clearance of 0.03 - 0.08 mm

### TEMPERATURE RANGE

-40 to +300° C

### SPECIAL SOLUTIONS

Various materials, tolerances, dimensions and performance ratings available for custom applications on request.

### ATEX (Optional)

For use in hazardous areas available upon request.

## TORSIONALLY STIFF METALLIC BELLOWS COUPLINGS 10,000 – 100,000 Nm

### MODEL

### FEATURES

#### BX1



**with flange mounting**  
**from 10,000 - 100,000 Nm**

- for customer specific applications

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#### BX4



**with simple keyway mounting**  
**from 10,000 - 100,000 Nm**

- low backlash keyway connection
- compact, simple design

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#### BX6



**with conical clamping ring**  
**from 10,000 - 100,000 Nm**

- backlash free conical clamping
- high shaft clamping pressure

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**BX1**

# WITH FLANGE MOUNTING

10,000 – 100,000 Nm

## PROPERTIES

### FEATURES

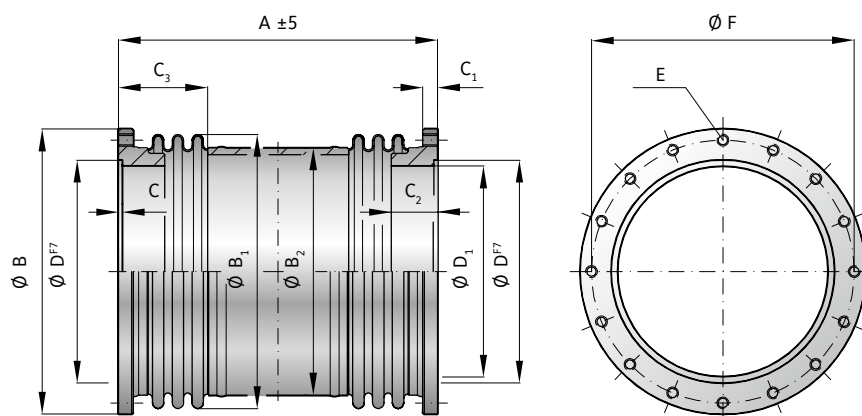
- compact, simple design
- high misalignment compensation
- integral support system (size 25 and up)

### MATERIAL

- **Hubs:** steel
- **Bellows:** highly flexible high grade stainless steel

### DESIGN

Both ends with flanged hubs  
 Spacer between bellows  
 (optional variable length)  
 (size 10 without spacer)  
 welded bellows-hub connection



## MODEL BX1 | SIZE 10 – 100

| SIZE                                                         |                             |             | 10      | 25      | 50      | 75      | 100     |
|--------------------------------------------------------------|-----------------------------|-------------|---------|---------|---------|---------|---------|
| Rated torque                                                 | (KNm)                       | $T_{KN}$    | 10      | 25      | 50      | 75      | 100     |
| Maximum torque                                               | (KNm)                       | $T_{Kmax}$  | 15      | 38      | 75      | 113     | 150     |
| Overall length                                               | (mm)                        | $A \pm 5$   | 125     | 380     | 450     | 580     | 640     |
| Outside diameter of flange                                   | (mm)                        | B           | 310     | 336     | 398     | 449     | 545     |
| Outside diameter of bellows $\pm 2$                          | (mm)                        | $B_1$       | 300     | 323     | 370     | 412w    | 520     |
| Outside diameter of tube                                     | (mm)                        | $B_2$       | –       | 273     | 324     | 360     | 460     |
| Fit length $+0.5$                                            | (mm)                        | $C \pm 0.5$ | 4       | 5       | 6       | 10      | 15      |
| Thread depth                                                 | (mm)                        | $C_1$       | 15      | 25      | 30      | 36      | 36      |
| Hub length                                                   | (mm)                        | $C_2$       | 24      | 81      | 80      | 103     | 120     |
| Bellows body length $+3$                                     | (mm)                        | $C_3$       | –       | 121     | 133     | 165     | 165     |
| Centering diameter F 7                                       | (mm)                        | D           | 265     | 260     | 310     | 350     | 440     |
| Hub diameter $+0.3$                                          | (mm)                        | $D_1$       | 250     | 240     | 285     | 317     | 390     |
| Fastening threads*                                           |                             |             | 20x M12 | 24x M16 | 24x M20 | 20x M24 | 24x M24 |
| Tightening torque of the fastening screws (screw grade 10.9) | (Nm)                        | E           | 120     | 300     | 580     | 1000    | 1000    |
| Bolt circle diameter $\pm 0.4$                               | (mm)                        | F           | 290     | 304     | 361     | 404     | 500     |
| Moment of inertia                                            | ( $10^{-3} \text{ kgm}^2$ ) | $J_{ges.}$  | 101     | 548     | 1185    | 2725    | 7900    |
| Approximate weight                                           | (kg)                        |             | 8.3     | 27.8    | 43.7    | 80      | 151     |
| Axial                                                        | $\pm$ (mm)                  | Max. value  | 3       | 5       | 6       | 7       | 8       |
| Lateral                                                      | $\pm$ (mm)                  |             | 0.4     | 2.2     | 2.5     | 3       | 3.5     |
| Angular                                                      | $\pm$ (degree)              |             | 1.5     | 1       | 1       | 1       | 1       |
| Torsional stiffness coupling                                 | ( $10^3 \text{ Nm/rad}$ )   |             | 20,000  | 9,000   | 15,500  | 23,000  | 35,000  |
| Axial spring stiffness bellows                               | (N/mm)                      |             | 985     | 3000    | 4300    | 3900    | 2800    |
| Lateral spring stiffness bellows                             | (KN/mm)                     |             | 21      | 133     | 207     | 175     | 219     |

\*drilling pattern between hub 1 and hub 2 not aligned as standard

| ORDERING EXAMPLE                                                                                                         | BX1 | 50 | XX                                                      |
|--------------------------------------------------------------------------------------------------------------------------|-----|----|---------------------------------------------------------|
| Model                                                                                                                    | ●   |    | Special designation only<br>(e.g. stainless steel hubs) |
| Size / torque rating (KNm)                                                                                               |     | ●  |                                                         |
| For custom features place an XX at the end of the part number and describe the special requirements (e.g. BX1 / 50 / XX) |     |    |                                                         |

BELLOWS COUPLING  
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**BX4**

# WITH SIMPLE KEYWAY MOUNTING

10,000 – 100,000 Nm



## PROPERTIES

### FEATURES

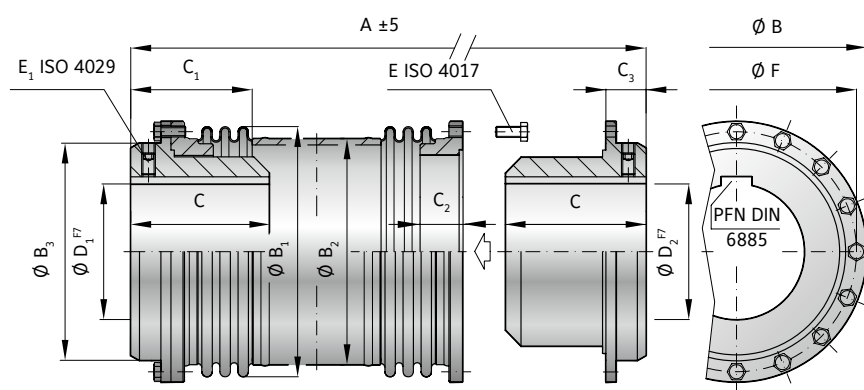
- compact, simple design
- high misalignment compensation
- integral support system (size 25 and up)

### MATERIAL

- **Hubs:** steel
- **Bellows:** highly flexible high grade stainless steel

### DESIGN

Both sides with removable coupling hubs, including keyway (splines optional)  
 Spacer between bellows (optional variable length)  
 (size 10 without spacer)  
 welded bellows-hub connection



## MODEL BX4 | SIZE 10 – 100

| SIZE                                                        |                |             | 10             | 25             | 50             | 75              | 100             |
|-------------------------------------------------------------|----------------|-------------|----------------|----------------|----------------|-----------------|-----------------|
| Rated torque                                                | (KNm)          | $T_{KN}$    | 10             | 25             | 50             | 75              | 100             |
| Maximum torque                                              | (KNm)          | $T_{Kmax}$  | 15             | 38             | 75             | 113             | 150             |
| Overall length                                              | (mm)           | $A_{\pm 5}$ | 210            | 480            | 590            | 760             | 840             |
| Outside diameter of flange                                  | (mm)           | B           | 310            | 336            | 398            | 449             | 545             |
| Outside diameter of bellows $\pm 2$                         | (mm)           | $B_1$       | 300            | 323            | 370            | 412             | 520             |
| Outside diameter of tube                                    | (mm)           | $B_2$       | –              | 273            | 324            | 360             | 460             |
| Hub diameter                                                | (mm)           | $B_3$       | 255            | 260            | 310            | 350             | 440             |
| Fit length                                                  | (mm)           | C           | 95             | 130            | 200            | 240             | 280             |
| Length $\pm 3$                                              | (mm)           | $C_1$       | –              | 170            | 200            | 257             | 260             |
| Hub length                                                  | (mm)           | $C_2$       | 24             | 81             | 80             | 103             | 120             |
| Distance                                                    | (mm)           | $C_3$       | 42             | 49             | 70             | 90              | 100             |
| Inside diameter possible from $\emptyset$ to $\emptyset F7$ | (mm)           | $D_1/D_2$   | 50 – 170       | 60 – 170       | 80 – 200       | 100 – 230       | 120 – 280       |
| Fastening screw ISO 4017 / Tightening torque                | (Nm)           | E           | 20 x M12 / 120 | 24 x M16 / 300 | 24 x M20 / 580 | 20 x M24 / 1000 | 24 x M24 / 1000 |
| Fastening screw ISO 4029 / Tightening torque                | (Nm)           | $E_1$       | M12 / 100      | M16 / 220      | M20 / 450      | M24 / 800       | M24 / 800       |
| Bolt circle diameter $\pm 0.4$                              | (mm)           | F           | 290            | 304            | 361            | 404             | 500             |
| Moment of inertia ( $10^{-3} \text{ kgm}^2$ )               |                | $J_{ges}$   | 492            | 1272           | 3270           | 6754            | 19350           |
| Approximate weight                                          | (kg)           |             | 44.7           | 85             | 164            | 260             | 477             |
| Axial                                                       | $\pm$ (mm)     | Max. value  | 3              | 5              | 6              | 7               | 8               |
| Lateral                                                     | $\pm$ (mm)     |             | 0.4            | 2.2            | 2.5            | 3               | 3.5             |
| Angular                                                     | $\pm$ (degree) |             | 1.5            | 1              | 1              | 1               | 1               |
| Torsional stiffness coupling ( $10^3 \text{ Nm/rad}$ )      |                |             | 20,000         | 9,000          | 15,500         | 23,000          | 35,000          |

## MAXIMUM TRANSMITTABLE TORQUE OF KEYWAY CONNECTION

Data is in KNm. These values relate to metric DIN 6885 keyway dimensions with 100% contact through the hub.

| Serie | Ø 60 | Ø 80 | Ø 100 | Ø 120 | Ø 140 | Ø 160 | Ø 170 | Ø 180 | Ø 200 | Ø 220 | Ø 230 | Ø 240 | Ø 260 | Ø 280 |
|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 10    | x    | x    | x     | x     | x     | x     | x     | x     | x     | x     | x     | x     | x     | x     |
| 25    | 7    | 12   | 18    | 26    | 34    | 44    | 46    | x     | x     | x     | x     | x     | x     | x     |
| 50    | x    | 19   | 28    | 40    | 52    | 67    | 71    | 84    | 94    | x     | x     | x     | x     | x     |
| 75    | x    | x    | 34    | 47    | 62    | 81    | 85    | 101   | 112   | 136   | 142   | x     | x     | x     |
| 100   | x    | x    | x     | 55    | 74    | 94    | 100   | 118   | 131   | 159   | 166   | 189   | 205   | 220   |

**BX6**

# WITH REMOVABLE CONICAL CLAMPING RING HUB 10,000 – 100,000 Nm

## PROPERTIES



### FEATURES

- compact, simple design
- high misalignment compensation
- integral support (size 25 and up)

### MATERIAL

- **Hubs:** steel
- **Bellows:** highly flexible high grade stainless steel

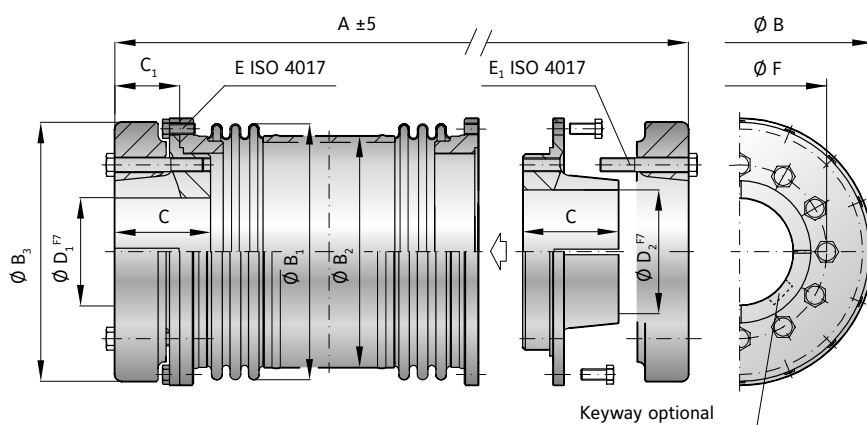
### DESIGN

Both sides with removable clamping hubs including conical clamping ring system.

Spacer between bellows (optional variable length)

(size 10 without spacer)

welded bellows-hub connection



## MODEL BX6 | SIZE 10 – 100

| SIZE                                                                 |            |            | 10       | 25       | 50        | 75        | 100       |
|----------------------------------------------------------------------|------------|------------|----------|----------|-----------|-----------|-----------|
| Rated torque (KNm)                                                   | $T_{KN}$   |            | 10       | 25       | 50        | 75        | 100       |
| Maximum torque (KNm)                                                 | $T_{Kmax}$ |            | 15       | 38       | 75        | 113       | 150       |
| Overall length (mm)                                                  | $A \pm 5$  |            | 235      | 530      | 650       | 840       | 940       |
| Outside diameter of flange (mm)                                      | B          |            | 310      | 336      | 398       | 449       | 545       |
| Outside diameter of bellows $\pm 2$ (mm)                             | $B_1$      |            | 300      | 323      | 370       | 412       | 520       |
| Outside diameter of tube (mm)                                        | $B_2$      |            | –        | 273      | 324       | 360       | 460       |
| Diameter of clamping ring (mm)                                       | $B_3$      |            | 300      | 310      | 380       | 420       | 530       |
| Fit length (mm)                                                      | C          |            | 90       | 110      | 140       | 170       | 200       |
| Length (mm)                                                          | $C_1$      |            | 55       | 74       | 99        | 130       | 150       |
| Inside diameter possible from $\varnothing$ to $\varnothing F7$ (mm) | $D_1/D_2$  |            | 70 – 170 | 80 – 170 | 100 – 200 | 130 – 230 | 150 – 280 |
| Fastening screw ISO 4017 for mounting flange (mm)                    | E          |            | 20 x M12 | 24 x M16 | 24 x M20  | 20 x M24  | 24 x M24  |
| Tightening torque (Nm)                                               |            |            | 120      | 300      | 580       | 1000      | 1000      |
| Fastening screw ISO 4017 for conical clamping ring (mm)              | $E_1$      |            | 8 x M16  | 12 x M16 | 12 x M20  | 16 x M20  | 12 x M24  |
| Tightening torque (Nm)                                               |            |            | 200      | 250      | 300       | 350       | 600       |
| Bolt circle diameter $\pm 0.4$ (mm)                                  | F          |            | 210      | 220      | 250       | 290       | 360       |
| Moment of inertia ( $10^{-3}$ kgm <sup>2</sup> )                     | $J_{ges}$  |            | 828      | 1535     | 3799      | 8277      | 24876     |
| Approximate weight (kg)                                              |            |            | 60       | 93       | 168       | 280       | 550       |
| Axial $\pm$ (mm)                                                     |            | Max. value | 3        | 5        | 6         | 7         | 8         |
| Lateral $\pm$ (mm)                                                   |            |            | 0.4      | 2.2      | 2.5       | 3         | 3.5       |
| Angular $\pm$ (degree)                                               |            |            | 1.5      | 1        | 1         | 1         | 1         |
| Torsional stiffness coupling ( $10^3$ Nm/rad)                        |            |            | 20,000   | 9,000    | 15,500    | 23,000    | 35,000    |

| ORDERING EXAMPLE                                                                                                                                                    | BX4   BX6 | 50 | 120 | 200 | XX                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----|-----|-----|---------------------------------------------------------|
| Model                                                                                                                                                               | ●         |    |     |     | Special designation only<br>(e.g. stainless steel hubs) |
| Size / torque rating (KNm)                                                                                                                                          |           | ●  |     |     |                                                         |
| Bore D1 F7                                                                                                                                                          |           |    | ●   |     |                                                         |
| Bore D2 F7                                                                                                                                                          |           |    |     | ●   |                                                         |
| For custom features place an XX at the end of the part number and describe the special requirements (e.g. BX4 / 50 / 117.48 / 127 / XX; XX = 700 mm overall length) |           |    |     |     |                                                         |

BELLOWS COUPLING  
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