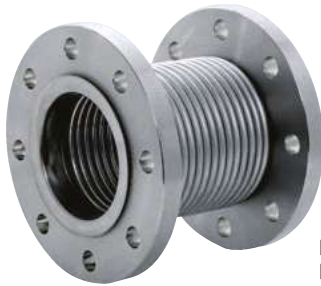




## Steel expansion joint - Type SF-10

Axial expansion joint DN 15 – DN 2800



DN 15 -  
DN 500



DN 600 -  
DN 2800

### Structure type SF-10

- Vacuum-proof, short-length axial expansion joint, consisting of a stainless steel bellows and rotatable flanges

### Applications

- for compensating axial movement
- for reducing tension, damping noise and oscillation in pipes and their system components, e.g.
  - pumps
  - motors
  - machines
- for installation in
  - industrial applications
  - gas and water supply
  - exhaust systems
  - heating installations
  - drinking water systems
- to compensate for installation inaccuracies

### Steel bellows PN 2.5 / PN 6 / PN 10 / PN 16

- Multiple convolution bellows in various stainless steel grades
- One ply or multi-ply structure
- DN 15 – DN 500 with flared ends
- DN 600 – DN 2800 with pre-welded flared ends

| Material grade *     | Material No. as per DIN EN | Temperature**            | Possible uses  |
|----------------------|----------------------------|--------------------------|--|
| Stainless steel      | 1.4541                     | -196 °C<br>up to +550 °C | Low temperature, acids, lyes, gases, fertilizers                         |
|                      | 1.4404, 1.4571             | +550 °C                  | Media containing chloride, oil, soap, drinking water, food stuff, petrol |
| Heat-resistant steel | 1.4828                     | +900 °C                  | Hot gases, steam, air  |
|                      | 1.4878                     | +800 °C                  | Hot gases, steam, air  |
| Nickel-based alloy   | 2.4858<br>(Incoloy 825)    | +450 °C                  | Sulphuric acid, phosphoric acid, petrol, oil, gases                      |

\* Check or inquire about the resistance of material grades to temperature and medium.  
\*\* Check or inquire about reduction in pressure by temperature.

### Special designs

Other sizes (DN), lengths or pressure ratings on request.

### Accessories

- Internal guide sleeve
- Protective tube
- Gas sealings for DVGW-application

### Certificates

- CE (DGR 97/23/EG)
- American Bureau of Shipping
- Bureau Veritas
- DVGW (DN 32 - DN 200)
- Germanischer Lloyd
- Lloyd's Register of Shipping
- RINA
- RMRS

### Flanges

#### Version

- Rotable flanges
- Flange drilling for through bolts

#### Dimensions

Standard: DN 1200 - DN 2800 (PN 2.5)  
 DN 300 - DN 2000 (PN 6)  
 DN 15 - DN 1000 (PN 10)  
 DN 15 - DN 500 (PN 16)  
 according to EN 1092

Others: DIN EN, ANSI, BS etc.

Connection dimensions see technical annex

#### Materials

Standard: 1.0038 (S235JR), 1.4541, 1.4404

Others: stainless steel, etc.

#### Corrosion protection

Standard: DN 32 - DN 250 electro-galvanized,  
 DN 300 - DN 2800 anti-corrosion primed

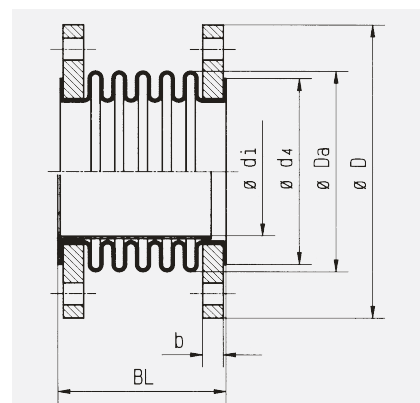
Others: hot-dip galvanized, special varnish, special coating etc.

### Note

Please comply with the general technical instructions regarding reaction force, moving force, fixed point load, installation instructions, etc.

Subject to technical alterations and deviations resulting from the manufacturing process.

### Version



Type SF-10



Pressure rate **PN 2.5** standard program

| DN   | BL  | $\Delta a_{x_{tot}}$<br>Axial<br>movement | $C_{ax}$<br>Axial<br>spring<br>rate<br>N/mm | $\Delta lat_{tot}$<br>Lateral<br>movement | $C_{lat}$<br>Lateral<br>spring<br>rate<br>N/mm | A*<br>Effective<br>bellows cross<br>sectional area<br>cm <sup>2</sup> | $\varnothing d_4$<br>Flared<br>end $\varnothing$<br>mm | $\varnothing D_a$<br>Bellows<br>outer<br>$\varnothing$<br>mm | PN<br>Flange<br>connec-<br>tion<br>EN 1092 | $\varnothing D$<br>Flange<br>outer<br>$\varnothing$<br>mm | b<br>Flange<br>thickness<br>mm | Weight<br><br>approx.<br>kg |
|------|-----|---|---|---|--|---|--|--|--|---|--------------------------------|-----------------------------|
| 25   | 105 | 25  | 28  | 13  | 10   | 10  | 68   | 42   | 16   | 115   | 16                             | 3.9                         |
| 32   | 135 | 30  | 15  | 26  | 8  | 15  | 56   | 51   | 16   | 140   | 18                             | 3.8                         |
| 40   | 135 | 30  | 17  | 20  | 15   | 22  | 65   | 61   | 16   | 150   | 18                             | 3.9                         |
| 50   | 160 | 44  | 16  | 34  | 12   | 34  | 80   | 76   | 16   | 165   | 18                             | 5.3                         |
| 65   | 175 | 56  | 25  | 26  | 18   | 55  | 95   | 96   | 16   | 185   | 18                             | 7.0                         |
| 80   | 190 | 68  | 20  | 28  | 18   | 78  | 110  | 114  | 16   | 200   | 20                             | 7.9                         |
| 100  | 195 | 70  | 19  | 26  | 22   | 114   | 140  | 136  | 16   | 220   | 20                             | 10.0                        |
| 125  | 200 | 72  | 26  | 21  | 49   | 174   | 165  | 168  | 16   | 250   | 22                             | 12.3                        |
| 150  | 220 | 80  | 28  | 21  | 62   | 246   | 200  | 197  | 16   | 285   | 24                             | 16.1                        |
| 200  | 230 | 86  | 36  | 19  | 118  | 424   | 254  | 253  | 10   | 340   | 24                             | 20.7                        |
| 250  | 245 | 96  | 50  | 19  | 208  | 622   | 310  | 302  | 10   | 395   | 26                             | 26.1                        |
| 300  | 180 | 48  | 119   | -   | -  | 990   | 364  | 386  | 6  | 440   | 24                             | 27.0                        |
| 300  | 265 | 98  | 60  | 14  | 399  | 990   | 364  | 386  | 6  | 440   | 24                             | 30.0                        |
| 350  | 185 | 48  | 129   | -   | -  | 1176  | 396  | 418  | 6  | 490   | 26                             | 38.0                        |
| 350  | 270 | 96  | 65  | 14  | 515  | 1176  | 396  | 418  | 6  | 490   | 26                             | 40.0                        |
| 400  | 185 | 46  | 146   | -   | -  | 1507  | 452  | 469  | 6  | 540   | 28                             | 44.0                        |
| 400  | 270 | 94  | 73  | 12  | 744  | 1507  | 452  | 469  | 6  | 540   | 28                             | 47.0                        |
| 450  | 190 | 46  | 162   | -   | -  | 1878  | 498  | 520  | 6  | 595   | 30                             | 54.0                        |
| 450  | 275 | 92  | 81  | 10  | 1032   | 1878  | 498  | 520  | 6  | 595   | 30                             | 57.0                        |
| 500  | 190 | 44  | 178   | -   | -  | 2282  | 548  | 570  | 6  | 645   | 30                             | 58.0                        |
| 500  | 275 | 90  | 89  | 8   | 1378   | 2282  | 548  | 570  | 6  | 645   | 30                             | 62.0                        |
| 600  | 195 | 44  | 212   | -   | -  | 3227  | 670  | 672  | 6  | 755   | 32                             | 77.0                        |
| 600  | 280 | 88  | 106   | 7   | 2315   | 3227  | 670  | 672  | 6  | 755   | 32                             | 81.0                        |
| 700  | 210 | 44  | 246   | -   | -  | 4336  | 775  | 774  | 6  | 860   | 40                             | 111.0                       |
| 700  | 295 | 88  | 123   | -   | -  | 4336  | 775  | 774  | 6  | 860   | 40                             | 116.0                       |
| 800  | 220 | 42  | 279   | -   | -  | 5595  | 875  | 875  | 6  | 975   | 44                             | 150.0                       |
| 800  | 305 | 86  | 140   | -   | -  | 5595  | 875  | 875  | 6  | 975   | 44                             | 156.0                       |
| 900  | 225 | 42  | 313   | -   | -  | 7014  | 975  | 976  | 6  | 1075  | 48                             | 182.0                       |
| 900  | 310 | 86  | 156   | -   | -  | 7014  | 975  | 976  | 6  | 1075  | 48                             | 188.0                       |
| 1000 | 235 | 42  | 346   | -   | -  | 8610  | 1080   | 1078   | 6  | 1175  | 52                             | 212.0                       |
| 1000 | 320 | 86  | 173   | -   | -  | 8610  | 1080   | 1078   | 6  | 1175  | 52                             | 220.0                       |
| 1200 | 210 | 42  | 413   | -   | -  | 12291   | 1262   | 1282   | 2.5  | 1375  | 30                             | 152.0                       |
| 1200 | 295 | 84  | 207   | -   | -  | 12291   | 1262   | 1282   | 2.5  | 1375  | 30                             | 160.0                       |
| 1400 | 210 | 42  | 478   | -   | -  | 16536   | 1462   | 1482   | 2.5  | 1575  | 30                             | 175.0                       |
| 1400 | 295 | 84  | 239   | -   | -  | 16536   | 1462   | 1482   | 2.5  | 1575  | 30                             | 185.0                       |
| 1600 | 210 | 42  | 543   | -   | -  | 21408   | 1662   | 1682   | 2.5  | 1790  | 30                             | 219.0                       |
| 1600 | 295 | 84  | 271   | -   | -  | 21408   | 1662   | 1682   | 2.5  | 1790  | 30                             | 231.0                       |
| 1800 | 210 | 42  | 607   | -   | -  | 26909   | 1862   | 1882   | 2.5  | 1990  | 30                             | 245.0                       |
| 1800 | 295 | 84  | 304   | -   | -  | 26909   | 1862   | 1882   | 2.5  | 1990  | 30                             | 258.0                       |
| 2000 | 210 | 42  | 672   | -   | -  | 33039   | 2062   | 2082   | 2.5  | 2190  | 30                             | 271.0                       |
| 2000 | 295 | 84  | 336   | -   | -  | 33039   | 2062   | 2082   | 2.5  | 2190  | 30                             | 285.0                       |
| 2200 | 210 | 42  | 736   | -   | -  | 39796   | 2262   | 2282   | 2.5  | 2405  | 35                             | 365.0                       |
| 2200 | 295 | 84  | 368   | -   | -  | 39796   | 2262   | 2282   | 2.5  | 2405  | 35                             | 381.0                       |
| 2400 | 210 | 42  | 800   | -   | -  | 47182   | 2462   | 2482   | 2.5  | 2605  | 35                             | 387.0                       |
| 2400 | 295 | 84  | 400   | -   | -  | 47182   | 2462   | 2482   | 2.5  | 2605  | 35                             | 414.0                       |
| 2800 | 210 | 42  | 928   | -   | -  | 63839   | 2862   | 2882   | 2.5  | 3030  | 35                             | 520.0                       |
| 2800 | 295 | 84  | 464   | -   | -  | 63839   | 2862   | 2882   | 2.5  | 3030  | 35                             | 540.0                       |

Table values refer to +20 °C, bellows material 1.4541, 1000 cycles. Please inquire for deviating values.  
 For pure axial movement: inner diameter of internal guide sleeve mentioned in tables PN 6, PN 10, PN 16.  
 If  $\Delta a_x$  and  $\Delta lat$  occur simultaneously, the table values must be reduced accordingly. The sum of all shares must not exceed 100 %.  
 \*Effective bellows cross sectional area is a theoretical value.



## Steel expansion joint - Type SF-10

### Axial expansion joint

| Pressure rate |     | PN 6                                   |                                  | standard program                                   |                                    |  |  |                            |                                       |                          |                         |
|---------------|-----|--|----------------------------------|--|------------------------------------|--|--|----------------------------|---------------------------------------|--------------------------|-------------------------|
| DN            | BL  | $\Delta ax_{tot}$<br>Axial<br>movement | $C_{ax}$<br>Axial<br>spring rate | A*<br>Effective<br>bellows cross<br>sectional area | $\phi d_4$<br>Flared<br>end $\phi$ | $\phi D_a$<br>Bellows<br>outer<br>$\phi$ | $\phi d_i$<br>Internal<br>guide<br>sleeve $\phi$ | PN<br>Flange<br>connection | $\phi D$<br>Flange<br>outer<br>$\phi$ | b<br>Flange<br>thickness | Weight<br>approx.<br>kg |
|               | mm  | mm                                     | N/mm                             | cm <sup>2</sup>                                    | mm                                 | mm                                       | mm   | EN 1092                    | mm                                    | mm                       |                         |
| 300           | 195 | 28                                     | 455                              | 993  | 364                                | 387                                      | 310  | 6                          | 440                                   | 24                       | 29.0                    |
| 300           | 290 | 58                                     | 228                              | 993  | 364                                | 387                                      | 310  | 6                          | 440                                   | 24                       | 33.0                    |
| 350           | 200 | 28                                     | 496                              | 1180   | 396                                | 419                                      | 342  | 6                          | 490                                   | 26                       | 40.0                    |
| 350           | 295 | 58                                     | 248                              | 1180   | 396                                | 419                                      | 342  | 6                          | 490                                   | 26                       | 44.0                    |
| 400           | 200 | 28                                     | 564                              | 1511   | 452                                | 470                                      | 393  | 6                          | 540                                   | 28                       | 47.0                    |
| 400           | 300 | 56                                     | 282                              | 1511   | 452                                | 470                                      | 393  | 6                          | 540                                   | 28                       | 51.0                    |
| 450           | 205 | 28                                     | 632                              | 1883   | 498                                | 521                                      | 444  | 6                          | 595                                   | 30                       | 57.0                    |
| 450           | 305 | 56                                     | 316                              | 1883   | 498                                | 521                                      | 444  | 6                          | 595                                   | 30                       | 62.0                    |
| 500           | 205 | 28                                     | 699                              | 2287   | 548                                | 571                                      | 494  | 6                          | 645                                   | 30                       | 62.0                    |
| 500           | 305 | 56                                     | 350                              | 2287   | 548                                | 571                                      | 494  | 6                          | 645                                   | 30                       | 68.0                    |
| 600           | 210 | 28                                     | 835                              | 3233   | 670                                | 673                                      | 596  | 6                          | 755                                   | 32                       | 81.0                    |
| 600           | 310 | 56                                     | 418                              | 3233   | 670                                | 673                                      | 596  | 6                          | 755                                   | 32                       | 88.0                    |
| 700           | 230 | 27                                     | 970                              | 4343   | 775                                | 775                                      | 698  | 6                          | 860                                   | 40                       | 116.0                   |
| 700           | 325 | 54                                     | 485                              | 4343   | 775                                | 775                                      | 698  | 6                          | 860                                   | 40                       | 124.0                   |
| 800           | 225 | 27                                     | 1104                             | 5603   | 857                                | 876                                      | 795  | 6                          | 975                                   | 30                       | 112.0                   |
| 800           | 320 | 55                                     | 552                              | 5603   | 857                                | 876                                      | 795  | 6                          | 975                                   | 30                       | 121.0                   |
| 900           | 225 | 27                                     | 1236                             | 7023   | 958                                | 977                                      | 896  | 6                          | 1075                                  | 30                       | 125.0                   |
| 900           | 320 | 54                                     | 618                              | 7023   | 958                                | 977                                      | 896  | 6                          | 1075                                  | 30                       | 135.0                   |
| 1000          | 225 | 27                                     | 1369                             | 8619   | 1060                               | 1079                                     | 998  | 6                          | 1175                                  | 30                       | 135.0                   |
| 1000          | 320 | 54                                     | 685                              | 8619   | 1060                               | 1079                                     | 998  | 6                          | 1175                                  | 30                       | 147.0                   |
| 1200          | 225 | 27                                     | 1634                             | 12303  | 1264                               | 1283                                     | 1202   | 6                          | 1405                                  | 30                       | 186.0                   |
| 1200          | 320 | 54                                     | 817                              | 12303  | 1264                               | 1283                                     | 1202   | 6                          | 1405                                  | 30                       | 200.0                   |
| 1400          | 225 | 27                                     | 1894                             | 16549  | 1464                               | 1483                                     | 1402   | 6                          | 1630                                  | 35                       | 275.0                   |
| 1400          | 320 | 54                                     | 947                              | 16549  | 1464                               | 1483                                     | 1402   | 6                          | 1630                                  | 35                       | 291.0                   |
| 1600          | 225 | 27                                     | 2152                             | 21424  | 1664                               | 1683                                     | 1602   | 6                          | 1830                                  | 35                       | 312.0                   |
| 1600          | 320 | 54                                     | 1076                             | 21424  | 1664                               | 1683                                     | 1602   | 6                          | 1830                                  | 35                       | 331.0                   |
| 1800          | 225 | 27                                     | 2410                             | 26927  | 1864                               | 1883                                     | 1802   | 6                          | 2045                                  | 35                       | 371.0                   |
| 1800          | 320 | 54                                     | 1205                             | 26927  | 1864                               | 1883                                     | 1802   | 6                          | 2045                                  | 35                       | 392.0                   |
| 2000          | 225 | 27                                     | 2667                             | 33058  | 2064                               | 2083                                     | 2002   | 6                          | 2265                                  | 35                       | 444.0                   |
| 2000          | 320 | 54                                     | 1334                             | 33058  | 2064                               | 2083                                     | 2002   | 6                          | 2265                                  | 35                       | 467.0                   |

Table values refer to +20 °C, bellows material 1.4541, 1000 cycles. Please inquire for deviating values.  
\*Effective bellows cross sectional area is a theoretical value.



**Pressure rate**    **PN 10**    **standard program**

| DN   | BL  | $\Delta a_{x_{tot}}$<br>Axial<br>movement | $C_{ax}$<br>Axial<br>spring<br>rate<br>N/mm | A*<br>Effective<br>bellows cross<br>sectional area<br>cm <sup>2</sup> | $\phi d_4$<br>Flared<br>end<br>$\phi$<br>mm | $\phi D_a$<br>Bellows<br>outer<br>$\phi$<br>mm | $\phi d_i$<br>Internal<br>guide<br>sleeve $\phi$<br>mm | PN<br>Flange<br>connection<br>EN 1092 | $\phi D$<br>Flange<br>outer<br>$\phi$<br>mm | b<br>Flange<br>thickness<br>mm | Weight<br>approx.<br>kg |
|------|-----|---|---|---|---|--|--|---------------------------------------|---|--------------------------------|-------------------------|
| 15   | 108 | 17  | 21  | 7   | 45  | 38   | 18   | 16                                    | 95  | 14                             | 1.5                     |
| 20   | 108 | 17  | 21  | 7   | 58  | 38   | 18   | 16                                    | 105   | 16                             | 2.1                     |
| 25   | 125 | 26  | 49  | 16  | 54  | 54   | 25   | 16                                    | 115   | 16                             | 2.4                     |
| 32   | 135 | 26  | 49  | 16  | 54  | 54   | 32   | 16                                    | 140   | 18                             | 4.0                     |
| 40   | 135 | 30  | 111   | 25  | 68  | 66   | 38   | 16                                    | 150   | 18                             | 4.5                     |
| 50   | 155 | 36  | 177   | 34  | 75  | 79   | 49   | 16                                    | 165   | 18                             | 5.5                     |
| 65   | 165 | 40  | 199   | 54  | 95  | 96   | 63   | 16                                    | 185   | 18                             | 7.4                     |
| 80   | 175 | 46  | 148   | 78  | 110   | 115  | 76   | 16                                    | 200   | 20                             | 8.4                     |
| 100  | 180 | 46  | 175   | 115   | 140   | 137  | 96   | 16                                    | 220   | 20                             | 10.1                    |
| 125  | 200 | 50  | 79  | 173   | 165   | 168  | 123  | 16                                    | 250   | 22                             | 13.2                    |
| 150  | 230 | 50  | 160   | 243   | 200   | 197  | 148  | 16                                    | 285   | 24                             | 17.3                    |
| 200  | 230 | 38  | 219   | 422   | 254   | 253  | 198  | 10                                    | 340   | 24                             | 22.1                    |
| 250  | 245 | 38  | 624   | 620   | 310   | 302  | 249  | 10                                    | 395   | 26                             | 28.6                    |
| 300  | 200 | 28  | 455   | 993   | 364   | 387  | 310  | 10                                    | 445   | 26                             | 33.0                    |
| 300  | 295 | 56  | 288   | 993   | 364   | 387  | 310  | 10                                    | 445   | 26                             | 36.0                    |
| 350  | 205 | 27  | 496   | 1180  | 396   | 419  | 342  | 10                                    | 505   | 30                             | 50.0                    |
| 350  | 305 | 54  | 248   | 1180  | 396   | 419  | 342  | 10                                    | 505   | 30                             | 54.0                    |
| 400  | 210 | 27  | 564   | 1511  | 452   | 470  | 393  | 10                                    | 565   | 32                             | 62.0                    |
| 400  | 310 | 54  | 282   | 1511  | 452   | 470  | 393  | 10                                    | 565   | 32                             | 67.0                    |
| 450  | 220 | 27  | 632   | 1883  | 498   | 521  | 444  | 10                                    | 615   | 36                             | 76.0                    |
| 450  | 315 | 54  | 316   | 1883  | 498   | 521  | 444  | 10                                    | 615   | 36                             | 81.0                    |
| 500  | 225 | 26  | 699   | 2287  | 548   | 571  | 494  | 10                                    | 670   | 38                             | 90.0                    |
| 500  | 320 | 53  | 350   | 2287  | 548   | 571  | 494  | 10                                    | 670   | 38                             | 96.0                    |
| 600  | 225 | 26  | 835   | 3233  | 654   | 673  | 596  | 10                                    | 780   | 30                             | 90.0                    |
| 600  | 320 | 52  | 418   | 3233  | 654   | 673  | 596  | 10                                    | 780   | 30                             | 97.0                    |
| 700  | 225 | 26  | 970   | 4343  | 756   | 775  | 698  | 10                                    | 895   | 30                             | 112.0                   |
| 700  | 320 | 52  | 485   | 4343  | 756   | 775  | 698  | 10                                    | 895   | 30                             | 120.0                   |
| 800  | 225 | 25  | 1104  | 5603  | 857   | 876  | 795  | 10                                    | 1015  | 30                             | 140.0                   |
| 800  | 320 | 51  | 552   | 5603  | 857   | 876  | 795  | 10                                    | 1015  | 30                             | 149.0                   |
| 900  | 225 | 25  | 1236  | 7023  | 958   | 977  | 896  | 10                                    | 1115  | 30                             | 154.0                   |
| 900  | 320 | 51  | 618   | 7023  | 958   | 977  | 896  | 10                                    | 1115  | 30                             | 164.0                   |
| 1000 | 225 | 25  | 1369  | 8619  | 1060  | 1078   | 998  | 10                                    | 1230  | 35                             | 205.0                   |
| 1000 | 320 | 50  | 685   | 8619  | 1060  | 1078   | 998  | 10                                    | 1230  | 35                             | 217.0                   |

**Pressure rate**    **PN 16**    **standard program**

| DN  | BL  | $\Delta a_{x_{tot}}$<br>Axial<br>movement | $C_{ax}$<br>Axial<br>spring<br>rate<br>N/mm | A*<br>Effective<br>bellows cross<br>sectional area<br>cm <sup>2</sup> | $\phi d_4$<br>Flared<br>end<br>$\phi$<br>mm | $\phi D_a$<br>Bellows<br>outer<br>$\phi$<br>mm | $\phi d_i$<br>Internal<br>guide<br>sleeve $\phi$<br>mm | PN<br>Flange<br>connection<br>EN 1092 | $\phi D$<br>Flange<br>outer<br>$\phi$<br>mm | b<br>Flange<br>thickness<br>mm | Weight<br>approx.<br>kg |
|-----|-----|---|---|---|---|--|--|---------------------------------------|---|--------------------------------|-------------------------|
| 15  | 108 | 17  | 21  | 7   | 45  | 38   | 18   | 16                                    | 95  | 14                             | 1.5                     |
| 20  | 108 | 17  | 21  | 7   | 58  | 38   | 18   | 16                                    | 105   | 16                             | 2.1                     |
| 25  | 125 | 26  | 49  | 16  | 54  | 54   | 25   | 16                                    | 115   | 16                             | 2.4                     |
| 32  | 135 | 26  | 49  | 16  | 54  | 54   | 32   | 16                                    | 140   | 18                             | 4.0                     |
| 40  | 135 | 30  | 111   | 25  | 68  | 66   | 38   | 16                                    | 150   | 18                             | 4.5                     |
| 50  | 155 | 36  | 177   | 34  | 75  | 79   | 49   | 16                                    | 165   | 18                             | 5.5                     |
| 65  | 165 | 40  | 199   | 54  | 95  | 96   | 63   | 16                                    | 185   | 18                             | 7.4                     |
| 80  | 175 | 46  | 148   | 78  | 110   | 115  | 76   | 16                                    | 200   | 20                             | 8.4                     |
| 100 | 180 | 46  | 175   | 115   | 140   | 137  | 96   | 16                                    | 220   | 20                             | 10.1                    |
| 125 | 200 | 50  | 79  | 173   | 165   | 168  | 123  | 16                                    | 250   | 22                             | 13.2                    |
| 150 | 230 | 50  | 160   | 243   | 200   | 197  | 148  | 16                                    | 285   | 24                             | 17.3                    |
| 200 | 230 | 38  | 219   | 422   | 254   | 253  | 198  | 16                                    | 340   | 26                             | 23.1                    |
| 250 | 245 | 38  | 624   | 620   | 310   | 302  | 249  | 16                                    | 405   | 29                             | 33.3                    |
| 300 | 220 | 22  | 863   | 995   | 364   | 388  | 310  | 16                                    | 460   | 32                             | 44.0                    |
| 300 | 320 | 44  | 432   | 995   | 364   | 388  | 310  | 16                                    | 460   | 32                             | 49.0                    |
| 350 | 225 | 21  | 946   | 1182  | 396   | 420  | 342  | 16                                    | 520   | 35                             | 63.0                    |
| 350 | 325 | 43  | 473   | 1182  | 396   | 420  | 342  | 16                                    | 520   | 35                             | 68.0                    |
| 400 | 230 | 21  | 1078  | 1514  | 452   | 471  | 393  | 16                                    | 580   | 38                             | 80.0                    |
| 400 | 330 | 43  | 539   | 1514  | 452   | 471  | 393  | 16                                    | 580   | 38                             | 85.0                    |
| 450 | 240 | 21  | 1210  | 1886  | 498   | 522  | 444  | 16                                    | 640   | 42                             | 101.0                   |
| 450 | 340 | 43  | 605   | 1886  | 498   | 522  | 444  | 16                                    | 640   | 42                             | 108.0                   |
| 500 | 245 | 21  | 1338  | 2290  | 548   | 572  | 494  | 16                                    | 715   | 46                             | 140.0                   |
| 500 | 345 | 42  | 669   | 2290  | 548   | 572  | 494  | 16                                    | 715   | 46                             | 148.0                   |

Table values refer to +20 °C, bellows material 1.4541, 1000 cycles. Max. allowable pressure pulsation of 1.0 bar (brief periods). Please inquire for deviating values. \*Effective bellows cross sectional area is a theoretical value.