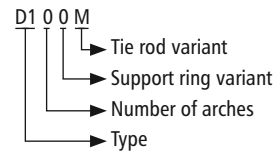


D100x (B/E/C/M/R/K/L)

NB 40 – NB 1200

► **Type D100x** (B/E/C/M/R/K/L)

Type key ► page 20



Lateral expansion joint without arch

| | |
|-----------------------------|---|
| Design: | Hydrodynamic, cylindrical rubber bellows with self-sealing rubber bulges and swivel backing flanges with tie rods |
| Nominal diameters: | NB 40 to NB 1200, intermediate sizes possible |
| Installation length: | Standard $L_E = 150$ to 400 mm (► page 202–203) Other installation lengths on request |
| Pressure: | Depending on the nominal diameter and installation length up to 10 bar Vacuum stability on request |
| Movement: | For slight lateral movements (► page 202–203) Installation gap tolerances possible in the context of axial compression and extension |

Application:

Plant construction, sand/gravel extraction industry, dredgers, food processing e.g. as suction/pressure hoses, in conveyor lines, on pumps and vessels



Rubber bellows

| Rubber grades | | | Carrier |
|---------------|---|--|---|
| up to 100 °C: | EPDM | Cooling water, hot water, seawater, acids, dilute chlorine compounds | Nylon fabric Polyester fabric Kevlar fabric Glass fibre fabric Steel mesh |
| | EPDM, drinking water approved | Drinking water | |
| | EPDM, white, food grade | Foodstuffs | |
| | EPDM, abrasion-resistant | Abrasive materials, Water-sand extraction | |
| | EPDM, insulating | Electrical systems construction | |
| | IIR | Hot water, acids, bases, gases | |
| | CSM | Strong acids, bases, chemicals | |
| | NBR | Oils, petrol, solvents, compressed air | |
| | NBR, bright, food grade | Oil, fatty foods | |
| up to 80 °C: | CR | Cooling water, slightly oily water, seawater | |
| up to 70 °C: | NR | Abrasive materials | |
| up to 150 °C: | HNBR | Oils, petrol, solvents, compressed air | |
| up to 180 °C: | FPM | Corrosive chemicals, petroleum distillates | |
| up to 200 °C: | Silicon (Q) | Air, saltwater atmosphere | |
| | Silicon (Q), white, food grade | Foodstuffs, medical technology | |
| PTFE lining: | For severe chemical attacks. Take the restriction of the listed movement into account (▶ page 202) | | |

Flanges

Design: Single-part swivel backing flanges with clearance holes, groove to accommodate the rubber bulges and holder for tie rods (control unit type B, E, C, M)

Single-part, round, swivel backing flanges with clearance holes, groove to accommodate the rubber bulges and control unit plates (control unit type R, K, L)

Flange norms: DIN, ANSI, AWWA, BS, JIS, special measurements (▶ page 280)

Materials:

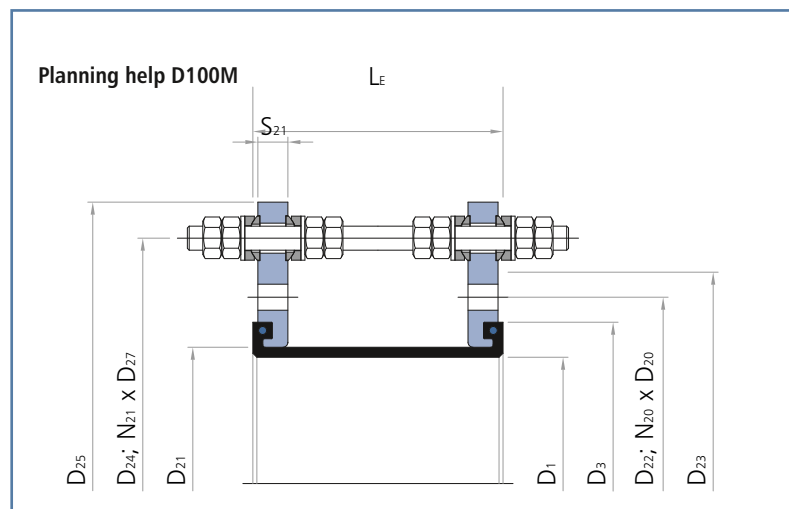
- Carbon steel: 1.0038 (S235JRG2)
1.0570 (S355J2G3)
- Stainless steel: 1.4301 (X5CrNi18-10)
1.4571 (X6CrNiMoTi17-12-2)
- Aluminium: AlMg3
- Other materials on request

Coating: Primed, hot-dip galvanised, special paint

Optional accessories

Protective hood: UV protection cover
Ground protective cover
Fire protection cover
(▶ page 50)

Flow liners: Cylindrical flow liner
Conical flow liner
Telescoping flow liner
(▶ page 49)



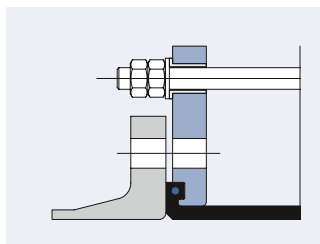
Tie rods



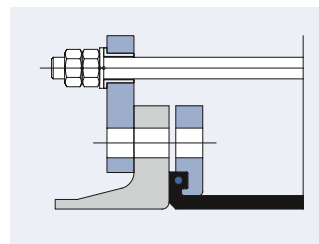
Design: Dimensioning according to design pressure (test pressure) based on the Pressure Equipment Directive

Materials: Carbon steel in strength class 8.8 or stainless steel

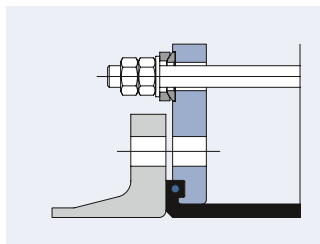
Coating: Spherical bearings and ball disks PTFE-coated
Tie rods galvanised or hot-dip galvanised



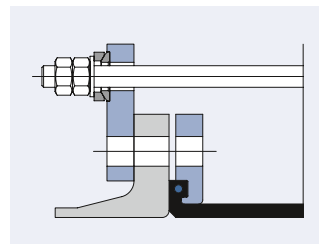
Type D100B
Tie rods mounted outside in rubber bushing to accommodate reaction forces in the event of pressure (up to NB 300)



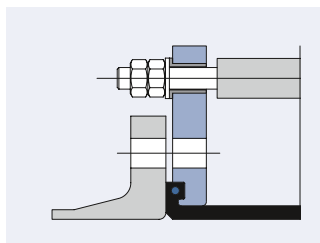
Type D100R
Control unit plates: Tie rods mounted outside in rubber bushing to accommodate reaction forces in the event of pressure (up to NB 300)



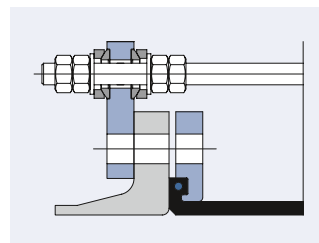
Type D100E
Tie rods mounted outside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure



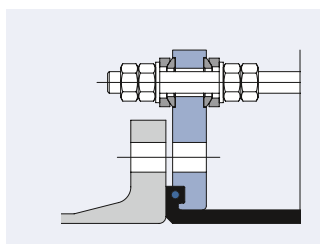
Type D100K
Control unit plates: Tie rods mounted outside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure



Type D100C
Tie rods mounted outside in rubber bushing and inside in the thrust limiter to accommodate stresses in the event of pressure and vacuum (up to NB 300)



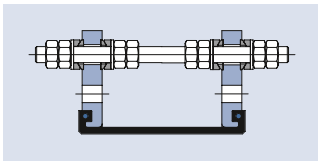
Type D100L
Control unit plates: Tie rods mounted outside and inside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure and vacuum



Type D100M
Tie rods mounted outside and inside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure and vacuum



Lateral expansion joint, type U110R
on the pump pressure side in a paper mill
NB 50, 10 bar

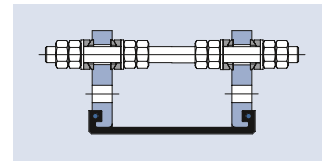


D100x (B/E/C/M/R/K/L)

▶ without arch

| Installation length (L _E) at design pressure | | | | | | | | | | | | | | | |
|--|--------------------------------------|----|------|-----|----------------------|--------------------------------------|----|------|-----|----------------------|--------------------------------------|----|------|-----|----------------------|
| NB | up to 10 bar L _E = 150 mm | | | | | up to 10 bar L _E = 200 mm | | | | | up to 10 bar L _E = 250 mm | | | | |
| | Movement | | | | A cm ² | Movement | | | | A cm ² | Movement | | | | A cm ² |
| | mm | mm | ± mm | ± ° | | mm | mm | ± mm | ± ° | | mm | mm | ± mm | ± ° | |
| 40 | 8 | 5 | 12 | 0 | 10 | 10 | 6 | 16 | 0 | 10 | 13 | 8 | 20 | 0 | 10 |
| 50 | 8 | 5 | 11 | 0 | 16 | 10 | 6 | 15 | 0 | 16 | 13 | 8 | 19 | 0 | 16 |
| 65 | 8 | 5 | 11 | 0 | 28 | 10 | 6 | 14 | 0 | 28 | 13 | 8 | 18 | 0 | 28 |
| 80 | 8 | 5 | 10 | 0 | 43 | 10 | 6 | 14 | 0 | 43 | 13 | 8 | 17 | 0 | 43 |
| 100 | 8 | 5 | 10 | 0 | 69 | 10 | 6 | 13 | 0 | 69 | 13 | 8 | 17 | 0 | 69 |
| 125 | 8 | 5 | 10 | 0 | 115 | 10 | 6 | 13 | 0 | 115 | 13 | 8 | 16 | 0 | 115 |
| 150 | 8 | 5 | 9 | 0 | 170 | 10 | 6 | 12 | 0 | 170 | 13 | 8 | 15 | 0 | 170 |
| 200 | 8 | 5 | 9 | 0 | 278 | 10 | 6 | 12 | 0 | 278 | 13 | 8 | 14 | 0 | 278 |
| 250 | 8 | 5 | 8 | 0 | 449 | 10 | 6 | 11 | 0 | 449 | 13 | 8 | 14 | 0 | 449 |
| 300 | 8 | 5 | 8 | 0 | 656 | 10 | 6 | 11 | 0 | 656 | 13 | 8 | 13 | 0 | 656 |
| 350 | 8 | 5 | 8 | 0 | 855 | 10 | 6 | 10 | 0 | 855 | 13 | 8 | 13 | 0 | 855 |
| 400 | 8 | 5 | 8 | 0 | 1,195 | 10 | 6 | 10 | 0 | 1,195 | 13 | 8 | 13 | 0 | 1,195 |
| 450 | 8 | 5 | 7 | 0 | 1,514 | 10 | 6 | 10 | 0 | 1,514 | 13 | 8 | 12 | 0 | 1,514 |
| 500 | 8 | 5 | 7 | 0 | 1,886 | 10 | 6 | 10 | 0 | 1,886 | 13 | 8 | 12 | 0 | 1,886 |
| 600 | 8 | 5 | 7 | 0 | 2,706 | 10 | 6 | 9 | 0 | 2,706 | 13 | 8 | 12 | 0 | 2,706 |
| 700 | 8 | 5 | 7 | 0 | 3,750 | 10 | 6 | 9 | 0 | 3,750 | 13 | 8 | 11 | 0 | 3,750 |
| 800 | 8 | 5 | 7 | 0 | 4,914 | 10 | 6 | 9 | 0 | 4,914 | 13 | 8 | 11 | 0 | 4,914 |
| 900 | 8 | 5 | 6 | 0 | 6,193 | 10 | 6 | 9 | 0 | 6,193 | 13 | 8 | 11 | 0 | 6,193 |
| 1000 | 8 | 5 | 6 | 0 | 7,667 | 10 | 6 | 8 | 0 | 7,667 | 13 | 8 | 10 | 0 | 7,667 |
| 1100 | 8 | 5 | 6 | 0 | 9,297 | 10 | 6 | 8 | 0 | 9,297 | 13 | 8 | 10 | 0 | 9,297 |
| 1200 | 8 | 5 | 6 | 0 | 11,085 | 10 | 6 | 8 | 0 | 11,085 | 13 | 8 | 10 | 0 | 11,085 |

Reduction of movement for expansion joints with PTFE lining:
 axial compression: -33 %; axial extension: -66 %; lateral displacement: -25 %.
 Larger movements see type D110x.



Installation length (L_E) at design pressure

| up to 10 bar L _E = 300 mm | | | | | up to 10 bar L _E = 350 mm | | | | | up to 10 bar L _E = 400 mm | | | | | NB |
|--------------------------------------|----|------|-----|----------------------|--------------------------------------|----|------|-----|----------------------|--------------------------------------|----|------|-----|----------------------|------|
| higher pressures on request | | | | | | | | | | | | | | | |
| Movement | | | | A cm ² | Movement | | | | A cm ² | Movement | | | | A cm ² | |
| mm | mm | ± mm | ± ° | | mm | mm | ± mm | ± ° | | mm | mm | ± mm | ± ° | | |
| 15 | 9 | 24 | 0 | 10 | 18 | 11 | 28 | 0 | 10 | 20 | 12 | 32 | 0 | 10 | 40 |
| 15 | 9 | 23 | 0 | 16 | 18 | 11 | 27 | 0 | 16 | 20 | 12 | 30 | 0 | 16 | 50 |
| 15 | 9 | 22 | 0 | 28 | 18 | 11 | 25 | 0 | 28 | 20 | 12 | 29 | 0 | 28 | 65 |
| 15 | 9 | 21 | 0 | 43 | 18 | 11 | 24 | 0 | 43 | 20 | 12 | 28 | 0 | 43 | 80 |
| 15 | 9 | 20 | 0 | 69 | 18 | 11 | 23 | 0 | 69 | 20 | 12 | 27 | 0 | 69 | 100 |
| 15 | 9 | 19 | 0 | 115 | 18 | 11 | 22 | 0 | 115 | 20 | 12 | 25 | 0 | 115 | 125 |
| 15 | 9 | 18 | 0 | 170 | 18 | 11 | 21 | 0 | 170 | 20 | 12 | 24 | 0 | 170 | 150 |
| 15 | 9 | 17 | 0 | 278 | 18 | 11 | 20 | 0 | 278 | 20 | 12 | 23 | 0 | 278 | 200 |
| 15 | 9 | 17 | 0 | 449 | 18 | 11 | 19 | 0 | 449 | 20 | 12 | 22 | 0 | 449 | 250 |
| 15 | 9 | 16 | 0 | 656 | 18 | 11 | 19 | 0 | 656 | 20 | 12 | 21 | 0 | 656 | 300 |
| 15 | 9 | 15 | 0 | 855 | 18 | 11 | 18 | 0 | 855 | 20 | 12 | 21 | 0 | 855 | 350 |
| 15 | 9 | 15 | 0 | 1,195 | 18 | 11 | 18 | 0 | 1,195 | 20 | 12 | 20 | 0 | 1,195 | 400 |
| 15 | 9 | 15 | 0 | 1,514 | 18 | 11 | 17 | 0 | 1,514 | 20 | 12 | 20 | 0 | 1,514 | 450 |
| 15 | 9 | 14 | 0 | 1,886 | 18 | 11 | 17 | 0 | 1,886 | 20 | 12 | 19 | 0 | 1,886 | 500 |
| 15 | 9 | 14 | 0 | 2,706 | 18 | 11 | 16 | 0 | 2,706 | 20 | 12 | 19 | 0 | 2,706 | 600 |
| 15 | 9 | 13 | 0 | 3,750 | 18 | 11 | 16 | 0 | 3,750 | 20 | 12 | 18 | 0 | 3,750 | 700 |
| 15 | 9 | 13 | 0 | 4,914 | 18 | 11 | 15 | 0 | 4,914 | 20 | 12 | 18 | 0 | 4,914 | 800 |
| 15 | 9 | 13 | 0 | 6,193 | 18 | 11 | 15 | 0 | 6,193 | 20 | 12 | 17 | 0 | 6,193 | 900 |
| 15 | 9 | 13 | 0 | 7,667 | 18 | 11 | 15 | 0 | 7,667 | 20 | 12 | 17 | 0 | 7,667 | 1000 |
| 15 | 9 | 12 | 0 | 9,297 | 18 | 11 | 14 | 0 | 9,297 | 20 | 12 | 16 | 0 | 9,297 | 1100 |
| 15 | 9 | 12 | 0 | 11,085 | 18 | 11 | 14 | 0 | 11,085 | 20 | 12 | 16 | 0 | 11,085 | 1200 |

Individual fabrication possible