

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
 D1 0 0 M
 └─ Tie rod variant
 └─ Support ring variant
 └─ Number of arches
 └─ Type

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)

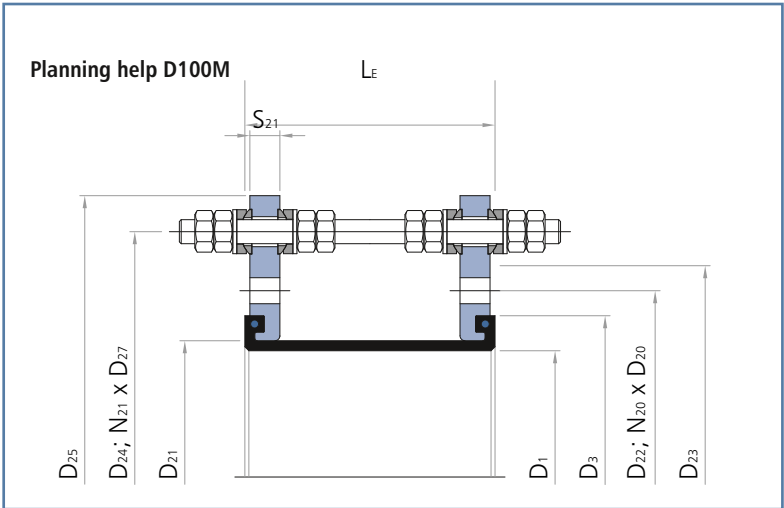
Materials: Carbon steel: 1.0038 (S235JRG2)
1.0570 (S355J2G3)
Stainless steel: 1.4301 (X5CrNi18-10)
1.4571 (X6CrNiMoTi17-12-2)
Aluminium: AlMg3
Other materials on request

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)



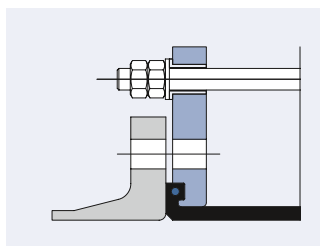
Tie rods



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

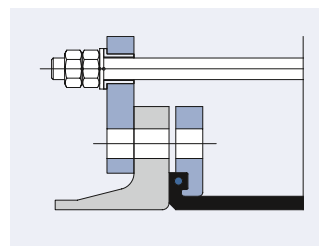
Materials: Carbon steel in strength class 8.8 or stainless steel

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



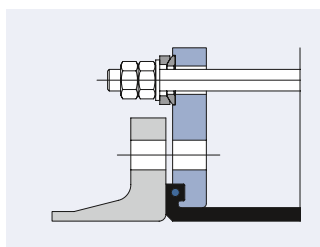
Type D100B

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



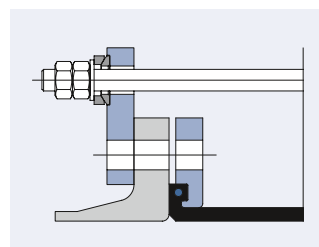
Type D100R

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



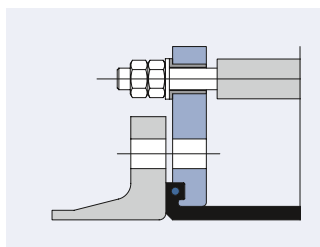
Type D100E

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



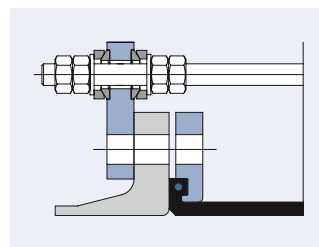
Type D100K

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



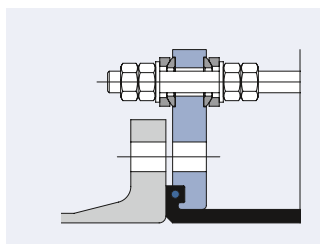
Type D100C

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

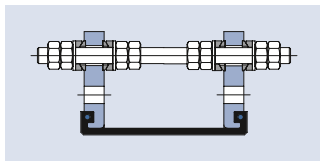


Type D100M

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



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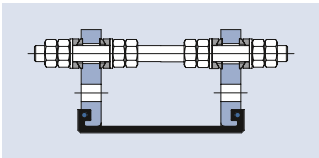
▶ without arch

Installation length (L _E) at design pressure															
	up to 10 bar L _E = 150 mm					up to 10 bar L _E = 200 mm					up to 10 bar L _E = 250 mm				
	higher pressures on request														
NB	Movement				A	Movement				A	Movement				A
															
	mm	mm	±mm	±°	cm ²	mm	mm	±mm	±°	cm ²	mm	mm	±mm	±°	cm ²
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						
higher pressures on request																
Movement				A	Movement				A	Movement				A	NB	
																
mm	mm	± mm	± °	cm ²	mm	mm	± mm	± °	cm ²	mm	mm	± mm	± °	cm ²		
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