U100x (B/E/C/M/R/K/L)

NB 100 – NB 4000

▶ **Type U100x** (B/E/C/M/R/K/L)

Type key ▶ page 20

U1 0 0 M

- Tie rod variant
- Support ring variant
- Number of arches
- Type

Lateral expansion joint without arch

Design: Hydrodynamic, cylindrical rubber bellows with full faced rubber flanges and single or multi-part backing flanges with tie rods
Optionally with embedded pressure or vacuum support rings

Nominal diameters: NB 100 to NB 4000, intermediate sizes possible

Installation length: Standard L_E = 150 to 400 mm (▶ page 170–171)
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 axial and lateral movements (▶ page 170–171)
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

KTW FDA Ω <10⁵ Ohm EX

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
	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:	Permanently embedded against chemical attacks on the interior at the rubber bellows, available starting at NB 300. Take the restriction of the listed movement into account (▶ page 170–171)		

Flanges

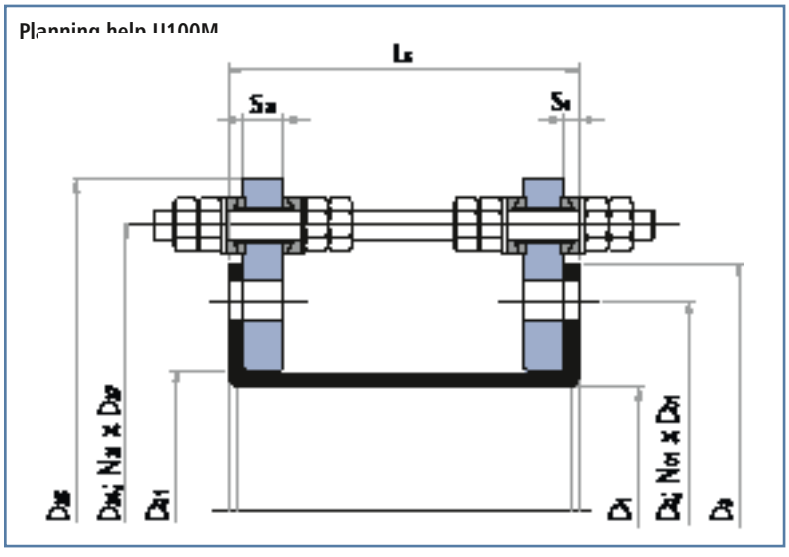
Design: Single-part or multi-part backing flanges with clearance holes and holder for tie rods (control unit type B, E, C, M)

Single-part or multi-part round backing flanges with clearance holes 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

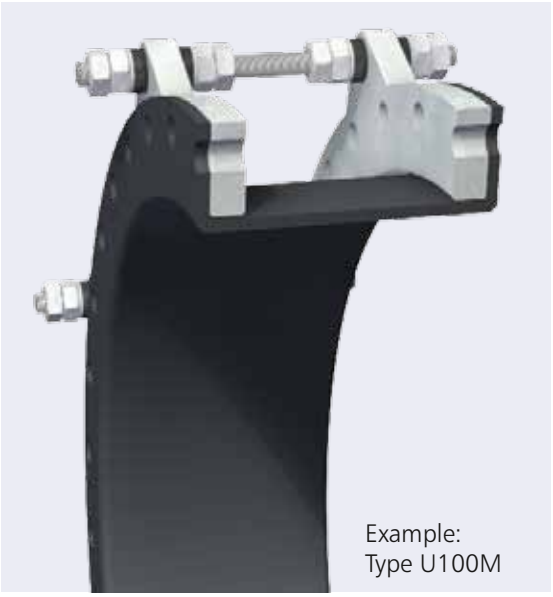


Optional accessories

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

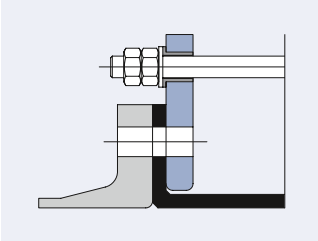


Example:
Type U100M

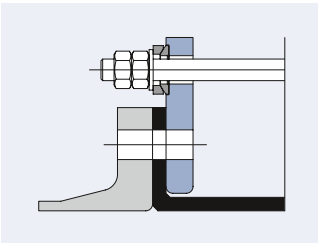
Design: Dimensioning according to design pressure (test pressure) based on the Pressure Equipment Directive

Materials: Carbon steel in strength class 8.8 or stainless steel

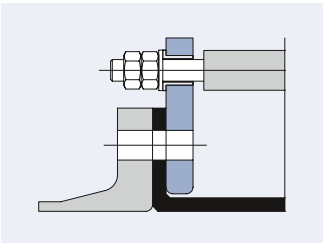
Coating: Spherical bearings and ball disks PTFE-coated
Tie rods galvanised or hot-dip galvanised



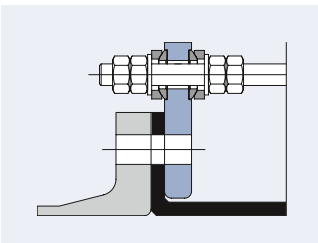
Type U100B
Tie rods mounted outside in rubber bushing to accommodate reaction forces in the event of pressure (up to NB 300)



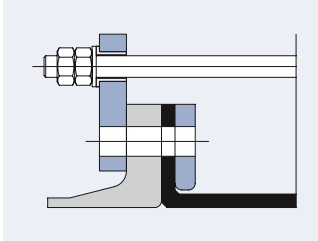
Type U100E
Tie rods mounted outside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure



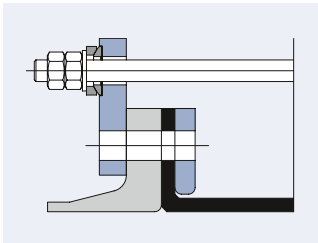
Type U100C
Tie rods mounted outside in rubber bushing and inside in the thrust limiter to accommodate stresses in the event of pressure and vacuum (up to NB 300)



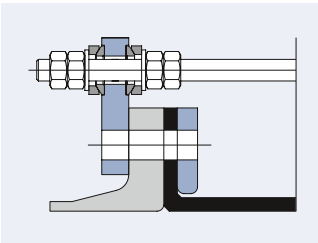
Type U100M
Tie rods mounted outside and inside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure and vacuum



Type U100R
Control unit plates: Tie rods mounted outside in rubber bushing to accommodate reaction forces in the event of pressure (up to NB 300)

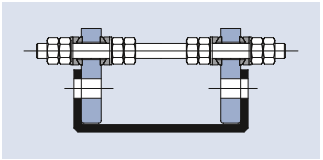


Type U100K
Control unit plates: Tie rods mounted outside in spherical bearings and ball disks to accommodate the reaction forces in the event of pressure



Type U100L
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 U110M lateral expansion joint
in a desalination plant
NB 3600, 8 bar, 90 °C



U100x (B/E/C/M/R/K/L)

▶ without arch

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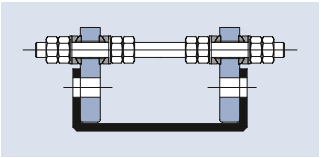
Installation length (L_E) at design pressure

	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	±°	cm²	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²
100	8	5	10	0	79	10	6	13	0	79	13	8	17	0	79
125	8	5	10	0	123	10	6	13	0	123	13	8	16	0	123
150	8	5	9	0	177	10	6	12	0	177	13	8	15	0	177
175	8	5	9	0	254	10	6	12	0	254	13	8	15	0	254
200	8	5	9	0	314	10	6	12	0	314	13	8	14	0	314
250	8	5	8	0	491	10	6	11	0	491	13	8	14	0	491
300	8	5	8	0	716	10	6	11	0	716	13	8	13	0	716
350	8	5	8	0	990	10	6	10	0	990	13	8	13	0	990
400	8	5	8	0	1,269	10	6	10	0	1,269	13	8	13	0	1,269
450	8	5	7	0	1,612	10	6	10	0	1,612	13	8	12	0	1,612
500	8	5	7	0	1,987	10	6	10	0	1,987	13	8	12	0	1,987
550	8	5	7	0	2,376	10	6	9	0	2,376	13	8	12	0	2,376
600	8	5	7	0	2,856	10	6	9	0	2,856	13	8	12	0	2,856
650	8	5	7	0	3,318	10	6	9	0	3,318	13	8	11	0	3,318
700	8	5	7	0	3,893	10	6	9	0	3,893	13	8	11	0	3,893
750	8	5	7	0	4,418	10	6	9	0	4,418	13	8	11	0	4,418
800	8	5	7	0	5,090	10	6	9	0	5,090	13	8	11	0	5,090
850	8	5	6	0	5,675	10	6	9	0	5,675	13	8	11	0	5,675
900	8	5	6	0	6,433	10	6	9	0	6,433	13	8	11	0	6,433
950	8	5	6	0	7,088	10	6	8	0	7,088	13	8	11	0	7,088
1000	8	5	6	0	7,933	10	6	8	0	7,933	13	8	10	0	7,933
1050	8	5	6	0	8,659	10	6	8	0	8,659	13	8	10	0	8,659
1100	8	5	6	0	9,607	10	6	8	0	9,607	13	8	10	0	9,607
1150	8	5	6	0	10,387	10	6	8	0	10,387	13	8	10	0	10,387
1200	8	5	6	0	11,404	10	6	8	0	11,404	13	8	10	0	11,404
1250	8	5	6	0	12,272	10	6	8	0	12,272	13	8	10	0	12,272
1300	8	5	6	0	13,376	10	6	8	0	13,376	13	8	10	0	13,376
1350	8	5	6	0	14,314	10	6	8	0	14,314	13	8	10	0	14,314
1400	8	5	6	0	15,504	10	6	8	0	15,504	13	8	10	0	15,504
1450	8	5	6	0	16,513	10	6	8	0	16,513	13	8	10	0	16,513
1500	8	5	6	0	17,789	10	6	8	0	17,789	13	8	10	0	17,789
1600	8	5	6	0	20,232	10	6	8	0	20,232	13	8	10	0	20,232
1650	8	5	6	0	21,382	10	6	8	0	21,382	13	8	9	0	21,382
1700	8	5	6	0	22,832	10	6	8	0	22,832	13	8	9	0	22,832
1800	8	5	6	0	25,617	10	6	7	0	25,617	13	8	9	0	25,617
1900	8	5	6	0	28,502	10	6	7	0	28,502	13	8	9	0	28,502
1950	8	5	5	0	29,865	10	6	7	0	29,865	13	8	9	0	29,865
2000	8	5	5	0	31,573	10	6	7	0	31,573	13	8	9	0	31,573
2100	8	5	5	0	34,801	10	6	7	0	34,801	13	8	9	0	34,801
2200	8	5	5	0	38,186	10	6	7	0	38,186	13	8	9	0	38,186
2250	8	5	5	0	39,761	10	6	7	0	39,761	13	8	9	0	39,761
2300	8	5	5	0	41,728	10	6	7	0	41,728	13	8	9	0	41,728
2400	8	5	5	0	45,428	10	6	7	0	45,428	13	8	9	0	45,428
2500	8	5	5	0	49,284	10	6	7	0	49,284	13	8	9	0	49,284
2550	8	5	5	0	51,071	10	6	7	0	51,071	13	8	9	0	51,071
2600	8	5	5	0	53,297	10	6	7	0	53,297	13	8	9	0	53,297
2700	8	5	5	0	57,468	10	6	7	0	57,468	13	8	9	0	57,468
2800	8	5	5	0	61,795	10	6	7	0	61,795	13	8	9	0	61,795
2850	8	5	5	0	63,794	10	6	7	0	63,794	13	8	8	0	63,794
2900	8	5	5	0	66,280	10	6	7	0	66,280	13	8	8	0	66,280
3000	8	5	5	0	70,922	10	6	7	0	70,922	13	8	8	0	70,922
3100	8	5	5	0	75,720	10	6	7	0	75,720	13	8	8	0	75,720
3150	8	5	5	0	77,931	10	6	7	0	77,931	13	8	8	0	77,931
3200	8	5	5	0	80,676	10	6	7	0	80,676	13	8	8	0	80,676
3300	8	5	5	0	85,789	10	6	7	0	85,789	13	8	8	0	85,789
3400	8	5	5	0	91,059	10	6	7	0	91,059	13	8	8	0	91,059
3450	8	5	5	0	93,482	10	6	7	0	93,482	13	8	8	0	93,482
3600	8	5	5	0	102,071	10	6	6	0	102,071	13	8	8	0	102,071
3800	8	5	5	0	113,710	10	6	6	0	113,710	13	8	8	0	113,710
4000	8	5	5	0	125,978	10	6	6	0	125,978	13	8	8	0	125,978

Recommended sizes
Additional possible sizes

Reduction of movement for expansion joints with PTFE lining:
axial compression: -33 %; axial extension: -66 %; lateral displacement: -25 %.
Larger movements see type U110x.



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	±°	cm²	mm	mm	±mm	±°	cm²	mm	mm	±mm	±°	cm²	
15	9	20	0	79	18	11	23	0	79	20	12	27	0	79	**100**
15	9	19	0	123	18	11	22	0	123	20	12	25	0	123	**125**
15	9	18	0	177	18	11	21	0	177	20	12	24	0	177	**150**
15	9	18	0	254	18	11	21	0	254	20	12	24	0	254	**175**
15	9	17	0	314	18	11	20	0	314	20	12	23	0	314	**200**
15	9	17	0	491	18	11	19	0	491	20	12	22	0	491	**250**
15	9	16	0	716	18	11	19	0	716	20	12	21	0	716	**300**
15	9	15	0	990	18	11	18	0	990	20	12	21	0	990	**350**
15	9	15	0	1,269	18	11	18	0	1,269	20	12	20	0	1,269	**400**
15	9	15	0	1,612	18	11	17	0	1,612	20	12	20	0	1,612	**450**
15	9	14	0	1,987	18	11	17	0	1,987	20	12	19	0	1,987	**500**
15	9	14	0	2,376	18	11	17	0	2,376	20	12	19	0	2,376	**550**
15	9	14	0	2,856	18	11	16	0	2,856	20	12	19	0	2,856	**600**
15	9	14	0	3,318	18	11	16	0	3,318	20	12	18	0	3,318	**650**
15	9	13	0	3,893	18	11	16	0	3,893	20	12	18	0	3,893	**700**
15	9	13	0	4,418	18	11	16	0	4,418	20	12	18	0	4,418	**750**
15	9	13	0	5,090	18	11	15	0	5,090	20	12	18	0	5,090	**800**
15	9	13	0	5,675	18	11	15	0	5,675	20	12	17	0	5,675	**850**
15	9	13	0	6,433	18	11	15	0	6,433	20	12	17	0	6,433	**900**
15	9	13	0	7,088	18	11	15	0	7,088	20	12	17	0	7,088	**950**
15	9	13	0	7,933	18	11	15	0	7,933	20	12	17	0	7,933	**1000**
15	9	12	0	8,659	18	11	15	0	8,659	20	12	17	0	8,659	**1050**
15	9	12	0	9,607	18	11	14	0	9,607	20	12	16	0	9,607	**1100**
15	9	12	0	10,387	18	11	14	0	10,387	20	12	16	0	10,387	**1150**
15	9	12	0	11,404	18	11	14	0	11,404	20	12	16	0	11,404	**1200**
15	9	12	0	12,272	18	11	14	0	12,272	20	12	16	0	12,272	**1250**
15	9	12	0	13,376	18	11	14	0	13,376	20	12	16	0	13,376	**1300**
15	9	12	0	14,314	18	11	14	0	14,314	20	12	16	0	14,314	**1350**
15	9	12	0	15,504	18	11	14	0	15,504	20	12	16	0	15,504	**1400**
15	9	12	0	16,513	18	11	14	0	16,513	20	12	16	0	16,513	**1450**
15	9	12	0	17,789	18	11	14	0	17,789	20	12	15	0	17,789	**1500**
15	9	11	0	20,232	18	11	13	0	20,232	20	12	15	0	20,232	**1600**
15	9	11	0	21,382	18	11	13	0	21,382	20	12	15	0	21,382	**1650**
15	9	11	0	22,832	18	11	13	0	22,832	20	12	15	0	22,832	**1700**
15	9	11	0	25,617	18	11	13	0	25,617	20	12	15	0	25,617	**1800**
15	9	11	0	28,502	18	11	13	0	28,502	20	12	15	0	28,502	**1900**
15	9	11	0	29,865	18	11	13	0	29,865	20	12	15	0	29,865	**1950**
15	9	11	0	31,573	18	11	13	0	31,573	20	12	15	0	31,573	**2000**
15	9	11	0	34,801	18	11	13	0	34,801	20	12	14	0	34,801	**2100**
15	9	11	0	38,186	18	11	13	0	38,186	20	12	14	0	38,186	**2200**
15	9	11	0	39,761	18	11	12	0	39,761	20	12	14	0	39,761	**2250**
15	9	11	0	41,728	18	11	12	0	41,728	20	12	14	0	41,728	**2300**
15	9	11	0	45,428	18	11	12	0	45,428	20	12	14	0	45,428	**2400**
15	9	10	0	49,284	18	11	12	0	49,284	20	12	14	0	49,284	**2500**
15	9	10	0	51,071	18	11	12	0	51,071	20	12	14	0	51,071	**2550**
15	9	10	0	53,297	18	11	12	0	53,297	20	12	14	0	53,297	**2600**
15	9	10	0	57,468	18	11	12	0	57,468	20	12	14	0	57,468	**2700**
15	9	10	0	61,795	18	11	12	0	61,795	20	12	14	0	61,795	**2800**
15	9	10	0	63,794	18	11	12	0	63,794	20	12	14	0	63,794	**2850**
15	9	10	0	66,280	18	11	12	0	66,280	20	12	14	0	66,280	**2900**
15	9	10	0	70,922	18	11	12	0	70,922	20	12	13	0	70,922	**3000**
15	9	10	0	75,720	18	11	12	0	75,720	20	12	13	0	75,720	**3100**
15	9	10	0	77,931	18	11	12	0	77,931	20	12	13	0	77,931	**3150**
15	9	10	0	80,676	18	11	12	0	80,676	20	12	13	0	80,676	**3200**
15	9	10	0	85,789	18	11	12	0	85,789	20	12	13	0	85,789	**3300**
15	9	10	0	91,059	18	11	11	0	91,059	20	12	13	0	91,059	**3400**
15	9	10	0	93,482	18	11	11	0	93,482	20	12	13	0	93,482	**3450**
15	9	10	0	102,071	18	11	11	0	102,071	20	12	13	0	102,071	**3600**
15	9	10	0	113,710	18	11	11	0	113,710	20	12	13	0	113,710	**3800**
15	9	10	0	125,978	18	11	11	0	125,978	20	12	13	0	125,978	**4000**

Individual fabrication possible