

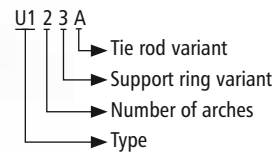
U120A

NB 100 – NB 4000



- ▶ **Type U120A**
without vacuum support rings
- ▶ **Type U121A**
with internal vacuum support rings
- ▶ **Type U122A**
with embedded vacuum support rings
- ▶ **Type U123A**
without vacuum support rings,
with pressure support ring in the arch trough
- ▶ **Type U124A**
with internal vacuum support rings,
with pressure support ring in the arch trough
- ▶ **Type U125A**
with embedded vacuum support rings,
with pressure support ring in the arch trough

Type key ▶ page 20



Universal expansion joint with two arches

- Design:** Highly elastic, hydrodynamic, double-arch rubber bellows with full faced rubber flanges and backing flanges with support collar
Optionally with vacuum support rings and/or external pressure support ring in the arch trough
- Nominal diameters:** NB 100 to NB 4000, intermediate sizes possible
- Installation length:** Standard $L_E = 350$ to 600 mm (▶ page 72–77)
Other installation lengths on request
- Pressure:** Depending on the nominal diameter up to 10 bar
Vacuum not allowed without vacuum support rings,
with vacuum support rings up to 0.05 bar absolute
Design in accordance with Pressure Equipment Directive PED 97/23/EC
- Movement:** For large axial, lateral and angular movements
(▶ page 72–77)

Application:

Cooling water systems, desalination plants, drinking water supply, plant constructions e. g. in pipelines, on pumps, as dismantling joints, on condensers 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:	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 72–77)		






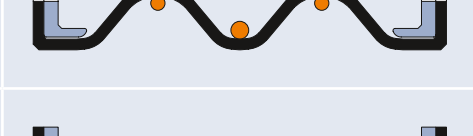
Flanges

Design:	Single-part or multi-part, round backing flanges with support collars and clearance holes
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)

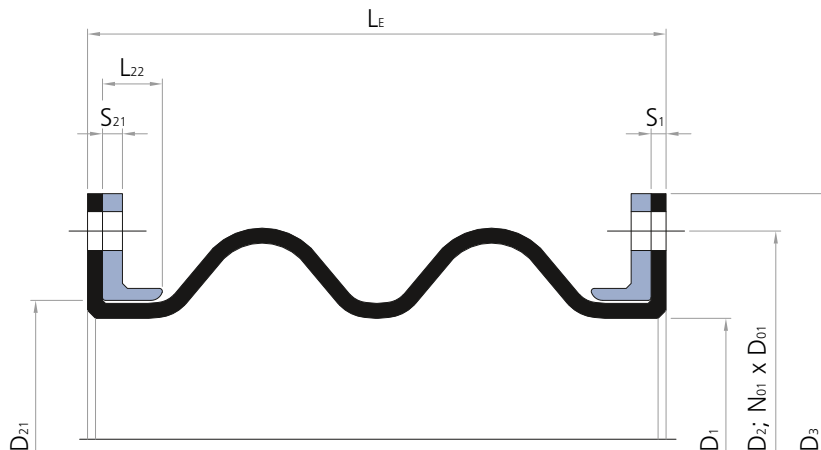
Support rings

TYPE		Vacuum support ring	Pressure support ring	Pressure	Movement
U120A		Without	Without	Slight pressure, slight vacuum	▶ page 72–73
U121A		Medium contact, inside the arch apex	Without	Slight pressure, for vacuum up to 0.05 bar absolute	▶ page 74–75
U122A		No medium contact, embedded into the arch apex of the rubber bellows	Without	Slight pressure, for vacuum up to 0.05 bar absolute	▶ page 76–77
U123A		Without	External in the arch trough	Depending on the nominal diameter up to 10 bar, slight vacuum	▶ page 72–73
U124A		Medium contact, inside the arch apex	External in the arch trough	Depending on the nominal diameter up to 10 bar, for vacuum up to 0.05 bar absolute	▶ page 74–75
U125A		No medium contact, embedded into the arch apex of the rubber bellows	External in the arch trough	Depending on the nominal diameter up to 10 bar, for vacuum up to 0.05 bar absolute	▶ page 76–77

Materials

Stainless steel: 1.4301 (X5CrNi18-10) Other materials on request
 1.4539 (X1NiCrMoCu25-20-5)
 1.4571 (X6CrNiMoTi17-12-2)
 Carbon steel: 1.0570 (S355J2G3) rubber coated

Planning help U120A



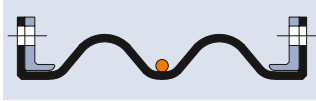


Lateral expansion joints type U121E
for a marine supply line
NB 2000, +2 / -1 bar



U120A

▶ without vacuum support rings



U123A

▶ without vacuum support rings, with pressure support ring in the arch trough



Installation length (L_E) at design pressure

NB	up to 10 bar L _E = 350 mm					up to 10 bar L _E = 400 mm					up to 10 bar L _E = 450 mm				
	Movement				A cm ²	Movement				A cm ²	Movement				A cm ²
	mm	mm	±mm	±°		mm	mm	±mm	±°		mm	mm	±mm	±°	
100	62	20	38	21.8	177	80	40	56	38.7	254	88	41	61	39.4	260
125	62	20	38	17.7	241	80	40	55	32.6	330	88	41	60	33.3	337
150	62	20	37	14.9	314	80	40	54	28.1	415	88	41	59	28.7	423
175	62	20	36	12.9	415	80	40	54	24.6	531	88	41	58	25.1	539
200	62	20	36	11.3	491	80	40	53	21.8	616	88	41	57	22.3	625
250	62	20	35	9.1	707	80	40	52	17.7	855	88	41	56	18.2	866
300	62	20	35	7.6	973	80	40	51	14.9	1,146	88	41	55	15.3	1,158
350	62	20	34	6.5	1,288	80	40	50	12.9	1,486	88	41	54	13.2	1,500
400	62	20	34	5.7	1,605	80	40	50	11.3	1,825	88	41	54	11.6	1,840
450	62	20	33	5.1	1,987	80	40	49	10.1	2,231	88	41	53	10.3	2,248
500	62	20	33	4.6	2,402	80	40	49	9.1	2,669	88	41	52	9.3	2,688
550	62	20	33	4.2	2,827	80	40	48	8.3	3,117	88	41	52	8.5	3,137
600	62	20	33	3.8	3,349	80	40	48	7.6	3,664	88	41	52	7.8	3,685
650	62	20	32	3.5	3,848	80	40	48	7.0	4,185	88	41	51	7.2	4,208
700	62	20	32	3.3	4,465	80	40	47	6.5	4,827	88	41	51	6.7	4,852
750	62	20	32	3.1	5,027	80	40	47	6.1	5,411	88	41	51	6.2	5,437
800	62	20	32	2.9	5,741	80	40	47	5.7	6,151	88	41	50	5.9	6,179
850	62	20	32	2.7	6,362	80	40	46	5.4	6,793	88	41	50	5.5	6,822
900	62	20	31	2.5	7,163	80	40	46	5.1	7,620	88	41	50	5.2	7,651
950	62	20	31	2.4	7,854	80	40	46	4.8	8,332	88	41	49	4.9	8,365
1000	62	20	31	2.3	8,742	80	40	46	4.6	9,246	88	41	49	4.7	9,280
1050	62	20	31	2.2	9,503	80	40	46	4.4	10,029	88	41	49	4.5	10,064
1100	62	20	31	2.1	10,496	80	40	45	4.2	11,047	88	41	49	4.3	11,085
1150	62	20	31	2.0	11,310	80	40	45	4.0	11,882	88	41	49	4.1	11,921
1200	62	20	31	1.9	12,370	80	40	45	3.8	12,969	88	41	48	3.9	13,009
1250	62	20	30	1.8	13,273	80	40	45	3.7	13,893	88	41	48	3.8	13,935
1300	62	20	30	1.8	14,420	80	40	45	3.5	15,066	88	41	48	3.6	15,109
1350	62	20	30	1.7	15,394	80	40	45	3.4	16,061	88	41	48	3.5	16,106
1400	62	20	30	1.6	16,627	80	40	44	3.3	17,320	88	41	48	3.4	17,366
1450	62	20	30	1.6	17,671	80	40	44	3.2	18,385	88	41	48	3.2	18,433
1500	62	20	30	1.5	18,991	80	40	44	3.1	19,731	88	41	47	3.1	19,781
1600	62	20	30	1.4	21,512	80	40	44	2.9	22,299	88	41	47	2.9	22,352
1650	62	20	30	1.4	22,698	80	40	44	2.8	23,506	88	41	47	2.8	23,561
1700	62	20	30	1.3	24,190	80	40	44	2.7	25,025	88	41	47	2.8	25,081
1800	62	20	29	1.3	27,055	80	40	43	2.5	27,937	88	41	47	2.6	27,996
1900	62	20	29	1.2	30,018	80	40	43	2.4	30,946	88	41	46	2.5	31,009
1950	62	20	29	1.2	31,416	80	40	43	2.3	32,365	88	41	46	2.4	32,429
2000	62	20	29	1.1	33,168	80	40	43	2.3	34,143	88	41	46	2.3	34,209
2100	62	20	29	1.1	36,474	80	40	43	2.2	37,497	88	41	46	2.2	37,565
2200	62	20	29	1.0	39,938	80	40	43	2.1	41,007	88	41	46	2.1	41,079
2250	62	20	29	1.0	41,548	80	40	42	2.0	42,638	88	41	46	2.1	42,712
2300	62	20	29	1.0	43,558	80	40	42	2.0	44,675	88	41	46	2.0	44,750
2400	62	20	29	1.0	47,336	80	40	42	1.9	48,500	88	41	45	2.0	48,578
2500	62	20	29	0.9	51,271	80	40	42	1.8	52,482	88	41	45	1.9	52,563
2550	62	20	29	0.9	53,093	80	40	42	1.8	54,325	88	41	45	1.8	54,408
2600	62	20	29	0.9	55,363	80	40	42	1.8	56,621	88	41	45	1.8	56,706
2700	62	20	28	0.8	59,612	80	40	42	1.7	60,917	88	41	45	1.7	61,005
2800	62	20	28	0.8	64,018	80	40	42	1.6	65,370	88	41	45	1.7	65,461
2850	62	20	28	0.8	66,052	80	40	42	1.6	67,426	88	41	45	1.6	67,518
2900	62	20	28	0.8	68,581	80	40	42	1.6	69,981	88	41	45	1.6	70,075
3000	62	20	28	0.8	73,301	80	40	41	1.5	74,748	88	41	45	1.6	74,845
3100	62	20	28	0.7	78,179	80	40	41	1.5	79,673	88	41	44	1.5	79,773
3150	62	20	28	0.7	80,425	80	40	41	1.5	81,940	88	41	44	1.5	82,041
3200	62	20	28	0.7	83,213	80	40	41	1.4	84,754	88	41	44	1.5	84,857
3300	62	20	28	0.7	88,405	80	40	41	1.4	89,993	88	41	44	1.4	90,099
3400	62	20	28	0.7	93,753	80	40	41	1.3	95,388	88	41	44	1.4	95,498
3450	62	20	28	0.7	96,211	80	40	41	1.3	97,868	88	41	44	1.4	97,979
3600	62	20	28	0.6	104,922	80	40	41	1.3	106,651	88	41	44	1.3	106,767
3800	62	20	28	0.6	116,718	80	40	41	1.2	118,542	88	41	44	1.2	118,664
4000	62	20	27	0.6	129,143	80	40	40	1.1	131,061	88	41	43	1.2	131,190

Recommended sizes
Additional possible sizes

Reduction of movement for expansion joints with PTFE lining:
axial compression: -33 %; axial extension: -66 %; lateral displacement: -50 %; angular movement: -66 %.
Angular movement only possible with guided pressure support ring.
In the event of axial extension and simultaneous lateral displacement the above movements are reduced (▶ page 29).
For large movements see type U130A or U133A.

▶ without vacuum support rings



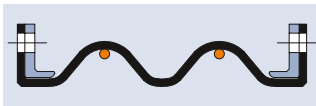
▶ without vacuum support rings, with pressure support ring in the arch trough



Installation length (L_E) at design pressure

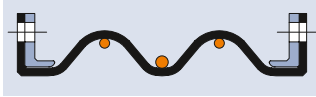
up to 10 bar L _E = 500 mm					up to 10 bar L _E = 550 mm					up to 10 bar L _E = 600 mm					NB
higher pressures on request															
Movement				A	Movement				A	Movement				A	
mm	mm	± mm	± °		mm	mm	± mm	± °		mm	mm	± mm	± °		mm
106	61	79	50.7	353	124	82	97	58.6	460	138	85	105	59.5	491	100
106	61	77	44.3	441	124	82	95	52.7	560	138	85	103	53.7	594	125
106	61	76	39.1	539	124	82	93	47.6	670	138	85	101	48.6	707	150
106	61	75	34.9	670	124	82	92	43.1	814	138	85	100	44.2	855	175
106	61	74	31.4	765	124	82	91	39.4	919	138	85	99	40.4	962	200
106	61	72	26.0	1,029	124	82	89	33.3	1,207	138	85	97	34.2	1,257	250
106	61	71	22.1	1,346	124	82	88	28.7	1,548	138	85	95	29.5	1,605	300
106	61	70	19.2	1,713	124	82	86	25.1	1,940	138	85	94	25.9	2,003	350
106	61	69	17.0	2,075	124	82	85	22.3	2,324	138	85	93	23.0	2,393	400
106	61	69	15.2	2,507	124	82	84	20.0	2,781	138	85	92	20.7	2,856	450
106	61	68	13.7	2,971	124	82	84	18.2	3,267	138	85	91	18.8	3,349	500
106	61	67	12.5	3,442	124	82	83	16.6	3,761	138	85	90	17.2	3,848	550
106	61	67	11.5	4,015	124	82	82	15.3	4,359	138	85	89	15.8	4,453	600
106	61	66	10.6	4,560	124	82	82	14.2	4,927	138	85	89	14.7	5,027	650
106	61	66	9.9	5,230	124	82	81	13.2	5,621	138	85	88	13.7	5,728	700
106	61	66	9.2	5,836	124	82	81	12.3	6,249	138	85	87	12.8	6,362	750
106	61	65	8.7	6,604	124	82	80	11.6	7,044	138	85	87	12.0	7,163	800
106	61	65	8.2	7,268	124	82	80	10.9	7,729	138	85	86	11.3	7,854	850
106	61	64	7.7	8,123	124	82	79	10.3	8,610	138	85	86	10.7	8,742	900
106	61	64	7.3	8,858	124	82	79	9.8	9,366	138	85	86	10.1	9,503	950
106	61	64	7.0	9,799	124	82	79	9.3	10,333	138	85	85	9.6	10,477	1000
106	61	64	6.6	10,605	124	82	78	8.9	11,159	138	85	85	9.2	11,310	1050
106	61	63	6.3	11,652	124	82	78	8.5	12,233	138	85	84	8.8	12,390	1100
106	61	63	6.1	12,509	124	82	78	8.1	13,110	138	85	84	8.4	13,273	1150
106	61	63	5.8	13,623	124	82	77	7.8	14,250	138	85	84	8.1	14,420	1200
106	61	63	5.6	14,569	124	82	77	7.5	15,218	138	85	84	7.7	15,394	1250
106	61	62	5.4	15,770	124	82	77	7.2	16,445	138	85	83	7.5	16,627	1300
106	61	62	5.2	16,787	124	82	76	6.9	17,483	138	85	83	7.2	17,671	1350
106	61	62	5.0	18,074	124	82	76	6.7	18,796	138	85	83	6.9	18,991	1400
106	61	62	4.8	19,162	124	82	76	6.5	19,906	138	85	82	6.7	20,106	1450
106	61	62	4.6	20,536	124	82	76	6.2	21,305	138	85	82	6.5	21,512	1500
106	61	61	4.4	23,154	124	82	75	5.9	23,970	138	85	82	6.1	24,190	1600
106	61	61	4.2	24,384	124	82	75	5.7	25,221	138	85	81	5.9	25,447	1650
106	61	61	4.1	25,930	124	82	75	5.5	26,793	138	85	81	5.7	27,026	1700
106	61	61	3.9	28,893	124	82	74	5.2	29,804	138	85	81	5.4	30,049	1800
106	61	60	3.7	31,952	124	82	74	4.9	32,910	138	85	80	5.1	33,168	1900
106	61	60	3.6	33,394	124	82	74	4.8	34,373	138	85	80	5.0	34,636	1950
106	61	60	3.5	35,199	124	82	74	4.7	36,204	138	85	80	4.9	36,474	2000
106	61	60	3.3	38,603	124	82	73	4.5	39,655	138	85	80	4.6	39,938	2100
106	61	59	3.2	42,164	124	82	73	4.3	43,263	138	85	79	4.4	43,558	2200
106	61	59	3.1	43,818	124	82	73	4.2	44,938	138	85	79	4.3	45,239	2250
106	61	59	3.0	45,882	124	82	73	4.1	47,028	138	85	79	4.2	47,336	2300
106	61	59	2.9	49,757	124	82	72	3.9	50,950	138	85	79	4.1	51,271	2400
106	61	59	2.8	53,789	124	82	72	3.8	55,030	138	85	78	3.9	55,363	2500
106	61	59	2.7	55,655	124	82	72	3.7	56,917	138	85	78	3.8	57,256	2550
106	61	59	2.7	57,979	124	82	72	3.6	59,266	138	85	78	3.7	59,612	2600
106	61	58	2.6	62,325	124	82	72	3.5	63,660	138	85	78	3.6	64,018	2700
106	61	58	2.5	66,829	124	82	71	3.4	68,210	138	85	78	3.5	68,581	2800
106	61	58	2.5	68,906	124	82	71	3.3	70,309	138	85	77	3.4	70,686	2850
106	61	58	2.4	71,489	124	82	71	3.2	72,918	138	85	77	3.4	73,301	2900
106	61	58	2.3	76,307	124	82	71	3.1	77,783	138	85	77	3.2	78,179	3000
106	61	58	2.3	81,282	124	82	71	3.0	82,805	138	85	77	3.1	83,213	3100
106	61	58	2.2	83,571	124	82	71	3.0	85,116	138	85	77	3.1	85,530	3150
106	61	57	2.2	86,413	124	82	71	2.9	87,984	138	85	77	3.0	88,405	3200
106	61	57	2.1	91,702	124	82	70	2.8	93,320	138	85	76	2.9	93,753	3300
106	61	57	2.1	97,148	124	82	70	2.8	98,813	138	85	76	2.9	99,259	3400
106	61	57	2.0	99,650	124	82	70	2.7	101,336	138	85	76	2.8	101,788	3450
106	61	57	1.9	108,511	124	82	70	2.6	110,270	138	85	76	2.7	110,741	3600
106	61	57	1.8	120,503	124	82	70	2.5	122,356	138	85	75	2.6	122,852	3800
106	61	56	1.7	133,123	124	82	69	2.3	135,070	138	85	75	2.4	135,591	4000

Individual fabrication possible



U121A

▶ with internal vacuum support rings



U124A

▶ with internal vacuum support rings, with pressure support ring in the arch trough

Installation length (L_E) at design pressure

NB	up to 10 bar $L_E = 350$ mm					up to 10 bar $L_E = 400$ mm					up to 10 bar $L_E = 450$ mm				
	Movement				A cm ²	Movement				A cm ²	Movement				A cm ²
	mm	mm	±mm	±°		mm	mm	±mm	±°		mm	mm	±mm	±°	
100	62	7	25	8.0	177	80	13	37	14.6	254	88	13	40	14.6	260
125	62	7	25	6.4	241	80	13	36	11.7	330	88	13	39	11.7	337
150	62	7	24	5.3	314	80	13	36	9.8	415	88	13	39	9.8	423
175	62	7	24	4.6	415	80	13	35	8.5	531	88	13	38	8.5	539
200	62	7	24	4.0	491	80	13	35	7.4	616	88	13	38	7.4	625
250	62	7	23	3.2	707	80	13	34	5.9	855	88	13	37	5.9	866
300	62	7	23	2.7	973	80	13	34	5.0	1,146	88	13	36	5.0	1,158
350	62	7	23	2.3	1,288	80	13	33	4.2	1,486	88	13	36	4.2	1,500
400	62	7	22	2.0	1,605	80	13	33	3.7	1,825	88	13	35	3.7	1,840
450	62	7	22	1.8	1,987	80	13	32	3.3	2,231	88	13	35	3.3	2,248
500	62	7	22	1.6	2,402	80	13	32	3.0	2,669	88	13	35	3.0	2,688
550	62	7	22	1.5	2,827	80	13	32	2.7	3,117	88	13	34	2.7	3,137
600	62	7	22	1.3	3,349	80	13	32	2.5	3,664	88	13	34	2.5	3,685
650	62	7	21	1.2	3,848	80	13	31	2.3	4,185	88	13	34	2.3	4,208
700	62	7	21	1.1	4,465	80	13	31	2.1	4,827	88	13	34	2.1	4,852
750	62	7	21	1.1	5,027	80	13	31	2.0	5,411	88	13	33	2.0	5,437
800	62	7	21	1.0	5,741	80	13	31	1.9	6,151	88	13	33	1.9	6,179
850	62	7	21	0.9	6,362	80	13	31	1.8	6,793	88	13	33	1.8	6,822
900	62	7	21	0.9	7,163	80	13	30	1.7	7,620	88	13	33	1.7	7,651
950	62	7	21	0.8	7,854	80	13	30	1.6	8,332	88	13	33	1.6	8,365
1000	62	7	21	0.8	8,742	80	13	30	1.5	9,246	88	13	33	1.5	9,280
1050	62	7	20	0.8	9,503	80	13	30	1.4	10,029	88	13	32	1.4	10,064
1100	62	7	20	0.7	10,496	80	13	30	1.4	11,047	88	13	32	1.4	11,085
1150	62	7	20	0.7	11,310	80	13	30	1.3	11,882	88	13	32	1.3	11,921
1200	62	7	20	0.7	12,370	80	13	30	1.2	12,969	88	13	32	1.2	13,009
1250	62	7	20	0.6	13,273	80	13	30	1.2	13,893	88	13	32	1.2	13,935
1300	62	7	20	0.6	14,420	80	13	29	1.1	15,066	88	13	32	1.1	15,109
1350	62	7	20	0.6	15,394	80	13	29	1.1	16,061	88	13	32	1.1	16,106
1400	62	7	20	0.6	16,627	80	13	29	1.1	17,320	88	13	32	1.1	17,366
1450	62	7	20	0.6	17,671	80	13	29	1.0	18,385	88	13	31	1.0	18,433
1500	62	7	20	0.5	18,991	80	13	29	1.0	19,731	88	13	31	1.0	19,781
1600	62	7	20	0.5	21,512	80	13	29	0.9	22,299	88	13	31	0.9	22,352
1650	62	7	20	0.5	22,698	80	13	29	0.9	23,506	88	13	31	0.9	23,561
1700	62	7	20	0.5	24,190	80	13	29	0.9	25,025	88	13	31	0.9	25,081
1800	62	7	19	0.4	27,055	80	13	29	0.8	27,937	88	13	31	0.8	27,996
1900	62	7	19	0.4	30,018	80	13	28	0.8	30,946	88	13	31	0.8	31,009
1950	62	7	19	0.4	31,416	80	13	28	0.8	32,365	88	13	31	0.8	32,429
2000	62	7	19	0.4	33,168	80	13	28	0.7	34,143	88	13	31	0.7	34,209
2100	62	7	19	0.4	36,474	80	13	28	0.7	37,497	88	13	30	0.7	37,565
2200	62	7	19	0.4	39,938	80	13	28	0.7	41,007	88	13	30	0.7	41,079
2250	62	7	19	0.4	41,548	80	13	28	0.7	42,638	88	13	30	0.7	42,712
2300	62	7	19	0.3	43,558	80	13	28	0.6	44,675	88	13	30	0.6	44,750
2400	62	7	19	0.3	47,336	80	13	28	0.6	48,500	88	13	30	0.6	48,578
2500	62	7	19	0.3	51,271	80	13	28	0.6	52,482	88	13	30	0.6	52,563
2550	62	7	19	0.3	53,093	80	13	28	0.6	54,325	88	13	30	0.6	54,408
2600	62	7	19	0.3	55,363	80	13	28	0.6	56,621	88	13	30	0.6	56,706
2700	62	7	19	0.3	59,612	80	13	28	0.6	60,917	88	13	30	0.6	61,005
2800	62	7	19	0.3	64,018	80	13	27	0.5	65,370	88	13	30	0.5	65,461
2850	62	7	19	0.3	66,052	80	13	27	0.5	67,426	88	13	30	0.5	67,518
2900	62	7	19	0.3	68,581	80	13	27	0.5	69,981	88	13	30	0.5	70,075
3000	62	7	19	0.3	73,301	80	13	27	0.5	74,748	88	13	29	0.5	74,845
3100	62	7	19	0.3	78,179	80	13	27	0.5	79,673	88	13	29	0.5	79,773
3150	62	7	19	0.3	80,425	80	13	27	0.5	81,940	88	13	29	0.5	82,041
3200	62	7	18	0.3	83,213	80	13	27	0.5	84,754	88	13	29	0.5	84,857
3300	62	7	18	0.2	88,405	80	13	27	0.5	89,993	88	13	29	0.5	90,099
3400	62	7	18	0.2	93,753	80	13	27	0.4	95,388	88	13	29	0.4	95,498
3450	62	7	18	0.2	96,211	80	13	27	0.4	97,868	88	13	29	0.4	97,979
3600	62	7	18	0.2	104,922	80	13	27	0.4	106,651	88	13	29	0.4	106,767
3800	62	7	18	0.2	116,718	80	13	27	0.4	118,542	88	13	29	0.4	118,664
4000	62	7	18	0.2	129,143	80	13	27	0.4	131,061	88	13	29	0.4	131,190

Recommended sizes

Additional possible sizes

Reduction of movement for expansion joints with PTFE lining:

axial compression: -33 %; axial extension: -0 %; lateral displacement: -25 %; angular movement: -0 %.

Angular movement only possible with guided pressure support ring.

In the event of axial extension and simultaneous lateral displacement the above movements are reduced (▶ page 29).

For large movements see type U131A or U134A.


Installation length (L_E) at design pressure

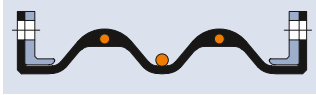
up to 10 bar L _E = 500 mm					up to 10 bar L _E = 550 mm					up to 10 bar L _E = 600 mm					NB
higher pressures on request															
Movement				A	Movement				A	Movement				A	
mm	mm	± mm	± °		mm	mm	± mm	± °		mm	mm	± mm	± °		mm
106	20	52	21.8	353	124	27	64	28.4	460	138	28	69	29.2	491	100
106	20	51	17.7	441	124	27	63	23.4	560	138	28	68	24.1	594	125
106	20	50	14.9	539	124	27	62	19.8	670	138	28	67	20.5	707	150
106	20	49	12.9	670	124	27	61	17.1	814	138	28	66	17.7	855	175
106	20	49	11.3	765	124	27	60	15.1	919	138	28	65	15.6	962	200
106	20	48	9.1	1,029	124	27	59	12.2	1,207	138	28	64	12.6	1,257	250
106	20	47	7.6	1,346	124	27	58	10.2	1,548	138	28	63	10.6	1,605	300
106	20	46	6.5	1,713	124	27	57	8.8	1,940	138	28	62	9.1	2,003	350
106	20	46	5.7	2,075	124	27	56	7.7	2,324	138	28	61	8.0	2,393	400
106	20	45	5.1	2,507	124	27	56	6.8	2,781	138	28	60	7.1	2,856	450
106	20	45	4.6	2,971	124	27	55	6.2	3,267	138	28	60	6.4	3,349	500
106	20	45	4.2	3,442	124	27	55	5.6	3,761	138	28	59	5.8	3,848	550
106	20	44	3.8	4,015	124	27	54	5.1	4,359	138	28	59	5.3	4,453	600
106	20	44	3.5	4,560	124	27	54	4.7	4,927	138	28	58	4.9	5,027	650
106	20	44	3.3	5,230	124	27	54	4.4	5,621	138	28	58	4.6	5,728	700
106	20	43	3.1	5,836	124	27	53	4.1	6,249	138	28	58	4.3	6,362	750
106	20	43	2.9	6,604	124	27	53	3.9	7,044	138	28	57	4.0	7,163	800
106	20	43	2.7	7,268	124	27	53	3.6	7,729	138	28	57	3.8	7,854	850
106	20	43	2.5	8,123	124	27	52	3.4	8,610	138	28	57	3.6	8,742	900
106	20	42	2.4	8,858	124	27	52	3.3	9,366	138	28	57	3.4	9,503	950
106	20	42	2.3	9,799	124	27	52	3.1	10,333	138	28	56	3.2	10,477	1000
106	20	42	2.2	10,605	124	27	52	2.9	11,159	138	28	56	3.1	11,310	1050
106	20	42	2.1	11,652	124	27	51	2.8	12,233	138	28	56	2.9	12,390	1100
106	20	42	2.0	12,509	124	27	51	2.7	13,110	138	28	56	2.8	13,273	1150
106	20	41	1.9	13,623	124	27	51	2.6	14,250	138	28	55	2.7	14,420	1200
106	20	41	1.8	14,569	124	27	51	2.5	15,218	138	28	55	2.6	15,394	1250
106	20	41	1.8	15,770	124	27	51	2.4	16,445	138	28	55	2.5	16,627	1300
106	20	41	1.7	16,787	124	27	50	2.3	17,483	138	28	55	2.4	17,671	1350
106	20	41	1.6	18,074	124	27	50	2.2	18,796	138	28	55	2.3	18,991	1400
106	20	41	1.6	19,162	124	27	50	2.1	19,906	138	28	54	2.2	20,106	1450
106	20	41	1.5	20,536	124	27	50	2.1	21,305	138	28	54	2.1	21,512	1500
106	20	40	1.4	23,154	124	27	50	1.9	23,970	138	28	54	2.0	24,190	1600
106	20	40	1.4	24,384	124	27	50	1.9	25,221	138	28	54	1.9	25,447	1650
106	20	40	1.3	25,930	124	27	49	1.8	26,793	138	28	54	1.9	27,026	1700
106	20	40	1.3	28,893	124	27	49	1.7	29,804	138	28	53	1.8	30,049	1800
106	20	40	1.2	31,952	124	27	49	1.6	32,910	138	28	53	1.7	33,168	1900
106	20	40	1.2	33,394	124	27	49	1.6	34,373	138	28	53	1.6	34,636	1950
106	20	40	1.1	35,199	124	27	49	1.5	36,204	138	28	53	1.6	36,474	2000
106	20	39	1.1	38,603	124	27	48	1.5	39,655	138	28	53	1.5	39,938	2100
106	20	39	1.0	42,164	124	27	48	1.4	43,263	138	28	52	1.5	43,558	2200
106	20	39	1.0	43,818	124	27	48	1.4	44,938	138	28	52	1.4	45,239	2250
106	20	39	1.0	45,882	124	27	48	1.3	47,028	138	28	52	1.4	47,336	2300
106	20	39	1.0	49,757	124	27	48	1.3	50,950	138	28	52	1.3	51,271	2400
106	20	39	0.9	53,789	124	27	48	1.2	55,030	138	28	52	1.3	55,363	2500
106	20	39	0.9	55,655	124	27	48	1.2	56,917	138	28	52	1.3	57,256	2550
106	20	39	0.9	57,979	124	27	48	1.2	59,266	138	28	52	1.2	59,612	2600
106	20	39	0.8	62,325	124	27	47	1.1	63,660	138	28	51	1.2	64,018	2700
106	20	38	0.8	66,829	124	27	47	1.1	68,210	138	28	51	1.1	68,581	2800
106	20	38	0.8	68,906	124	27	47	1.1	70,309	138	28	51	1.1	70,686	2850
106	20	38	0.8	71,489	124	27	47	1.1	72,918	138	28	51	1.1	73,301	2900
106	20	38	0.8	76,307	124	27	47	1.0	77,783	138	28	51	1.1	78,179	3000
106	20	38	0.7	81,282	124	27	47	1.0	82,805	138	28	51	1.0	83,213	3100
106	20	38	0.7	83,571	124	27	47	1.0	85,116	138	28	51	1.0	85,530	3150
106	20	38	0.7	86,413	124	27	47	1.0	87,984	138	28	51	1.0	88,405	3200
106	20	38	0.7	91,702	124	27	46	0.9	93,320	138	28	50	1.0	93,753	3300
106	20	38	0.7	97,148	124	27	46	0.9	98,813	138	28	50	0.9	99,259	3400
106	20	38	0.7	99,650	124	27	46	0.9	101,336	138	28	50	0.9	101,788	3450
106	20	38	0.6	108,511	124	27	46	0.9	110,270	138	28	50	0.9	110,741	3600
106	20	37	0.6	120,503	124	27	46	0.8	122,356	138	28	50	0.8	122,852	3800
106	20	37	0.6	133,123	124	27	46	0.8	135,070	138	28	50	0.8	135,591	4000

Individual fabrication possible



U122A

▶ with embedded vacuum support rings



U125A

▶ with embedded vacuum support rings, with pressure support ring in the arch trough

Installation length (L_E) at design pressure

NB	up to 10 bar $L_E = 350$ mm					up to 10 bar $L_E = 400$ mm					up to 10 bar $L_E = 450$ mm				
	Movement				A cm ²	Movement				A cm ²	Movement				A cm ²
	mm	mm	±mm	±°		mm	mm	±mm	±°		mm	mm	±mm	±°	
100	31	7	19	8.0	177	40	13	28	14.6	254	44	13	30	14.6	260
125	31	7	19	6.4	241	40	13	28	11.7	330	44	13	30	11.7	337
150	31	7	18	5.3	314	40	13	27	9.8	415	44	13	29	9.8	423
175	31	7	18	4.6	415	40	13	27	8.5	531	44	13	29	8.5	539
200	31	7	18	4.0	491	40	13	26	7.4	616	44	13	29	7.4	625
250	31	7	18	3.2	707	40	13	26	5.9	855	44	13	28	5.9	866
300	31	7	17	2.7	973	40	13	26	5.0	1,146	44	13	27	5.0	1,158
350	31	7	17	2.3	1,288	40	13	25	4.2	1,486	44	13	27	4.2	1,500
400	31	7	17	2.0	1,605	40	13	25	3.7	1,825	44	13	27	3.7	1,840
450	31	7	17	1.8	1,987	40	13	25	3.3	2,231	44	13	26	3.3	2,248
500	31	7	17	1.6	2,402	40	13	24	3.0	2,669	44	13	26	3.0	2,688
550	31	7	16	1.5	2,827	40	13	24	2.7	3,117	44	13	26	2.7	3,137
600	31	7	16	1.3	3,349	40	13	24	2.5	3,664	44	13	26	2.5	3,685
650	31	7	16	1.2	3,848	40	13	24	2.3	4,185	44	13	26	2.3	4,208
700	31	7	16	1.1	4,465	40	13	24	2.1	4,827	44	13	25	2.1	4,852
750	31	7	16	1.1	5,027	40	13	23	2.0	5,411	44	13	25	2.0	5,437
800	31	7	16	1.0	5,741	40	13	23	1.9	6,151	44	13	25	1.9	6,179
850	31	7	16	0.9	6,362	40	13	23	1.8	6,793	44	13	25	1.8	6,822
900	31	7	16	0.9	7,163	40	13	23	1.7	7,620	44	13	25	1.7	7,651
950	31	7	16	0.8	7,854	40	13	23	1.6	8,332	44	13	25	1.6	8,365
1000	31	7	16	0.8	8,742	40	13	23	1.5	9,246	44	13	25	1.5	9,280
1050	31	7	15	0.8	9,503	40	13	23	1.4	10,029	44	13	25	1.4	10,064
1100	31	7	15	0.7	10,496	40	13	23	1.4	11,047	44	13	24	1.4	11,085
1150	31	7	15	0.7	11,310	40	13	23	1.3	11,882	44	13	24	1.3	11,921
1200	31	7	15	0.7	12,370	40	13	22	1.2	12,969	44	13	24	1.2	13,009
1250	31	7	15	0.6	13,273	40	13	22	1.2	13,893	44	13	24	1.2	13,935
1300	31	7	15	0.6	14,420	40	13	22	1.1	15,066	44	13	24	1.1	15,109
1350	31	7	15	0.6	15,394	40	13	22	1.1	16,061	44	13	24	1.1	16,106
1400	31	7	15	0.6	16,627	40	13	22	1.1	17,320	44	13	24	1.1	17,366
1450	31	7	15	0.6	17,671	40	13	22	1.0	18,385	44	13	24	1.0	18,433
1500	31	7	15	0.5	18,991	40	13	22	1.0	19,731	44	13	24	1.0	19,781
1600	31	7	15	0.5	21,512	40	13	22	0.9	22,299	44	13	24	0.9	22,352
1650	31	7	15	0.5	22,698	40	13	22	0.9	23,506	44	13	24	0.9	23,561
1700	31	7	15	0.5	24,190	40	13	22	0.9	25,025	44	13	23	0.9	25,081
1800	31	7	15	0.4	27,055	40	13	22	0.8	27,937	44	13	23	0.8	27,996
1900	31	7	15	0.4	30,018	40	13	22	0.8	30,946	44	13	23	0.8	31,009
1950	31	7	15	0.4	31,416	40	13	22	0.8	32,365	44	13	23	0.8	32,429
2000	31	7	15	0.4	33,168	40	13	21	0.7	34,143	44	13	23	0.7	34,209
2100	31	7	15	0.4	36,474	40	13	21	0.7	37,497	44	13	23	0.7	37,565
2200	31	7	14	0.4	39,938	40	13	21	0.7	41,007	44	13	23	0.7	41,079
2250	31	7	14	0.4	41,548	40	13	21	0.7	42,638	44	13	23	0.7	42,712
2300	31	7	14	0.3	43,558	40	13	21	0.6	44,675	44	13	23	0.6	44,750
2400	31	7	14	0.3	47,336	40	13	21	0.6	48,500	44	13	23	0.6	48,578
2500	31	7	14	0.3	51,271	40	13	21	0.6	52,482	44	13	23	0.6	52,563
2550	31	7	14	0.3	53,093	40	13	21	0.6	54,325	44	13	23	0.6	54,408
2600	31	7	14	0.3	55,363	40	13	21	0.6	56,621	44	13	23	0.6	56,706
2700	31	7	14	0.3	59,612	40	13	21	0.6	60,917	44	13	23	0.6	61,005
2800	31	7	14	0.3	64,018	40	13	21	0.5	65,370	44	13	22	0.5	65,461
2850	31	7	14	0.3	66,052	40	13	21	0.5	67,426	44	13	22	0.5	67,518
2900	31	7	14	0.3	68,581	40	13	21	0.5	69,981	44	13	22	0.5	70,075
3000	31	7	14	0.3	73,301	40	13	21	0.5	74,748	44	13	22	0.5	74,845
3100	31	7	14	0.3	78,179	40	13	21	0.5	79,673	44	13	22	0.5	79,773
3150	31	7	14	0.3	80,425	40	13	21	0.5	81,940	44	13	22	0.5	82,041
3200	31	7	14	0.3	83,213	40	13	21	0.5	84,754	44	13	22	0.5	84,857
3300	31	7	14	0.2	88,405	40	13	21	0.5	89,993	44	13	22	0.5	90,099
3400	31	7	14	0.2	93,753	40	13	20	0.4	95,388	44	13	22	0.4	95,498
3450	31	7	14	0.2	96,211	40	13	20	0.4	97,868	44	13	22	0.4	97,979
3600	31	7	14	0.2	104,922	40	13	20	0.4	106,651	44	13	22	0.4	106,767
3800	31	7	14	0.2	116,718	40	13	20	0.4	118,542	44	13	22	0.4	118,664
4000	31	7	14	0.2	129,143	40	13	20	0.4	131,061	44	13	22	0.4	131,190

Recommended sizes

Additional possible sizes

Reduction of movement for expansion joints with PTFE lining:

axial compression: -0 %; axial extension: -0 %; lateral displacement: -0 %; angular movement: -0 %.

Angular movement only possible with guided pressure support ring.

In the event of axial extension and simultaneous lateral displacement the above movements are reduced (▶ page 29).

For large movements see type U132A or U135A.

U122A

▶ with embedded vacuum support rings















U125A

▶ with embedded vacuum support rings, with pressure support ring in the arch trough



Installation length (L_E) at design pressure

up to 10 bar L _E = 500 mm					up to 10 bar L _E = 550 mm					up to 10 bar L _E = 600 mm					NB
higher pressures on request															
Movement					Movement					Movement					
				A					A					A	
mm	mm	± mm	± °	cm ²	mm	mm	± mm	± °	cm ²	mm	mm	± mm	± °	cm ²	
53	20	39	21.8	353	62	27	48	28.4	460	69	28	53	29.2	491	100
53	20	39	17.7	441	62	27	47	23.4	560	69	28	51	24.1	594	125
53	20	38	14.9	539	62	27	47	19.8	670	69	28	51	20.5	707	150
53	20	37	12.9	670	62	27	46	17.1	814	69	28	50	17.7	855	175
53	20	37	11.3	765	62	27	45	15.1	919	69	28	49	15.6	962	200
53	20	36	9.1	1,029	62	27	45	12.2	1,207	69	28	48	12.6	1,257	250
53	20	36	7.6	1,346	62	27	44	10.2	1,548	69	28	48	10.6	1,605	300
53	20	35	6.5	1,713	62	27	43	8.8	1,940	69	28	47	9.1	2,003	350
53	20	35	5.7	2,075	62	27	43	7.7	2,324	69	28	46	8.0	2,393	400
53	20	34	5.1	2,507	62	27	42	6.8	2,781	69	28	46	7.1	2,856	450
53	20	34	4.6	2,971	62	27	42	6.2	3,267	69	28	45	6.4	3,349	500
53	20	34	4.2	3,442	62	27	41	5.6	3,761	69	28	45	5.8	3,848	550
53	20	33	3.8	4,015	62	27	41	5.1	4,359	69	28	45	5.3	4,453	600
53	20	33	3.5	4,560	62	27	41	4.7	4,927	69	28	44	4.9	5,027	650
53	20	33	3.3	5,230	62	27	41	4.4	5,621	69	28	44	4.6	5,728	700
53	20	33	3.1	5,836	62	27	40	4.1	6,249	69	28	44	4.3	6,362	750
53	20	33	2.9	6,604	62	27	40	3.9	7,044	69	28	43	4.0	7,163	800
53	20	32	2.7	7,268	62	27	40	3.6	7,729	69	28	43	3.8	7,854	850
53	20	32	2.5	8,123	62	27	40	3.4	8,610	69	28	43	3.6	8,742	900
53	20	32	2.4	8,858	62	27	39	3.3	9,366	69	28	43	3.4	9,503	950
53	20	32	2.3	9,799	62	27	39	3.1	10,333	69	28	43	3.2	10,477	1000
53	20	32	2.2	10,605	62	27	39	2.9	11,159	69	28	42	3.1	11,310	1050
53	20	32	2.1	11,652	62	27	39	2.8	12,233	69	28	42	2.9	12,390	1100
53	20	32	2.0	12,509	62	27	39	2.7	13,110	69	28	42	2.8	13,273	1150
53	20	31	1.9	13,623	62	27	39	2.6	14,250	69	28	42	2.7	14,420	1200
53	20	31	1.8	14,569	62	27	38	2.5	15,218	69	28	42	2.6	15,394	1250
53	20	31	1.8	15,770	62	27	38	2.4	16,445	69	28	42	2.5	16,627	1300
53	20	31	1.7	16,787	62	27	38	2.3	17,483	69	28	41	2.4	17,671	1350
53	20	31	1.6	18,074	62	27	38	2.2	18,796	69	28	41	2.3	18,991	1400
53	20	31	1.6	19,162	62	27	38	2.1	19,906	69	28	41	2.2	20,106	1450
53	20	31	1.5	20,536	62	27	38	2.1	21,305	69	28	41	2.1	21,512	1500
53	20	31	1.4	23,154	62	27	38	1.9	23,970	69	28	41	2.0	24,190	1600
53	20	31	1.4	24,384	62	27	38	1.9	25,221	69	28	41	1.9	25,447	1650
53	20	30	1.3	25,930	62	27	37	1.8	26,793	69	28	41	1.9	27,026	1700
53	20	30	1.3	28,893	62	27	37	1.7	29,804	69	28	40	1.8	30,049	1800
53	20	30	1.2	31,952	62	27	37	1.6	32,910	69	28	40	1.7	33,168	1900
53	20	30	1.2	33,394	62	27	37	1.6	34,373	69	28	40	1.6	34,636	1950
53	20	30	1.1	35,199	62	27	37	1.5	36,204	69	28	40	1.6	36,474	2000
53	20	30	1.1	38,603	62	27	37	1.5	39,655	69	28	40	1.5	39,938	2100
53	20	30	1.0	42,164	62	27	37	1.4	43,263	69	28	40	1.5	43,558	2200
53	20	30	1.0	43,818	62	27	36	1.4	44,938	69	28	40	1.4	45,239	2250
53	20	30	1.0	45,882	62	27	36	1.3	47,028	69	28	40	1.4	47,336	2300
53	20	29	1.0	49,757	62	27	36	1.3	50,950	69	28	39	1.3	51,271	2400
53	20	29	0.9	53,789	62	27	36	1.2	55,030	69	28	39	1.3	55,363	2500
53	20	29	0.9	55,655	62	27	36	1.2	56,917	69	28	39	1.3	57,256	2550
53	20	29	0.9	57,979	62	27	36	1.2	59,266	69	28	39	1.2	59,612	2600
53	20	29	0.8	62,325	62	27	36	1.1	63,660	69	28	39	1.2	64,018	2700
53	20	29	0.8	66,829	62	27	36	1.1	68,210	69	28	39	1.1	68,581	2800
53	20	29	0.8	68,906	62	27	36	1.1	70,309	69	28	39	1.1	70,686	2850
53	20	29	0.8	71,489	62	27	36	1.1	72,918	69	28	39	1.1	73,301	2900
53	20	29	0.8	76,307	62	27	36	1.0	77,783	69	28	39	1.1	78,179	3000
53	20	29	0.7	81,282	62	27	35	1.0	82,805	69	28	38	1.0	83,213	3100
53	20	29	0.7	83,571	62	27	35	1.0	85,116	69	28	38	1.0	85,530	3150
53	20	29	0.7	86,413	62	27	35	1.0	87,984	69	28	38	1.0	88,405	3200
53	20	29	0.7	91,702	62	27	35	0.9	93,320	69	28	38	1.0	93,753	3300
53	20	29	0.7	97,148	62	27	35	0.9	98,813	69	28	38	0.9	99,259	3400
53	20	29	0.7	99,650	62	27	35	0.9	101,336	69	28	38	0.9	101,788	3450
53	20	28	0.6	108,511	62	27	35	0.9	110,270	69	28	38	0.9	110,741	3600
53	20	28	0.6	120,503	62	27	35	0.8	122,356	69	28	38	0.8	122,852	3800
53	20	28	0.6	133,123	62	27	35	0.8	135,070	69	28	38	0.8	135,591	4000

Individual fabrication possible