

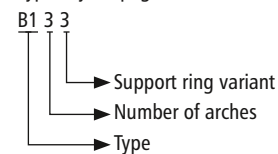
B130 B140 B150

NB 50 – NB 1500



- ▶ **Type B130 B140 B150**
without vacuum support rings
- ▶ **Type B131 B141 B151**
with internal vacuum support rings
- ▶ **Type B132 B142 B152**
with embedded vacuum support rings
- ▶ **Type B133 B143 B153**
without vacuum support rings, with
pressure support rings in the arch trough
- ▶ **Type B134 B144 B154**
with inner vacuum support rings, with
pressure support rings in the arch trough
- ▶ **Type B135 B145 B155**
with embedded vacuum support rings,
with pressure support rings in the arch
trough

Type key ▶ page 20



Universal expansion joint with three or more arches

Design: Hydrodynamic, triple or multiple arch rubber bellows with sleeve for clamped fixing
Optionally with vacuum support rings and/or external pressure support rings in the arch trough

Nominal diameters: NB 50 to NB 1500, intermediate sizes possible

Installation length/arches: = Installation gap + 2x fixing width
Installation gaps $L_0 = 600$ with 3 arches, type B130 (▶ page 155–157)
Installation gaps $L_0 = 800$ with 4 arches, type B140 (▶ page 155–157)
Installation gaps $L_0 = 1000$ with 5 arches, type B150 (▶ page 155–157)
Other installation gaps on request

Fixing width: Depends on pressure, nominal diameter and clamp design, at least 40 mm

Pressure: Depending on the nominal diameter and installation length up to 6 bar. Vacuum not allowed without vacuum support rings, with vacuum support rings up to 0.05 bar absolute

Movement: For axial, lateral and angular movements (▶ page 155–157)
For axial extension or vacuums, the expansion joint can be drawn from the pipeline (groove as needed at the pipeline end)

Application:

Power plants, plant construction, food processing, wastewater treatment plants, industrial facilities, e. g. to disconnect pipelines, on oscillating conveyor systems, on sieving machines








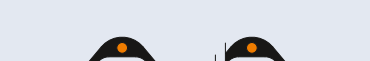
Rubber bellows

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 155–157)		

Fastening clamps

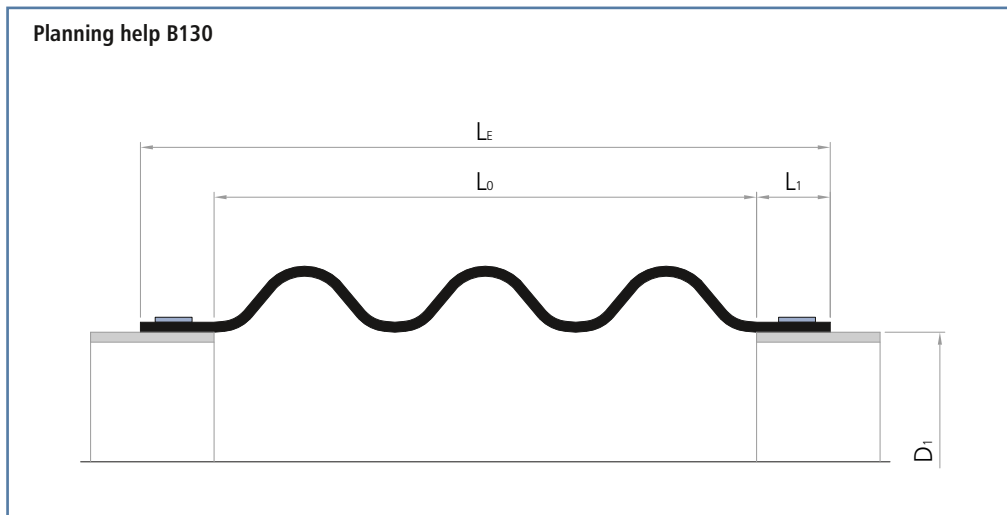
Design:	Depending on pressure and the nominal diameter, endless clamp belt, screw thread belt, small clamps or hinge bolt clamps. At higher pressures, 2 adjacent clamps per fastening side	
Width:	Endless clamp belt:	$\frac{3}{4}$ "
	Screw thread belt:	$\frac{1}{2}$ "
	Small clamp:	depending on Ø: 9–12 mm
	Hinge bolt clamp:	depending on Ø: 18–30 mm
Materials:	Endless clamp belt with screw lugs (tongs):	1.7300
	Screw thread belt with threaded screw lugs:	1.4310
	Small clamp, belt and housing:	1.4016 (Screw steel galvanised)
	Hinge bolt clamp, belt and housing:	1.4016 (Screw steel galvanised)

Support rings

TYPE		Vacuum support ring	Pressure support ring	Pressure	Movement
B130 B140 B150		Without	Without	Slight pressure, slight vacuum	▶ page 155
B131 B141 B151		Medium contact, inside the arch apex	Without	Slight pressure, for vacuum up to 0.05 bar absolute	▶ page 156
B132 B142 B152		No medium contact, embedded into the arch apex of the rubber bellows	Without	Slight pressure, for vacuum up to 0.05 bar absolute	▶ page 157
B133 B143 B153		Without	External in the arch trough	Depending on the nominal diameter up to 6 bar, slight vacuum	▶ page 155
B134 B144 B154		Medium contact, inside the arch apex	External in the arch trough	Depending on the nominal diameter up to 6 bar, for vacuum up to 0.05 bar absolute	▶ page 156
B135 B145 B155		No medium contact, embedded into the arch apex of the rubber bellows	External in the arch trough	Depending on the nominal diameter up to 6 bar, for vacuum up to 0.05 bar absolute	▶ page 157

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




Installation gap

NB	$L_0 = 600 \text{ mm} - \text{B130 B133}$					$L_0 = 800 \text{ mm} - \text{B140 B143}$					$L_0 = 1000 \text{ mm} - \text{B150 B153}$				
	Movement				A cm ²	Movement				A cm ²	Movement				A cm ²
	mm	mm	±mm	±°		mm	mm	±mm	±°		mm	mm	±mm	±°	
50	159	92	126	74.8	233	212	123	168	78.5	233	265	154	210	80.8	233
65	159	92	123	70.5	278	212	123	164	75.2	278	265	154	205	78.1	278
80	159	92	121	66.5	317	212	123	161	72.0	317	265	154	201	75.4	317
100	159	92	118	61.5	402	212	123	158	67.9	402	265	154	197	72.0	402
125	159	92	116	55.8	498	212	123	154	63.1	498	265	154	193	67.9	498
150	159	92	114	50.8	617	212	123	152	58.6	617	265	154	190	64.0	617
175	159	92	112	46.4	734	212	123	150	54.6	734	265	154	187	60.4	734
200	159	92	111	42.6	861	212	123	148	50.9	861	265	154	185	57.0	861
250	159	92	109	36.4	1,164	212	123	145	44.5	1,164	265	154	181	50.9	1,164
300	159	92	107	31.5	1,492	212	123	143	39.4	1,492	265	154	178	45.8	1,492
350	159	92	105	27.7	1,717	212	123	141	35.1	1,717	265	154	176	41.3	1,717
400	159	92	104	24.7	2,111	212	123	139	31.6	2,111	265	154	174	37.6	2,111
450	159	92	103	22.2	2,545	212	123	137	28.7	2,545	265	154	172	34.4	2,545
500	159	92	102	20.2	3,019	212	123	136	26.2	3,019	265	154	170	31.6	3,019
550	159	92	101	18.5	3,534	212	123	135	24.1	3,534	265	154	169	29.2	3,534
600	159	92	100	17.0	4,090	212	123	134	22.3	4,090	265	154	167	27.2	4,090
650	159	92	100	15.8	4,686	212	123	133	20.7	4,686	265	154	166	25.4	4,686
700	159	92	99	14.7	5,322	212	123	132	19.4	5,322	265	154	165	23.7	5,322
750	159	92	98	13.8	5,999	212	123	131	18.2	5,999	265	154	164	22.3	5,999
800	159	92	98	13.0	6,717	212	123	130	17.1	6,717	265	154	163	21.1	6,717
850	159	92	97	12.2	7,475	212	123	130	16.1	7,475	265	154	162	19.9	7,475
900	159	92	97	11.6	8,274	212	123	129	15.3	8,274	265	154	161	18.9	8,274
1000	159	92	96	10.4	9,993	212	123	128	13.8	9,993	265	154	160	17.1	9,993
1100	159	92	95	9.5	11,652	212	123	127	12.6	11,652	265	154	158	15.6	11,652
1200	159	92	94	8.7	13,623	212	123	126	11.6	13,623	265	154	157	14.4	13,623
1300	159	92	94	8.1	15,770	212	123	125	10.7	15,770	265	154	156	13.3	15,770
1400	159	92	93	7.5	18,074	212	123	124	10.0	18,074	265	154	155	12.4	18,074
1500	159	92	92	7.0	20,536	212	123	123	9.3	20,536	265	154	154	11.6	20,536

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 %.

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

Angular movement only possible with guided pressure support ring.

Larger movements on request.

Individual fabrication possible



B131 B141 B151

▶ with internal vacuum support rings



B134 B144 B154

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

Installation gap															
L ₀ = 600 mm – B131 B134						L ₀ = 800 mm – B141 B144					L ₀ = 1000 mm – B151 B154				
NB	Movement				A cm ²	Movement				A cm ²	Movement				A cm ²
	mm	mm	± mm	± °		mm	mm	± mm	± °		mm	mm	± mm	± °	
50	159	30	83	50.2	233	212	41	111	58.6	233	265	51	138	63.9	233
65	159	30	81	42.7	278	212	41	108	51.6	278	265	51	135	57.5	278
80	159	30	80	36.9	317	212	41	106	45.7	317	265	51	133	51.9	317
100	159	30	78	31.0	402	212	41	104	39.4	402	265	51	130	45.6	402
125	159	30	76	25.6	498	212	41	102	33.3	498	265	51	127	39.2	498
150	159	30	75	21.8	617	212	41	100	28.7	617	265	51	125	34.2	617
175	159	30	74	18.9	734	212	41	99	25.1	734	265	51	123	30.2	734
200	159	30	73	16.7	861	212	41	98	22.3	861	265	51	122	27.0	861
250	159	30	72	13.5	1,164	212	41	96	18.2	1,164	265	51	120	22.2	1,164
300	159	30	71	11.3	1,492	212	41	94	15.3	1,492	265	51	118	18.8	1,492
350	159	30	70	9.7	1,717	212	41	93	13.2	1,717	265	51	116	16.2	1,717
400	159	30	69	8.5	2,111	212	41	92	11.6	2,111	265	51	115	14.3	2,111
450	159	30	68	7.6	2,545	212	41	91	10.3	2,545	265	51	113	12.8	2,545
500	159	30	67	6.8	3,019	212	41	90	9.3	3,019	265	51	112	11.5	3,019
550	159	30	67	6.2	3,534	212	41	89	8.5	3,534	265	51	111	10.5	3,534
600	159	30	66	5.7	4,090	212	41	88	7.8	4,090	265	51	110	9.6	4,090
650	159	30	66	5.3	4,686	212	41	88	7.2	4,686	265	51	110	8.9	4,686
700	159	30	65	4.9	5,322	212	41	87	6.7	5,322	265	51	109	8.3	5,322
750	159	30	65	4.6	5,999	212	41	87	6.2	5,999	265	51	108	7.7	5,999
800	159	30	65	4.3	6,717	212	41	86	5.9	6,717	265	51	108	7.3	6,717
850	159	30	64	4.0	7,475	212	41	86	5.5	7,475	265	51	107	6.8	7,475
900	159	30	64	3.8	8,274	212	41	85	5.2	8,274	265	51	106	6.5	8,274
1000	159	30	63	3.4	9,993	212	41	84	4.7	9,993	265	51	105	5.8	9,993
1100	159	30	63	3.1	11,652	212	41	84	4.3	11,652	265	51	104	5.3	11,652
1200	159	30	62	2.9	13,623	212	41	83	3.9	13,623	265	51	104	4.9	13,623
1300	159	30	62	2.6	15,770	212	41	82	3.6	15,770	265	51	103	4.5	15,770
1400	159	30	61	2.5	18,074	212	41	82	3.4	18,074	265	51	102	4.2	18,074
1500	159	30	61	2.3	20,536	212	41	81	3.1	20,536	265	51	102	3.9	20,536

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 %.
In the event of axial extension and simultaneous lateral displacement the above movements are reduced (▶ page 29).
Angular movement only possible with guided pressure support ring.
Larger movements on request.

Individual fabrication possible


Installation gap

NB	$L_0 = 600 \text{ mm} - \text{B132 B135}$					$L_0 = 800 \text{ mm} - \text{B142 B145}$					$L_0 = 1000 \text{ mm} - \text{B152 B155}$				
	Movement				A cm ²	Movement				A cm ²	Movement				A cm ²
	mm	mm	±mm	±°		mm	mm	±mm	±°		mm	mm	±mm	±°	
50	105	30	63	50.2	233	140	41	84	58.6	233	175	51	105	63.9	233
65	105	30	61	42.7	278	140	41	82	51.6	278	175	51	102	57.5	278
80	105	30	60	36.9	317	140	41	80	45.7	317	175	51	100	51.9	317
100	105	30	59	31.0	402	140	41	79	39.4	402	175	51	98	45.6	402
125	105	30	58	25.6	498	140	41	77	33.3	498	175	51	96	39.2	498
150	105	30	57	21.8	617	140	41	76	28.7	617	175	51	95	34.2	617
175	105	30	56	18.9	734	140	41	75	25.1	734	175	51	94	30.2	734
200	105	30	55	16.7	861	140	41	74	22.3	861	175	51	92	27.0	861
250	105	30	54	13.5	1,164	140	41	72	18.2	1,164	175	51	91	22.2	1,164
300	105	30	53	11.3	1,492	140	41	71	15.3	1,492	175	51	89	18.8	1,492
350	105	30	53	9.7	1,717	140	41	70	13.2	1,717	175	51	88	16.2	1,717
400	105	30	52	8.5	2,111	140	41	69	11.6	2,111	175	51	87	14.3	2,111
450	105	30	52	7.6	2,545	140	41	69	10.3	2,545	175	51	86	12.8	2,545
500	105	30	51	6.8	3,019	140	41	68	9.3	3,019	175	51	85	11.5	3,019
550	105	30	51	6.2	3,534	140	41	67	8.5	3,534	175	51	84	10.5	3,534
600	105	30	50	5.7	4,090	140	41	67	7.8	4,090	175	51	84	9.6	4,090
650	105	30	50	5.3	4,686	140	41	66	7.2	4,686	175	51	83	8.9	4,686
700	105	30	49	4.9	5,322	140	41	66	6.7	5,322	175	51	82	8.3	5,322
750	105	30	49	4.6	5,999	140	41	66	6.2	5,999	175	51	82	7.7	5,999
800	105	30	49	4.3	6,717	140	41	65	5.9	6,717	175	51	81	7.3	6,717
850	105	30	49	4.0	7,475	140	41	65	5.5	7,475	175	51	81	6.8	7,475
900	105	30	48	3.8	8,274	140	41	64	5.2	8,274	175	51	81	6.5	8,274
1000	105	30	48	3.4	9,993	140	41	64	4.7	9,993	175	51	80	5.8	9,993
1100	105	30	47	3.1	11,652	140	41	63	4.3	11,652	175	51	79	5.3	11,652
1200	105	30	47	2.9	13,623	140	41	63	3.9	13,623	175	51	79	4.9	13,623
1300	105	30	47	2.6	15,770	140	41	62	3.6	15,770	175	51	78	4.5	15,770
1400	105	30	46	2.5	18,074	140	41	62	3.4	18,074	175	51	77	4.2	18,074
1500	105	30	46	2.3	20,536	140	41	62	3.1	20,536	175	51	77	3.9	20,536

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 %.

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

Angular movement only possible with guided pressure support ring.

Larger movements on request.

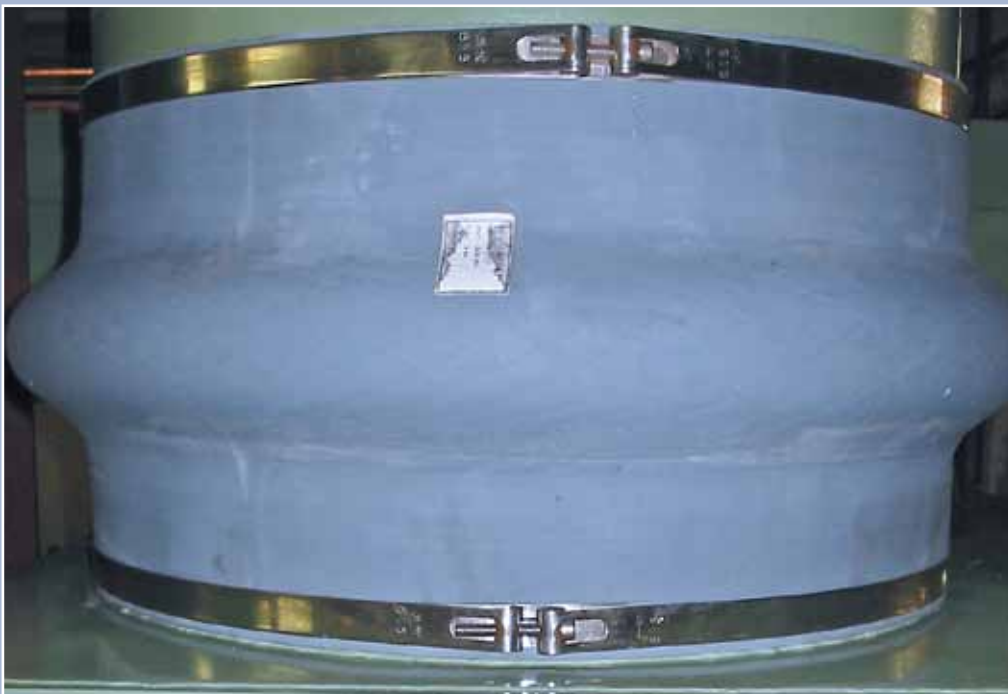
Individual fabrication possible



Universal expansion joint, type B133
NB 100, 0.5 bar, 200°C



Universal expansion joint, type B110
in ventilation ducts
NB 800, 0.15 bar



Universal expansion joint, type B110
on an oscillator
NB 500, no pressure