

## U100A

NB 100 – NB 4000



### ► Type U100A

Type key ► page 20

U100A

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

## Universal expansion joint without arch

- Design:** Hydrodynamic, cylindrical rubber bellows with full faced rubber flanges and single or multi-part backing flanges  
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 56–57)  
Other installation lengths on request
- Pressure:** Depending on the nominal diameter and installation length up to 10 bar  
Vacuum stability on request
- Movement:** For small axial and lateral movements (► page 56–57)

### 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
	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 56–57)		

## Flanges

**Design:** Single-part or multi-part, round backing flanges with clearance holes

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

**Materials:**

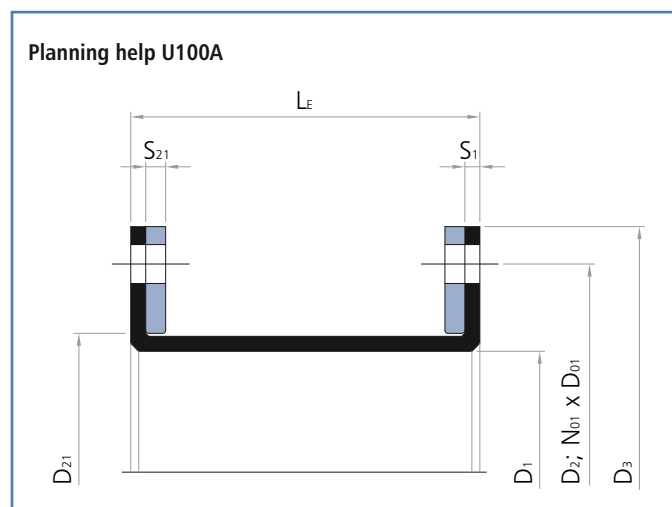
- Carbon steel: 1.0038 (S235JRG2)  
1.0570 (S355J2G3)
- Stainless steel: 1.4301 (X5CrNi18-10)  
1.4571 (X6CrNiMoTi17-12-2)
- Aluminium: AlMg3
- Other materials on request

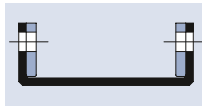
**Coating:** Primed, hot-dip galvanised, special paint

## Optional accessories

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

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





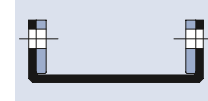
## U100A

▶ without arch













Installation length (L <sub>E</sub> ) at design pressure																		
NB	up to 10 bar L <sub>E</sub> = 150 mm					up to 10 bar L <sub>E</sub> = 200 mm					up to 10 bar L <sub>E</sub> = 250 mm							
	Movement					A	Movement					A	Movement					A
	mm	mm	±mm	±°	cm <sup>2</sup>		mm	mm	±mm	±°	cm <sup>2</sup>		mm	mm	±mm	±°	cm <sup>2</sup>	
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 U110A.



**Installation length (L<sub>E</sub>) at design pressure**

up to 10 bar L <sub>E</sub> = 300 mm					up to 10 bar L <sub>E</sub> = 350 mm					up to 10 bar L <sub>E</sub> = 400 mm					NB
higher pressures on request															
Movement					Movement					Movement					
				A					A					A	
mm	mm	± mm	± °	cm <sup>2</sup>	mm	mm	± mm	± °	cm <sup>2</sup>	mm	mm	± mm	± °	cm <sup>2</sup>	
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