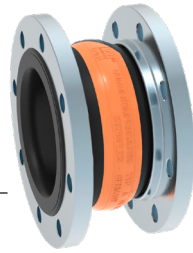


RUBBER EXPANSION JOINT TYPE A-1

UNIVERSAL EXPANSION JOINT DN 20 – DN 1000



STRUCTURE TYPE A-1 / RUBBER BELLOWS PN 16

- Universal expansion joint, consisting of a rubber bellows with rotatable flanges
- Highly elastic molded bellows in various rubber grades
- Synthetic fibre reinforcement
- Wire-reinforced self-sealing rubber rim
- Electrical impedance 10^3 to 10^6 Ohm (DIN IEC 93, VDE 0303-30)

Rubber grade*	EPDM	NBR	CIIR
Colour code	orange	red	white
Possible uses	Hot water, acids, lyes	hydrocarbon containing liquids	Drinking water

*Check or inquire about the resistance of the rubber grade to temperature and medium

Technical design	
Max. perm. operating pressure	16 bar*
Max. perm. temperature	+100 °C
Bursting pressure	≥ 48 bar
Vacuum operation	DN 20 – 50 without vacuum supporting ring, DN 65 – 1000 with vacuum supporting ring

Max. operating pressure to be set 30 % lower for shock loads.

*Please consider a decrease of pressure due to temperature (see technical annex).

FLANGES / VERSIONS

- Rotatable flanges with stabilizing collar
- Flange drilling for through bolts
- Special machined groove for rubber rim

	Standard		Others
Dimensions	EN 1092		ANSI, BS etc. Connection dimensions see technical annex page 213 – 215
Materials	1.0038 (S235JR)		1.4571
Corrosion protection	DN 20 – DN 400 electro-galvanized	DN 450 – DN 1000 hot-dip galvanized	special coating, etc.

NOTE

Please comply with the general technical instructions regarding reaction force, moving force, fixed point load, installation instructions etc.

Subject to technical alterations and deviations resulting from the manufacturing process.

APPLICATIONS

- for reducing thermal and mechanical tension in pipes and their system components, e.g.
 - pumps
 - compressors
 - engines
- for absorbing vibration and noise
- for compensating axial, lateral and angular movement
- for compensating simultaneous movement in cooling water pipes
- to compensate for installation inaccuracies
- as installation and dismantling aid

CERTIFICATES

- CE (PED 2014/68/EU)
- DNV GL® / DNV®
- Lloyd's Register of Shipping
- Drinking water
- TÜV Süd (KTA)
- Bureau Veritas
- Others see technical annex

ACCESSORIES

- Vacuum supporting ring
- Internal guide sleeve
- Flame-proof protective cover
- Protective hood
- Protective tube

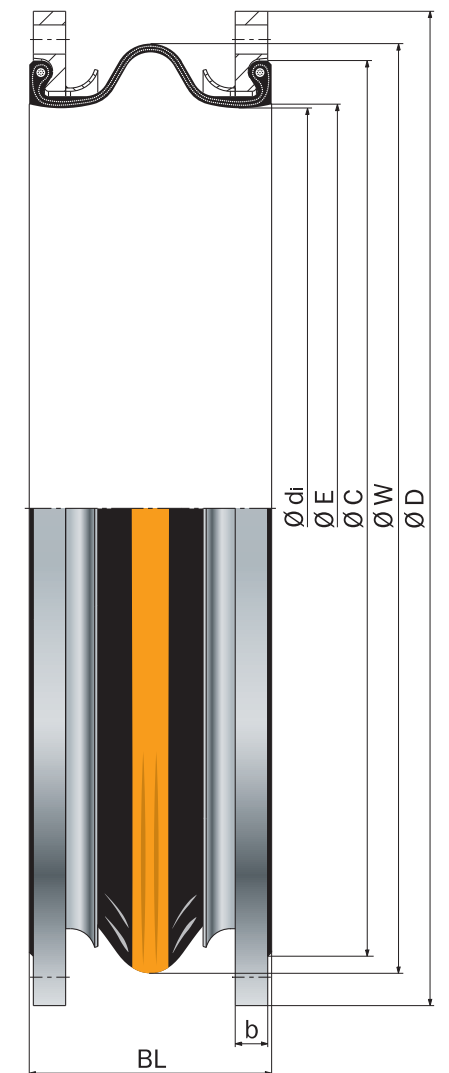
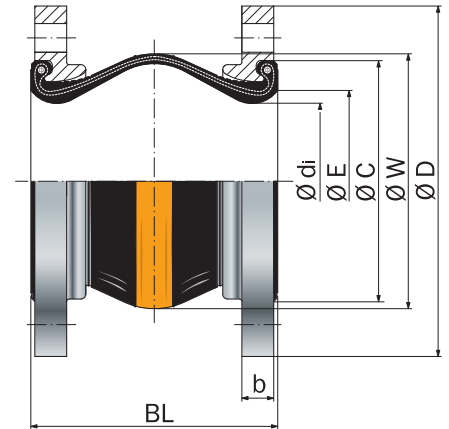
DIMENSIONS STANDARD PROGRAM

DN	BL*	Pressure rate bar	Ø di Bellows inner Ø mm	Ø C Raised face outer Ø mm	Ø E Raised face inner Ø mm	Ø W** Convolution Ø mm	PN Flange connection EN 1092	Ø D Flange outer Ø mm	b Flange thickness mm
20	100	16	22 ± 3	51	30	55	16	115	16
25	100	16	22 ± 3	51	30	55	16	115	16
32	125	16	31 ± 3	72	39	78	16	140	16
32	150	16	31 ± 3	72	39	88	16	140	16
40	125	16	39 ± 3	81	45	86	16	150	16
40	150	16	39 ± 3	81	45	96	16	150	16
50	125	16	49 ± 3	95	56	97	16	165	16
50	150	16	49 ± 3	95	56	107	16	165	16
65	125	16	65 ± 3	115	72	113	16	185	18
65	150	16	65 ± 3	115	72	123	16	185	18
80	150	16	77 ± 3	127	84	135	16	200	20
100	150	16	100 ± 3	151	109	160	16	220	20
125	150	16	127 ± 3	178	133	184	16	250	22
150	150	16	153 ± 3	206	161	212	16	285	22
175	150	16	176 ± 3	230	185	236	16	315	22
200	150	10	202 ± 3	260	209	265	10	340	25
200	175	10	202 ± 3	260	209	265	10	340	25
250	175	10	252 ± 3	313	262	318	10	395	25
250	200	10	252 ± 3	313	262	318	10	395	25
300	200	10	303 ± 3	363	312	373	10	445	25
350	200	10	344 ± 3	423	360	420	10	505	30
400	200	10	396 ± 3	474	410	460	10	565	30
450	250	10	435 ± 8	532	450	575	10	615	35
500	250	10	485 ± 8	584	500	625	10	670	35
600	250	10	585 ± 8	684	600	725	10	780	40
700	275	10	690 ± 10	800	700	850	10	895	40
800	275	10	790 ± 10	900	800	950	10	1015	40
900	300	10	890 ± 10	1008	900	1050	10	1115	40
1000	300	10	990 ± 10	1108	1000	1150	10	1230	40

*DN 25 to DN 300 also available in BL 130 mm as Type R-1. **unpressurized. From DN 200 also available with pressure rate 16 bar. Please contact us for further flange dimensions.

MOVEMENT COMPENSATION

DN	BL mm	Δ ax Axial movement		Δ lat Lateral movement ± mm	Δ ang* Angular movement ± \sphericalangle degrees	A** Effective bellows cross sectional area at 16 bar cm ²	Permissible vacuum w/o supporting ring at length BL bar absolute	Weight approx. kg
		Compression - mm	Elongation + mm					
20	100	20	10	10	25	0	-	2.3
25	100	20	10	10	25	0	-	2.3
32	125	35	10	15	25	1	0.6	3.3
32	150	35	20	20	25	0	0.5	3.4
40	125	35	10	15	25	6	0.6	3.7
40	150	35	20	20	25	1	0.5	3.8
50	125	35	10	15	25	12	0.6	4.4
50	150	35	20	20	25	13	0.5	4.5
65	125	35	10	15	25	23	0.6	5.2
65	150	35	20	20	20	30	0.7	5.3
80	150	40	10	15	20	42	0.65	7.2
100	150	40	10	15	15	68	0.65	8.0
125	150	40	10	15	15	92	0.7	10.7
150	150	40	10	15	12	173	0.75	13.0
175	150	40	10	15	10	247	0.8	15.6
200	150	20	30	15	8	435	0.9	18.4
200	175	45	15	15	8	264	0.9	18.6
250	175	45	15	15	7	503	0.9	24.2
250	200	35	35	15	6	545	0.9	24.3
300	200	45	15	15	6	550	0.9	30.2
350	200	45	15	15	5	990	0.95	40.1
400	200	45	15	15	5	1100	0.95	48.8
450	250	50	30	30	8	1706	0.35	64.0
500	250	50	30	30	7	2013	0.35	72.0
600	250	50	30	30	6	3006	0.35	90.0
700	275	50	30	30	5	4250	0.5	120.0
800	275	50	30	30	5	5440	0.5	155.0
900	300	50	30	30	4	7000	0.6	170.0
1000	300	50	30	30	3.5	8544	0.6	205.0



Type A-1

Universal expansion joint, without restraint

*Larger Δ D ang possible for compressed installation length.

**Effective bellows cross sectional area is a theoretical value.

Please inquire for simultaneous (different) movement.