RUBBER
Expansion Joints

One of the flexible products in KLINGER Turkey's portfolio is rubber expansion joints. With their body manufactured from EPDM, NBR, CR, SBR they provide excellent flexibility in short lengths. Flanges manufactured from various grades of carbon and stainless steel and cast iron in accordance with various industry standards.

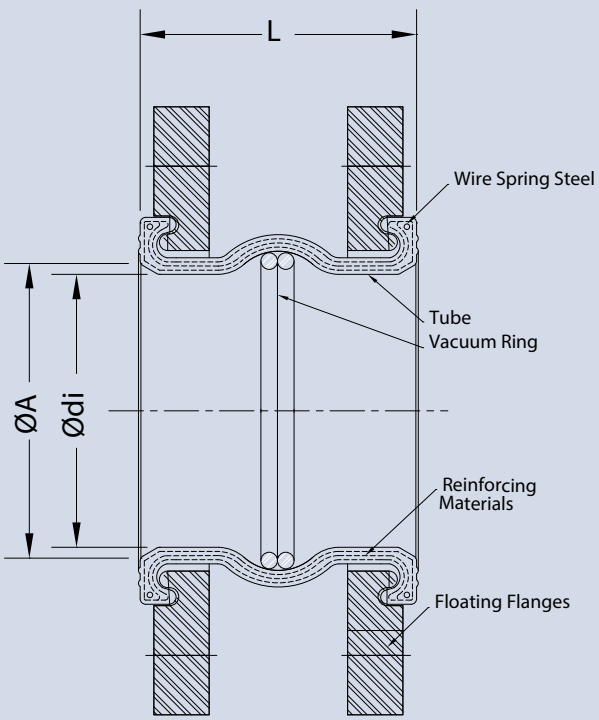
Up to 110 degC working temperatures and 16 barg working pressures rubber expansion joints are used in a variety of applications especially to absorb vibrations.

Rubber expansion joints are relatively low cost, low weight and can be supplied relatively fast since they are standard products. No gasket is required during the installation since rubber body acts as a gasket. Due to its inherent material properties rubber expansion joints are good at absorbing shock movements and all three types of movements (axial, lateral, angular) can be absorbed.

Rubber body is typically reinforced with nylon-cord keeping its flexibility.

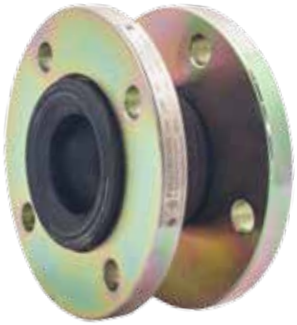
KLINGER Turkey also provides tie-rods with rubber expansion joints upon request. These rods limit the excessive movements and restrain the pressure thrust.





DESIGN VALUES

Body Material	EPDM, NBR, CR, SBR
Flange Material	Carbon Steel, Ductile Iron, Stainless Steel
Flange Norms	EN 1092, ANSI B16.5
Design Pressure	16 barg
Design Temperature	110°C



Applications

» Pumps (suction and discharge)
» Rotating equipment and machinery
» HVAC industry
» Sewage lines
» Pulp and paper industry
» Desalination plants
» Marine industry
» Chiller units

Flanges

Carbon steel and cast iron are used as standard. Flanges are also available in zinc plated or HDG carbon steel, stainless steel or etc. Flanges are drilled to EN 1092, ANSI B16.5, JIS, AWWA standards or any specific dimension.

Body Material

EPDM

Good for applications such as alkaline waste water and some chemical compounds except hydrocarbons. It is also resistant to ozone and corrosion. It has good heat resistance and electrical insulation properties.

NBR

Generally it has good resistance to hydrocarbons and oils. NBR bellows have good abrasion resistance compared to other rubber bellows. Typical application areas include oils, solvents, water and greases.

CR

It is known for good oil and grease resistance. CR has more resistance to ozone, weather and aging than natural rubber. It can be used at temperatures as low as -40 degC

SBR

It has good resistance for abrasive applications with good impact strength and resilience. It is known to be a polymer with good mechanical strength.

Tube	Reinforcing	Marking Colour	Temperature Range	Pressure - Temperature Resistance			Hardness	Burst Pressure
EPDM	Nylon Cord C.	Red Point	-35 / +110 ˚C	16barg@50˚C	10barg@70˚C	6barg@90˚C		
NBR (Nitrile)	Nylon Cord C.	Yellow Point	-30 / +80 ˚C	16barg@30˚C	10barg@50˚C	6barg@70˚C	60 ShoreA	45 barg
CR (Neoprene)	Nylon Cord C.	Blue Point	-30 / +70 ˚C	16barg@30˚C	10barg@50˚C	6barg@70˚C		

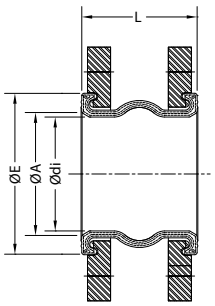
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DN		L (Tolerance ± 5 mm)			Face of Bellows (Tolerance ± 3 mm)			Flange	Permissible Movements			
		Type A	Type B	Type C	Ødi	ØA	ØE	Thickness	Compression	Extension	Lateral	Angular
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	deg.
25	1"	100	130	170	30	37	61	14	20	10	10	25
32	1 1/4"	100	130	150	37	51	75,5	14	20	10	10	25
40	1 1/2"	100	130	150	37	51	75,5	14	20	10	10	25
50	2"	100	130	150	50	60	86,5	15	20	10	10	25
65	2 1/2"	100	130	150	62	76	100	15	20	10	10	20
80	3"	100	130	150	78	91	117	17	20	10	10	20
100	4"	100	130	150	100	112	139	17	20	10	10	15
125	5"	120	130	150	124	136	167	19	25	15	15	15
150	6"	120	130	150	150	161	197,5	19	25	15	15	10
200	8"	120	130	175	200	209	253	21	25	15	15	10
250	10"	130	250	100	253	262	310	23	30	15	15	5
300	12"	210	130	100	301	325	370	24	30	17	18	5
350	14"	210	230	160	355	380	435	26	30	17	18	4
400	16"	220	235	-	400	417	477	28	35	19	19	3,5
450	18"	220	250	-	450	474	533	28	35	20	19	3,2
500	20"	270	200	100	495	515	585	30	40	25	20	2,8
600	24"	300	-	-	595	615	685	30	48	27	20	2,5
700	28"	300	-	-	700	716	786	30	48	27	20	2,5

Please consult with our technical department for different working conditions and design parameters.

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	Max.Vacuum	Weight			Spring Rates			
Effective Area	Without support Ring	wiht Flange S235JR Approx	with Flange GGG40 Approx.	as only Body Approx.	Axial Compression	Axial Extension	Lateral	Angular
cm^2	bar abs.	kg	kg	kg	N/mm	N/mm	N/mm	Nm/deg.
15	0,7	2,6	-	0,15	20	26	69	0,06
20	0,7	3	2,2	0,185	50	65	85	0,15
20	0,7	3,5	3	0,185	50	65	85	0,15
32	0,7	4	3,5	0,215	50	65	138	0,45
44	0,7	5	4,5	0,305	52	70	150	0,75
65	0,7	7	5	0,365	60	80	165	1,2
101	0,7	8	5,5	0,44	60	80	185	2,8
149	0,6	11	7,5	0,705	65	85	185	5
210	0,6	13,5	10	0,92	110	145	190	9
358	0,6	18,5	12,5	1,49	129	170	245	16
558	0,5	25,5	19,5	2,275	175	230	325	36
777	0,4	38	23,5	5,45	255	330	240	45
1109	0,4	52	-	6,4	280	360	290	60
1457	0,4	65	-	7,5	310	400	335	80
1815	0,4	74	-	8	340	450	380	118
2171	0,3	90	-	9	390	510	310	115
3155	0,2	140	-	15	470	600	370	230
4240	0,2	153	-	18	520	690	427	325