



RUBBER EXPANSION JOINTS, SINGLE SPHERE BELLOWS

Type FSF.

Available Styles/Materials

Material Code	Cover Elastomer	Tube Elastomer	Maximum Operating Temp. °C
BB	Chloro Butyl	Chloro Butyl	105°
EE	EPDM	EPDM	105°
NH	Neoprene	Hypalon	100°
NN	Neoprene	Neoprene	105°
NP	Neoprene	Nitrile (Buna)	100°

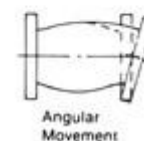
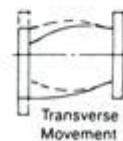
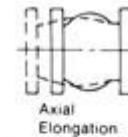
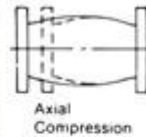
NOMINAL DIAM	7kg/cm ²	10kg/cm ²	14kg/cm ²	16kg/cm ²
1"	25mm			x
1-1/4"	32			x
1-1/2"	40			x
2"	50			x
2-1/2"	65			x
3"	80			x
4"	100			x
5"	125			x
6"	150		x	x
8"	200		x	x
10"	250		x	x
12"	300	x	x	x
14"	350	x		
16"	400	x		
18"	450	x		
20"	500	x		
22"	550	x		
24"	600	x		
28"	700	x		
30"	750	x		

* NOTE X USE CONTROL RODS



Press/Temp Correction Factor	Operating Temperatures					
	80°C	85°C	90°C	95°C	100°C	105°C
Maximum Working Pressure (x factor)	x1.0	x.92	x.83	x.75	x.67	x.60

Nominal Diameter		Installed Length mm		Travel mm	Allowable Movements from Neutral			
inch	mm	Natural Length	Minimum Maximum Installed	Total Compressed Extended	Axial Compression	Axial Extension	• Lateral Deflection	• Angular Deflection
1-1/4"	32	95	89 — 97	87 — 99	8	4	8	15°
1-1/2"	40	95	89 — 97	87 — 99	8	4	8	15°
2"	50	105	99 — 107	99 — 110	8	5	8	15°
2-1/2"	65	115	107 — 118	103 — 121	12	6	10	15°
3"	80	130	122 — 133	118 — 133	12	6	10	15°
4"	100	135	122 — 140	117 — 145	18	10	12	15°
5"	125	170	156 — 175	152 — 180	18	10	12	15°
6"	150	180	167 — 185	162 — 190	18	10	12	15°
8"	200	205	186 — 212	180 — 220	25	14	22	15°
10"	250	240	221 — 247	215 — 254	25	14	22	15°
12"	300	260	241 — 267	235 — 274	25	14	22	15°
14"	350	265	246 — 273	240 — 281	25	14	22	15°
16"	400	265	246 — 273	240 — 281	25	14	22	15°
18"	450	265	246 — 273	240 — 281	25	14	22	15°
20"	500	265	246 — 273	240 — 281	25	14	22	15°





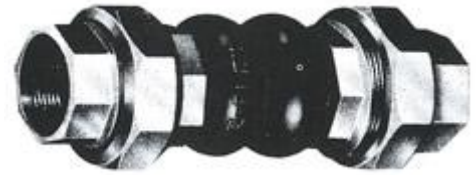
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FEATURES:

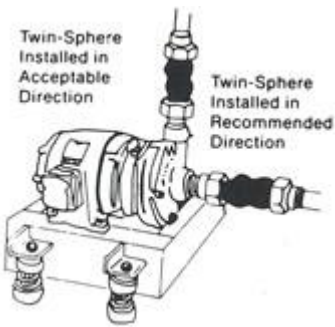
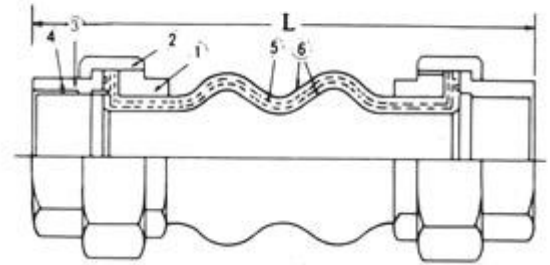
Large pressure resistance (Bursting pressure, more than 50 kg/cm²)
 Effective for large eccentricity thermal and bending angle
 Superb absorption of vibration, Low-cost installation & operation.

TYPICAL APPLICATIONS:

1. Building equipment, piping systems for industrial plants and piping systems for private residences.
2. Prevention of diasters due to earthquakes and subsidence of ground
3. Waterworks, sewerage and sanitary lines (feed-water and drainage)



DIMENSIONS AND STRUCTURE



Nominal Diameter		Installed Length mm			Travel mm	Allowable Movements from Neutral				Pressures		Weights (Kg)	
inch	mm	Natural Length	Minimum Maximum Installed	Total Compressed Extended	Axial Compression	Axial Extension	± Lateral Deflection	± Angular Deflection	Positive P.S.I.G. at 80°C	Vacuum mm	Joint & Flanges	Control Unit Sets	
3/4"	20	166	150 – 189	144 – 172	22	6	22	32°	150	660	0.7		
1"	25	172	155 – 175	150 – 178	22	6	22	25°	150	660	1.		
1-1/4"	32	176	160 – 179	154 – 182	22	6	22	25°	150	660	1.3		
1-1/2"	40	182	165 – 185	160 – 188	22	6	22	20°	150	660	1.70		
2"	50	212	196 – 215	190 – 218	22	6	22	15°	150	660	2.40		
2-1/2"	65	224	207 – 227	202 – 229	22	6	22	12°	150	660	4.30		
3"	80	226	209 – 229	204 – 231	22	6	22	10°	150	660	4.90		

Type
FTU

3/4"	20	203	186 – 206	181 – 209	22	6	22	32°	150	660	0.8	
1"	25	203	186 – 206	181 – 209	22	6	22	25°	150	660	1.10	
1-1/4"	32	203	186 – 206	181 – 209	22	6	22	25°	150	660	1.40	
1-1/2"	40	203	186 – 206	181 – 209	22	6	22	20°	150	660	1.70	
2"	50	203	186 – 206	181 – 209	22	6	22	15°	150	660	2.40	
2-1/2"	65	203	186 – 206	181 – 209	22	6	22	12°	150	660	4.30	
3"	80	203	186 – 206	181 – 209	22	6	22	10°	150	660	4.90	

Type
FTU-A

Symbol	Nomenclature of Part
1	Union Flange
2	Union nut
3	Union Screw
4	Thread
5	Reinforcing cloth
6	Facing and liner rubber

Standard item employs BSP thread.
 May be replaced with NPT, DIN.

Operating Pressures			Temperatures		
80°C	85°C	90°C	95°C	100°C	105°C
10kg/cm ²	9,5kg/cm ²	8,5kg/cm ²	8kg/cm ²	7kg/cm ²	6,5kg/cm ²

OPERATING CONDITIONS

Burst Pressure : 50 kg/cm² (710 psi)
 Temperature : -10°C to 105°C
 Fluids : Water, hot water sea water, weak Acid, Compressed Air, etc.