H.S. WHITE CORPORATION

Your Marine & Industrial Specialists for More Than 80 Years

RUBBER EXPANSION JOINT TECHNICAL DATA

Maximum Temperature Ratings

	Tube or Cover Elastomer						
Reinforcing Fabric	**Pure Gum Rubber**	**Neoprene**	**Butyl**	**Nitrile**	**Hypalon®**	**EPDM**	**FKM**
Nylon	180°F/82°C	225°F/107°C	250°F/121°C	210°F/99°C	250°F/121°C	250°F/121°C	250°F/121°C
Polyester	180°F/82°C	225°F/107°C	250°F/121°C	210°F/99°C	250°F/121°C	250°F/121°C	250°F/121°C
Aramid	180°F/82°C	225°F/107°C	250°F/121°C	210°F/99°C	250°F/121°C	300°F/149°C	400°F/204°C

List of Elastomers Used in Expansion Joints and Rubber Pipes

MATERIAL DESIGNATION		RATING SCALE CODE	ELASTOMER PHYSICAL AND CHEMICAL PROPERTIES COMPARISON							
ANSI/ASTM D1418-77	ASTM-D-2000 D1418-77	**7**-Outstanding **3**-Fair to Good **6**-Excellent **2**-Fair **5**-Very Good **1**-Poor to Fair **4**-Good **0**-Poor **X**-Contact Mfg. **COMMON NAME** Chemical Group Name	Alkali, Conc. Animal Veg. Oil Chemical Water	Oxygenated Hydro Lacquers Oil & Gasoline Alkali. Dilute	Acid Dilute Acid, Conc. Alphatic Hydro Aromatic Hydro	Ele. Insulation Water Absorp Radiation Swelling Oil	Rebound-Cold Comp. Set Tinsile Strength Dielectric Str.	Abrasion Impermeability Dynamic Rebound-Hot	Heat Cold Flame Tear	Ozone Weather Sunlight Oxidation
CR	BC BE	**NEOPRENE** Chloroprene	4340	4401	2346	4543	5424	5245	4444	5565
NR	AA	**GUM RUBBER** Polyisoprene, Synthetic	53XX	X004	0033	0655	6646	6627	5052	4020
IR	AA	**NATURAL RUBBER** Polyisoprene, Synthetic	53XX	X004	0033	0655	6646	6226	5052	4020
IIR	AA	**BUTYL** Isobutene-Isoprene	5654	4034	0046	0455	5430	5264	4045	6556
CIIR	AA BA	**CHLOROBUTYL** Chloro-Isobutene-Isoprene	5654	4034	0046	0455	5430	5264	4045	6556
NBR	BE BK CH	**BUNA-N/NITRILE** Nitril-Butadiene	4350	4520	4644	5541	0554	4544	3034	4022
SBR	AA	**SBR/GRS/BUNA-S** Styrene-Butadiene	53X2	4004	0033	0655	4544	4425	3053	2020
CSM	CE	**HYPALON®** Chloro-Sulfonyl-Polyethylene	5644	4431	2346	4543	5222	4244	3444	6767
FKM	HK	**FLUOROCARBON** Elastomer	5660	4610	6665	6553	5562	4555	2627	7777
EPR	BA CA DA	**EPDM** Ethylene-Propylene-Diene-Terpolymer	5656	6036	0046	0766	7546	6545	4056	6767
AFMU		**PTFE/TFE/FEP** Fluoro-Ethylene-Polymers	7777	7777	7777	737X	XXXX	XXX4	XXX7	7777
SI	GE	**SILICONE**	5550	2X02	0026	2566	4036	6020	2267	6666

" SLIM-FLEX" EPDM

Pipe Size	Actual I.D. (in.)	Max Pressure (PSIG)	Vacuum (inch Hg)	Max Temp. (°F)	Style 1081			
					Overall Length	Comp (in.)	Ext. (in.)	Lateral (in.)
1-1/2	1-15/16	90	15	250	8	1-3/4	3/4	3/4
2	2-3/8	90	15	250	8	1-3/4	3/4	3/4
2-1/2	2-7/8	90	15	250	8	1-3/4	3/4	3/4
3	3-1/2	90	15	250	8	1-3/4	3/4	3/4
4	4-1/2	90	15	250	8	1-3/4	3/4	3/4
5	5-9/16	50	15	250	8	1-3/4	3/4	3/4
6	6-5/8	50	15	250	8	1-3/4	3/4	3/4
8	8-5/8	35	15	250	8	1-3/4	3/4	3/4
10	10-3/4	35	15	250	8	1-3/4	3/4	3/4
12	12-3/4	35	15	250	8	1-3/4	3/4	3/4

Size	I.D.	Length (in.)
1-1/2	1.900	8
2	2.375	8
2-1/2	2.875	8
3	3.500	8
3-1/2	4.000	8
4	4.500	8
5	5.563	8
6	6.625	8
8	8.625	8
10	10.750	8
12	12.750	8

"SUPREME" TAPERED EXPANSION JOINTS

Temperature Limits for Continuous Service			
Style	**Temp**	**Style**	**Temp**
150	180°	150 HTS	300°
200	180°	200 HTS	300°
1000	180°	1000 HTS	300°
1100	180°	150 V	400°
150 HT	250°	200 V	400°
200 HT	250°	1000 V	400°
1000 HT	250°	189 SG	400°
1100 HT	250°		

To receive a quotation or when placing an order, please specify the following:

- Style (140, 150, etc.)
- Quantity
- Inner Diameter
- Flange Drilling
- Materials Conveyed in Line
- Pressure and/or Vacuum Ranges
- Temperature Range
- Movements-Axial Compression, Extension and Lateral Deflection

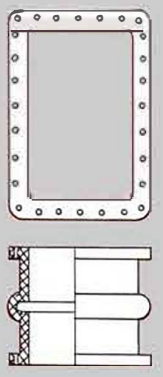
Minimum Face-to-Face Dimensions For Styles 150, 200 & 1000			
Joint Size I.D. (in.)	**Single Arch Min. f-f (in.)**	**Double Arch Min. f-f (in.)**	**Triple Arch Min. f-f (in.)**
1/2 to 6	6	10/12*	12/16*
8	6	10/12*	14/18*
10	8	12/16*	14/20*
12	8	12/16*	14/20*
14 to 20	8	12/16*	16/20*
22 to 24	10	14/16*	18/22*
26 to 34	10	14/16*	18/22*
36 to 40	10	14/18*	18/22*
42 to 96	12	14/18*	18/22*
*Wide Arch Style 1000			
Note: These face-to-facedimensions are only a guide. Consult factory for special requirements.			

Style 150–For pressure/vacuum service
Style 189–For high temp and low spring rate, pressure limited to 25 psi
Style 200–For heavy duty high pressure/vacuum service
Style 200XL–For very high pressures. Consult factory for construction details
Style 1000–Wide arch offers more movement. Hand wrapped build process offers a large variety of construction variations.
Style 1100–Wide arch offers more movement. Molded design keeps cost low.

"SUPREME" LIGHTWEIGHT AND U-TYPE EXPANSION JOINTS

STYLE 189 DIMENSIONS & SPECIFICATIONS

Arch	Joint Size I.D. (in.)	Min. Face-to-Face (in.)	Comp. (in.)	Ext. (in.)	Lateral (in.)
Single	2 to 8	6	7/16	5/16	5/8
	10 to 13	8	11/16	9/16	5/8
	14 to 24	8	13/16	11/16	5/8
	25 to 30	8	15/16	13/16	5/8
Double	2 to 5	12	7/8	5/8	1-1/4
	6 to 13	12	1-3/8	1-1/8	1-1/4
	14 to 24	13	1-5/8	1-3/8	1-1/4
	25 to 30	13	1-7/8	1-5/8	1-1/4
Triple	2 to 5	16	1-5/16	15/16	2-1/2
	6 to 13	16	2-1/16	1-11/16	2-1/2
	14 to 24	18	2-7/16	2-1/16	2-1/2
	25 to 30	18	2-13/16	2-7/16	2-1/2



Maximum operating pressures for all sizes is 25 PSIG internal pressure and 15 inches of mercury vacuum

Dimensions for Spool-Type (single arch) Expansion Joints

(Measurement in inches)			Bolt Holes		Bolt Hole Dia.	Ret. Ring I.D.	Flange Thk.	NOTE: All joints suitable for vacuum service and can be manuf. for full vac.			Axial Extension	Traverse Deflection	Estimated Weights		
								Maximum Working Pressure		Axial Compression					
Joint Size N.D.	Face-to-Face	Flange O.D.	Bolt Circle Dia.	No. of Bolts				Style 150	Style 200	Allow. Mvt. 150/200	Allow. Mvt. 150/200	Allow. Mvt. 150/200	Exp. Joint	Ret. Rings	Control Units
1/2	6	3-1/2	2-3/8	4	5/8	1-1/4	1/2	165	200	1/2	1/4	1/2	1	1.5	6
3/4	6	3-7/8	2-3/4	4	5/8	1-5/8	1/2	165	200	1/2	1/4	1/2	1.5	2	6
1	6	4-1/4	3-1/8	4	5/8	1-7/8	9/16	165	200	1/2	1/4	1/2	2	2.25	6
1-1/4	6	4-5/8	3-1/2	4	5/8	2-1/8	9/16	165	200	1/2	1/4	1/2	2.5	2.5	6
1-1/2	6	5	3-7/8	4	5/8	2-3/8	9/16	165	200	1/2	1/4	1/2	3	3	6
2	6	6	4-3/4	4	3/4	3-1/8	9/16	165	200	1/2	1/4	1/2	4	4	7
2-1/2	6	7	5-1/2	4	3/4	4-1/8	9/16	165	200	1/2	1/4	1/2	4.5	5.5	7
3	6	7-1/2	6	4	3/4	4-5/8	9/16	165	200	1/2	1/4	1/2	5.5	6	7
4	6	9	7-1/2	8	3/4	5-7/8	9/16	165	200	1/2	1/4	1/2	8	7.5	8
5	6	10	8-1/2	8	7/8	6-7/8	9/16	140	200	1/2	1/4	1/2	9	8	8
6	6	11	9-1/2	8	7/8	7-7/8	5/8	140	200	1/2	1/4	1/2	11	9	9
8	6	13-1/2	11-3/4	8	7/8	9-7/8	3/4	100	190	3/4	1/4	1/2	15	12	12
10	8	16	14-1/4	12	1	12-1/8	3/4	100	190	3/4	1/4	1/2	23	16	16
12	8	19	17	12	1	14-1/2	3/4	100	190	3/4	3/8	1/2	34	22	16
14	8	21	18-3/4	12	1-1/8	16-1/2	7/8	85	130	3/4	3/8	1/2	40	25	20
16	8	23-1/2	21-1/4	16	1-1/8	18-1/2	7/8	65	110	3/4	3/8	1/2	47	27	20
18	8	25	22-3/4	16	1-1/4	20-1/2	7/8	65	110	3/4	3/8	1/2	56	29	21
20	8	27-1/2	25	20	1-1/4	22-5/8	1	65	110	7/8	3/8	1/2	67	35	21
22	10	29-1/2	27-1/4	20	1-3/8	24-5/8	1	60	100	7/8	7/16	1/2	70	44	32
24	10	32	29-1/2	20	1-3/8	26-5/8	1	60	100	7/8	7/16	1/2	79	46	32
26	10	34-1/4	31-3/4	24	1-3/8	28-7/8	1	55	90	1	1/2	1/2	100	50	32
28	10	36-1/2	34	28	1-3/8	30-7/8	1	55	90	1	1/2	1/2	102	55	32
30	10	38-3/4	36	28	1-3/8	32-7/8	1	55	90	1	1/2	1/2	117	58	32
34	10	43-3/4	40-1/2	32	1-5/8	37	1	55	90	1	1/2	1/2	122	91	43
36	10	46	42-3/4	32	1-5/8	39	1	55	90	1	1/2	1/2	143	99	43
40	10	50-3/4	47-1/4	36	1-5/8	43	1	55	90	1	1/2	1/2	173	108	43
42	12	53	49-1/2	36	1-5/8	45-1/4	1-3/16	55	80	1-1/8	1/2	1/2	193	110	44
44	12	55-1/4	51-3/4	40	1-5/8	47-1/4	1-3/16	55	80	1-1/8	1/2	1/2	198	136	44
48	12	59-1/2	56	44	1-5/8	51-1/4	1-3/16	55	80	1-1/8	1/2	1/2	211	154	87
50	12	61-3/4	58-1/4	44	1-7/8	53-1/4	1-3/16	55	80	1-1/8	1/2	1/2	240	163	87
54	12	66-1/4	62-3/4	44	1-7/8	57-1/4	1-3/16	55	80	1-1/8	1/2	1/2	265	185	87
56	12	68-3/4	65	48	1-7/8	59-1/4	1-3/16	55	80	1-1/8	1/2	1/2	288	203	87
60	12	73	69-1/4	52	1-7/8	63-1/4	1-3/16	55	80	1-1/8	1/2	1/2	309	215	87
62	12	75-3/4	71-3/4	52	2	65-1/4	1-3/16	55	80	1-1/8	1/2	1/2	325	230	87
66	12	80	76	52	1-7/8	69-1/4	1-3/16	55	80	1-1/8	1/2	1/2	350	255	87
72	12	86-1/2	82-1/2	60	1-7/8	75-1/4	1-3/16	45	70	1-1/8	1/2	1/2	385	300	87
78	12	93	89	64	2-1/8	81-1/4	1-3/16	45	70	1-1/8	1/2	1/2	410	325	103
84	12	99-3/4	95-1/2	64	2-1/8	87-1/2	1-3/16	45	70	1-1/8	9/16	1/2	435	350	113
96	12	113-1/4	108-1/2	68	2-3/8	99-3/8	1-3/16	45	70	1-1/8	9/16	1/2	460	375	125
102	12	120	114-1/2	72	2-5/8	105-1/2	1-3/16	45	70	1-1/16	9/16	1/2	485	400	137
108	12	126-3/4	120-3/4	72	2-5/8	111-1/2	1-3/16	45	70	1-1/16	9/16	1/2	510	425	139
120	12	140-1/4	132-3/4	76	2-7/8	123-1/2	1-3/16	45	70	1-1/16	9/16	1/2	535	560	151
132	12	153-3/4	145-3/4	80	3-1/8	135-1/2	1-3/16	45	70	1-1/16	9/16	1/2	560	585	163
144	12	167-1/4	158-1/4	84	3-3/8	147-1/2	1-3/16	45	70	1-1/16	9/16	1/2	585	610	176

Note:
- All charts are applicable to DURA-PERM TEFLON® Expansion Joints with respect to Temperature and Pressure data.
- For a filled arch, reduce available movements by 50%.
- For multiple arch expansion joints, take the movement shown above and multiply by the number of arches.

Contact our Engineering Department for complete data and specifications
1(800) 257-2467

Table 1: Optional Flange Drillings (other flange drillings available, consult factory)

	American 250/300# Conforms to ANSI B16.1 and B16.5					British Standard 10:1962 Conforms to B.S-10 Table E					Metric Series 1 Conforms to I.S.O. 2084-1974 Table NP-10					J.I.S. Standard B-2212 Conforms to J.I.S. 10KG/CM				
I.D. in-mm	Flange Width	Flange O.D.	Bolt Circle	No. of Holes	Hole Dia.	Flange Width	Flange O.D.	Bolt Circle	No. of Holes	Hole Dia.	Flange Width	Flange O.D.	Bolt Circle	No. of Holes	Hole Dia.	Flange Width	Flange O.D.	Bolt Circle	No. of Holes	Hole Dia.
1 25	.59 15.0	4.88 124.0	3.5 89.0	4 4	.75 19.0	.59 15.0	4.5 114.3	3.25 82.6	4 4	.75 19.0	.59 15.0	4.53 115.0	3.35 85.0	4 4	.55 14.0	.59 15.0	4.92 125.0	3.54 90.0	4 4	.75 19.0
1-1/4 32	.59 15.0	5.25 133.0	3.88 98.0	4 4	.75 19.0	.59 15.0	4.75 120.7	3.44 87.3	4 4	.75 19.0	.59 15.0	5.51 140.0	3.94 100.0	4 4	.71 18.0	.59 15.0	5.31 135.0	3.94 100.0	4 4	.75 19.0
1-1/2 40	.59 15.0	6.12 156.0	4.5 114.0	4 4	.88 22.2	.59 15.0	5.25 133.4	3.88 98.4	4 4	.88 22.2	.59 15.0	5.91 150.0	4.33 110.0	4 4	.71 18.0	.59 15.0	5.51 140.0	4.13 105.0	4 4	.75 19.0
2 50	.71 18.0	6.5 165.0	5.0 127.0	8 8	.75 19.0	.63 16.0	6.0 152.4	4.5 114.3	8 8	.75 19.0	.71 18.0	6.5 165.0	4.92 125.0	4 4	.71 18.0	.63 16.0	6.1 155.0	4.72 120.0	4 4	.75 19.0
2-1/2 65	.71 18.0	7.5 191.0	5.88 149.0	8 8	.88 22.2	.71 18.0	6.5 165.1	5.0 127.0	8 8	.88 22.2	.71 18.0	7.28 185.0	5.71 145.0	4 4	.71 18.0	.71 18.0	6.89 175.0	5.51 140.0	4 4	.75 19.0
3 80	.79 20.0	8.25 210.0	6.62 168.0	8 8	.88 22.2	.71 18.0	7.25 184.2	5.75 146.1	8 8	.88 22.2	.79 20.0	7.87 200.0	6.3 160.0	8 8	.71 18.0	.71 18.0	7.28 185.0	5.91 150.0	8 8	.75 19.0
3-1/2 90	.79 20.0	9.0 229.0	7.25 184.0	8 8	.88 22.2	.71 18.0	8.0 203.2	6.5 165.1	8 8	.88 22.2	.79 20.0	- -	- -	- -	- -	.71 18.0	7.68 195.0	6.3 160.0	8 8	.75 19.0
4 100	.79 20.0	10.0 254.0	7.88 200.0	8 8	.88 22.2	.71 18.0	8.5 215.9	7.0 177.8	8 8	.88 22.2	.79 20.0	8.66 220.0	7.09 180.0	8 8	.71 18.0	.71 18.0	8.27 210.0	6.89 175.0	8 8	.75 19.0
5 125	.87 22.0	11.0 279.0	9.25 235.0	8 8	.88 22.2	.79 20.0	10.0 254.0	8.25 209.6	8 8	.88 22.2	.87 22.0	9.84 250.0	8.27 210.0	8 8	.71 18.0	.79 20.0	9.84 250.0	8.27 210.0	8 8	.91 23.0
6 150	.87 22.0	12.5 318.0	10.62 270.0	12 12	.88 22.2	.87 22.0	11.0 279.4	9.25 235.0	12 12	.88 22.2	.87 22.0	11.22 285.0	9.45 240.0	8 8	.87 22.0	.87 22.0	11.02 280.0	9.45 240.0	8 8	.91 23.0
8 200	.94 24.0	15.0 381.0	13.0 330.0	12 12	1.0 25.4	.87 22.0	13.25 336.6	11.5 292.1	12 12	1.0 25.4	.94 24.0	13.39 340.0	11.61 295.0	8 8	.87 22.0	.87 22.0	12.99 330.0	11.42 290.0	12 12	.91 23.0
10 250	1.02 26.0	17.5 445.0	15.25 387.0	16 16	1.12 28.6	.94 24.0	16.0 406.4	14.0 355.6	16 16	1.12 28.6	1.02 26.0	15.55 395.0	13.79 350.0	12 12	.87 22.0	.94 24.0	15.75 400.0	13.98 355.0	12 12	.98 25.0
12 300	1.02 26.0	20.5 521.0	17.75 451.0	16 16	1.25 31.8	.94 24.0	18.0 457.2	16.0 406.4	16 16	1.25 31.8	1.02 26.0	17.52 445.0	15.75 400.0	12 12	.87 22.0	.94 24.0	17.52 445.0	15.75 400.0	16 16	.98 25.0
14 350	1.10 28.0	23.0 584.0	20.25 514.0	20 20	1.25 31.8	1.02 26.0	20.75 527.1	18.5 469.9	20 20	1.25 31.8	1.10 28.0	19.88 505.0	18.11 460.0	16 16	.87 22.0	1.02 26.0	19.29 490.0	17.52 445.0	16 16	.98 25.0
16 400	1.26 32.0	25.5 648.0	22.5 572.0	20 20	1.38 34.9	1.1 28.0	22.75 577.9	20.5 520.7	20 20	1.38 34.9	1.26 32.0	22.24 656.0	20.28 515.0	16 16	1.02 26.0	1.1 28.0	22.05 560.0	20.08 510.0	16 16	1.06 27.0
18 450	1.42 36.0	28.0 711.0	24.75 629.0	24 24	1.38 34.9	1.18 30.0	25.25 641.4	23.0 584.2	24 24	1.38 34.9	1.42 36.0	24.21 615.0	22.24 565.0	20 20	1.02 26.0	1.18 30.0	24.41 620.0	22.24 565.0	20 20	1.06 27.0
20 500	1.50 38.0	30.5 775.0	27.0 686.0	24 24	1.38 34.9	1.18 30.0	27.75 704.9	25.25 641.4	24 24	1.38 34.9	1.50 38.0	26.38 670.0	24.41 620.0	20 20	1.02 26.0	1.18 30.0	26.57 675.0	24.41 620.0	20 20	1.06 27.0
22 550	1.50 38.0	33.0 838.0	29.25 743.0	24 24	1.38 34.9	1.18 30.0	30.0 762.0	27.5 698.5	24 24	1.38 34.9	1.50 38.0	28.74 730.0	26.57 675.0	20 20	1.18 30.0	1.18 30.0	29.33 745.0	26.77 680.0	20 20	1.3 33.0
24 600	1.50 38.0	36.0 914.0	32.0 813.0	24 24	1.62 41.3	1.18 30.0	32.5 825.5	29.75 755.7	24 24	1.62 41.3	1.50 38.0	30.71 780.0	28.54 725.0	20 20	1.18 30.0	1.18 30.0	31.3 795.0	28.74 730.0	24 24	1.3 33.0
26 650	1.50 38.0	38.25 972.0	34.5 876.0	28 28	1.75 44.5	1.18 30.0	- -	- -	28 28	1.75 44.5	1.50 38.0	32.87 835.0	30.71 780.0	24 24	1.18 30.0	- -	- -	- -	- -	- -
28 700	1.50 38.0	40.75 1035.0	37.0 940.0	28 28	1.75 44.5	1.18 30.0	- -	- -	28 28	1.75 44.5	1.50 38.0	35.24 895.0	33.07 840.0	24 24	1.18 30.0	- -	- -	- -	- -	- -
30 750	1.50 38.0	43.0 1092.0	39.25 997.0	28 28	2.0 50.8	1.18 30.0	39.25 997.0	36.5 927.1	28 28	2.0 50.8	1.50 38.0	37.99 965.0	35.43 900.0	24 24	1.3 33.0	- -	- -	- -	- -	- -

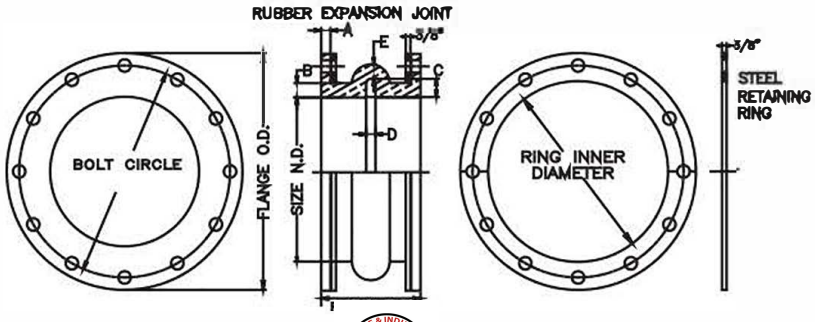
Table 2: Standard/Special Drilling • Expansion Joint Dimensions • Control Units

	125/150# Flange Dimensions Joints/Rings/Rods					250/300# Flange Dimensions Joints/Rings/Rods				Weights of Retaining Rings			125/150# Flange Dimensions Joints/Rings/Rods					250/300# Flange Dimensions Joints/Rings/Rods				Weights of Retaining Rings	
Joint I.D.	Flange O.D.	Bolt Circle	No. of Holes	Hole Size	Flange O.D.	Bolt Circle	No. of Holes	Hole Dia.	150# Rings Wt./#	300# Rings Wt./#	Joint I.D.	Flange O.D.	Bolt Circle	No. of Holes	Hole Dia.	Flange O.D.	Bolt Circle	No. of Holes	Hole Dia.	150# Rings Wt./#	300# Rings Wt./#
1 1-1/4	4.25 4.625	3.125 3.5	4 4	.625 .625	4.875 5.25	3.5 3.875	4 4	.750 .750	1.9 2.4	2.9 3.0	10 12	16.0 19.0	14.25 17.0	12 12	1.0 1.0	17.5 20.5	15.25 17.75	16 16	1.125 1.25	17.0 24.1	23.0 31.3
1-1/2 2	5.0 6.0	3.875 4.75	4 4	.625 .75	6.125 6.5	4.5 5.0	4 8	.875 .75	2.6 3.6	4.4 4.3	14 16	21.0 23.5	18.75 21.25	12 16	1.125 1.125	23.0 25.5	20.25 22.5	20 20	1.25 1.375	26.8 32.1	37.0 45.0
2-1/2 3	7.0 7.5	5.5 6.0	4 4	.75 .75	7.5 8.25	5.875 6.625	8 8	.875 .875	5.3 5.6	5.5 6.0	18 20	25.0 27.5	22.75 25.0	16 20	1.25 1.25	28.0 30.5	24.75 27.0	24 24	1.375 1.375	33.6 35.9	58.0 67.0
3-1/2 4	8.5 9.0	7.0 7.5	8 8	.75 .75	9.0 10.0	7.25 7.875	8 8	.875 .875	6.5 7.3	7.0 10.0	22 24	29.5 32.0	27.25 29.5	20 20	1.375 1.375	33.0 36.0	29.25 32.0	24 24	1.625 1.625	38.5 47.3	80.0 91.0
5 6	10.0 11.0	8.5 9.5	8 8	.875 .875	11.0 12.5	9.25 10.625	8 12	.875 .875	7.9 9.1	11.6 14.5	30 36	38.75 46.0	36.0 42.75	28 32	1.375 1.625	43.0 50.0	39.25 46.0	28 32	2.0 2.25	66.0 85.3	120.0 140.0
8	13	11.75	8 8	.875	15.0	13.0	12	1.0	14.0	19.6											

Table 3: Navy Drilling Specifications

MIL-F-20042C-50LB
MIL-F-20042C-150LB
Bu Ships Drawing B-176

Joint Size (inches)	O.D.	B.C.	No. of Holes	Hole Dia.
1/4	3-1/4	2-1/8	3	9/16
3/8	3-3/8	2-1/4	3	9/16
1/2	3-9/16	2-7/16	3	9/16
3/4	3-13/16	2-11/16	4	9/16
1	4-1/4	3-1/8	4	9/16
1-1/4	4-1/2	3-3/8	4	9/16
1-1/2	5-1/16	3-15/16	6	9/16
2	5-9/16	4-7/16	6	9/16
2-1/2	6-1/8	5	6	9/16
3	6-5/8	5-1/2	8	9/16
3-1/2	7-3/16	6-1/16	8	9/16
4	7-11/16	6-9/16	8	9/16
4-1/2	8-3/16	7-1/16	10	9/16
5	9-1/16	7-13/16	10	11/16
5-1/2	9-9/16	8-5/16	10	11/16
6	10-1/8	8-7/8	12	11/16
6-1/2	10-5/8	9-3/8	12	11/16
7	11-5/16	10	12	11/16
7-1/2	11-7/8	10-9/16	12	11/16
8	12-3/8	11-1/16	14	11/16
8-1/2	12-15/16	11-5/8	14	11/16
9	13-15/16	12-3/8	14	13/16
9-1/2	14-1/2	12-15/16	14	13/16
10	15	13-7/16	15	13/16
11	16-9/16	15	16	13/16
12	17-5/8	16-1/16	18	13/16
14	19-1/8	17-3/8	19	15/16
15	25-1/8	18-3/8	20	15/16
16	21-3/16	19-7/16	20	15/16
18	23-1/4	21-1/2	22	15/16
20	25-13/16	23-13/16	24	1-1/16
22	27-7/8	25-7/8	26	1-1/16
24	30	28	28	1-1/16
25	31-1/2	29-1/4	29	1-3/16
26	32-9/16	30-5/16	30	1-3/16
28	34-11/16	32-7/16	32	1-3/16
30	36-13/16	34-9/16	35	1-3/16
32	39	36-3/4	36	1-3/16
33	40	37-3/4	36	1-3/16
34	41	38-3/4	36	1-3/16
35	42-7/8	40-3/8	36	1-5/16
36	43-7/8	41-3/8	36	1-5/16
38	46-1/8	43-5/8	36	1-5/16
40	48-1/8	45-5/8	36	1-5/16
42	50-1/4	47-3/4	38	1-5/16
46	54-1/2	52	40	1-5/16



SUPER-FLEX 1200

WIDE-ARCH EXPANSION JOINT

Size, Movement, Pressure, Weight and Drilling Chart									
Size N.D. Length (in.)	Bolt Circle	Drilling Number of Holes	Size of Holes	Pressure PSIG.	Movement Capacity				Expansion Joint Weight (lbs.)
					Axial		Deflection		
					Comp.	Elong.	Lateral	Angular	
2x6	4.75	4	.75	250	1-3/4	3/4	3/4	35	9
2.5x6	5.5	4	.75	250	1-3/4	3/4	3/4	30	10
3x6	6.0	4	.75	250	1-3/4	3/4	3/4	30	12
4x6	7.5	8	.75	250	1-3/4	3/4	3/4	25	16
5x6	8.5	8	.875	250	1-3/4	3/4	3/4	25	20
6x6	9.5	8	.875	250	1-3/4	3/4	1	20	21
8x6	11.75	8	.875	250	1-3/4	3/4	1	20	30
10x8	14.25	12	1.0	250	1-3/4	3/4	1	15	45
12x8	17.00	12	1.0	250	1-3/4	3/4	1	15	65

Available Styles, Materials and Temperatures				
Style Number	Type of elastomer		Maximum Operating Temperature °F	F.S.A. Material Class
	Cover/Outside	Tube/Inside		
1200CC	Butyl	Butyl	250°F	Special II
1200EE	EPDM	EPDM	250°F	Special II
1200NN	Neoprene	Neoprene	230°F	Std.II
1200BN	Neoprene	Nitrile	230°F	Std.II

Applications:

- Control pipe movements and stress
- Reduce system noise
- Isolate mechanical vibration
- Compensate alignment/offset
- Eliminate electrolysis
- Protect against start-up surge force
- Absorption machine
- Chiller
- Cooling towers
- Compressors
- Blowers
- Fan

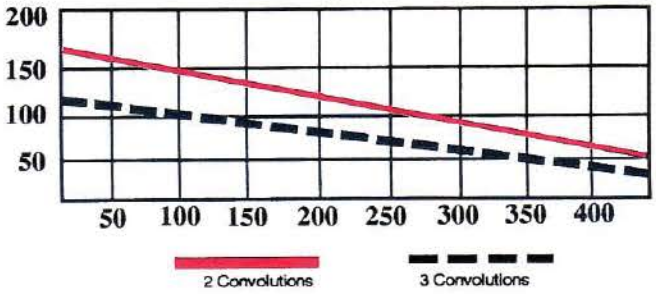
Expansion Joint Data

Style 112A (2 Convolutions)					Style 113A (3 Convolutions)				Style 115A (5 Convolutions)			
Nom. Dia. I.D.	Neutral Length	Movement (In.)		Weight Lbs.	Neutral Length	Movement (In.)		Weight Lbs.	Neutral Length	Movement (In.)		Weight Lbs.
		Axial	Lateral			Axial	Lateral			Axial	Lateral	
1.0	1.375	0.250	.125	2	1.750	.500	.250	2	3.000	0.500	.500	2
1.25	1.375	0.250	.125	5	1.810	.500	.250	5	2.670	0.394	.470	5
1.50	1.375	0.250	.125	3	2.000	.500	.250	4	3.500	0.750	.500	3
2.00	1.563	0.250	.125	7	2.750	.750	.375	8	4.000	1.000	.500	7
2.50	2.250	0.313	.125	10	3.188	.750	.375	11	4.600	0.980	.510	10
3.00	2.250	0.375	.188	10	3.625	1.000	.500	13	5.000	1.000	.500	10
4.00	2.625	0.500	.250	18	3.625	1.000	.500	19	5.250	1.250	.625	18
5.00	3.250	0.500	.250	24	4.000	1.000	.500	25	6.000	1.250	.625	24
6.00	2.750	0.500	.250	29	4.000	1.125	.563	30	6.000	1.250	.625	29
8.00	4.00	0.500	.250	47	6.000	1.125	.563	48	8.000	1.250	.625	47
10.00	5.250	0.500	.250	64	7.000	1.188	.500	60	8.750	1.250	.625	64
12.00	6.000	0.500	.250	115	7.875	1.188	.625	77	9.000	1.375	.688	115

Safety Shields Are Recommended

For information on the "E" Series, please visit our website: www.unaflex.com and click PTFE Expansion Joints

UNALON® Performance curve of working pressures vs. operating temperatures (all sizes)



Vacuum Service Maximum temperature for full vacuum (29.9" HG.)	
Two Convolutions	
1" to 6" 8" to 10"	400°F 250°F
12"	150°F
Three Convolutions	
1" to 4" 5" to 6" 8" to 12"	400°F 300°F 125°F

Note: For greater pressure or safety requirements than shown, special Viton®/Kevlar® overlays are available. Optional flow liners are available in TEFLON®, Elastomeric, Stainless Steel and Nickel Alloys. Consult our engineering department for further details.

Vacuum: Vacuum support rings can be added in the top (crest) of the convolution for full vacuum at 400°F for sizes 6" and larger. Support rings can be manufactured from various types of Stainless Steel, Tantalum and Nickel Alloys.

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SUPER-FLEX STYLE 1000 AND 1100 EXPANSION JOINTS

Dimensions for Wide Arch

We do not use marginal constructions which reduce safety factors and cause pressure reductions with slight operating pressure increases. All **Super-Flex** Expansion Joints have a minimum 3 to 1 safety factor at rated operating temperatures and pressures. Note: Maximum diameter for Style 1100 is 36"

A- Flange Thickness
B- Body Thickness
C- Internal Arch Height
D- Arch Width
E- Arch Thickness

Joint Size N.D.	Face-to-Face	Flange O.D.	Bolt Circle Dia.	No. of Bolts	Bolt Hole Dia.	Ring I.D.	A	B	C	D	E	Style 1000 Max. P.S.I	Style 1100 Max. P.S.I	Movements: Axial Compression	Movements: Axial Extension	Movements: Trav. Deflection	Weights: Joint Weight/Lbs.	Weights: Retaining Rings/Lbs.	Control Units Lbs.
1/2	6	3-1/2	2-3/8	4	9/16	1-1/4	1/2	7/8	1	1-3/4	3/8	225	225	1-3/4	3/4	3/4	1	1.5	6
3/4	6	3-7/8	2-3/4	4	9/16	1-5/8	1/2	7/8	1	1-3/4	3/8	225	225	1-3/4	3/4	3/4	1.5	2	6
1	6	4-1/4	3-1/8	4	5/8	1-7/8	9/16	7/8	1	1-3/4	3/8	225	225	1-3/4	3/4	3/4	2	2.25	6
1-1/4	6	4-5/8	3-1/2	4	5/8	2-1/8	9/16	7/8	1-1/8	1-3/4	7/16	225	225	1-3/4	3/4	3/4	2.5	2.5	6
1-1/2	6	5	3-7/8	4	5/8	2-3/8	9/16	7/8	1-1/8	1-3/4	7/16	225	225	1-3/4	3/4	3/4	3	3	6
2	6	6	4-3/4	4	3/4	3-1/8	9/16	29/32	1-1/4	1-3/4	1/2	225	225	1-3/4	3/4	3/4	4	4	7
2-1/2	6	7	5-1/2	4	3/4	4-1/8	9/16	29/32	1-1/4	1-3/4	1/2	225	225	1-3/4	3/4	3/4	4.5	5.5	7
3	6	7-1/2	6	4	3/4	4-5/8	9/16	29/32	1-1/4	1-3/4	1/2	225	225	1-3/4	3/4	3/4	5.5	6	7
4	6	9	7-1/2	8	3/4	5-7/8	9/16	7/8	1-1/4	1-3/4	1/2	225	225	1-3/4	3/4	3/4	8	7.5	8
5	6	10	8-1/2	8	7/8	6-7/8	9/16	7/8	1-1/4	1-3/4	1/2	225	225	1-3/4	3/4	3/4	9	8	8
6	6	11	9-1/2	8	7/8	7-7/8	5/8	1	1-1/4	1-3/4	1/2	225	225	1-3/4	3/4	1	11	9	9
8	6	13-1/2	11-3/4	8	7/8	9-7/8	3/4	1	1-1/2	1-3/4	5/8	225	225	1-3/4	3/4	1	15	12	12
10	8	16	14-1/4	12	1	12-1/8	3/4	1-5/32	1-1/2	1-3/4	11/16	225	225	1-3/4	3/4	1	23	16	16
12	8	19	17	12	1	14-1/2	3/4	1-5/32	1-1/2	1-3/4	11/16	225	225	1-3/4	3/4	1	34	22	16
14	8	21	18-3/4	12	1-1/8	16-1/2	7/8	1-5/32	2	1-3/4	3/4	225	225	1-3/4	3/4	1	40	25	20
16	8	23-1/2	21-1/4	16	1-1/8	18-1/2	7/8	1-5/32	2	1-3/4	3/4	160	160	1-3/4	3/4	1	47	27	20
18	8	25	22-3/4	16	1-1/4	20-1/2	7/8	1-5/32	2	1-3/4	3/4	160	160	1-3/4	3/4	1	56	29	21
20	8	27-1/2	25	20	1-1/4	22-5/8	1	1-5/32	2	1-3/4	25/32	130	130	1-3/4	3/4	1	67	35	21
22*	10	29-1/2	27-1/4	20	1-3/8	24-5/8	1	1-5/32	2	1-3/4	25/32	130	-	1-3/4	3/4	1	70	44	32
24	10	32	29-1/2	20	1-3/8	26-5/8	1	1-5/32	2	1-3/4	25/32	130	130	1-3/4	1	1	79	46	32
26*	10	34-1/4	31-3/4	24	1-3/8	28-7/8	1	1-3/16	2-1/4	1-3/4	13/16	110	-	1-3/4	1	1	100	50	32
28*	10	36-1/2	34	28	1-3/8	30-7/8	1	1-3/16	2-1/4	1-3/4	13/16	110	-	1-3/4	1	1	102	55	32
30	10	38-3/4	36	28	1-3/8	32-7/8	1	1-3/16	2-1/4	1-3/4	13/16	95	100	1-3/4	1	1	117	58	32
34*	10	43-3/4	40-1/2	32	1-5/8	37	1	1-3/16	2-1/4	1-3/4	13/16	95	-	1-3/4	1	1	122	91	43
36	10	46	42-3/4	32	1-5/8	39	1	1-3/16	2-1/4	2-1/4	13/16	90	100	2-1/4	1	1	143	99	43
40*	10	50-3/4	47-1/4	36	1-5/8	43	1	1-3/16	2-1/4	2-1/4	13/16	90	-	2-1/4	1	1	173	108	43
42	12	53	49-1/2	36	1-5/8	45-1/4	1-3/16	1-1/4	2-1/2	2-1/4	29/32	90	-	2-1/4	1	1	193	110	44
44*	12	55-1/4	51-3/4	40	1-3/4	47-1/4	1-3/16	1-1/4	2-1/2	2-1/4	29/32	90	-	2-1/4	1	1	198	136	44
48	12	59-1/2	56	44	1-5/8	51-1/4	1-3/16	1-1/4	2-1/2	2-1/4	29/32	90	-	2-1/4	1	1	211	154	87
50*	12	61-3/4	58-1/4	44	1-7/8	53-1/4	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1	1	240	163	87
54	12	66-1/4	62-3/4	44	2	57-1/4	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	265	185	87
56*	12	68-3/4	65	48	2	59-1/4	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	288	203	87
60	12	73	69-1/4	52	2	63-1/4	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	309	215	87
62*	12	75-3/4	71-3/4	52	2	65-1/4	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	325	230	87
66*	12	80	76	52	2	69-1/4	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	350	255	87
72	12	86-1/2	82-1/2	60	2	75-1/4	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	385	300	87
78	12	93	89	64	2-1/8	81-1/4	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	410	325	103
84	12	99-3/4	95-1/2	64	2-1/4	87-1/2	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	435	350	113
96	12	113-3/4	108-1/2	68	2-1/2	99-3/8	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	460	375	125
102	12	120	114-1/2	72	2-5/8	105-1/2	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	485	400	137
108	12	126-3/4	120-3/4	72	2-5/8	111-1/2	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	510	425	139
120	12	140-1/4	132-3/4	76	2-7/8	123-1/2	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	535	560	151
132	12	153-3/4	145-3/4	80	3-1/8	135-1/2	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	560	585	163
144	12	167-1/4	158-1/4	84	3-3/8	147-1/2	1-3/16	1-3/8	2-1/2	2-1/4	29/32	85	-	2-1/4	1-1/4	1	585	610	176

"Unasphere" Style 800 Expansion Joints

Precision molded of neoprene and nylon, these units require less force to move than conventional joints, allowing maximum deflection, elongation and compression. Their design is stronger than other configurations because of the spherical shape. The smooth flow arch reduces turbulence and allows quiet flow without sediment build-up. ***All three styles also available in EPDM and nitrile with neoprene cover.***

Design Data:
Pressure–16" HG Vacuum, 225 PSIG
Temperature–20°F to 180°F.

Size, Movement, Pressure, Weight and Drilling Data

Size (in.)	Face-to-Face (in.)	Flange Thick (in.)	No. of Holes	Thread Size	Allowable Movement			
					Lateral Deflect (in.)	Elongation (in.)	Compression (in.)	Angular Movement
2	6	5/8	4	5/8-11NC	±1/2	3/8	1/2	15
2-1/2	6	11/16	4	5/8-11NC	±1/2	3/8	1/2	15
3	6	11/16	4	5/8-11NC	±1/2	3/8	1/2	15
4	6	11/16	8	5/8-11NC	±1/2	3/8	5/8	15
5	6	13/16	8	3/4-10NC	±1/2	3/8	5/8	15
6	6	7/8	8	3/4-10NC	±1/2	3/8	5/8	15
8	6	7/8	8	3/4-10NC	±1/2	3/8	5/8	15
10	8	15/16	12	7/8-9 NC	±3/4	1/2	3/4	15
12	8	15/16	12	7/8-9 NC	±3/4	1/2	3/4	15

"Twin-Sphere" Style 802

The Twinsphere is precision molded of neoprene and nylon tire cord. The double arch design allows for greater movement four different ways and provides for a non-turbulent flow. Angular movement up to 30° is obtainable with its highly flexible design. Rated for 225 PSI WP at 170°F. Pressure is reduced at higher temperatures. Vacuum Rating to 26" HG.

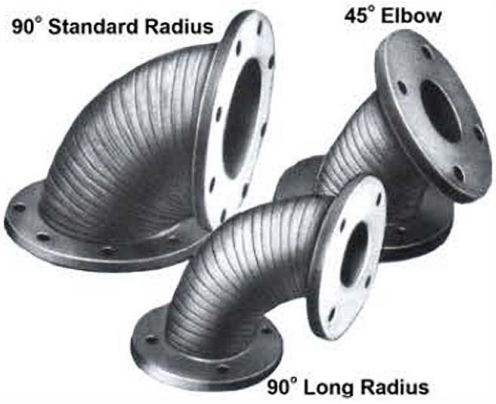
Size (in.)	Face-to-Face (in.)	Comp.	Elong.	Lateral Movement	Angular Movement
2	7	2.0	1.188	1.750	45
2-1/2	7	2.0	1.188	1.750	43
3	7	2.0	1.188	1.750	38
4	9	2.0	1.375	1.562	34
5	9	2.0	1.375	1.562	29
6	9	2.0	1.375	1.562	25
8	13	2.375	1.375	1.375	19
10	13	2.375	1.375	1.375	15
12	13	2.375	1.375	1.375	13

"Twin-Sphere" Style 803

This highly capable, low-cost expansion joint is available for smaller diameter piping systems found in power plants, chemical plants, waterworks, sewage treatment plants and private residences, etc. The Twin-Sphere provides excellent vibration absorption and stress relief in a light, compact construction.

Operating Pressure: 150 PSI. Vacuum Rating: 15" HG. Diameters are available in 3/4", 1", 1-1/4", 1-1/2" and 2".

"RADI-FLEX" ELBOW EXPANSION JOINTS



"RADI-FLEX" Elbow Joints Dimensions								
Size N.D. (in.)	Flange Thick. A (in.)	B Flange O.D. (in.)	C C to F 90° STD. (in.)	C C to F 90° L.R. (in.)	C C to F 45° (in.)	Allowable Movement		
						Comp. (in.)	Deflect. (in.)	Ext. (in.)
2	1	6	4-1/2	6-1/2	2-1/2	1/2	1/2	1/2
2-1/2	1	7	5	7	3	1/2	1/2	1/2
3	1-1/8	7-1/2	5-1/2	7-3/4	3	1/2	1/2	1/2
4	1-1/8	9	6-1/2	9	4	1/2	1/2	1/2
5	1-1/8	10	7-1/2	10-1/4	4-1/2	3/4	3/4	3/4
6	1-1/8	11	8	11-1/2	5	3/4	3/4	3/4
8	1-1/8	13-1/2	9	14	5-1/2	3/4	3/4	3/4
10	1-1/4	16	11	16-1/2	6-1/2	3/4	3/4	3/4
12	1-1/4	19	12	19	7-1/2	3/4	3/4	3/4
14	1-1/4	21	14	22-1/2	7-1/2	3/4	3/4	3/4

Notes:
1. Flange size dimensions conforms to ANSI-Class 150# drilling
2. Split rings are 3/8" Galvanized Steel Plate
3. Center-to-face dimensions are subject to ±1/4" tolerance

Anchoring and Control Units

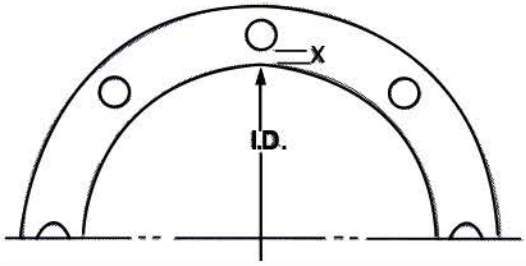
Flexible rubber connectors should always be installed in piping systems that are properly anchored so that the connectors are not required to absorb compression or elongation piping movements. If axial forces can act in the system to compress or elongate the connector, control units will be required to prevent axial movement. In general, control units are always recommended as an additional safety factor, preventing damage to the connector and associated equipment.

Tolerances for Rubber Pipe & Expansion Joints								
Nominal Pipe Size Exp. Jt. I.D.	Exp. Joint I.C. [1]	Non-Critical Flange O.D. [1]	Bolt Line[3]	Face-to-Face Length "F"2 (inches) All Dimensions to be an Averaged Reading. Applies to Open or Filled Arch				Number of Measurements to be Averaged
				0 to 6	7 to 12	14 to 18	20 & up	
0 to 10"	±3/16	±1/4	±3/16	±3/16	±3/16	±3/16	±3/16-1/4	4
12 to 22	±1/4	±3/8	±1/4	±3/16	±3/16	±3/16	±3/16-1/4	4
24 to 46	±3/8	±1/2	±5/16	±3/16	±3/16	±3/16	±1/4	4
48 to 70	±3/8-1/2	±3/4-1/2	±3/8	±1/4	±3/8	±3/8	±3/8	6
72 & up	±3/8-5/8	±1-3/4	±1/2	±1/4	±3/8	±3/8	±3/8	6

Notes:
- **All diameters to be measured with a "Pi" tape**
- **All linear dimensions to be measured with a steel rule and averaged**
- **Bolt Line= Actual I.D. +2 (Average "X" Dimension) + Bolt Hole Diameter.**

Nominal Pipe Size Connector Inside Diameter		Recommended Face-to-Face "F" Dimensions	
in	mm	in	mm
1/2	15	12	305
3/4	20	12	305
1	25	12	305
1-1/4	30	12	305
1-1/2	40	12	305
2	50	12	305
2-1/2	65	12	305
3	75	18	457
3-1/2	90	18	457
4	100	18	457
5	125	24	610
6	150	24	610
8	200	24	610
10	250	24	610
12	300	24	610
14	350	24	610
16	400	24	610
18	450	24	610
20	500	24	610
22	550	24	610
24	600	24	610

Notes:
- **Above lengths are recommendations only**



Typical Flange Thickness				
Nominal Flange Thickness		#Measurements	Tolerance	
in	mm		in.	mm
9/16	14	4	±1/16	±2
5/8 - 7/8	16 - 22	4	±3/16	±5
1	25	4	±1/4	±6
1 - 1/8-1/1/4	29 - 32	5	±5/16	±8
1 - 1-3/8	25 - 35	6	±3/8	±10

Note: Measurements taken at the bolt hole.

"Super-Quiet" Rubber Vibration and Sound Absorbers

Styles 2150 and 2250

"Super-Quiet" Styles 2150 (150 psi WP) and 2250 (250 psi WP) vibration and sound absorbers are specially designed lengths of rubber pipe with factory attached ferrules for pipe and other connections involving standard IPT. They eliminate vibration between pump and pipe lines either for suction or discharge.

For Working Pressures to 150 PSI		
	For Water Service to 180°F	For Water Service from 180 to 250°F Max.
Ferruled Coupling	2150	2150 H.T.
Flanged End	3150	3150 H.T.
For Working Pressures to 250 PSI		
	For Water Service to 180°F	For Water Service from 180 to 250°F Max.
Ferruled Coupling	2250	2250 H.T.
Flanged End	3250	3250 H.T.

*Style 2150 and 2250 Dimensions			
Pipe Size N.D. (in.)	Standard Overall Length (in.)	Pipe Size N.D. (in.)	Standard Overall Length (in.)
3/4	12	2	24
1	18	2-1/2	24
1-1/4	18	3	36
1-1/2	18	4	36

IMPORTANT: Vibration and Sound Absorbers are not designed to accommodate the movement in a piping system caused by temperature change or other conditions. See Spool-Type Expansion Joints for such applications.

"Super-Quiet" Styles 3150 and 3250

"Super-Quiet" Styles 3150 (150 psi WP) and 3250 (250 psi WP) sound absorbers are built with molded rubber flanged ends with bolt holes that accommodate standard steel flanges. Available with or without helical wire reinforcement. Special tubes can be made to meet unique requirements for either suction or discharge.

Specify Flexible Connectors		
Style 3150	150# W.P.	180°F
Style 3250	250# W.P.	180°F
Style 3150 HT	150# W.P.	250°F
Style 3250 HT	250# W.P.	250°F

Percentage of Reduction of Vibration Input with Frequency and Pressure as Compared to Steel Pipe			
Center Freq. Hz	8" I.D. x 24" F-F Vibration Joint		
	10 PSIG	50 PSIG	80 PSIG
440	87%	91%	93%
68	95%	96%	99%
125	98%	99%	99%
250	96%	97%	99%
500	91%	93%	94%
1000	82%	91%	96%
2000	99%	99%	99%
4000	99%	99%	99%
8000	97%	97%	98%

EXAMPLE: If a steel piping system had a major vibration frequency of 1,000 Hz at 50 PSIG and 8" rubber expansion joint was installed in the pipeline, the percentage of reduction of vibration would be 96%. Above data taken from the Fluid Sealing Association Handbook.

Joint Size N.D.(in.)	Face-to-Face		Style 3150 (Conforms to ANSI 150# Drilling)						Style 3250 (Conforms to ANSI 300# Drilling)					
	Min (in.)	Max (in.)	Ring I.D. (in.)	Flange Diam. (in.)	Flange Thick. (in.)	Bolt Cir. Diam. (in.)	Bolt Holes No.	Bolt Holes Diam. (in.)	Ring I.D. (in.)	Flange Diam. (in.)	Flange Thick. (in.)	Bolt Cir. Diam. (in.)	Bolt Holes No.	Bolt Holes Diam. (in.)
1-1/2	12	24	2-7/8	5	11/16	3-7/8	4	5/8	2-7/8	6-1/8	23/32	4-1/2	4	7/8
2	12	24	3-5/8	6	11/16	4-3/4	4	3/4	3-5/8	6-1/2	23/32	5	8	3/4
3	12	36	4-5/8	7-1/2	27/32	6	4	3/4	4-5/8	8-1/4	27/32	6-5/8	8	7/8
4	12	36	5-7/8	9	27/32	7-1/2	8	3/4	5-7/8	10	7/8	7-7/8	8	7/8
5	12	36	6-7/8	10	15/16	8-1/2	8	7/8	6-7/8	11	15/16	9-1/4	8	7/8
6	18	36	7-7/8	11	31/32	9-1/2	8	7/8	7-7/8	12-1/2	15/16	10-5/8	12	7/8
8	24	48	9-7/8	13-1/2	31/32	11-3/4	8	7/8	9-7/8	15	1-1/16	13	12	1
10	24	48	12-1/8	16	1-3/16	14-1/4	12	1	12-1/8	17-1/2	1-11/32	15-1/4	16	1-1/8
12	24	48	14-1/2	19	1-7/32	17	12	1	14-1/2	20-1/2	1-11/32	17-3/4	16	1-1/4