



H.S. WHITE

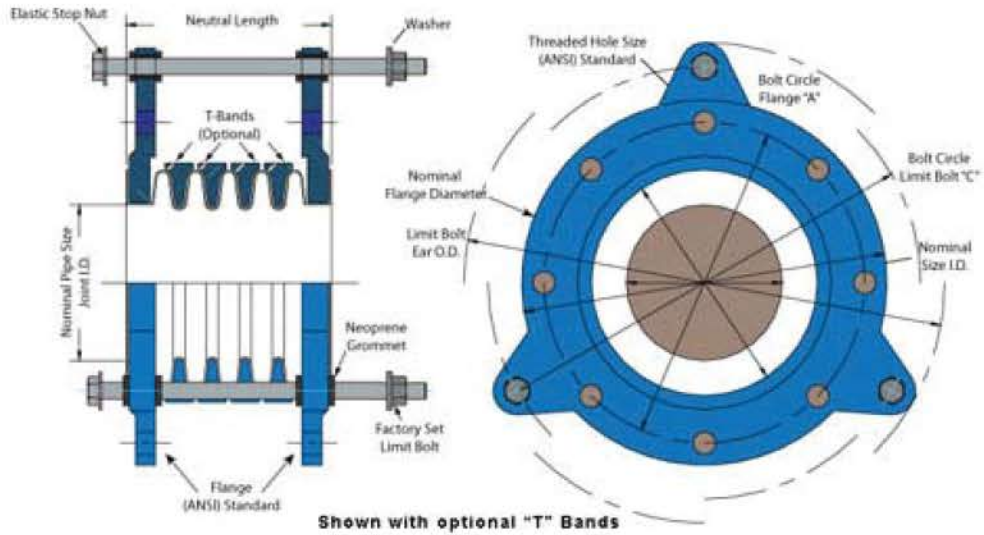
CORPORATION

Marine and Industrial Specialists

PTFE EXPANSION JOINTS TECHNICAL DATA



Materials of Construction



112A & 112E, 113A & 113E, 115A & 115E

Description	1"-12"
Bellows	PTFE T-62
Flanges	Ductile Iron
Reinforcing Rings	Stainless Steel
Limit Bolts	Carbon Steel
Nuts	Carbon Steel
Grommets	Neoprene
Washers	Carbon Steel

Style 112A Sizes • Spring Rates • Temperatures • Vacuum • Weights

Movement Capabilities
Based on Two Convolution Design¹



Nominal Size I.D.	Neutral Length Inches.	± Axial (Δx) Movement (1)IN	Lateral (Δy) Movement (1)IN	Angular Deflection DEG	Spring Rate Capability ²			Thrust Factor	Pressure At Temperature (PSIG) @ °F								Weight/Lbs.	
					Compression Spring Rate LB ₂ /IN	Extension Spring Rate LB ₂ /IN	Lateral Spring Rate ² LB ₂ /IN		70°	100°	150°	200°	250°	300°	350°	400°		³ Hg at Temp
1.0	1.375	0.250	.125	7	102	79	102	2.7	185	170	148	130	115	100	84	68	29" @425°F	2
1.25	1.375	0.250	.125	7	60	135	396	2.2	185	170	148	130	115	100	84	68	29" @425°F	5
1.50	1.375	0.250	.125	7	316	178	221	4.6	185	170	148	130	115	100	84	68	29" @425°F	3
2.00	1.563	0.250	.125	7	506	297	237	7.0	185	170	148	130	115	100	84	68	29" @425°F	7
2.50	2.250	0.313	.125	7	452	275	324	9.6	185	170	148	130	115	100	84	68	29" @425°F	10
3.00	2.250	0.375	.188	7	641	316	315	15.9	185	170	148	130	115	100	84	68	29" @425°F	10
4.00	2.625	0.500	.250	7	475	277	396	23.7	185	170	148	130	115	100	84	68	29" @400°F	18
5.00	3.250	0.500	.250	7	435	435	316	33.1	185	170	148	130	115	100	84	68	29" @400°F	24
6.00	2.750	0.500	.250	7	435	382	435	50.2	185	170	148	130	115	100	84	68	29" @400°F	29
8.00	4.00	0.500	.250	7	445	386	475	83.4	164	150	129	112	100	87	73	60	29" @250°F	47
10.00	5.250	0.500	.250	7	752	594	574	108.3	164	150	129	112	100	87	73	60	29" @250°F	64
12.00	6.000	0.500	.250	7	1287	415	693	176.6	70	59	48	40	35	30	26	22	29.9" @75°F	115

**** Safety Shields are Recommended**

Style 112E Sizes • Spring Rates • Temperatures • Vacuum • Weights

Movement Capabilities
Based on Two Convolution Design¹



Nominal Size I.D.	Neutral Length Inches.	± Axial (Δx) Movement (1)IN	Lateral (Δy) Movement (1)IN	Angular Deflection DEG	Spring Rate Capability ²			Thrust Factor	Pressure At Temperature (PSIG) @ °F								Weight/Lbs.	
					Compression Spring Rate LB ₂ /IN	Extension Spring Rate LB ₂ /IN	Lateral Spring Rate ² LB ₂ /IN		70°	100°	150°	200°	250°	300°	350°	400°		³ Hg at Temp
1.0	1.750	.344	.250	16	138	142	118	2.7	185	170	148	130	115	100	84	68	29" @425°F	3
1.50	1.813	.344	.250	13	237	198	237	4.6	185	170	148	130	115	100	84	68	29" @425°F	4
2.00	1.875	.344	.281	12	425	346	435	7.0	185	170	148	130	115	100	84	68	29" @425°F	7
3.00	2.188	.406	.313	10	643	316	346	15.9	185	170	148	130	115	100	84	68	29" @425°F	10
4.00	2.281	.438	.313	9	356	277	623	23.7	185	170	148	130	115	100	84	68	29" @400°F	17
6.00	2.531	.469	.375	7	455	346	712	50.2	185	170	148	130	115	100	84	68	29" @400°F	27
8.00	2.750	.531	.406	6	297	227	792	81.4	164	150	129	112	100	87	73	60	29" @250°F	35
10.00	2.969	.563	.438	5	1152	861	990	108.3	164	150	129	112	100	87	73	60	29" @250°F	52
12.00	3.094	.594	.469	5	376	237	990	175.6	70	59	48	40	35	30	26	22	29" @75°F	107

Style 113A Sizes • Spring Rates • Temperatures • Vacuum • Weights

Movement Capabilities
Based on Three Convolution Design¹



Nominal Size I.D.	Neutral Length Inches.	± Axial (Δx) Movement (1)IN	Lateral (Δy) Movement (1)IN	Angular Deflection DEG	Spring Rate Capability ²			Thrust Factor	Pressure At Temperature (PSIG) @ °F										Weight/Lbs.
					Compression Spring Rate LB ₂ /IN	Extension Spring Rate LB ₂ /IN	Lateral Spring Rate ² LB ₂ /IN		70°	100°	150°	200°	250°	300°	350°	400°	³ Hg at Temp		
1.0	1.750	.500	.250	14	188	81	95	2.8	138	126	107	90	115	64	53	45	29"@400°F	2	
1.25	1.810	.500	.250	14	39	118	310	2.2	128	120	96	85	72	56	42	36	29"@400°F	5	
1.50	2.000	.500	.250	14	83	65	106	5.0	138	126	107	90	72	64	53	45	29"@400°F	4	
2.00	2.750	.750	.375	14	68	75	107	9.1	138	126	107	90	72	64	53	45	29"@400°F	8	
2.50	3.188	.750	.375	14	90	96	158	11.4	138	126	107	90	72	64	53	45	29"@400°F	11	
3.00	3.625	1.000	.500	14	122	123	192	16.9	138	126	107	90	72	64	53	45	29"@400°F	13	
4.00	3.625	1.000	.500	14	217	153	261	25.4	138	126	107	90	72	64	53	45	29"@400°F	19	
5.00	4.000	1.000	.500	14	316	207	320	34.4	138	126	107	90	72	64	53	45	29"@300°F	25	
6.00	4.000	1.125	.563	14	286	185	263	50.2	138	126	107	90	72	64	53	45	29"@300°F	30	
8.00	6.000	1.125	.563	14	176	215	418	83.4	138	110	94	80	68	57	47	38	29"@125°F	48	
10.00	7.000	1.188	.500	14	415	525	848	128.5	82	70	64	52	46	39	34	30	19.0"@125°F	60	
12.00	7.875	1.188	.625	14	735	536	848	144.7	82	70	64	52	46	40	34	30	10.0"@125°F	77	

**** Safety Shields are Recommended**

Style 113E Sizes • Spring Rates • Temperatures • Vacuum • Weights

Movement Capabilities
Based on Three Convolution Design¹



Nominal Size I.D.	Neutral Length Inches.	± Axial (Δx) Movement (1)IN	Lateral (Δy) Movement (1)IN	Angular Deflection DEG	Spring Rate Capability ²			Thrust Factor	Pressure At Temperature (PSIG) @ °F										Weight/Lbs.
					Compression Spring Rate LB ₂ /IN	Extension Spring Rate LB ₂ /IN	Lateral Spring Rate ² LB ₂ /IN		70°	100°	150°	200°	250°	300°	350°	400°	³ Hg at Temp		
1.0	2.313	0.500	.375	24	128	128	257	2.8	138	126	107	90	76	64	53	45	29"@400°F	3	
1.50	2.406	0.531	.375	20	79	69	108	5.0	138	126	107	90	76	64	53	45	29"@400°F	5	
2.00	2.500	0.531	.406	17	69	79	158	9.1	138	126	107	90	76	64	53	45	29"@400°F	8	
3.00	2.906	0.625	.469	15	138	158	188	16.9	138	126	107	90	76	64	53	45	29"@400°F	14	
4.00	3.063	0.656	.500	13	217	158	188	25.4	138	126	107	90	76	64	53	45	29"@400°F	19	
6.00	3.375	0.719	.531	10	346	188	534	50.2	138	126	107	90	76	64	53	45	29"@300°F	30	
8.00	3.656	0.781	.594	9	445	168	742	81.4	120	110	94	80	67	57	47	38	29"@125°F	39	

Style 115A Sizes • Spring Rates • Temperatures • Vacuum • Weights

Movement Capabilities
Based on Five Convolution Design¹



Nominal Size I.D.	Neutral Length Inches.	± Axial (Δx) Movement (1)IN	Lateral (Δy) Movement (1)IN	Angular Deflection DEG	Spring Rate Capability ²			Thrust Factor	Pressure At Temperature (PSIG) @ °F								Weight/Lbs.	
					Compression Spring Rate LB ₂ /IN	Extension Spring Rate LB ₂ /IN	Lateral Spring Rate ² LB ₂ /IN		70°	100°	150°	200°	250°	300°	350°	400°		³ Hg at Temp
1.0	3.000	0.500	.500	20	29	43	21	2.7	72	61	46	40	34	29	27	24	29" @ 425°F	2
1.25	2.670	0.394	.470	20	35	112	169	2.2	62	56	42	36	30	26	22	22	29" @ 425°F	5
1.50	3.500	0.750	.500	20	74	82	45	4.6	72	61	46	40	34	29	27	24	29" @ 425°F	3
2.00	4.000	1.000	.500	20	59	46	49	7.0	72	61	46	40	34	29	27	24	29" @ 425°F	7
2.50	4.600	0.980	.510	20	114	315	282	9.6	62	56	42	36	30	26	22	22	29" @ 425°F	10
3.00	5.000	1.000	.500	20	54	59	168	15.9	72	61	46	40	34	29	27	24	29" @ 425°F	10
4.00	5.250	1.250	.625	20	71	59	79	23.7	72	61	46	40	34	29	27	24	29" @ 400°F	18
5.00	6.000	1.250	.625	20	138	384	396	33.1	62	56	42	36	30	26	22	22	29" @ 400°F	24
6.00	6.000	1.250	.625	20	188	128	193	50.2	72	61	46	40	34	29	27	24	29" @ 400°F	29
8.00	8.000	1.250	.625	20	300	384	452	83.4	48	42	34	30	26	22	22	22	29" @ 250°F	47
10.00	8.750	1.250	.625	20	453	384	452	108.3	48	42	34	30	26	22	22	22	29" @ 250°F	64
12.00	9.000	1.375	.688	20	523	440	452	176.6	48	42	34	30	26	22	22	22	29.9" @ 75°F	115

**** Safety Shields are Recommended**

Style 115E Sizes • Spring Rates • Temperatures • Vacuum • Weights

Movement Capabilities
Based on Five Convolution Design¹



Nominal Size I.D.	Neutral Length Inches.	± Axial (Δx) Movement (1)IN	Lateral (Δy) Movement (1)IN	Angular Deflection DEG	Spring Rate Capability ²			Thrust Factor	Pressure At Temperature (PSIG) @ °F								Weight/Lbs.	
					Compression Spring Rate LB ₂ /IN	Extension Spring Rate LB ₂ /IN	Lateral Spring Rate ² LB ₂ /IN		70°	100°	150°	200°	250°	300°	350°	400°		³ Hg at Temp
1.0	3.500	0.844	.625	39	49	108	49	2.8	72	61	46	40	34	29	27	24	Consult Factory for Vacuum Rating	3
1.50	3.625	0.875	.656	32	74	79	49	5.0	72	61	46	40	34	29	27	24		7
2.00	3.750	0.875	.656	29	59	49	49	9.1	72	61	46	40	34	29	27	24		10
3.00	4.375	1.031	.781	25	54	59	168	16.9	72	61	46	40	34	29	27	24		16
4.00	4.563	1.094	.813	21	69	59	79	25.4	72	61	46	40	34	29	27	24		23
6.00	5.031	1.188	.906	17	188	128	193	50.2	72	61	46	40	34	29	27	24		34

UNALON® Style 9500

Design Movements

Movements as described are for axial compression and extension. For lateral movements, consult factory.

UNALON® 9500 Movements-Bellows Corrugation Count/Number of Convolutions																		
Size I.D. (in.)	4		5		6		7		8		9		10		11		12	
	EXT	COM	EXT	COM	EXT	COM	EXT	COM	EXT	COM	EXT	COM	EXT	COM	EXT	COM	EXT	COM
1-1/2"	0.10	0.40	0.13	0.54	0.17	0.67	0.20	0.81	0.24	0.94	0.27	1.08	0.30	1.21	0.34	1.34	0.37	1.48
2"	0.10	0.39	0.13	0.52	0.16	0.66	0.20	0.79	0.23	0.92	0.26	1.05	0.30	1.18	0.33	1.31	0.36	1.44
3"	0.10	0.39	0.13	0.53	0.16	0.66	0.20	0.79	0.23	0.92	0.26	1.05	0.30	1.18	0.33	1.32	0.36	1.45
4"	0.11	0.42	0.14	0.56	0.18	0.70	0.21	0.84	0.25	0.98	0.28	1.12	0.32	1.26	0.35	1.40	0.39	1.54
6"	0.14	0.55	0.18	0.73	0.23	0.91	0.27	1.09	0.32	1.28	0.36	1.46	0.41	1.64	0.46	1.82	0.50	2.01
8"	0.14	0.55	0.18	0.73	0.23	0.91	0.27	1.10	0.32	1.28	0.37	1.46	0.41	1.65	0.46	1.83	0.50	2.01
10"	0.14	0.55	0.18	0.73	0.23	0.92	0.27	1.10	0.32	1.28	0.37	1.47	0.41	1.65	0.46	1.83	0.50	2.02
12"	0.17	0.67	0.22	0.90	0.28	1.12	0.34	1.34	0.39	1.57	0.45	1.79	0.50	2.02	0.56	2.24	0.62	2.46
14"	0.24	0.94	0.31	1.26	0.39	1.57	0.47	1.89	0.55	2.20	0.63	2.52	0.71	2.83	0.79	3.15	0.87	3.46
16"	0.21	0.85	0.28	1.14	0.36	1.42	0.43	1.71	0.50	1.99	0.57	2.28	0.64	2.56	0.71	2.85	0.78	3.13
18"	0.21	0.85	0.28	1.14	0.36	1.42	0.43	1.71	0.50	1.99	0.57	2.28	0.64	2.56	0.71	2.85	0.78	3.13
20"	0.23	0.91	0.30	1.22	0.38	1.52	0.46	1.83	0.53	2.13	0.61	2.44	0.69	2.74	0.76	3.05	0.84	3.35
24"	0.27	1.06	0.35	1.42	0.44	1.77	0.53	2.13	0.62	2.48	0.71	2.84	0.80	3.19	0.89	3.55	0.98	3.90

Note: Axial extension may be increased by reducing compression, consult factory

9500 Face-to-Face Dimensions										
Size N.D. In.	4 Conv.	5 Conv.	6 Conv.	7 Conv.	8 Conv.	9 Conv.	10 Conv.	11 Conv.	12 Conv.	
1-1/2"	4	4.5	5	5.5	6	6.5	7	7.5	8	
2"	4	4.5	5	5.5	6	6.5	7	7.5	8	
3"	4.75	5.3125	5.875	6.4375	7	7.5625	8.125	8.6875	9.25	
4"	5.125	5.75	6.375	7	7.625	8.25	8.875	9.5	10.125	
6"	5.75	6.5	7.25	8	8.75	9.5	10.25	11	11.75	
8"	6.5	7.3125	8.125	8.9375	9.75	10.563	11.375	12.1875	13	
10"	7	7.875	8.75	9.625	10.5	11.375	12.25	13.125	14	
12"	7.75	8.75	9.75	10.75	11.75	12.75	13.75	14.75	15.75	
14"	8.75	9.9375	11.125	12.313	13.5	14.688	15.875	17.063	18.25	
16"	9.25	10.5	11.75	13	14.25	15.5	16.75	18	19.25	
18"	9.75	11	12.25	13.5	14.75	16	17.25	18.5	19.75	
20"	10.5	11.875	13.25	14.625	16	17.375	18.75	20.125	21.5	
24"	11.25	12.688	14.125	15.563	17	18.438	19.875	21.313	22.75	

Note: Standard face-to-face dimensions as shown. Other dimensions available on request, consult factory

*Deflection Force/Spring Rate

Consult factory

WARNINGS: Safety shields must be used at all times in hazardous services to protect against serious personal injury in the event of expansion joint failure. Liner sleeves must be used in abrasive service or where sharp-edged solids are or may be present.

Construction Details—Styles 150, 200, 200XL and 1000

Tube

The tube is a single-molded PTFE leakproof lining extending flange to flange. The outside of the PTFE tube is etched to adhere to the elastomeric overlay.

Carcass

This is a high strength woven polyester or Kevlar® reinforcing fabric between the PTFE tube and the cover.

Steel Reinforcements

These are the chemically treated solid round endless rings or high tensile strength helical wire embedded in the carcass. The steel reinforcement provides additional strength for pressure and vacuum service.

Cover

This is the exterior elastomeric overlay designed to protect the carcass from external elements.

Options

Flow liners are available in PTFE, metallic, or elastomeric type.

Special Constructions

Hinged, gimbal and dual. (consult factory)

Temperature Limits for Continuous Service		
Series	Temperature F	Elastomeric Cover
150	250	Neoprene or Nitrile
200	250	Neoprene or Nitrile
200XL	250	Neoprene or Nitrile
150 HT	300	Butyl or EPDM
200 HT	300	Butyl or EPDM
200XL/HT	300	Butyl or EPDM
150 V	400	Viton®
200 V	400	Viton®
200 XL/V	400	Viton®

DURA-PERM PTFE Lined Spool Type Expansion Joint

H.S. White does not use marginal constructions which reduce safety factors and cause pressure reductions with slight operating temperature increases.

Dimensions for DURA-PERM PTFE/FEP-Lined Style 1000 Expansion Joints

Joint Size N.D.	Face-to-Face	Flange O.D.	Bolt Circle Dia.	No. of Bolts	Bolt Hole Dia.	Retaining Ring I.D.	A-Flange Thickness B-Body Thickness C-Internal Arch Height D-Arch Width E-Arch Thickness					Style 1000 Max. PSI	Movements			Weights		
							A	B	C	D	E		Axial Compression	Axial Extension	Lateral Deflection	Joint Weight/lbs.	Retaining Rings/lbs.	Control Units Lbs.
1/2 3/4 1	6 6 6	3-1/2 3-7/8 4-1/4	2-3/8 2-3/4 3-1/8	4 4 4	9/16 9/16 5/8	1-1/4 1-5/8 1-7/8	1/2 1/2 9/16	7/8 7/8 7/8	1 1 1	1-3/4 1-3/4 1-3/4	3/8 3/8 3/8	225 225 225	1-3/4 1-3/4 1-3/4	3/4 3/4 3/4	3/4 3/4 3/4	1 1.5 2	1.5 2 2.25	6 6 6
1-1/4 1-1/2 2	6 6 6	4-5/8 5 6	3-1/2 3-7/8 4-3/4	4 4 4	5/8 5/8 3/4	2-1/8 2-3/8 3-1/8	9/16 9/16 9/16	7/8 7/8 29/32	1-1/8 1-1/8 1-1/4	1-3/4 1-3/4 1-3/4	7/16 7/16 1/2	225 225 225	1-3/4 1-3/4 1-3/4	3/4 3/4 3/4	3/4 3/4 3/4	2.5 3 4	2.5 3 4	6 6 7
2-1/2 3 4	6 6 6	7 7-1/2 9	5-1/2 6 7-1/2	4 4 8	3/4 3/4 3/4	4-1/8 4-5/8 5-7/8	9/16 9/16 9/16	29/32 29/32 7/8	1-1/4 1-1/4 1-1/4	1-3/4 1-3/4 1-3/4	1/2 1/2 1/2	225 225 225	1-3/4 1-3/4 1-3/4	3/4 3/4 3/4	3/4 3/4 3/4	4.5 5.5 8	5.5 6 7.5	7 7 8
5 6 8	6 6 6	10 11 13-1/2	8-1/2 9-1/2 11-3/4	8 8 8	7/8 7/8 7/8	6-7/8 7-7/8 9-7/8	9/16 5/8 3/4	7/8 1 1	1-1/4 1-1/4 1-1/2	1-3/4 1-3/4 1-3/4	1/2 1/2 5/8	225 225 225	1-3/4 1-3/4 1-3/4	3/4 3/4 3/4	3/4 1 1	9 11 15	8 9 12	8 9 12
10 12 14	8 8 8	16 19 21	14-1/4 17 18-3/4	12 12 12	1 1 1-1/8	12-1/8 14-1/2 16-1/2	3/4 3/4 7/8	1-5/32 1-5/32 1-5/32	1-1/2 1-1/2 2	1-3/4 1-3/4 1-3/4	11/16 11/16 3/4	225 225 225	1-3/4 1-3/4 1-3/4	3/4 3/4 3/4	1 1 1	23 34 40	16 22 25	16 16 20
16 18 20	8 8 8	23-1/2 25 27-1/2	21-1/4 22-3/4 25	16 16 20	1-1/8 1-1/4 1-1/4	18-1/2 20-1/2 22-5/8	7/8 7/8 1	1-5/32 1-5/32 1-5/32	2 2 2	1-3/4 1-3/4 1-3/4	3/4 3/4 25/32	160 160 130	1-3/4 1-3/4 1-3/4	3/4 3/4 3/4	1 1 1	47 56 67	27 29 35	20 21 21
22 24 26	10 10 10	29-1/2 32 34-1/4	27-1/4 29-1/2 31-3/4	20 20 24	1-3/8 1-3/8 1-3/8	24-5/8 26-5/8 28-7/8	1 1 1	1-5/32 1-5/32 1-3/16	2 2 2-1/4	1-3/4 1-3/4 1-3/4	25/32 25/32 13/16	130 130 110	1-3/4 1-3/4 1-3/4	3/4 1 1	1 1 1	70 79 100	44 46 50	32 32 32
28 30 34	10 10 10	36-1/2 38-3/4 43-3/4	34 36 40-1/2	28 28 32	1-3/8 1-3/8 1-5/8	30-7/8 32-7/8 37	1 1 1	1-3/16 1-3/16 1-3/16	2-1/4 2-1/4 2-1/4	1-3/4 1-3/4 1-3/4	13/16 13/16 13/16	110 95 95	1-3/4 1-3/4 1-3/4	1 1 1	1 1 1	102 117 122	55 58 91	32 32 43
36 40 42	10 10 12	46 50-3/4 53	42-3/4 47-1/4 49-1/2	32 36 36	1-5/8 1-5/8 1-5/8	39 43 45-1/4	1 1 1-3/16	1-3/16 1-3/16 1-1/4	2-1/4 2-1/4 2-1/2	2-1/4 2-1/4 2-1/4	13/16 13/16 29/32	90 90 90	2-1/4 2-1/4 2-1/4	1 1 1	1 1 1	143 173 193	99 108 110	43 43 44
44 48	12 12	55-1/4 59-1/2	51-3/4 56	40 44	1-3/4 1-5/8	47-1/4 51-1/4	1-3/16 1-3/16	1-1/4 1-1/4	2-1/2 2-1/2	2-1/4 2-1/4	29/32 29/32	90 90	2-1/4 2-1/4	1 1	1 1	198 211	136 154	44 87

PTFE/Flexible Rubber Pipe Connectors

“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

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.

PTFE Lined serpent Hose

Combines the advantages of lightweight yet durable rubber hose with PTFE's unsurpassed resistance to virtually all chemicals except molten Alkali metals such as Potassium, Lithium, and radium, as well as Fluorochemicals.

Serpent PTFE lined hose is an excellent choice for transfer service of acids, ester, acetone, aromatic hydrocarbons, organic chemicals and alcohols. UNAFLEX® hose is steam cleanable for short durations and is excellent for food handling services.

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.

Style 3150 (Conforms to ANSI 150# Drilling)									Style 3250 (Conforms to ANSI 300# Drilling)					
Joint Size N.D. (in.)	Face-to-Face		Ring I.D. (in.)	Flange		Bolt Cir. Diam. (in.)	Bolt Holes		Ring I.D. (in.)	Flange		Bolt Cir. Diam. (in.)	Bolt Holes	
	Min (in.)	Max (in.)		Diam. (in.)	Thick. (in.)		No.	Diam. (in.)		Diam. (in.)	Thick. (in.)		No.	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	4	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

PTFE/Flexible Rubber Pipe Connector Construction Features

Tube

Smooth, non-stick PTFE or FEP tube.

Carcass

Rubber, reinforced with spirals of yarn and double spiral helix wire for maximum flexibility.

Cover

Standard Neoprene or EPDM for abrasion, weather and ozone resistance. Also pin pricked to allow for slight permeation through the outer cover if it should occur.

Lengths

Standard in 50 or 60 foot lengths. Shorter lengths available with built-in integral duck and rubber flanges with beaded ends where all wetted surfaces are PTFE.

Temperature Resistance

Up to 350°F with EPDM, up to 400°F with Viton® and Kevlar® reinforcement. Pressure ratings must be reduced as temperatures increase over 212°F.

Sizes

Serpent PTFE lined Rubber Hose is available in a wide range of sizes including large bore capacity up through 48" ID contact factory with your requirements.

Fittings

Capabilities to build a duck and rubber flange or beading end into the hose which allows the PTFE liner to extend up the face of the flange or beaded end. These are tough durable fittings which have unique properties. Stainless steel swaged fittings are also available.

Specifications for UNA-CHEM S-250 Series

Part Number	Size ID (in.)	Size Nominal (in.)	Working Pressure (psi)	Minimum Burst Pressure (psi)	Minimum Rec. Bend Radius (in.)	Approx. Weight per Food (lbs.)	Vacuum Rating In. (Hg)
S-250-50	1/2	1.04	200	2400	3	0.47	30
S-250-75	3/4	1.29	200	2400	6	0.60	30
S-250-100	1	1.54	200	2400	9	0.73	30
S-250-125	1-1/4	1.8	200	2000	11	0.90	30
S-250-150	1-1/2	2.05	200	1800	12	1.04	30
S-250-200	2	2.55	200	1500	16	1.32	30
S-250-300	3	3.64	200	900	30	2.00	30
S-250-400z	4	4.68	200	700	40	3.08	30

PTFE Lined Metal Pump Connectors

UNALON® Series 8000 PTFE combines the corrosion resistance of PTFE with the pressure and safety characteristics of stainless steel, corrugated hose and braid available with standard, metric or special flanges. Units can also be provided with floating flanges to facilitate installation. For environmentally corrosive applications, these units can also be provided with vulcanized elastomeric coverings on the outer braid. Lengths up to 50' available.



Flanged Metal Pump Connector Specifications

Part Number TFE	Flange IPS and Nom. Hose I.D. (in.)	Overall Length (in.)	Max Working Press.@ Room Temp (psi)	Approx. Wt. (lbs.) Per Unit
8202	2-1/2	9	250	16
8003	3	9	250	19
8203	3-1/2	9	200	23
8004	4	9	200	19
8005	6	11	200	32
8006	6	11	200	40
8008	8	12	200	62
8010	10	13	150	101
8012	12	14	125	153
8014	14	14	100	200