

# FREE FLEXING EXPANSION JOINTS

Senior Flexonics Canada low pressure (50 psi), Free Flexing expansion joints absorb pipe movement under pressure. Widely used in such applications as process and steam lines, ventilating lines, pump suction and discharge lines, turbine-to-condenser connections, fuel supply lines and bulkhead seals. Available with either Van Stoned flanges (FSF) or butt-weld ends (FSW) attached.

Dual expansion joints are available for applications where movement is greater than can be absorbed by a single unit. Contact factory for design information.

## FREE FLEXING DATA

	SINGLE
Size Range	3" to 48" NPS
Allowable Pressure Stainless Steel Bellows	Vacuum to 50 psig
Temperature Limits Stainless Steel Bellows	-20F to 800F. **
Axial Traverse	To 7 1/2" . . . (depending on size)
Lateral Motion	Up to 1 3/4" . . . (depending on size)

\* For sizes larger than 18" consult factory for information.  
\*\* With special alloys, temperatures of minus 300°F. to plus 1600°F. can be handled.



How to order:  
Example P/N

DIA	STYLE	ENDS	PRESSURE	CONS	LINER	COVER
6	FSF	VV	50	8	L	C

## MATERIALS OF CONSTRUCTION

- BELLOWS: ASTM A240 T304
  - PIPE: ASTM A53/A106  
50 lb. Series: Sch. 40  
150 lb. Series: Sch. 40  
300 lb. Series: Sch. 40
  - FLANGES: A516-70 Plate (Std)  
ASTM A105 (Opt)  
50 lb. Series: 150 lb. ANSI B16.5 R.F.S.O.  
150 lb. Series: 150 lb. ANSI B16.5 R.F.S.O.  
300 lb. Series: 300 lb. ANSI B16.5 R.F.S.O.
  - COVERS: Carbon Steel
  - TIE RODS: Carbon Steel
  - LINERS: 300 Series Stainless Steel
1. Rated cycle life is 2000 cycles per EJMA 8th edition for any one movement tabulated.
  2. To combine axial, lateral movements, refer to page 7.
  3. Maximum axial extension movement is 10% of tabulated axial value.
  4. To obtain greater movements or cycle life, contact the factory.
  5. Catalogue pressure ratings are based upon a maximum bellows temperature of 800°F. Actual operating temperature should always be specified.
  6. Maximum test pressure: 1 1/2 x maximum working pressure.

## 50 PSIG FREE FLEXING: STYLE FSF OR FSW

Nominal Diameter (in.)	Con. Count	Axial (in.)	Lateral (in.)	Angular (deg)	Axial Sp Rate (lbs/in)	Lateral Sp Rate (lbs/in)	Angular (in-lb/deg) Sp Rate	VV		Wt.	
								OAL (in.)	Wt. (lbs.)	OAL (in.)	Wt. (lbs.)
3" Effective Area 17.5 in. <sup>2</sup>	2	.59	.05	10	612	4096	30	6	14	8 7/8	5
	4	1.18	.19	10	306	512	15	8 1/4	15	11 1/8	5
	6	1.67	.40	10	354	263	17	10 1/2	15	13 3/8	6
	8	1.92	.61	10	630	263	31	12 3/4	16	15 5/8	6
	10	2.41	.95	10	504	134	24	15	17	17 1/8	6
4" Effective Area 23.6 in. <sup>2</sup>	2	.71	.05	10	608	5043	45	6 1/2	29	11 1/2	9
	4	1.41	.20	10	304	630	22	9	31	14	10
	6	1.99	.42	10	324	267	21	11 1/2	33	16 1/2	11
	8	2.31	.66	10	577	267	38	14	35	19	12
	10	2.53	.90	10	461	136	31	16 1/2	37	21 1/2	13

\* Movement shown are non-concurrent

# FREE FLEXING EXPANSION JOINTS

## 50 PSIG FREE FLEXING: STYLE FSF OR FSW (CONTINUED)

Nominal Diameter (in.)	Con. Count	Axial (in.)	Lateral (in.)	Angular (deg)	Axial Sp Rate (lbs/in)	Lateral Sp Rate (lbs/in)	Angular (in-lb/deg) Sp Rate	VV		Wt.	
								OAL (in.)	Wt. (lbs.)	OAL (in.)	Wt. (lbs.)
<b>5"</b> Effective Area 33.2 in. <sup>2</sup>	2	.76	.05	10	769	8882	80	6 3/4	34	13 1/2	15
	4	1.52	.18	10	384	1110	40	9 1/4	36	16	16
	6	2.11	.38	10	414	478	39	11 3/4	38	18 1/2	17
	8	2.41	.58	10	736	478	69	14 1/4	40	21	19
	10	2.52	.76	10	1123	467	106	16 3/4	42	23 1/2	20
<b>6"</b> Effective Area 53.8 in. <sup>2</sup>	2	1.12	.07	10	856	7353	131	7 3/4	43	16 1/2	24
	4	2.23	.30	10	428	919	65	11 1/4	47	20	27
	6	3.35	.67	10	285	272	43	14 3/4	51	23 1/2	30
	8	4.05	1.08	10	408	219	62	18 1/4	54	27	33
	10	5.07	1.69	10	326	112	49	21 3/4	58	30 1/2	36
<b>8"</b> Effective Area 85.0 in. <sup>2</sup>	2	1.16	.08	10	1218	10673	314	9 3/4	69	17 1/2	26
	4	2.32	.32	10	609	1334	157	14 1/4	72	22	30
	6	3.48	.72	10	406	395	104	18 3/4	76	26 1/2	35
	8	4.34	1.20	10	580	317	149	23 1/4	81	31	39
	10	5.42	1.87	10	464	162	119	27 3/4	85	35 1/2	44
<b>10"</b> Effective Area 121 in. <sup>2</sup>	2	1.10	.10	10	687	10583	235	10 3/8	62	17 1/2	48
	4	2.53	.29	10	738	2147	252	14 7/8	99	22	54
	6	3.80	.66	10	492	636	168	19 3/8	104	26 1/2	60
	8	4.67	1.08	10	704	551	241	23 7/8	110	31	66
	10	5.83	1.68	10	563	262	192	28 3/8	116	35 1/2	72
<b>12"</b> Effective Area 175 in. <sup>2</sup>	2	1.56	.08	10	1174	19003	559	10 3/4	136	17 1/2	61
	4	3.11	.31	10	587	7375	279	15 1/4	143	22	70
	6	4.67	.69	10	391	703	186	19 3/4	150	26 1/2	78
	8	5.71	1.12	10	559	566	266	24 1/4	158	31	86
	10	7.13	1.75	10	447	289	213	28 3/4	165	35 1/2	94
<b>14"</b> Effective Area 206 in. <sup>2</sup>	2	1.60	.07	10	1352	27285	803	11	189	17 1/2	65
	4	3.20	.29	10	676	3410	401	15 1/2	196	22	74
	6	4.80	.65	10	451	1010	267	20	204	26 1/2	84
	8	5.84	1.06	10	644	812	383	24 1/2	212	31	93
	10	7.30	1.66	10	515	416	306	29	220	35 1/2	102
<b>16"</b> Effective Area 261 in. <sup>2</sup>	2	1.66	.07	10	1561	39578	1165	11 1/2	206	17 1/2	76
	4	3.32	.27	10	780	4947	582	16	213	22	87
	6	4.98	.61	10	520	1465	388	20 1/2	223	26 1/2	97
	8	5.98	.97	10	744	1179	555	25	234	31	107
	10	7.48	1.52	10	595	603	444	29 1/2	240	35 1/2	118
<b>18"</b> Effective Area 322 in. <sup>2</sup>	2	1.71	.06	9.59	1769	55088	1622	12	271	17 1/2	86
	4	3.42	.25	10	884	6886	811	16 1/2	281	22	98
	6	5.13	.56	10	589	2040	540	21	291	26 1/2	110
	8	6.00	.88	10	843	1641	773	25 1/2	301	31	122
	10	7.50	1.37	10	674	840	618	30	311	35 1/2	134

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