

CONTROLLED FLEXING EXPANSION JOINTS

Senior Flexonics Canada Controlled Flexing Expansion Joints combine a corrugated pressure carrier with closely mated neck rings and reinforcing or control rings. This construction permits their use with higher pressures (150 psig and 300 psig) in applications where large amounts of axial movement are required.

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

CONTROLLED FLEXING DATA

	SINGLE
Size Range	3" to 18" NPS
Allowable Pressure Stainless Steel Bellows	Vacuum to 300 psig
Temperature Limits Stainless Steel Bellows	-20F to 800F. **
Axial Traverse	To 7 1/2" . . . (depending on size)
Lateral Motion	Up to 1 1/2" . . . (depending on size)

* For sizes larger than 18" consult factory for information.

** With special alloys, temperatures of minus 425°F. to plus 1600°F. can be handled.



How to order:
Example P/N

DIA	STYLE	ENDS	PRESSURE	CONS	LINER	COVER
8	CSF	FF	300	6	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.

150 PSIG CONTROLLED FLEXING: STYLE CSF OR CSW

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		FF		WW	
								OAL (in.)	Wt. (lbs.)	OAL (in.)	Wt. (lbs.)	OAL (in.)	Wt. (lbs.)
3" Effective Area 17.5 in. ²	2	.875	.05	10	1383	5307	69	7 1/4	30	8 7/16	35	11 7/16	21
	4	1.75	.18	10	691	663	34	10 1/4	41	11 7/16	46	14 7/16	32
	6	2.625	.41	10	800	341	40	13 1/4	52	14 7/16	57	17 7/16	43
	8	3.50	.72	10	1423	341	71	16 1/4	63	17 7/16	68	20 7/16	54
	10	4.375	1.13	10	1139	174	57	19 1/4	74	20 7/16	79	23 7/16	65
4" Effective Area 23.6 in. ²	2	.875	.04	10	1204	5283	81	8 3/8	48	9 13/16	60	15 1/16	40
	4	1.75	.17	10	602	660	40	11 5/8	67	13 1/16	79	18 5/16	58
	6	2.625	.38	10	697	339	46	14 7/8	86	16 5/16	97	21 9/16	77
	8	3.50	.67	10	1239	339	83	18 1/8	104	19 9/16	116	24 13/16	95
	10	4.375	1.05	10	1890	331	127	21 3/8	123	22 13/16	134	28 1/16	114

* Movement shown are non-concurrent

150 PSIG CONTROLLED FLEXING: STYLE CSF (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		FF		WW	
								OAL (in.)	Wt. (lbs.)	OAL (in.)	Wt. (lbs.)	OAL (in.)	Wt. (lbs.)
5" Effective Area 33.2 in. ²	2	.875	.04	10	1537	9458	145	8 5/8	60	10 1/16	71	17 1/16	50
	4	1.75	.14	10	768	1182	72	11 7/8	80	13 5/16	91	20 5/16	70
	6	2.625	.32	10	890	608	84	15 1/8	101	16 9/16	112	23 9/16	91
	8	3.50	.57	10	1582	608	149	18 3/8	121	19 13/16	132	26 13/16	111
	10	4.375	.89	10	2413	593	228	21 5/8	142	23 1/16	153	30 1/16	132
6" Effective Area 53.8 in. ²	2	1.50	.06	10	1536	8959	235	10 1/2	82	12 1/8	99	20 7/8	76
	4	3.00	.25	10	768	1119	117	14 3/4	116	16 3/8	133	25 1/8	110
	6	4.50	.56	10	512	331	78	19	150	20 5/8	167	29 3/8	144
	8	6.00	1.00	10	732	266	112	23 1/4	184	24 7/8	201	33 5/8	178
	10	7.50	1.57	10	585	136	89	27 1/2	218	29 1/8	235	37 7/8	212
8" Effective Area 85.0 in. ²	2	1.50	.06	10	2061	13651	496	11 3/8	136	12 7/8	159	21 1/4	121
	4	3.00	.24	10	1030	1706	248	16 3/8	192	17 7/8	216	26 1/4	177
	6	4.50	.53	10	687	505	165	21 3/8	249	22 7/8	272	31 1/4	234
	8	6.00	.94	10	982	406	236	26 3/8	306	27 7/8	329	36 1/4	290
	10	7.50	1.47	10	786	208	189	31 3/8	362	32 7/8	386	41 1/4	347
10" Effective Area 121 in. ²	2	1.50	.05	10	2623	24731	899	12	188	13 7/8	222	21 7/8	145
	4	3.00	.20	10	1311	3091	449	17	267	18 7/8	300	26 7/8	223
	6	4.50	.45	10	874	915	299	22	346	23 7/8	379	31 7/8	302
	8	6.00	.79	10	1250	736	428	27	424	28 7/8	458	36 7/8	380
	10	7.50	1.24	10	1000	377	342	32	503	33 7/8	536	41 7/8	459
12" Effective Area 175 in. ²	2	1.50	.04	9.10	3180	40314	1465	11 1/4	251	13 5/8	300	21 1/8	210
	4	3.00	.17	10	1590	5039	732	16 1/4	367	18 5/8	416	26 1/8	326
	6	4.50	.38	10	1060	1493	488	21 1/4	483	23 5/8	532	31 1/8	442
	8	6.00	.68	10	1516	1201	698	26 1/4	599	28 5/8	648	36 1/8	558
	10	7.50	1.07	10	1212	614	558	31 1/4	715	33 5/8	764	41 1/8	674
14" Effective Area 206 in. ²	2	1.50	.04	8.19	3727	60809	2211	12	302	14	366	21 3/8	231
	4	3.00	.15	10	1863	7601	1105	17	432	19	496	26 3/8	361
	6	4.50	.34	10	1242	2252	737	22	562	24	626	31 3/8	491
	8	6.00	.61	10	1776	1811	1053	27	692	29	756	36 3/8	621
	10	7.50	.96	10	1421	927	843	32	822	34	885	41 3/8	751
16" Effective Area 261 in. ²	2	1.50	.03	7.24	4286	87934	3197	11 3/4	376	14 1/4	416	21 1/8	272
	4	3.00	.14	10	2143	10991	1598	16 3/4	528	19 1/4	568	26 1/8	424
	6	4.50	.31	10	1428	3256	1065	21 3/4	680	24 1/4	720	31 1/8	576
	8	6.00	.54	10	2043	2619	1524	26 3/4	832	29 1/4	872	36 1/8	728
	10	7.50	.85	10	1634	1341	1219	31 3/4	984	34 1/4	1024	41 1/8	880
18" Effective Area 322 in. ²	2	1.50	.03	6.81	4847	122102	4439	12 3/8	449	14 3/4	514	21 1/4	338
	4	3.00	.12	10	2423	15262	2219	17 3/8	617	19 3/4	682	26 1/4	506
	6	4.50	.28	10	1615	4522	1479	22 3/8	785	24 3/4	850	31 1/4	674
	8	6.00	.49	10	2310	3637	2116	27 3/8	953	29 3/4	1018	36 1/4	842
	10	7.50	.77	10	1848	1862	1692	32 3/8	1121	34 3/4	1186	41 1/4	1010

* Movement shown are non-concurrent

300 PSIG CONTROLLED FLEXING: STYLE CSF (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		FF		WW	
								OAL (in.)	Wt. (lbs.)	OAL (in.)	Wt. (lbs.)	OAL (in.)	Wt. (lbs.)
3" Effective Area 17.5 in. ²	2	.875	.05	10	1383	5307	69	8	40	9 7/16	45	11 7/16	21
	4	1.75	.18	10	691	663	34	11	51	12 7/16	56	14 7/16	32
	6	2.625	.41	10	800	341	40	14	62	15 7/16	67	17 7/16	43
	8	3.50	.72	10	1423	341	71	17	73	18 7/16	78	20 7/16	54
	10	4.375	1.13	10	1139	174	57	20	84	21 7/16	89	23 7/16	65
4" Effective Area 23.6 in. ²	2	.875	.04	10	1204	5283	81	9 3/8	71	10 15/16	78	15 1/16	40
	4	1.75	.17	10	602	660	40	12 5/8	90	14 3/16	97	18 5/16	58
	6	2.625	.38	10	697	339	46	15 7/8	109	17 7/16	115	21 9/16	77
	8	3.50	.67	10	1239	339	83	19 1/8	127	20 11/16	134	24 13/16	95
	10	4.375	1.05	10	1890	331	127	22 3/8	146	23 15/16	153	28 1/16	114
5" Effective Area 33.2 in. ²	2	.875	.04	10	1537	9458	145	9 5/8	88	11 3/16	98	17 1/16	50
	4	1.75	.14	10	768	1182	72	12 7/8	108	14 7/16	118	20 5/16	70
	6	2.625	.32	10	890	608	84	16 1/8	129	17 11/16	138	23 9/16	91
	8	3.50	.57	10	1582	608	149	19 3/8	149	20 15/16	159	26 13/16	111
	10	4.375	.89	10	2413	593	228	22 5/8	169	24 3/16	179	30 1/16	132
6" Effective Area 53.8 in. ²	2	1.50	.06	10	4854	53492	743	12	132	13 1/8	142	20 7/8	76
	4	3.00	.25	10	2427	4629	371	16 1/4	166	17 3/8	176	25 1/8	110
	6	4.50	.56	10	1631	1253	249	20 1/2	200	21 5/8	210	29 3/8	144
	8	6.00	1.00	10	2193	906	336	24 3/4	234	25 7/8	244	33 5/8	178
	10	7.50	1.57	10	2830	728	433	29	267	30 1/8	278	37 7/8	212
8" Effective Area 85.0 in. ²	2	1.50	.06	10	6889	57029	1658	12 3/8	195	14 1/4	218	21 1/4	121
	4	3.00	.24	10	3764	6924	906	17 3/8	251	19 1/4	274	26 1/4	177
	6	4.50	.53	10	2713	2139	653	22 3/8	308	24 1/4	331	31 1/4	234
	8	6.00	.94	10	3466	1510	834	27 3/8	364	29 1/4	388	36 1/4	290
	10	7.50	1.47	10	4300	1186	1035	32 3/8	421	34 1/4	444	41 1/4	347
10" Effective Area 121 in. ²	2	1.50	.05	10	7497	88345	2569	13 1/2	272	15 1/4	298	21 7/8	145
	4	3.00	.20	10	4172	10924	1429	18 1/2	350	20 1/4	377	26 7/8	223
	6	4.50	.45	10	2982	3347	1022	23 1/2	429	25 1/4	455	31 7/8	302
	8	6.00	.79	10	3829	2375	1312	28 1/2	507	30 1/4	534	36 7/8	380
	10	7.50	1.24	10	5681	2231	1947	33 1/2	586	35 1/4	612	41 7/8	459
12" Effective Area 175 in. ²	2	1.50	.04	9.10	4983	81695	2376	13 1/4	391	15	403	21 1/8	210
	4	3.00	.17	10	2900	10565	1383	18 1/4	507	20	519	26 1/8	326
	6	4.50	.38	10	2028	3166	967	23 1/4	623	25	635	31 1/8	442
	8	6.00	.68	10	3152	2780	1503	28 1/4	739	30	751	36 1/8	558
	10	7.50	1.07	10	3953	2160	1885	33 1/4	855	35	867	41 1/8	674

* Movement shown are non-concurrent