

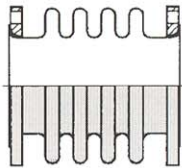


MODEL N EXPANSION JOINTS

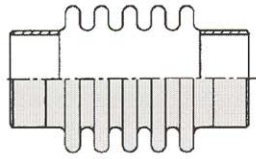


HIGH CORRUGATION

The **Model N** uses a hydroformed bellows for minimal residual stresses and minimal thinning at the convolution root and crown. It is an excellent choice for any application within the pressure ratings of the 150 and 50 psi classes.



FLANGED END



WELD END

Maximum Working Pressure50 or 150 psi*
 Working Temperature850 F
 Test Pressure75/225 psi
 End Fittings:
 FlangesANSI B16.5
 Weld EndsA 53 / A 105
 BellowsHydroformed T304 S/S

* Full vacuum rating.

SIZE	NO. CORR	50PSI CLASS, SINGLE*						150PSI CLASS, SINGLE*					
		MOVEMENT*		FLANGED		WELD ENDS		MOVEMENT*		FLANGED		WELD ENDS	
		COMP (in)	EXT (lbs)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)	COMP (in)	EXT (lbs)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)
2-1/2 & 3"	1	3/8	1/8	6-1/4	19	8-1/8	9	1/4	1/8	6-1/4	19	8-1/8	9
	2	3/4	3/8	7-1/2	20	9-3/8	10	1/2	1/4	7-1/2	20	9-3/8	10
	3	1-1/8	1/2	8-3/4	21	10-5/8	11	3/4	3/8	8-3/4	21	10-5/8	11
	4	1-1/2	3/4	10	22	11-7/8	12	1	1/2	10	22	11-7/8	12
	5	1-7/8	7/8	11-1/4	23	13-1/8	13	1-1/4	5/8	11-1/4	23	13-1/8	13
	6	2-1/4	1-1/8	12-1/2	24	14-3/8	14	1-1/2	3/4	12-1/2	24	14-3/8	14
	7	2-5/8	1-1/4	13-3/4	25	15-5/8	15	-	-	-	-	-	-
	8	3	1-1/2	15	26	16-7/8	16	-	-	-	-	-	-
4"	1	3/8	1/8	6-1/4	28	8-3/8	11	1/4	1/8	6-1/4	28	8-3/8	11
	2	3/4	3/8	7-1/2	29	9-5/8	12	1/2	1/4	7-1/2	29	9-5/8	12
	3	1-1/8	1/2	8-3/4	30	10-7/8	13	3/4	3/8	8-3/4	30	10-7/8	13
	4	1-1/2	3/4	10	31	12-1/8	14	1	1/2	10	31	12-1/8	14
	5	1-7/8	7/8	11-1/4	32	13-3/8	15	1-1/4	5/8	11-1/4	32	13-3/8	15
	6	2-1/4	1-1/8	12-1/2	33	14-5/8	16	1-1/2	3/4	12-1/2	33	14-5/8	16
	7	2-5/8	1-1/4	13-3/4	34	15-7/8	17	-	-	-	-	-	-
	8	3	1-1/2	15	35	17-1/8	18	-	-	-	-	-	-
5"	1	3/8	1/8	6-3/4	33	8-3/8	11	1/4	1/8	6-1/4	33	8-3/8	14
	2	3/4	3/8	8	35	9-5/8	16	1/2	1/4	8	35	9-5/8	16
	3	1-1/8	1/2	9-1/4	37	10-7/8	18	3/4	3/8	9-1/4	37	10-7/8	18
	4	1-1/2	3/4	10-1/2	39	12-1/8	20	1	1/2	10-1/2	39	12-1/8	20
	5	1-7/8	7/8	11-3/4	41	13-3/8	22	1-1/4	5/8	11-3/4	41	13-3/8	22
	6	2-1/4	1-1/8	13	43	14-5/8	24	1-1/2	3/4	13	43	14-5/8	24
	7	2-5/8	1-1/4	14-1/4	45	15-7/8	26	-	-	-	-	-	-
	8	3	1-1/2	15-1/2	47	17-1/8	28	-	-	-	-	-	-
	9	-	-	16-3/4	49	18-3/8	30	-	-	-	-	-	-
	10	-	-	18	51	19-5/8	32	-	-	-	-	-	-

*Consult factory for Double information and for lateral movements.

SIZE	NO. CORR	50PSI CLASS, SINGLE*						150PSI CLASS, SINGLE*					
		MOVEMENT*		FLANGED		WELD ENDS		MOVEMENT*		FLANGED		WELD ENDS	
		COMP (in)	EXT (in)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)	COMP (in)	EXT (in)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)
6"	1	1/2	1/4	6-1/4	43	7-5/8	20	3/8	1/8	6-1/4	43	7-5/8	20
	2	1	1/2	8	46	9-3/8	23	3/4	3/8	8	46	9-3/8	23
	3	1-1/2	3/4	9-3/4	49	11-1/8	26	1-1/8	1/2	9-3/4	49	11-1/8	26
	4	2	1	11-1/2	52	12-7/8	29	1-1/2	3/4	11-1/2	52	12-7/8	29
	5	2-1/2	1-1/4	13-1/4	55	14-5/8	32	1-7/8	7/8	13-1/4	55	14-5/8	32
	6	3	1-1/2	15	58	16-3/8	35	2-1/4	1-1/8	15	58	16-3/8	35
	7	3-1/2	1-3/4	16-3/4	61	18-1/8	38	-	-	-	-	-	-
	8	4	2	18-1/2	64	19-7/8	41	-	-	-	-	-	-
	9	4-1/2	2-1/4	20-1/4	67	21-5/8	44	-	-	-	-	-	-
	10	5	2-1/2	22	70	23-3/8	47	-	-	-	-	-	-
8"	1	1/2	1/4	6-1/2	58	9-5/8	28	3/8	1/8	6-1/2	64	9-5/8	28
	2	1	1/2	8-1/4	62	11-3/8	32	3/4	3/8	8-1/4	66	11-3/8	32
	3	1-1/2	3/4	10	66	13-1/8	36	1-1/8	1/2	10	68	13-1/8	36
	4	2	1	11-3/4	70	14-7/8	40	1-1/2	3/4	11-3/4	70	14-7/8	40
	5	2-1/2	1-1/4	13-1/2	74	16-5/8	44	1-7/8	7/8	13-1/2	74	16-5/8	44
	6	3	1-1/2	15-1/4	78	18-3/8	48	2-1/4	1-1/8	15-1/4	78	18-3/8	48
	7	3-1/2	1-3/4	17	82	20-1/8	52	2-5/8	1-1/4	17	82	20-1/8	52
	8	4	2	18-3/4	86	21-7/8	56	3	1-1/2	18-3/4	86	21-7/8	60
	9	4-1/2	2-1/4	20-1/2	90	23-5/8	60	-	-	-	-	-	-
	10	5	2-1/2	22-1/4	94	25-3/8	64	-	-	-	-	-	-
10"	1	1/2	1/4	6-7/8	76	9-3/4	31	3/8	1/8	6-7/8	89	9-3/4	31
	2	1	1/2	8-3/4	80	11-5/8	35	3/4	3/8	8-3/4	91	11-5/8	35
	3	1-1/2	3/4	10-5/8	84	13-1/2	39	1-1/8	1/2	10-5/8	93	13-1/2	39
	4	2	1	12-1/2	88	15-3/8	43	1-1/2	3/4	12-1/2	95	15-3/8	43
	5	2-1/2	1-1/4	14-3/8	92	17-1/4	47	1-7/8	7/8	14-3/8	97	17-1/4	47
	6	3	1-1/2	16-1/4	96	19-1/8	51	2-1/4	1-1/8	16-1/4	99	19-1/8	51
	7	3-1/2	1-3/4	18-1/8	100	21	55	2-5/8	1-1/4	18-1/8	102	21	55
	8	4	2	20	104	22-7/8	59	3	1-1/2	20	105	22-7/8	59
	9	4-1/2	2-1/4	21-7/8	108	24-3/4	63	-	-	-	-	-	-
	10	5	2-1/2	23-3/4	112	26-5/8	67	-	-	-	-	-	-
12"	1	1/2	1/4	7-7/8	118	10-3/8	33	3/8	1/8	7-7/8	135	10-3/8	33
	2	1	1/2	9-3/4	123	12-1/4	38	3/4	3/8	9-3/4	137	12-1/4	38
	3	1-1/2	3/4	11-5/8	128	14-1/8	43	1-1/8	1/2	11-5/8	141	14-1/8	43
	4	2	1	13-1/2	133	16	48	1-1/2	3/4	13-1/2	142	16	48
	5	2-1/2	1-1/4	15-3/8	138	17-7/8	53	1-7/8	7/8	15-3/8	144	17-7/8	53
	6	3	1-1/2	17-1/4	143	19-3/4	58	2-1/4	1-1/8	17-1/4	145	19-3/4	58
	7	3-1/2	1-3/4	19-1/8	148	21-5/8	63	2-5/8	1-1/4	19-1/8	147	21-5/8	63
	8	4	2	21	153	23-1/2	68	3	1-1/2	21	150	23-1/2	68
	9	4-1/2	2-1/4	22-7/8	158	25-3/8	73	-	-	-	-	-	-
	10	5	2-1/2	24-3/4	163	27-1/4	78	-	-	-	-	-	-
14"	1	5/8	1/4	8-3/8	160	10-3/8	70	3/8	1/8	8-3/8	177	10-3/8	70
	2	1-1/4	5/8	10-1/4	166	12-1/4	76	3/4	3/8	10-1/4	180	12-1/4	76
	3	1-7/8	7/8	12-1/8	172	14-1/8	82	1-1/8	1/2	12-1/8	184	14-1/8	82
	4	2-1/2	1-1/4	14	178	16	88	1-1/2	3/4	14	188	16	88
	5	3-1/8	1-1/2	15-7/8	184	17-7/8	94	1-7/8	7/8	15-7/8	192	17-7/8	94
	6	3-3/4	1-7/8	17-3/4	190	19-3/4	100	2-1/4	1-1/8	17-3/4	196	19-3/4	100
	7	4-3/8	2-1/8	19-5/8	196	21-5/8	106	2-5/8	1-1/4	19-5/8	200	21-5/8	106
	8	5	2-1/2	21-1/2	202	23-1/2	112	3	1-1/2	21-1/2	206	23-1/2	112
	9	5-5/8	2-3/4	23-3/8	208	25-3/8	118	-	-	23-3/8	212	25-3/8	118
	10	6-1/4	3-1/8	25-1/4	214	27-1/4	124	-	-	25-1/4	217	27-1/4	124
16"	1	5/8	1/4	8-3/8	177	10-3/8	80	3/8	1/8	8-3/8	197	10-3/8	80
	2	1-1/4	5/8	10-1/4	184	12-1/4	87	3/4	3/8	10-1/4	201	12-1/4	87
	3	1-7/8	7/8	12-1/8	191	14-1/8	94	1-1/8	1/2	12-1/8	205	14-1/8	94
	4	2-1/2	1-1/4	14	198	16	101	1-1/2	3/4	14	209	16	101
	5	3-1/8	1-1/2	15-7/8	205	17-7/8	108	1-7/8	7/8	15-7/8	213	17-7/8	108
	6	3-3/4	1-7/8	17-3/4	212	19-3/4	115	2-1/4	1-1/8	17-3/4	218	19-3/4	115
	7	4-3/8	2-1/8	19-5/8	219	21-5/8	122	2-5/8	1-1/4	19-5/8	223	21-5/8	122
	8	5	2-1/2	21-1/2	226	23-1/2	129	3	1-1/2	21-1/2	230	23-1/2	129
	9	5-5/8	2-3/4	23-3/8	233	25-3/8	136	3-3/8	1-5/8	23-3/8	236	25-3/8	136

* Consult factory for Double information and for lateral movements

SIZE	NO. CORR	50PSI CLASS, SINGLE*						150PSI CLASS, SINGLE*					
		MOVEMENT*		FLANGED		WELD ENDS		MOVEMENT*		FLANGED		WELD ENDS	
		COMP (in)	EXT (in)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)	COMP (in)	EXT (in)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)
18"	1	5/8	1/4	8-7/8	233	10-3/8	88	3/8	1/8	8-7/8	250	10-3/8	88
	2	1-1/4	5/8	10-3/4	241	12-1/4	96	3/4	3/8	10-3/4	253	12-1/4	96
	3	1-7/8	7/8	12-5/8	249	14-1/8	104	1-1/8	1/2	12-5/8	256	14-1/8	104
	4	2-1/2	1-1/4	14-1/2	257	16	112	1-1/2	3/4	14-1/2	260	16	112
	5	3-1/8	1-1/2	16-3/8	265	17-7/8	120	1-7/8	7/8	16-3/8	265	17-7/8	120
	6	3-3/4	1-7/8	18-1/4	273	19-3/4	128	2-1/4	1-1/8	18-1/4	278	19-3/4	128
	7	4-3/8	2-1/8	20-1/8	281	21-5/8	136	2-5/8	1-1/4	20-1/8	283	21-5/8	136
	8	5	2-1/2	22	289	23-1/2	144	3	1-1/2	22	288	23-1/2	144
	9	5-5/8	2-3/4	23-7/8	297	25-3/8	152	3-3/8	1-5/8	23-7/8	297	25-3/8	152
	10	6-1/4	3-1/8	25-3/4	305	27-1/4	160	3-3/4	1-7/8	25-3/4	305	27-1/4	160
20"	1	5/8	1/4	9-1/8	296	10-3/8	100	5/8	1/4	9-1/8	320	10-3/8	100
	2	1-1/4	5/8	11	305	12-1/4	109	1-1/4	5/8	11	325	12-1/4	109
	3	1-7/8	7/8	12-7/8	314	14-1/8	118	1-7/8	7/8	12-7/8	330	14-1/8	118
	4	2-1/2	1-1/4	14-3/4	323	16	127	2-1/2	1-1/4	14-3/4	335	16	127
	5	3-1/8	1-1/2	16-5/8	332	17-7/8	136	3-1/8	1-1/2	16-5/8	340	17-7/8	136
	6	3-3/4	1-7/8	18-1/2	341	19-3/4	145	3-3/4	1-7/8	18-1/2	345	19-3/4	145
	7	4-3/8	2-1/8	20-3/8	350	21-5/8	154	4-3/8	2-1/8	20-3/8	350	21-5/8	154
	8	5	2-1/2	22-1/4	359	23-1/2	163	5	2-1/2	22-1/4	355	23-1/2	163
	9	5-5/8	2-3/4	24-1/8	368	25-3/8	172	5-5/8	2-3/4	24-1/8	360	25-3/8	172
	10	6-1/4	3-1/8	26	377	27-1/4	181	6-1/4	3-1/8	26	365	27-1/4	181
24"	1	5/8	1/4	9-1/2	255	10-1/2	123	5/8	1/4	9-1/2	450	10-1/2	125
	2	1-1/4	5/8	11-1/2	233	12-1/2	130	1-1/4	5/8	11-1/2	455	11-1/2	133
	3	1-7/8	7/8	13-1/2	241	14-1/2	140	1-7/8	7/8	13-1/2	461	13-1/2	135
	4	2-1/2	1-1/4	15-1/2	248	16-1/2	150	2-1/2	1-1/4	15-1/2	466	15-1/2	146
	5	3-1/8	1-1/2	17	255	18	160	3-1/8	1-1/2	17	470	17	153
	6	3-3/4	1-7/8	19	265	20	170	3-3/4	1-7/8	19	475	19	160
	7	4-3/8	2-1/8	21	275	22	180	4-3/8	2-1/8	21	480	21	168
	8	5	2-1/2	22-3/4	280	23-3/4	190	5	2-1/2	22-3/4	485	22-3/4	175
30"	1	5/8	1/4	10	340	11	205	5/8	1/4	10	645	11	208
	2	1-1/4	5/8	12-1/4	350	13-1/2	215	1-1/4	5/8	12-1/4	652	13-1/2	217
	3	1-7/8	7/8	14	360	16	225	1-7/8	7/8	14	660	16	228
	4	2-1/2	1-1/4	17	370	18-3/4	235	2-1/2	1-1/4	17	665	18-3/4	238
	5	3-1/8	1-1/2	19	380	21-1/4	245	3-1/8	1-1/2	19	672	21-1/4	247
	6	3-3/4	1-7/8	21	390	24	255	3-3/4	1-7/8	21	679	24	258
	7	4-3/8	2-1/8	24	400	26-1/2	265	4-3/8	2-1/8	24	685	26-1/2	267
	8	5	2-1/2	27	410	29-1/4	275	5	2-1/2	27	691	29-1/4	288
36"	1	5/8	1/4	10	466	11	245	5/8	1/4	11	980	11	248
	2	1-1/4	5/8	12-1/4	478	13-1/2	255	1-1/4	5/8	13	990	13-1/2	260
	3	1-7/8	7/8	14	490	16	265	1-7/8	7/8	15-1/2	998	16	270
	4	2-1/2	1-1/4	17	502	18-3/4	275	2-1/2	1-1/4	18-1/4	1005	18-3/4	280
	5	3-1/8	1-1/2	19	514	21-1/4	285	3-1/8	1-1/2	20-3/4	1015	21-1/2	289
	6	3-3/4	1-7/8	21	536	24	295	3-3/4	1-7/8	23-1/2	1022	24	297
	7	4-3/8	2-1/8	24	538	26-1/2	305	4-3/8	2-1/8	26	1028	26-1/2	310

ADDITIONAL BELLOWS DATA

SIZE	BELLOWS EFFECTIVE AREA (Inches Squared)		BELLOWS SPRING CONSTANT (Lbs./Inch/Corrugation)	
	50# CLASS	150# CLASS	50# CLASS	150# CLASS
2-1/2"	18	15	3050	5380
3"	18	15	3030	5380
4"	26	22	3160	6700
5"	39	38	4000	5600
6"	60	50	4960	11500
8"	91	78	5480	11680
10"	133	115	6000	14660
12"	177	156	6520	15000
14"	218	186	4540	14300
16"	274	238	5070	14100
18"	336	328	5350	14700
20"	465	361	5850	15100
24"	561	520	12600	17400
30"	845	793	16150	27980
36"	1185	1124	17910	29660

* Consult factory for Double information and for lateral movements