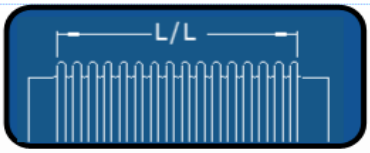
BELLOWS CAPSULE 9" L/L 1-PLY



T-321 S/S SINGLE-PLY

1200º MAX EXHAUST TEMPERATURE AT 5 PSIG

BELLOWS I.D.	BELLOWS L/L	AXIAL COMP	LATERAL OFFSET	SP CAPSULE PART NUMBER
3.00"	9.00"	1.50"	1.25"	11-3090
3.50"	9.00"	2.00"	1.25"	12-3590
4.00"	9.00"	2.50"	1.25"	11-4090
4.50"	9.00"	2.50"	1.25"	11-4590
5.00"	9.00"	2.50"	1.25"	11-5090
5.56"	9.00"	2.50"	1.00"	11-5590
6.00"	9.00"	2.50"	1.00"	11-6090
6.625"	9.00"	2.50"	1.00"	11-6590
8.00"	9.00"	2.50"	.88"	11-8090
8.625"	9.00"	2.50"	.75"	11-8590
10.00"	9.00"	3.00"	.75"	11-10090
10.75"	9.00"	3.00"	.75"	11-10590
12.00"	9.00"	3.00"	.63"	11-12090
12.75"	9.00"	3.00"	.63"	11-12590
14.00"	9.00"	3.25"	.63"	11-14090
16.00"	9.00"	3.25"	.63"	11-16090
18.00"	9.00"	3.25"	.50"	11-18090
20.00"	9.00"	3.25"	.50"	11-20090
22.00"	9.00"	3.25"	.38"	11-22090
24.00"	9.00"	3.25"	.38"	11-24090
26.00"	9.00"	3.25"	.38"	11-26090
28.00"	9.00"	3.25"	.25"	11-28090
30.00"	9.00"	3.25"	.25"	11-30090
32.00"	9.00"	3.25"	.25"	11-32090
34.00"	9.00"	3.25"	.25"	11-34090
36.00"	9.00"	3.25"	.25"	11-36090
38.00"	9.00"	3.25"	.25"	11-38090
40.00"	9.00"	3.25"	.25"	11-40090
42.00"	9.00"	3.25"	.25"	11-42090
44.00"	9.00"	3.25"	.19"	11-44090
46.00"	9.00"	3.25"	.19"	11-46090
48.00"	9.00"	3.25"	.19"	11-48090

HASTELLOY X SINGLE-PLY

1500º MAX EXHAUST TEMPERATURE AT 5 PSIG

BELLOWS I.D.	BELLOWS L/L	AXIAL COMP	LATERAL OFFSET	SP CAPSULE PART NUMBER
3.00"	9.00"	-	-	-
3.50"	9.00"	-	-	-
4.00"	9.00"	2.75"	1.25"	11-4090-X
4.50"	9.00"	2.75"	1.25"	11-4590-X
5.00"	9.00"	2.75"	1.25"	11-5090-X
5.56"	9.00"	2.75"	1.25"	11-5590-X
6.00"	9.00"	2.75"	1.25"	11-6090-X
6.625"	9.00"	2.75"	1.00"	11-6590-X
8.00"	9.00"	2.75"	.88"	11-8090-X
8.625"	9.00"	2.75"	.88"	11-8590-X
10.00"	9.00"	2.75"	.75"	11-10090-X
10.75"	9.00"	2.75"	.75"	11-10590-X
12.00"	9.00"	2.75"	.63"	11-12090-X
12.75"	9.00"	2.75"	.63"	11-12590-X
14.00"	9.00"	2.75"	.50"	11-14090-X
16.00"	9.00"	2.75"	.50"	11-16090-X
18.00"	9.00"	2.75"	.38"	11-18090-X
20.00"	9.00"	2.75"	.38"	11-20090-X
22.00"	9.00"	2.75"	.38"	11-22090-X
24.00"	9.00"	3.00"	.25"	11-24090-X
26.00"	9.00"	3.00"	.25"	11-26090-X
28.00"	9.00"	3.00"	.25"	11-28090-X
30.00"	9.00"	3.00"	.25"	11-30090-X
32.00"	9.00"	3.00"	.25"	11-32090-X
34.00"	9.00"	3.00"	.25"	11-34090-X
36.00"	9.00"	3.00"	.25"	11-36090-X
38.00"	9.00"	3.00"	.19"	11-38090-X
40.00"	9.00"	3.00"	.19"	11-40090-X
42.00"	9.00"	3.00"	.19"	11-42090-X
44.00"	9.00"	3.00"	.19"	11-44090-X
46.00"	9.00"	3.00"	.19"	11-46090-X
48.00"	9.00"	3.00"	.19"	11-48090-X

INCONEL 625 SINGLE-PLY

1300º MAX EXHAUST TEMPERATURE AT 5 PSIG

BELLOWS I.D.	BELLOWS L/L	AXIAL COMP	LATERAL OFFSET	SP CAPSULE PART NUMBER
3.00"	9.00"	-	-	-
3.50"	9.00"	-	-	-
4.00"	9.00"	2.75"	1.25"	11-4090-625
4.50"	9.00"	2.75"	1.25"	11-4590-625
5.00"	9.00"	2.50"	1.25"	11-5090-625
5.56"	9.00"	2.50"	1.00"	11-5590-625
6.00"	9.00"	2.50"	1.00"	11-6090-625
6.625"	9.00"	2.50"	1.00"	11-6590-625
8.00"	9.00"	2.50"	.75"	11-8090-625
8.625"	9.00"	2.50"	.75"	11-8590-625
10.00"	9.00"	2.50"	.75"	11-10090-625
10.75"	9.00"	2.50"	.75"	11-10590-625
12.00"	9.00"	2.50"	.63"	11-12090-625
12.75"	9.00"	2.50"	.63"	11-12590-625
14.00"	9.00"	2.75"	.63"	11-14090-625
16.00"	9.00"	2.75"	.50"	11-16090-625
18.00"	9.00"	2.75"	.50"	11-18090-625
20.00"	9.00"	2.75"	.38"	11-20090-625
22.00"	9.00"	2.75"	.38"	11-22090-625
24.00"	9.00"	2.75"	.38"	11-24090-625
26.00"	9.00"	2.75"	.25"	11-26090-625
28.00"	9.00"	2.75"	.25"	11-28090-625
30.00"	9.00"	3.25"	.38"	11-30090-625
32.00"	9.00"	3.25"	.38"	11-32090-625
34.00"	9.00"	3.25"	.38"	11-34090-625
36.00"	9.00"	3.25"	.25"	11-36090-625
38.00"	9.00"	3.25"	.25"	11-38090-625
40.00"	9.00"	3.25"	.25"	11-40090-625
42.00"	9.00"	3.25"	.25"	11-42090-625
44.00"	9.00"	3.25"	.25"	11-44090-625
46.00"	9.00"	3.25"	.19"	11-46090-625
48.00"	9.00"	3.25"	.19"	11-48090-625

***36" T321 AND UP RATED 2 PSIG @ 1200º F OR 5 PSIG @ 1000º F**

AXIAL AND LATERAL MOVEMENTS ARE NON-CONCURRENT

NOTE: TEMPERATURE RATINGS ARE FOR THE BELLOWS ELEMENT ONLY AND CONSIDERATION MUST BE GIVEN TO THE FLANGE AND FITTING MATERIALS.

INDEX

9" L/L SINGLE-PLY BELLOWS DATA

T-321 STAINLESS

NOMINAL SIZE	BELLOWS I.D.	LIVE LENGTH	AXIAL COMP.	AXIAL SPRING RATE (LBS/inch)	CYCLES	LATERAL OFFSET	LATERAL SPRING RATE (LBS/inch)	CYCLES	MAX PRESSURE	MAX TEMP	PART NUMBER
3" TUBE	3.00"	9.00"	1.50"	86	54,090	1.25"	19	69,509	5 PSIG	1200ºF	11-3090
3" PIPE	3.50"	9.00"	2.00"	97	11,471	1.25"	28	31,101	5 PSIG	1200ºF	11-3590
4" TUBE	4.00"	9.00"	2.50"	76	14,524	1.25"	29	62,693	5 PSIG	1200ºF	11-4090
4" PIPE	4.50"	9.00"	2.50"	84	12,970	1.25"	40	30,790	5 PSIG	1200ºF	11-4590
5" TUBE	5.00"	9.00"	2.50"	131	9,259	1.25"	78	12,249	5 PSIG	1200ºF	11-5090
5" PIPE	5.56"	9.00"	2.50"	154	7,029	1.00"	110	17,700	5 PSIG	1200ºF	11-5590
6" TUBE	6.00"	9.00"	2.50"	134	12,364	1.00"	111	21,890	5 PSIG	1200ºF	11-6090
6" PIPE	6.63"	9.00"	2.50"	144	12,205	1.00"	143	13,625	5 PSIG	1200ºF	11-6590
8" TUBE	8.00"	9.00"	2.50"	173	11,071	.88"	243	9,989	5 PSIG	1200ºF	11-8090
8" PIPE	8.63"	9.00"	2.50"	196	9,199	.75"	315	12,985	5 PSIG	1200ºF	11-8590
10" TUBE	10.00"	9.00"	3.00"	214	9,174	.75"	477	14,156	5 PSIG	1200ºF	11-10090
10" PIPE	10.75"	9.00"	3.00"	233	8,490	.75"	593	9,483	5 PSIG	1200ºF	11-10590
12" TUBE	12.00"	9.00"	3.00"	260	8,041	.63"	815	13,102	5 PSIG	1200ºF	11-12090
12" PIPE	12.75"	9.00"	3.00"	276	7,843	.63"	968	9,705	5 PSIG	1200ºF	11-12590
14"	14.00"	9.00"	3.25"	206	15,430	.63"	877	17,877	5 PSIG	1200ºF	11-14090
16"	16.00"	9.00"	3.25"	235	14,524	.63"	1,280	9,163	5 PSIG	1200ºF	11-16090
18"	18.00"	9.00"	3.25"	264	13,829	.50"	1,790	15,129	5 PSIG	1200ºF	11-18090
20"	20.00"	9.00"	3.25"	292	13,277	.50"	2,420	8,962	5 PSIG	1200ºF	11-20090
22"	22.00'	9.00"	3.25"	321	12,827	.38"	2,182	23,042	5 PSIG	1200ºF	11-22090
24"	24.00"	9.00"	3.25"	349	12,452	.38"	4,088	14,670	5 PSIG	1200ºF	11-24090
26"	26.00"	9.00"	3.25"	377	12,135	.38"	5,151	9,841	5 PSIG	1200ºF	11-26090
28"	28.00"	9.00"	3.25"	406	11,862	.25"	6,383	54,709	5 PSIG	1200ºF	11-28090
30"	30.00"	9.00"	3.25"	523	15,035	.25"	9,629	46,036	5 PSIG	1200ºF	11-30090
32"	32.00"	9.00"	3.25"	557	14,702	.25"	11,596	32,072	5 PSIG	1200ºF	11-32090
34"	34.00"	9.00"	3.25"	591	14,409	.25"	13,813	23,123	5 PSIG	1200ºF	11-34090
36"	36.00"	9.00"	3.25"	625	14,148	.25"	16,295	17,150	2 PSIG	1200ºF	11-36090
38"	38.00"	9.00"	3.25"	659	13,914	.25"	19,056	13,027	2 PSIG	1200ºF	11-38090
40"	40.00"	9.00"	3.25"	692	13,724	.25"	22,110	10,113	2 PSIG	1200ºF	11-40090
42"	42.00"	9.00"	3.25"	726	13,633	.25"	25,467	8,034	2 PSIG	1200ºF	11-42090
44"	44.00"	9.00"	3.25"	759	13,549	.19"	29,147	26,285	2 PSIG	1200ºF	11-44090
46"	46.00"	9.00"	3.25"	793	13,473	.19"	33,164	20,899	2 PSIG	1200ºF	11-46090
48"	48.00"	9.00"	3.25"	826	13,403	.19"	37,531	16,858	2 PSIG	1200ºF	11-48090

1 Movements listed are non-concurrent.

Triad engineers will privide an EJMA 9th Edition data sheet with concurrent movements specific to your application.

2 Cycle life data is theoretical based on EJMA 9th Edition formulas and is not guaranteed.

The cycle life will increase as the required movement is decreased.

3 Axial and lateral spring rates are based on the maximum allowable temperature shown.

The pressure capability and spring rates increase as the temperature requirement is decreased.

Triad Bellows DESIGN + MANUFACTURING

9" L/L SINGLE-PLY BELLOWS DATA

INCONEL 625

NOMINAL SIZE	BELLOWS I.D.	LIVE LENGTH	AXIAL COMP.	AXIAL SPRING RATE (LBS/INCH)	CYCLES	LATERAL OFFSET	LATERAL SPRING RATE (LBS/INCH)	CYCLES	MAX PRESSURE	MAX TEMP	PART NUMBER
4" TUBE	4.00"	9.00"	2.75"	85	6,905	1.25"	33	44,832	5 PSIG	1300ºF	11-4090-625
4" PIPE	4.50"	9.00"	2.75"	95	6,210	1.25"	45	22,586	5 PSIG	1300ºF	11-4590-625
5" TUBE	5.00"	9.00"	2.50"	147	7,017	1.25"	88	9,220	5 PSIG	1300ºF	11-5090-625
5" PIPE	5.56"	9.00"	2.50"	173	5,358	1.00"	124	13,193	5 PSIG	1300ºF	11-5590-625
6" TUBE	6.00"	9.00"	2.50"	150	9,308	1.00"	125	16,227	5 PSIG	1300ºF	11-6090-625
6" PIPE	6.63"	9.00"	2.50"	162	9,192	1.00"	161	10,233	5 PSIG	1300ºF	11-6590-625
8" TUBE	8.00"	9.00"	2.50"	194	8,357	.75"	272	16,504	5 PSIG	1300ºF	11-8090-625
8" PIPE	8.63"	9.00"	2.50"	217	7,186	.75"	349	10,081	5 PSIG	1300ºF	11-8590-625
10" TUBE	10.00"	9.00"	2.50"	240	16,886	.75"	536	10,628	5 PSIG	1300ºF	11-10090-625
10" PIPE	10.75"	9.00"	2.50"	262	15,562	.75"	667	7,189	5 PSIG	1300ºF	11-10590-625
12" TUBE	12.00"	9.00"	2.50"	291	14,792	.63"	909	9,689	5 PSIG	1300ºF	11-12090-625
12" PIPE	12.75"	9.00"	2.50"	309	14,408	.63"	1,079	7,232	5 PSIG	1300ºF	11-12590-625
14"	14.00"	9.00"	2.75"	232	26,951	.63"	984	12,845	5 PSIG	1300ºF	11-14090-625
16"	16.00"	9.00"	2.75"	264	25,283	.50"	1,437	20,690	5 PSIG	1300ºF	11-16090-625
18"	18.00"	9.00"	2.75"	296	24,007	.50"	2,010	11,355	5 PSIG	1300ºF	11-18090-625
20"	20.00"	9.00"	2.75"	328	22,998	.38"	2,717	28,280	5 PSIG	1300ºF	11-20090-625
22"	22.00'	9.00"	2.75"	360	22,177	.38"	3,572	17,097	5 PSIG	1300ºF	11-22090-625
24"	24.00"	9.00"	2.75"	392	21,495	.38"	4,589	11,020	5 PSIG	1300ºF	11-24090-625
26"	26.00"	9.00"	2.75"	424	20,919	.25"	5,783	60,461	5 PSIG	1300ºF	11-26090-625
28"	28.00"	9.00"	2.75"	455	20,425	.25"	7,166	39,454	5 PSIG	1300ºF	11-28090-625
30"	30.00"	9.00"	3.25"	280	41,875	.38"	5,158	15,462	5 PSIG	1300ºF	11-30090-625
32"	32.00"	9.00"	3.25"	298	40,770	.38"	6,210	11,198	5 PSIG	1300ºF	11-32090-625
34"	34.00"	9.00"	3.25"	316	39,797	.38"	7,394	8,336	5 PSIG	1300ºF	11-34090-625
36"	36.00"	9.00"	3.25"	334	38,935	.25"	8,719	48,072	2 PSIG	1300ºF	11-36090-625
38"	38.00"	9.00"	3.25"	352	38,165	.25"	10,194	35,520	2 PSIG	1300ºF	11-38090-625
40"	40.00"	9.00"	3.25"	370	37,471	.25"	11,825	26,893	2 PSIG	1300ºF	11-40090-625
42"	42.00"	9.00"	3.25"	388	36,844	.25"	13,620	20,789	2 PSIG	1300ºF	11-42090-625
44"	44.00"	9.00"	3.25"	406	36,273	.25"	15,588	16,360	2 PSIG	1300ºF	11-44090-625
46"	46.00"	9.00"	3.25"	424	35,751	.19"	17,736	57,780	2 PSIG	1300ºF	11-46090-625
48"	48.00"	9.00"	3.25"	442	35,271	.19"	20,072	45,282	2 PSIG	1300ºF	11-48090-625

1. Movements listed are non-concurrent.

   Triad engineers will privide an EJMA 9th Edition data sheet with concurrent movements specific to your application.

2. Cycle life data is theoretical based on EJMA 9th Edition formulas and is not guaranteed.

   The cycle life will increase as the required movement is decreased.

3. Axial and lateral spring rates are based on the maximum allowable temperature shown.

   The pressure capability and spring rates increase as the temperature requirement is decreased.

Triad Bellows
DESIGN + MANUFACTURING

9" L/L SINGLE-PLY BELLOWS DATA

HASTELLOY-X

NOMINAL SIZE	BELLOWS I.D.	LIVE LENGTH	AXIAL COMP.	AXIAL SPRING RATE (LBS/INCH)	CYCLES	LATERAL OFFSET	LATERAL SPRING RATE (LBS/INCH)	CYCLES	MAX PRESSURE	MAX TEMP	PART NUMBER
4" TUBE	4.00"	9.00"	2.75"	76	8,804	1.25"	29	60,162	5 PSIG	1500ºF	11-4090-X
4" PIPE	4.50"	9.00"	2.75"	84	7,901	1.25"	40	29,644	5 PSIG	1500ºF	11-4590-X
5" TUBE	5.00"	9.00"	2.75"	113	8,710	1.25"	68	17,959	5 PSIG	1500ºF	11-5090-X
5" PIPE	5.56"	9.00"	2.75"	122	8,488	1.25"	89	10,910	5 PSIG	1500ºF	11-5590-X
6" TUBE	6.00"	9.00"	2.75"	134	7,547	1.25"	111	7,031	5 PSIG	1500ºF	11-6090-X
6" PIPE	6.63"	9.00"	2.75"	144	7,455	1.00"	143	13,157	5 PSIG	1500ºF	11-6590-X
8" TUBE	8.00"	9.00"	2.75"	173	6,789	.88"	243	9,655	5 PSIG	1500ºF	11-8090-X
8" PIPE	8.63"	9.00"	2.75"	186	6,573	.88"	300	6,706	5 PSIG	1500ºF	11-8590-X
10" TUBE	10.00"	9.00"	2.75"	214	13,544	.75"	477	13,669	5 PSIG	1500ºF	11-10090-X
10" PIPE	10.75"	9.00"	2.75"	233	12,502	.75"	593	9,168	5 PSIG	1500ºF	11-10590-X
12" TUBE	12.00"	9.00"	2.75"	260	11,896	.63"	809	12,437	5 PSIG	1500ºF	11-12090-X
12" PIPE	12.75"	9.00"	2.75"	275	11,593	.63"	961	9,224	5 PSIG	1500ºF	11-12590-X
14"	14.00"	9.00"	2.75"	394	10,830	.50"	1,674	16,536	5 PSIG	1500ºF	11-14090-X
16"	16.00"	9.00"	2.75"	449	10,249	.50"	2,446	8,513	5 PSIG	1500ºF	11-16090-X
18"	18.00"	9.00"	2.75"	504	9,801	.38"	3,424	19,543	5 PSIG	1500ºF	11-18090-X
20"	20.00"	9.00"	2.75"	559	9,444	.38"	4,631	11,432	5 PSIG	1500ºF	11-20090-X
22"	22.00'	9.00"	2.75"	614	9,153	.38"	6,092	7,187	5 PSIG	1500ºF	11-22090-X
24"	24.00"	9.00"	3.00"	511	11,515	.25"	6,098	74,609	5 PSIG	1500ºF	11-24090-X
26"	26.00"	9.00"	3.00"	553	11,184	.25"	7,669	46,493	5 PSIG	1500ºF	11-26090-X
28"	28.00"	9.00"	3.00"	594	10,900	.25"	9,487	30,675	5 PSIG	1500ºF	11-28090-X
30"	30.00"	9.00"	3.00"	635	10,655	.25"	11,571	21,164	5 PSIG	1500ºF	11-30090-X
32"	32.00"	9.00"	3.00"	676	10,439	.25"	13,938	15,139	5 PSIG	1500ºF	11-32090-X
34"	34.00"	9.00"	3.00"	717	10,248	.25"	16,606	11,155	5 PSIG	1500ºF	11-34090-X
36"	36.00"	9.00"	3.00"	757	10,078	.25"	19,593	8,426	2 PSIG	1500ºF	11-36090-X
38"	38.00"	9.00"	3.00"	922	11,575	.19"	26,698	30,750	2 PSIG	1500ºF	11-38090-X
40"	40.00"	9.00"	3.00"	970	11,493	.19"	30,974	23,502	2 PSIG	1500ºF	11-40090-X
42"	42.00"	9.00"	3.00"	1,017	11,419	.19"	35,682	18,319	2 PSIG	1500ºF	11-42090-X
44"	44.00"	9.00"	3.00"	1,064	11,351	.19"	40,842	14,523	2 PSIG	1500ºF	11-44090-X
46"	46.00"	9.00"	3.00"	1,111	11,289	.19"	46,475	11,685	2 PSIG	1500ºF	11-46090-X
48"	48.00"	9.00"	3.00"	1,158	11,232	.19"	52,601	9,525	2 PSIG	1500ºF	11-48090-X

1 Movements listed are non-concurrent.

Triad engineers will privide an EJMA 9th Edition data sheet with concurrent movements specific to your application.

2 Cycle life data is theoretical based on EJMA 9th Edition formulas and is not guaranteed.

The cycle life will increase as the required movement is decreased.

3 Axial and lateral spring rates are based on the maximum allowable temperature shown.

The pressure capability and spring rates increase as the temperature requirement is decreased.

Triad Bellows

BELLOWS CAPSULE 12" L/L 1-PLY

T-321 S/S SINGLE-PLY

1200º MAX EXHAUST TEMPERATURE AT 5 PSIG

BELLOWS I.D.	BELLOWS L/L	AXIAL COMP	LATERAL OFFSET	SP CAPSULE PART NUMBER
4.00"	12.00"	2.00"	1.50"	11-40120
4.50"	12.00"	2.00"	1.50"	11-45120
5.00"	12.00"	3.25"	1.50"	11-50120
5.56"	12.00"	3.50"	1.50"	11-55120
6.00"	12.00"	3.50"	1.50"	11-60120
6.625"	12.00"	3.50"	1.50"	11-65120
8.00"	12.00"	3.50"	1.25"	11-80120
8.625"	12.00"	3.50"	1.25"	11-85120
10.00"	12.00"	4.00"	1.25"	12-100120
10.75"	12.00"	4.00"	1.25"	11-105120
12.00"	12.00"	4.00"	1.00"	11-120120
12.75"	12.00"	4.00"	1.00"	11-125120
14.00"	12.00"	4.50"	1.00"	11-140120
16.00"	12.00"	4.50"	1.00"	11-160120
18.00"	12.00"	4.50"	.88"	11-180120
20.00"	12.00"	4.50"	.75"	11-200120
22.00"	12.00"	4.50"	.75"	11-220120
24.00"	12.00"	4.50"	.63"	11-240120
26.00"	12.00"	4.50"	.63"	11-260120
28.00"	12.00"	4.50"	.50"	11-280120
30.00"	12.00"	4.50"	.50"	11-300120
32.00"	12.00"	4.50"	.50"	11-320120
34.00"	12.00"	4.50"	.50"	11-340120
36.00"	12.00"	4.50"	.50"	11-360120
38.00"	12.00"	4.50"	.38"	11-380120
40.00"	12.00"	4.50"	.38"	11-400120
42.00"	12.00"	4.50"	.38"	11-420120
44.00"	12.00"	4.50"	.38"	11-440120
46.00"	12.00"	4.50"	.38"	11-460120
48.00"	12.00"	4.50"	.38"	11-480120

HASTELLOY X SINGLE-PLY

1500º MAX EXHAUST TEMPERATURE AT 5 PSIG

BELLOWS I.D.	BELLOWS L/L	AXIAL COMP	LATERAL OFFSET	SP CAPSULE PART NUMBER
4.00"	12.00"	2.00"	1.50"	11-40120-X
4.50"	12.00"	2.50"	1.50"	11-45120-X
5.00"	12.00"	3.25"	1.50"	11-50120-X
5.56"	12.00"	3.25"	1.50"	11-55120-X
6.00"	12.00"	3.50"	1.50"	11-60120-X
6.625"	12.00"	3.50"	1.50"	11-65120-X
8.00"	12.00"	3.50"	1.50"	11-80120-X
8.625"	12.00"	3.50"	1.50"	11-85120-X
10.00"	12.00"	4.00"	1.25"	12-100120-X
10.75"	12.00"	4.00"	1.25"	11-105120-X
12.00"	12.00"	4.00"	1.25"	11-120120-X
12.75"	12.00"	4.00"	1.00"	11-125120-X
14.00"	12.00"	3.75"	1.00"	11-140120-X
16.00"	12.00"	3.75"	.88"	11-160120-X
18.00"	12.00"	3.75"	.75"	11-180120-X
20.00"	12.00"	3.75"	.75"	11-200120-X
22.00"	12.00"	3.75"	63"	11-220120-X
24.00"	12.00"	4.00"	.63"	11-240120-X
26.00"	12.00"	4.00"	.63"	11-260120-X
28.00"	12.00"	4.00"	.50"	11-280120-X
30.00"	12.00"	4.00"	.50"	11-300120-X
32.00"	12.00"	4.00"	.50"	11-320120-X
34.00"	12.00"	4.00"	.50"	11-340120-X
36.00"	12.00"	4.00"	.38"	11-360120-X
38.00"	12.00"	4.00"	.38"	11-380120-X
40.00"	12.00"	4.00"	.38"	11-400120-X
42.00"	12.00"	4.00"	.38"	11-420120-X
44.00"	12.00"	4.00"	.25"	11-440120-X
46.00"	12.00"	4.00"	.25"	11-460120-X
48.00"	12.00"	4.00"	.25"	11-480120-X

INCONEL 625 SINGLE-PLY

1300º MAX EXHAUST TEMPERATURE AT 5 PSIG

BELLOWS I.D.	BELLOWS L/L	AXIAL COMP	LATERAL OFFSET	SP CAPSULE PART NUMBER
4.00"	12.00"	2.00"	1.50"	11-40120-625
4.50"	12.00"	2.50"	1.50"	11-45120-625
5.00"	12.00"	3.25"	1.50"	11-50120-625
5.56"	12.00"	3.25"	1.50"	11-55120-625
6.00"	12.00"	3.25"	1.50"	11-60120-625
6.625"	12.00"	3.25"	1.50"	11-65120-625
8.00"	12.00"	3.25"	1.25"	11-80120-625
8.625"	12.00"	3.25"	1.25"	11-85120-625
10.00"	12.00"	3.50"	1.25"	12-100120-625
10.75"	12.00"	3.50"	1.25"	11-105120-625
12.00"	12.00"	3.50"	1.00"	11-120120-625
12.75"	12.00"	3.50"	1.00"	11-125120-625
14.00"	12.00"	4.00"	1.00"	11-140120-625
16.00"	12.00"	4.00"	1.00"	11-160120-625
18.00"	12.00"	4.00"	.88"	11-180120-625
20.00"	12.00"	4.00"	.75"	11-200120-625
22.00"	12.00"	4.00"	.75"	11-220120-625
24.00"	12.00"	4.00"	.63"	11-240120-625
26.00"	12.00"	4.00"	.63"	11-260120-625
28.00"	12.00"	4.00"	.50"	11-280120-625
30.00"	12.00"	4.50"	.50"	11-300120-625
32.00"	12.00"	4.50"	.50"	11-320120-625
34.00"	12.00"	4.50"	.50"	11-340120-625
36.00"	12.00"	4.50"	.50"	11-360120-625
38.00"	12.00"	4.50"	.38"	11-380120-625
40.00"	12.00"	4.50"	.38"	11-400120-625
42.00"	12.00"	4.50"	.38"	11-420120-625
44.00"	12.00"	4.50"	.38"	11-440120-625
46.00"	12.00"	4.50"	.38"	11-460120-625
48.00"	12.00"	4.50"	.38"	11-480120-625

***36" T321 AND UP RATED 2 PSIG @ 1200º F OR 5 PSIG @ 1000º F**

AXIAL AND LATERAL MOVEMENTS ARE NON-CONCURRENT

NOTE: TEMPERATURE RATINGS ARE FOR THE BELLOWS ELEMENT ONLY AND CONSIDERATION MUST BE GIVEN TO THE FLANGE AND FITTING MATERIALS.

INDEX

12" L/L SINGLE-PLY BELLOWS DATA

T-321 STAINLESS

NOMINAL SIZE	BELLOWS I.D.	LIVE LENGTH	AXIAL COMP.	AXIAL SPRING RATE (LBS/inch)	CYCLES	LATERAL OFFSET	LATERAL SPRING RATE (LBS/inch)	CYCLES	MAX PRESSURE	MAX TEMP	PART NUMBER
4" TUBE	4.00"	12.00"	2.00"	56	100,000	1.50"	12	100,000	5 PSIG	1200ºF	11-40120
4" PIPE	4.50"	12.00"	2.00"	62	65,128	1.50"	17	100,000	5 PSIG	1200ºF	11-45120
5" TUBE	5.00"	12.00"	3.25"	98	10,465	1.50"	33	100,000	5 PSIG	1200ºF	11-50120
5" PIPE	5.56"	12.00"	3.50"	100	8,609	1.50"	46	43,963	5 PSIG	1200ºF	11-55120
6" TUBE	6.00"	12.00"	3.50"	101	9,746	1.50"	47	55,502	5 PSIG	1200ºF	11-60120
6" PIPE	6.63"	12.00"	3.50"	108	9,623	1.50"	61	32,918	5 PSIG	1200ºF	11-65120
8" TUBE	8.00"	12.00"	3.50"	130	8,747	1.25"	102	31,382	5 PSIG	1200ºF	11-80120
8" PIPE	8.63"	12.00"	3.50"	147	7,294	1.25"	133	17,964	5 PSIG	1200ºF	11-85120
10" TUBE	10.00"	12.00"	4.00"	159	9,432	1.25"	200	20,281	5 PSIG	1200ºF	12-100120
10" PIPE	10.75"	12.00"	4.00"	171	9,119	1.25"	245	13,999	5 PSIG	1200ºF	11-105120
12" TUBE	12.00"	12.00"	4.00"	192	8,502	1.00"	336	24,214	5 PSIG	1200ºF	11-120120
12" PIPE	12.75"	12.00"	4.00"	204	8,292	1.00"	399	17,622	5 PSIG	1200ºF	11-125120
14"	14.00"	12.00"	4.50"	155	12,801	1.00"	370	30,931	5 PSIG	1200ºF	11-140120
16"	16.00"	12.00"	4.50"	176	12,061	1.00"	540	15,313	5 PSIG	1200ºF	11-160120
18"	18.00"	12.00"	4.50"	198	11,493	.88"	755	15,908	5 PSIG	1200ºF	11-180120
20"	20.00"	12.00"	4.50"	219	11,042	.75"	1,021	20,736	5 PSIG	1200ºF	11-200120
22"	22.00'	12.00"	4.50"	240	10,674	.75"	1,342	12,721	5 PSIG	1200ºF	11-220120
24"	24.00"	12.00"	4.50"	262	10,367	.63"	1,725	20,319	5 PSIG	1200ºF	11-240120
26"	26.00"	12.00"	4.50"	283	10,107	.63"	2,173	13,469	5 PSIG	1200ºF	11-260120
28"	28.00"	12.00"	4.50"	304	9,883	.50"	2,693	28,614	5 PSIG	1200ºF	11-280120
30"	30.00"	12.00"	4.50"	392	12,481	.50"	4,062	24,387	5 PSIG	1200ºF	11-300120
32"	32.00"	12.00"	4.50"	418	12,210	.50"	4,892	17,384	5 PSIG	1200ºF	11-320120
34"	34.00"	12.00"	4.50"	443	11,970	.50"	5,827	12,773	5 PSIG	1200ºF	11-340120
36"	36.00"	12.00"	4.50"	469	11,757	.50"	6,874	9,625	2 PSIG	1200ºF	11-360120
38"	38.00"	12.00"	4.50"	494	11,565	.38"	8,039	31,078	2 PSIG	1200ºF	11-380120
40"	40.00"	12.00"	4.50"	519	11,410	.38"	9,328	23,607	2 PSIG	1200ºF	11-400120
42"	42.00"	12.00"	4.50"	544	11,335	.38"	10,744	18,413	2 PSIG	1200ºF	11-420120
44"	44.00"	12.00"	4.50"	570	11,267	.38"	12,296	11,267	2 PSIG	1200ºF	11-440120
46"	46.00"	12.00"	4.50"	595	11,205	.38"	13,991	11,759	2 PSIG	1200ºF	11-46090
48"	48.00"	12.00"	4.50"	620	11,147	.38"	15,834	9,590	2 PSIG	1200ºF	11-48090

1

Movements listed are non-concurrent.

Triad engineers will privide an EJMA 9th Edition data sheet with concurrent movements specific to your application.

2

Cycle life data is theoretical based on EJMA 9th Edition formulas and is not guaranteed.

The cycle life will increase as the required movement is decreased.

3

Axial and lateral spring rates are based on the maximum allowable temperature shown.

The pressure capability and spring rates increase as the temperature requirement is decreased.

Triad Bellows
DESIGN + MANUFACTURING

12" L/L SINGLE-PLY BELLOWS DATA

INCONEL 625

NOMINAL SIZE	BELLOWS I.D.	LIVE LENGTH	AXIAL COMP.	AXIAL SPRING RATE (LBS/INCH)	CYCLES	LATERAL OFFSET	LATERAL SPRING RATE (LBS/INCH)	CYCLES	MAX PRESSURE	MAX TEMP	PART NUMBER
4" TUBE	4.00"	12.00"	2.00"	66	100,000	1.50"	14	100,000	5 PSIG	1300ºF	11-40120-625
4" PIPE	4.50"	12.00"	2.50"	73	40,613	1.50"	20	100,000	5 PSIG	1300ºF	11-45120-625
5" TUBE	5.00"	12.00"	3.25"	121	6,166	1.50"	40	55,935	5 PSIG	1300ºF	11-50120-625
5" PIPE	5.56"	12.00"	3.25"	133	5,661	1.50"	53	29,749	5 PSIG	1300ºF	11-55120-625
6" TUBE	6.00"	12.00"	3.25"	136	6,048	1.50"	63	22,121	5 PSIG	1300ºF	11-60120-625
6" PIPE	6.63"	12.00"	3.25"	146	5,985	1.50"	81	13,738	5 PSIG	1300ºF	11-65120-625
8" TUBE	8.00"	12.00"	3.25"	179	5,146	1.25"	140	12,317	5 PSIG	1300ºF	11-80120-625
8" PIPE	8.63"	12.00"	3.25"	189	5,307	1.25"	189	9,015	5 PSIG	1300ºF	11-85120-625
10" TUBE	10.00"	12.00"	3.50"	177	13,926	1.25"	223	15,411	5 PSIG	1300ºF	12-100120-625
10" PIPE	10.75"	12.00"	3.50"	193	12,853	1.25"	277	10,293	5 PSIG	1300ºF	11-105120-625
12" TUBE	12.00"	12.00"	3.50"	215	12,230	1.00"	377	17,909	5 PSIG	1300ºF	11-120120-625
12" PIPE	12.75"	12.00"	3.50"	229	11,919	1.00"	448	13,153	5 PSIG	1300ºF	11-125120-625
14"	14.00"	12.00"	4.00"	174	17,206	1.00"	415	22,747	5 PSIG	1300ºF	11-140120-625
16"	16.00"	12.00"	4.00"	198	16,186	1.00"	606	11,490	5 PSIG	1300ºF	11-160120-625
18"	18.00"	12.00"	4.00"	222	15,403	.88"	848	11,925	5 PSIG	1300ºF	11-180120-625
20"	20.00"	12.00"	4.00"	246	14,782	.75"	1,146	15,432	5 PSIG	1300ºF	11-200120-625
22"	22.00'	12.00"	4.00"	270	14,276	.75"	1,507	9,590	5 PSIG	1300ºF	11-220120-625
24"	24.00"	12.00"	4.00"	294	13,855	.63"	1,936	14,542	5 PSIG	1300ºF	11-240120-625
26"	26.00"	12.00"	4.00"	318	13,499	.63"	2,440	9,759	5 PSIG	1300ºF	11-260120-625
28"	28.00"	12.00"	4.00"	342	13,193	.50"	3,023	21,093	5 PSIG	1300ºF	11-280120-625
30"	30.00"	12.00"	4.50"	210	34,171	.50"	2,176	71,389	5 PSIG	1300ºF	11-300120-625
32"	32.00"	12.00"	4.50"	224	33,288	.50"	2,620	48,994	5 PSIG	1300ºF	11-320120-625
34"	34.00"	12.00"	4.50"	237	32,511	.50"	3,119	34,892	5 PSIG	1300ºF	11-340120-625
36"	36.00"	12.00"	4.50"	251	31,822	.50"	3,679	25,615	2 PSIG	1300ºF	11-360120-625
38"	38.00"	12.00"	4.50"	264	31,205	.38"	4,301	92,727	2 PSIG	1300ºF	11-380120-625
40"	40.00"	12.00"	4.50"	278	30,651	.38"	4,989	68,021	2 PSIG	1300ºF	11-400120-625
42"	42.00"	12.00"	4.50"	291	30,148	.38"	5,746	51,190	2 PSIG	1300ºF	11-420120-625
44"	44.00"	12.00"	4.50"	305	29,691	.38"	6,576	39,367	2 PSIG	1300ºF	11-440120-625
46"	46.00"	12.00"	4.50"	318	29,272	.38"	7,483	30,843	2 PSIG	1300ºF	11-46090-625
48"	48.00"	12.00"	4.50"	331	28,888	.38"	8,468	24,558	2 PSIG	1300ºF	11-48090-625

1

Movements listed are non-concurrent.

Triad engineers will privide an EJMA 9th Edition data sheet with concurrent movements specific to your application.

2

Cycle life data is theoretical based on EJMA 9th Edition formulas and is not guaranteed.

The cycle life will increase as the required movement is decreased.

3

Axial and lateral spring rates are based on the maximum allowable temperature shown.

The pressure capability and spring rates increase as the temperature requirement is decreased.

Triad Bellows
DESIGN + MANUFACTURING

12" L/L SINGLE-PLY BELLOWS DATA

HASTELLOY-X

NOMINAL SIZE	BELLOWS I.D.	LIVE LENGTH	AXIAL COMP.	AXIAL SPRING RATE (LBS/INCH	CYCLES	LATERAL OFFSET	LATERAL SPRING RATE (LBS/INCH)	CYCLES	MAX PRESSURE	MAX TEMP	PART NUMBER
4" TUBE	4.00"	12.00"	2.00"	59	100,000	1.50"	13	100,000	5 PSIG	1500ºF	11-40120-X
4" PIPE	4.50"	12.00"	2.50"	65	54,751	1.50"	18	100,000	5 PSIG	1500ºF	11-45120-X
5" TUBE	5.00"	12.00"	3.25"	98	10,114	1.50"	33	100,000	5 PSIG	1500ºF	11-50120-X
5" PIPE	5.56"	12.00"	3.25"	106	9,864	1.50"	47	39,396	5 PSIG	1500ºF	11-55120-X
6" TUBE	6.00"	12.00"	3.50"	98	10,009	1.50"	46	57,034	5 PSIG	1500ºF	11-60120-X
6" PIPE	6.63"	12.00"	3.50"	108	9,303	1.50"	61	31,683	5 PSIG	1500ºF	11-65120-X
8" TUBE	8.00"	12.00"	3.50"	130	8,458	1.50"	102	11,848	5 PSIG	1500ºF	11-80120-X
8" PIPE	8.63"	12.00"	3.50"	140	8,184	1.50"	127	8,177	5 PSIG	1500ºF	11-85120-X
10" TUBE	10.00"	12.00"	4.00"	158	9,322	1.25"	198	20,001	5 PSIG	1500ºF	12-100120-X
10" PIPE	10.75"	12.00"	4.00"	172	8,626	1.25"	246	13,229	5 PSIG	1500ºF	11-105120-X
12" TUBE	12.00"	12.00"	4.00"	192	8,223	1.25"	336	7,719	5 PSIG	1500ºF	11-120120-X
12" PIPE	12.75"	12.00"	4.00"	204	8,020	1.00"	399	17,003	5 PSIG	1500ºF	11-125120-X
14"	14.00"	12.00"	3.75"	223	10,529	1.00"	521	10,619	5 PSIG	1500ºF	11-140120-X
16"	16.00"	12.00"	3.75"	254	10,020	.88"	763	10,221	5 PSIG	1500ºF	11-160120-X
18"	18.00"	12.00"	3.75"	285	9,625	.75"	1,071	12,425	5 PSIG	1500ºF	11-180120-X
20"	20.00"	12.00"	3.75"	316	9,310	.75"	1,451	7,418	5 PSIG	1500ºF	11-200120-X
22"	22.00'	12.00"	3.75"	347	9,170	63"	1,910	10,879	5 PSIG	1500ºF	11-220120-X
24"	24.00"	12.00"	4.00"	446	12,984	.63"	3,026	12,654	5 PSIG	1500ºF	11-240120-X
26"	26.00"	12.00"	4.00"	478	12,951	.63"	3,772	8,758	5 PSIG	1500ºF	11-260120-X
28"	28.00"	12.00"	4.00"	514	12,609	.50"	4,667	18,834	5 PSIG	1500ºF	11-280120-X
30"	30.00"	12.00"	4.00"	549	12,313	.50"	5,690	13,232	5 PSIG	1500ºF	11-300120-X
32"	32.00"	12.00"	4.00"	585	12,054	.50"	6,854	9,606	5 PSIG	1500ºF	11-320120-X
34"	34.00"	12.00"	4.00"	621	11,826	.50"	8,166	7,166	5 PSIG	1500ºF	11-340120-X
36"	36.00"	12.00"	4.00"	656	11,667	.38"	9,633	22,217	2 PSIG	1500ºF	11-360120-X
38"	38.00"	12.00"	4.00"	692	11,575	.38"	11,263	16,895	2 PSIG	1500ºF	11-380120-X
40"	40.00"	12.00"	4.00"	727	11,493	.38"	13,067	13,112	2 PSIG	1500ºF	11-400120-X
42"	42.00"	12.00"	4.00"	762	11,419	.38"	15,053	10,356	2 PSIG	1500ºF	11-420120-X
44"	44.00"	12.00"	4.00"	798	11,351	.25"	17,230	69,474	2 PSIG	1500ºF	11-440120-X
46"	46.00"	12.00"	4.00"	833	11,289	.25"	19,606	53,772	2 PSIG	1500ºF	11-46090-X
48"	48.00"	12.00"	4.00"	868	11,232	.25"	22,191	42,371	2 PSIG	1500ºF	11-48090-X

1. Movements listed are non-concurrent.

   Triad engineers will privide an EJMA 9th Edition data sheet with concurrent movements specific to your application.

2. Cycle life data is theoretical based on EJMA 9th Edition formulas and is not guaranteed.

   The cycle life will increase as the required movement is decreased.

3. Axial and lateral spring rates are based on the maximum allowable temperature shown.

   The pressure capability and spring rates increase as the temperature requirement is decreased.

Triad Bellows
DESIGN + MANUFACTURING