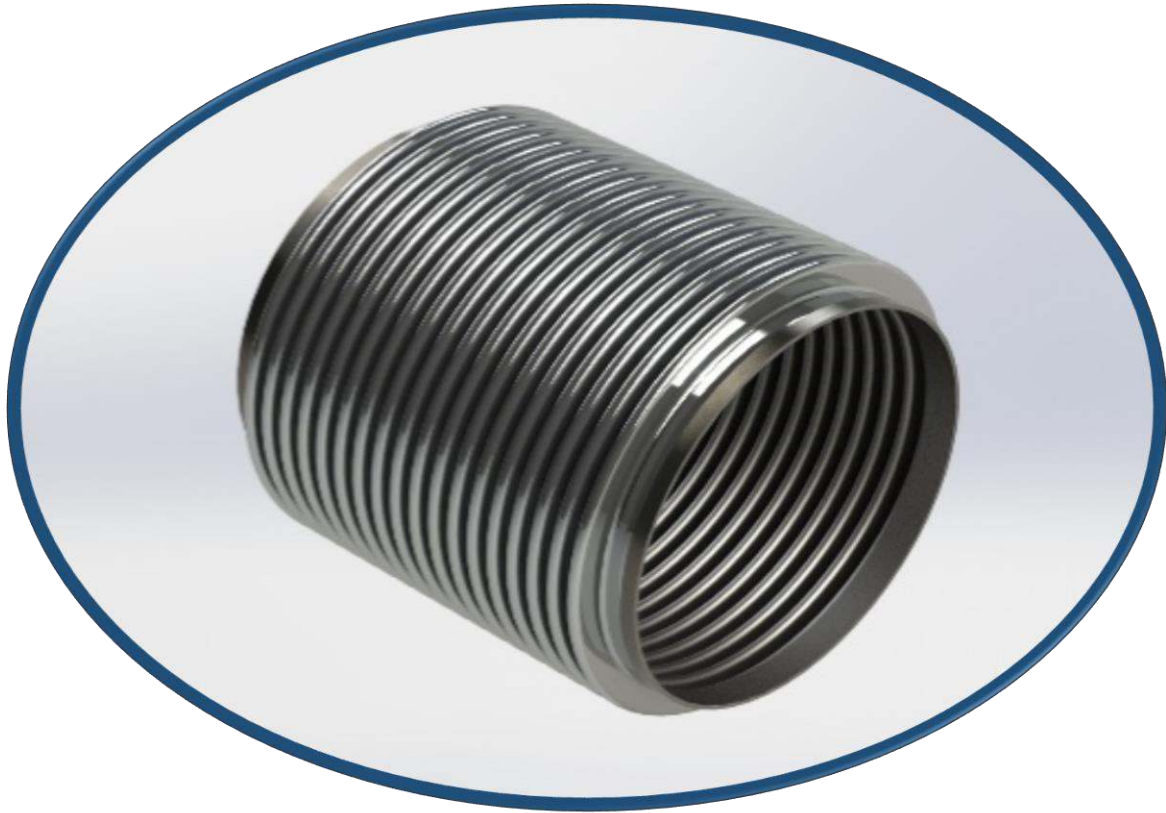


Metal Bellows Capsules

STANDARD and CUSTOM



MULTI-PLY BELLOWS CONSTRUCTION PROVIDES INCREASED PRESSURE AND MOVEMENT CAPABILITY



SERIES-1

Triad Bellows Series-1 metal bellows are manufactured with heavier gauge T-321 s/s to achieve higher pressure ratings. The allowable movements shown are based on a minimum of 3000 non-concurrent cycles. For lower pressure applications a Series-2 expansion joint will provide increased movement capability. When a standard metal bellows is not the right fit we will design and build a custom metal bellows for your application at a standard price.

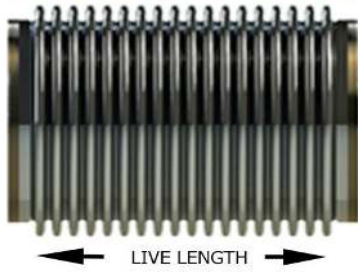
SERIES-2

Triad Bellows Series-2 expansion joints are manufactured with lighter gauge T-321 s/s material to achieve greater movement capability while still maintaining a minimum of 3000 life cycles. When an even higher cycle life is required let us know and we will go to work designing the perfect metal bellows for your application. Our EJMA 10 design software allows us to combine just the right thickness and number of bellows plies needed to balance performance and cost savings.



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BELLOWS CAPSULES



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2" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.50"	6"	N/A
Part Number	12-2030S1	12-2045S1	12-2060S1	
Design Pressure (psig)	300	250	150	
Design Temp (F)	600	600	600	
Neck Length	.625	.625	.625	
Neck I.D.	2.400	2.400	2.400	
Axial Movement*	.50	.75	1.0	
Lateral Movement*	.188	.375	.75	
Axial Spring Rate	1135	757	567	
Lateral Spring Rate	1397	414	175	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.50"	6"	N/A
Part Number	11-2030S1	11-2045S1	11-2060S1	
Design Pressure (psig)	250	115	60	
Design Temp (F)	600	600	600	
Neck Length	.625	.625	.625	
Neck I.D.	2.400	2.400	2.400	
Axial Movement*	.50	.75	1.0	
Lateral Movement*	.188	.375	.75	
Axial Spring Rate	516	344	258	
Lateral Spring Rate	633	187	79	

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 5.78 sq.in.

2" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.50"	6"	N/A
Part Number	12-2030S2	12-2045S2	12-2060S2	
Design Pressure (psig)	275	130	70	
Design Temp (F)	600	600	600	
Neck Length	.625	.625	.625	
Neck I.D.	2.400	2.400	2.400	
Axial Movement*	.625	1.00	1.375	
Lateral Movement*	.188	.50	1.00	
Axial Spring Rate	568	379	284	
Lateral Spring Rate	689	204	86	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.50"	6"	N/A
Part Number	11-2030S2	11-2045S2	11-2060S2	
Design Pressure (psig)	125	55	30	
Design Temp (F)	600	600	600	
Neck Length	.625	.625	.625	
Neck I.D.	2.400	2.400	2.400	
Axial Movement*	.625	1.00	1.375	
Lateral Movement*	.25	.50	1.00	
Axial Spring Rate	252	168	126	
Lateral Spring Rate	306	91	38	

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 5.78 sq.in.

2" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.50"	6"	N/A
Part Number	12-2030R	12-2045R	12-2060R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	2.400	2.400	2.400	
Axial Movement*	.625	1.00	1.375	
Lateral Movement*	.25	.50	1.00	
Axial Spring Rate	255	170	128	
Lateral Spring Rate	312	92	39	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.50"	6"	N/A
Part Number	11-2030R	11-2045R	11-2060R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	2.400	2.400	2.400	
Axial Movement*	.625	1.00	1.375	
Lateral Movement*	.25	.50	1.00	
Axial Spring Rate	125	83	62	
Lateral Spring Rate	151	45	19	

Tube size bellows available on request

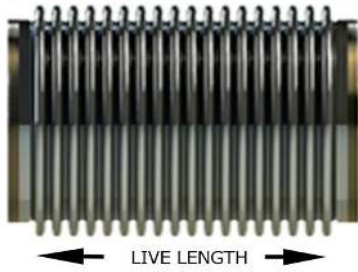
*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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2-1/2" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.5"	6"	9"
Part Number	12-2530S1	12-2545S1	12-2560S1	12-2590S1
Design Pressure (psig)	275	140	80	35
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	2.90	2.90	2.90	2.90
Axial Movement*	.75	1.25	1.75	1.50
Lateral Movement*	.188	.50	1.00	1.50
Axial Spring Rate	624	401	312	208
Lateral Spring Rate	1251	358	156	46

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.5"	6"	9"
Part Number	11-2530S1	11-2545S1	11-2560S1	11-2590S1
Design Pressure (psig)	190	125	70	30
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	2.90	2.90	2.90	2.90
Axial Movement*	.50	.875	1.25	1.50
Lateral Movement*	.125	.375	.75	1.50
Axial Spring Rate	566	366	283	189
Lateral Spring Rate	1131	325	141	42

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 9.51 sq.in.

2-1/2" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.5"	6"	9"
Part Number	12-2530S2	12-2545S2	12-2560S2	12-2590S2
Design Pressure (psig)	140	135	75	30
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	2.90	2.90	2.90	2.90
Axial Movement*	1.00	1.25	1.75	1.50
Lateral Movement*	.25	.50	1.00	2.00
Axial Spring Rate	271	388	302	201
Lateral Spring Rate	541	347	152	45

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.5"	6"	9"
Part Number	11-2530S2	11-2545S2	11-2560S2	11-2590S2
Design Pressure (psig)	125	60	35	15
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	2.90	2.90	2.90	2.90
Axial Movement*	.75	1.25	1.75	1.50
Lateral Movement*	.188	.50	1.00	1.75
Axial Spring Rate	291	187	146	97
Lateral Spring Rate	582	166	73	22

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 9.51 sq.in.

2-1/2" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	N/A
Part Number	12-2545R	12-2560R	12-2590R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	2.90	2.90	2.90	
Axial Movement*	1.50	1.875	1.50	
Lateral Movement*	.625	1.00	2.00	
Axial Spring Rate	145	113	73	
Lateral Spring Rate	129	57	16	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	N/A
Part Number	11-2545R	11-2560R	11-2590R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	2.90	2.90	2.90	
Axial Movement*	1.375	1.875	1.50	
Lateral Movement*	.625	1.00	2.00	
Axial Spring Rate	69	54	35	
Lateral Spring Rate	61	27	8	

Tube size bellows available on request

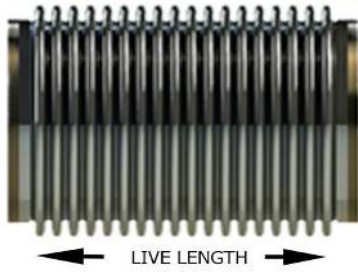
*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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3" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	3"	4.5"	6"	9"
Live Length	3"	4.5"	6"	9"
Part Number	12-3530S1	12-3545S1	12-3560S1	12-3590S1
Design Pressure (psig)	350	350	300	140
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	3.525	3.525	3.525	3.525
Axial Movement*	.50	.75	1.125	1.625
Lateral Movement*	.125	.25	.50	1.00
Axial Spring Rate	2520	1634	1260	840
Lateral Spring Rate	6683	1927	835	248

SINGLE-PLY BELLOWS T-321 STAINLESS

	3"	4.5"	6"	9"
Part Number	11-3530S1	11-3545S1	11-3560S1	11-3590S1
Design Pressure (psig)	275	275	155	70
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	3.525	3.525	3.525	3.525
Axial Movement*	.50	.75	1.00	1.625
Lateral Movement*	.125	.25	.50	1.00
Axial Spring Rate	1259	809	630	420
Lateral Spring Rate	3306	945	413	122

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 12.47 sq.in.

3" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	3"	4.5"	6"	9"
Live Length	3"	4.5"	6"	9"
Part Number	12-3530S2	12-3545S2	12-3560S2	12-3590S2
Design Pressure (psig)	275	160	90	40
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	3.525	3.525	3.525	3.525
Axial Movement*	.75	1.25	1.75	2.00
Lateral Movement*	.188	.50	.875	1.75
Axial Spring Rate	718	462	359	239
Lateral Spring Rate	1866	539	236	70

SINGLE-PLY BELLOWS T-321 STAINLESS

	3"	4.5"	6"	9"
Part Number	11-3530S2	11-3545S2	11-3560S2	11-3590S2
Design Pressure (psig)	200	150	80	35
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	3.525	3.525	3.525	3.525
Axial Movement*	.50	.875	1.25	2.00
Lateral Movement*	.125	.375	.625	1.50
Axial Spring Rate	679	437	340	226
Lateral Spring Rate	1774	507	222	66

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 12.47 sq.in.

3" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	4.5"	6"	9"	N/A
Live Length	4.5"	6"	9"	N/A
Part Number	12-3545R	12-3560R	12-3590R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	3.525	3.525	3.525	
Axial Movement*	1.25	1.50	2.0	
Lateral Movement*	.50	.625	1.0	
Axial Spring Rate	167	123	83	
Lateral Spring Rate	195	81	24	

SINGLE-PLY BELLOWS T-321 STAINLESS

	4.5"	6"	9"	N/A
Part Number	11-3545R	11-3560R	11-3590R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	3.525"	3.525"	3.525"	
Axial Movement*	1.00	1.25	2.0	
Lateral Movement*	.375	.625	1.0	
Axial Spring Rate	194	150	97	
Lateral Spring Rate	225	98	28	

Tube size bellows available on request

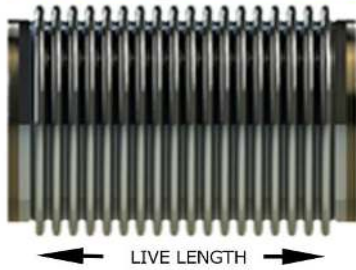
*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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3-1/2" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.5"	6"	9"
Part Number	12-4030S1	12-4045S1	12-4060S1	12-4090S1
Design Pressure (psig)	350	300	250	100
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	4.025	4.025	4.025	4.025
Axial Movement*	.625	1.00	1.375	2.00
Lateral Movement*	.125	.25	.50	1.375
Axial Spring Rate	1824	1277	983	639
Lateral Spring Rate	6478	2011	873	251

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.5"	6"	9"
Part Number	11-4030S1	11-4045S1	11-4060S1	11-4090S1
Design Pressure (psig)	300	300	250	100
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	4.025	4.025	4.025	4.025
Axial Movement*	.50	.625	.875	1.50
Lateral Movement*	.09	.1875	.375	1.00
Axial Spring Rate	1861	1294	992	647
Lateral Spring Rate	6563	2023	875	253

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 16.69 sq.in.

3-1/2" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.5"	6"	9"
Part Number	12-4030S2	12-4045S2	12-4060S2	12-4090S2
Design Pressure (psig)	170	120	70	30
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	4.025	4.025	4.025	4.025
Axial Movement*	1.00	1.50	2.00	2.75
Lateral Movement*	.188	.50	.875	2.00
Axial Spring Rate	509	358	277	179
Lateral Spring Rate	1794	560	244	70

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	3"	4.5"	6"	9"
Part Number	11-4030S2	11-4045S2	11-4060S2	11-4090S2
Design Pressure (psig)	170	170	130	50
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	4.025	4.025	4.025	4.025
Axial Movement*	.625	.875	1.25	2.00
Lateral Movement*	.125	.25	.50	1.25
Axial Spring Rate	919	641	493	321
Lateral Spring Rate	3228	999	433	125

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 16.69 sq.in.

3-1/2" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	N/A
Part Number	12-4045R	12-4060R	12-4090R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	4.025	4.025	4.025	
Axial Movement*	1.50	1.75	2.75	
Lateral Movement*	.50	.625	1.0	
Axial Spring Rate	137	107	68	
Lateral Spring Rate	213	94	27	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	N/A
Part Number	11-4035R	11-4060R	11-4090R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	4.025	4.025	4.025	
Axial Movement*	1.25	1.625	2.50	
Lateral Movement*	.375	.625	1.25	
Axial Spring Rate	151	117	76	
Lateral Spring Rate	235	102	29	

Tube size bellows available on request

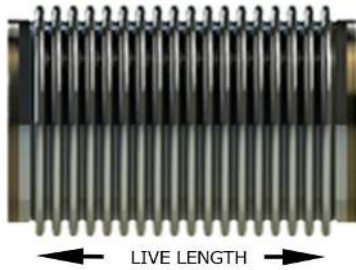
*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



"Custom modifications never a problem"

4" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	12-4545S1	12-4560S1	12-4590S1	12-45120S1
Design Pressure (psig)	300	275	120	65
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	4.525	4.525	4.525	4.525
Axial Movement*	1.00	1.375	2.00	2.50
Lateral Movement*	.25	.50	1.25	2.00
Axial Spring Rate	1422	1094	711	527
Lateral Spring Rate	2751	1193	344	144

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	11-4545S1	11-4560S1	11-4590S1	11-45120S1
Design Pressure (psig)	275	275	120	65
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	4.525	4.525	4.525	4.525
Axial Movement*	.625	.875	1.50	2.00
Lateral Movement*	.1875	.25	.875	1.50
Axial Spring Rate	1484	1138	742	569
Lateral Spring Rate	2848	1231	356	154

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 20.51 sq.in.

4" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	12-4545S2	12-4560S2	12-4590S2	12-45120S2
Design Pressure (psig)	175	150	60	35
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	4.525	4.525	4.525	4.525
Axial Movement*	1.00	1.50	2.00	2.50
Lateral Movement*	.375	.625	1.50	2.00
Axial Spring Rate	755	581	378	291
Lateral Spring Rate	1455	632	182	79

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	11-4545S2	11-4560S2	11-4590S2	11-45120S2
Design Pressure (psig)	175	140	60	30
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	4.525	4.525	4.525	4.525
Axial Movement*	.875	1.125	2.00	2.50
Lateral Movement*	.25	.44	1.00	1.75
Axial Spring Rate	717	550	359	275
Lateral Spring Rate	1374	594	172	74

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 20.51 sq.in.

4" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	12-4560R	12-4590R	12-45120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	4.525	4.525	4.525	
Axial Movement*	1.75	3.0	2.50	
Lateral Movement*	.625	1.0	1.5	
Axial Spring Rate	120	46	55	
Lateral Spring Rate	129	22	15	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	11-4560R	11-4590R	11-45120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	4.525	4.525	4.525	
Axial Movement*	1.50	2.50	2.0	
Lateral Movement*	.625	1.25	1.5	
Axial Spring Rate	130	84	62	
Lateral Spring Rate	140	40	17	

Tube size bellows available on request

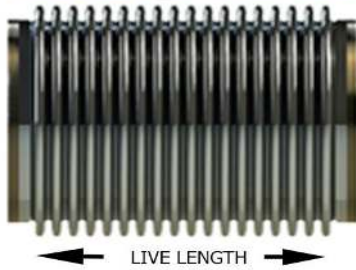
*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



"Custom modifications never a problem"

5" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	12-5545S1	12-5560S1	12-5590S1	12-55120S1
Design Pressure (psig)	275	225	200	125
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	5.85	5.85	5.85	5.85
Axial Movement*	.875	1.125	1.75	2.375
Lateral Movement*	.188	.375	.75	1.25
Axial Spring Rate	2906	2180	1453	1090
Lateral Spring Rate	8396	3542	1049	443

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	11-5545S1	11-5560S1	11-5590S1	11-55120S1
Design Pressure (psig)	250	250	125	70
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	5.85	5.85	5.85	5.85
Axial Movement*	.75	1.00	1.50	2.125
Lateral Movement*	.1875	.312	.75	1.375
Axial Spring Rate	1480	1110	740	555
Lateral Spring Rate	4234	1786	529	223

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 30.63 sq.in.

5" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	12-5545S2	12-5560S2	12-5590S2	12-55120S2
Design Pressure (psig)	200	200	120	65
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	5.85	5.85	5.85	5.85
Axial Movement*	1.00	1.50	2.25	3.00
Lateral Movement*	.25	.44	1.00	1.50
Axial Spring Rate	1417	1063	709	531
Lateral Spring Rate	4080	1721	510	215

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	11-5545S2	11-5560S2	11-5590S2	11-55120S2
Design Pressure (psig)	100	100	60	30
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	5.85	5.85	5.85	5.85
Axial Movement*	1.00	1.375	2.00	3.00
Lateral Movement*	.25	.44	1.00	1.50
Axial Spring Rate	715	537	358	268
Lateral Spring Rate	2044	862	255	108

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 30.63 sq.in.

5" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	12-5560R	12-5590R	12-55120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	5.85	5.85	5.85	
Axial Movement*	2.0	3.0	5.0	
Lateral Movement*	.625	1.0	1.50	
Axial Spring Rate	105	66	43	
Lateral Spring Rate	170	47	18	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	11-5560R	11-5590R	11-55120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	5.85	5.85	5.85	
Axial Movement*	1.25	2.50	3.5	
Lateral Movement*	.375	1.25	1.50	
Axial Spring Rate	237	154	100	
Lateral Spring Rate	380	110	46	

Tube size bellows available on request

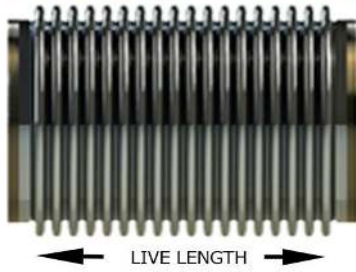
*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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6" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	4.5"	6"	9"	12"
Live Length	4.5"	6"	9"	12"
Part Number	12-6545S1	12-6560S1	12-6590S1	12-65120S1
Design Pressure (psig)	260	260	225	125
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	6.650	6.650	6.650	6.650
Axial Movement*	1.00	1.25	2.00	2.75
Lateral Movement*	.188	.312	.75	1.00
Axial Spring Rate	2665	1999	1332	999
Lateral Spring Rate	10729	4526	1341	566

SINGLE-PLY BELLOWS T-321 STAINLESS

	4.5"	6"	9"	12"
Live Length	4.5"	6"	9"	12"
Part Number	11-6545S1	11-6560S1	11-6590S1	11-65120S1
Design Pressure (psig)	250	250	150	80
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	6.650	6.650	6.650	6.650
Axial Movement*	.75	1.00	1.625	2.25
Lateral Movement*	.125	.25	.625	1.0
Axial Spring Rate	1741	1306	871	653
Lateral Spring Rate	6840	2886	855	361

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 41.83 sq.in.

6" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	4.5"	6"	9"	12"
Live Length	4.5"	6"	9"	12"
Part Number	12-6545S2	12-6560S2	12-6590S2	12-65120S2
Design Pressure (psig)	200	200	145	80
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	6.650	6.650	6.650	6.650
Axial Movement*	1.00	1.375	2.125	3.00
Lateral Movement*	.188	.375	.875	1.50
Axial Spring Rate	1684	1263	842	631
Lateral Spring Rate	6642	2802	830	350

SINGLE-PLY BELLOWS T-321 STAINLESS

	4.5"	6"	9"	12"
Live Length	4.5"	6"	9"	12"
Part Number	11-6545S2	11-6560S2	11-6590S2	11-65120S2
Design Pressure (psig)	125	125	65	35
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	6.650	6.650	6.650	6.650
Axial Movement*	1.00	1.375	2.25	3.125
Lateral Movement*	.188	.375	.875	1.50
Axial Spring Rate	722	579	386	289
Lateral Spring Rate	3044	1284	380	161

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 41.83 sq.in.

6" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	N/A
Live Length	6"	9"	12"	N/A
Part Number	12-6560R	12-6590R	12-65120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	6.650	6.650	6.650	
Axial Movement*	2.0	3.0	5.0	
Lateral Movement*	.625	1.0	1.50	
Axial Spring Rate	131	82	49	
Lateral Spring Rate	288	80	28	

SINGLE-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length	6"	9"	12"	15"
Part Number	11-6560R	11-6590R	11-65120R	11-65150R
Design Pressure (psig)	5	5	5	5
Design Temp (F)	1200	1200	1200	1200
Neck Length	.50	.50	.50	.50
Neck I.D.	6.650	6.650	6.650	6.650
Axial Movement*	1.375	2.50	3.5	4.25
Lateral Movement*	.375	1.0	1.50	2.0
Axial Spring Rate	282	144	108	106
Lateral Spring Rate	620	143	61	51

Tube size bellows available on request

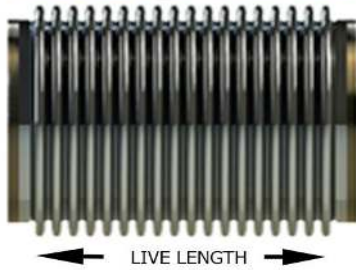
*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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8" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	12-8545S1	12-8560S1	12-8590S1	12-85120S1
Design Pressure (psig)	260	260	240	150
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	8.650	8.650	8.650	8.650
Axial Movement*	1.00	1.25	2.00	3.00
Lateral Movement*	.125	.25	.625	.625
Axial Spring Rate	3389	2541	1694	1271
Lateral Spring Rate	22073	9312	2759	1164

SINGLE-PLY BELLOWS T-321 STAINLESS

4.5"	6"	9"	12"
11-8545S1	11-8560S1	11-8590S1	11-85120S1
240	240	150	100
600	600	600	600
.625	.625	.625	.625
8.650	8.650	8.650	8.650
.75	1.00	1.625	2.125
.125	.188	.50	.875
2211	1658	1106	829
14128	5960	1766	745

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 69.07 sq.in.

8" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	4.5"	6"	9"	12"
Part Number	12-8545S2	12-8560S2	12-8590S2	12-85120S2
Design Pressure (psig)	200	200	175	115
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	8.650	8.650	8.650	8.650
Axial Movement*	1.00	1.25	2.00	2.75
Lateral Movement*	.125	.25	.625	1.125
Axial Spring Rate	2342	1824	1216	912
Lateral Spring Rate	15487	6533	1936	817

SINGLE-PLY BELLOWS T-321 STAINLESS

4.5"	6"	9"	12"
11-8545S2	11-8560S2	11-8590S2	11-85120S2
150	150	90	50
600	600	600	600
.625	.625	.625	.625
8.650	8.650	8.650	8.650
.875	1.25	2.00	2.75
.125	.25	.625	1.125
1113	835	557	417
7090	2991	886	374

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 69.07 sq.in.

8" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	12-8560R	12-8590R	12-85120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	8.650	8.650	8.650	
Axial Movement*	2.0	3.0	5.50	
Lateral Movement*	.50	1.0	1.50	
Axial Spring Rate	165	103	64	
Lateral Spring Rate	591	165	58	

SINGLE-PLY BELLOWS T-321 STAINLESS

6"	9"	12"	15"
11-8560R	11-8590R	11-85120R	11-85150R
5	5	5	5
1200	1200	1200	1200
.50	.50	.50	.50
8.650	8.650	8.650	8.650
1.375	2.50	3.5	4.25
.25	.75	1.25	1.88
365	196	147	129
1305	315	133	93

Tube size bellows available on request

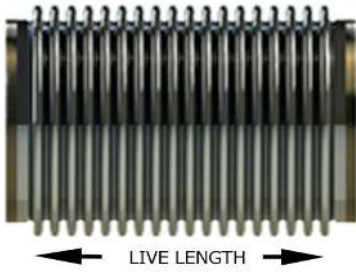
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Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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10" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	12-10560S1	12-10590S1	12-105120S1	12-105150S1
Design Pressure (psig)	250	250	150	100
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	10.775	10.775	10.775	10.775
Axial Movement*	1.50	2.375	3.375	4.25
Lateral Movement*	.25	.50	1.00	1.625
Axial Spring Rate	2439	1578	1165	958
Lateral Spring Rate	14126	4052	1681	884

SINGLE-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	11-10560S1	11-10590S1	11-105120S1	11-105150S1
Design Pressure (psig)	135	135	75	50
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	10.775	10.775	10.775	10.775
Axial Movement*	1.375	2.25	3.25	4.00
Lateral Movement*	.25	.50	1.00	1.50
Axial Spring Rate	1266	815	593	488
Lateral Spring Rate	7236	2080	851	146

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 107.88 sq.in.

10" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	12-10560S2	12-10590S2	12-105120S2	12-105150S2
Design Pressure (psig)	140	95	50	30
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	10.775	10.775	10.775	10.775
Axial Movement*	2.00	3.25	4.50	6.00
Lateral Movement*	.375	.875	1.50	2.00
Axial Spring Rate	854	552	408	336
Lateral Spring Rate	4897	1412	586	308

SINGLE-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	11-10560S2	11-10590S2	11-105120S2	11-105150S2
Design Pressure (psig)	100	100	50	50
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	10.775	10.775	10.775	10.775
Axial Movement*	1.625	2.50	3.50	4.50
Lateral Movement*	.25	.625	1.25	1.75
Axial Spring Rate	899	579	428	352
Lateral Spring Rate	5377	1477	613	322

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 107.88 sq.in.

10" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	N/A
Live Length				
Part Number	12-10560R	12-10590R	12-105120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	10.775	10.775	10.775	
Axial Movement*	2.0	3.0	5.50	
Lateral Movement*	.430	1.0	1.50	
Axial Spring Rate	154	103	80	
Lateral Spring Rate	845	248	110	

SINGLE-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	11-10560R	11-10590R	11-105120R	11-105150R
Design Pressure (psig)	5	5	5	5
Design Temp (F)	1200	1200	1200	1200
Neck Length	.50	.50	.50	.50
Neck I.D.	10.775	10.775	10.775	10.775
Axial Movement*	1.75	3.0	4.0	5.5
Lateral Movement*	.25	.75	1.25	1.88
Axial Spring Rate	362	233	171	146
Lateral Spring Rate	2069	593	245	133

Tube size bellows available on request.

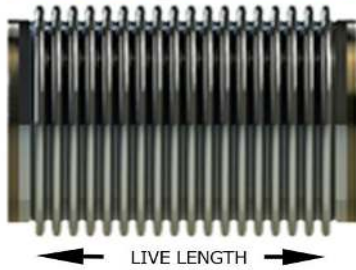
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Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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12" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-12560S1	12-12590S1	12-125120S1	12-125150S1
Design Pressure (psig)	250	250	160	120
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	12.775	12.775	12.775	12.775
Axial Movement*	1.50	2.375	3.25	4.125
Lateral Movement*	.188	.50	.875	1.50
Axial Spring Rate	2926	1894	1399	1150
Lateral Spring Rate	23045	6653	2761	1451

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-12560S1	11-12590S1	11-125120S1	11-125150S1
Design Pressure (psig)	135	135	90	60
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	12.775	12.775	12.775	12.775
Axial Movement*	1.375	2.25	3.125	4.00
Lateral Movement*	.188	.4375	.875	1.375
Axial Spring Rate	1470	952	703	578
Lateral Spring Rate	11523	3328	1382	726

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 148.60 sq.in.

12" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-12560S2	12-12590S2	12-125120S2	12-125150S2
Design Pressure (psig)	140	110	60	40
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	12.775	12.775	12.775	12.775
Axial Movement*	2.00	3.25	4.50	6.00
Lateral Movement*	.25	.75	1.375	1.75
Axial Spring Rate	1009	652	482	396
Lateral Spring Rate	7921	2285	948	499

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-12560S2	11-12590S2	11-125120S2	11-125150S2
Design Pressure (psig)	110	110	60	40
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	12.775	12.775	12.775	12.775
Axial Movement*	1.63	2.50	3.50	4.50
Lateral Movement*	.188	.50	1.00	1.625
Axial Spring Rate	1059	686	507	416
Lateral Spring Rate	8821	2410	998	526

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 148.60 sq.in.

12" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	12-12560R	12-12590R	12-125120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	12.775	12.775	12.775	
Axial Movement*	2.0	3.0	5.50	
Lateral Movement*	.375	.875	1.50	
Axial Spring Rate	181	121	91	
Lateral Spring Rate	1,368	405	171	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-12560R	11-12590R	11-125120R	11-125150R
Design Pressure (psig)	5	5	5	5
Design Temp (F)	1200	1200	1200	1200
Neck Length	.50	.50	.50	.50
Neck I.D.	12.775	12.775	12.775	12.775
Axial Movement*	1.75	3.0	4.0	5.0
Lateral Movement*	.25	.63	1.0"	1.75
Axial Spring Rate	428	276	204	172
Lateral Spring Rate	3352	968	399	216

Tube size bellows available on request.

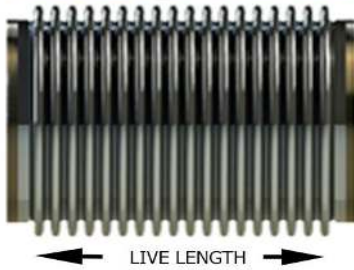
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Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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14" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-14060S1	12-14090S1	12-140120S1	12-140150S1
Design Pressure (psig)	200	190	140	85
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	14.025	14.025	14.025	14.025
Axial Movement*	1.75	2.75	3.50	4.75
Lateral Movement*	.25	.50	1.00	1.50
Axial Spring Rate	2137	1425	1069	855
Lateral Spring Rate	20560	6092	2570	1316

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-14060S1	11-14090S1	11-140120S1	11-140150S1
Design Pressure (psig)	185	175	160	115
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	14.025	14.025	14.025	14.025
Axial Movement*	1.25	2.00	2.50	3.25
Lateral Movement*	.125	.375	.625	1.00
Axial Spring Rate	2832	1888	1416	1133
Lateral Spring Rate	27178	8053	3397	1739

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 181.10 sq.in.

14" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-14060S2	12-14090S2	12-140120S2	12-140150S2
Design Pressure (psig)	155	150	95	60
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	14.025	14.025	14.025	14.025
Axial Movement*	2.00	3.00	4.25	5.50
Lateral Movement*	.25	.625	1.125	1.75
Axial Spring Rate	1525	1016	762	610
Lateral Spring Rate	14649	4340	1831	938

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-14060S2	11-14090S2	11-140120S2	11-140150S2
Design Pressure (psig)	95	90	70	40
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	14.025	14.025	14.025	14.025
Axial Movement*	1.75	2.75	3.75	4.75
Lateral Movement*	.188	.50	1.00	1.50
Axial Spring Rate	1085	723	542	434
Lateral Spring Rate	10389	3078	1299	665

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 181.80 sq.in.

14" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	12-14060R	12-14090R	12-140120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	14.025	14.025	14.025	
Axial Movement*	2.0	3.0	5.50	
Lateral Movement*	.375	.75	1.50	
Axial Spring Rate	198	132	99	
Lateral Spring Rate	1,788	530	223	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-14060R	11-14090R	11-140120R	11-140150R
Design Pressure (psig)	5	5	5	5
Design Temp (F)	1200	1200	1200	1200
Neck Length	.50	.50	.50	.50
Neck I.D.	14.025	14.025	14.025	14.025
Axial Movement*	2.25	3.0	4.5	6.0
Lateral Movement*	.25	.63	1.0	1.75
Axial Spring Rate	312	206	155	133
Lateral Spring Rate	2980	877	370	204

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded.

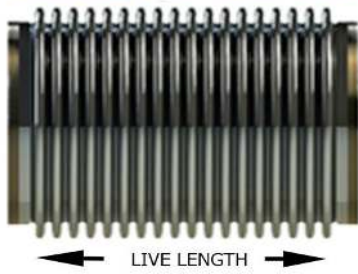
*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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16" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-16060S1	12-16090S1	12-160120S1	12-160150S1
Design Pressure (psig)	200	190	150	100
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	16.025	16.025	16.025	16.025
Axial Movement*	1.875	2.75	3.75	5.00
Lateral Movement*	.188	.50	.875	1.25
Axial Spring Rate	2436	1614	1218	975
Lateral Spring Rate	30016	8842	3752	1921

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-16060S1	11-16090S1	11-160120S1	11-160150S1
Design Pressure (psig)	180	170	155	125
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	16.025	16.025	16.025	16.025
Axial Movement*	1.25	1.75	2.625	3.25
Lateral Movement*	.125	.25	.625	1.00
Axial Spring Rate	3232	2155	1616	1293
Lateral Spring Rate	39730	11772	4966	2543

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 231.68 sq.in.

16" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-16060S2	12-16090S2	12-160120S2	12-160150S2
Design Pressure (psig)	165	160	120	75
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	16.025	16.025	16.025	16.025
Axial Movement*	2.00	3.00	4.00	5.25
Lateral Movement*	.188	.50	.875	1.50
Axial Spring Rate	1872	1248	936	749
Lateral Spring Rate	22953	6801	2869	1469

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-16060S2	11-16090S2	11-160120S2	11-160150S2
Design Pressure (psig)	95	90	75	50
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	16.025	16.025	16.025	16.025
Axial Movement*	1.75	2.75	3.75	4.75
Lateral Movement*	.188	.375	.75	1.375
Axial Spring Rate	1238	825	619	495
Lateral Spring Rate	15189	4500	1899	972

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 231.68 sq.in.

16" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	12-16060R	12-16090R	12-160120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	16.025	16.025	16.025	
Axial Movement*	2.0	3.0	5.50	
Lateral Movement*	.25	.625	1.25	
Axial Spring Rate	225	150	113	
Lateral Spring Rate	2,623	177	328	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-16060R	11-16090R	11-160120R	11-160150R
Design Pressure (psig)	5	5	5	5
Design Temp (F)	1200	1200	1200	1200
Neck Length	.50	.50	.50	.50
Neck I.D.	16.025	16.025	16.025	16.025
Axial Movement*	2.25	3.0	4.5	6.0
Lateral Movement*	.25	.63	1.0	1.63
Axial Spring Rate	355	235	176	152
Lateral Spring Rate	4352	1,280	540	297

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded.

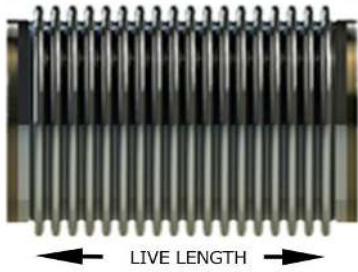
*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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18" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-18060S1	12-18090S1	12-180120S1	12-180150S1
Design Pressure (psig)	200	180	175	110
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	18.025	18.025	18.025	18.025
Axial Movement*	1.875	2.75	3.75	4.75
Lateral Movement*	.188	.375	.75	1.25
Axial Spring Rate	2735	1823	1367	1094
Lateral Spring Rate	41988	12441	5248	2687

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-18060S1	11-18090S1	11-180120S1	11-180150S1
Design Pressure (psig)	180	170	160	150
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	18.025	18.025	18.025	18.025
Axial Movement*	1.25	1.875	2.50	3.25
Lateral Movement*	.125	.25	.50	.875
Axial Spring Rate	3631	2420	1815	1452
Lateral Spring Rate	55622	16481	6953	3560

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 289.38 sq.in.

18" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-18060S2	12-18090S2	12-180120S2	12-180150S2
Design Pressure (psig)	160	155	125	80
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	18.025	18.025	18.025	18.025
Axial Movement*	2.00	3.00	4.00	5.25
Lateral Movement*	.188	.375	.875	1.375
Axial Spring Rate	1950	1300	975	780
Lateral Spring Rate	29908	8862	3738	1914

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-18060S2	11-18090S2	11-180120S2	11-180150S2
Design Pressure (psig)	95	90	80	55
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	18.025	18.025	18.025	18.025
Axial Movement*	1.75	2.625	3.625	4.625
Lateral Movement*	.188	.375	.75	1.25
Axial Spring Rate	1391	927	695	556
Lateral Spring Rate	21270	6302	2659	1361

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 289.38 sq.in.

18" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	12-18060R	12-18090R	12-180120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	18.025	18.025	18.025	
Axial Movement*	2.0	3.0	5.50	
Lateral Movement*	.25	.50	1.13	
Axial Spring Rate	253	168	126	
Lateral Spring Rate	3,684	1,092	461	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-18060R	11-18090R	11-180120R	11-180150R
Design Pressure (psig)	5	5	5	5
Design Temp (F)	1200	1200	1200	1200
Neck Length	.50	.50	.50	.50
Neck I.D.	18.025	18.025	18.025	18.025
Axial Movement*	2.25	3.0	4.5	6.0
Lateral Movement*	.188	.50	.88	1.5"
Axial Spring Rate	399	264	198	170
Lateral Spring Rate	6090	1,790	755	416

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded.

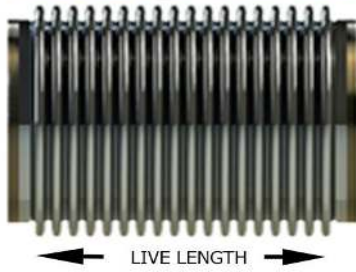
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Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



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20" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-20060S1	12-20090S1	12-200120S1	12-200150S1
Design Pressure (psig)	200	190	175	125
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	20.025	20.025	20.025	20.025
Axial Movement*	1.75	2.75	3.75	4.75
Lateral Movement*	.125	.375	.625	1.00
Axial Spring Rate	3033	2022	1516	1213
Lateral Spring Rate	56766	16820	7096	3633

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-20060S1	11-20090S1	11-200120S1	11-200150S1
Design Pressure (psig)	180	170	160	150
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	20.025	20.025	20.025	20.025
Axial Movement*	1.25	1.875	2.50	3.25
Lateral Movement*	.100	.25	.50	.75
Axial Spring Rate	4028	2685	2014	1611
Lateral Spring Rate	75252	22297	9406	4816

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 352.82 sq.in.

20" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-20060S2	12-20090S2	12-200120S2	12-200150S2
Design Pressure (psig)	155	150	135	90
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	20.025	20.025	20.025	20.025
Axial Movement*	2.00	3.00	4.00	5.25
Lateral Movement*	.188	.375	.75	1.25
Axial Spring Rate	2162	1441	1081	865
Lateral Spring Rate	40430	11979	5054	2587

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-20060S2	11-20090S2	11-200120S2	11-200150S2
Design Pressure (psig)	95	90	80	60
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	20.025	20.025	20.025	20.025
Axial Movement*	1.75	2.625	3.625	4.625
Lateral Movement*	.125	.375	.625	1.00
Axial Spring Rate	1542	1028	771	617
Lateral Spring Rate	28772	8525	3597	1841

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 352.82 sq.in.

20" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	12-20060R	12-20090R	12-200120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	20.025	20.025	20.025	
Axial Movement*	2.0	3.0	5.25	
Lateral Movement*	.25	.50	1.0	
Axial Spring Rate	280	186	171	
Lateral Spring Rate	4,997	1,480	783	

SINGLE-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	11-20060R	11-20090R	11-200120R	11-200150R
Design Pressure (psig)	5	5	5	5
Design Temp (F)	1200	1200	1200	1200
Neck Length	.50	.50	.50	.50
Neck I.D.	20.025	20.025	20.025	20.025
Axial Movement*	2.25	3.0	4.5	6.0
Lateral Movement*	.188	.50	.75	1.38
Axial Spring Rate	442	292	219	189
Lateral Spring Rate	8235	2,420	1,021	562

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded.

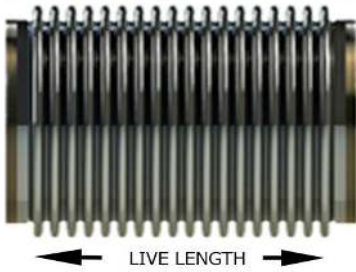
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Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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22" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	12-22060S1	12-22090S1	12-220120S1	12-220150S1
Design Pressure (psig)	195	185	175	135
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	22.025	22.025	22.025	22.025
Axial Movement*	1.75	2.75	3.75	4.75
Lateral Movement*	.125	.325	.625	1.00
Axial Spring Rate	3330	2220	1665	1332
Lateral Spring Rate	74644	22117	9331	4777

SINGLE-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	11-22060S1	11-22090S1	11-220120S1	11-220150S1
Design Pressure (psig)	175	165	155	150
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	22.025	22.025	22.025	22.025
Axial Movement*	1.25	1.875	2.625	3.25
Lateral Movement*	.100	.25	.375	.625
Axial Spring Rate	4424	2950	2212	1770
Lateral Spring Rate	99011	29337	12376	6337

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 422.55 sq.in.

22" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	12-22060S2	12-22090S2	12-220120S2	12-220150S2
Design Pressure (psig)	155	150	135	95
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	22.025	22.025	22.025	22.025
Axial Movement*	2.00	3.00	4.00	5.25
Lateral Movement*	.125	.375	.625	1.125
Axial Spring Rate	2373	1582	1187	949
Lateral Spring Rate	53157	15750	6645	3402

SINGLE-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	11-22060S2	11-22090S2	11-220120S2	11-220150S2
Design Pressure (psig)	95	90	85	60
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	22.025	22.025	22.025	22.025
Axial Movement*	1.75	2.625	3.625	4.625
Lateral Movement*	.125	.25	.625	1.00
Axial Spring Rate	1693	1129	847	677
Lateral Spring Rate	37840	11212	4730	2422

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 422.55 sq.in.

22" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	N/A
Live Length				
Part Number	12-22060R	12-22090R	12-220120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	22.025	22.025	22.025	
Axial Movement*	2.0	3.0	5.25	
Lateral Movement*	.188	.50	.875	
Axial Spring Rate	307	204	187	
Lateral Spring Rate	6,587	1,952	1,030	

SINGLE-PLY BELLOWS T-321 STAINLESS

	6"	9"	12"	15"
Live Length				
Part Number	11-22060R	11-22090R	11-220120R	11-220150R
Design Pressure (psig)	5	5	5	5
Design Temp (F)	1200	1200	1200	1200
Neck Length	.50	.50	.50	.50
Neck I.D.	22.025	22.025	22.025	22.025
Axial Movement*	2.125	3.0	4.5	6.0
Lateral Movement*	.188	.38	.75	1.25
Axial Spring Rate	485	321	240	207
Lateral Spring Rate	10831	2,182	1,342	739

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded.

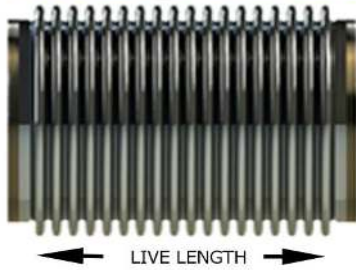
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Exhaust bellows 10,000 cycles minimum



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BELLOWS CAPSULES



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24" SERIES-1 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-24060S1	12-24090S1	12-240120S1	12-240150S1
Design Pressure (psig)	195	185	175	150
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	24.025	24.025	24.025	24.025
Axial Movement*	1.75	2.75	3.75	4.75
Lateral Movement*	.125	.325	.50	.875
Axial Spring Rate	3625	2417	1813	1450
Lateral Spring Rate	95882	28409	11985	6136

SINGLE-PLY BELLOWS T-321 STAINLESS

6"	9"	12"	15"
11-24060S1	11-24090S1	11-240120S1	11-240150S1
165	160	150	150
600	600	600	600
.625	.625	.625	.625
24.025	24.025	24.025	24.025
1.25	1.875	2.625	3.25
.062	.188	.375	.625
4820	3213	2410	1928
127289	37715	15911	8147

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 498.56 sq.in.

24" SERIES-2 METAL BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	15"
Part Number	12-24060S2	12-24090S2	12-240120S2	12-240150S2
Design Pressure (psig)	155	150	135	100
Design Temp (F)	600	600	600	600
Neck Length	.625	.625	.625	.625
Neck I.D.	24.025	24.025	24.025	24.025
Axial Movement*	2.00	3.00	4.00	5.25
Lateral Movement*	.125	.25	.625	1.00
Axial Spring Rate	2584	1723	1292	1034
Lateral Spring Rate	68298	20236	8537	4371

SINGLE-PLY BELLOWS T-321 STAINLESS

6"	9"	12"	15"
11-24060S2	11-24090S2	11-240120S1	11-240150S2
95	90	85	75
600	600	600	600
.625	.625	.625	.625
24.025	24.025	24.025	24.025
1.75	2.625	3.625	4.50
.125	.25	.50	.875
1844	1229	922	737
48628	14408	6079	3112

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded. Effective area = 498.56 sq.in.

24" LOW PRESSURE EXHAUST BELLOWS

MULTI-PLY BELLOWS T-321 STAINLESS

Live Length	6"	9"	12"	N/A
Part Number	12-24060R	12-24090R	12-240120R	
Design Pressure (psig)	5	5	5	
Design Temp (F)	1200	1200	1200	
Neck Length	.50	.50	.50	
Neck I.D.	24.025	24.025	24.025	
Axial Movement*	2.0	3.0	5.25	
Lateral Movement*	.188	.50	.75	
Axial Spring Rate	333	222	204	
Lateral Spring Rate	8,482	2,513	1,324	

SINGLE-PLY BELLOWS T-321 STAINLESS

6"	9"	12"	15"
11-24060R	11-24090R	11-240120R	11-240150R
5	5	5	5
1200	1200	1200	1200
.50	.50	.50	.50
24.025	24.025	24.025	24.025
2.125	3.0	4.5	6.75
.25	.38	.63	1.25
528	349	262	130
13920	4,088	1,725	564

EJMA 10th Edition data sheets available on request. Necks are banded and resistance welded.

*Movements are non-concurrent
Multi-ply design 3000 cycles minimum
Single-ply design 3000 cycles minimum
Exhaust bellows 10,000 cycles minimum



Contact us for a personalized EJMA 10 data sheet based on your pressure, temperature and concurrent axial and lateral movements.

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