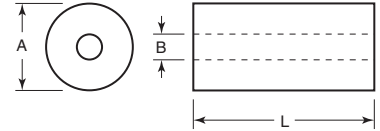




Neoprene Elastomer Springs

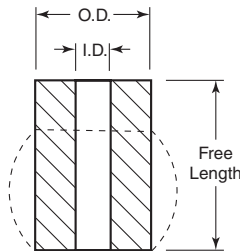
Item No.	A	B	L	R	D	T	Pack Qty.
BES-3500	.630	.25	1 ⁵ / ₃₂	436	.17	72	1
BES-3501	.630	.25	5 ⁵ / ₈	353	.22	77	1
BES-3502	.630	.25	2 ⁵ / ₃₂	292	.27	80	1
BES-3503	.630	.25	1	236	.34	83	1
BES-3510	.787	.33	5 ⁵ / ₈	610	.22	133	1
BES-3511	.787	.33	2 ⁵ / ₃₂	482	.28	132	1
BES-3512	.787	.33	1	381	.35	133	1
BES-3513	.787	.33	1 ¹ / ₄	287	.44	126	1
BES-3520	1.000	.41	2 ⁵ / ₃₂	787	.28	215	1
BES-3521	1.000	.41	1	598	.35	209	1
BES-3522	1.000	.41	1 ¹ / ₄	524	.44	229	1
BES-3523	1.000	.41	1 ¹ / ₁₆	440	.55	241	1
BES-3530	1.250	.53	1 ¹ / ₄	1,031	.44	451	1
BES-3531	1.250	.53	1 ³ / ₆₄	828	.55	471	1
BES-3532	1.250	.53	1 ³ / ₃₂	651	.69	456	1
BES-3533	1.250	.53	2 ¹ / ₂	517	.87	452	1
BES-3540	1.560	.53	1 ¹ / ₄	1,790	.44	783	1
BES-3541	1.560	.53	1 ³ / ₆₄	1,439	.55	816	1
BES-3542	1.560	.53	1 ³ / ₃₂	1,148	.69	804	1
BES-3543	1.560	.53	2 ¹ / ₂	931	.87	815	1
BES-3544	1.560	.53	3 ³ / ₃₂	744	1.10	830	1
BES-3553	2.000	.66	2 ¹ / ₂	1,482	.87	1,297	1
BES-3563	2.500	.66	2 ¹ / ₂	2,286	.87	2,000	1
BES-3573	3.150	.83	2 ¹ / ₂	4,572	.87	4,000	1
BES-3583	3.940	.83	2 ¹ / ₂	6,435	.87	5,631	1



Neoprene elastomer springs have proven to be the safest, most efficient and reliable compression material for punching, stamping and drawing dies. Major advantages include higher loads, increased durability, better performance, no maintenance and very long life.

Note: R = Spring rate, lbs./inch deflection 20%
 D = Max. recommended deflection - 35% L
 T = Approximate total load at max. deflection ±20%

Urethane Springs



These urethane springs are designed for use in applications where corrosion, vibration and magnetism prevent the use of conventional steel springs. They replace steel coil springs in medium pressure applications involving space limitations, high blank holding pressure and adequate stripping. Durometer 95 shore A. Color black. Tensile strength 5,000 psi. Temperature range -40 to +180 degrees Fahrenheit.

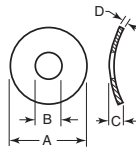
See pages 302-303 for bumpers in Material Handling.

Item No.	A	B	C	Load/ Lbs. 1/8" Def.	Pack Qty.	Item No.	A	B	C	Load/ Lbs. 1/8" Def.	Pack Qty.
US-10	7/8	1/4	1	425	1	US-80	1 1/4	5/8	1	700	1
US-15	7/8	1/4	1 1/4	325	1	US-90	1 1/4	5/8	2	325	1
US-30	7/8	1/4	12 1/2	—	1	US-95	1 1/4	5/8	12 1/2	—	1
US-35	1	3/8	1	525	1	US-100	1 1/2	3/4	1 1/4	875	1
US-40	1	3/8	1 1/4	425	1	US-105	1 1/2	3/4	1 1/2	725	1
US-45	1	3/8	1 1/2	325	1	US-110	1 1/2	3/4	2	525	1
US-50	1	3/8	2	250	1	US-115	1 1/2	3/4	12 1/2	—	1
US-55	1	3/8	12 1/2	—	1	US-120	2	1	1 1/4	1,550	1
US-60	1 1/8	1/2	1	600	1	US-125	2	1	2	850	1
US-65	1 1/8	1/2	1 1/4	475	1	US-130	2	1	2 3/4	625	1
US-70	1 1/8	1/2	2	275	1	US-135	2	1	12 1/2	—	1
US-75	1 1/8	1/2	12 1/2	—	1						

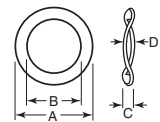
Spring Washers



Single Wave



Three Wave

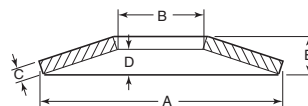


Spring washers are specifically designed to provide a compensating spring force and sustain a load or absorb a shock. Single wave washers are designed for applications involving low loads and requiring high deflection; often used in taking up the play for large tolerance variations or anti-rattle applications. Three wave washers provide somewhat greater load bearing capacity than single wave washers with some loss in deflection capability; commonly used as a take up spring for a wide range of load-bearing applications. Made from spring steel. Available plain, with phosphate oil, or zinc plated.

Item No.	Hole Size	Finish	At Yield Point			Thick. D	Max. Lbs.	Max. Deflection	Pack Qty.
			A Max./Min.	B Max./Min.	C Max./Min.				
Single Wave									
WW-125	#10	Plain	.448/.428	.208/.198	.080/.060	.010	7.2	.021	1
WW-130	#10	Plain	.510/.490	.208/.198	.090/.070	.015	17.8	.019	1
WW-135	#10	Zinc	.510/.490	.208/.198	.090/.070	.015	17.8	.019	1
WW-140	1/4	Plain	.495/.485	.270/.260	.100/.060	.015	13.8	.018	1
WW-155	1/4	Zinc	.510/.490	.257/.251	.107/.087	.010	6.6	.028	1
WW-160	5/16	Plain	.635/.615	.320/.314	.108/.088	.020	26.3	.022	1
WW-170	3/8	Plain	.760/.740	.395/.385	.150/.130	.010	6.4	.063	1
WW-175	3/8	Zinc	.760/.740	.395/.385	.150/.130	.010	6.4	.063	1
WW-185	1/2	Zinc	.750/.730	.510/.500	.140/.120	.015	9.5	.041	1
Three Wave									
WW-330	5/16	Plain	.510/.490	.332/.320	.065/.045	.015	36.2	.010	1
WW-345	3/8	Plain	.665/.645	.395/.385	.120/.100	.022	93.8	.012	1
WW-350	3/8	Plain	.885/.865	.659/.640	.135/.115	.015	25.4	.031	1



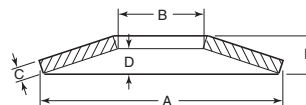
**Belleville Disc Springs
Steel and Stainless Steel**



Conical in shape, these disc springs have special geometric relationships of OD, ID, thickness and height. They are used singly or in stacks to achieve desired load and travel in situations where coil springs are not practical. They are also used to maintain and absorb pressure in bolted assemblies. Carbon springs are made from 1075 steel for use up to 250 degree Fahrenheit. Stainless are made from 17/7 PH stainless steel for use up to 500 degree Fahrenheit. Deflection is shown at 75% of height.

Steel		Stainless					Deflection @	Deflection @	Pack	Steel		Stainless					Deflection @	Deflection @	Pack
Item No.	Item No.	A	B	C	D	E	.75h Load Lbs.	F=.75h Deflection	Qty.	Item No.	Item No.	A	B	C	D	E	.75h Load Lbs.	F=.75h Deflection	Qty.
BDA-5	BDA-405	.315	.165	.0157	.0080	.0236	50	.0060	1	BDA-115	—	1.240	.642	.0787	.0300	.1083	1,497	.0225	1
BDA-10	BDA-410	.394	.205	.0197	.0099	.0295	78	.0074	1	BDA-130	—	1.400	.720	.0787	.0319	.1102	1,236	.0239	1
BDA-15	BDA-415	.492	.244	.0197	.0139	.0335	70	.0104	1	BDA-135	BDA-535	1.570	.642	.0591	.0515	.1102	658	.0386	1
BDA-20	BDA-420	.492	.244	.0276	.0119	.0394	159	.0090	1	BDA-140	BDA-540	1.570	.803	.0591	.0456	.1043	627	.0342	1
BDA-25	—	.551	.283	.0197	.0158	.0354	66	.0119	1	BDA-145	BDA-545	1.570	.803	.0886	.0358	.1240	1,570	.0269	1
BDA-30	BDA-430	.551	.283	.0315	.0119	.0433	191	.0090	1	BDA-150	—	1.570	.803	.0984	.0379	.1358	2,286	.0284	1
BDA-40	BDA-440	.630	.323	.0236	.0179	.0413	97	.0134	1	BDA-155	—	1.970	.803	.0787	.0595	.1378	1,111	.0446	1
BDA-45	—	.630	.323	.0315	.0159	.0472	197	.0119	1	BDA-160	BDA-560	1.970	1.000	.0787	.0557	.1339	1,129	.0418	1
BDA-50	BDA-450	.630	.323	.0354	.0140	.0492	242	.0105	1	BDA-165	BDA-565	1.970	1.000	.1181	.0438	.1614	2,871	.0329	1
BDA-55	BDA-455	.709	.323	.0315	.0199	.0512	187	.0149	1	BDA-175	—	2.360	1.201	.1181	.0678	.1850	3,184	.0508	1
BDA-60	—	.709	.362	.0394	.0159	.0551	300	.0119	1	BDA-180	—	2.480	1.220	.0984	.0695	.1673	1,705	.0521	1
BDA-70	BDA-470	.787	.402	.0394	.0219	.0610	343	.0164	1	BDA-195	—	2.760	1.398	.1181	.0836	.2008	2,924	.0627	1
BDA-75	BDA-475	.787	.402	.0433	.0179	.0610	364	.0134	1	BDA-200	—	2.760	1.595	.1575	.0641	.2205	5,619	.0480	1
BDA-80	—	.906	.323	.0315	.0297	.0610	170	.0223	1	BDA-215	—	3.150	1.420	.1575	.0875	.2441	5,125	.0656	1
BDA-85	BDA-485	.906	.402	.0394	.0278	.0669	314	.0208	1	BDA-220	—	3.150	1.610	.1181	.0915	.2087	2,491	.0686	1
BDA-90	BDA-490	.984	.480	.0591	.0218	.0807	702	.0164	1	BDA-225	—	3.150	1.610	.1968	.0678	.2638	8,062	.0509	1
BDA-95	BDA-495	1.100	.559	.0394	.0318	.0709	264	.0238	1	BDA-230	—	3.540	1.810	.1378	.0994	.2362	3,366	.0745	1
BDA-100	BDA-500	1.100	.559	.0591	.0258	.0846	683	.0193	1	BDA-240	—	3.940	2.010	.1575	.1194	.2756	4,918	.0895	1
BDA-105	BDA-505	1.240	.642	.0492	.0358	.0846	454	.0268	1	BDA-245	—	3.940	2.010	.2362	.0877	.3228	11,520	.0657	1
BDA-110	—	1.240	.642	.0690	.0278	.0965	930	.0209	1										

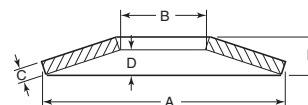
**Belleville Disc Springs
For Flange Applications**



When placed under the nut or bolt head in bolted joints that are subject to thermal or mechanical shock, these discs deflect and move with the bolted joint. This helps compensate for any loosening that develops and prevents damage and leaks caused by thermal expansion, contraction and shock. Made from 17/7 PH stainless steel. Temperature range -220 to +300 degree Celsius. Load tolerance ±20% of load shown.

Item No.	Bolt Size	A	B	C	E	Load At Flat Lbs.	Pack Qty.
BDF-300	3/8	.714	.390	.080	.086	1,200	1
BDF-305	7/16	.820	.452	.080	.097	2,800	1
BDF-310	1/2	.900	.515	.089	.100	2,100	1
BDF-315	5/8	1.145	.656	.125	.143	6,000	1
BDF-320	3/4	1.365	.781	.131	.150	5,100	1
BDF-330	1	1.805	1.032	.168	.195	8,600	1

**Belleville Disc Springs
For use with Ball Bearings**

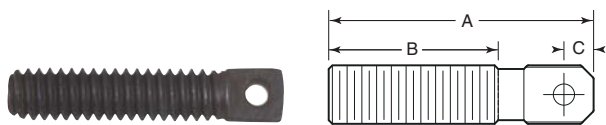


These Belleville disc springs are specially designed as preloading springs for use with ball bearings. They assure perfect positioning of the bearings with no side play. May be used to provide precise bearing preload and proper tension, extending the life of the bearings and eliminating excessive running noise. Made from C1075 steel. Load tolerances ±20% at 75% of height.

Item No.	Ball Bearing Size	A	B	C	D	E	Deflection @ .75h		Pack Qty.
							Load Lbs.	Deflection	
BDB-5	R-2	.366	.228	.0079	.0080	.0158	5.9	.0060	1
BDB-20	624 EL-4	.504	.283	.0098	.0099	.0197	6.7	.0075	1
BDB-30	625 634 EL-5	.622	.323	.0098	.0119	.0217	5.3	.0089	1
BDB-40	607 EL-7	.740	.402	.0138	.0138	.0276	11.8	.0104	1
BDB-50	R-6	.862	.539	.0138	.0158	.0295	11.8	.0118	1
BDB-55	609 EL-9	.933	.563	.0157	.0198	.0354	18.5	.0148	1
BDB-60	6000 629	1.012	.563	.0157	.0198	.0354	14.5	.0148	1
BDB-65	6001	1.091	.681	.0157	.0238	.0394	18.4	.0179	1
BDB-75	6200	1.169	.685	.0157	.0277	.0433	19	.0208	1
BDB-80	6002 6201	1.248	.803	.0157	.0277	.0433	18.6	.0208	1
BDB-85	R-10	1.358	1.000	.0197	.0277	.0472	34.8	.0208	1
BDB-95	6003 6202	1.362	.882	.0197	.0276	.0472	27.3	.0207	1
BDB-105	6203	1.559	1.004	.0197	.0316	.0512	25.3	.0237	1
BDB-110	6004 6302	1.638	1.004	.0197	.0355	.0551	26.1	.0266	1
BDB-120	6205 6304	2.028	1.398	.0236	.0357	.0591	31.1	.0267	1



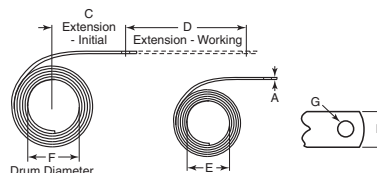
Spring Anchors



Spring anchors offer an economical way to secure the ends of extension springs, and provide easy adjustments. Available in C-12114 steel with a black oxide finish or 300 series stainless steel.

Steel	Stainless								
Item No.	Item No.	Thread	A	B	C	Hole Size	Load/Lbs.	Pack Qty.	
CSA-50	SSA-50	6-32	.625	.400	.070	.05	120	1	
CSA-60	SSA-60	8-32	.875	.625	.085	.07	170	1	
CSA-70	—	1/4-20	1.25	.875	.13	.10	500	1	
CSA-80	SSA-80	1/4-28	1.25	.875	.130	.10	500	1	
CSA-90	—	3/8-16	1.62	1.125	.180	.17	835	1	
—	SSA-70	1/4-20	1.25	.875	.130	.10	500	1	
—	SSA-90	3/8-16	1.62	1.125	.18	.17	835	1	

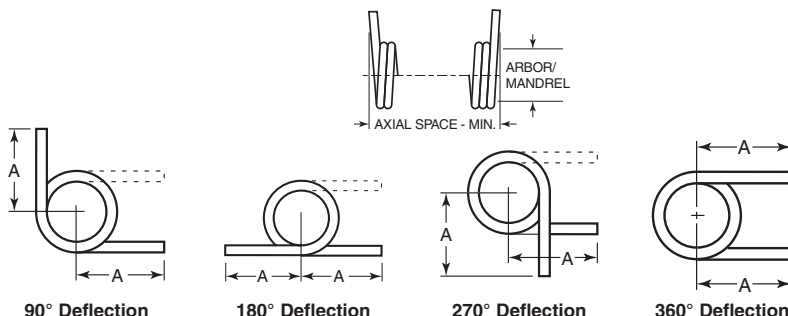
Constant-Force Springs
Stainless Steel



Item No.	A	B	Lgth.	Min. C	D	E	F	G	+/- 10% Load Lbs.	Pack Qty.
4,000 Cycle Fatigue Life										
CFS-10	.004	.25	15	.61	12	.34	.40	.50	.131	1
CFS-20	.006	.37	22	.92	18	.51	.62	1.12	.131	1
CFS-25	.007	.50	26	1.06	21	.59	.75	1.62	.131	1
CFS-35	.010	.68	34	1.53	27	.85	1.00	3.50	.187	1
CFS-40	.012	.81	38	1.84	30	1.02	1.25	5.00	.187	1
CFS-45	.014	1.00	43	2.14	33	1.19	1.50	7.00	.187	1
40,000 Cycle Fatigue Life										
CFS-50	.006	.37	21	2.03	12	1.13	1.36	.25	.131	1
CFS-65	.010	.68	36	3.38	21	1.88	2.26	.75	.187	1
CFS-75	.014	1.00	48	4.74	27	2.63	3.16	1.62	.187	1

Well suited to long extensions with no load build up. The spring is usually mounted with the ID tightly wrapped on a drum and the free end attached to a loading force such as a counterbalance. Load capacity can be multiplied by using two or more strips in tandem, back to back or laminated. In use, be sure to leave at least 1 1/2" coiled on the drum at full extension. The spring ID will wrap tightly on the drum so that most applications require no fastening to the drum. Made from Type 301 stainless steel.

Torsion Springs
Stainless Steel



Widely used to store and release energy of rotation or to maintain a pressure over a short distance. Normally used over a supporting mandrel or arbor. The suggested mandrel sizes below allow about 10% clearance at the deflection listed. Sufficient room (minimum axial space) must be provided in the assembly for the spring to function properly. These springs should be used in the direction that winds the coils. Torque values listed are recommended maximum torques. For inspection purposes, the load should be applied at 1/2 leg length (A). These values can be increased 20% for static conditions with only slight setting. Type 302 stainless, plain finish. (ASTM-A313 or AMS-5688).

Left Hand Wound	Right Hand Wound	Wire Dia.	Outside Dia.	Degree of Deflection	Torque In-Lbs.	Mandrel Size	A	Min. Axial Space	Pack Qty.
TSP-10	—	.012	.109	180	.047	.067	.375	.086	1
TSP-30	—	.015	.130	180	.093	.078	.500	.107	1
TSP-60	TSP-560	.017	.259	270	.117	.156	.750	.123	1
TSP-90	TSP-590	.021	.271	360	.218	.187	1.000	.242	1
TSP-110	TSP-610	.025	.235	90	.375	.140	.750	.096	1
TSP-120	TSP-620	.025	.224	180	.375	.140	.750	.206	1
TSP-130	TSP-630	.028	.249	180	.515	.140	1.000	.238	1
—	TSP-640	.030	.281	90	.625	.172	1.000	.116	1
TSP-150	—	.032	.288	90	.820	.172	1.000	.152	1
TSP-170	TSP-670	.035	.450	180	1.000	.281	1.250	.212	1
TSP-160	TSP-660	.035	.315	90	1.000	.187	1.250	.135	1
TSP-180	—	.038	.353	270	1.190	.218	1.250	.465	1
TSP-190	TSP-690	.040	.309	90	1.375	.187	1.250	.198	1

Left Hand Wound	Right Hand Wound	Wire Dia.	Outside Dia.	Degree of Deflection	Torque In-Lbs.	Mandrel Size	A	Min. Axial Space	Pack Qty.
TSP-210	TSP-710	.045	.556	270	2.000	.359	2.000	.415	1
TSP-200	TSP-700	.045	.357	90	2.000	.203	1.250	.259	1
TSP-230	TSP-730	.048	.404	180	2.500	.250	1.250	.450	1
TSP-220	TSP-720	.048	.375	90	2.500	.218	1.250	.238	1
TSP-240	TSP-740	.051	.408	90	2.900	.234	2.000	.293	1
TSP-250	TSP-750	.054	.484	90	3.275	.296	2.000	.310	1
TSP-270	TSP-770	.059	.526	180	4.200	.328	2.000	.560	1
TSP-260	TSP-760	.059	.499	90	4.200	.296	2.000	.340	1
TSP-290	TSP-790	.063	.767	180	5.150	.500	2.000	.475	1
TSP-280	TSP-780	.063	.560	90	5.150	.343	2.000	.362	1
TSP-300	TSP-800	.070	.826	270	7.000	.531	2.000	.717	1
TSP-320	TSP-820	.078	.803	180	9.750	.500	2.000	.660	1
TSP-310	TSP-810	.078	.687	90	9.750	.406	2.000	.450	1

Springs
Stainless Steel



Item No.	A	B	Wire Size	Pack Qty.	Item No.	A	B	Wire Size	Pack Qty.
RAF-1001	3/4	3/16	.010	1	RAF-1003	1 1/2	.310	.016	1



Music Wire



Steel - Made of high carbon alloy. Many uses including springs, control linkages, wire forms, etc. **Stainless** - Made of full hard Type 302 stainless.

Steel		Stainless		Dia.	Gauge	Ft. per Lb.	Pack Qty.
Item No.	Lb. Size	Item No.	Lb. Size				
PBW-209	1/4	—	—	.009	1/0	4,629	1
PBW-210	1/4	PBW-9010	1	.010	1	3,749	1
PBW-212	1/4	—	—	.012	3	2,604	1
PBW-216	1/4	—	—	.016	6	1,465	1
PBW-220	1/4	PBW-9020	1	.020	8	937	1
PBW-224	1/4	PBW-9024	1	.024	10	650	1
PBW-026	1	—	—	.026	11	555	1
PBW-029	1	PBW-9029	1	.029	12	450	1
PBW-031	1	PBW-9031	1	.031	13	400	1
PBW-033	1	—	—	.033	14	346	1
PBW-035	1	—	—	.035	15	306	1
PBW-039	1	—	—	.039	17	250	1
PBW-041	1	PBW-9041	1	.041	18	223	1
PBW-043	1	—	—	.043	19	207	1
PBW-045	1	PBW-9045	1	.045	20	190	1
PBW-047	1	—	—	.047	21	172	1
PBW-059	1	PBW-9059	1	.059	25	110	1
PBW-063	1	PBW-9062*	1	.063	26	95	1
PBW-071	1	—	—	.071	28	78	1
PBW-080	1	PBW-9080	1	.080	30	58	1
PBW-090	1	PBW-9090	1	.090	32	45	1
PBW-125	1	PBW-9125	1	.125	—	24	1

*Dia. is .0625

Spring Looping Tool

Hook-Kon spring looping tool forms a variety of perfect end loops and hooks on coil springs, 1/8" to 1/2" OD.



Item No.	Description	Pack Qty.
SW-104	Hook-Kon Spring Looping Tool	1

Spring Winder



The spring winder quickly winds extension, compression and torsion springs from 1/8" to 1/4" inside diameter in either right or left hand coils. Handles music wire from smallest to 3/16" diameter A pitch gauge accurately regulates distance between coils and may be disengaged while winding extension springs or closed end coils on compression springs.

SW-101 Spring Winder Kit: Includes spring winder with cam lock tension release, two handles, one for large diameter and one for small diameter mandrels. Six mandrels, 1/8", 1/4", 3/8", 1/2", 5/8", and 3/4", wrench, four 1/4 lb. coils of .029", .047", .067" and .085" spring wire. Also includes Hook-Kon spring looping tool and nipper.

SW-102 Spring Winder Kit: Same as above but does not include Hook-Kon spring looping tool and nipper.

SW-103 Utility Model: Same as SW-102 but it does not have cam lock tension release or small handle. Four mandrels 1/8", 1/4", 3/8" and 1/2", with wrench. Spring wire not included.

Item No.	Description	Pack Qty.
SW-101	Spring Winder Kit	1
SW-102	Spring Winder Kit w/o Hook-Kon Tool & Nipper	1
SW-103	Utility Model	1



Medium Duty



Medium Heavy Duty



Heavy Duty

Pressure	Color Code	Maximum Deflection as a Percent of Lgth.	Efficient Operating Range as a Percent of Lgth.
Medium Duty	Blue	50%	25% to 35%
Medium Heavy Duty	Red	37%	20% to 25%
Heavy Duty	Gold	30%	15% to 20%

Chrome silicon die springs are longer lasting than high carbon steel. Shot peened to reduce working stress and to improve the surface. Available in medium, medium-heavy, and heavy pressure styles. Color coded for easy identification.

Medium Duty			Medium Heavy Duty			Heavy Duty			Lgth.	Pack Qty.
Item No.	Load A	Load B	Item No.	Load A	Load B	Item No.	Load A	Load B		
5/8" Hole Size x 3/16" Rod Size										
JS-101A	5.6	28.0	JS-401A	9.0	33.3	JS-701A	12.4	37.2	1	1
JS-102A	4.8	30.0	JS-402A	7.3	33.8	—	—	—	1 1/4	1
JS-103A	3.8	28.5	JS-403A	6.7	37.2	JS-703A	9.6	43.2	1 1/2	1
JS-105A	2.8	28.0	JS-405A	5.0	37.0	—	—	—	2	1
JS-106A	2.4	30.0	JS-406A	4.2	38.9	JS-706A	6.0	45.0	2 1/2	1
JS-107A	1.8	27.0	—	—	—	JS-707A	4.2	37.8	3	1
1/2" Hole Size x 9/32" Rod Size										
JS-109A	0.1	50.0	JS-409A	16.8	62.2	—	—	—	1	1
JS-111A	9.2	57.5	JS-411A	13.9	64.4	—	—	—	1 1/4	1
JS-112A	7.6	57.0	JS-412A	12.0	66.6	JS-712A	16.4	73.8	1 1/2	1
JS-113A	6.8	59.5	JS-413A	10.4	67.4	—	—	—	1 3/4	1
JS-114A	6.4	64.0	JS-414A	8.7	64.4	—	—	—	2	1
JS-116A	5.2	65.0	JS-416A	6.8	62.9	—	—	—	2 1/2	1
JS-117A	4.0	60.0	—	—	—	—	—	—	3	1
JS-118A	3.0	52.5	—	—	—	JS-718A	6.4	67.2	3 1/2	1
5/8" Hole Size x 11/32" Rod Size										
JS-119A	13.1	65.5	JS-419A	27.7	102.5	JS-719A	42.4	127.2	1	1
JS-121A	12.8	80.0	—	—	—	—	—	—	1 1/4	1
JS-110A	10.8	81.0	JS-410A	19.0	105.5	JS-710A	27.2	122.4	1 1/2	1
JS-115A	9.6	84.0	JS-415A	16.8	108.9	JS-715A	24.0	126.0	1 3/4	1
JS-120A	8.8	88.0	JS-420A	14.8	109.5	JS-720A	20.8	124.8	2	1
JS-125A	6.0	75.0	JS-425A	11.5	106.4	—	—	—	2 1/2	1
JS-130A	5.6	84.0	JS-430A	10.0	111.0	JS-730A	14.4	129.6	3	1
JS-135A	4.8	84.0	—	—	—	—	—	—	3 1/2	1
JS-140A	4.4	88.0	—	—	—	—	—	—	4	1
3/4" Hole Size x 3/8" Rod Size										
JS-145A	20.0	150.0	JS-445A	32.0	177.6	JS-745A	65.6	295.2	1 1/2	1
JS-150A	17.6	154.0	—	—	—	—	—	—	1 3/4	1
JS-155A	14.4	144.0	JS-455A	24.8	183.5	JS-755A	49.6	297.6	2	1
JS-160A	12.0	150.0	JS-460A	19.2	177.6	JS-760A	37.6	282.0	2 1/2	1
JS-165A	9.6	144.0	JS-465A	14.4	159.8	JS-765A	31.2	280.8	3	1
JS-170A	8.0	140.0	JS-470A	12.8	165.8	JS-770A	26.4	277.2	3 1/2	1
JS-180A	6.4	144.0	JS-480A	11.2	186.5	—	—	—	4 1/2	1
JS-195A	4.0	120.0	—	—	—	—	—	—	6	1
—	—	—	JS-475A	12.0	177.6	JS-775A	23.2	278.4	4	1
—	—	—	—	—	—	JS-790A	16.0	264.0	5 1/2	1
1" Hole Size x 1/2" Rod Size										
JS-200A	23.2	232.0	JS-500A	36.8	272.3	JS-800A	84.0	504.0	2	1
JS-205A	20.0	250.0	JS-505A	28.8	266.4	JS-805A	68.0	510.0	2 1/2	1
JS-210A	15.2	228.0	JS-510A	23.2	257.5	JS-810A	54.4	489.6	3	1
JS-215A	12.8	224.0	—	—	—	JS-815A	45.6	478.8	3 1/2	1
JS-220A	12.0	240.0	JS-520A	18.4	272.3	JS-820A	40.0	480.0	4	1
JS-225A	10.4	234.0	—	—	—	—	—	—	4 1/2	1
JS-230A	9.6	240.0	—	—	—	—	—	—	5	1
JS-240A	8.0	240.0	—	—	—	JS-840A	25.6	460.8	6	1
1 1/4" Hole Size x 3/8" Rod Size										
JS-245A	35.2	352.0	JS-545A	86.4	639.4	JS-845A	149.6	897.6	2	1
JS-250A	28.8	360.0	JS-550A	62.4	577.2	—	—	—	2 1/2	1
JS-255A	24.0	360.0	—	—	—	—	—	—	3	1
JS-265A	17.6	352.0	JS-565A	36.8	544.6	JS-865A	66.4	796.8	4	1
JS-275A	13.6	340.0	—	—	—	—	—	—	5	1
—	—	—	—	—	—	JS-870A	58.4	788.4	4 1/2	1
1 1/2" Hole Size x 3/4" Rod Size										
JS-290A	44.8	448.0	JS-590A	108.0	799.2	JS-890A	190.4	1,142.4	2	1
JS-295A	36.8	460.0	—	—	—	—	—	—	2 1/2	1
JS-300A	33.6	504.0	—	—	—	—	—	—	3	1
JS-310A	21.6	432.0	JS-610A	48.0	710.4	JS-910A	91.2	1,094.4	4	1
JS-315A	20.8	468.0	—	—	—	—	—	—	4 1/2	1
JS-320A	20.0	500.0	—	—	—	—	—	—	5	1
—	—	—	JS-605A	52.8	683.8	—	—	—	3 1/2	1
—	—	—	JS-630A	30.4	674.9	—	—	—	6	1
2" Hole Size x 1" Rod Size										
JS-335A	89.6	1,120.0	—	—	—	JS-935A	220.0	1,650.0	2 1/2	1
JS-345A	64.8	1,134.0	JS-645A	80.0	1,036.0	—	—	—	3 1/2	1
JS-360A	41.6	1,040.0	—	—	—	JS-960A	104.0	1,560.0	5	1