

*Long-lasting,
Precision
Springs—
Inch & Metric (ISO)
JIS*

MaxLife®



Global leader in
providing fabrication
and stamping solutions

a MISUMI Group Company

www.daytonlamina.com

*Optimum
results, longer
spring life*



MaxLife® Die Springs

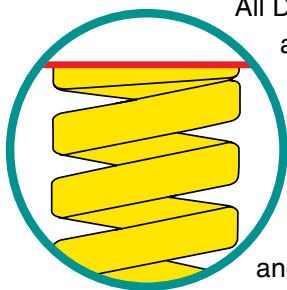
Product Applications

Dayton MaxLife® Die Springs are designed to the highest quality standards, and manufactured to outperform and outlast other major brands. All Dayton die springs are available in a wide range of lengths, diameters, and load classifications in both inch and metric sizes. In addition, all springs are color-coded for easy identification of load range.

Corrosion-resistant Dayton die springs are made from pre-tempered chrome silicon wire to improve dimensional accuracy, minimize high-stress cracking, optimize the working life of press and mold dies, and help reduce downtime. Many manufacturers specify Dayton die springs to ensure optimum operation in heavy industry applications, including: automotive; aircraft; appliance; electrical; and electronic.

Quality & Performance

From the incoming raw material (tested for tensile strength, dimensional accuracy, and surface quality) to the finished product, every Dayton die spring undergoes continuous quality control to ensure optimum product performance. In comparison testing, Dayton die springs consistently outperform and outlast other major brands.



All Dayton die springs are stress relieved after coiling, then compressed to solid to enhance fatigue life. Further, they are ground square at both ends (see insert), then shot-peened. (Shot-peening supplements compressive strength to reduce stress and extend spring life.) Finally, all

finished springs are electro-statically coated with a durable, anti-corrosive vinyl, and color-coded for easy identification of load ranges.



Ordering Information

Dayton die springs are ordered according to: the amount of pressure applied to the spring (see "Load Deflection Table"); the hole diameter (which determines the rod diameter); and, the free length of the spring (see drawing on usage category page). On each order, please specify quantity and "Catalog Number."

In the example below, the first "Catalog Number" is DMD37-1200. "DMD" refers to Medium Duty Inch. "37" refers to a $\frac{3}{8}$ hole diameter and $\frac{3}{16}$ rod diameter. The "1200" designation further defines the product with a free length of 12. The "Load Deflection Table" on each catalog page provides percentage of deflection, travel to solid, and load @ 1" or 1mm deflection to help determine the exact spring to select. The second product code shown is for an extra heavy duty metric spring.

The "Efficient Operating Range" of any spring should not be exceeded. For safe operation, when changing from another manufacturer to a Dayton die spring, verify that the travel of both springs is the same.

HOW TO ORDER

Specify:	Qty.	Catalog Number
Example:	16	DMD37-1200
	24	ED32-127

Worldwide Distribution, On-time Delivery

Dayton maintains a large inventory of Dayton MaxLife® Die Springs in all standard categories throughout our system. There are no minimum size orders, and on-time delivery is a top priority.

Industry Standards

All Dayton MaxLife® Die Springs are designed to meet or exceed technical specifications and other criteria as established by industry guidelines. Designated springs are manufactured to meet or exceed The International Organization for Standardization (ISO) and/or Japanese Industrial Standards (JIS).

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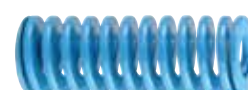


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Light Load—92 32-35



Medium Load—93 36-39



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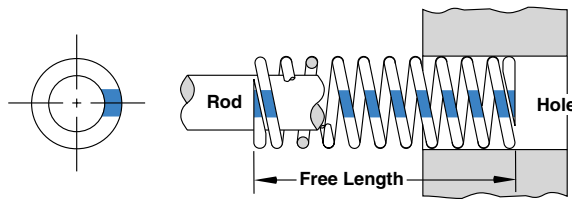
Extra Heavy Load—95 44-47



Medium Pressure Inch



Type **M**



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	10	M37-300
	22	M150-1200

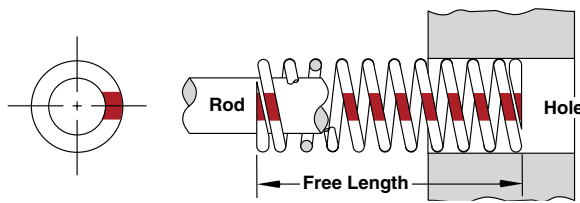
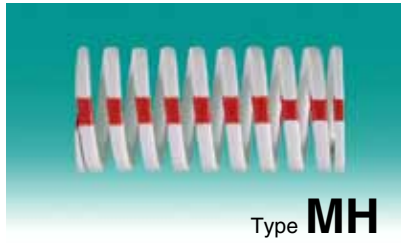
Note: Efficient Operating Range is 25% to 50% of the free length. (Maximum deflection = 50%; long life = 40%; and optimum life = 25%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				50% Deflection		40% Deflection		25% Deflection		Travel to Solid Deflection (in)	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)		
3/8	3/16	1	M37-100	37	0.500	29	0.400	18	0.250	0.500	7.3
		1.25	M37-125	41	0.625	33	0.500	20	0.313	0.625	6.5
		1.5	M37-150	38	0.750	30	0.600	19	0.375	0.750	5.0
		1.75	M37-175	37	0.875	29	0.700	18	0.438	0.875	4.2
		2	M37-200	38	1.000	30	0.800	19	0.500	1.000	3.8
		2.5	M37-250	38	1.250	30	1.000	19	0.625	1.250	3.0
		3	M37-300	38	1.500	30	1.200	19	0.750	1.500	2.5
	12	M37-1200	39	6.000	31	4.800	20	3.000	6.600	0.65	
1/2	9/32	1	M50-100	55	0.500	44	0.400	28	0.250	0.500	11.0
		1.25	M50-125	55	0.625	44	0.500	28	0.313	0.670	8.8
		1.5	M50-150	59	0.750	47	0.600	29	0.375	0.825	7.8
		1.75	M50-175	51	0.875	41	0.700	25	0.438	0.900	5.8
		2	M50-200	52	1.000	42	0.800	26	0.500	1.080	5.2
		2.5	M50-250	58	1.250	46	1.000	29	0.625	1.375	4.6
		3	M50-300	53	1.500	42	1.200	26	0.750	1.650	3.5
		3.5	M50-350	56	1.750	45	1.400	28	0.875	1.925	3.2
		4.5	M50-450	56	2.250	45	1.800	28	1.125	2.475	2.5
		5.5	M50-550	58	2.750	46	2.200	29	1.375	3.225	2.1
		6.5	M50-650	49	3.250	39	2.600	24	1.625	3.400	1.5
		7.5	M50-750	45	3.750	36	3.000	23	1.875	3.850	1.2
	12	M50-1200	48	6.000	38	4.800	24	3.000	6.500	0.8	
5/8	11/32	1	M62-100	95	0.500	76	0.400	48	0.250	0.528	19.0
		1.25	M62-125	89	0.625	72	0.500	45	0.313	0.665	14.3
		1.5	M62-150	98	0.750	78	0.600	49	0.375	0.825	13.0
		1.75	M62-175	89	0.875	71	0.700	45	0.438	0.962	10.2
		2	M62-200	98	1.000	78	0.800	49	0.500	1.100	9.8
		2.5	M62-250	91	1.250	73	1.000	46	0.625	1.375	7.3
		3	M62-300	99	1.500	79	1.200	50	0.750	1.750	6.6
		3.5	M62-350	88	1.750	70	1.400	44	0.875	2.000	5.0
		4	M62-400	92	2.000	74	1.600	46	1.000	2.350	4.6
	12	M62-1200	96	6.000	77	4.800	48	3.000	6.600	1.6	
3/4	3/8	1	M75-100	185	0.500	148	0.400	93	0.250	0.500	37.0
		1.25	M75-125	176	0.625	141	0.500	88	0.313	0.625	28.2
		1.5	M75-150	167	0.750	133	0.600	83	0.375	0.750	22.2
		1.75	M75-175	162	0.875	130	0.700	81	0.438	0.875	18.5
		2	M75-200	161	1.000	129	0.800	81	0.500	1.000	16.1
		2.5	M75-250	159	1.250	127	1.000	79	0.625	1.250	12.7
		3	M75-300	158	1.500	126	1.200	79	0.750	1.500	10.5
		3.5	M75-350	156	1.750	125	1.400	78	0.875	1.750	8.9
		4	M75-400	154	2.000	123	1.600	77	1.000	2.000	7.7
		4.5	M75-450	155	2.250	124	1.800	78	1.125	2.300	6.9
		5	M75-500	153	2.500	122	2.000	76	1.250	2.500	6.1
		5.5	M75-550	154	2.750	123	2.200	77	1.375	2.850	5.6
		6	M75-600	153	3.000	122	2.400	77	1.500	3.100	5.1
		6.5	M75-650	153	3.250	122	2.600	76	1.625	3.400	4.7
		7.5	M75-750	154	3.750	123	3.000	77	1.875	3.750	4.1
	12	M75-1200	150	6.000	120	4.800	75	3.000	6.150	2.5	

Medium Pressure Inch

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				50% Deflection		40% Deflection		25% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
1	1/2	1	M100-100	290	0.500	232	0.400	145	0.250	0.500	58.0
		1.25	M100-125	324	0.625	259	0.500	162	0.313	0.625	51.8
		1.5	M100-150	301	0.750	241	0.600	150	0.375	0.750	40.1
		1.75	M100-175	294	0.875	235	0.700	147	0.438	0.875	33.6
		2	M100-200	289	1.000	231	0.800	145	0.500	1.030	28.9
		2.5	M100-250	283	1.250	226	1.000	141	0.625	1.250	22.6
		3	M100-300	279	1.500	223	1.200	140	0.750	1.500	18.6
		3.5	M100-350	277	1.750	221	1.400	138	0.875	1.840	15.8
		4	M100-400	274	2.000	219	1.600	137	1.000	2.000	13.7
		4.5	M100-450	272	2.250	218	1.800	136	1.125	2.350	12.1
		5	M100-500	270	2.500	216	2.000	135	1.250	2.500	10.8
		5.5	M100-550	270	2.750	216	2.200	135	1.375	2.750	9.8
1 1/4	5/8	6	M100-600	270	3.000	216	2.400	135	1.500	3.000	9.0
		7	M100-700	266	3.500	213	2.800	133	1.750	3.550	7.6
		8	M100-800	268	4.000	214	3.200	134	2.000	4.000	6.7
		12	M100-1200	264	6.000	211	4.800	132	3.000	6.000	4.4
		1.5	M125-150	389	0.750	311	0.600	194	0.375	0.750	51.8
		1.75	M125-175	368	0.875	294	0.700	184	0.438	0.875	42.0
		2	M125-200	362	1.000	290	0.800	181	0.500	1.010	36.2
		2.5	M125-250	391	1.250	313	1.000	196	0.625	1.300	31.3
		3	M125-300	383	1.500	306	1.200	191	0.750	1.500	25.5
		3.5	M125-350	378	1.750	302	1.400	189	0.875	1.800	21.6
		4	M125-400	374	2.000	299	1.600	187	1.000	2.150	18.7
		4.5	M125-450	371	2.250	297	1.800	186	1.125	2.450	16.5
1 1/2	3/4	5	M125-500	370	2.500	296	2.000	185	1.250	2.650	14.8
		5.5	M125-550	369	2.750	295	2.200	184	1.375	2.900	13.4
		6	M125-600	366	3.000	293	2.400	183	1.500	3.250	12.2
		7	M125-700	364	3.500	291	2.800	182	1.750	3.750	10.4
		8	M125-800	364	4.000	291	3.200	182	2.000	4.250	9.1
		10	M125-1000	360	5.000	288	4.000	180	2.500	5.250	7.2
		12	M125-1200	360	6.000	288	4.800	180	3.000	6.600	6.0
		2	M150-200	540	1.000	432	0.800	270	0.500	1.050	54.0
		2.5	M150-250	525	1.250	420	1.000	263	0.625	1.280	42.0
		3	M150-300	519	1.500	415	1.200	260	0.750	1.510	34.6
		3.5	M150-350	520	1.750	416	1.400	260	0.875	1.800	29.7
		4	M150-400	532	2.000	426	1.600	266	1.000	2.100	26.6
2	1	4.5	M150-450	513	2.250	410	1.800	257	1.125	2.300	22.8
		5	M150-500	500	2.500	400	2.000	250	1.250	2.600	20.0
		5.5	M150-550	506	2.750	405	2.200	253	1.375	2.800	18.4
		6	M150-600	480	3.000	384	2.400	240	1.500	3.050	16.0
		7	M150-700	497	3.500	398	2.800	249	1.750	3.600	14.2
		8	M150-800	516	4.000	413	3.200	258	2.000	4.225	12.9
		10	M150-1000	500	5.000	400	4.000	250	2.500	5.250	10.0
		12	M150-1200	492	6.000	394	4.800	246	3.000	6.250	8.2
		2.5	M200-250	1216	1.250	973	1.000	608	0.625	1.280	97.3
		3	M200-300	1140	1.500	912	1.200	570	0.750	1.510	76.0
		3.5	M200-350	1138	1.750	910	1.400	569	0.875	1.750	65.0
		4	M200-400	1128	2.000	902	1.600	564	1.000	2.000	56.4
2	1	4.5	M200-450	1105	2.250	884	1.800	552	1.125	2.250	49.1
		5	M200-500	1095	2.500	876	2.000	548	1.250	2.550	43.8
		5.5	M200-550	1108	2.750	887	2.200	554	1.375	2.850	40.3
		6	M200-600	1116	3.000	893	2.400	558	1.500	3.020	37.2
		7	M200-700	1071	3.500	857	2.800	536	1.750	3.660	30.6
		8	M200-800	1072	4.000	858	3.200	536	2.000	4.000	26.8
		10	M200-1000	1050	5.000	840	4.000	525	2.500	5.080	21.0
		12	M200-1200	990	6.000	792	4.800	495	3.000	6.250	16.5

Medium Heavy Pressure Inch



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	14	MH62-175
	28	MH75-600

Note: Efficient Operating Range is 20% to 37% of the free length. (Maximum deflection = 37%; long life = 25%; and optimum life = 20%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				37% Deflection		25% Deflection		20% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
3/8	3/16	1	MH37-100	44	0.370	30	0.250	24	0.200	0.410	12.0
		1.25	MH37-125	42	0.463	28	0.313	23	0.250	0.475	9.0
		1.5	MH37-150	44	0.555	30	0.375	24	0.300	0.625	8.0
		1.75	MH37-175	47	0.648	32	0.438	25	0.350	0.750	7.2
		2	MH37-200	49	0.740	33	0.500	26	0.400	0.950	6.6
		2.5	MH37-250	40	0.925	27	0.625	22	0.500	0.975	4.3
		3	MH37-300	40	1.110	27	0.750	22	0.600	1.125	3.6
1/2	9/32	12	MH37-1200	42	4.440	29	3.000	23	2.400	5.250	1.0
		1	MH50-100	63	0.370	43	0.250	34	0.200	0.500	17.0
		1.25	MH50-125	64	0.463	43	0.313	35	0.250	0.670	13.8
		1.5	MH50-150	58	0.555	39	0.375	32	0.300	0.750	10.5
		1.75	MH50-175	65	0.648	44	0.438	35	0.350	0.931	10.0
		2	MH50-200	61	0.740	41	0.500	33	0.400	1.050	8.2
		2.5	MH50-250	59	0.925	40	0.625	32	0.500	1.400	6.4
5/8	11/32	3	MH50-300	64	1.110	44	0.750	35	0.600	1.639	5.8
		3.5	MH50-350	65	1.295	44	0.875	35	0.700	1.915	5.0
		12	MH50-1200	53	4.440	36	3.000	29	2.400	6.600	1.2
		1	MH62-100	107	0.370	73	0.250	58	0.200	0.370	29.0
		1.25	MH62-125	102	0.463	69	0.313	55	0.250	0.463	22.0
		1.5	MH62-150	100	0.555	68	0.375	54	0.300	0.600	18.0
		1.75	MH62-175	102	0.648	69	0.438	55	0.350	0.700	15.8
3/4	3/8	2	MH62-200	108	0.740	73	0.500	58	0.400	0.800	14.6
		2.5	MH62-250	111	0.925	75	0.625	60	0.500	1.050	12.0
		3	MH62-300	115	1.110	78	0.750	62	0.600	1.400	10.4
		3.5	MH62-350	104	1.295	70	0.875	56	0.700	1.500	8.0
		4	MH62-400	102	1.480	69	1.000	55	0.800	1.750	6.9
		12	MH62-1200	111	4.440	75	3.000	60	2.400	6.150	2.5
		1	MH75-100	216	0.370	146	0.250	117	0.200	0.387	58.4
3/4	3/8	1.25	MH75-125	202	0.463	136	0.313	109	0.250	0.505	43.6
		1.5	MH75-150	191	0.555	129	0.375	104	0.300	0.580	34.5
		1.75	MH75-175	194	0.648	131	0.438	105	0.350	0.766	30.0
		2	MH75-200	189	0.740	128	0.500	102	0.400	0.936	25.6
		2.5	MH75-250	199	0.925	134	0.625	108	0.500	1.228	21.5
		3	MH75-300	185	1.110	125	0.750	100	0.600	1.480	16.7
		3.5	MH75-350	185	1.295	125	0.875	100	0.700	1.813	14.3
		4	MH75-400	189	1.480	128	1.000	102	0.800	1.978	12.8
		4.5	MH75-450	190	1.665	128	1.125	103	0.900	2.127	11.4
		5	MH75-500	185	1.850	125	1.250	100	1.000	2.465	10.0
		5.5	MH75-550	187	2.035	127	1.375	101	1.100	2.764	9.2
		6	MH75-600	191	2.220	129	1.500	103	1.200	2.749	8.6
3/4	3/8	12	MH75-1200	173	4.440	117	3.000	94	2.400	5.827	3.9

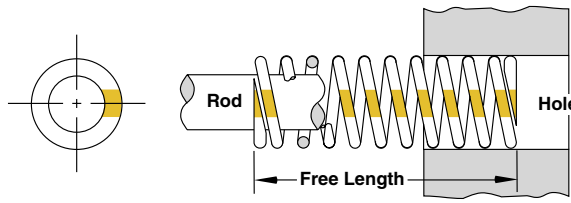
Medium Heavy Pressure Inch

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				37% Deflection		25% Deflection		20% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
1	1/2	1	MH100-100	335	0.370	226	0.250	181	0.200	0.370	90.5
		1.25	MH100-125	288	0.463	195	0.313	156	0.250	0.463	62.2
		1.5	MH100-150	273	0.555	185	0.375	148	0.300	0.555	49.2
		1.75	MH100-175	277	0.648	187	0.438	150	0.350	0.735	42.8
		2	MH100-200	284	0.740	192	0.500	154	0.400	0.880	38.4
		2.5	MH100-250	289	0.925	195	0.625	156	0.500	1.100	31.2
		3	MH100-300	275	1.110	186	0.750	149	0.600	1.300	24.8
		3.5	MH100-350	282	1.295	191	0.875	153	0.700	1.600	21.8
		4	MH100-400	271	1.480	183	1.000	146	0.800	1.750	18.3
		4.5	MH100-450	268	1.665	181	1.125	145	0.900	1.980	16.1
		5	MH100-500	268	1.850	181	1.250	145	1.000	2.275	14.5
		5.5	MH100-550	263	2.035	177	1.375	142	1.100	2.400	12.9
1 1/4	5/8	6	MH100-600	262	2.220	177	1.500	142	1.200	2.640	11.8
		7	MH100-700	259	2.590	175	1.750	140	1.400	3.150	10.0
		8	MH100-800	260	2.960	176	2.000	141	1.600	3.520	8.8
		12	MH100-1200	266	4.440	180	3.000	144	2.400	5.200	6.0
		1.5	MH125-150	605	0.555	409	0.375	327	0.300	0.575	109.0
		1.75	MH125-175	590	0.648	399	0.438	319	0.350	0.680	91.0
		2	MH125-200	592	0.740	400	0.500	320	0.400	0.730	80.0
		2.5	MH125-250	588	0.925	398	0.625	318	0.500	1.025	63.6
		3	MH125-300	585	1.110	395	0.750	316	0.600	1.220	52.7
		3.5	MH125-350	603	1.295	408	0.875	326	0.700	1.510	46.6
		4	MH125-400	579	1.480	391	1.000	313	0.800	1.680	39.1
		4.5	MH125-450	573	1.665	387	1.125	310	0.900	1.800	34.4
1 1/2	3/4	5	MH125-500	566	1.850	383	1.250	306	1.000	2.160	30.6
		5.5	MH125-550	568	2.035	384	1.375	307	1.100	2.400	27.9
		6	MH125-600	582	2.220	393	1.500	314	1.200	2.725	26.2
		7	MH125-700	559	2.590	378	1.750	302	1.400	3.050	21.6
		8	MH125-800	556	2.960	376	2.000	301	1.600	3.550	18.8
		10	MH125-1000	537	3.700	363	2.500	290	2.000	4.400	14.5
		12	MH125-1200	546	4.400	372	3.000	298	2.400	5.200	12.4
		2	MH150-200	844	0.740	570	0.500	456	0.400	0.760	114.0
		2.5	MH150-250	740	0.925	500	0.625	400	0.500	1.000	80.0
		3	MH150-300	730	1.110	494	0.750	395	0.600	1.222	65.8
		3.5	MH150-350	699	1.295	473	0.875	378	0.700	1.400	54.0
		4	MH150-400	773	1.480	522	1.000	418	0.800	1.767	52.2
2	1	4.5	MH150-450	721	1.665	487	1.125	390	0.900	1.980	43.3
		5	MH150-500	688	1.850	465	1.250	372	1.000	2.125	37.2
		5.5	MH150-550	692	2.035	468	1.375	374	1.100	2.375	34.0
		6	MH150-600	682	2.220	461	1.500	368	1.200	2.500	30.7
		7	MH150-700	673	2.590	455	1.750	364	1.400	3.000	26.0
		8	MH150-800	693	2.960	468	2.000	374	1.600	3.480	23.4
		10	MH150-1000	733	3.700	495	2.500	396	2.000	4.620	19.8
		12	MH150-1200	639	4.440	432	3.000	346	2.400	5.000	14.4
		2.5	MH200-250	1036	0.925	700	0.625	560	0.500	0.950	112.0
		3	MH200-300	971	1.110	656	0.750	525	0.600	1.125	87.5
		3.5	MH200-350	971	1.295	656	0.875	525	0.700	1.435	75.0
		4	MH200-400	940	1.480	635	1.000	508	0.800	1.640	63.5
2	1	4.5	MH200-450	957	1.665	647	1.125	518	0.900	1.845	57.5
		5	MH200-500	981	1.850	663	1.250	530	1.000	2.050	53.0
		5.5	MH200-550	1009	2.035	682	1.375	546	1.100	2.255	49.6
		6	MH200-600	1026	2.220	693	1.500	554	1.200	2.460	46.2
		7	MH200-700	1002	2.590	677	1.750	542	1.400	2.770	38.7
		8	MH200-800	977	2.960	660	2.000	528	1.600	3.280	33.0
		10	MH200-1000	984	3.700	665	2.500	532	2.000	4.166	26.6
		12	MH200-1200	932	4.440	630	3.000	504	2.400	4.920	21.0

Heavy Pressure Inch



Type **H**



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	38	H62-250
	17	H100-300

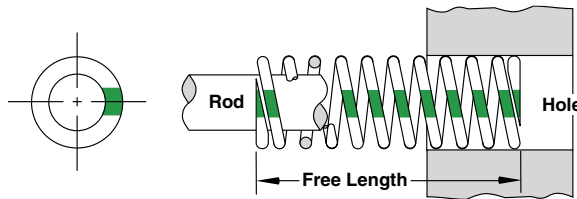
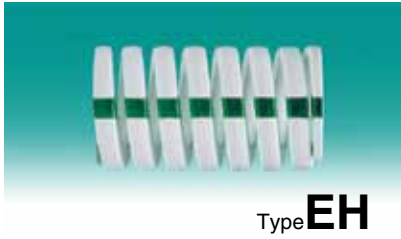
Note: Efficient Operating Range is 15% to 30% of the free length. (Maximum deflection = 30%; long life = 20%; and optimum life = 15%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				30% Deflection		20% Deflection		15% Deflection		Travel to Solid Deflection (in)	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)		
3/8	3/16	1	H37-100	51	0.300	34	0.200	26	0.150	0.350	17.1
		1.25	H37-125	44	0.375	30	0.250	22	0.188	0.425	11.8
		1.5	H37-150	45	0.450	30	0.300	23	0.225	0.525	10.0
		1.75	H37-175	46	0.525	31	0.350	23	0.263	0.650	8.8
		2	H37-200	49	0.600	32	0.400	24	0.300	0.800	8.1
		2.5	H37-250	50	0.750	33	0.500	25	0.375	1.050	6.6
		3	H37-300	45	0.900	30	0.600	23	0.450	1.125	5.0
	12	H37-1200	43	3.600	29	2.400	22	1.800	4.180	1.2	
1/2	9/32	1	H50-100	75	0.300	50	0.200	38	0.150	0.468	25.0
		1.25	H50-125	69	0.375	46	0.250	35	0.188	0.573	18.4
		1.5	H50-150	76	0.450	50	0.300	38	0.225	0.693	16.8
		1.75	H50-175	74	0.525	49	0.350	37	0.263	0.845	14.0
		2	H50-200	67	0.600	45	0.400	34	0.300	0.950	11.2
		2.5	H50-250	74	0.750	49	0.500	37	0.375	1.250	9.8
		3	H50-300	68	0.900	45	0.600	34	0.450	1.430	7.5
		3.5	H50-350	69	1.050	46	0.700	35	0.525	1.766	6.6
	12	H50-1200	68	3.600	46	2.400	34	1.800	6.122	1.9	
5/8	11/32	1	H62-100	143	0.300	95	0.200	71	0.150	0.363	47.5
		1.25	H62-125	131	0.375	88	0.250	66	0.188	0.476	35.0
		1.5	H62-150	135	0.450	90	0.300	68	0.225	0.588	30.0
		1.75	H62-175	131	0.525	88	0.350	66	0.263	0.700	25.0
		2	H62-200	130	0.600	86	0.400	65	0.300	0.813	21.6
		2.5	H62-250	126	0.750	84	0.500	63	0.375	1.100	16.8
		3	H62-300	126	0.900	84	0.600	63	0.450	1.300	14.0
		3.5	H62-350	130	1.050	87	0.700	65	0.525	1.600	12.4
	4	H62-400	127	1.200	85	0.800	64	0.600	1.800	10.6	
	12	H62-1200	119	3.600	79	2.400	59	1.800	5.311	3.3	
3/4	3/8	1	H75-100	394	0.300	263	0.200	197	0.150	0.300	131.4
		1.25	H75-125	360	0.375	240	0.250	180	0.188	0.375	96.0
		1.5	H75-150	329	0.450	219	0.300	164	0.225	0.452	73.0
		1.75	H75-175	331	0.525	221	0.350	166	0.263	0.526	63.0
		2	H75-200	318	0.600	212	0.400	159	0.300	0.640	53.0
		2.5	H75-250	311	0.750	207	0.500	155	0.375	0.757	41.4
		3	H75-300	354	0.900	236	0.600	177	0.450	0.939	39.3
		3.5	H75-350	315	1.050	210	0.700	158	0.525	1.128	30.0
		4	H75-400	353	1.200	235	0.800	176	0.600	1.200	29.4
		4.5	H75-450	338	1.350	225	0.900	169	0.675	1.350	25.0
		5	H75-500	348	1.500	232	1.000	174	0.750	1.500	23.2
		5.5	H75-550	356	1.650	238	1.100	178	0.825	1.650	21.6
6	H75-600	353	1.800	235	1.200	176	0.900	2.029	19.6		
	12	H75-1200	328	3.600	218	2.400	164	1.800	3.600	9.1	

Heavy Pressure Inch

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				30% Deflection		20% Deflection		15% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
1	1/2	1	H100-100	—	—	408	0.200	306	0.150	0.285	204.0
		1.25	H100-125	600	0.375	400	0.250	301	0.188	0.375	160.0
		1.5	H100-150	621	0.450	414	0.300	311	0.225	0.450	138.0
		1.75	H100-175	579	0.525	386	0.350	290	0.263	0.567	110.3
		2	H100-200	570	0.600	380	0.400	285	0.300	0.600	95.0
		2.5	H100-250	577	0.750	385	0.500	288	0.375	0.866	76.9
		3	H100-300	567	0.900	378	0.600	284	0.450	0.954	63.0
		3.5	H100-350	504	1.050	336	0.700	252	0.525	1.172	48.0
		4	H100-400	510	1.200	340	0.800	255	0.600	1.338	42.5
		4.5	H100-450	525	1.350	350	0.900	263	0.675	1.372	38.9
		5	H100-500	531	1.500	354	1.000	266	0.750	1.567	35.4
		5.5	H100-550	523	1.650	349	1.100	262	0.825	1.690	31.7
		6	H100-600	515	1.800	343	1.200	257	0.900	1.863	28.6
1 1/4	5/8	7	H100-700	546	2.100	364	1.400	273	1.050	2.320	26.0
		8	H100-800	528	2.400	352	1.600	264	1.200	2.564	22.0
		12	H100-1200	533	3.600	355	2.400	266	1.800	4.000	14.8
		1.5	H125-150	1013	0.450	675	0.300	506	0.225	0.450	225.0
		1.75	H125-175	1029	0.525	686	0.350	515	0.263	0.550	196.0
		2	H125-200	960	0.600	640	0.400	480	0.300	0.628	160.0
		2.5	H125-250	945	0.750	630	0.500	473	0.375	0.806	126.0
		3	H125-300	891	0.900	594	0.600	446	0.450	0.965	99.0
		3.5	H125-350	882	1.050	588	0.700	441	0.525	1.176	84.0
		4	H125-400	863	1.200	575	0.800	431	0.600	1.320	71.9
		4.5	H125-450	864	1.350	576	0.900	432	0.675	1.523	64.0
		5	H125-500	855	1.500	570	1.000	428	0.750	1.733	57.0
		5.5	H125-550	881	1.650	587	1.100	441	0.825	1.965	53.4
1 1/2	3/4	6	H125-600	900	1.800	600	1.200	450	0.900	1.850	50.0
		7	H125-700	903	2.100	602	1.400	452	1.050	2.483	43.0
		8	H125-800	912	2.400	608	1.600	456	1.200	2.755	38.0
		10	H125-1000	900	3.000	600	2.000	450	1.500	3.490	30.0
		12	H125-1200	882	3.600	588	2.400	441	1.800	4.300	24.5
		2	H150-200	1152	0.600	768	0.400	576	0.300	0.650	192.0
		2.5	H150-250	1125	0.750	750	0.500	563	0.375	0.800	150.0
		3	H150-300	1094	0.900	729	0.600	547	0.450	1.000	121.5
		3.5	H150-350	1098	1.050	732	0.700	549	0.525	1.150	104.6
		4	H150-400	1086	1.200	724	0.800	543	0.600	1.350	90.5
		4.5	H150-450	1107	1.350	738	0.900	554	0.675	1.550	82.0
		5	H150-500	1050	1.500	700	1.000	525	0.750	1.800	70.0
2	1	5.5	H150-550	1059	1.650	706	1.100	530	0.825	1.900	64.2
		6	H150-600	1053	1.800	702	1.200	527	0.900	2.150	58.5
		7	H150-700	1023	2.100	682	1.400	511	1.050	2.600	48.7
		8	H150-800	989	2.400	659	1.600	494	1.200	3.000	41.2
		10	H150-1000	1020	3.000	680	2.000	510	1.500	3.700	34.0
		12	H150-1200	1037	3.600	691	2.400	518	1.800	4.600	28.8
		2.5	H200-250	1800	0.750	1200	0.500	900	0.375	0.789	240.0
		3	H200-300	1683	0.900	1122	0.600	842	0.450	1.042	187.0
		3.5	H200-350	1680	1.050	1120	0.700	840	0.525	1.300	160.0
		4	H200-400	1680	1.200	1120	0.800	840	0.600	1.379	140.0
		4.5	H200-450	1566	1.350	1044	0.900	783	0.675	1.476	116.0
		5	H200-500	1575	1.500	1050	1.000	788	0.750	1.672	105.0
		5.5	H200-550	1592	1.650	1062	1.100	796	0.825	1.863	96.5
2	1	6	H200-600	1642	1.800	1094	1.200	821	0.900	1.961	91.2
		7	H200-700	1583	2.100	1056	1.400	792	1.050	2.226	75.4
		8	H200-800	1632	2.400	1088	1.600	816	1.200	2.859	68.0
		10	H200-1000	1575	3.000	1050	2.000	788	1.500	3.213	52.5
		12	H200-1200	1566	3.600	1044	2.400	783	1.800	4.100	43.5

Extra Heavy Pressure Inch



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	11	EH125-200
	30	EH125-1200

Note: Efficient Operating Range is 15% to 25% of the free length. (Maximum deflection = 25%; long life = 20%; and optimum life = 15%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

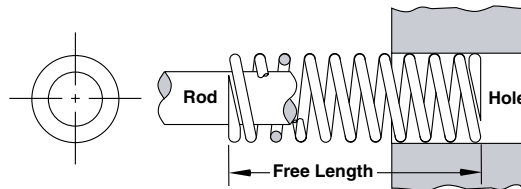
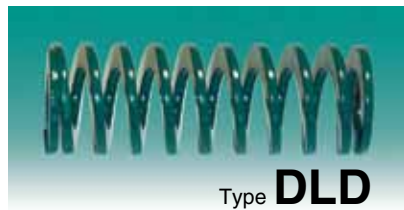
Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				25% Deflection		20% Deflection		15% Deflection		Travel to Solid Deflection (in)	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)		
3/8	3/16	1	EH37-100	56	0.250	45	0.200	34	0.150	0.370	22.5
		1.25	EH37-125	58	0.313	46	0.250	35	0.188	0.465	18.5
		1.5	EH37-150	57	0.375	46	0.300	34	0.225	0.575	15.3
		1.75	EH37-175	50	0.438	40	0.350	30	0.263	0.495	11.4
		2	EH37-200	50	0.500	40	0.400	30	0.300	0.537	10.0
		2.5	EH37-250	50	0.625	40	0.500	30	0.375	0.760	8.0
		3	EH37-300	54	0.750	43	0.600	32	0.450	1.260	7.2
		12	EH37-1200	54	3.000	43	2.400	32	1.800	5.335	1.8
1/2	9/32	1	EH50-100	91	0.250	73	0.200	55	0.150	0.280	36.5
		1.25	EH50-125	94	0.313	75	0.250	56	0.188	0.407	30.0
		1.5	EH50-150	93	0.375	74	0.300	56	0.225	0.471	24.8
		1.75	EH50-175	95	0.438	76	0.350	57	0.263	0.610	21.6
		2	EH50-200	94	0.500	75	0.400	56	0.300	0.695	18.8
		2.5	EH50-250	90	0.625	72	0.500	54	0.375	0.860	14.4
		3	EH50-300	84	0.750	67	0.600	50	0.450	0.915	11.2
		3.5	EH50-350	83	0.875	67	0.700	50	0.525	1.060	9.5
5/8	11/32	12	EH50-1200	84	3.000	67	2.400	50	1.800	3.700	2.8
		1	EH62-100	173	0.250	138	0.200	104	0.150	0.281	69.0
		1.25	EH62-125	160	0.313	128	0.250	96	0.188	0.375	51.0
		1.5	EH62-150	154	0.375	123	0.300	92	0.225	0.441	41.0
		1.75	EH62-175	162	0.438	130	0.350	97	0.263	0.578	37.0
		2	EH62-200	153	0.500	122	0.400	92	0.300	0.605	30.5
		2.5	EH62-250	158	0.625	126	0.500	95	0.375	0.786	25.2
		3	EH62-300	147	0.750	118	0.600	88	0.450	0.956	19.6
3/4	3/8	3.5	EH62-350	152	0.875	122	0.700	91	0.525	1.191	17.4
		4	EH62-400	147	1.000	118	0.800	88	0.600	1.373	14.7
		12	EH62-1200	150	3.000	120	2.400	90	1.800	4.388	5.0
		1	EH75-100	368	0.250	294	0.200	221	0.150	0.250	147.0
		1.25	EH75-125	398	0.313	318	0.250	239	0.188	0.318	127.0
		1.5	EH75-150	336	0.375	269	0.300	201	0.225	0.426	89.5
		1.75	EH75-175	369	0.438	295	0.350	221	0.263	0.500	84.2
		2	EH75-200	362	0.500	289	0.400	217	0.300	0.575	72.3
		2.5	EH75-250	316	0.625	253	0.500	190	0.375	0.750	50.6
		3	EH75-300	311	0.750	249	0.600	187	0.450	0.844	41.5
		3.5	EH75-350	332	0.875	265	0.700	199	0.525	1.082	37.9
		4	EH75-400	304	1.000	243	0.800	182	0.600	1.225	30.4
4.5	EH75-450	341	1.125	273	0.900	205	0.675	1.492	30.3		
5	EH75-500	344	1.250	275	1.000	206	0.750	1.695	27.5		
5.5	EH75-550	303	1.375	242	1.100	182	0.825	1.975	22.0		
6	EH75-600	332	1.500	265	1.200	199	0.900	2.111	22.1		
12	EH75-1200	336	3.000	269	2.400	202	1.800	4.432	11.2		

Extra Heavy Pressure Inch

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				25% Deflection		20% Deflection		15% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
1	1/2	1.5	EH100-150	666	0.375	533	0.300	399	0.225	0.375	177.5
		2	EH100-200	615	0.500	492	0.400	369	0.300	0.600	123.0
		2.5	EH100-250	606	0.625	485	0.500	364	0.375	0.750	97.0
		3	EH100-300	600	0.750	480	0.600	360	0.450	0.920	80.0
		3.5	EH100-350	613	0.875	490	0.700	368	0.525	1.160	70.0
		4	EH100-400	570	1.000	456	0.800	342	0.600	1.250	57.0
		4.5	EH100-450	585	1.125	468	0.900	351	0.675	1.400	52.0
		5	EH100-500	625	1.250	500	1.000	375	0.750	1.704	50.0
		6	EH100-600	630	1.500	504	1.200	378	0.900	2.013	42.0
1 1/4	5/8	12	EH100-1200	615	3.000	492	2.400	369	1.800	4.366	20.5
		2	EH125-200	975	0.500	780	0.400	585	0.300	0.542	195.0
		2.5	EH125-250	1013	0.625	810	0.500	608	0.375	0.818	162.0
		3	EH125-300	975	0.750	780	0.600	585	0.450	0.983	130.0
		3.5	EH125-350	910	0.875	728	0.700	546	0.525	0.999	104.0
		4	EH125-400	875	1.000	700	0.800	525	0.600	1.116	87.5
		4.5	EH125-450	872	1.125	698	0.900	523	0.675	1.300	77.5
		5	EH125-500	881	1.250	705	1.000	529	0.750	1.477	70.5
		6	EH125-600	863	1.500	690	1.200	518	0.900	1.743	57.5
1 1/2	3/4	8	EH125-800	900	2.000	720	1.600	540	1.200	2.617	45.0
		10	EH125-1000	888	2.500	710	2.000	533	1.500	3.383	35.5
		12	EH125-1200	825	3.000	660	2.400	495	1.800	4.047	27.5
		2	EH150-200	1770	0.500	1416	0.400	1062	0.300	0.525	354.0
		2.5	EH150-250	1672	0.625	1338	0.500	1003	0.375	0.633	267.5
		3	EH150-300	1650	0.750	1320	0.600	990	0.450	0.795	220.0
		3.5	EH150-350	1641	0.875	1313	0.700	984	0.525	0.933	187.5
		4	EH150-400	1650	1.000	1320	0.800	990	0.600	1.237	165.0
		4.5	EH150-450	1592	1.125	1274	0.900	955	0.675	1.312	141.5
2	1	5	EH150-500	1625	1.250	1300	1.000	975	0.750	1.514	130.0
		6	EH150-600	1575	1.500	1260	1.200	945	0.900	1.857	105.0
		8	EH150-800	1660	2.000	1328	1.600	996	1.200	2.690	83.0
		10	EH150-1000	1625	2.500	1300	2.000	975	1.500	3.470	65.0
		12	EH150-1200	1560	3.000	1248	2.400	936	1.800	4.300	52.0
		2.5	EH200-250	—	—	—	—	1538	0.375	0.480	410.0
		3	EH200-300	—	—	1920	0.600	1440	0.450	0.650	320.0
		3.5	EH200-350	2406	0.875	1925	0.700	1444	0.525	0.950	275.0
		4	EH200-400	2400	1.000	1920	0.800	1440	0.600	1.010	240.0
2	1	4.5	EH200-450	2447	1.125	1958	0.900	1468	0.675	1.360	217.5
		5	EH200-500	2250	1.250	1800	1.000	1350	0.750	1.410	180.0
		6	EH200-600	2310	1.500	1848	1.200	1386	0.900	1.770	154.0
		8	EH200-800	2320	2.000	1856	1.600	1392	1.200	2.430	116.0
		10	EH200-1000	2200	2.500	1760	2.000	1320	1.500	3.190	88.0
		12	EH200-1200	2298	3.000	1838	2.400	1379	1.800	3.900	76.6

Light Duty

Inch-ISO Colors



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	40	DLD37-175
	58	DLD75-1200

Note: Efficient Operating Range is 25% to 50% of the free length. (Maximum deflection = 50%; long life = 40%; and optimum life = 25%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				50% Deflection		40% Deflection		25% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
3/8	3/16	1	DLD37-100	32	0.500	25	0.400	16	0.250	0.500	6.3
		1.25	DLD37-125	31	0.625	25	0.500	16	0.313	0.625	5.0
		1.5	DLD37-150	32	0.750	26	0.600	16	0.375	0.765	4.3
		1.75	DLD37-175	32	0.875	25	0.700	16	0.438	0.892	3.6
		2	DLD37-200	31	1.000	25	0.800	16	0.500	1.020	3.1
		2.5	DLD37-250	33	1.250	26	1.000	16	0.625	1.300	2.6
		3	DLD37-300	32	1.500	25	1.200	16	0.750	1.560	2.1
		12	DLD37-1200	30	6.000	24	4.800	15	3.000	6.100	0.5
1/2	9/32	1	DLD50-100	55	0.500	44	0.400	27	0.250	0.500	10.9
		1.25	DLD50-125	59	0.625	47	0.500	29	0.313	0.687	9.4
		1.5	DLD50-150	59	0.750	47	0.600	29	0.375	0.865	7.8
		1.75	DLD50-175	58	0.875	46	0.700	29	0.438	1.015	6.6
		2	DLD50-200	58	1.000	46	0.800	29	0.500	1.150	5.8
		2.5	DLD50-250	59	1.250	47	1.000	29	0.625	1.460	4.7
		3	DLD50-300	54	1.500	43	1.200	27	0.750	1.695	3.6
		3.5	DLD50-350	54	1.750	43	1.400	27	0.875	1.995	3.1
5/8	11/32	12	DLD50-1200	48	6.000	38	4.800	24	3.000	6.300	0.8
		1	DLD62-100	90	0.500	72	0.400	45	0.250	0.500	18.0
		1.25	DLD62-125	84	0.625	67	0.500	42	0.313	0.647	13.4
		1.5	DLD62-150	90	0.750	72	0.600	45	0.375	0.810	12.0
		1.75	DLD62-175	88	0.875	70	0.700	44	0.438	0.970	10.0
		2	DLD62-200	93	1.000	74	0.800	47	0.500	1.159	9.3
		2.5	DLD62-250	90	1.250	72	1.000	45	0.625	1.442	7.2
		3	DLD62-300	89	1.500	71	1.200	44	0.750	1.737	5.9
3/4	3/8	3.5	DLD62-350	93	1.750	74	1.400	46	0.875	2.098	5.3
		4	DLD62-400	94	2.000	75	1.600	47	1.000	2.421	4.7
		12	DLD62-1200	90	6.000	72	4.800	45	3.000	7.259	1.5
		1	DLD75-100	160	0.500	128	0.400	80	0.250	0.500	32.0
		1.25	DLD75-125	153	0.625	122	0.500	76	0.313	0.625	24.4
		1.5	DLD75-150	145	0.750	116	0.600	72	0.375	0.745	19.3
		1.75	DLD75-175	142	0.875	113	0.700	71	0.438	0.875	16.2
		2	DLD75-200	142	1.000	114	0.800	71	0.500	1.000	14.2
		2.5	DLD75-250	138	1.250	110	1.000	69	0.625	1.260	11.0
		3	DLD75-300	138	1.500	110	1.200	69	0.750	1.520	9.2
		3.5	DLD75-350	135	1.750	108	1.400	67	0.875	1.785	7.7
		4	DLD75-400	136	2.000	109	1.600	68	1.000	2.050	6.8
		4.5	DLD75-450	135	2.250	108	1.800	68	1.125	2.280	6.0
		5	DLD75-500	133	2.500	106	2.000	66	1.250	2.600	5.3
		5.5	DLD75-550	135	2.750	108	2.200	67	1.375	2.850	4.9
		6	DLD75-600	135	3.000	108	2.400	68	1.500	3.167	4.5
		12	DLD75-1200	132	6.000	106	4.800	66	3.000	6.242	2.2

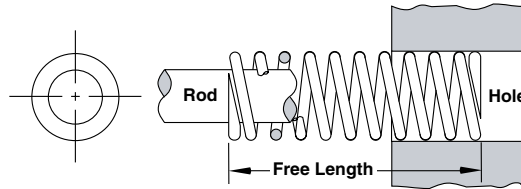
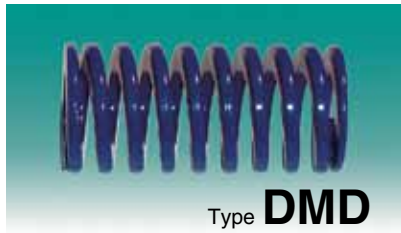
Light Duty

Inch-ISO Colors

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				50% Deflection		40% Deflection		25% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
1	1/2	1	DLD100-100	306	0.500	245	0.400	153	0.250	0.500	61.2
		1.25	DLD100-125	289	0.625	231	0.500	145	0.313	0.625	46.2
		1.5	DLD100-150	278	0.750	222	0.600	139	0.375	0.750	37.0
		1.75	DLD100-175	268	0.875	214	0.700	134	0.438	0.875	30.6
		2	DLD100-200	265	1.000	212	0.800	133	0.500	1.010	26.5
		2.5	DLD100-250	255	1.250	204	1.000	128	0.625	1.270	20.4
		3	DLD100-300	252	1.500	202	1.200	126	0.750	1.530	16.8
		3.5	DLD100-350	247	1.750	197	1.400	123	0.875	1.780	14.1
		4	DLD100-400	242	2.000	194	1.600	121	1.000	2.030	12.1
		4.5	DLD100-450	241	2.250	193	1.800	120	1.125	2.280	10.7
		5	DLD100-500	240	2.500	192	2.000	120	1.250	2.540	9.6
		5.5	DLD100-550	239	2.750	191	2.200	120	1.375	2.800	8.7
1 1/4	5/8	6	DLD100-600	240	3.000	192	2.400	120	1.500	3.150	8.0
		7	DLD100-700	242	3.500	193	2.800	121	1.750	3.570	6.9
		8	DLD100-800	240	4.000	192	3.200	120	2.000	4.080	6.0
		12	DLD100-1200	240	6.000	192	4.800	120	3.000	6.200	4.0
		1.5	DLD125-150	—	—	347	0.600	217	0.375	0.725	57.9
		1.75	DLD125-175	—	—	333	0.700	208	0.438	0.835	47.5
		2	DLD125-200	—	—	326	0.800	204	0.500	0.965	40.7
		2.5	DLD125-250	—	—	314	1.000	196	0.625	1.230	31.4
		3	DLD125-300	395	1.500	316	1.200	197	0.750	1.510	26.3
		3.5	DLD125-350	389	1.750	311	1.400	194	0.875	1.770	22.2
		4	DLD125-400	384	2.000	307	1.600	192	1.000	2.020	19.2
		4.5	DLD125-450	380	2.250	304	1.800	190	1.125	2.300	16.9
1 1/2	3/4	5	DLD125-500	375	2.500	300	2.000	188	1.250	2.570	15.0
		5.5	DLD125-550	371	2.750	297	2.200	186	1.375	2.770	13.5
		6	DLD125-600	369	3.000	295	2.400	185	1.500	3.030	12.3
		7	DLD125-700	364	3.500	291	2.800	182	1.750	3.540	10.4
		8	DLD125-800	364	4.000	291	3.200	182	2.000	4.040	9.1
		10	DLD125-1000	360	5.000	288	4.000	180	2.500	5.050	7.2
		12	DLD125-1200	354	6.000	283	4.800	177	3.000	6.400	5.9
		2	DLD150-200	—	—	482	0.800	302	0.500	0.969	60.3
		2.5	DLD150-250	—	—	458	1.000	286	0.625	1.218	45.8
		3	DLD150-300	—	—	450	1.200	281	0.750	1.488	37.5
		3.5	DLD150-350	557	1.750	445	1.400	278	0.875	1.759	31.8
		4	DLD150-400	546	2.000	437	1.600	273	1.000	2.008	27.3
2	1	4.5	DLD150-450	542	2.250	434	1.800	271	1.125	2.278	24.1
		5	DLD150-500	540	2.500	432	2.000	270	1.250	2.549	21.6
		5.5	DLD150-550	534	2.750	427	2.200	267	1.375	2.799	19.4
		6	DLD150-600	528	3.000	422	2.400	264	1.500	3.048	17.6
		7	DLD150-700	525	3.500	420	2.800	263	1.750	3.567	15.0
		8	DLD150-800	516	4.000	413	3.200	258	2.000	4.066	12.9
		10	DLD150-1000	515	5.000	412	4.000	258	2.500	5.106	10.3
		12	DLD150-1200	504	6.000	403	4.800	252	3.000	6.104	8.4
		2.5	DLD200-250	—	—	899	1.000	562	0.625	1.219	89.9
		3	DLD200-300	—	—	864	1.200	540	0.750	1.477	72.0
		3.5	DLD200-350	—	—	843	1.400	527	0.875	1.738	60.2
		4	DLD200-400	—	—	819	1.600	512	1.000	1.983	51.2
2 1/2	1 1/2	4.5	DLD200-450	—	—	808	1.800	505	1.125	2.241	44.9
		5	DLD200-500	1000	2.500	800	2.000	500	1.250	2.502	40.0
		5.5	DLD200-550	990	2.750	792	2.200	495	1.375	2.760	36.0
		6	DLD200-600	984	3.000	787	2.400	492	1.500	3.020	32.8
		7	DLD200-700	973	3.500	778	2.800	487	1.750	3.539	27.8
		8	DLD200-800	952	4.000	762	3.200	476	2.000	4.004	23.8
		10	DLD200-1000	940	5.000	752	4.000	470	2.500	5.041	18.8
		12	DLD200-1200	930	6.000	744	4.800	465	3.000	6.050	15.5
		3	DLD250-300	—	—	1320	1.200	825	0.750	1.430	110.0
		3.5	DLD250-350	—	—	1259	1.400	787	0.875	1.682	89.9
		4	DLD250-400	—	—	1219	1.600	762	1.000	1.970	76.2
		4.5	DLD250-450	—	—	1188	1.800	743	1.125	2.181	66.0
2 1/2	1 1/2	5	DLD250-500	—	—	1176	2.000	735	1.250	2.451	58.8
		6	DLD250-600	—	—	1142	2.400	714	1.500	2.980	47.6
		7	DLD250-700	—	—	1120	2.800	700	1.750	3.470	40.0
		8	DLD250-800	—	—	1101	3.200	688	2.000	3.956	34.4
		10	DLD250-1000	—	—	1068	4.000	668	2.500	4.918	26.7
		12	DLD250-1200	—	—	1056	4.800	660	3.000	6.000	22.0

Medium Duty

Inch-ISO Colors



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	16	DMD37-1200
	27	DMD75-400

Note: Efficient Operating Range is 20% to 37% of the free length. (Maximum deflection = 37%; long life = 25%; and optimum life = 20%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				37% Deflection		25% Deflection		20% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
3/8	3/16	1	DMD37-100	34	0.370	23	0.250	19	0.200	0.430	9.3
		1.25	DMD37-125	37	0.463	25	0.313	20	0.250	0.550	8.0
		1.5	DMD37-150	37	0.555	25	0.375	20	0.300	0.660	6.7
		1.75	DMD37-175	36	0.648	25	0.438	20	0.350	0.770	5.6
		2	DMD37-200	36	0.740	25	0.500	20	0.400	0.880	4.9
		2.5	DMD37-250	36	0.925	24	0.625	20	0.500	1.160	3.9
		3	DMD37-300	37	1.110	25	0.750	20	0.600	1.380	3.3
1/2	9/32	12	DMD37-1200	36	4.440	24	3.000	19	2.400	5.400	0.8
		1	DMD50-100	61	0.370	41	0.250	33	0.200	0.498	16.5
		1.25	DMD50-125	60	0.463	40	0.313	32	0.250	0.633	12.9
		1.5	DMD50-150	60	0.555	41	0.375	33	0.300	0.783	10.9
		1.75	DMD50-175	60	0.648	40	0.438	32	0.350	0.913	9.2
		2	DMD50-200	59	0.740	40	0.500	32	0.400	1.056	8.0
		2.5	DMD50-250	58	0.925	39	0.625	32	0.500	1.315	6.3
5/8	11/32	3	DMD50-300	56	1.110	38	0.750	30	0.600	1.542	5.0
		3.5	DMD50-350	56	1.295	38	0.875	30	0.700	1.809	4.3
		12	DMD50-1200	53	4.440	36	3.000	29	2.400	6.351	1.2
		1	DMD62-100	118	0.370	80	0.250	64	0.200	0.420	31.8
		1.25	DMD62-125	106	0.463	72	0.313	58	0.250	0.525	23.0
		1.5	DMD62-150	112	0.555	75	0.375	60	0.300	0.645	20.1
		1.75	DMD62-175	113	0.648	76	0.438	61	0.350	0.805	17.4
3/4	3/8	2	DMD62-200	114	0.740	77	0.500	62	0.400	0.920	15.4
		2.5	DMD62-250	111	0.925	75	0.625	60	0.500	1.190	12.0
		3	DMD62-300	112	1.110	76	0.750	61	0.600	1.425	10.1
		3.5	DMD62-350	113	1.295	76	0.875	61	0.700	1.725	8.7
		4	DMD62-400	112	1.480	76	1.000	61	0.800	2.015	7.6
		12	DMD62-1200	107	4.440	72	3.000	58	2.400	6.000	2.4
		1	DMD75-100	191	0.370	129	0.250	103	0.200	0.430	51.5
3/4	3/8	1.25	DMD75-125	180	0.463	122	0.313	97	0.250	0.550	38.9
		1.5	DMD75-150	174	0.555	117	0.375	94	0.300	0.660	31.3
		1.75	DMD75-175	167	0.648	113	0.438	90	0.350	0.750	25.8
		2	DMD75-200	164	0.740	111	0.500	89	0.400	0.850	22.2
		2.5	DMD75-250	160	0.925	108	0.625	87	0.500	1.100	17.3
		3	DMD75-300	157	1.110	106	0.750	85	0.600	1.300	14.1
		3.5	DMD75-350	158	1.295	107	0.875	85	0.700	1.540	12.2
		4	DMD75-400	157	1.480	106	1.000	85	0.800	1.760	10.6
		4.5	DMD75-450	155	1.665	105	1.125	84	0.900	1.980	9.3
		5	DMD75-500	154	1.850	104	1.250	83	1.000	2.200	8.3
		5.5	DMD75-550	153	2.035	103	1.375	83	1.100	2.305	7.5
		6	DMD75-600	153	2.220	104	1.500	83	1.200	2.640	6.9
		12	DMD75-1200	155	4.440	105	3.000	84	2.400	5.450	3.5

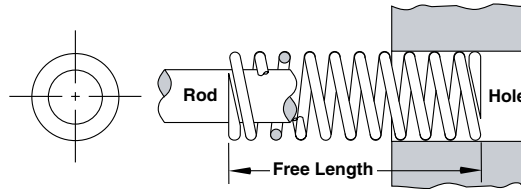
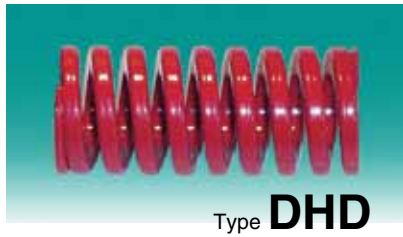
Medium Duty

Inch-ISO Colors

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				37% Deflection		25% Deflection		20% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
1	1/2	1	DMD100-100	351	0.370	237	0.250	190	0.200	0.390	94.9
		1.25	DMD100-125	330	0.463	223	0.313	178	0.250	0.501	71.2
		1.5	DMD100-150	312	0.555	211	0.375	169	0.300	0.700	56.3
		1.75	DMD100-175	308	0.648	208	0.438	166	0.350	0.719	47.5
		2	DMD100-200	303	0.740	205	0.500	164	0.400	0.940	41.0
		2.5	DMD100-250	290	0.925	196	0.625	157	0.500	1.040	31.4
		3	DMD100-300	286	1.110	194	0.750	155	0.600	1.400	25.8
		3.5	DMD100-350	280	1.295	189	0.875	151	0.700	1.464	21.6
		4	DMD100-400	278	1.480	188	1.000	150	0.800	1.682	18.8
		4.5	DMD100-450	278	1.665	188	1.125	150	0.900	1.918	16.7
		5	DMD100-500	278	1.850	188	1.250	150	1.000	2.139	15.0
		5.5	DMD100-550	275	2.035	186	1.375	149	1.100	2.600	13.5
1 1/4	5/8	6	DMD100-600	275	2.220	186	1.500	149	1.200	2.578	12.4
		7	DMD100-700	272	2.590	184	1.750	147	1.400	2.999	10.5
		8	DMD100-800	269	2.960	182	2.000	146	1.600	3.423	9.1
		12	DMD100-1200	266	4.440	180	3.000	144	2.400	5.113	6.0
		1.5	DMD125-150	526	0.555	356	0.375	284	0.300	0.600	94.8
		1.75	DMD125-175	505	0.648	341	0.438	273	0.350	0.706	77.9
		2	DMD125-200	491	0.740	332	0.500	265	0.400	0.813	66.3
		2.5	DMD125-250	463	0.925	313	0.625	251	0.500	1.005	50.1
		3	DMD125-300	450	1.110	304	0.750	243	0.600	1.208	40.5
		3.5	DMD125-350	443	1.295	299	0.875	239	0.700	1.421	34.2
		4	DMD125-400	438	1.480	296	1.000	237	0.800	1.634	29.6
		4.5	DMD125-450	438	1.665	296	1.125	237	0.900	1.867	26.3
1 1/2	3/4	5	DMD125-500	438	1.850	296	1.250	237	1.000	2.101	23.7
		5.5	DMD125-550	435	2.035	294	1.375	235	1.100	2.314	21.4
		6	DMD125-600	433	2.220	293	1.500	234	1.200	2.527	19.5
		7	DMD125-700	430	2.590	291	1.750	232	1.400	2.953	16.6
		8	DMD125-800	426	2.960	288	2.000	230	1.600	3.379	14.4
		10	DMD125-1000	422	3.700	285	2.500	228	2.000	4.231	11.4
		12	DMD125-1200	418	4.400	285	3.000	228	2.400	5.103	9.5
		2	DMD150-200	721	0.740	487	0.500	390	0.400	0.783	97.4
		2.5	DMD150-250	680	0.925	459	0.625	368	0.500	0.981	73.5
		3	DMD150-300	667	1.110	451	0.750	361	0.600	1.206	60.1
		3.5	DMD150-350	649	1.295	438	0.875	351	0.700	1.405	50.1
		4	DMD150-400	642	1.480	434	1.000	347	0.800	1.627	43.4
2	1	4.5	DMD150-450	631	1.665	426	1.125	341	0.900	1.826	37.9
		5	DMD150-500	629	1.850	425	1.250	340	1.000	2.050	34.0
		5.5	DMD150-550	623	2.035	421	1.375	337	1.100	2.249	30.6
		6	DMD150-600	619	2.220	419	1.500	335	1.200	2.471	27.9
		7	DMD150-700	614	2.590	415	1.750	332	1.400	2.895	23.7
		8	DMD150-800	610	2.960	412	2.000	330	1.600	3.316	20.6
		10	DMD150-1000	611	3.700	413	2.500	330	2.000	4.210	16.5
		12	DMD150-1200	604	4.440	408	3.000	326	2.400	5.030	13.6
		2.5	DMD200-250	1119	0.925	756	0.625	605	0.500	0.987	121.0
		3	DMD200-300	1061	1.110	717	0.750	574	0.600	1.181	95.6
		3.5	DMD200-350	1033	1.295	698	0.875	559	0.700	1.390	79.8
		4	DMD200-400	1030	1.480	696	1.000	557	0.800	1.630	69.6
2 1/2	1 1/2	4.5	DMD200-450	1019	1.665	689	1.125	551	0.900	1.853	61.2
		5	DMD200-500	999	1.850	675	1.250	540	1.000	2.047	54.0
		5.5	DMD200-550	993	2.035	671	1.375	537	1.100	2.272	48.8
		6	DMD200-600	988	2.220	668	1.500	534	1.200	2.496	44.5
		7	DMD200-700	982	2.590	663	1.750	531	1.400	2.944	37.9
		8	DMD200-800	971	2.960	656	2.000	525	1.600	3.364	32.8
		9	DMD200-900	969	3.330	655	2.250	524	1.800	3.812	29.1
		10	DMD200-1000	966	3.700	653	2.500	522	2.000	4.261	26.1
		12	DMD200-1200	955	4.440	645	3.000	516	2.400	5.127	21.5
		3	DMD250-300	1931	1.110	1305	0.750	1044	0.600	1.260	174.0
		3.5	DMD250-350	1852	1.295	1251	0.875	1001	0.700	1.470	143.0
		4	DMD250-400	1791	1.480	1210	1.000	968	0.800	1.680	121.0
		4.5	DMD250-450	1765	1.665	1193	1.125	954	0.900	1.890	106.0
		5	DMD250-500	1733	1.850	1171	1.250	937	1.000	2.100	93.7
		6	DMD250-600	1685	2.220	1139	1.500	911	1.200	2.520	75.9
		7	DMD250-700	1652	2.590	1117	1.750	893	1.400	3.010	63.8
		8	DMD250-800	1628	2.960	1100	2.000	880	1.600	3.440	55.0
		9	DMD250-900	1625	3.330	1098	2.250	878	1.800	3.870	48.8
		10	DMD250-1000	1624	3.700	1098	2.500	878	2.000	4.400	43.9
		12	DMD250-1200	1607	4.440	1086	3.000	869	2.400	5.280	36.2

Heavy Duty

Inch-ISO Colors



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	78	DHD37-250
	12	DHD50-1200

Note: Efficient Operating Range is 15% to 30% of the free length. (Maximum deflection = 30%; long life = 20%; and optimum life = 15%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				30% Deflection		20% Deflection		15% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
3/8	3/16	1	DHD37-100	38	0.300	25	0.200	19	0.150	0.366	12.6
		1.25	DHD37-125	38	0.375	25	0.250	19	0.188	0.469	10.0
		1.5	DHD37-150	42	0.450	28	0.300	21	0.225	0.657	9.3
		1.75	DHD37-175	42	0.525	28	0.350	21	0.263	0.779	8.0
		2	DHD37-200	41	0.600	27	0.400	20	0.300	0.880	6.8
		2.5	DHD37-250	41	0.750	28	0.500	21	0.375	1.126	5.5
		3	DHD37-300	39	0.900	26	0.600	19	0.450	1.288	4.3
1/2	9/32	12	DHD37-1200	40	3.600	26	2.400	20	1.800	5.270	1.1
		1	DHD50-100	71	0.300	47	0.200	35	0.150	0.435	23.6
		1.25	DHD50-125	71	0.375	47	0.250	35	0.188	0.565	18.8
		1.5	DHD50-150	70	0.450	47	0.300	35	0.225	0.692	15.5
		1.75	DHD50-175	70	0.525	47	0.350	35	0.263	0.821	13.3
		2	DHD50-200	68	0.600	46	0.400	34	0.300	0.937	11.4
		2.5	DHD50-250	65	0.750	44	0.500	33	0.375	1.142	8.7
5/8	11/32	3	DHD50-300	69	0.900	46	0.600	35	0.450	1.473	7.7
		3.5	DHD50-350	65	1.050	43	0.700	33	0.525	1.642	6.2
		12	DHD50-1200	65	3.600	43	2.400	32	1.800	5.715	1.8
		1	DHD62-100	129	0.300	86	0.200	65	0.150	0.371	43.1
		1.25	DHD62-125	131	0.375	87	0.250	65	0.188	0.490	34.8
		1.5	DHD62-150	125	0.450	83	0.300	63	0.225	0.590	27.8
		1.75	DHD62-175	130	0.525	86	0.350	65	0.263	0.730	24.7
3/4	3/8	2	DHD62-200	123	0.600	82	0.400	62	0.300	0.829	20.5
		2.5	DHD62-250	124	0.750	83	0.500	62	0.375	1.073	16.5
		3	DHD62-300	126	0.900	84	0.600	63	0.450	1.300	14.0
		3.5	DHD62-350	125	1.050	83	0.700	62	0.525	1.570	11.9
		4	DHD62-400	125	1.200	83	0.800	62	0.600	1.803	10.4
		12	DHD62-1200	119	3.600	79	2.400	59	1.800	5.050	3.3
		1	DHD75-100	411	0.300	274	0.200	206	0.150	0.330	137.0
3/4	3/8	1.25	DHD75-125	386	0.375	258	0.250	194	0.188	0.420	103.0
		1.5	DHD75-150	370	0.450	247	0.300	185	0.225	0.510	82.2
		1.75	DHD75-175	360	0.525	240	0.350	180	0.263	0.573	68.5
		2	DHD75-200	347	0.600	231	0.400	173	0.300	0.643	57.8
		2.5	DHD75-250	330	0.750	220	0.500	165	0.375	0.783	44.0
		3	DHD75-300	326	0.900	217	0.600	163	0.450	0.959	36.2
		3.5	DHD75-350	323	1.050	216	0.700	162	0.525	1.135	30.8
		4	DHD75-400	322	1.200	214	0.800	161	0.600	1.330	26.8
		4.5	DHD75-450	320	1.350	213	0.900	160	0.675	1.520	23.7
		5	DHD75-500	318	1.500	212	1.000	159	0.750	1.700	21.2
		5.5	DHD75-550	318	1.650	212	1.100	159	0.825	1.900	19.3
		6	DHD75-600	317	1.800	211	1.200	158	0.900	2.015	17.6
3/4	3/8	12	DHD75-1200	310	3.600	206	2.400	155	1.800	4.100	8.6

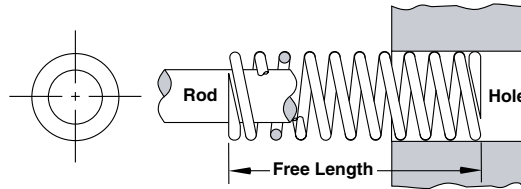
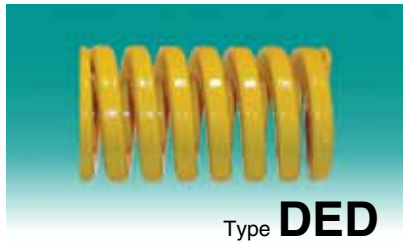
Heavy Duty

Inch-ISO Colors

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				30% Deflection		20% Deflection		15% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
1	1/2	1	DHD100-100	—	—	430	0.200	323	0.150	0.234	215.0
		1.25	DHD100-125	611	0.375	408	0.250	306	0.188	0.398	163.0
		1.5	DHD100-150	572	0.450	381	0.300	286	0.225	0.475	127.0
		1.75	DHD100-175	572	0.525	382	0.350	287	0.263	0.595	109.0
		2	DHD100-200	536	0.600	358	0.400	268	0.300	0.650	89.4
		2.5	DHD100-250	518	0.750	346	0.500	259	0.375	0.826	69.1
		3	DHD100-300	513	0.900	342	0.600	257	0.450	1.023	57.0
		3.5	DHD100-350	504	1.050	336	0.700	252	0.525	1.198	48.0
		4	DHD100-400	502	1.200	334	0.800	251	0.600	1.395	41.8
		4.5	DHD100-450	501	1.350	334	0.900	250	0.675	1.593	37.1
		5	DHD100-500	497	1.500	331	1.000	248	0.750	1.769	33.1
		5.5	DHD100-550	495	1.650	330	1.100	248	0.825	1.966	30.0
1 1/4	5/8	6	DHD100-600	495	1.800	330	1.200	248	0.900	2.164	27.5
		7	DHD100-700	494	2.100	329	1.400	247	1.050	2.558	23.5
		8	DHD100-800	492	2.400	328	1.600	246	1.200	2.930	20.5
		12	DHD100-1200	497	3.600	331	2.400	248	1.800	4.617	13.8
		1.5	DHD125-150	1004	0.450	669	0.300	502	0.225	0.458	223.0
		1.75	DHD125-175	956	0.525	637	0.350	479	0.263	0.546	182.0
		2	DHD125-200	924	0.600	616	0.400	462	0.300	0.633	154.0
		2.5	DHD125-250	878	0.750	585	0.500	439	0.375	0.793	117.0
		3	DHD125-300	852	0.900	568	0.600	426	0.450	0.968	94.7
		3.5	DHD125-350	841	1.050	561	0.700	421	0.525	1.155	80.1
		4	DHD125-400	829	1.200	553	0.800	415	0.600	1.330	69.1
		4.5	DHD125-450	819	1.350	546	0.900	410	0.675	1.504	60.7
1 1/2	3/4	5	DHD125-500	821	1.500	547	1.000	410	0.750	1.707	54.7
		5.5	DHD125-550	813	1.650	542	1.100	407	0.825	1.882	49.3
		6	DHD125-600	808	1.800	539	1.200	404	0.900	2.056	44.9
		7	DHD125-700	800	2.100	533	1.400	400	1.050	2.405	38.1
		8	DHD125-800	792	2.400	528	1.600	396	1.200	2.754	33.0
		10	DHD125-1000	792	3.000	528	2.000	396	1.500	3.506	26.4
		12	DHD125-1200	785	3.600	523	2.400	392	1.800	4.204	21.8
		2	DHD150-200	1248	0.600	832	0.400	624	0.300	0.654	208.0
		2.5	DHD150-250	1148	0.750	765	0.500	574	0.375	0.805	153.0
		3	DHD150-300	1125	0.900	750	0.600	563	0.450	1.003	125.0
		3.5	DHD150-350	1103	1.050	735	0.700	551	0.525	1.200	105.0
		4	DHD150-400	1087	1.200	725	0.800	544	0.600	1.383	90.6
2	1	4.5	DHD150-450	1085	1.350	724	0.900	543	0.675	1.598	80.4
		5	DHD150-500	1073	1.500	715	1.000	536	0.750	1.781	71.5
		5.5	DHD150-550	1061	1.650	707	1.100	530	0.825	1.963	64.3
		6	DHD150-600	1062	1.800	708	1.200	531	0.900	2.176	59.0
		7	DHD150-700	1056	2.100	704	1.400	528	1.050	2.574	50.3
		8	DHD150-800	1051	2.400	701	1.600	526	1.200	2.970	43.8
		10	DHD150-1000	1038	3.000	692	2.000	519	1.500	3.733	34.6
		12	DHD150-1200	1033	3.600	689	2.400	517	1.800	4.526	28.7
		2.5	DHD200-250	1815	0.750	1210	0.500	908	0.375	0.788	242.0
		3	DHD200-300	1737	0.900	1158	0.600	869	0.450	0.965	193.0
		3.5	DHD200-350	1680	1.050	1120	0.700	840	0.525	1.141	160.0
		4	DHD200-400	1680	1.200	1120	0.800	840	0.600	1.355	140.0
		4.5	DHD200-450	1661	1.350	1107	0.900	830	0.675	1.550	123.0
		5	DHD200-500	1620	1.500	1080	1.000	810	0.750	1.705	108.0
		5.5	DHD200-550	1591	1.650	1060	1.100	795	0.825	1.863	96.4
		6	DHD200-600	1584	1.800	1056	1.200	792	0.900	2.058	88.0
		7	DHD200-700	1575	2.100	1050	1.400	788	1.050	2.448	75.0
		8	DHD200-800	1567	2.400	1045	1.600	784	1.200	2.838	65.3
		10	DHD200-1000	1539	3.000	1026	2.000	770	1.500	3.542	51.3
		12	DHD200-1200	1534	3.600	1022	2.400	767	1.800	4.322	42.6

Extra Heavy Duty

Inch-ISO Colors



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	18	DED100-450
	24	DED125-500

Note: Efficient Operating Range is 15% to 25% of the free length. (Maximum deflection = 25%; long life = 20%; and optimum life = 15%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				25% Deflection		20% Deflection		15% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
3/8	3/16	1	DED37-100	47	0.250	37	0.200	28	0.150	0.280	18.7
		1.25	DED37-125	46	0.313	37	0.250	27	0.188	0.350	14.6
		1.5	DED37-150	45	0.375	36	0.300	27	0.225	0.430	12.1
		1.75	DED37-175	44	0.438	35	0.350	27	0.263	0.470	10.1
		2	DED37-200	44	0.500	35	0.400	26	0.300	0.570	8.8
		2.5	DED37-250	44	0.625	35	0.500	26	0.375	0.730	7.0
		3	DED37-300	44	0.750	35	0.600	26	0.450	0.890	5.8
1/2	9/32	12	DED37-1200	42	3.000	34	2.400	25	1.800	3.600	1.4
		1	DED50-100	84	0.250	67	0.200	50	0.150	0.315	33.5
		1.25	DED50-125	79	0.313	63	0.250	47	0.188	0.384	25.2
		1.5	DED50-150	78	0.375	62	0.300	47	0.225	0.471	20.7
		1.75	DED50-175	77	0.438	61	0.350	46	0.263	0.559	17.5
		2	DED50-200	77	0.500	62	0.400	46	0.300	0.660	15.4
		2.5	DED50-250	78	0.625	62	0.500	47	0.375	0.825	12.4
5/8	11/32	3	DED50-300	76	0.750	61	0.600	45	0.450	0.990	10.1
		3.5	DED50-350	75	0.875	60	0.700	45	0.525	1.155	8.6
		12	DED50-1200	72	3.000	58	2.400	43	1.800	4.020	2.4
		1	DED62-100	182	0.250	145	0.200	109	0.150	0.313	72.7
		1.25	DED62-125	168	0.313	134	0.250	101	0.188	0.381	53.7
		1.5	DED62-150	162	0.375	130	0.300	97	0.225	0.464	43.3
		1.75	DED62-175	159	0.438	127	0.350	95	0.263	0.549	36.3
3/4	3/8	2	DED62-200	159	0.500	127	0.400	95	0.300	0.647	31.7
		2.5	DED62-250	154	0.625	124	0.500	93	0.375	0.815	24.7
		3	DED62-300	152	0.750	122	0.600	91	0.450	0.982	20.3
		3.5	DED62-350	151	0.875	121	0.700	91	0.525	1.164	17.3
		4	DED62-400	151	1.000	121	0.800	91	0.600	1.347	15.1
		12	DED62-1200	147	3.000	118	2.400	88	1.800	4.174	4.9
		1	DED75-100	458	0.250	366	0.200	275	0.150	0.300	183.0
3/4	3/8	1.25	DED75-125	429	0.313	343	0.250	258	0.188	0.336	137.0
		1.5	DED75-150	416	0.375	333	0.300	250	0.225	0.425	111.0
		1.75	DED75-175	405	0.438	323	0.350	243	0.263	0.504	92.4
		2	DED75-200	399	0.500	319	0.400	239	0.300	0.593	79.7
		2.5	DED75-250	388	0.625	311	0.500	233	0.375	0.760	62.1
		3	DED75-300	384	0.750	307	0.600	230	0.450	0.938	51.2
		3.5	DED75-350	378	0.875	302	0.700	227	0.525	1.097	43.2
		4	DED75-400	373	1.000	298	0.800	224	0.600	1.254	37.3
		4.5	DED75-450	369	1.125	295	0.900	221	0.675	1.413	32.8
		5	DED75-500	369	1.250	295	1.000	221	0.750	1.591	29.5
		5.5	DED75-550	366	1.375	293	1.100	219	0.825	1.748	26.6
		6	DED75-600	365	1.500	292	1.200	219	0.900	1.906	24.3
3/4	3/8	12	DED75-1200	360	3.000	288	2.400	216	1.800	3.912	12.0

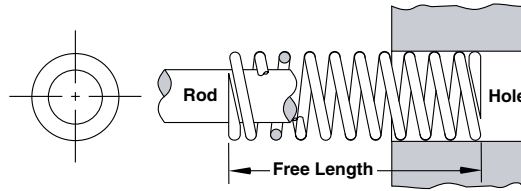
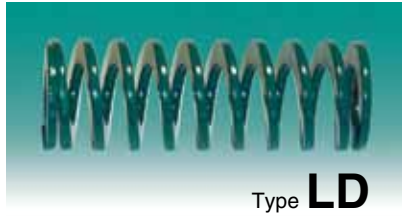
Extra Heavy Duty

Inch-ISO Colors

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ .1" Deflection (lbs)
				25% Deflection		20% Deflection		15% Deflection		Travel to Solid	
				Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Load (lbs)	Deflection (in)	Deflection (in)	
1	1/2	1.25	DED100-125	632	0.313	505	0.250	380	0.188	0.350	202.0
		1.5	DED100-150	600	0.375	480	0.300	360	0.225	0.430	160.0
		1.75	DED100-175	578	0.438	462	0.350	347	0.263	0.520	132.0
		2	DED100-200	565	0.500	452	0.400	339	0.300	0.600	113.0
		2.5	DED100-250	549	0.625	439	0.500	329	0.375	0.780	87.8
		3	DED100-300	536	0.750	428	0.600	321	0.450	0.950	71.4
		3.5	DED100-350	527	0.875	421	0.700	316	0.525	1.110	60.2
		4	DED100-400	520	1.000	416	0.800	312	0.600	1.280	52.0
		4.5	DED100-450	520	1.125	416	0.900	312	0.675	1.470	46.2
		5	DED100-500	515	1.250	412	1.000	309	0.750	1.640	41.2
		5.5	DED100-550	516	1.375	413	1.100	308	0.820	1.830	37.5
		6	DED100-600	516	1.500	413	1.200	310	0.900	2.020	34.4
1 1/4	5/8	7	DED100-700	513	1.750	410	1.400	308	1.050	2.380	29.3
		8	DED100-800	510	2.000	408	1.600	306	1.200	2.740	25.5
		12	DED100-1200	507	3.000	406	2.400	304	1.800	4.000	16.9
		1.5	DED125-150	1046	0.375	837	0.300	628	0.225	0.392	279.0
		1.75	DED125-175	1012	0.438	809	0.350	608	0.263	0.481	231.0
		2	DED125-200	985	0.500	788	0.400	591	0.300	0.569	197.0
		2.5	DED125-250	950	0.625	760	0.500	570	0.375	0.749	152.0
		3	DED125-300	923	0.750	738	0.600	554	0.450	0.912	123.0
		3.5	DED125-350	910	0.875	728	0.700	546	0.525	1.089	104.0
		4	DED125-400	889	1.000	711	0.800	533	0.600	1.238	88.9
		4.5	DED125-450	872	1.125	698	0.900	523	0.675	1.382	77.5
		5	DED125-500	870	1.250	696	1.000	522	0.750	1.566	69.6
1 1/2	3/4	5.5	DED125-550	875	1.375	700	1.100	522	0.820	1.774	63.6
		6	DED125-600	864	1.500	691	1.200	518	0.900	1.923	57.6
		7	DED125-700	856	1.750	685	1.400	513	1.050	2.249	48.9
		8	DED125-800	852	2.000	682	1.600	511	1.200	2.605	42.6
		10	DED125-1000	850	2.500	680	2.000	510	1.500	3.318	34.0
		12	DED125-1200	849	3.000	679	2.400	509	1.800	4.031	28.3
		2	DED150-200	1595	0.500	1276	0.400	957	0.300	0.551	319.0
		2.5	DED150-250	1506	0.625	1205	0.500	904	0.375	0.717	241.0
		3	DED150-300	1448	0.750	1158	0.600	869	0.450	0.880	193.0
		3.5	DED150-350	1400	0.875	1120	0.700	840	0.525	1.026	160.0
		4	DED150-400	1390	1.000	1112	0.800	834	0.600	1.228	139.0
		4.5	DED150-450	1373	1.125	1098	0.900	824	0.675	1.394	122.0
2	1	5	DED150-500	1350	1.250	1080	1.000	810	0.750	1.557	108.0
		5.5	DED150-550	1342	1.375	1074	1.100	800	0.820	1.723	97.6
		6	DED150-600	1331	1.500	1064	1.200	798	0.900	1.887	88.7
		7	DED150-700	1313	1.750	1050	1.400	788	1.050	2.216	75.0
		8	DED150-800	1300	2.000	1040	1.600	780	1.200	2.546	65.0
		10	DED150-1000	1290	2.500	1032	2.000	774	1.500	3.243	51.6
		12	DED150-1200	1284	3.000	1027	2.400	770	1.800	3.938	42.8
		2.5	DED200-250	2588	0.625	2070	0.500	1553	0.375	0.681	414.0
		3	DED200-300	2453	0.750	1962	0.600	1472	0.450	0.838	327.0
		3.5	DED200-350	2371	0.875	1897	0.700	1423	0.525	0.995	271.0
		4	DED200-400	2310	1.000	1848	0.800	1386	0.600	1.152	231.0
		4.5	DED200-450	2261	1.125	1809	0.900	1357	0.675	1.313	201.0
		5	DED200-500	2238	1.250	1790	1.000	1343	0.750	1.469	179.0
		5.5	DED200-550	2214	1.375	1771	1.100	1320	0.820	1.648	161.0
		6	DED200-600	2175	1.500	1740	1.200	1305	0.900	1.783	145.0
		7	DED200-700	2153	1.750	1722	1.400	1292	1.050	2.101	123.0
		8	DED200-800	2120	2.000	1696	1.600	1272	1.200	2.415	106.0
		10	DED200-1000	2088	2.500	1670	2.000	1253	1.500	3.046	83.5
		12	DED200-1200	2067	3.000	1654	2.400	1240	1.800	3.677	68.9

Light Duty

Metric-ISO



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	40	LD10-44
	58	LD20-305

Note: Efficient Operating Range is 25% to 35% of the free length. (Maximum deflection = 35%; long life = 30%; and optimum life = 25%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Load shown in Newtons (N).

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ 1 mm Deflection (*N)
				35% Deflection		30% Deflection		25% Deflection		Travel to Solid	
				Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Deflection (mm)	
10.0	5.0	25	LD10-25	97.1	8.8	82.7	7.5	69.5	6.3	12.3	11.0
		32	LD10-32	98.1	11.2	84.1	9.6	70.1	8.0	16.1	8.8
		38	LD10-38	99.0	13.3	84.8	11.4	70.7	9.5	19.3	7.4
		44	LD10-44	97.1	15.4	83.2	13.2	69.4	11.0	22.2	6.3
		51	LD10-51	97.2	17.9	83.1	15.3	69.5	12.8	26.1	5.4
		64	LD10-64	102.0	22.4	87.4	19.2	72.9	16.0	33.5	4.6
		76	LD10-76	97.8	26.6	83.9	22.8	69.9	19.0	39.4	3.7
		305	LD10-305	93.5	106.8	80.1	91.5	66.8	76.3	155.1	0.9
12.5	6.3	25	LD12-25	168.0	8.8	143.2	7.5	120.3	6.3	12.3	19.1
		32	LD12-32	184.4	11.2	158.0	9.6	131.7	8.0	17.7	16.5
		38	LD12-38	181.7	13.3	155.7	11.4	129.8	9.5	21.9	13.7
		44	LD12-44	178.0	15.4	152.6	13.2	127.1	11.0	25.3	11.6
		51	LD12-51	181.8	17.9	155.4	15.3	130.0	12.8	29.4	10.2
		64	LD12-64	184.4	22.4	158.0	19.2	131.7	16.0	37.6	8.2
		76	LD12-76	167.7	26.6	143.7	22.8	119.8	19.0	42.9	6.3
		89	LD12-89	169.4	31.2	145.0	26.7	121.1	22.3	50.8	5.4
		305	LD12-305	149.6	106.8	128.2	91.5	106.9	76.3	160.2	1.4
16.0	8.0	25	LD16-25	277.4	8.8	236.4	7.5	198.6	6.3	12.3	31.5
		32	LD16-32	262.8	11.2	225.3	9.6	187.7	8.0	16.7	23.5
		38	LD16-38	279.5	13.3	239.6	11.4	199.6	9.5	20.5	21.0
		44	LD16-44	269.7	15.4	231.2	13.2	192.6	11.0	24.2	17.5
		51	LD16-51	291.5	17.9	249.2	15.3	208.5	12.8	29.6	16.3
		64	LD16-64	282.4	22.4	242.1	19.2	201.7	16.0	37.1	12.6
		76	LD16-76	274.8	26.6	235.6	22.8	196.3	19.0	43.9	10.3
		89	LD16-89	289.6	31.2	247.8	26.7	207.0	22.3	53.4	9.3
		102	LD16-102	293.8	35.7	251.9	30.6	209.9	25.5	61.9	8.2
		305	LD16-305	280.6	106.8	240.4	91.5	200.4	76.3	184.6	2.6
20.0	10.0	25	LD20-25	493.2	8.8	420.3	7.5	353.1	6.3	12.3	56.0
		32	LD20-32	478.6	11.2	410.2	9.6	341.8	8.0	16.1	42.7
		38	LD20-38	449.5	13.3	385.3	11.4	321.1	9.5	18.8	33.8
		44	LD20-44	436.9	15.4	374.5	13.2	312.1	11.0	21.8	28.4
		51	LD20-51	445.1	17.9	380.5	15.3	318.3	12.8	25.6	24.9
		64	LD20-64	431.5	22.4	369.9	19.2	308.2	16.0	32.5	19.3
		76	LD20-76	428.6	26.6	367.3	22.8	306.1	19.0	38.4	16.1
		89	LD20-89	420.7	31.2	360.0	26.7	300.7	22.3	45.4	13.5
		102	LD20-102	425.1	35.7	364.4	30.6	303.7	25.5	52.5	11.9
		115	LD20-115	423.5	40.3	362.5	34.5	302.6	28.8	58.6	10.5
		127	LD20-127	413.0	44.5	353.6	38.1	295.2	31.8	66.0	9.3
		139	LD20-139	417.9	48.7	357.8	41.7	298.6	34.8	71.7	8.6
		152	LD20-152	419.3	53.2	359.4	45.6	299.5	38.0	80.0	7.9
		305	LD20-305	411.5	106.8	352.5	91.5	294.0	76.3	158.7	3.9

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Light Duty

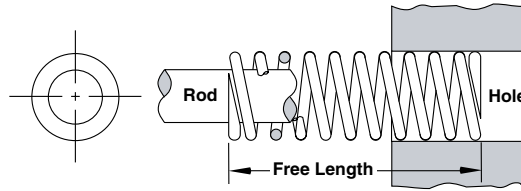
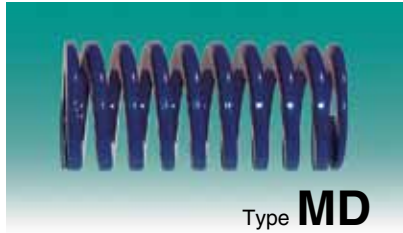
Metric-ISO

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ 1 mm Deflection (*N)
				35% Deflection		30% Deflection		25% Deflection		Travel to Solid	
				Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Deflection (mm)	
25.0	12.5	25	LD25-25	943.2	8.8	803.8	7.5	675.2	6.3	12.3	107.2
		32	LD25-32	906.2	11.2	776.7	9.6	647.3	8.0	16.1	80.9
		38	LD25-38	861.8	13.3	738.7	11.4	615.6	9.5	19.0	64.8
		44	LD25-44	825.3	15.4	707.4	13.2	589.5	11.0	21.8	53.6
		51	LD25-51	830.7	17.9	710.1	15.3	594.0	12.8	25.9	46.4
		64	LD25-64	800.3	22.4	685.9	19.2	571.6	16.0	32.8	35.7
		76	LD25-76	782.6	26.6	670.8	22.8	559.0	19.0	38.7	29.4
		89	LD25-89	770.4	31.2	659.3	26.7	550.7	22.3	45.3	24.7
		102	LD25-102	756.5	35.7	648.4	30.6	540.4	25.5	52.0	21.2
		115	LD25-115	755.2	40.3	646.5	34.5	539.7	28.8	58.6	18.7
		127	LD25-127	748.1	44.5	640.5	38.1	534.6	31.8	64.5	16.8
		139	LD25-139	742.0	48.7	635.3	41.7	530.2	34.8	70.4	15.2
		152	LD25-152	745.3	53.2	638.9	45.6	532.4	38.0	79.6	14.0
		178	LD25-178	752.8	62.3	645.3	53.4	537.7	44.5	90.9	12.1
		203	LD25-203	747.1	71.1	639.9	60.9	533.8	50.8	103.4	10.5
32.0	16.0	305	LD25-305	748.1	106.8	641.0	91.5	534.5	76.3	157.7	7.0
		38	LD32-38	1348.6	13.3	1155.9	11.4	963.3	9.5	18.3	101.4
		44	LD32-44	1281.1	15.4	1098.0	13.2	915.0	11.0	20.8	83.2
		51	LD32-51	1275.9	17.9	1090.5	15.3	912.3	12.8	24.7	71.3
		64	LD32-64	1231.8	22.4	1055.8	19.2	879.8	16.0	31.7	55.0
		76	LD32-76	1225.2	26.6	1050.1	22.8	875.1	19.0	38.2	46.1
		89	LD32-89	1213.0	31.2	1038.0	26.7	867.0	22.3	45.1	38.9
		102	LD32-102	1200.4	35.7	1028.9	30.6	857.4	25.5	51.7	33.6
		115	LD32-115	1192.7	40.3	1021.1	34.5	852.4	28.8	59.1	29.6
		127	LD32-127	1169.0	44.5	1000.8	38.1	835.4	31.8	65.3	26.3
		139	LD32-139	1151.4	48.7	985.9	41.7	822.7	34.8	69.7	23.6
		152	LD32-152	1146.0	53.2	982.3	45.6	818.5	38.0	76.6	21.5
		178	LD32-178	1134.7	62.3	972.6	53.4	810.5	44.5	90.1	18.2
		203	LD32-203	1133.1	71.1	970.5	60.9	809.6	50.8	102.4	15.9
		254	LD32-254	1121.0	88.9	960.8	76.2	800.7	63.5	128.3	12.6
40.0	20.0	305	LD32-305	1103.5	106.8	945.4	91.5	788.4	76.3	162.8	10.3
		51	LD40-51	1890.3	17.9	1615.7	15.3	1351.7	12.8	24.8	105.6
		64	LD40-64	1796.7	22.4	1540.0	19.2	1283.3	16.0	31.4	80.2
		76	LD40-76	1746.9	26.6	1497.3	22.8	1247.8	19.0	37.6	65.7
		89	LD40-89	1737.5	31.2	1486.9	26.7	1241.9	22.3	44.8	55.7
		102	LD40-102	1706.8	35.7	1463.0	30.6	1219.1	25.5	51.4	47.8
		115	LD40-115	1700.9	40.3	1456.1	34.5	1215.5	28.8	58.6	42.2
		127	LD40-127	1683.3	44.5	1441.2	38.1	1202.9	31.8	64.7	37.8
		139	LD40-139	1654.6	48.7	1416.7	41.7	1182.3	34.8	70.4	34.0
		152	LD40-152	1639.7	53.2	1405.5	45.6	1171.2	38.0	77.0	30.8
		178	LD40-178	1636.6	62.3	1402.8	53.4	1169.0	44.5	90.8	26.3
		203	LD40-203	1606.2	71.1	1375.8	60.9	1147.6	50.8	103.1	22.6
		254	LD40-254	1603.6	88.9	1374.5	76.2	1145.4	63.5	129.7	18.0
		305	LD40-305	1571.1	106.8	1346.0	91.5	1122.4	76.3	155.2	14.7
50.0	25.0	64	LD50-64	3526.6	22.4	3022.8	19.2	2519.0	16.0	31.5	157.4
		76	LD50-76	3354.0	26.6	2874.9	22.8	2395.7	19.0	37.3	126.1
		89	LD50-89	3289.3	31.2	2814.9	26.7	2351.0	22.3	44.2	105.4
		102	LD50-102	3201.0	35.7	2743.7	30.6	2286.5	25.5	50.8	89.7
		115	LD50-115	3168.9	40.3	2712.8	34.5	2264.6	28.8	57.6	78.6
		127	LD50-127	3117.3	44.5	2668.9	38.1	2227.6	31.8	63.6	70.1
		139	LD50-139	3070.3	48.7	2629.0	41.7	2194.0	34.8	69.4	63.0
		152	LD50-152	3055.9	53.2	2619.3	45.6	2182.8	38.0	76.3	57.4
		178	LD50-178	3033.1	62.3	2599.8	53.4	2166.5	44.5	90.1	48.7
		203	LD50-203	2963.5	71.1	2538.3	60.9	2117.4	50.8	101.5	41.7
		254	LD50-254	2926.9	88.9	2508.8	76.2	2090.7	63.5	128.0	32.9
		305	LD50-305	2899.0	106.8	2483.7	91.5	2071.1	76.3	153.9	27.1
63.0	38.0	76	LD63-76	5124.2	26.6	4392.2	22.8	3660.1	19.0	36.1	192.6
		89	LD63-89	4912.1	31.2	4203.6	26.7	3510.9	22.3	42.8	157.4
		102	LD63-102	4764.0	35.7	4083.5	30.6	3402.9	25.5	50.4	133.4
		115	LD63-115	4658.0	40.3	3987.6	34.5	3328.8	28.8	56.1	115.6
		127	LD63-127	4582.4	44.5	3923.3	38.1	3274.6	31.8	62.3	103.0
		152	LD63-152	4434.8	53.2	3801.2	45.6	3167.7	38.0	75.3	83.4
		178	LD63-178	4364.2	62.3	3740.7	53.4	3117.3	44.5	88.3	70.1
		203	LD63-203	4283.3	71.1	3668.8	60.9	3060.4	50.8	100.3	60.2
		254	LD63-254	4156.9	88.9	3563.0	76.2	2969.2	63.5	124.9	46.8
		305	LD63-305	4114.8	106.8	3525.3	91.5	2939.7	76.3	152.6	38.5

*Newtons

Medium Duty

Metric-ISO



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	16	MD10-305
	27	MD20-102

Note: Efficient Operating Range is 20% to 30% of the free length. (Maximum deflection = 30%; long life = 25%; and optimum life = 20%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Load shown in Newtons (N).

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ 1 mm Deflection (*N)
				30% Deflection		25% Deflection		20% Deflection		Travel to Solid	
				Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Deflection (mm)	
10.0	5.0	25	MD10-25	122.2	7.5	102.6	6.3	81.4	5.0	10.5	16.3
		32	MD10-32	134.5	9.6	112.1	8.0	89.7	6.4	14.2	14.0
		38	MD10-38	133.8	11.4	111.5	9.5	89.2	7.6	16.7	11.7
		44	MD10-44	129.5	13.2	107.9	11.0	86.3	8.8	19.1	9.8
		51	MD10-51	131.3	15.3	109.8	12.8	87.5	10.2	22.6	8.6
		64	MD10-64	131.1	19.2	109.3	16.0	87.4	12.8	30.0	6.8
		76	MD10-76	131.8	22.8	109.8	19.0	87.8	15.2	34.9	5.8
		305	MD10-305	128.2	91.5	106.9	76.3	85.5	61.0	137.4	1.4
12.5	6.3	25	MD12-25	216.7	7.5	182.0	6.3	144.5	5.0	12.2	28.9
		32	MD12-32	216.9	9.6	180.7	8.0	144.6	6.4	16.3	22.6
		38	MD12-38	217.6	11.4	181.3	9.5	145.1	7.6	19.8	19.1
		44	MD12-44	212.7	13.2	177.2	11.0	141.8	8.8	22.7	16.1
		51	MD12-51	214.4	15.3	179.3	12.8	142.9	10.2	27.0	14.0
		64	MD12-64	211.8	19.2	176.5	16.0	141.2	12.8	33.9	11.0
		76	MD12-76	199.6	22.8	166.4	19.0	133.1	15.2	39.0	8.8
		89	MD12-89	201.1	26.7	167.9	22.3	134.0	17.8	46.0	7.5
16.0	8.0	305	MD12-305	192.3	91.5	160.3	76.3	128.2	61.0	161.5	2.1
		25	MD16-25	417.7	7.5	350.8	6.3	278.5	5.0	10.3	55.7
		32	MD16-32	386.7	9.6	322.2	8.0	257.8	6.4	13.6	40.3
		38	MD16-38	401.3	11.4	334.4	9.5	267.5	7.6	16.3	35.2
		44	MD16-44	402.2	13.2	335.2	11.0	268.2	8.8	20.0	30.5
		51	MD16-51	412.6	15.3	345.2	12.8	275.1	10.2	23.6	27.0
		64	MD16-64	403.5	19.2	336.2	16.0	269.0	12.8	30.7	21.0
		76	MD16-76	403.3	22.8	336.1	19.0	268.9	15.2	36.0	17.7
20.0	10.0	89	MD16-89	406.8	26.7	339.8	22.3	271.2	17.8	43.9	15.2
		102	MD16-102	407.3	30.6	339.4	25.5	271.5	20.4	51.6	13.3
		305	MD16-305	384.6	91.5	320.7	76.3	256.4	61.0	152.6	4.2
		25	MD20-25	676.4	7.5	568.2	6.3	451.0	5.0	10.5	90.2
		32	MD20-32	654.0	9.6	545.0	8.0	436.0	6.4	14.2	68.1
		38	MD20-38	624.9	11.4	520.7	9.5	416.6	7.6	16.7	54.8
		44	MD20-44	596.4	13.2	497.0	11.0	397.6	8.8	18.6	45.2
		51	MD20-51	594.8	15.3	497.6	12.8	396.6	10.2	21.8	38.9
		64	MD20-64	581.7	19.2	484.8	16.0	387.8	12.8	28.4	30.3
		76	MD20-76	563.0	22.8	469.2	19.0	375.3	15.2	32.8	24.7
		89	MD20-89	570.5	26.7	476.4	22.3	380.3	17.8	39.2	21.4
		102	MD20-102	568.0	30.6	473.4	25.5	378.7	20.4	45.1	18.6
		115	MD20-115	561.9	34.5	469.1	28.8	374.6	23.0	51.0	16.3
		127	MD20-127	553.8	38.1	462.2	31.8	369.2	25.4	55.9	14.5
		139	MD20-139	547.7	41.7	457.1	34.8	365.1	27.8	57.8	13.1
		152	MD20-152	551.0	45.6	459.2	38.0	367.3	30.4	66.7	12.1
		305	MD20-305	560.8	91.5	467.7	76.3	373.9	61.0	138.6	6.1

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

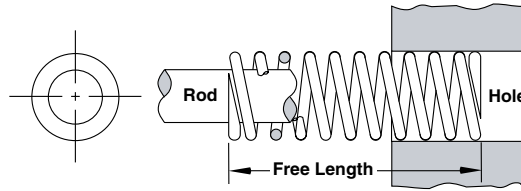
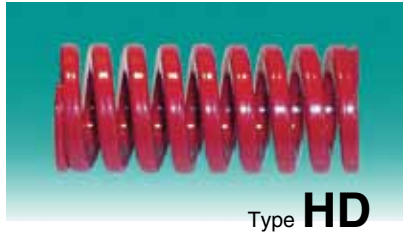
Medium Duty

Metric-ISO

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ 1 mm Deflection (*N)
				30% Deflection		25% Deflection		20% Deflection		Travel to Solid	
				Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Deflection (mm)	
25.0	12.5	25	MD25-25	1246.5	7.5	1047.0	6.3	831.0	5.0	9.5	166.2
		32	MD25-32	1197.0	9.6	997.5	8.0	798.0	6.4	13.0	124.7
		38	MD25-38	1124.0	11.4	936.7	9.5	749.3	7.6	17.7	98.6
		44	MD25-44	1098.0	13.2	915.0	11.0	732.0	8.8	17.8	83.2
		51	MD25-51	1098.6	15.3	919.1	12.8	732.4	10.2	24.1	71.8
		64	MD25-64	1055.8	19.2	879.8	16.0	703.9	12.8	26.9	55.0
		76	MD25-76	1030.2	22.8	858.5	19.0	686.8	15.2	35.4	45.2
		89	MD25-89	1010.0	26.7	843.6	22.3	673.3	17.8	37.3	37.8
		102	MD25-102	1007.5	30.6	839.6	25.5	671.6	20.4	43.1	32.9
		115	MD25-115	1009.0	34.5	842.3	28.8	672.7	23.0	49.4	29.2
		127	MD25-127	1000.8	38.1	835.4	31.8	667.2	25.4	54.3	26.3
		139	MD25-139	985.9	41.7	822.7	34.8	657.3	27.8	65.3	23.6
		152	MD25-152	990.2	45.6	825.2	38.0	660.2	30.4	65.1	21.7
		178	MD25-178	981.9	53.4	818.3	44.5	654.6	35.6	76.4	18.4
		203	MD25-203	970.5	60.9	809.6	50.8	647.0	40.6	86.7	15.9
32.0	16.0	305	MD25-305	961.4	91.5	801.7	76.3	641.0	61.0	130.1	10.5
		38	MD32-38	1892.6	11.4	1577.2	9.5	1261.8	7.6	15.1	166.0
		44	MD32-44	1800.8	13.2	1500.7	11.0	1200.5	8.8	17.5	136.4
		51	MD32-51	1776.5	15.3	1486.2	12.8	1184.3	10.2	20.9	116.1
		64	MD32-64	1684.6	19.2	1403.8	16.0	1123.1	12.8	26.0	87.7
		76	MD32-76	1617.1	22.8	1347.6	19.0	1078.1	15.2	30.5	70.9
		89	MD32-89	1599.2	26.7	1335.6	22.3	1066.1	17.8	36.2	59.9
		102	MD32-102	1586.2	30.6	1321.9	25.5	1057.5	20.4	41.9	51.8
		115	MD32-115	1589.0	34.5	1326.5	28.8	1059.3	23.0	48.1	46.1
		127	MD32-127	1581.3	38.1	1319.9	31.8	1054.2	25.4	53.4	41.5
		139	MD32-139	1562.8	41.7	1304.2	34.8	1041.9	27.8	58.1	37.5
		152	MD32-152	1557.2	45.6	1297.7	38.0	1038.2	30.4	63.8	34.1
		178	MD32-178	1552.4	53.4	1293.7	44.5	1034.9	35.6	75.2	29.1
		203	MD32-203	1535.8	60.9	1281.1	50.8	1023.9	40.6	85.6	25.2
		254	MD32-254	1521.3	76.2	1267.7	63.5	1014.2	50.8	107.5	20.0
40.0	20.0	305	MD32-305	1522.3	91.5	1269.4	76.3	1014.9	61.0	129.8	16.6
		51	MD40-51	2609.8	15.3	2183.3	12.8	1739.8	10.2	20.1	170.6
		64	MD40-64	2471.4	19.2	2059.5	16.0	1647.6	12.8	25.4	128.7
		76	MD40-76	2399.7	22.8	1999.8	19.0	1599.8	15.2	30.4	105.3
		89	MD40-89	2342.6	26.7	1956.6	22.3	1561.7	17.8	35.8	87.7
		102	MD40-102	2325.8	30.6	1938.1	25.5	1550.5	20.4	41.7	76.0
		115	MD40-115	2289.9	34.5	1911.5	28.8	1526.6	23.0	47.1	66.4
		127	MD40-127	2268.6	38.1	1893.5	31.8	1512.4	25.4	52.1	59.5
		139	MD40-139	2234.7	41.7	1864.9	34.8	1489.8	27.8	56.4	53.6
		152	MD40-152	2228.0	45.6	1856.7	38.0	1485.4	30.4	62.4	48.9
		178	MD40-178	2216.4	53.4	1847.0	44.5	1477.6	35.6	73.7	41.5
		203	MD40-203	2197.0	60.9	1832.7	50.8	1464.7	40.6	84.0	36.1
		254	MD40-254	2201.9	76.2	1834.9	63.5	1467.9	50.8	106.9	28.9
		305	MD40-305	2179.3	91.5	1817.3	76.3	1452.9	61.0	128.0	23.8
50.0	25.0	64	MD50-64	4068.5	19.2	3390.5	16.0	2712.4	12.8	25.6	211.9
		76	MD50-76	3817.2	22.8	3181.0	19.0	2544.8	15.2	29.8	167.4
		89	MD50-89	3731.4	26.7	3116.5	22.3	2487.6	17.8	35.4	139.8
		102	MD50-102	3729.8	30.6	3108.2	25.5	2486.5	20.4	41.8	121.9
		115	MD50-115	3697.6	34.5	3086.7	28.8	2465.1	23.0	47.8	107.2
		127	MD50-127	3603.1	38.1	3007.3	31.8	2402.0	25.4	52.0	94.6
		139	MD50-139	3563.8	41.7	2974.1	34.8	2375.8	27.8	57.0	85.5
		152	MD50-152	3553.7	45.6	2961.4	38.0	2369.1	30.4	63.0	77.9
		178	MD50-178	3544.3	53.4	2953.6	44.5	2362.9	35.6	75.0	66.4
		203	MD50-203	3498.2	60.9	2918.0	50.8	2332.1	40.6	85.2	57.4
		229	MD50-229	3501.1	68.7	2920.1	57.3	2334.1	45.8	97.2	51.0
		254	MD50-254	3483.0	76.2	2902.5	63.5	2322.0	50.8	108.2	45.7
		305	MD50-305	3445.2	91.5	2872.9	76.3	2296.8	61.0	130.4	37.7
63.0	38.0	76	MD63-76	6947.6	22.8	5789.7	19.0	4631.8	15.2	31.8	304.7
		89	MD63-89	6686.5	26.7	5584.6	22.3	4457.7	17.8	37.4	250.4
		102	MD63-102	6484.2	30.6	5403.5	25.5	4322.8	20.4	43.1	211.9
		115	MD63-115	6404.4	34.5	5346.3	28.8	4269.6	23.0	48.7	185.6
		127	MD63-127	6252.0	38.1	5218.2	31.8	4168.0	25.4	53.3	164.1
		152	MD63-152	6061.2	45.6	5051.0	38.0	4040.8	30.4	63.6	132.9
		178	MD63-178	5966.4	53.4	4972.0	44.5	3977.6	35.6	76.7	111.7
		203	MD63-203	5865.9	60.9	4893.0	50.8	3910.6	40.6	87.2	96.3
		229	MD63-229	5871.2	68.7	4897.0	57.3	3914.2	45.8	98.7	85.5
		254	MD63-254	5858.3	76.2	4881.9	63.5	3905.5	50.8	111.8	76.9
		305	MD63-305	5800.7	91.5	4837.1	76.3	3867.1	61.0	134.3	63.4

*Newtons

Heavy Duty Metric-ISO



HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	78	HD10-64
	12	HD12-305

Note: Efficient Operating Range is 15% to 25% of the free length. (Maximum deflection = 25%; long life = 20%; and optimum life = 15%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure..

Load shown in Newtons (N).

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ 1 mm Deflection (*N)
				25% Deflection		20% Deflection		15% Deflection		Travel to Solid	
				Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Deflection (mm)	
10.0	5.0	25	HD10-25	139.0	6.3	110.3	5.0	83.9	3.8	8.9	22.1
		32	HD10-32	140.1	8.0	112.1	6.4	84.1	4.8	12.2	17.5
		38	HD10-38	154.7	9.5	123.8	7.6	92.8	5.7	16.6	16.3
		44	HD10-44	154.1	11.0	123.3	8.8	92.5	6.6	19.3	14.0
		51	HD10-51	152.4	12.8	121.5	10.2	91.7	7.7	22.6	11.9
		64	HD10-64	154.1	16.0	123.3	12.8	92.5	9.6	29.1	9.6
		76	HD10-76	143.1	19.0	114.5	15.2	85.8	11.4	32.5	7.5
		305	HD10-305	147.0	76.3	117.5	61.0	88.2	45.8	134.1	1.9
12.5	6.3	25	HD12-25	260.4	6.3	206.6	5.0	157.1	3.8	10.6	41.3
		32	HD12-32	263.4	8.0	210.7	6.4	158.0	4.8	14.6	32.9
		38	HD12-38	257.9	9.5	206.3	7.6	154.7	5.7	17.5	27.1
		44	HD12-44	256.2	11.0	205.0	8.8	153.7	6.6	20.4	23.3
		51	HD12-51	255.5	12.8	203.6	10.2	153.7	7.7	24.0	20.0
		64	HD12-64	243.8	16.0	195.0	12.8	146.3	9.6	29.5	15.2
		76	HD12-76	256.2	19.0	205.0	15.2	153.7	11.4	37.2	13.5
		89	HD12-89	242.1	22.3	193.3	17.8	145.5	13.4	41.8	10.9
16.0	8.0	305	HD12-305	240.5	76.3	192.3	61.0	144.4	45.8	145.4	3.2
		25	HD16-25	475.5	6.3	377.4	5.0	286.8	3.8	9.0	75.5
		32	HD16-32	487.6	8.0	390.0	6.4	292.5	4.8	12.7	60.9
		38	HD16-38	462.5	9.5	370.0	7.6	277.5	5.7	14.9	48.7
		44	HD16-44	475.8	11.0	380.7	8.8	285.5	6.6	18.1	43.3
		51	HD16-51	459.5	12.8	366.2	10.2	276.4	7.7	21.3	35.9
		64	HD16-64	462.3	16.0	369.9	12.8	277.4	9.6	27.8	28.9
		76	HD16-76	465.8	19.0	372.7	15.2	279.5	11.4	32.8	24.5
20.0	10.0	89	HD16-89	464.7	22.3	371.0	17.8	279.3	13.4	40.0	20.8
		102	HD16-102	464.4	25.5	371.5	20.4	278.7	15.3	46.2	18.2
		305	HD16-305	441.0	76.3	352.5	61.0	264.7	45.8	128.5	5.8
		25	HD20-25	1511.5	6.3	1199.6	5.0	911.7	3.8	8.0	239.9
		32	HD20-32	1443.0	8.0	1154.4	6.4	865.8	4.8	10.9	180.4
		38	HD20-38	1367.6	9.5	1094.1	7.6	820.5	5.7	12.9	144.0
		44	HD20-44	1319.6	11.0	1055.7	8.8	791.7	6.6	14.1	120.0
		51	HD20-51	1295.7	12.8	1032.5	10.2	779.4	7.7	16.5	101.2
		64	HD20-64	1232.9	16.0	986.3	12.8	739.7	9.6	20.4	77.1
		76	HD20-76	1204.5	19.0	963.6	15.2	722.7	11.4	24.2	63.4
		89	HD20-89	1202.8	22.3	960.1	17.8	722.8	13.4	28.9	53.9
		102	HD20-102	1196.8	25.5	957.5	20.4	718.1	15.3	34.2	46.9
		115	HD20-115	1195.3	28.8	954.6	23.0	718.0	17.3	39.3	41.5
		127	HD20-127	1180.6	31.8	943.0	25.4	709.1	19.1	43.2	37.1
		139	HD20-139	1176.2	34.8	939.6	27.8	706.4	20.9	47.6	33.8
		152	HD20-152	1171.2	38.0	937.0	30.4	702.7	22.8	50.8	30.8
		305	HD20-305	1149.1	76.3	918.7	61.0	689.8	45.8	104.3	15.1

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Heavy Duty

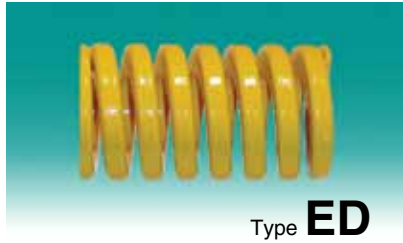
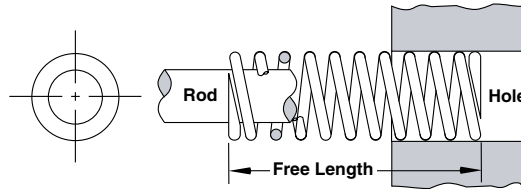
Metric-ISO

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ 1 mm Deflection (*N)
				25% Deflection		20% Deflection		15% Deflection		Travel to Solid	
				Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Deflection (mm)	
25.0	12.5	25	HD25-25	2372.1	6.3	1882.6	5.0	1430.8	3.8	5.5	376.5
		32	HD25-32	2283.7	8.0	1826.9	6.4	1370.2	4.8	10.4	285.5
		38	HD25-38	2112.9	9.5	1690.3	7.6	1267.7	5.7	12.0	222.4
		44	HD25-44	2099.8	11.0	1679.8	8.8	1259.9	6.6	14.7	190.9
		51	HD25-51	2004.0	12.8	1596.9	10.2	1205.5	7.7	16.7	156.6
		64	HD25-64	1936.2	16.0	1549.0	12.8	1161.7	9.6	21.5	121.0
		76	HD25-76	1896.6	19.0	1517.3	15.2	1138.0	11.4	25.8	99.8
		89	HD25-89	1874.6	22.3	1496.3	17.8	1126.4	13.4	30.5	84.1
		102	HD25-102	1866.7	25.5	1493.3	20.4	1120.0	15.3	35.8	73.2
		115	HD25-115	1871.2	28.8	1494.4	23.0	1124.0	17.3	41.2	65.0
		127	HD25-127	1843.3	31.8	1472.4	25.4	1107.2	19.1	44.9	58.0
		139	HD25-139	1828.3	34.8	1460.6	27.8	1098.0	20.9	49.2	52.5
		152	HD25-152	1830.1	38.0	1464.1	30.4	1098.0	22.8	54.6	48.2
		178	HD25-178	1831.4	44.5	1465.1	35.6	1098.8	26.7	65.2	41.2
		203	HD25-203	1823.8	50.8	1457.6	40.6	1095.0	30.5	74.2	35.9
32.0	16.0	305	HD25-305	1844.0	76.3	1474.2	61.0	1106.9	45.8	117.5	24.2
		38	HD32-38	3710.1	9.5	2968.0	7.6	2226.0	5.7	11.5	390.5
		44	HD32-44	3506.0	11.0	2804.8	8.8	2103.6	6.6	13.4	318.7
		51	HD32-51	3452.1	12.8	2750.9	10.2	2076.7	7.7	16.3	269.7
		64	HD32-64	3278.4	16.0	2622.7	12.8	1967.0	9.6	20.6	204.9
		76	HD32-76	3151.1	19.0	2520.8	15.2	1890.6	11.4	24.4	165.8
		89	HD32-89	3128.2	22.3	2496.9	17.8	1879.7	13.4	29.4	140.3
		102	HD32-102	3085.8	25.5	2468.7	20.4	1851.5	15.3	34.2	121.0
		115	HD32-115	3061.5	28.8	2444.9	23.0	1839.0	17.3	38.9	106.3
		127	HD32-127	3046.3	31.8	2433.2	25.4	1829.7	19.1	43.4	95.8
		139	HD32-139	3004.5	34.8	2400.2	27.8	1804.5	20.9	47.1	86.3
		152	HD32-152	2988.0	38.0	2390.4	30.4	1792.8	22.8	51.8	78.6
		178	HD32-178	2969.2	44.5	2375.3	35.6	1781.5	26.7	61.3	66.7
		203	HD32-203	2935.8	50.8	2346.3	40.6	1762.7	30.5	69.8	57.8
		254	HD32-254	2935.8	63.5	2348.7	50.8	1761.5	38.1	89.1	46.2
40.0	20.0	305	HD32-305	2913.0	76.3	2328.8	61.0	1748.5	45.8	107.0	38.2
		51	HD40-51	4662.6	12.8	3715.5	10.2	2804.8	7.7	16.8	364.3
		64	HD40-64	4287.1	16.0	3429.7	12.8	2572.3	9.6	20.9	267.9
		76	HD40-76	4159.3	19.0	3327.4	15.2	2495.6	11.4	25.3	218.9
		89	HD40-89	4100.6	22.3	3273.1	17.8	2464.0	13.4	30.6	183.9
		102	HD40-102	4046.0	25.5	3236.8	20.4	2427.6	15.3	35.5	158.7
		115	HD40-115	4055.1	28.8	3238.4	23.0	2435.9	17.3	41.3	140.8
		127	HD40-127	3981.9	31.8	3180.5	25.4	2391.6	19.1	45.2	125.2
		139	HD40-139	3918.7	34.8	3130.5	27.8	2353.5	20.9	49.2	112.6
		152	HD40-152	3926.3	38.0	3141.1	30.4	2355.8	22.8	54.9	103.3
		178	HD40-178	3920.0	44.5	3136.0	35.6	2352.0	26.7	65.6	88.1
		203	HD40-203	3896.6	50.8	3114.2	40.6	2339.5	30.5	75.2	76.7
		254	HD40-254	3847.7	63.5	3078.2	50.8	2308.6	38.1	94.8	60.6
		305	HD40-305	3834.9	76.3	3065.9	61.0	2302.0	45.8	115.2	50.3
50.0	25.0	64	HD50-64	6780.9	16.0	5424.7	12.8	4068.5	9.6	20.5	423.8
		76	HD50-76	6421.9	19.0	5137.5	15.2	3853.1	11.4	24.3	338.0
		89	HD50-89	6248.5	22.3	4987.6	17.8	3754.7	13.4	29.1	280.2
		102	HD50-102	6252.0	25.5	5001.6	20.4	3751.2	15.3	34.8	245.2
		115	HD50-115	6203.7	28.8	4954.3	23.0	3726.5	17.3	40.1	215.4
		127	HD50-127	6014.6	31.8	4804.1	25.4	3612.5	19.1	43.3	189.1
		139	HD50-139	5875.0	34.8	4693.3	27.8	3528.4	20.9	46.6	168.8
		152	HD50-152	5856.2	38.0	4685.0	30.4	3513.7	22.8	51.9	154.1
		178	HD50-178	5844.9	44.5	4675.9	35.6	3506.9	26.7	62.4	131.3
		203	HD50-203	5809.4	50.8	4642.9	40.6	3487.9	30.5	71.9	114.4
		254	HD50-254	5704.8	63.5	4563.9	50.8	3422.9	38.1	90.0	89.8
		305	HD50-305	5692.3	76.3	4550.8	61.0	3416.9	45.8	110.0	74.6

*Newtons

Extra Heavy Duty

Metric-ISO

Type **ED**

HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	18	ED25-115
	24	ED32-127

Note: Efficient Operating Range is 15% to 20% of the free length. (Maximum deflection = 20%; long life = 17%; and optimum life = 15%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Load shown in Newtons (N).

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ 1 mm Deflection (*N)
				20% Deflection		17% Deflection		15% Deflection		Travel to Solid	
				Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Deflection (mm)	
10.0	5.0	25	ED10-25	163.7	5.0	140.8	4.3	124.4	3.8	6.7	32.7
		32	ED10-32	163.6	6.4	138.1	5.4	122.7	4.8	9.1	25.6
		38	ED10-38	161.0	7.6	137.7	6.5	120.8	5.7	10.8	21.2
		44	ED10-44	155.7	8.8	132.7	7.5	116.7	6.6	11.5	17.7
		51	ED10-51	157.2	10.2	134.1	8.7	118.7	7.7	14.7	15.4
		64	ED10-64	156.9	12.8	133.6	10.9	117.7	9.6	19.0	12.3
		76	ED10-76	154.4	15.2	131.0	12.9	115.8	11.4	22.4	10.2
12.5	6.3	305	ED10-305	149.6	61.0	127.2	51.9	112.3	45.8	91.6	2.5
		25	ED12-25	293.3	5.0	252.3	4.3	222.9	3.8	7.6	58.7
		32	ED12-32	282.4	6.4	238.3	5.4	211.8	4.8	10.0	44.1
		38	ED12-38	275.5	7.6	235.6	6.5	206.6	5.7	11.9	36.3
		44	ED12-44	269.7	8.8	229.9	7.5	202.3	6.6	13.7	30.6
		51	ED12-51	275.1	10.2	234.6	8.7	207.7	7.7	17.0	27.0
		64	ED12-64	278.0	12.8	236.7	10.9	208.5	9.6	21.5	21.7
16.0	8.0	76	ED12-76	268.9	15.2	228.2	12.9	201.6	11.4	24.9	17.7
		89	ED12-89	268.1	17.8	227.4	15.1	201.8	13.4	29.4	15.1
		305	ED12-305	256.4	61.0	218.1	51.9	192.5	45.8	102.3	4.2
		25	ED16-25	636.6	5.0	547.5	4.3	483.8	3.8	7.6	127.3
		32	ED16-32	601.9	6.4	507.8	5.4	451.4	4.8	9.9	94.0
		38	ED16-38	576.3	7.6	492.9	6.5	432.2	5.7	11.7	75.8
		44	ED16-44	559.4	8.8	476.8	7.5	419.6	6.6	13.5	63.6
20.0	10.0	51	ED16-51	566.3	10.2	483.0	8.7	427.5	7.7	16.6	55.5
		64	ED16-64	553.7	12.8	471.5	10.9	415.3	9.6	21.2	43.3
		76	ED16-76	540.4	15.2	458.6	12.9	405.3	11.4	24.7	35.6
		89	ED16-89	539.3	17.8	457.5	15.1	406.0	13.4	29.7	30.3
		102	ED16-102	539.5	20.4	457.5	17.3	404.6	15.3	34.6	26.4
		305	ED16-305	523.5	61.0	445.4	51.9	393.0	45.8	106.2	8.6
		25	ED20-25	1602.4	5.0	1378.1	4.3	1217.8	3.8	7.2	320.5
20.0	10.0	32	ED20-32	1535.5	6.4	1295.6	5.4	1151.6	4.8	8.8	239.9
		38	ED20-38	1477.4	7.6	1263.5	6.5	1108.0	5.7	10.7	194.4
		44	ED20-44	1424.0	8.8	1213.6	7.5	1068.0	6.6	12.4	161.8
		51	ED20-51	1423.7	10.2	1214.3	8.7	1074.7	7.7	15.3	139.6
		64	ED20-64	1392.0	12.8	1185.4	10.9	1044.0	9.6	19.8	108.8
		76	ED20-76	1362.9	15.2	1156.7	12.9	1022.2	11.4	23.6	89.7
		89	ED20-89	1346.7	17.8	1142.4	15.1	1013.8	13.4	28.0	75.7
20.0	10.0	102	ED20-102	1332.6	20.4	1130.1	17.3	999.4	15.3	32.3	65.3
		115	ED20-115	1321.2	23.0	1125.9	19.6	993.7	17.3	36.6	57.4
		127	ED20-127	1312.2	25.4	1115.9	21.6	986.8	19.1	40.4	51.7
		139	ED20-139	1295.0	27.8	1099.4	23.6	973.6	20.9	43.7	46.6
		152	ED20-152	1293.7	30.4	1097.9	25.8	970.3	22.8	48.0	42.6
		305	ED20-305	1281.9	61.0	1090.7	51.9	962.5	45.8	99.8	21.0

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Extra Heavy Duty

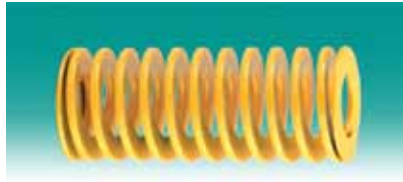
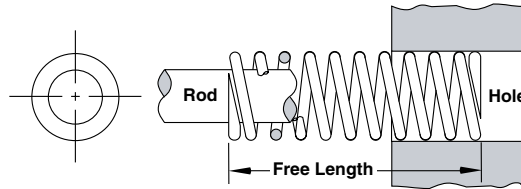
Metric-ISO

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE							Load @ 1 mm Deflection (*N)
				20% Deflection		17% Deflection		15% Deflection		Travel to Solid	
				Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Load (*N)	Deflection (mm)	Deflection (mm)	
25.0	12.5	32	ED25-32	2264.0	6.4	1910.3	5.4	1698.0	4.8	9.1	353.8
		38	ED25-38	2129.5	7.6	1821.3	6.5	1597.2	5.7	10.8	280.2
		44	ED25-44	2034.3	8.8	1733.8	7.5	1525.7	6.6	12.8	231.2
		51	ED25-51	2018.5	10.2	1721.7	8.7	1523.8	7.7	15.4	197.9
		64	ED25-64	1968.1	12.8	1676.0	10.9	1476.1	9.6	20.3	153.8
		76	ED25-76	1900.6	15.2	1613.0	12.9	1425.5	11.4	23.9	125.0
		89	ED25-89	1876.6	17.8	1591.9	15.1	1412.7	13.4	28.3	105.4
		102	ED25-102	1857.7	20.4	1575.4	17.3	1393.3	15.3	32.9	91.1
		115	ED25-115	1860.9	23.0	1585.8	19.6	1399.7	17.3	38.0	80.9
		127	ED25-127	1832.7	25.4	1558.5	21.6	1378.1	19.1	41.7	72.2
		152	ED25-152	1831.4	30.4	1554.3	25.8	1373.6	22.8	50.9	60.2
		178	ED25-178	1826.7	35.6	1554.8	30.3	1370.0	26.7	60.7	51.3
32.0	16.0	203	ED25-203	1813.1	40.6	1540.7	34.5	1362.0	30.5	69.4	44.7
		305	ED25-305	1805.4	61.0	1536.1	51.9	1355.5	45.8	101.8	29.6
		38	ED32-38	3713.4	7.6	3175.9	6.5	2785.0	5.7	9.9	488.6
		44	ED32-44	3560.0	8.8	3034.1	7.5	2670.0	6.6	11.8	404.5
		51	ED32-51	3519.0	10.2	3001.5	8.7	2656.5	7.7	14.7	345.0
		64	ED32-64	3407.3	12.8	2901.5	10.9	2555.5	9.6	19.5	266.2
		76	ED32-76	3274.2	15.2	2778.7	12.9	2455.6	11.4	23.0	215.4
		89	ED32-89	3241.9	17.8	2750.2	15.1	2440.6	13.4	27.8	182.1
		102	ED32-102	3176.0	20.4	2693.4	17.3	2382.0	15.3	31.8	155.7
		115	ED32-115	3121.6	23.0	2660.2	19.6	2348.0	17.3	35.8	135.7
		127	ED32-127	3096.0	25.4	2632.8	21.6	2328.1	19.1	39.8	121.9
		152	ED32-152	3066.5	30.4	2602.5	25.8	2299.9	22.8	48.4	100.9
40.0	20.0	178	ED32-178	3048.7	35.6	2594.8	30.3	2286.5	26.7	57.3	85.6
		203	ED32-203	3028.9	40.6	2573.8	34.5	2275.4	30.5	66.0	74.6
		254	ED32-254	3024.8	50.8	2572.3	43.2	2268.6	38.1	84.3	59.5
		305	ED32-305	3023.2	61.0	2572.2	51.9	2269.9	45.8	102.6	49.6
		51	ED40-51	5698.3	10.2	4860.3	8.7	4301.6	7.7	14.2	558.7
		64	ED40-64	5402.3	12.8	4600.4	10.9	4051.7	9.6	18.7	422.1
		76	ED40-76	5137.5	15.2	4360.1	12.9	3853.1	11.4	22.2	338.0
		89	ED40-89	4987.6	17.8	4231.1	15.1	3754.7	13.4	26.2	280.2
		102	ED40-102	4965.9	20.4	4211.3	17.3	3724.4	15.3	31.6	243.4
		115	ED40-115	4914.1	23.0	4187.6	19.6	3696.2	17.3	36.1	213.7
		127	ED40-127	4804.1	25.4	4085.4	21.6	3612.5	19.1	39.5	189.1
		152	ED40-152	4722.3	30.4	4007.7	25.8	3541.7	22.8	47.5	155.3
50.0	25.0	203	ED40-203	4621.6	40.6	3927.2	34.5	3471.9	30.5	64.5	113.8
		254	ED40-254	4590.6	50.8	3903.8	43.2	3442.9	38.1	82.4	90.4
		305	ED40-305	4572.2	61.0	3890.1	51.9	3432.9	45.8	100.2	75.0
		64	ED50-64	9280.3	12.8	7902.8	10.9	6960.2	9.6	17.8	725.0
		76	ED50-76	8704.5	15.2	7387.4	12.9	6528.4	11.4	21.1	572.7
		89	ED50-89	8447.8	17.8	7166.4	15.1	6359.6	13.4	25.4	474.6
		102	ED50-102	8252.7	20.4	6998.6	17.3	6189.5	15.3	29.7	404.5
		115	ED50-115	8096.1	23.0	6899.3	19.6	6089.7	17.3	34.1	352.0
		127	ED50-127	7962.3	25.4	6771.1	21.6	5987.4	19.1	37.3	313.5
		152	ED50-152	7719.6	30.4	6551.5	25.8	5789.7	22.8	44.9	253.9
		203	ED50-203	7536.8	40.6	6404.4	34.5	5661.8	30.5	61.1	185.6
		254	ED50-254	7428.5	50.8	6317.2	43.2	5571.4	38.1	77.4	146.2
		305	ED50-305	7360.4	61.0	6262.4	51.9	5526.3	45.8	93.6	120.7

*Newtons

Extra Light Duty

Metric-JIS

Type **91****HOW TO ORDER**

Specify:	Qty.	Catalog #
Example:	40	91-1075
	58	91-16100

Note: Efficient Operating Range is 40% to 50% of the free length. (Maximum deflection = 50%; long life = 45%; and optimum life = 40%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection	
				50% Deflection		45% Deflection		40% Deflection		Travel to Solid					
				Load	Deflection	Load	Deflection	Load	Deflection	Deflection	Deflection				
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
10	5	20	91-1020	10.00	98.1	10.0	9.00	88.3	9.0	8.00	78.5	8.0	11.6	1.00	9.8
		25	91-1025			12.5			11.2			10.0	14.5	0.80	7.8
		30	91-1030			15.0			13.5			12.0	17.4	0.67	6.6
		35	91-1035			17.5			15.7			14.0	20.3	0.57	5.6
		40	91-1040			20.0			18.0			16.0	23.2	0.50	4.9
		45	91-1045			22.5			20.2			18.0	26.1	0.44	4.3
		50	91-1050			25.0			22.5			20.0	29.0	0.40	3.9
		55	91-1055			27.5			24.7			22.0	31.9	0.36	3.5
		60	91-1060			30.0			27.0			24.0	34.8	0.33	3.2
		65	91-1065			32.5			29.2			26.0	37.7	0.31	3.0
		70	91-1070			35.0			31.5			28.0	40.6	0.29	2.8
		75	91-1075			37.5			33.7			30.0	43.5	0.27	2.6
12	6	80	91-1080	14.00	137.3	40.0	12.50	122.6	36.0	11.00	107.9	32.0	46.4	0.25	2.5
		20	91-1220			10.0			9.0			8.0	11.6	1.40	13.7
		25	91-1225			12.5			11.2			10.0	14.5	1.12	11.0
		30	91-1230			15.0			13.5			12.0	17.4	0.93	9.1
		35	91-1235			17.5			15.7			14.0	20.3	0.80	7.8
		40	91-1240			20.0			18.0			16.0	23.2	0.70	6.9
		45	91-1245			22.5			20.2			18.0	26.1	0.62	6.1
		50	91-1250			25.0			22.5			20.0	29.0	0.56	5.5
		55	91-1255			27.5			24.7			22.0	31.9	0.51	5.0
		60	91-1260			30.0			27.0			24.0	34.8	0.47	4.6
		65	91-1265			32.5			29.2			26.0	37.7	0.43	4.2
		70	91-1270			35.0			31.5			28.0	40.6	0.40	3.9
14	7	75	91-1275	18.00	176.5	37.5	16.00	156.9	33.7	14.40	141.2	30.0	43.5	0.37	3.6
		80	91-1280			40.0			36.0			32.0	46.4	0.35	3.4
		25	91-1425			12.5			11.2			10.0	14.5	1.44	14.1
		30	91-1430			15.0			13.5			12.0	17.4	1.20	11.8
		35	91-1435			17.5			15.7			14.0	20.3	1.03	10.1
		40	91-1440			20.0			18.0			16.0	23.2	0.90	8.8
		45	91-1445			22.5			20.2			18.0	26.1	0.80	7.8
		50	91-1450			25.0			22.5			20.0	29.0	0.72	7.1
		55	91-1455			27.5			24.7			22.0	31.9	0.65	6.4
		60	91-1460			30.0			27.0			24.0	34.8	0.60	5.9
		65	91-1465			32.5			29.2			26.0	37.7	0.55	5.4
		70	91-1470			35.0			31.5			28.0	40.6	0.51	5.0
75	91-1475	37.5	33.7	30.0	43.5	0.48	4.7								
80	91-1480	40.0	36.0	32.0	46.4	0.45	4.4								
90	91-1490	45.0	40.5	36.0	52.2	0.40	3.9								

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Extra Light Duty

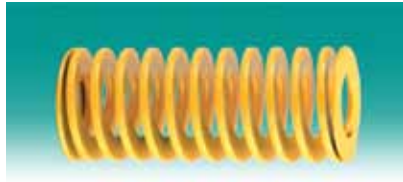
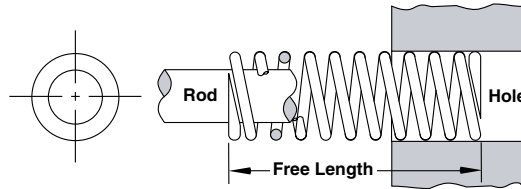
Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection	
				50% Deflection		45% Deflection		40% Deflection		Travel to Solid					
				Load	Deflection	Load	Deflection	Load	Deflection	Deflection					
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
16	8	25	91-1625	21.00	206.0	12.5	19.00	186.3	11.2	17.00	166.7	10.0	14.5	1.68	16.5
		30	91-1630			15.0			13.5			12.0	17.4	1.40	13.7
		35	91-1635			17.5			15.7			14.0	20.3	1.20	11.8
		40	91-1640			20.0			18.0			16.0	23.2	1.05	10.3
		45	91-1645			22.5			20.0			18.0	26.1	0.94	9.2
		50	91-1650			25.0			22.5			20.0	29.0	0.84	8.2
		55	91-1655			27.5			24.7			22.0	31.9	0.77	7.6
		60	91-1660			30.0			27.0			24.0	34.8	0.70	6.9
		65	91-1665			32.5			29.2			26.0	37.7	0.65	6.4
		70	91-1670			35.0			31.5			28.0	40.6	0.60	5.9
		75	91-1675			37.5			33.7			30.0	43.5	0.56	5.5
		80	91-1680			40.0			36.0			32.0	46.4	0.53	5.2
		90	91-1690			45.0			40.5			36.0	52.2	0.47	4.6
		100	91-16100			50.0			45.0			40.0	58.0	0.42	4.1
18	9	25	91-1825	26.00	255.0	12.5	23.00	226.0	11.2	21.00	206.0	10.0	14.5	2.08	20.4
		30	91-1830			15.0			13.5			12.0	17.4	1.74	17.1
		35	91-1835			17.5			15.7			14.0	20.3	1.49	14.6
		40	91-1840			20.0			18.0			16.0	23.2	1.30	12.7
		45	91-1845			22.5			20.2			18.0	26.1	1.16	11.4
		50	91-1850			25.0			22.5			20.0	29.0	1.04	10.2
		55	91-1855			27.5			24.7			22.0	31.9	0.95	9.3
		60	91-1860			30.0			27.0			24.0	34.8	0.87	8.5
		65	91-1865			32.5			29.2			26.0	37.7	0.80	7.8
		70	91-1870			35.0			31.5			28.0	40.6	0.74	7.3
		75	91-1875			37.5			33.7			30.0	43.5	0.70	6.9
		80	91-1880			40.0			36.0			32.0	46.4	0.65	6.4
		90	91-1890			45.0			40.5			36.0	52.2	0.58	5.7
		100	91-18100			50.0			45.0			40.0	58.0	0.52	5.1
20	11	25	91-2025	32.00	313.8	12.5	29.00	284.4	11.2	26.00	255.0	10.0	14.5	2.56	25.1
		30	91-2030			15.0			13.5			12.0	17.4	2.13	20.9
		35	91-2035			17.5			15.7			14.0	20.3	1.83	17.9
		40	91-2040			20.0			18.0			16.0	23.2	1.60	15.7
		45	91-2045			22.5			20.2			18.0	26.1	1.42	13.9
		50	91-2050			25.0			22.5			20.0	29.0	1.28	12.6
		55	91-2055			27.5			24.7			22.0	31.9	1.16	11.4
		60	91-2060			30.0			27.0			24.0	34.8	1.07	10.5
		65	91-2065			32.5			29.2			26.0	37.7	0.98	9.6
		70	91-2070			35.0			31.5			28.0	40.6	0.91	8.9
		75	91-2075			37.5			33.7			30.0	43.5	0.85	8.3
		80	91-2080			40.0			36.0			32.0	46.4	0.80	7.8
		90	91-2090			45.0			40.5			36.0	52.2	0.71	7.0
		100	91-20100			50.0			45.0			40.0	58.0	0.64	6.3
		125	91-20125			62.5			56.2			50.0	73.5	0.51	5.0
		150	91-20150			75.0			67.5			60.0	87.0	0.43	4.2
22	11	25	91-2225	40.00	392.0	12.5	36.00	353.0	11.2	32.00	314.0	10.0	14.5	3.20	31.4
		30	91-2230			15.0			13.5			12.0	17.4	2.67	26.2
		35	91-2235			17.5			15.7			14.0	20.3	2.29	22.4
		40	91-2240			20.0			18.0			16.0	23.2	2.00	19.6
		45	91-2245			22.5			20.2			18.0	26.1	1.78	17.4
		50	91-2250			25.0			22.5			20.0	29.0	1.60	15.7
		55	91-2255			27.5			24.7			22.0	31.9	1.46	14.3
		60	91-2260			30.0			27.0			24.0	34.8	1.33	13.1
		65	91-2265			32.5			29.2			26.0	37.7	1.23	12.1
		70	91-2270			35.0			31.5			28.0	40.6	1.14	11.2
		75	91-2275			37.5			33.7			30.0	43.5	1.07	10.5
		80	91-2280			40.0			36.0			32.0	46.4	1.00	9.8
		90	91-2290			45.0			40.5			36.0	52.2	0.89	8.7
		100	91-22100			50.0			45.0			40.0	58.0	0.80	7.9
		125	91-22125			62.5			56.2			50.0	72.5	0.64	6.3
		150	91-22150			75.0			67.5			60.0	87.0	0.53	5.2

*Newtons

Extra Light Duty

Metric-JIS

Type **91****HOW TO ORDER**

Specify:	Qty.	Catalog #
Example:	12	91-2530
	27	91-60250

Note: Efficient Operating Range is 40% to 50% of the free length. (Maximum deflection = 50%; long life = 45%; and optimum life = 40%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection	
				50% Deflection		45% Deflection		40% Deflection		Travel to Solid					
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
25	13.5	25	91-2525	50.00	490.3	12.5	45.00	441.3	11.2	40.00	392.3	10.0	14.5	4.00	39.2
		30	91-2530			15.0			13.5			12.0	17.4	3.33	32.7
		35	91-2535			17.5			15.7			14.0	20.3	2.85	27.9
		40	91-2540			20.0			18.0			16.0	23.2	2.50	24.5
		45	91-2545			22.5			20.2			18.0	26.1	2.22	21.8
		50	91-2550			25.0			22.5			20.0	29.0	2.00	19.6
		55	91-2555			27.5			24.7			22.0	31.9	1.82	17.8
		60	91-2560			30.0			27.0			24.0	34.8	1.67	16.4
		65	91-2565			32.5			29.2			26.0	37.7	1.54	15.1
		70	91-2570			35.0			31.5			28.0	40.6	1.43	14.0
		75	91-2575			37.5			33.7			30.0	43.5	1.33	13.0
		80	91-2580			40.0			36.0			32.0	46.4	1.25	12.3
		90	91-2590			45.0			40.5			36.0	52.2	1.11	10.9
		100	91-25100			50.0			45.0			40.0	58.0	1.00	9.8
		125	91-25125			62.5			56.2			50.0	72.5	0.80	7.8
		150	91-25150			75.0			67.5			60.0	87.0	0.67	6.6
		175	91-25175			87.5			78.7			70.0	101.5	0.57	5.6
27	13.5	25	91-2725	60.00	588.0	12.5	54.00	530.0	11.2	48.00	471.0	10.0	14.5	4.80	47.1
		30	91-2730			15.0			13.5			12.0	17.4	4.00	39.2
		35	91-2735			17.5			15.7			14.0	20.3	3.43	33.6
		40	91-2740			20.0			18.0			16.0	23.2	3.00	29.4
		45	91-2745			22.5			20.2			18.0	26.1	2.67	26.2
		50	91-2750			25.0			22.5			20.0	29.0	2.40	23.5
		55	91-2755			27.5			24.7			22.0	31.9	2.18	21.4
		60	91-2760			30.0			27.0			24.0	34.8	2.00	19.6
		65	91-2765			32.5			29.2			26.0	37.7	1.85	18.1
		70	91-2770			35.0			31.5			28.0	40.6	1.71	16.8
		75	91-2775			37.5			33.7			30.0	43.5	1.60	15.7
		80	91-2780			40.0			36.0			32.0	46.4	1.50	14.7
		90	91-2790			45.0			40.5			36.0	52.2	1.33	13.0
		100	91-27100			50.0			45.0			40.0	58.0	1.20	11.8
		125	91-27125			62.5			56.2			50.0	72.5	0.96	9.4
		150	91-27150			75.0			67.5			60.0	87.0	0.80	7.8
		175	91-27175			87.5			78.7			70.0	101.5	0.69	6.8

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Extra Light Duty

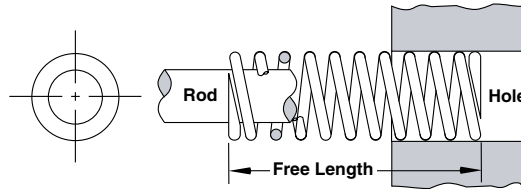
Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection									
				50% Deflection		45% Deflection		40% Deflection		Travel to Solid													
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection										
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)								
30	16	25	91-3025	72.00	706.1	12.5	65.00	637.4	11.2	58.00	568.8	10.0	14.5	5.80	56.9								
		30	91-3030			15.0			13.5			12.0	17.4	4.80	47.1								
		35	91-3035			17.5			15.7			14.0	20.3	4.13	40.5								
		40	91-3040			20.0			18.0			16.0	23.2	3.60	35.3								
		45	91-3045			22.5			20.2			18.0	26.1	3.21	31.5								
		50	91-3050			25.0			22.5			20.0	29.0	2.88	28.2								
		55	91-3055			27.5			24.7			22.0	31.9	2.63	25.8								
		60	91-3060			30.0			27.0			24.0	34.8	2.40	23.5								
		65	91-3065			32.5			29.2			26.0	37.7	2.22	21.8								
		70	91-3070			35.0			31.5			28.0	40.6	2.05	20.1								
		75	91-3075			37.5			33.7			30.0	43.5	1.93	18.9								
		80	91-3080			40.0			36.0			32.0	46.4	1.80	17.7								
		90	91-3090			45.0			40.5			36.0	52.2	1.60	15.7								
		100	91-30100			50.0			45.0			40.0	58.0	1.44	14.1								
		125	91-30125			62.5			56.2			50.0	72.5	1.15	11.3								
		150	91-30150			75.0			67.5			60.0	87.0	0.96	9.4								
		175	91-30175			87.5			78.7			70.0	101.5	0.82	8.0								
		35	19			200			91-30200			98.00	961.1	100.0	88.00	764.9	90.0	78.00	764.9	80.0	116.0	0.72	7.1
40	91-3540			20.0	18.0	16.0	23.2	4.90	48.1														
45	91-3545			22.5	20.2	18.0	26.1	4.36	42.8														
50	91-3550			25.0	22.5	20.0	29.0	3.92	38.4														
55	91-3555			27.5	24.7	22.0	31.9	3.56	34.9														
60	91-3560			30.0	27.0	24.0	34.8	3.26	32.0														
65	91-3565			32.5	29.2	26.0	37.7	3.02	29.6														
70	91-3570			35.0	31.5	28.0	40.6	2.80	27.5														
75	91-3575			37.5	33.7	30.0	43.5	2.61	25.6														
80	91-3580			40.0	36.0	32.0	46.4	2.45	24.0														
90	91-3590			45.0	40.5	36.0	52.2	2.17	21.3														
100	91-35100			50.0	45.0	40.0	58.0	1.96	19.2														
125	91-35125			62.5	56.2	50.0	72.5	1.57	15.4														
150	91-35150			75.0	67.5	60.0	87.0	1.30	12.7														
175	91-35175			87.5	78.7	70.0	101.5	1.12	11.0														
200	91-35200			100.0	90.0	80.0	116.0	0.98	9.6														
40	22			40	91-4040	128.00	1255.3	20.0	115.00	1127.8	18.0			102.00			1000.3			16.0	23.2	6.38	62.6
				50	91-4050			25.0			22.5									20.0	29.0	5.12	50.2
		60	91-4060	30.0	27.0			24.0			34.8	4.26	41.8										
		70	91-4070	35.0	31.5			28.0			40.6	3.65	35.8										
		80	91-4080	40.0	36.0			32.0			46.4	3.20	31.4										
		90	91-4090	45.0	40.5			36.0			52.2	2.84	27.9										
		100	91-40100	50.0	45.0			40.0			58.0	2.56	25.1										
		125	91-40125	62.5	56.2			50.0			72.5	2.04	20.0										
		150	91-40150	75.0	67.5			60.0			87.0	1.70	16.7										
		175	91-40175	87.5	78.7			70.0			101.5	1.46	14.3										
		200	91-40200	100.0	90.0			80.0			116.0	1.28	12.6										
		250	91-40250	125.0	112.5			100.0			145.0	1.02	10.0										
50	27.5	50	91-5050	200.00	1961.3	25.0	180.00	1765.2	22.5	160.00	1569.1	20.0	29.0	8.00	78.5								
		60	91-5060			30.0			27.0			24.0	34.8	6.66	65.3								
		70	91-5070			35.0			31.5			28.0	40.6	5.71	56.0								
		80	91-5080			40.0			36.0			32.0	46.4	5.00	49.0								
		90	91-5090			45.0			40.5			36.0	52.2	4.44	43.5								
		100	91-50100			50.0			45.0			40.0	58.0	4.00	39.2								
		125	91-50125			62.5			56.2			50.0	72.5	3.20	31.4								
		150	91-50150			75.0			67.5			60.0	87.0	2.66	26.1								
		175	91-50175			87.5			78.7			70.0	101.5	2.28	22.4								
		200	91-50200			100.0			90.0			80.0	116.0	2.00	19.6								
		250	91-50250			125.0			112.5			100.0	145.0	1.60	15.7								
		300	91-50300			150.0			135.0			120.0	174.0	1.33	13.0								
60	33	60	91-6060	288.00	2824.3	30.0	259.00	2539.9	27.0	230.00	2255.5	24.0	34.8	9.59	94.0								
		70	91-6070			35.0			31.5			28.0	40.6	8.22	80.6								
		80	91-6080			40.0			36.0			32.0	46.4	7.19	70.5								
		90	91-6090			45.0			40.5			36.0	52.2	6.40	62.8								
		100	91-60100			50.0			45.0			40.0	58.0	5.76	56.5								
		125	91-60125			62.5			56.2			50.0	72.5	4.60	45.1								
		150	91-60150			75.0			67.5			60.0	87.0	3.84	37.7								
		175	91-60175			87.5			78.7			70.0	101.5	3.29	32.3								
		200	91-60200			100.0			90.0			80.0	116.0	2.88	28.2								
		250	91-60250			125.0			112.5			100.0	145.0	2.30	22.6								
300	91-60300	150.0	135.0	120.0	174.0	1.92	18.8																

*Newtons

Light Duty

Metric-JIS

Type **92****HOW TO ORDER**

Specify:	Qty.	Catalog #
Example:	17	92-1465
	10	92-2280

Note: Efficient Operating Range is 32% to 40% of the free length. (Maximum deflection = 40%; long life = 36%; and optimum life = 32%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection	
				40% Deflection		36% Deflection		32% Deflection		Travel to Solid					
				Load	Deflection	Load	Deflection	Load	Deflection	Deflection	Deflection				
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
10	5	20	92-1020	14.50	142.2	8.0	13.00	127.5	7.2	11.50	112.8	6.4	11.6	1.81	17.8
		25	92-1025			10.0			9.0			8.0	14.5	1.45	14.2
		30	92-1030			12.0			10.8			9.6	17.4	1.21	11.9
		35	92-1035			14.0			12.6			11.2	20.3	1.03	10.1
		40	92-1040			16.0			14.4			12.8	23.2	0.90	8.8
		45	92-1045			18.0			16.2			14.4	26.1	0.80	7.8
		50	92-1050			20.0			18.0			16.0	29.0	0.73	7.2
		55	92-1055			22.0			19.8			17.6	31.9	0.66	6.5
		60	92-1060			24.0			21.6			19.2	34.8	0.60	5.9
		65	92-1065			26.0			23.4			20.8	37.7	0.55	5.4
		70	92-1070			28.0			25.2			22.4	40.6	0.51	5.0
		75	92-1075			30.0			27.0			24.0	43.5	0.48	4.7
12	6	80	92-1080	21.00	206.0	32.0	19.00	186.3	28.8	17.00	166.7	25.6	46.4	0.45	4.4
		20	92-1220			8.0			7.2			6.4	11.6	2.63	25.8
		25	92-1225			10.0			9.0			8.0	14.5	2.10	20.6
		30	92-1230			12.0			10.8			9.6	17.4	1.75	17.2
		35	92-1235			14.0			12.6			11.2	20.3	1.50	14.7
		40	92-1240			16.0			14.4			12.8	23.2	1.32	12.9
		45	92-1245			18.0			16.2			14.4	26.1	1.17	11.5
		50	92-1250			20.0			18.0			16.0	29.0	1.05	10.3
		55	92-1255			22.0			19.8			17.6	31.9	0.96	9.4
		60	92-1260			24.0			21.6			19.2	34.8	0.88	8.6
		65	92-1265			26.0			23.4			20.8	37.7	0.81	7.9
		70	92-1270			28.0			25.2			22.4	40.6	0.75	7.4
14	7	75	92-1275	28.00	275.0	30.0	25.00	245.0	27.0	22.00	216.0	24.0	43.5	0.70	6.9
		80	92-1280			32.0			28.8			25.6	46.4	0.66	6.5
		25	92-1425			10.0			9.0			8.0	14.5	2.80	27.5
		30	92-1430			12.0			10.8			9.6	17.4	2.34	22.9
		35	92-1435			14.0			12.6			11.2	20.3	2.00	19.6
		40	92-1440			16.0			14.4			12.8	23.2	1.75	17.2
		45	92-1445			18.0			16.2			14.4	26.1	1.56	15.3
		50	92-1450			20.0			18.0			16.0	29.0	1.40	13.7
		55	92-1455			22.0			19.8			17.6	31.9	1.27	12.5
		60	92-1460			24.0			21.6			19.2	34.8	1.17	11.5
		65	92-1465			26.0			23.4			20.8	37.7	1.08	10.6
		70	92-1470			28.0			25.2			22.4	40.6	1.00	9.8
75	92-1475	30.0	27.0	24.0	43.5	0.93	9.1								
80	92-1480	32.0	28.8	25.6	46.4	0.87	8.5								
90	92-1490	36.0	32.4	28.8	52.2	0.77	7.6								

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Light Duty

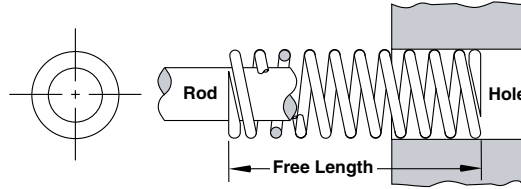
Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection	
				40% Deflection			36% Deflection			32% Deflection			Travel to Solid		
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
16	8	25	92-1625	35.00	343.0	10.0	32.00	314.0	9.0	28.00	275.0	8.0	14.5	3.50	34.3
		30	92-1630			12.0			10.8			9.6	17.4	2.92	28.6
		35	92-1635			14.0			12.6			11.2	20.3	2.50	24.5
		40	92-1640			16.0			14.4			12.8	23.2	2.19	21.5
		45	92-1645			18.0			16.2			14.4	26.1	1.95	19.1
		50	92-1650			20.0			18.0			16.0	29.0	1.75	17.2
		55	92-1655			22.0			19.8			17.6	31.9	1.60	15.7
		60	92-1660			24.0			21.6			19.2	34.8	1.46	14.3
		65	92-1665			26.0			23.4			20.8	37.7	1.35	13.2
		70	92-1670			28.0			25.2			22.4	40.6	1.25	12.3
		75	92-1675			30.0			27.0			24.0	43.5	1.17	11.5
		80	92-1680			32.0			28.8			25.6	46.4	1.10	10.8
		90	92-1690			36.0			32.4			28.8	52.2	0.98	9.6
		100	92-16100			40.0			36.0			32.0	58.0	0.88	8.6
18	9	25	92-1825	43.00	422.0	10.0	39.00	382.0	9.0	34.00	333.0	8.0	14.5	4.30	42.2
		30	92-1830			12.0			10.8			9.6	17.4	3.58	35.1
		35	92-1835			14.0			12.6			11.2	20.3	3.07	30.1
		40	92-1840			16.0			14.4			12.8	23.2	2.69	26.4
		45	92-1845			18.0			16.2			14.4	26.1	2.39	23.4
		50	92-1850			20.0			18.0			16.0	29.0	2.15	21.1
		55	92-1855			22.0			19.8			17.6	31.9	1.96	19.2
		60	92-1860			24.0			21.6			19.2	34.8	1.79	17.6
		65	92-1865			26.0			23.4			20.8	37.7	1.66	16.3
		70	92-1870			28.0			25.2			22.4	40.6	1.54	15.1
		75	92-1875			30.0			27.0			24.0	43.5	1.44	14.1
		80	92-1880			32.0			28.8			25.6	46.4	1.35	13.2
		90	92-1890			36.0			32.4			28.8	52.2	1.20	11.8
		100	92-18100			40.0			36.0			32.0	58.0	1.07	10.5
20	10	25	92-2025	54.00	529.6	10.0	49.00	481.0	9.0	43.00	421.7	8.0	14.5	5.40	53.0
		30	92-2030			12.0			10.8			9.6	17.4	4.50	44.1
		35	92-2035			14.0			12.6			11.2	20.3	3.86	37.9
		40	92-2040			16.0			14.4			12.8	23.2	3.38	33.1
		45	92-2045			18.0			16.2			14.4	26.1	3.00	29.4
		50	92-2050			20.0			18.0			16.0	29.0	2.70	26.5
		55	92-2055			22.0			19.8			17.6	31.9	2.45	24.0
		60	92-2060			24.0			21.6			19.2	34.8	2.25	22.1
		65	92-2065			26.0			23.4			20.8	37.7	2.08	20.4
		70	92-2070			28.0			25.2			22.4	40.6	1.93	18.9
		75	92-2075			30.0			27.0			24.0	43.5	1.80	17.7
		80	92-2080			32.0			28.8			25.6	46.4	1.69	16.6
		90	92-2090			36.0			32.4			28.8	52.2	1.50	14.7
		100	92-20100			40.0			36.0			32.0	58.0	1.35	13.2
22	11	125	92-20125			50.0			45.0			40.0	73.5	1.08	10.6
		150	92-20150			60.0			54.0			48.0	87.0	0.90	8.8
		25	92-2225	67.00	657.0	10.0	60.00	588.0	9.0	54.00	530.0	8.0	14.5	6.70	65.7
		30	92-2230			12.0			10.8			9.6	17.4	5.60	54.9
		35	92-2235			14.0			12.6			11.2	20.3	4.80	47.1
		40	92-2240			16.0			14.4			12.8	23.2	4.20	41.2
		45	92-2245			18.0			16.2			14.4	26.1	3.72	36.5
		50	92-2250			20.0			18.0			16.0	29.0	3.35	32.9
		55	92-2255			22.0			19.8			17.6	31.9	3.05	29.9
		60	92-2260			24.0			21.6			19.2	34.8	2.80	27.5
		65	92-2265			26.0			23.4			20.8	37.7	2.58	25.3
		70	92-2270			28.0			25.2			22.4	40.6	2.40	23.5
		75	92-2275			30.0			27.0			24.0	43.5	2.23	21.9
		80	92-2280			32.0			28.8			25.6	46.4	2.10	20.6
		90	92-2290			36.0			32.4			28.8	52.2	1.86	18.2
		100	92-22100			40.0			36.0			32.0	58.0	1.68	16.5
		125	92-22125			50.0			45.0			40.0	72.5	1.34	13.1
		150	92-22150			60.0			54.0			48.0	87.0	1.12	11.0

*Newtons

Light Duty

Metric-JIS

Type **92**

HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	37	92-25175
	21	92-60300

Note: Efficient Operating Range is 32% to 40% of the free length. (Maximum deflection = 40%; long life = 36%; and optimum life = 32%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection	
				40% Deflection			36% Deflection			32% Deflection			Travel to Solid		
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
25	12.5	25	92-2525	84.00	823.8	10.0	76.00	745.0	9.0	67.00	657.1	8.0	12.0	8.40	82.4
		30	92-2530			12.0			10.8			9.6	14.4	7.00	68.6
		35	92-2535			14.0			12.6			11.2	16.8	6.00	58.8
		40	92-2540			16.0			14.4			12.8	19.2	5.25	51.5
		45	92-2545			18.0			16.2			14.4	21.6	4.67	45.8
		50	92-2550			20.0			18.0			16.0	24.0	4.20	41.2
		55	92-2555			22.0			19.8			17.6	26.4	3.82	37.5
		60	92-2560			24.0			21.6			19.2	28.8	3.50	34.3
		65	92-2565			26.0			23.4			20.8	31.2	3.23	31.7
		70	92-2570			28.0			25.2			22.4	33.6	3.00	29.4
		75	92-2575			30.0			27.0			24.0	36.0	2.80	27.5
		80	92-2580			32.0			28.8			25.6	38.4	2.63	25.8
		90	92-2590			36.0			32.4			28.8	43.2	2.33	22.9
		100	92-25100			40.0			36.0			32.0	48.0	2.10	20.6
		125	92-25125			50.0			45.0			40.0	60.0	1.68	16.5
		150	92-25150			60.0			54.0			48.0	72.0	1.40	13.7
27	13.5	175	92-25175			70.0			63.0			56.0	84.0	1.20	11.8
		25	92-2725	100.00		10.0	90.00	883.0	9.0	80.00		8.0	12.0	10.00	98.1
		30	92-2730			12.0			10.8			9.6	14.4	8.33	81.7
		35	92-2735			14.0			12.6			11.2	16.8	7.14	70.0
		40	92-2740			16.0			14.4			12.8	19.2	6.25	61.3
		45	92-2745			18.0			16.2			14.4	21.6	5.56	54.5
		50	92-2750			20.0			18.0			16.0	24.0	5.00	49.0
		55	92-2755			22.0			19.8			17.6	26.4	4.55	44.6
		60	92-2760			24.0			21.6			19.2	28.8	4.17	40.9
		65	92-2765			26.0			23.4			20.8	31.2	3.85	37.8
		70	92-2770			28.0			25.2			22.4	33.6	3.57	35.0
		75	92-2775			30.0			27.0			24.0	36.0	3.33	32.7
		80	92-2780			32.0			28.8			25.6	38.4	3.13	30.7
		90	92-2790			36.0			32.4			28.8	43.2	2.78	27.3
		100	92-27100			40.0			36.0			32.0	48.0	2.50	24.5
		125	92-27125			50.0			45.0			40.0	60.0	2.00	19.6
		150	92-27150			60.0			54.0			48.0	72.0	1.67	16.4
		175	92-27175			70.0			63.0			56.0	84.0	1.43	14.0

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

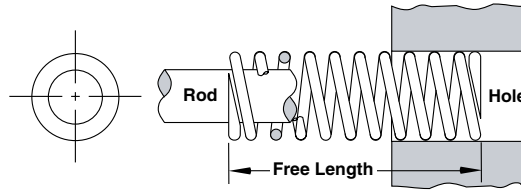
Light Duty Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection									
				40% Deflection		36% Deflection		32% Deflection		Travel to Solid													
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection										
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)								
30	15	25	92-3025	121.00	1186.6	10.0	109.00	1068.9	9.0	97.00	951.3	8.0	12.0	12.11	118.8								
		30	92-3030			12.0			10.8			9.6	14.4	10.08	98.9								
		35	92-3035			14.0			12.6			11.2	16.8	8.65	84.8								
		40	92-3040			16.0			14.4			12.8	19.2	7.56	74.1								
		45	92-3045			18.0			16.2			14.4	21.6	6.73	66.0								
		50	92-3050			20.0			18.0			16.0	24.0	6.05	59.3								
		55	92-3055			22.0			19.8			17.6	26.4	5.50	53.9								
		60	92-3060			24.0			21.6			19.2	28.8	5.04	49.4								
		65	92-3065			26.0			23.4			20.8	31.2	4.65	45.6								
		70	92-3070			28.0			25.2			22.4	33.6	4.32	42.4								
		75	92-3075			30.0			27.0			24.0	36.0	4.03	39.5								
		80	92-3080			32.0			28.8			25.6	38.4	3.78	37.1								
		90	92-3090			36.0			32.4			28.8	43.2	3.36	33.0								
		100	92-30100			40.0			36.0			32.0	48.0	3.02	29.6								
		125	92-30125			50.0			45.0			40.0	60.0	2.42	23.7								
		150	92-30150			60.0			54.0			48.0	72.0	2.01	19.7								
		175	92-30175			70.0			63.0			56.0	84.0	1.71	16.8								
		200	92-30200			80.0			72.0			64.0	96.0	1.51	14.8								
		35	17.5			40			92-3540			165.00	1618.1	16.0	149.00	1461.2	14.4	132.00	1294.5	12.8	19.2	10.31	101.1
						45			92-3545					18.0			16.2			14.4	21.6	9.17	89.9
50	92-3550			20.0	18.0	16.0	24.0	8.25	80.9														
55	92-3555			22.0	19.8	17.6	26.4	7.50	73.6														
60	92-3560			24.0	21.6	19.2	28.8	6.87	67.4														
65	92-3565			26.0	23.4	20.8	31.2	6.35	62.3														
70	92-3570			28.0	25.2	22.4	33.6	5.89	57.8														
75	92-3575			30.0	27.0	24.0	36.0	5.50	53.9														
80	92-3580			32.0	28.8	25.6	38.4	5.15	50.5														
90	92-3590			36.0	32.4	28.8	43.2	4.58	44.9														
100	92-35100			40.0	36.0	32.0	48.0	4.12	40.4														
125	92-35125			50.0	45.0	40.0	60.0	3.30	32.4														
150	92-35150			60.0	54.0	48.0	72.0	2.75	27.0														
175	92-35175			70.0	63.0	56.0	84.0	2.35	23.0														
200	92-35200	80.0	72.0	64.0	96.0	2.06	20.2																
40	20	40	92-4040	216.00	2118.2	16.0	194.00	1902.5	14.4	173.00	1696.6	12.8	19.2	13.50	132.4								
		50	92-4050			20.0			18.0			16.0	24.0	10.80	105.9								
		60	92-4060			24.0			21.6			19.2	28.8	9.00	88.3								
		70	92-4070			28.0			25.2			22.4	33.6	7.71	75.6								
		80	92-4080			32.0			28.8			25.6	38.4	6.75	66.2								
		90	92-4090			36.0			32.4			28.8	43.2	6.00	58.8								
		100	92-40100			40.0			36.0			32.0	48.0	5.40	53.0								
		125	92-40125			50.0			45.0			40.0	60.0	4.32	42.4								
		150	92-40150			60.0			54.0			48.0	72.0	3.60	35.3								
		175	92-40175			70.0			63.0			56.0	84.0	3.08	30.2								
		200	92-40200			80.0			72.0			64.0	96.0	2.70	26.5								
		250	92-40250			100.0			90.0			80.0	120.0	2.16	21.2								
50	25	50	92-5050	338.00	3314.7	20.0	304.00	2981.2	18.0	270.00	2647.8	16.0	24.0	16.89	165.6								
		60	92-5060			24.0			21.6			19.2	28.8	14.08	138.1								
		70	92-5070			28.0			25.2			22.4	33.6	12.07	118.4								
		80	92-5080			32.0			28.8			25.6	38.4	10.56	103.6								
		90	92-5090			36.0			32.4			28.8	43.2	9.38	92.0								
		100	92-50100			40.0			36.0			32.0	48.0	8.45	82.9								
		125	92-50125			50.0			45.0			40.0	60.0	6.76	66.3								
		150	92-50150			60.0			54.0			48.0	72.0	5.63	55.2								
		175	92-50175			70.0			63.0			56.0	84.0	4.82	47.3								
		200	92-50200			80.0			72.0			64.0	96.0	4.22	41.4								
		250	92-50250			100.0			90.0			80.0	120.0	3.38	33.1								
		300	92-50300			120.0			108.0			96.0	144.0	2.81	27.6								
60	30	60	92-6060	486.00	4766.0	24.0	437.00	4285.5	21.6	389.00	3814.8	19.2	28.8	20.25	198.6								
		70	92-6070			28.0			25.2			22.4	33.6	17.35	170.2								
		80	92-6080			32.0			28.8			25.6	38.4	15.18	148.9								
		90	92-6090			36.0			32.4			28.8	43.2	13.50	132.4								
		100	92-60100			40.0			36.0			32.0	48.0	12.15	119.2								
		125	92-60125			50.0			45.0			40.0	60.0	9.72	95.3								
		150	92-60150			60.0			54.0			48.0	72.0	8.10	79.4								
		175	92-60175			70.0			63.0			56.0	84.0	6.94	68.1								
		200	92-60200			80.0			72.0			64.0	96.0	6.07	59.5								
		250	92-60250			100.0			90.0			80.0	120.0	4.86	47.7								
300	92-60300	120.0	108.0	96.0	144.0	4.05	39.7																

*Newtons

Medium Duty

Metric-JIS

Type **93****HOW TO ORDER**

Specify:	Qty.	Catalog #
Example:	10	93-1020
	11	93-1625

Note: Efficient Operating Range is 25.6% to 32% of the free length. (Maximum deflection = 32%; long life = 28.8%; and optimum life = 25.6%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection	
				32% Deflection		28.8% Deflection		25.6% Deflection		Travel to Solid					
				Load	Deflection	Load	Deflection	Load	Deflection	Deflection	Deflection				
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
10	5	20	93-1020	20.00	196.1	6.4	18.00	176.5	5.8	16.00	156.9	5.1	7.6	3.13	30.7
		25	93-1025			8.0			7.2			6.4	9.5	2.50	24.5
		30	93-1030			9.6			8.6			7.7	11.4	2.08	20.4
		35	93-1035			11.2			10.1			9.0	13.3	1.78	17.5
		40	93-1040			12.8			11.5			10.2	15.2	1.56	15.3
		45	93-1045			14.4			13.0			11.5	17.1	1.38	13.5
		50	93-1050			16.0			14.4			12.8	19.0	1.25	12.3
		55	93-1055			17.6			15.8			14.1	20.9	1.13	11.1
		60	93-1060			19.2			17.3			15.4	22.8	1.04	10.2
		65	93-1065			20.8			18.7			16.6	24.7	0.96	9.4
		70	93-1070			22.4			20.2			17.9	26.6	0.89	8.7
		75	93-1075			24.0			21.6			19.2	28.5	0.83	8.1
		80	93-1080			25.6			23.0			20.5	30.4	0.78	7.6
12	6	20	93-1220	29.00	284.4	6.4	26.00	255.0	5.8	23.00	225.6	5.1	7.6	4.53	44.4
		25	93-1225			8.0			7.2			6.4	9.5	3.62	35.5
		30	93-1230			9.6			8.6			7.7	11.4	3.02	29.6
		35	93-1235			11.2			10.1			9.0	13.3	2.58	25.3
		40	93-1240			12.8			11.5			10.2	15.2	2.27	22.3
		45	93-1245			14.4			13.0			11.5	17.1	2.01	19.7
		50	93-1250			16.0			14.4			12.8	19.0	1.81	17.8
		55	93-1255			17.6			15.8			14.1	20.9	1.64	16.1
		60	93-1260			19.2			17.3			15.4	22.8	1.51	14.8
		65	93-1265			20.8			18.7			16.6	24.7	1.39	13.6
		70	93-1270			22.4			20.2			17.9	26.6	1.29	12.7
		75	93-1270			24.0			21.6			19.2	28.5	1.20	11.8
		80	93-1280			25.6			23.0			20.5	30.4	1.13	11.1
14	7	25	93-1425	39.00	392.5	8.0	35.00	343.2	7.2	31.00	304.0	6.4	9.5	4.87	47.8
		30	93-1430			9.6			8.6			7.7	11.4	4.06	39.8
		35	93-1435			11.2			10.1			9.0	13.3	3.48	34.1
		40	93-1440			12.8			11.5			10.2	15.2	3.04	29.8
		45	93-1445			14.4			13.0			11.5	17.1	2.70	26.5
		50	93-1450			16.0			14.4			12.8	19.0	2.43	23.8
		55	93-1455			17.6			15.8			14.1	20.9	2.21	21.7
		60	93-1460			19.2			17.3			15.4	22.8	2.03	19.9
		65	93-1465			20.8			18.7			16.6	24.7	1.87	18.3
		70	93-1470			22.4			20.2			17.9	26.6	1.74	17.1
		75	93-1475			24.0			21.6			19.2	28.5	1.62	15.9
		80	93-1480			25.6			23.0			20.5	30.4	1.52	14.9
		90	93-1490			28.8			25.9			23.0	34.2	1.35	13.2

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Medium Duty

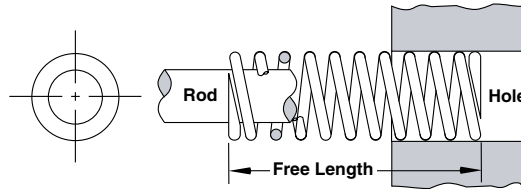
Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection	
				32% Deflection		28.8% Deflection		25.6% Deflection		Travel to Solid					
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection	kg.f	*(N)
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
16	8	25	93-1625	51.00	500.1	8.0	46.00	451.1	7.2	41.00	402.1	6.4	9.5	6.39	62.7
		30	93-1630			9.6			8.6			7.7	11.4	5.32	52.2
		35	93-1635			11.2			10.1			9.0	13.3	4.55	44.6
		40	93-1640			12.8			11.5			10.2	15.2	3.98	39.0
		45	93-1645			14.4			13.0			11.5	17.1	3.54	34.7
		50	93-1650			16.0			14.4			12.8	19.0	3.18	31.2
		55	93-1655			17.6			15.8			14.1	20.9	2.89	28.3
		60	93-1660			19.2			17.3			15.4	22.8	2.65	26.0
		65	93-1665			20.8			18.7			16.6	24.7	2.45	24.0
		70	93-1670			22.4			20.2			17.9	26.6	2.27	22.3
		75	93-1675			24.0			21.6			19.2	28.5	2.11	20.7
		80	93-1680			25.6			23.0			20.5	30.4	1.99	19.5
18	9	25	93-1825	65.00	637.4	8.0	58.00	568.8	7.2	52.00	510.0	6.4	9.5	8.12	79.6
		30	93-1830			9.6			8.6			7.7	11.4	6.77	66.4
		35	93-1835			11.2			10.1			9.0	13.3	5.80	56.9
		40	93-1840			12.8			11.5			10.2	15.2	5.07	49.7
		45	93-1845			14.4			13.0			11.5	17.1	4.51	44.2
		50	93-1850			16.0			14.4			12.8	19.0	4.06	39.8
		55	93-1855			17.6			15.8			14.1	20.9	3.69	36.2
		60	93-1860			19.2			17.3			15.4	22.8	3.38	33.1
		65	93-1865			20.8			18.7			16.6	24.7	3.12	30.6
		70	93-1870			22.4			20.2			17.9	26.6	2.90	28.4
		75	93-1875			24.0			21.6			19.2	28.5	2.70	26.5
		80	93-1880			25.6			23.0			20.5	30.4	2.53	24.8
20	10	25	93-2025	80.00	784.5	8.0	72.00	706.1	7.2	64.00	627.6	6.4	9.5	10.00	98.1
		30	93-2030			9.6			8.6			7.7	11.4	8.33	81.7
		35	93-2035			11.2			10.1			9.0	13.3	7.14	70.0
		40	93-2040			12.8			11.5			10.2	15.2	6.25	61.3
		45	93-2045			14.4			13.0			11.5	17.1	5.55	54.4
		50	93-2050			16.0			14.4			12.8	19.0	5.00	49.0
		55	93-2055			17.6			15.8			14.1	20.9	4.54	44.5
		60	93-2060			19.2			17.3			15.4	22.8	4.16	40.8
		65	93-2065			20.8			18.7			16.6	24.7	3.84	37.7
		70	93-2070			22.4			20.2			17.9	26.6	3.57	35.0
		75	93-2075			24.0			21.6			19.2	28.5	3.33	32.7
		80	93-2080			25.6			23.0			20.5	30.4	3.12	30.6
22	11	25	93-2225	97.00	951.3	8.0	87.00	853.2	7.2	77.00	755.1	6.4	9.5	12.13	119.0
		30	93-2230			9.6			8.6			7.7	11.4	10.10	99.1
		35	93-2235			11.2			10.1			9.0	13.3	8.65	84.8
		40	93-2240			12.8			11.5			10.2	15.2	7.57	74.2
		45	93-2245			14.4			13.0			11.5	17.1	6.74	66.1
		50	93-2250			16.0			14.4			12.8	19.0	6.06	59.4
		55	93-2255			17.6			15.8			14.1	20.9	5.50	53.9
		60	93-2260			19.2			17.3			15.4	22.8	5.05	49.5
		65	93-2265			20.8			18.7			16.6	24.7	4.66	45.7
		70	93-2270			22.4			20.2			17.9	26.6	4.33	42.5
		75	93-2275			24.0			21.6			19.2	28.5	4.04	39.6
		80	93-2280			25.6			23.0			20.5	30.4	3.78	37.1
90	93-2290	28.8	25.9	23.0	34.2	3.36	33.0								
100	93-22100	32.0	28.8	25.6	38.0	3.03	29.7								
125	93-22125	40.0	36.0	32.0	47.5	2.42	23.7								
150	93-22150	48.0	43.2	38.4	57.0	2.01	19.7								

*Newtons

Medium Duty

Metric-JIS

Type **93****HOW TO ORDER**

Specify:	Qty.	Catalog #
Example:	14	93-2760
	18	93-60250

Note: Efficient Operating Range is 25.6% to 32% of the free length. (Maximum deflection = 32%; long life = 28.8%; and optimum life = 25.6%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection	
				32% Deflection		28.8% Deflection		25.6% Deflection		Travel to Solid					
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
25	12.5	25	93-2525	125.00	1225.9	8.0	112.00	1098.3	7.2	100.00	980.7	6.4	9.5	15.63	153.3
		30	93-2530			9.6			8.6			7.7	11.4	13.02	127.7
		35	93-2535			11.2			10.1			9.0	13.3	11.20	109.8
		40	93-2540			12.8			11.5			10.2	15.2	9.76	95.7
		45	93-2545			14.4			13.0			11.5	17.1	8.68	85.1
		50	93-2550			16.0			14.4			12.8	19.0	7.81	76.6
		55	93-2555			17.6			15.8			14.1	20.9	7.10	69.6
		60	93-2560			19.2			17.3			15.4	22.8	6.51	63.8
		65	93-2565			20.8			18.7			16.6	24.7	6.00	58.8
		70	93-2570			22.4			20.2			17.9	26.6	5.58	54.7
		75	93-2575			24.0			21.6			19.2	28.5	5.21	51.1
		80	93-2580			25.6			23.0			20.5	30.4	4.88	47.9
		90	93-2590			28.8			25.9			23.0	34.2	4.34	42.6
		100	93-25100			32.0			28.8			25.6	38.0	3.90	38.2
		125	93-25125			40.0			36.0			32.0	47.5	3.12	30.6
		150	93-25150			48.0			43.2			38.4	57.0	2.60	25.5
		175	93-25175			56.0			50.4			44.8	66.5	2.23	21.9
27	13.5	25	93-2725	146.00	1431.8	8.0	131.00	1284.7	7.2	117.00	1147.4	6.4	9.5	18.25	179.0
		30	93-2730			9.6			8.6			7.7	11.4	15.20	149.1
		35	93-2735			11.2			10.1			9.0	13.3	13.04	127.9
		40	93-2740			12.8			11.5			10.2	15.2	11.40	111.8
		45	93-2745			14.4			13.0			11.5	17.1	10.14	99.4
		50	93-2750			16.0			14.4			12.8	19.0	9.12	89.4
		55	93-2755			17.6			15.8			14.1	20.9	8.30	81.4
		60	93-2760			19.2			17.3			15.4	22.8	7.60	74.5
		65	93-2765			20.8			18.7			16.6	24.7	7.00	68.6
		70	93-2770			22.4			20.2			17.9	26.6	6.51	63.8
		75	93-2775			24.0			21.6			19.2	28.5	6.08	59.6
		80	93-2780			25.6			23.0			20.5	30.4	5.70	55.9
		90	93-2790			28.8			25.9			23.0	34.2	5.06	49.6
		100	93-27100			32.0			28.8			25.6	38.0	4.56	44.7
		125	93-27125			40.0			36.0			32.0	47.5	3.65	35.8
		150	93-27150			48.0			43.2			38.4	57.0	3.04	29.8
		175	93-27175			56.0			50.4			44.8	66.5	2.61	25.6

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Medium Duty

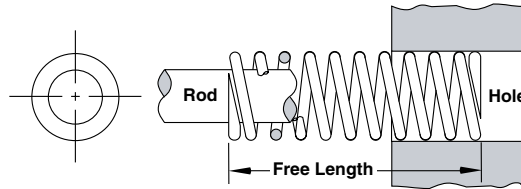
Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection	
				32% Deflection			28.8% Deflection			25.6% Deflection			Travel to Solid		
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
30	15	25	93-3025	180.00	1765.2	8.0	162.00	1588.7	7.2	144.00	1412.2	6.4	22.50	220.7	
		30	93-3030			9.6			8.6			7.7	18.75	183.9	
		35	93-3035			11.2			10.1			9.0	13.3	16.10	157.9
		40	93-3040			12.8			11.5			10.2	15.2	14.06	137.9
		45	93-3045			14.4			13.0			11.5	17.1	12.50	122.6
		50	93-3050			16.0			14.4			12.8	19.0	11.25	110.3
		55	93-3055			17.6			15.8			14.1	20.9	10.23	100.3
		60	93-3060			19.2			17.3			15.4	22.8	9.37	91.9
		65	93-3065			20.8			18.7			16.6	24.7	8.65	84.8
		70	93-3070			22.4			20.2			17.9	26.6	8.03	78.8
		75	93-3075			24.0			21.6			19.2	28.5	7.50	73.6
		80	93-3080			25.6			23.0			20.5	30.4	7.03	68.9
		90	93-3090			28.8			25.9			23.0	34.2	6.25	61.3
		100	93-30100			32.0			28.8			25.6	38.0	5.62	55.1
		125	93-30125			40.0			36.0			32.0	47.5	4.50	44.1
		150	93-30150			48.0			43.2			38.4	57.0	3.75	36.8
		175	93-30175			56.0			50.4			44.8	66.5	3.21	31.5
		200	93-30200			64.0			57.6			51.2	76.0	2.81	27.6
35	17.5	40	93-3540	245.00	2402.6	12.8	220.00	2157.4	11.5	195.00	1912.3	10.2	15.2	19.14	187.7
		45	93-3545			14.4			13.0			11.5	17.1	17.01	166.8
		50	93-3550			16.0			14.4			12.8	19.0	15.31	150.1
		55	93-3555			17.6			15.8			14.1	20.9	13.92	136.5
		60	93-3560			19.2			17.3			15.4	22.8	12.76	125.1
		65	93-3565			20.8			18.7			16.6	24.7	11.77	115.4
		70	93-3570			22.4			20.2			17.9	26.6	10.93	107.2
		75	93-3575			24.0			21.6			19.2	28.5	10.20	100.0
		80	93-3580			25.6			23.0			20.5	30.4	9.57	93.9
		90	93-3590			28.8			25.9			23.0	34.2	8.50	83.4
		100	93-35100			32.0			28.8			25.6	38.0	7.65	75.0
		125	93-35125			40.0			36.0			32.0	47.5	6.12	60.0
		150	93-35125			48.0			43.2			38.4	57.0	5.10	50.0
		175	93-35175			56.0			50.4			44.8	66.5	4.37	42.9
		200	93-35200			64.0			57.6			51.2	76.0	3.82	37.5
40	20	40	93-4040	320.00	3138.1	12.8	288.00	2824.3	11.5	256.00	2510.4	10.2	15.2	25.02	245.4
		50	93-4050			16.0			14.4			12.8	19.0	20.00	196.1
		60	93-4060			19.2			17.3			15.4	22.8	16.60	162.8
		70	93-4070			22.4			20.2			17.9	26.6	14.28	140.0
		80	93-4080			25.6			23.0			20.5	30.4	12.50	122.6
		90	93-4090			28.8			25.9			23.0	34.2	11.11	109.0
		100	93-40100			32.0			28.8			25.6	38.0	10.00	98.1
		125	93-40125			40.0			36.0			32.0	47.5	8.00	78.5
		150	93-40150			48.0			43.2			38.4	57.0	6.66	65.3
		175	93-40175			56.0			50.4			44.8	66.5	5.71	56.0
		200	93-40200			64.0			57.6			51.2	76.0	5.00	49.0
		250	93-40250			80.0			72.0			64.0	95.0	4.00	39.2
50	25	50	93-5050	500.00	4903.3	16.0	450.00	4413.0	14.4	400.00	3922.4	12.8	19.0	31.25	306.5
		60	93-5060			19.2			17.3			15.4	22.8	26.04	255.4
		70	93-5070			22.4			20.2			17.9	26.6	22.32	218.9
		80	93-5080			25.6			23.0			20.5	30.4	19.53	191.5
		90	93-5090			28.8			25.9			23.0	34.2	17.36	170.2
		100	93-50100			32.0			28.8			25.6	38.0	15.62	153.2
		125	93-50125			40.0			36.0			32.0	47.5	12.50	122.6
		150	93-50150			48.0			43.2			38.4	57.0	10.41	102.1
		175	93-50175			56.0			50.4			44.8	66.5	8.92	87.5
		200	93-50200			64.0			57.6			51.2	76.0	7.81	76.6
		250	93-50250			80.0			72.0			64.0	95.0	6.25	61.3
		300	93-50300			96.0			86.4			76.8	114.0	5.20	51.0
60	30	60	93-6060	720.00	7061.0	19.2	648.00	6354.7	17.3	575.00	5638.8	15.4	22.8	37.40	366.8
		70	93-6070			22.4			20.2			17.9	26.6	32.10	314.8
		80	93-6080			25.6			23.0			20.5	30.4	28.12	275.8
		90	93-6090			28.8			25.9			23.0	34.2	25.00	245.2
		100	93-60100			32.0			28.8			25.6	38.0	22.50	220.7
		125	93-60125			40.0			36.0			32.0	47.5	18.00	176.5
		150	93-60150			48.0			43.2			38.4	57.0	15.00	147.1
		175	93-60175			56.0			50.4			44.8	66.5	12.85	126.0
		200	93-60200			64.0			57.6			51.2	76.0	11.25	110.3
		250	93-60250			80.0			72.0			64.0	95.0	9.00	88.3
300	93-60300	96.0	86.4	76.8	114.0	7.50	73.6								

*Newtons

Heavy Duty

Metric-JIS

Type **94****HOW TO ORDER**

Specify:	Qty.	Catalog #
Example:	40	94-1270
	52	94-22125

Note: Efficient Operating Range is 19.2% to 24% of the free length. (Maximum deflection = 24%; long life = 21.6%; and optimum life = 19.2%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection	
				24% Deflection			21.6% Deflection			19.2% Deflection			Travel to Solid		
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
10	5	20	94-1020	30.00	294.2	4.8	27.00	264.8	4.3	24.00	235.4	3.8	5.6	6.25	61.3
		25	94-1025			6.0			5.4			4.8	7.0	5.00	49.0
		30	94-1030			7.2			6.5			5.8	8.4	4.16	40.8
		35	94-1035			8.4			7.5			6.7	9.8	3.57	35.0
		40	94-1040			9.6			8.6			7.7	11.2	3.15	30.9
		45	94-1045			10.8			9.7			8.6	12.6	2.77	27.2
		50	94-1050			12.0			10.8			9.6	14.0	2.50	24.5
		55	94-1055			13.2			11.8			10.6	15.4	2.27	22.3
		60	94-1060			14.4			13.0			11.5	16.8	2.08	20.4
		65	94-1065			15.6			14.0			12.5	18.2	1.92	18.8
		70	94-1070			16.8			15.1			13.4	19.6	1.79	17.6
		75	94-1075			18.0			16.2			14.4	21.0	1.67	16.4
12	6	80	94-1080	43.00	421.7	19.2	38.00	372.7	17.3	34.00	333.4	15.4	22.4	1.56	15.3
		20	94-1220			4.8			4.3			3.8	5.6	8.90	87.3
		25	94-1225			6.0			5.4			4.8	7.0	7.10	69.6
		30	94-1230			7.2			6.5			5.8	8.4	5.97	58.5
		35	94-1235			8.4			7.5			6.7	9.8	5.11	50.1
		40	94-1240			9.6			8.6			7.7	11.2	4.47	43.8
		45	94-1245			10.8			9.7			8.6	12.6	3.98	39.0
		50	94-1250			12.0			10.8			9.6	14.0	3.58	35.1
		55	94-1255			13.2			11.8			10.6	15.4	3.25	31.9
		60	94-1260			14.4			13.0			11.5	16.8	2.98	29.2
		65	94-1265			15.6			14.0			12.5	18.2	2.74	26.9
		70	94-1270			16.8			15.1			13.4	19.6	2.54	24.9
14	7	75	94-1275	59.00	578.6	18.0	53.00	519.8	16.2	47.00	460.9	14.4	21.0	2.37	23.2
		80	94-1280			19.2			17.3			15.4	22.4	2.21	21.7
		25	94-1425			6.0			5.4			4.8	7.0	9.83	96.4
		30	94-1430			7.2			6.5			5.8	8.4	8.19	80.3
		35	94-1435			8.4			7.5			6.7	9.8	7.02	68.8
		40	94-1440			9.6			8.6			7.7	11.2	6.14	60.2
		45	94-1445			10.8			9.7			8.6	12.6	5.46	53.5
		50	94-1450			12.0			10.8			9.6	14.0	4.91	48.2
		55	94-1455			13.2			11.8			10.6	15.4	4.46	43.7
		60	94-1460			14.4			13.0			11.5	16.8	4.09	40.1
		65	94-1465			15.6			14.0			12.5	18.2	3.78	37.1
		70	94-1470			16.8			15.1			13.4	19.6	3.51	34.4
		75	94-1475			18.0			16.2			14.4	21.0	3.27	32.1
		80	94-1480			19.2			17.3			15.4	22.4	3.07	30.1
		90	94-1490			21.6			19.4			17.3	25.2	2.72	26.7

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Heavy Duty

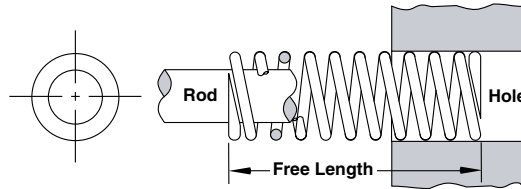
Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection	
				24% Deflection		21.6% Deflection		19.2% Deflection		Travel to Solid					
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
16	8	25	94-1625	77.00		6.0	69.00	676.7	5.4	62.00		4.8	7.0	18.83	184.7
		30	94-1630			7.2			6.5			5.8	8.4	10.69	104.8
		35	94-1635			8.4			7.5			6.7	9.8	9.16	89.8
		40	94-1640			9.6			8.6			7.7	11.2	8.02	78.7
		45	94-1645			10.8			9.7			8.6	12.6	7.12	69.8
		50	94-1650			12.0			10.8			9.6	14.0	6.41	62.9
		55	94-1655			13.2			11.8			10.6	15.4	5.83	57.2
		60	94-1660			14.4			13.0			11.5	16.8	5.34	52.4
		65	94-1665			15.6			14.0			12.5	18.2	4.93	48.3
		70	94-1670			16.8			15.1			13.4	19.6	4.58	44.9
		75	94-1675			18.0			16.2			14.4	21.0	4.28	42.0
		80	94-1680			19.2			17.3			15.4	22.4	4.01	39.3
90	94-1690	21.6	19.4	17.3	25.2	3.57	35.0								
100	94-16100	24.0	21.6	19.2	28.0	3.21	31.5								
		25	94-1825	97.00		6.0	87.00	853.2	5.4	78.00	764.9	4.8	7.0	16.16	158.5
		30	94-1830			7.2			6.5			5.8	8.4	13.47	132.1
		35	94-1835			8.4			7.5			6.7	9.8	11.54	113.2
		40	94-1840			9.6			8.6			7.7	11.2	10.10	99.1
		45	94-1845			10.8			9.7			8.6	12.6	8.98	88.1
		50	94-1850			12.0			10.8			9.6	14.0	8.08	79.2
		55	94-1855			13.2			11.8			10.6	15.4	7.34	72.0
		60	94-1860			14.4			13.0			11.5	16.8	6.73	66.0
		65	94-1865			15.6			14.0			12.5	18.2	6.21	60.9
		70	94-1870			16.8			15.1			13.4	19.6	5.77	56.6
		75	94-1875			18.0			16.2			14.4	21.0	5.39	52.9
		80	94-1880			19.2			17.3			15.4	22.4	5.05	49.5
90	94-1890	21.6	19.4	17.3	25.2	4.50	44.1								
100	94-18100	24.0	21.6	19.2	28.0	4.04	39.6								
		25	94-2025	120.00		6.0	108.00	1059.1	5.4	96.00	941.4	4.8	7.0	20.00	196.1
		30	94-2030			7.2			6.5			5.8	8.4	16.66	163.4
		35	94-2035			8.4			7.5			6.7	9.8	14.28	140.0
		40	94-2040			9.6			8.6			7.7	11.2	12.50	122.6
		45	94-2045			10.8			9.7			8.6	12.6	11.11	109.0
		50	94-2050			12.0			10.8			9.6	14.0	10.00	98.1
		55	94-2055			13.2			11.8			10.6	15.4	9.09	89.1
		60	94-2060			14.4			13.0			11.5	16.8	8.33	81.7
		65	94-2065			15.6			14.0			12.5	18.2	7.69	75.4
		70	94-2070			16.8			15.1			13.4	19.6	7.14	70.0
		75	94-2075			18.0			16.2			14.4	21.0	6.67	65.4
		80	94-2080			19.2			17.3			15.4	22.4	6.25	61.3
90	94-2090	21.6	19.4	17.3	25.2	5.55	54.4								
100	94-20100	24.0	21.6	19.2	28.0	5.00	49.0								
125	94-20125	30.0	27.0	24.0	35.0	4.00	39.2								
150	94-20150	36.0	32.4	28.8	42.0	3.33	32.7								
		25	94-2225	145.00		6.0	130.00	1274.9	5.4	116.00	1137.6	4.8	7.0	24.16	236.9
		30	94-2230			7.2			6.5			5.8	8.4	20.13	197.4
		35	94-2235			8.4			7.5			6.7	9.8	17.30	169.7
		40	94-2240			9.6			8.6			7.7	11.2	15.10	148.1
		45	94-2245			10.8			9.7			8.6	12.6	13.40	131.4
		50	94-2250			12.0			10.8			9.6	14.0	12.08	118.5
		55	94-2255			13.2			11.8			10.6	15.4	10.94	107.3
		60	94-2260			14.4			13.0			11.5	16.8	10.06	98.7
		65	94-2265			15.6			14.0			12.5	18.2	9.28	91.0
		70	94-2270			16.8			15.1			13.4	19.6	8.63	84.6
		75	94-2275			18.0			16.2			14.4	21.0	8.04	78.8
		80	94-2280			19.2			17.3			15.4	22.4	7.55	74.0
90	94-2290	21.6	19.4	17.3	25.2	6.71	65.8								
100	94-22100	24.0	21.6	19.2	28.0	6.04	59.2								
125	94-22125	30.0	27.0	24.0	35.0	4.83	47.4								
150	94-22150	36.0	32.4	28.8	42.0	4.02	39.4								

*Newtons

Heavy Duty

Metric-JIS

Type **94**

HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	33	94-40100
	44	94-60200

Note: Efficient Operating Range is 19.2% to 24% of the free length. (Maximum deflection = 24%; long life = 21.6%; and optimum life = 19.2%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection		
				24% Deflection			21.6% Deflection			19.2% Deflection			Travel to Solid			
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection			
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)	
25	12.5	25	94-2525	187.00	1833.8	6.0	169.00	1657.0	5.4	150.00	1471.0	4.8	7.0	31.20	306.0	
		30	94-2530			7.2			6.5			5.8	8.4	25.97	254.7	
		35	94-2535			8.4			7.5			6.7	9.8	22.38	219.5	
		40	94-2540			9.6			8.6			7.7	11.2	19.47	190.9	
		45	94-2545			10.8			9.7			8.6	12.6	17.40	170.6	
		50	94-2550			12.0			10.8			9.6	14.0	15.58	152.8	
		55	94-2555			13.2			11.9			10.6	15.4	14.20	139.3	
		60	94-2560			14.4			13.0			11.5	16.8	12.98	127.3	
		65	94-2565			15.6			14.0			12.5	18.2	12.00	117.7	
		70	94-2570			16.8			15.1			13.4	19.6	11.13	109.2	
		75	94-2575			18.0			16.2			14.4	21.0	10.40	102.0	
		80	94-2580			19.2			17.3			15.4	22.4	9.73	95.4	
		90	94-2590			21.6			19.4			17.3	25.2	8.65	84.8	
		100	94-25100			24.0			21.6			19.2	28.0	7.79	76.4	
		125	94-25125			30.0			27.0			24.0	35.0	6.23	61.1	
		150	94-25150			36.0			32.4			28.8	42.0	5.20	51.0	
		175	94-25175			42.0			37.8			33.6	49.0	4.46	43.7	
27	13.5	25	94-2725	219.00	2147.7	6.0	197.00	1931.9	5.4	175.00	1716.2	4.8	7.0	36.40	357.0	
		30	94-2730			7.2			6.5			5.8	8.4	30.41	298.2	
		35	94-2735			8.4			7.5			6.7	9.8	26.20	256.9	
		40	94-2740			9.6			8.6			7.7	11.2	22.81	223.7	
		45	94-2745			10.8			9.7			8.6	12.6	20.30	199.1	
		50	94-2750			12.0			10.8			9.6	14.0	18.25	179.0	
		55	94-2755			13.2			11.9			10.6	15.4	16.50	161.8	
		60	94-2760			14.4			13.0			11.5	16.8	15.20	149.1	
		65	94-2765			15.6			14.0			12.5	18.2	14.00	137.3	
		70	94-2770			16.8			15.1			13.4	19.6	13.03	127.8	
		75	94-2775			18.0			16.2			14.4	21.0	12.10	118.7	
		80	94-2780			19.2			17.3			15.4	22.4	11.40	111.8	
		90	94-2790			21.6			19.4			17.3	25.2	10.13	99.3	
		100	94-27100			24.0			21.6			19.2	28.0	9.12	89.4	
		125	94-27125			30.0			27.0			24.0	35.0	7.30	71.6	
		150	94-27150			36.0			32.4			28.8	42.0	6.08	59.6	
		175	94-27175			42.0			37.8			33.6	49.0	5.21	51.1	

*Newtons

Note: Newtons (N) to pounds force (lb.f.) = (N) x 0.225.

Heavy Duty

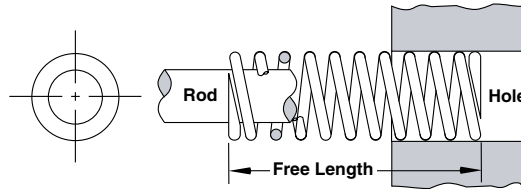
Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection	
				24% Deflection			21.6% Deflection			19.2% Deflection			Travel to Solid		
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*(N)	mm	kg.f	*(N)	mm	kg.f	*(N)	mm	mm	kg.f	*(N)
30	15	25	94-3025	270.00	2647.8	6.0	243.00	2382.4	5.4	216.00	2118.2	4.8	7.0	45.00	441.3
		30	94-3030			7.2			6.5			5.8	8.4	37.50	367.8
		35	94-3035			8.4			7.5			6.7	9.8	32.26	316.4
		40	94-3040			9.6			8.6			7.7	11.2	28.12	275.8
		45	94-3045			10.8			9.7			8.6	12.6	25.00	245.2
		50	94-3050			12.0			10.8			9.6	14.0	22.50	220.7
		55	94-3055			13.2			11.9			10.6	15.4	20.40	200.1
		60	94-3060			14.4			13.0			11.5	16.8	18.75	183.9
		65	94-3065			15.6			14.0			12.5	18.2	17.30	169.7
		70	94-3070			16.8			15.1			13.4	19.6	16.07	157.6
		75	94-3075			18.0			16.2			14.4	21.0	15.00	147.1
		80	94-3080			19.2			17.3			15.4	22.4	14.06	137.9
		90	94-3090			21.6			19.4			17.3	25.2	12.50	122.6
		100	94-30100			24.0			21.6			19.2	28.0	11.25	110.3
		125	94-30125			30.0			27.0			24.0	35.0	9.00	88.3
		150	94-30150			36.0			32.4			28.8	42.0	7.50	73.6
		175	94-30175			42.0			37.8			33.6	49.0	6.42	63.0
		200	94-30200			48.0			43.2			38.4	56.0	5.62	55.1
35	17.5	40	94-3540	367.00	3599.0	9.6	330.00	3236.2	8.6	293.00	2873.4	7.7	11.2	38.22	374.8
		45	94-3545			10.8			9.7			8.6	12.6	33.98	333.2
		50	94-3550			12.0			10.8			9.6	14.0	30.58	299.9
		55	94-3555			13.2			11.9			10.5	15.4	27.80	272.6
		60	94-3560			14.4			13.0			11.5	16.8	25.48	249.9
		65	94-3565			15.6			14.0			12.5	18.2	23.53	230.8
		70	94-3570			16.8			15.1			13.4	19.6	21.84	214.2
		75	94-3575			18.0			16.2			14.4	21.0	20.39	200.0
		80	94-3580			19.2			17.3			15.4	22.4	19.11	187.4
		90	94-3590			21.6			19.4			17.3	25.2	16.99	166.6
		100	94-35100			24.0			21.6			19.2	28.0	15.29	149.9
		125	94-35125			30.0			27.0			24.0	35.0	12.23	119.9
		150	94-35125			36.0			32.4			28.8	42.0	10.19	99.9
		175	94-35175			42.0			37.8			33.6	49.0	8.73	85.6
		200	94-35200			48.0			43.2			38.4	56.0	7.64	74.9
		40	20			40			94-4040			480.00	4707.2	9.6	432.00
50	94-4050			12.0	10.8	9.6	14.0	40.00	392.3						
60	94-4060			14.4	13.0	11.5	16.8	33.33	326.9						
70	94-4070			16.8	15.1	13.4	19.6	28.57	280.2						
80	94-4080			19.2	17.3	15.4	22.4	25.00	245.2						
90	94-4090			21.6	19.4	17.3	25.2	22.22	217.9						
100	94-40100			24.0	21.6	19.2	28.0	20.00	196.1						
125	94-40125			30.0	27.0	24.0	35.0	16.00	156.9						
150	94-40150			36.0	32.4	28.8	42.0	13.33	130.7						
175	94-40175			42.0	37.8	33.6	49.0	11.42	112.0						
200	94-40200			48.0	43.2	38.4	56.0	10.00	98.1						
250	94-40250			60.0	54.0	48.0	70.0	8.00	78.5						
50	25	50	94-5050	750.00	7355.0	12.0	675.00	6619.5	10.8	600.00	5884.0	9.6	14.0	62.50	612.9
		60	94-5060			14.4			13.0			11.5	16.8	52.08	510.7
		70	94-5070			16.8			15.1			13.4	19.6	44.64	437.8
		80	94-5080			19.2			17.3			15.4	22.4	39.06	383.1
		90	94-5090			21.6			19.4			17.3	25.2	34.72	340.5
		100	94-50100			24.0			21.6			19.2	28.0	32.25	316.3
		125	94-50125			30.0			27.0			24.0	35.0	25.00	245.2
		150	94-50150			36.0			32.4			28.8	42.0	20.83	204.3
		175	94-50175			42.0			37.8			33.6	49.0	17.85	175.1
		200	94-50200			48.0			43.2			38.4	56.0	15.62	153.2
		250	94-50250			60.0			54.0			48.0	70.0	12.50	122.6
		300	94-50300			72.0			64.8			57.6	84.0	10.41	102.1
60	30	60	94-6060	1080.00	10591.2	14.4	972.00	9532.4	13.0	864.00	8473.0	11.5	16.8	75.00	735.5
		70	94-6070			16.8			15.1			13.4	19.6	64.28	630.4
		80	94-6080			19.2			17.3			15.4	22.4	56.25	551.6
		90	94-6090			21.6			19.4			17.3	25.2	50.00	490.4
		100	94-60100			24.0			21.6			19.2	28.0	45.00	441.3
		125	94-60125			30.0			27.0			24.0	35.0	36.00	353.1
		150	94-60150			36.0			32.4			28.8	42.0	30.00	294.2
		175	94-60175			42.0			37.8			33.6	49.0	25.71	252.1
		200	94-60200			48.0			43.2			38.4	56.0	22.50	220.7
		250	94-60250			60.0			54.0			48.0	70.0	18.00	176.5
300	94-60300	72.0	64.8	57.6	84.0	15.00	147.1								

*Newtons

Extra Heavy Duty

Metric-JIS

Type **95****HOW TO ORDER**

Specify:	Qty.	Catalog #
Example:	7	95-1425
	10	95-2290

Note: Efficient Operating Range is 16% to 20% of the free length. (Maximum deflection = 20%; long life = 18%; and optimum life = 16%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection	
				20% Deflection			18% Deflection			16% Deflection			Travel to Solid		
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*N	mm	kg.f	*N	mm	kg.f	*N	mm	mm	kg.f	*N
10	5	20	95-1020	45.00	441.2	4.0	40.50	397.1	3.6	36.00	353.0	3.2	4.8	11.25	110.3
		25	95-1025			5.0			4.5			4.0	6.0	9.00	88.3
		30	95-1030			6.0			5.4			4.8	7.2	7.50	73.6
		35	95-1035			7.0			6.3			5.6	8.4	6.43	63.1
		40	95-1040			8.0			7.2			6.4	9.6	5.63	55.2
		45	95-1045			9.0			8.1			7.2	10.8	5.00	49.0
		50	95-1050			10.0			9.0			8.0	12.0	4.50	44.1
		55	95-1055			11.0			9.9			8.8	13.2	4.09	40.1
		60	95-1060			12.0			10.8			9.6	14.4	3.75	36.8
		65	95-1065			13.0			11.7			10.4	15.6	3.47	34.0
		70	95-1070			14.0			12.6			11.2	16.8	3.21	31.5
		75	95-1075			15.0			13.5			12.0	18.0	3.00	29.4
		80	95-1080			16.0			14.4			12.8	19.2	2.82	27.7
12	6	20	95-1220	58.00	568.6	4.0	52.00	509.8	3.6	46.40	454.9	3.2	4.8	14.50	142.2
		25	95-1225			5.0			4.5			4.0	6.0	11.60	113.8
		30	95-1230			6.0			5.4			4.8	7.2	9.67	94.8
		35	95-1235			7.0			6.3			5.6	8.4	8.29	81.3
		40	95-1240			8.0			7.2			6.4	9.6	7.25	71.1
		45	95-1245			9.0			8.1			7.2	10.8	6.44	63.2
		50	95-1250			10.0			9.0			8.0	12.0	5.80	56.9
		55	95-1255			11.0			9.9			8.8	13.2	5.27	51.7
		60	95-1260			12.0			10.8			9.6	14.4	4.83	47.4
		65	95-1265			13.0			11.7			10.4	15.6	4.44	43.5
		70	95-1270			14.0			12.6			11.2	16.8	4.13	40.5
		75	95-1275			15.0			13.5			12.0	18.0	3.85	37.8
		80	95-1280			16.0			14.4			12.8	19.2	3.61	35.4
14	7	25	95-1425	75.00	735.3	5.0	67.50	661.8	4.5	60.00	588.3	4.0	6.0	15.00	147.1
		30	95-1430			6.0			5.4			4.8	7.2	12.50	122.6
		35	95-1435			7.0			6.3			5.6	8.4	10.72	105.1
		40	95-1440			8.0			7.2			6.4	9.6	9.38	92.0
		45	95-1445			9.0			8.1			7.2	10.8	8.34	81.8
		50	95-1450			10.0			9.0			8.0	12.0	7.50	73.6
		55	95-1455			11.0			9.9			8.8	13.2	6.82	66.9
		60	95-1460			12.0			10.8			9.6	14.4	6.25	61.3
		65	95-1465			13.0			11.7			10.4	15.6	5.77	56.6
		70	95-1470			14.0			12.6			11.2	16.8	5.36	52.6
		75	95-1475			15.0			13.5			12.0	18.0	5.00	49.0
		80	95-1480			16.0			14.4			12.8	19.2	4.69	46.0
		90	95-1490			18.0			16.2			14.4	21.6	4.17	40.9

*Newtons

Newtons (N) to pounds force (lb.f) = (N) x 0.225.

Extra Heavy Duty

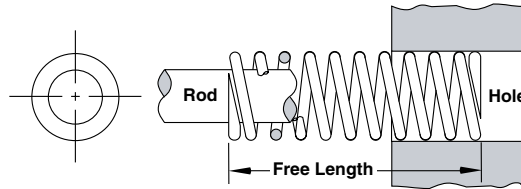
Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection	
				20% Deflection		18% Deflection		16% Deflection		Travel to Solid					
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*N	mm	kg.f	*N	mm	kg.f	*N	mm	mm	kg.f	*N
16	8	25	95-1625	100.00	981.0	5.0	90.00	883.0	4.5	80.00	785.0	4.0	6.0	20.00	196.1
		30	95-1630			6.0			5.4			7.2	16.67	163.5	
		35	95-1635			7.0			6.3			8.4	14.29	140.1	
		40	95-1640			8.0			7.2			9.6	12.50	122.6	
		45	95-1645			9.0			8.1			10.8	11.11	109.0	
		50	95-1650			10.0			9.0			12.0	10.00	98.1	
		55	95-1655			11.0			9.9			13.2	9.09	89.1	
		60	95-1660			12.0			10.8			14.4	8.34	81.8	
		65	95-1665			13.0			11.7			15.6	7.69	75.4	
		70	95-1670			14.0			12.6			16.8	7.14	70.0	
		75	95-1675			15.0			13.5			18.0	6.67	65.4	
		80	95-1680			16.0			14.4			19.2	6.25	61.3	
		90	95-1690			18.0			16.2			21.6	5.56	54.5	
		100	95-16100			20.0			18.0			24.0	5.00	49.0	
18	9	25	95-1825	125.00	1226.0	5.0	112.50	1103.0	4.5	100.00	981.0	4.0	6.0	25.00	245.2
		30	95-1830			6.0			5.4			7.2	20.84	204.4	
		35	95-1835			7.0			6.3			8.4	17.86	175.2	
		40	95-1840			8.0			7.2			9.6	15.63	153.3	
		45	95-1845			9.0			8.1			10.8	13.89	136.2	
		50	95-1850			10.0			9.0			12.0	12.50	122.6	
		55	95-1855			11.0			9.9			13.2	11.37	111.5	
		60	95-1860			12.0			10.8			14.4	10.42	102.2	
		65	95-1865			13.0			11.7			15.6	9.62	94.3	
		70	95-1870			14.0			12.6			16.8	8.93	87.6	
		75	95-1875			15.0			13.5			18.0	8.34	81.8	
		80	95-1880			16.0			14.4			19.2	7.82	76.7	
		90	95-1890			18.0			16.2			21.6	6.95	68.2	
		100	95-18100			20.0			18.0			24.0	6.26	61.4	
20	10	25	95-2025	160.00	1569.1	5.0	144.00	1412.2	4.5	128.00	1255.3	4.0	6.0	32.00	313.8
		30	95-2030			6.0			5.4			7.2	26.67	261.6	
		35	95-2035			7.0			6.3			8.4	22.86	224.2	
		40	95-2040			8.0			7.2			9.6	20.00	196.1	
		45	95-2045			9.0			8.1			10.8	17.78	174.4	
		50	95-2050			10.0			9.0			12.0	16.00	156.9	
		55	95-2055			11.0			9.9			13.2	14.55	142.7	
		60	95-2060			12.0			10.8			14.4	13.33	130.7	
		65	95-2065			13.0			11.7			15.6	12.31	120.7	
		70	95-2070			14.0			12.6			16.8	11.43	112.1	
		75	95-2075			15.0			13.5			18.0	10.67	104.6	
		80	95-2080			16.0			14.4			19.2	10.00	98.1	
		90	95-2090			18.0			16.2			21.6	8.89	87.2	
		100	95-20100			20.0			18.0			24.0	8.00	78.5	
		125	95-20125			25.0			22.5			30.0	6.40	62.8	
		150	95-20150			30.0			27.0			36.0	5.33	52.3	
22	11	25	95-2225	195.00	1912.0	5.0	176.00	1726.0	4.5	156.00	1530.0	4.0	6.0	39.00	382.5
		30	95-2230			6.0			5.4			7.2	32.50	318.7	
		35	95-2235			7.0			6.3			8.4	27.86	273.2	
		40	95-2240			8.0			7.2			9.6	24.38	239.1	
		45	95-2245			9.0			8.1			10.8	21.67	212.5	
		50	95-2250			10.0			9.0			12.0	19.50	191.2	
		55	95-2255			11.0			9.9			13.2	17.73	173.9	
		60	95-2260			12.0			10.8			14.4	16.25	159.4	
		65	95-2265			13.0			11.7			15.6	15.00	147.1	
		70	95-2270			14.0			12.6			16.8	13.93	136.6	
		75	95-2275			15.0			13.5			18.0	13.00	127.5	
		80	95-2280			16.0			14.4			19.2	12.19	119.5	
		90	95-2290			18.0			16.2			21.6	10.83	106.2	
		100	95-22100			20.0			18.0			24.0	9.75	95.6	
		125	95-22125			25.0			22.5			30.0	7.80	76.5	
		150	95-22150			30.0			27.0			36.0	6.50	63.7	

*Newtons

Extra Heavy Duty

Metric-JIS

Type **95**

HOW TO ORDER

Specify:	Qty.	Catalog #
Example:	16	95-2560
	16	95-60300

Note: Efficient Operating Range is 16% to 20% of the free length. (Maximum deflection = 20%; long life = 18%; and optimum life = 16%.) "Travel to Solid" is for reference only. Deflection beyond the Efficient Operating Range could create a safety hazard, and result in premature spring failure.

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1mm Deflection	
				20% Deflection			18% Deflection			16% Deflection			Travel to Solid		
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*N	mm	kg.f	*N	mm	kg.f	*N	mm	mm	kg.f	*N
25	12.5	25	95-2525	245.00	2402.6	5.0	221.00	2167.3	4.5	196.00	1922.1	4.0	6.0	49.00	480.5
		30	95-2530			6.0			5.4			4.8	7.2	40.80	400.1
		35	95-2535			7.0			6.3			5.6	8.4	35.00	343.2
		40	95-2540			8.0			7.2			6.4	9.6	30.60	300.1
		45	95-2545			9.0			8.1			7.2	10.8	27.22	266.9
		50	95-2550			10.0			9.0			8.0	12.0	24.50	240.3
		55	95-2555			11.0			9.9			8.8	13.2	22.30	218.7
		60	95-2560			12.0			10.8			9.6	14.4	20.40	200.1
		65	95-2565			13.0			11.7			10.4	15.6	18.80	184.4
		70	95-2570			14.0			12.6			11.2	16.8	17.50	171.6
		75	95-2575			15.0			13.5			12.0	18.0	16.30	159.9
		80	95-2580			16.0			14.4			12.8	19.2	15.30	150.0
		90	95-2590			18.0			16.2			14.4	21.6	13.60	133.4
		100	95-25100			20.0			18.0			16.0	24.0	12.30	120.6
		125	95-25125			25.0			22.5			20.0	30.0	9.80	96.1
		150	95-25150			30.0			27.0			24.0	36.0	8.17	80.1
		175	95-25175			35.0			31.5			28.0	42.0	7.00	68.6
27	13.5	25	95-2725	290.00	2844.0	5.0	261.00	2560.0	4.5	232.00	2275.0	4.0	6.0	58.00	568.8
		30	95-2530			6.0			5.4			4.8	7.2	48.33	474.0
		35	95-2735			7.0			6.3			5.6	8.4	41.43	406.3
		40	95-2740			8.0			7.2			6.4	9.6	36.25	355.5
		45	95-2745			9.0			8.1			7.2	10.8	32.22	316.0
		50	95-2750			10.0			9.0			8.0	12.0	29.00	284.4
		55	95-2755			11.0			9.9			8.8	13.2	26.36	258.5
		60	95-2760			12.0			10.8			9.6	14.4	24.17	237.0
		65	95-2765			13.0			11.7			10.4	15.6	22.31	218.8
		70	95-2770			14.0			12.6			11.2	16.8	20.71	203.1
		75	95-2775			15.0			13.5			12.0	18.0	19.33	189.6
		80	95-2780			16.0			14.4			12.8	19.2	18.13	177.8
		90	95-2790			18.0			16.2			14.4	21.6	16.11	158.0
		100	95-27100			20.0			18.0			16.0	24.0	14.50	142.2
		125	95-27125			25.0			22.5			20.0	30.0	11.60	113.8
		150	95-27150			30.0			27.0			24.0	36.0	9.67	94.8
		175	95-27175			35.0			31.5			28.0	42.0	8.28	81.2

*Newtons

Newtons (N) to pounds force (lb.f) = (N) x 0.225.

Extra Heavy Duty

Metric-JIS

Hole Dia.	Rod Dia.	Free Length	Catalog Number	LOAD DEFLECTION TABLE										Load @ 1 mm Deflection	
				20% Deflection		18% Deflection		16% Deflection		Travel to Solid					
				Load		Deflection	Load		Deflection	Load		Deflection	Deflection		
				kg.f	*N	mm	kg.f	*N	mm	kg.f	*N	mm	mm	kg.f	*N
30	15	25	95-3025	360.00	3530.4	5.0	324.00	3177.4	4.5	288.00	2824.3	4.0	6.0	72.00	706.1
		30	95-3030			6.0			5.4			4.8	7.2	60.00	588.4
		35	95-3035			7.0			6.3			5.6	8.4	51.43	504.4
		40	95-3040			8.0			7.2			6.4	9.6	45.00	441.3
		45	95-3045			9.0			8.1			7.2	10.8	40.00	392.3
		50	95-3050			10.0			9.0			8.0	12.0	36.00	353.1
		55	95-3055			11.0			9.9			8.8	13.2	32.72	320.9
		60	95-3060			12.0			10.8			9.6	14.4	30.00	294.2
		65	95-3065			13.0			11.7			10.4	15.6	27.69	271.6
		70	95-3070			14.0			12.6			11.2	16.8	25.71	252.1
		75	95-3075			15.0			13.5			12.0	18.0	24.00	235.4
		80	95-3080			16.0			14.4			12.8	19.2	22.50	220.7
		90	95-3090			18.0			16.2			14.4	21.6	20.00	196.1
		100	95-30100			20.0			18.0			16.0	24.0	18.00	176.5
		125	95-30125			25.0			22.5			20.0	30.0	14.40	141.2
		150	95-30150			30.0			27.0			24.0	36.0	12.00	117.7
		175	95-30175			35.0			31.5			28.0	42.0	10.28	100.8
		200	95-30200			40.0			36.0			32.0	48.0	9.00	88.3
35	17.5	40	95-3540	490.00	4805.3	8.0	441.00	4324.7	7.2	392.00	3844.2	6.4	9.6	61.25	600.7
		45	95-3545			9.0			8.1			7.2	10.8	54.44	533.9
		50	95-3550			10.0			9.0			8.0	12.0	49.00	480.5
		55	95-3555			11.0			9.9			8.8	13.2	44.54	436.8
		60	95-3560			12.0			10.8			9.6	14.4	40.83	400.4
		65	95-3565			13.0			11.7			10.4	15.6	37.69	369.6
		70	95-3570			14.0			12.6			11.2	16.8	35.00	343.2
		75	95-3575			15.0			13.5			12.0	18.0	32.67	320.4
		80	95-3580			16.0			14.4			12.8	19.2	30.62	300.3
		90	95-3590			18.0			16.2			14.4	21.6	27.22	266.9
		100	95-35100			20.0			18.0			16.0	24.0	24.50	240.3
		125	95-35125			25.0			22.5			20.0	30.0	19.60	192.2
		150	95-35150			30.0			27.0			24.0	36.0	16.33	160.1
		175	95-35175			35.0			31.5			28.0	42.0	14.00	137.3
		200	95-35200			40.0			36.0			32.0	48.0	12.25	120.1
40	20	40	95-4040	640.00	6276.3	8.0	576.00	5648.6	7.2	512.00	5021.0	6.4	9.6	80.00	784.6
		50	95-4050			10.0			9.0			8.0	12.0	64.00	627.6
		60	95-4060			12.0			10.8			9.6	14.4	53.33	523.0
		70	95-4070			14.0			12.6			11.2	16.8	45.71	448.3
		80	95-4080			16.0			14.4			12.8	19.2	40.00	392.3
		90	95-4090			18.0			16.2			14.4	21.6	35.55	348.6
		100	95-40100			20.0			18.0			16.0	24.0	32.00	313.8
		125	95-40125			25.0			22.5			20.0	30.0	25.60	251.1
		150	95-40150			30.0			27.0			24.0	36.0	21.33	209.2
		175	95-40175			35.0			31.5			28.0	42.0	18.28	179.3
		200	95-40200			40.0			36.0			32.0	48.0	16.00	156.9
		250	95-40250			50.0			45.0			40.0	60.0	12.80	125.5
50	25	50	95-5050	1000.00	9806.7	10.0	900.00	8826.0	9.0	800.00	7845.3	8.0	12.0	100.00	980.7
		60	95-5060			12.0			10.8			9.6	14.4	83.33	817.2
		70	95-5070			14.0			12.6			11.2	16.8	71.42	700.4
		80	95-5080			16.0			14.4			12.8	19.2	62.50	612.9
		90	95-5090			18.0			16.2			14.4	21.6	55.56	544.9
		100	95-50100			20.0			18.0			16.0	24.0	50.00	490.4
		125	95-50125			25.0			22.5			20.0	30.0	40.00	392.3
		150	95-50150			30.0			27.0			24.0	36.0	33.33	326.9
		175	95-50175			35.0			31.5			28.0	42.0	28.57	280.2
		200	95-50200			40.0			36.0			32.0	48.0	25.00	245.2
		250	95-50250			50.0			45.0			40.0	60.0	20.00	196.1
		300	95-50300			60.0			54.0			48.0	72.0	16.66	163.4
60	30	60	95-6060	1440.00	14121.6	12.0	1296.00	12709.4	10.8	1152.00	11297.3	9.6	14.4	120.00	1176.8
		70	95-6070			14.0			12.6			11.2	16.8	102.86	1008.7
		80	95-6080			16.0			14.4			12.8	19.2	90.00	882.6
		90	95-6090			18.0			16.2			14.4	21.6	80.00	784.6
		100	95-60100			20.0			18.0			16.0	24.0	72.00	706.1
		125	95-60125			25.0			22.5			20.0	30.0	57.60	564.9
		150	95-60150			30.0			27.0			24.0	36.0	48.00	470.7
		175	95-60175			35.0			31.5			28.0	42.0	41.14	403.5
		200	95-60200			40.0			36.0			32.0	48.0	36.00	353.1
		250	95-60250			50.0			45.0			40.0	60.0	28.80	282.4
300	95-60300	60.0	54.0	48.0	72.0	24.00	235.4								

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