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**FREE STANDING
 SPRING MOUNTS and
 HEIGHT SAVING
 BRACKETS**

TYPE
SLF
 SLF-200-6 BULLETIN

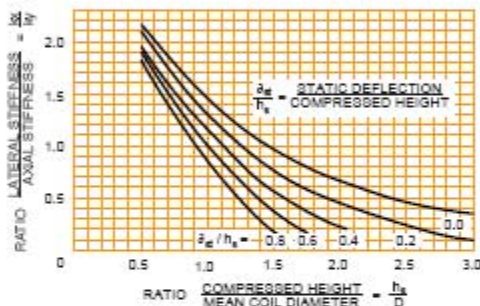
The Type SLF spring design evolved after many years of experience using springs within guided housing as the primary isolator. Since the old housing acted telescopically, the internal springs were designed for vertical stiffness and deflection only. Early attempts to use these tall slender springs out of their housing failed as the springs showed immediate instability or they fell over when subjected to minor horizontal forces.

It was important to eliminate the housing as they had a tendency to bind whenever they were cocked and to transmit vibration in the horizontal directions. We knew that if the springs were unhampered they would not only do better vertically, but do an equally fine job in isolating the horizontal disturbances.

Our research showed that springs could be designed with horizontal stiffnesses as high, or even higher than the vertical by carefully adhering to the ratios of the spring's compressed height to the mean coil diameter, and the static deflection to the compressed height as shown in the graph.



**SINGLE SPRING
 1" (25mm) Deflection
 SLF MOUNT**



Starting with the 1" (25mm) deflection series, we paid great attention to these design factors and our springs became short stable columns. When we had tested and were completely satisfied with the 1" (25mm) designs, we moved on to the 2" (51mm), 3" (76mm), 4" (102mm) and 5" (127mm) deflection series. Every spring table now includes data on the ratio of the spring diameter to the compressed height, and the ratio of the horizontal to the vertical spring constants. Our specifications suggest a minimum ratio of 0.75 between the spring diameter and the compressed height as a good working rule, although some of our designs exceed this number.

All of these springs are designed so as not to exceed the elastic limit when the coils are closed up and the springs are compressed solid. This prevents damage when the springs are overloaded and assures a return to the spring's free height. The rated loads and deflections allow for 50% additional travel to solid to accommodate weight distribution errors and to keep the springs operating in a low stress range. In our Nominal 1" (25mm) Deflection A, B, and C Spring series the smallest rated deflection is 1" (25mm) although some of the lighter springs can deflect as much as 2" (51mm). The springs are used individually or in clusters to develop greater capacity. Some of our B2 and C2 springs only meet competitive criteria and do not have 50% additional travel. This is clearly noted in our catalog Data Sheet DS-208.



**SINGLE SPRING
 1" (25mm) Deflection
 SLFH MOUNT**



**MULTIPLE SPRING
 1" (25mm) Deflection
 SLF MOUNT**

In an effort to develop a foolproof simple isolator using these sophisticated springs, we have merely added a neoprene friction pad on the bottom to help prevent the passage of noise and a spring loading and adjustment bolt at the top with a locking cap screw. You will find that these adjustment bolts are very substantial because they must be made rigid enough to maintain the alignment of the top of the spring with the base plate, and the head of the bolt is actually the equipment supporting surface. The bolts are tapped to receive the locking cap screw as this methods makes it easy to remove the isolator for servicing. The 5" (127mm) deflection springs are sometimes furnished with three adjustment bolts in a tripod arrangement to maintain the top plate stability. Other stabilizing methods use single oversized bolts or pull-down brackets. In some cases SLF mountings with smaller deflections are similarly designed when there are large horizontal forces such as in the isolation of a horizontal compressor. There is no need to bolt this mounting down in most cases because of the friction pad and the spring's reduction of the horizontal forces before they get down to the base plate.

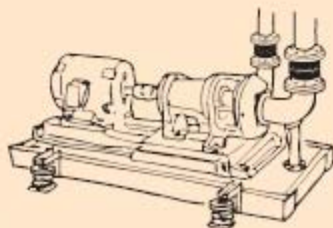
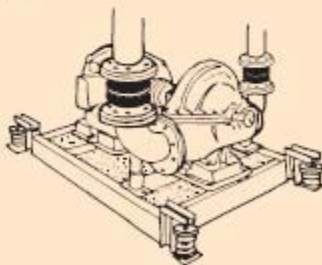
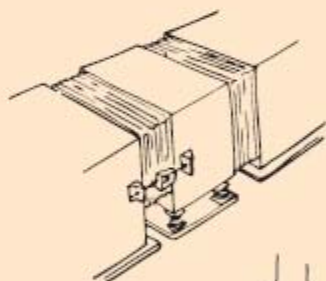
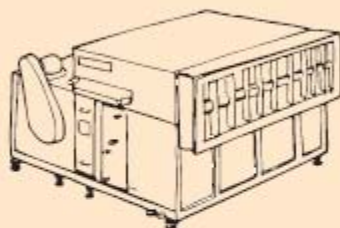
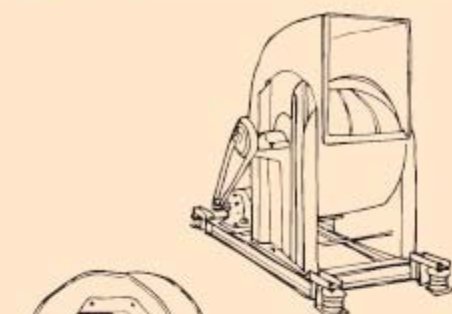
SLF mountings of the proper deflection are recommended for all vibration control applications where it is not necessary to cope with weight removal or seismic and wind load problems. Excessive discharge pressures can be dealt with by adding mass through the use of floating inertia bases or where mass is not a practical solution, by the addition of horizontal thrust restraints.

**SINGLE SPRING
 2" (51mm),
 3" (76mm),
 4" (102mm) and
 5" (127mm)
 Deflection
 SLF MOUNT**

Steel Holders
 (Top & Bottom)
 are used when
 spring O.D.
 exceeds 7/8"
 (19mm)



The SLFH series of mounts are identical to the style SLF except for having two or four holes in the base to allow for bolting to the structure. Since it is expensive to bolt mountings down, and any bolting procedure tends to bypass the acoustical action of the neoprene pad on the bottom of the mounting, it is strongly recommended that you use the Type SLF unless the SLFH must be used because of elevated installations on steel beams, etc.



BELT DRIVEN CENTRIFUGAL FAN and MOTOR

SLF springs are used to isolate all kinds of fan equipment. Deflections are determined by fan speed, size, motor horsepower and equipment location as discussed in the VCS-100 Engineering Specification and Selection Guide. Bases may be made of structural steel or concrete. The sketch shows a centrifugal fan on a type WFSL base with 3" (76mm) deflection springs.

UTILITY SET

Utility sets are normally direct mounted on 1" (25mm) deflection SLF springs as illustrated. ICS rails are used in conjunction with the springs when higher deflections are required or there is an unsupported fan scroll that causes over balancing. KSL concrete filled bases are recommended for outdoor locations because of the need for wind resistance.

FACTORY ASSEMBLED AIR HANDLING EQUIPMENT

Factory assembled air handling equipment may be direct mounted as shown or placed on ICS rails when higher deflections are called for. It is important to study the equipment base or legs to determine whether rails are needed for structural reinforcement.

FAN HEAD

A fan head develops high horizontal thrust because of the negative pressure on the very large inlet area. The SLF springs cannot handle this thrust without Horizontal Thrust Restraints as sketched or massive concrete filled bases to increase the resistive weight and spring constants.

END SUCTION PUMP or DOUBLE SUCTION PUMP

SLF spring mountings of the proper deflection are recommended for all pump isolation problems. While steel bases may be used, concrete is preferred for greater rigidity and the possibility of grouting in the pump base. Bases should be made large enough to support the suction and discharge elbows whenever possible. Thus, Double Suction bases become wide and End Suction bases long.

SLF applications are by no means limited to these sketches. We have merely tried to illustrate the many modes of application and some of the design considerations.

VERTICAL PUMPS

Vertical pump bases using SLF mountings should be made large enough for stability and extended as required to support the piping before attachment to the pump flanges. This piping support reduces the strain on the pump casing.

CLOSE COUPLED PUMP

Close coupled pumps are generally unstable when mounted directly on SLF mountings because they are small in configuration and have a severe overhang on the pump end. A concrete base makes them less sensitive to external forces so the installation becomes much more workmanlike and practical. SLF deflections depend on location and pump size.

DIRECTLY DRIVEN REFRIGERATION COMPRESSOR UNIT

1" (25mm) deflection SLF mountings can be directly attached to the isolated equipment. Mountings of different capacities would be used at the two ends to compensate for the uneven weight distribution and provide reasonably uniform deflection. This use of springs of different capacity but the same potential deflection applies to all isolator selections.

BELT DRIVEN AIR COMPRESSOR

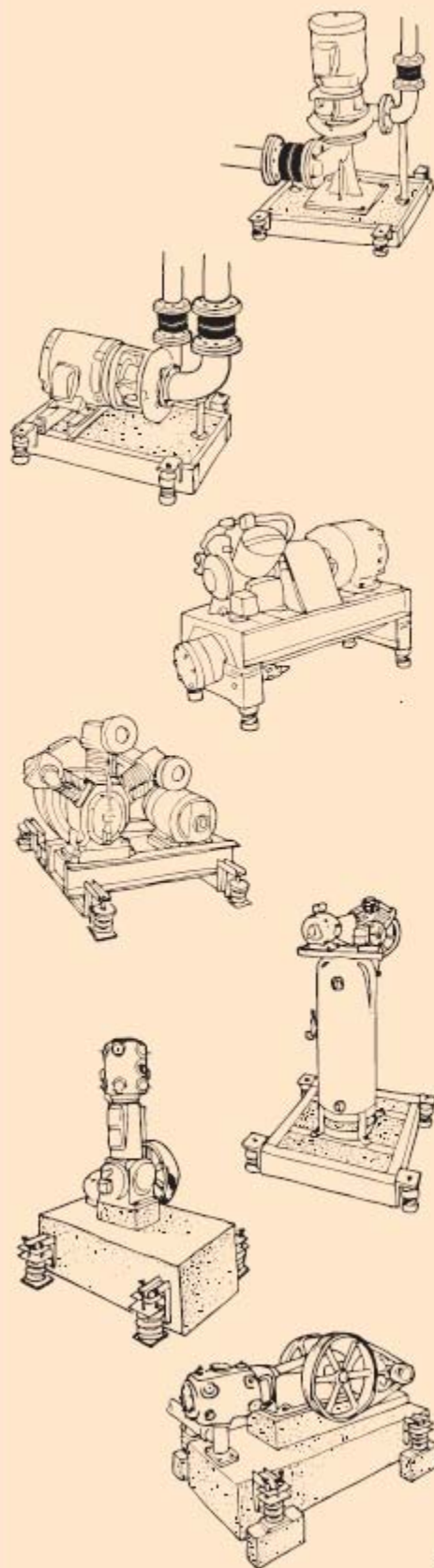
When 2" (51mm) or higher deflection SLF mountings are used we normally recommend ICS rails to minimize elevations. In this particular case the rails project beyond the flywheel to compensate for the overhang. The higher deflections are used to increase efficiency at the low operating speed.

VERTICAL TANK TYPE AIR COMPRESSOR

It is important to exercise caution when applying spring mountings to tall machines with small base dimensions. The use of a concrete filled type K base with SLF mountings lowers the center of gravity in addition to enlarging the base dimensions. Thus, the installation becomes much more stable.

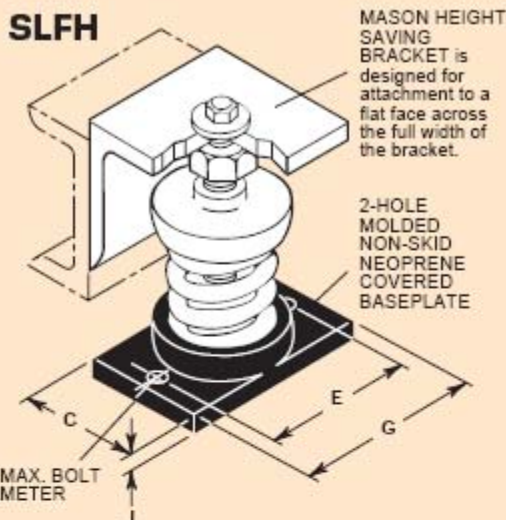
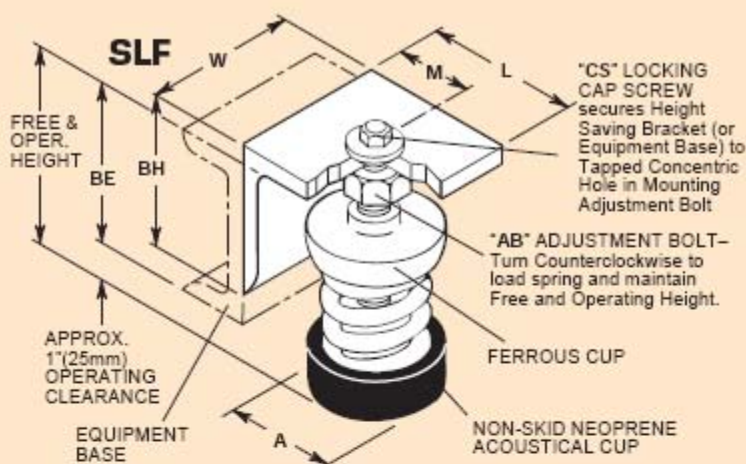
SLOW SPEED VERTICAL or HORIZONTAL COMPRESSOR or VACUUM PUMP

Slow speed, large bore and stroke reciprocating compressors or vacuum pumps have large residual unbalanced forces that make direct mounting impossible because of excessive motion. The concrete inertia block mass is calculated from unbalanced force data supplied by the manufacturer. It is often as much as seven times the equipment weight. Vertical compressors are located over the combined vertical center of gravity. The springs under horizontal compressors are elevated to the horizontal CG. Three adjustment bolts are most important to maintain horizontal SLF stiffness.



1"(25mm) Deflection SLF SINGLE SPRING MOUNTS

Change designation to SLFH when
base plate with bolt holes is required.



Matching Height Saving Bracket

BH- Bracket Height BE- Bracket Elevation

Type	Size	L (in) (mm)	M (in) (mm)	W (in) (mm)	BE (in) (mm)	BH (in) (mm)
SLF-	X	21/2 64	2 51	3 76	23/4 70	21/2 64
SLFH-	A-45 - A-400	21/2 64	2 51	3 76	31/4 93	21/2 64
	A-510 - A-625	21/2 64	2 51	3 76	35/8 92	21/2 64
	B & C	4 102	23/4 70	3 76	5 127	4 102

All springs have additional travel to solid equal to 50% of the rated deflection.

Solid Spring Height = Free Height minus 1.5 times Rated Deflection.

Ratings & Dimensions for 1"(25mm) Deflection Single Spring Mounts (inches millimeters)

Type	Size	Rated Capacity (lbs) (kg)	Rated Defl. (in) (mm)	Spring Constant (lbs/in)(kg/mm)	Spring Color	Spring Only Spring OD Free Height	Free & Oper Ht A C E G	Max. Bolt Dia. H J	Adjust- ment Bolt AB	Locking Cap Screw CS
SLF-	X-23†	23 10	1.50 38	18 0.28	Brown					
	X-33†	33 15	1.30 33	30 0.45	Red					
	X-54†	54 24	1.40 36	45 0.87	White					
	X-76†	76 34	1.22 31	73 1.10	Black	11/2 21/2	33/4 2	- - - -	1/2 x 21/2	1/4 x 1
	X-113†	113 51	1.20 30	113 1.70	Yellow	38 64	95 51	- - - -	x 64	x 25
	X-130†	130 59	1.20 30	130 1.97	Purple					
	X-175†	175 79	1.20 30	175 2.63	Silver					
	X-210†	210 95	1.20 30	210 3.17	Blue					
	A-45	45 20	1.60 41	28 0.49	Blue					
	A-75	75 34	1.50 38	50 0.89	Orange					
SLFH-	A-125	125 57	1.33 34	94 1.68	Brown	13/4 3	41/4 21/8 21/4 3	33/4 1/4 3/8	5/8 x 21/2	3/8 x 1
	A-200	200 91	1.15 29	174 3.14	Black	44 76	108 54 57 76	95 6 10	x 64	x 25
	A-310	310 141	1.00 25	310 5.64	Yellow					
	A-400	400 181	1.00 25	400 7.24	Green					
	A-510	510 231	1.00 25	510 9.24	Red	13/4 31/8	45/8 21/8 21/4 3	33/4 1/4 3/8	5/8 x 21/2	3/8 x 1
	A-625	625 283	1.00 25	625 11.32	White	13/4 33/8	117 54 57 76	95 6 10	x 64	x 25
	B-65	65 29	2.10 53	31 0.55	Brown					
	B-85	85 39	2.10 53	40 0.74	White††					
	B-115	115 52	2.00 51	57 1.02	Silver					
	B-160	160 68	2.00 51	75 1.33	Orange	23/8 4	6 23/4 27/8 41/8 53/8	1/2 3/8	7/8 x 41/4	1/2 x 11/4
SLFH-	B-280	280 127	1.60 41	174 3.10	Green	60 102	152 70 73 105 137	13 10	x 108	x 32
	B-450	450 204	1.31 33	344 6.18	Red					
	B-750	750 340	1.12 28	670 12.14	White					
	B-1000	1000 454	1.00 25	1000 18.16	Blue					
	C-1000	1000 454	1.00 25	1000 18.16	Black					
	C-1350	1350 612	1.00 25	1350 24.48	Yellow					
	C-1750	1750 794	1.00 25	1750 31.76	Black*					
	C-2100	2100 953	1.00 25	2100 38.12	Yellow*	27/8 41/8	8 31/4 33/8 43/4 61/8	1/2 3/8	7/8 x 41/4	1/2 x 11/4
	C-2385	2385 1082	1.00 25	2385 43.28	Yellow**	73 105	152 83 86 121 156	13 10	x 108	x 32
	C-2650	2650 1202	1.00 25	2650 48.08	Red*					
	C-2935	2935 1331	1.00 25	2935 53.24	Red**					

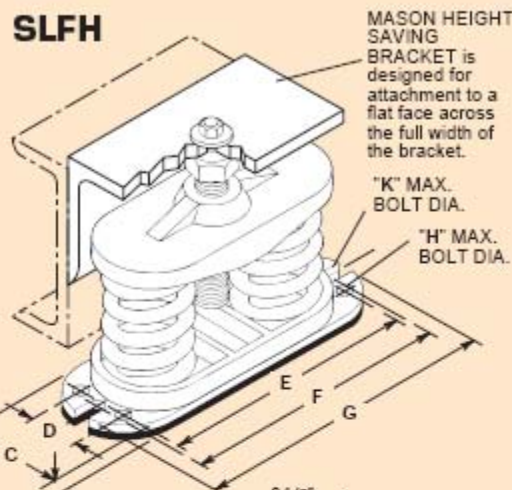
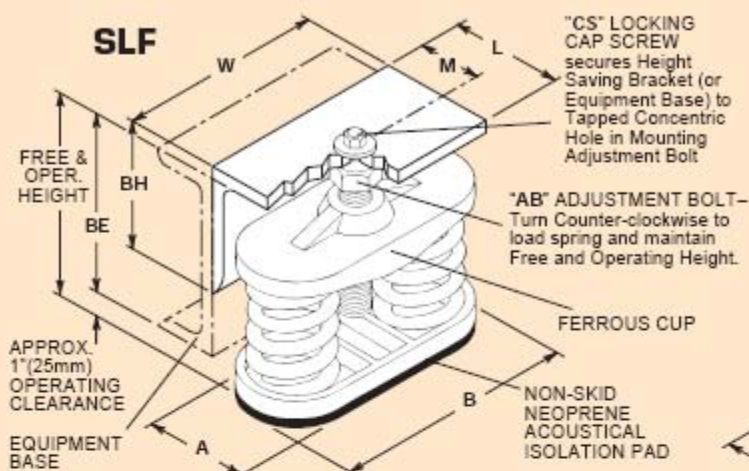
1" (25mm) Deflection SLF MULTIPLE SPRING MOUNTS

Change designation to SLFH when base plate with bolt holes is required.

All springs have additional travel to solid equal to 50% of the rated deflection.

Solid Spring Height = Free Height minus 1.5 times Rated Deflection.

Multiple spring mounts have C size springs. SLF-2, SLF-3, SLF-4, SLF-8, SLF-9, SLF-12 & SLF-16 have 2, 3, 4, 6, 8, 12 & 16 springs respectively.

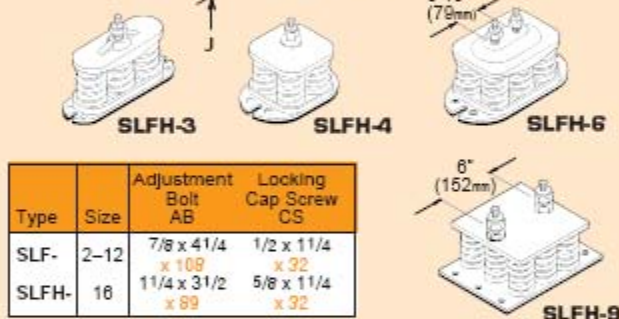


Matching Height Saving Bracket

BH- Bracket Height
BE- Bracket Elevation

Type	Size	L (in) (mm)	M (in) (mm)	W (in) (mm)	BE (in) (mm)	BH (in) (mm)
SLF- SLFH-	2	4 102	2 1/2 64	6 152	5 127	4 102
	3	4 102	2 1/2 64	7 178	5 127	4 102
	4	6 152	4 102	8 1/2 216	5 127	6 152
	6	7 178	5 127	11 3/4 298	5 127	7 178
	8	8 203	5 1/2 140	11 3/4 298	5 1/4 133	7 178
	12 16					

Mounts have 2 adjustment bolts and special brackets are required.



Ratings & Dimensions for 1" (25mm) Deflection Single Spring Mounts (inches millimeters)

Type	Size	Rated Capacity (lbs) (kg)	Rated Defl. (in) (mm)	Spring Constant (lbs/in)(kg/mm)	Spring Color/ Stripe	Spring Only		Free & Oper		H	A	B	C	D	E	F	G	Hole Max. Bolt Dia.	J	Slot Max. Bolt Dia.
						Spring OD	Free Height	Ht												
SLF-	2-2700	2700 1225	1.00 25	2700 49.00	Yellow	27/8	41/8	6	31/4	73/4	31/4	13/4	81/4	81/2	10	5/16	1/2	3/8		
	2-3500	3500 1588	1.00 25	3500 63.52	Black*	73	105	152	83	197	83	44	210	216	254	8	13	10		
	2-4200	4200 1905	1.00 25	4200 76.20	Yellow*															
	3-5250	5250 2381	1.00 25	5250 95.24	Black*	27/8	41/8	6	33/8	91/2	33/8	13/4	10	101/4	113/4	5/16	1/2	3/8		
	3-6300	6300 2858	1.00 25	6300 114.32	Yellow*	73	105	152	86	241	86	44	254	260	298	8	13	10		
	3-7155	7155 3245	1.00 25	7155 129.80	Yellow**															
SLFH-	3-7950	7950 3606	1.00 25	7950 144.24	Red*															
	4-5400	5400 2449	1.00 25	5400 97.96	Yellow	27/8	41/8	6	61/4	61/4	61/4	21/4	71/2	71/2	93/8	1/2	1/2	1/2		
	4-7000	7000 3175	1.00 25	7000 127.00	Black*	73	105	152	159	159	159	57	191	191	238	13	13	13		
	4-8400	8400 3810	1.00 25	8400 152.40	Yellow*															
	6-12600	12600 5715	1.00 25	12600 226.80	Yellow*	27/8	41/8	6	63/8	91/2	63/8	21/4	103/4	103/4	125/8	1/2	1/2	1/2		
	6-14310	14310 6491	1.00 25	14310 259.64	Yellow**	73	105	152	161	241	161	57	273	273	321	13	13	13		
	6-15900	15900 7212	1.00 25	15900 288.46	Red*															
	6-17610	17610 7988	1.00 25	17610 319.52	Red**															
	9-18900	18900 8573	1.00 25	18900 342.92	Yellow*	27/8	41/8	7	9	9	9	6	11	—	121/2	1/2	1/2	—		
	9-21485	21485 9736	1.00 25	21485 389.44	Yellow**	73	105	178	229	229	229	152	279	—	316	13	13	—		
	9-23850	23850 10818	1.00 25	23850 432.72	Red*															
	12-25200	25200 11431	1.00 25	25200 457.24	Yellow*	27/8	41/8	7	9	12	9	6	14	—	151/2	1/2	1/2	—		
	12-28620	28620 12982	1.00 25	28620 619.26	Yellow**	73	105	178	229	305	229	152	356	—	394	13	13	—		
	12-31800	31800 14424	1.00 25	31800 578.96	Red*															
	16-33600	33600 15241	1.00 25	33600 609.64	Yellow*	27/8	41/8	8	12	13	12	6	15	—	161/2	1/2	1/2	—		
	16-38160	38160 17309	1.00 25	38160 692.36	Yellow**	73	105	203	305	330	305	152	381	—	419	13	13	—		

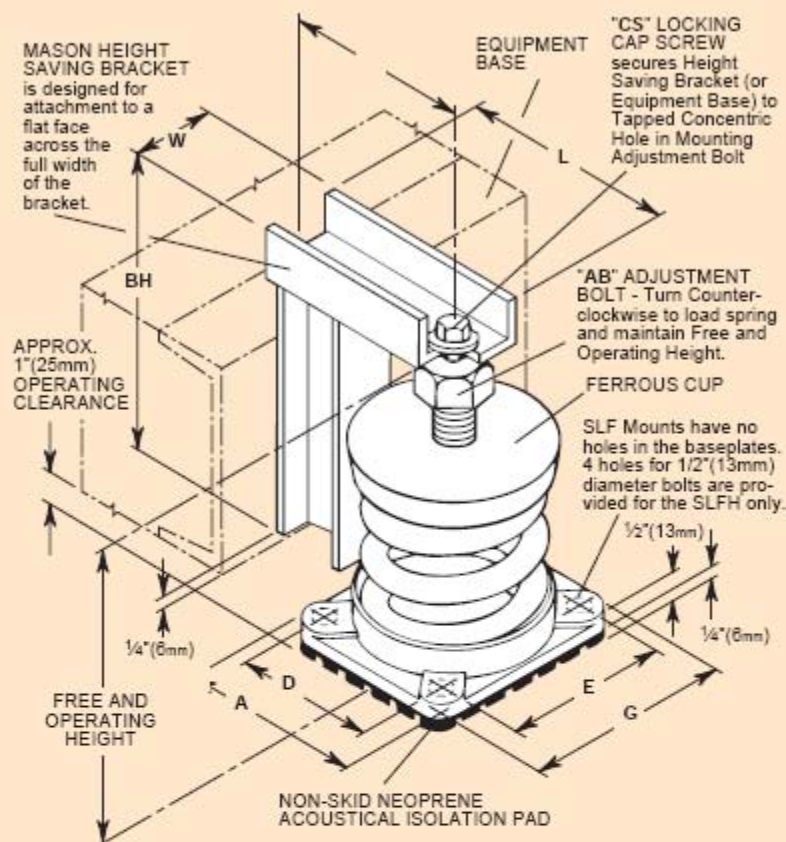
*with RED inner spring **with GREEN inner spring

Mounts in gray area have steel holders top and bottom.

2" (51mm), 3" (76mm), 4" (102mm) & 5" (127mm) Deflection 100 Series

SLF SPRING MOUNTS

Change designation to SLFH when base plate with bolt holes is required.



All springs have additional travel to solid equal to 50% of the rated deflection.
Solid Spring Height = Free Height minus 1.5 times Rated Deflection.

Matching Height Saving Bracket

BE - Bracket Elevation

Type	Size	L (in) (mm)	M (in) (mm)	W (in) (mm)	BH (in) (mm)
2" 51mm Defl.	101-107	8	152	5	127
	108	7 1/2	191	6 1/2	165
	109	7 1/2	191	6 1/2	165
	110	8 1/4	210	7 1/4	184
	111	8 1/4	210	7 1/4	184
	112	8 1/4	210	7 1/4	184
	113	12	305	10 1/2	267
	114	12	305	10 1/2	267
	115	12	305	10 1/2	267
	116	12 1/2	318	11	279
3" 76mm Defl.	126-130	7 1/2	191	6 1/2	165
	131	7 1/2	191	6 1/2	165
	132	8 1/4	210	7 1/4	184
	133-137	8 3/4	222	7 3/4	197
	138-139	12 1/2	318	11	279
	140	13	330	11 1/2	292
	141-143	13	330	11 1/2	292
	144-148	14 1/2	368	13	330
	149-153	14 1/2	368	13	330
	154-158	14 1/2	368	13	330
4" 102mm Defl.	159-163	8 1/4	210	7 1/4	184
	164-168	8 1/4	210	7 1/4	184
	169-173	11	279	9 1/2	241
	174-178	14	356	12 1/2	318
	179-183	14 1/2	368	13	330
	184-188	14 1/2	368	13	330
	189-193	14 1/2	368	13	330
	194-198	14 1/2	368	13	330
	199-203	14 1/2	368	13	330
	204-208	14 1/2	368	13	330
5" 127mm Defl.	209-213	14 1/2	368	13	330
	214-218	14 1/2	368	13	330
	219-223	14 1/2	368	13	330
	224-228	14 1/2	368	13	330
	229-233	14 1/2	368	13	330
	234-238	14 1/2	368	13	330
	239-243	14 1/2	368	13	330
	244-248	14 1/2	368	13	330
	249-253	14 1/2	368	13	330
	254-258	14 1/2	368	13	330

Ratings & Dimensions for 2" (51mm) Deflection 100 Series Spring Mounts (inches mm)

Type	Size	Rated Capacity (lbs) (kg)	Rated Defl. (in) (mm)	Mount Constant (lbs/in) (kg/mm)	Spring Color/ Stripe	Spring Only Spring OD Free Height	Free & Oper Ht	A	D	E	G	Adjust- ment Bolt AB	Locking Cap Screw CS
2" 51mm Defl.	101	125	57	2.50	84	50	0.89	Purple	33/4	95	53/4	148	
	102	200	91	2.50	84	80	1.42	Brown	33/4	95	53/4	148	
	103	310	141	2.50	84	125	2.20	Pink	33/4	95	53/4	148	
	104	500	227	2.50	84	200	3.55	Green	33/4	95	53/4	148	
	105	740	336	2.40	81	310	6.51	Red	33/4	95	53/4	148	
	106	1050	476	2.10	53	500	8.98	White	33/4	95	57/8	149	
	107	1400	636	2.00	51	700	12.45	Blue	33/4	95	57/8	149	
SLF-	108	1660	763	2.05	52	810	14.48	Silver	41/2	114	63/4	171	
	109	2250	1021	2.00	51	1125	20.02	Orange	41/2	114	7 1/2	191	
	110	3000	1361	2.00	51	1500	26.89	Gray	5	127	7 1/2	191	
	111	4000	1814	2.00	51	2000	35.57	Tan	5	127	7 1/2	191	
SLFH-	112	5300	2404	2.00	51	2665	47.14	Black	51/2	140	81/2	218	
	113	7100	3221	2.00	51	3550	63.16	Yellow	6	152	83/4	222	
	114	9300	4218	2.00	51	4650	82.71	Blue/Orng	63/4	171	10	254	
	115	12600	5715	2.00	51	6300	112.08	Blue/Red	63/4	171	10	254	
	116	16800	7620	2.00	51	8400	149.41	Blue/White	73/4	197	10 1/8	257	
	117	28500	12927	2.55	65	11175	198.88	Blue/Silver	83/4	222	13 1/8	333	
	118	40000	18144	2.10	53	19000	342.34	Blue/Gray	93/8	238	13 1/8	333	
	119	5300	2404	2.00	51	2665	47.14	Black	51/2	140	81/2	218	
	120	7100	3221	2.00	51	3550	63.16	Yellow	6	152	83/4	222	
	121	9300	4218	2.00	51	4650	82.71	Blue/Orng	63/4	171	10	254	

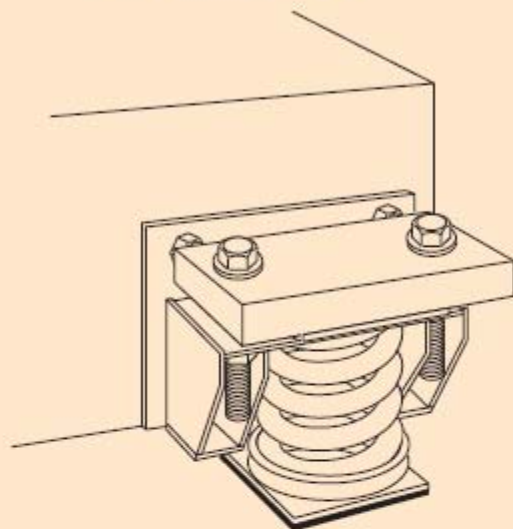
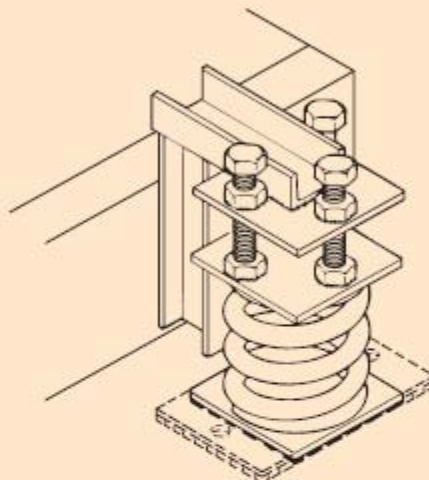
Mounts in gray area have steel holders top and bottom.

Ratings & Dimensions for 3"(76mm), 4"(102mm) & 5"(127mm) Deflection 100 Series Spring Mounts (inches mm)

Type	Size	Rated Capacity (lbs) (kg)	Rated Defl. (in) (mm)	Mount Constant (lbs/in)(kg/mm)	Spring Color/ Stripe	Spring Only Spring OD	Free Height	Free & Oper Ht	A	D	E	G	Adjust- ment Bolt AB	Locking Cap Screw CS	
3" 76mm Defl.	126	195 88	3.25 83	60 1.06	Purple	33/4 95	69/8 162	8 203	41/4 108	31/4 83	4 102	43/4 121	7/8x53/4 x 148	1/2x11/4 x 32	
	127	280 127	3.25 83	85 1.53	Brown	33/4 95	61/2 165	8 203	41/4 108	31/4 83	4 102	43/4 121			
	128	390 177	3.25 83	120 2.13	Orange	4 102	61/2 165	8 203	41/2 114	35/8 92	41/4 108	5 127			
	129	520 236	3.25 83	160 2.84	Green	4 102	7 178	8 1/2 216	41/2 114	35/8 92	41/4 108	5 127			
	130	710 322	3.25 83	220 3.88	Red	4 1/2 114	7 1/4 184	8 1/2 216	5 127	4 102	41/4 108	5 1/4 133			
	131	940 426	3.25 83	290 5.13	White	4 1/2 114	7 1/2 191	9 229	5 127	4 102	41/4 108	5 1/4 133			
	132	1280 581	3.25 83	395 7.00	Blue	5 127	77/8 200	9 1/2 241	5 1/2 140	4 1/4 108	5 1/4 133	6 1/2 165			
SLF- SLFH-	133	1770 803	3.25 83	545 9.67	Black	5 1/2 140	9 1/4 235	11 279	6 152	43/4 121	53/4 146	7 178	1 x 6 x 152	1/2x11/4 x 32	
	134	2490 1129	3.25 83	765 13.60	Yellow	5 1/2 140	9 1/4 235	11 279	6 152	43/4 121	53/4 146	7 178			
	135	3300 1497	3.25 83	1000 18.04	Gray	6 152	9 1/2 241	11 279	65/8 168	5 1/4 133	6 152	7 1/2 191			
	136	4500 2041	3.25 83	1370 24.59	Blue/Brown	63/4 171	9 3/4 235	113/4 298	7 1/2 191	6 1/4 159	6 1/4 159	7 1/2 191			
	137	6200 2818	3.25 83	1900 33.88	Blue/Org	73/4 197	107/8 276	131/4 337	8 1/2 216	7 1/4 194	7 1/4 194	8 1/2 216			
	138	8300 3765	3.25 83	2560 45.36	Blue/Red	73/4 197	11 279	131/4 337	8 1/2 216	7 1/4 194	7 1/4 194	8 1/2 216			
	139	11400 5171	3.25 83	3500 62.30	Blue/White	73/4 197	12 311	131/4 337	8 1/2 216	7 1/4 194	7 1/4 194	8 1/2 216			
SLF- SLFH-	140	15200 6895	3.25 83	4685 83.07	Blue/Silver	83/4 222	123/4 324	161/2 419	9 1/2 241	8 1/2 216	8 1/2 216	9 1/2 241	11/4x8 x 203	5/8x11/2 x 38	
	141	20300 9208	3.25 83	6245 110.94	Blue/Gray	9 1/2 241	13 1/2 343	161/2 419	10 1/2 267	9 1/2 241	9 1/2 241	10 1/2 267			
	142	28400 12882	3.25 83	8750 155.25	Blue/Green	10 1/4 280	15 391	18 457	11 279	10 254	10 254	11 279			
	143	39000 17690	3.25 83	12000 213.13	Blue/Yellow	11 279	16 1/8 410	19 483	12 305	11 279	11 279	12 305			
	150	240 109	4.38 121	55 0.98	Purple	5 127	83/8 213	10	254	5 1/2 140	4 1/4 108	5 1/4 133	6 1/2 165	7/8 x 8 x 203	
	151	330 150	4.38 121	75 1.35	Brown	5 127	8 1/2 213								
	152	420 191	4.38 121	95 1.72	Orange	5 127	83/8 213								
	153	530 240	4.38 121	120 2.16	Green	5 127	83/8 213								
	154	680 308	4.38 121	155 2.77	Red	6 152	87/8 225	103/4 279	65/8 168	5 1/4 133	6 152	7 1/2 191	1 x 8 x 203	1/2x11/4 x 32	
	155	880 399	4.38 121	200 3.69	White	6 152	9 1/8 232	103/4 279	65/8 168	5 1/4 133	6 152	7 1/2 191			
	156	1120 508	4.38 121	255 4.68	Blue	6 152	97/8 251	12 305	65/8 168	5 1/4 133	6 152	7 1/2 191			
SLF- SLFH-	157	1420 644	4.38 121	325 5.80	Black	6 152	10 254	12 305	65/8 168	5 1/4 133	6 152	7 1/2 191			
	158	1840 835	4.38 121	420 7.52	Yellow	63/4 171	103/8 264	12 305	7 1/2 191	6 1/4 159	6 1/4 159	7 1/2 191	1 x 8 x 203	5/8x11/2 x 38	
	159	2370 1075	4.38 121	540 9.68	Gray	63/4 171	11 1/8 283	13 330	7 1/2 191	6 1/4 159	6 1/4 159	7 1/2 191			
	160	3000 1361	4.38 121	695 12.26	Blue/Brown	73/4 197	107/8 276	14 356	8 1/2 216	7 1/4 194	7 1/4 194	8 1/2 216			
	161	3900 1769	4.38 121	895 15.94	Blue/Red	73/4 197	113/8 289	14 356	8 1/2 216	7 1/4 194	7 1/4 194	8 1/2 216			
	162	5100 2313	4.38 121	1155 20.84	Blue/Org	83/4 222	11 1/2 292	14 356	9 1/2 241	8 1/2 216	8 1/2 216	9 1/2 241			
	163	6500 2948	4.38 121	1485 26.56	Blue/White	83/4 222	13 1/4 337	17 432	9 1/2 241	8 1/2 216	8 1/2 216	9 1/2 241	11/2 x 8 x 203	3/4 x 2 x 51	
SLF- SLFH-	164	8400 3810	4.38 121	1910 34.32	Blue/Silver	83/4 222	133/8 340	17 432	9 1/2 241	8 1/2 216	8 1/2 216	9 1/2 241			
	165	10800 4899	4.38 121	2455 44.14	Blue/Gray	93/8 238	14 1/8 359	17 432	10 1/2 267	9 1/2 241	9 1/2 241	10 1/2 267			
	166	13800 6260	4.38 121	3160 56.40	Blue/Green	10 254	153/8 391	19 483	11 279	10 254	10 254	11 279			
	167	17800 8074	4.38 121	4065 72.74	Blue/Yellow	11 279	157/8 403	19 483	12 305	11 279	11 279	12 305			
	168	22900 10387	4.38 121	5235 93.58	Blue/Pink	11 279	17 432	20 508	12 305	11 279	11 279	12 305			
	169	30000 13608	4.38 121	6730 122.59	Blue/Tan	115/8 295	18 457	21 533	13 330	12 305	12 305	13 330	2 1/2 x 8 x 203	1 1/4 x 3 x 76	
5" 127mm Defl.	174	70 122	5.31 135	50 0.90	Purple	6 152	97/8 251	12	305	65/8 168	6 1/4 159	6 1/4 159	7 1/2 191		
	175	320 145	5.31 135	60 1.07	Brown	6 152	10 1/8 256								
	176	370 168	5.31 135	70 1.24	Orange	6 152	10 254								
	177	460 209	5.38 137	85 1.53	Green	6 152	10 1/2 267								
	178	560 254	5.38 137	105 1.85	Red	6 152	103/4 273	131/2 343	65/8 168	6 1/4 159	6 1/4 159	7 1/2 191			
	179	670 304	5.38 137	125 2.22	White	63/4 171	11 1/8 281	131/2 343	7 1/2 191	7 1/4 184	7 1/4 184	7 1/2 191			
	180	830 376	5.38 137	155 2.74	Blue	63/4 171	113/8 289					1 x 10 x 254	1/2x11/4 x 32		
	181	1000 454	5.38 137	185 3.31	Black	63/4 171	11 1/8 283								
SLF- SLFH-	182	1240 562	5.37 138	230 4.13	Yellow	63/4 171	113/8 289								
	183	1500 680	5.37 138	280 5.00	Gray	73/4 197	127/8 316	15	391	8 1/2 216	7 1/4 184	8 1/2 216	11/4 x 10 x 254	5/8x11/2 x 38	
	184	1830 830	5.37 138	340 6.10	Pink	73/4 197	117/8 302								
	185	2230 1012	5.37 138	415 7.44	Silver	73/4 197	12 305								
	186	2710 1229	5.37 138	505 9.04	Tan	73/4 197	123/4 324								
	187	3300 1497	5.37 138	615 11.01	Blue/Org	83/4 222	123/4 324								
	188	4100 1860	5.37 138	755 13.68	Blue/Red	83/4 222	133/8 340								
SLF- SLFH-	189	4900 2223	5.37 138	915 16.35	Blue/White	9 1/8 230	137/8 341	17 1/2 445	10 1/2 267	9 1/2 241	9 1/2 241	10 1/2 267	11/2 x 10 x 254	3/4 x 2 x 51	
	190	6000 1852	5.37 138	1120 20.01	Blue/Yel	9 1/2 241	145/8 371								
	191	7300 2252	5.37 138	1365 24.35	Blue/Silver	9 1/2 241	153/8 388								
	192	9000 2777	5.37 138	1670 30.01	Blue/Gray	10 1/4 260	155/8 397								
	193	11000 3395	5.37 138	2040 36.69	Blue/Tan	10 1/4 260	16 406								
	194	13300 6033	5.37 138	2482 44.36	Blue/Brown	11 279	16 1/4 413	19 483	12 305	11 279	11 279	12 305	2 x 10 x 254	1 x 2 1/2 x 64	
	195	16300 7394	5.37 138	3028 54.37	Blue/Pink	113/8 289	17 1/8 435								
	196	19800 8981	5.37 138	3694 66.04	Blue/Black	115/8 295	18 457								
	197	24200 10977	5.37 138	4506 80.71	Blue/Green	13 330	19 1/2 465								
	198	29000 13154	5.27 134	5500 98.16	Blue/Purple	13 330	19 1/8 486								

Mounts in gray area have steel holders top and bottom.

Alternate bracket and spring adjustment methods to improve stability and appearance when using 4" (102mm), 5" (127mm) and greater deflection springs.

PULL-DOWN BRACKET**3 ADJUSTMENT BOLTS**

SPRING CHARACTERISTICS

Spring Size	Rated Deflection	Ratio Kx/Ky	Ratio OD/OH	Spring Size	Rated Deflection	Ratio Kx/Ky	Ratio OD/OH
X	1.00-1.30	0.75-1.00	0.92-1.40	101-118	2.00-2.55	0.71-1.10	0.82-1.15
A	1.00-1.60	0.50-0.90	0.74-1.25	126-143	3.25	0.72-1.00	0.85-1.36
B	1.00-2.10	0.70-0.90	0.80-1.25	150-169	4.38	0.80-1.10	0.85-1.33
C & Multiples	1.00	0.90-1.10	0.92	174-198	5.27-5.38	0.70-1.00	0.92-1.31

PRODUCT FINISHES

All standard products have a painted finish unless otherwise indicated.

Special finishes include:

- Zinc Chromate
- Neoprene Dipping
- Cold Galvanized Paint
- Epoxy Finish
- Hot Dipped Galvanized Holders with Electro-Galvanized or Cadmium Plated Hardware, depending on size and method of attachment. Springs in these holders will be made rust resistant.



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NOISE & VIBRATION CONTROL

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