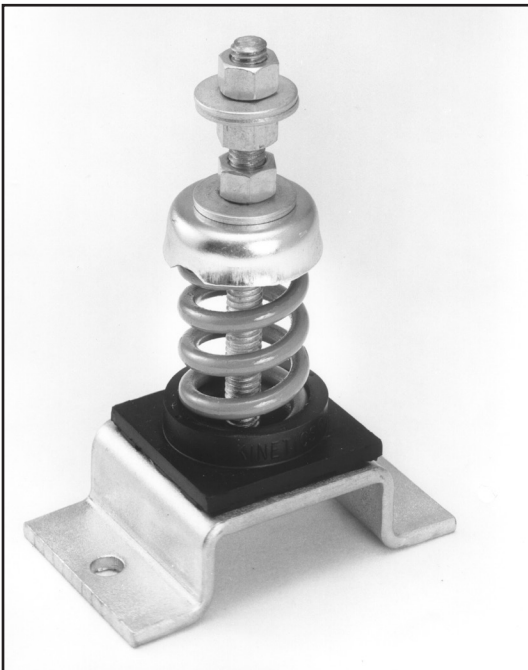


KINETICS™

Restrained Spring Isolators Model FRS

Description

Kinetics Model FRS vibration isolators consist of free-standing, large diameter, stable steel springs assembled into top and bottom load plate assemblies, which provide vertical restraint in the event load is removed or external forces are applied. Spring elements are complete with 1/4 in. (6 mm) thick noise isolation pads, and they have an adjusting and leveling bolt as part of the top load plate assembly. Holes are provided for bolting to the structure, and the leveling bolt allows attachment to the supported equipment. To assure stability, the springs have a lateral stiffness greater than 0.8 times the rated vertical stiffness, and are designed to provide a minimum of 50% overload capacity. FRS springs are available with deflections from 1.00" to 2.00" (25 mm to 51 mm), and with capacities from 35 to 3500 lbs. (16 kg to 1588 kg).



Application

Model FRS vertically restrained spring isolation mounts are recommended as a noise and vibration isolator for mechanical equipment located near critical areas, when it is desired to limit upward travel during high wind loads, maintenance, or where external forces are brought to bear on the supported equipment.

Kinetics Model FRS spring isolators are recommended for the isolation of vibration produced by equipment subject to weight change or external forces, such as air-cooled condensers, fans, and other rooftop equipment. Model FRS springs are also recommended for the support of vertical pipe risers, where upright motion must be limited, yet the riser isolated from the building.

Operating static deflections are available up to 2.00" (51 mm), in capacities of up to 3500 lbs. (1588 kg).

Dimensions and Capacities

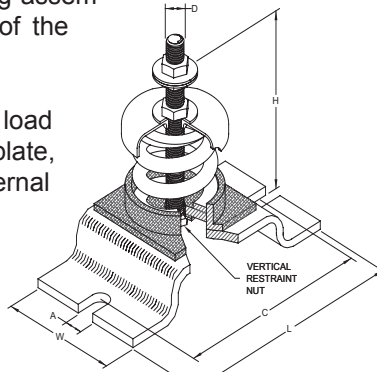
Type	Spring color	Rated Capacity		Rated Deflection		Spring O.D.		Free Height		L		W		C		A		H		D	
		lbs	kg	in	mm	in.	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
FRS-1-35	Blue	35	16	1.52	39	1.75	44	3.19	81	4.75	121	3.00	76	3.75	95	0.44	11	6.00	152	0.50	13
FRS-1-70	Green	70	32	1.36	35	1.75	44	3.19	81	4.75	121	3.00	76	3.75	95	0.44	11	6.00	152	0.50	13
FRS-1-120	Gray	120	54	1.18	30	1.75	44	3.19	81	4.75	121	3.00	76	3.75	95	0.44	11	6.00	152	0.50	13
FRS-1-220	Brown	220	100	1.07	27	1.75	44	3.19	81	4.75	121	3.00	76	3.75	95	0.44	11	6.00	152	0.50	13
FRS-1-370	Orange	370	168	0.96	24	1.75	44	3.19	81	4.75	121	3.00	76	3.75	95	0.44	11	6.00	152	0.50	13
FRS-1-500	Beige	500	227	1.00	25	1.75	44	3.19	81	4.75	121	3.00	76	3.75	95	0.44	11	6.00	152	0.50	13
FRS-1-600	Chrome	600	272	1.00	25	1.75	44	3.19	81	4.75	121	3.00	76	3.75	95	0.44	11	6.00	152	0.50	13
FRS-1-700	Bge/Wht	700	318	1.00	25	1.75	44	3.19	81	4.75	121	3.00	76	3.75	95	0.44	11	6.00	152	0.50	13
FRS-1-805	Chr/Wht	805	365	1.01	26	1.75	44	3.19	81	4.75	121	3.00	76	3.75	95	0.44	11	6.00	152	0.50	13
FRS-1-150	Beige	50	23	1.00	25	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-100	Chrome	100	45	1.00	25	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-250	Blue	250	113	1.79	45	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-450	Green	450	204	1.54	39	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-625	Black	625	283	1.44	37	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-800	Gray	800	363	1.31	33	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-1000	Red	1000	454	1.15	29	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-1250	Brown	1250	567	1.09	28	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-1700	Orange	1700	771	0.95	24	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-2200	Org/Gry	2200	998	1.00	26	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-2465	Blue	2465	1118	1.00	25	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-2865	Blue/Gry	2865	1300	1.00	25	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-1-3500	Blue/Brn	3500	1588	1.00	25	3.00	76	4.20	107	8.00	203	4.50	114	6.50	165	0.69	17	9.00	229	0.63	16
FRS-2-100	Gray	100	45	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-135	Beige	135	61	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-185	Brown	185	84	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-225	Gray/Brn	225	102	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-250	Blue	250	113	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-375	Blue/Brn	375	170	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-500	Green	500	227	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-625	Gm/Brn	625	283	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-750	Black	750	340	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-875	Blk/Brn	875	397	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-995	Orange	995	451	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-1120	Org/Brn	1120	508	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-1400	Org/Grn	1400	635	2.01	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-1600	Red	1600	726	2.00	51	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16
FRS-2-1975	Red/Grn	1975	896	1.98	50	3.50	89	6.09	155	8.00	203	4.50	114	4.50	165	0.69	17	11.00	279	0.63	16

Specifications

Vibration isolators for equipment which is subject to load variations, wind loads, or large external or torquing forces shall consist of large diameter, laterally stabile steel springs assembled into formed or structural steel mounting assemblies designed to limit vertical movement of the supported equipment.

The assembly shall incorporate a bottom load plate and restraint assembly, a top load plate, a leveling and restraining bolt, and an internal noise isolation pad.

Isolators shall be provided with means for anchoring to the supporting structure and for attachment to the supported equipment.



Spring elements shall have a lateral stiffness greater than 0.8 times the rated vertical stiffness and shall be designed to provide a minimum of 50% overload capacity.

Springs shall be selected to provide operating static deflections shown on the Vibration Isolation Schedule or as indicated on the project documents. Springs shall be color coded or otherwise identified to indicate load capacity.

Vibration isolators shall be Model FRS, as manufactured by Kinetics Noise Control, Inc.



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