



## **KINETICS® FHS & FHSL**

### **SEISMIC CONTROL SPRING ISOLATORS**

---

#### **Features**

- All-directional restraint with vertical limit stops.
- Field-interchangeable spring coils.
- Galvanized housing and polyester powder coated coils.
- Constant free height & operating height.
- Equipment motion limited to 0.2" (5 mm) in all directions, at the isolator.
- California Pre-Approval Number R-0433

#### **Application**

Kinetics FHS and FHSL seismic control spring isolators are recommended for noise and vibration isolation for mechanical equipment located near critically quiet areas when there is a possibility that the equipment to be isolated will be subjected to the external forces associated with an earthquake. FHS/FHSL isolators are used to reduce the transmission of noise and vibration into supporting structures from supported mechanical equipment. Motion during an earthquake which would otherwise displace life support and emergency equipment is limited, and the equipment remains in position. Anchorage of FHS/FHSL isolators should be designed by a professional engineer and isolators selected based on calculated anticipated forces.

#### **Description**

FHS/FHSL seismic control spring isolators meet the specifications for Kinetics FDS isolators. Additionally, FHS isolators include a steel housing assembly to limit both lateral and vertical movement of the supported equipment during an earthquake without degrading the vibration isolation of the spring during normal equipment operating conditions.

FHS/FHSL isolators incorporate a steel housing which encloses a neoprene snubber. Depending on the load and seismic code, an optional steel load spreader plate may be applied to distribute the load among concrete anchors. A neoprene pad fitted in series with the spring is provided. Equipment attachment is by way of a bolt screwed downward through the equipment foot. Equipment motion is limited to approximately 0.2" (5 mm) in any direction, at the isolator. In conformance with all current building code standards, the restraining system is designed to withstand a minimum 1.0 g acceleration force. Removal of the isolator for servicing is quick and easy as the isolator is not fitted with a protruding stud.

## Specifications

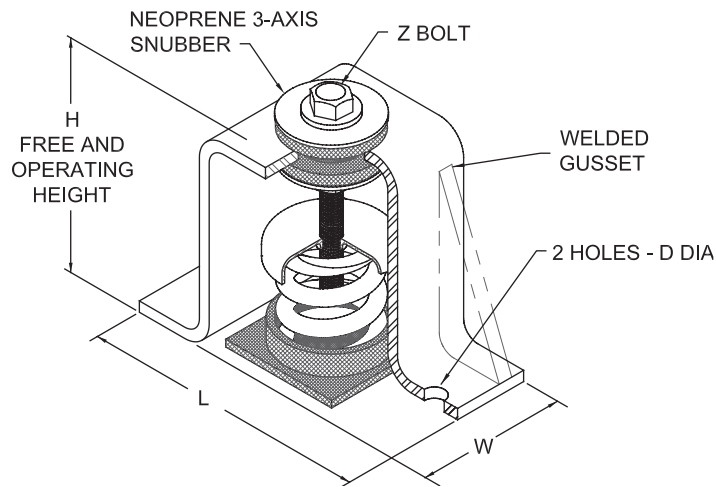
Spring isolators shall be seismic control restrained spring isolators, incorporating a single vibration isolator, having all the characteristics of Kinetics FDS open spring isolators as previously specified. Springs shall be restrained using a housing engineered to limit both lateral and vertical movement of the supported equipment during an earthquake without degrading the vibration isolation of the spring during normal equipment operating conditions.

Vibration isolators shall incorporate a steel housing and snubbing grommet system designed to limit motion to approximately 0.2" (5 mm) in any direction and to prevent any direct metal-to-metal contact between the supported member and the fixed housing. The restraining system shall be designed to

withstand a force equivalent to 1.0 g in any lateral or vertical direction without yield or failure. Where the capacity of the anchorage hardware in concrete is inadequate for the required seismic loadings, an adapter plate to allow the addition of more or larger anchors will be fitted to fulfill these requirements. In addition to the primary isolation spring, the load path will include a minimum 0.25 inch (6mm) thick neoprene pad.

To facilitate servicing, the isolator will be designed in such a way that it can be removed without the requirement to lift or otherwise disturb the supported equipment.

Spring isolators shall be model FHS and FHSL as manufactured by Kinetics Noise Control.



Isolator Type	Spring Color	Rated Capacity		Rated Deflection		Spring O.D.		L		W		H		D		Z	
		lbs.	kg	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
FHSL-1-35	Blue	35	16	1.52	39	1.75	44	7.31	186	3.00	76	6.00	152	0.56	14	0.50	13
FHSL-1-70	Green	70	32	1.36	35	1.75	44	7.31	186	3.00	76	6.00	152	0.56	14	0.50	13
FHSL-1-120	Gray	120	54	1.18	30	1.75	44	7.31	186	3.00	76	6.00	152	0.56	14	0.50	13
FHSL-1-220	Brown	220	100	1.07	27	1.75	44	7.31	186	3.00	76	6.00	152	0.56	14	0.50	13
FHSL-1-370	Orange	370	168	0.96	24	1.75	44	7.31	186	3.00	76	6.00	152	0.56	14	0.50	13
FHSL-2-25	Gray	25	11	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-50	Blue	50	23	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-83	Blue/Gray	83	38	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-116	Blue/Blue	116	53	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-150	Green	150	68	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-183	Green/Gray	183	83	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-216	Green/Blue	216	98	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-245	Black	245	111	1.96	50	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-278	Black/Gray	278	126	1.96	50	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-311	Black/Blue	311	141	1.97	50	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-350	Beige	350	159	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-383	Beige/Gray	383	174	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13
FHSL-2-416	Beige/Blue	416	189	2.00	51	3.00	76	9.53	242	5.00	127	8.00	203	0.56	14	0.50	13



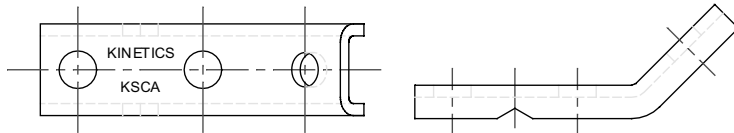
# KINETICS®

## Seismic Restraint for Isolated and Suspended Mechanical Equipment

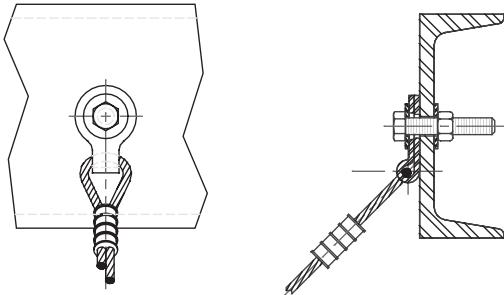
for -

- Piping
- Fans
- VAV & Fan Terminal Boxes
- Silencers & Mufflers
- Ductwork
- Air Handlers

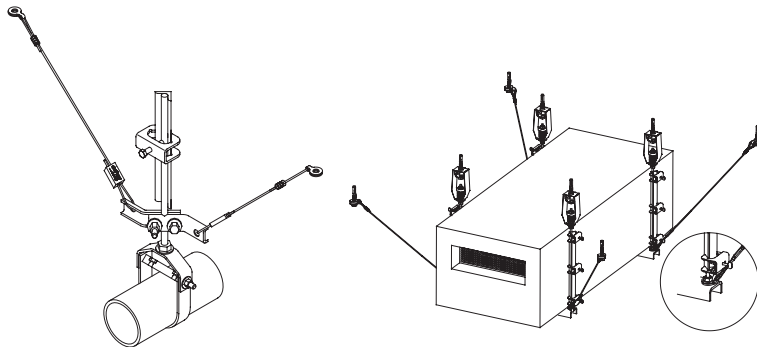
### Kinetics KSCA Cable Attachment Bracket



### Kinetics KSUA Cable Attachment Bracket



### Kinetics KSUA Cable Attachment Bracket

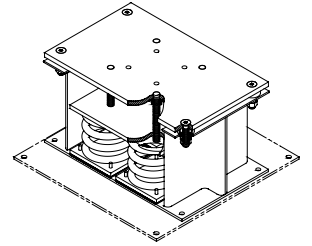


# KINETICS®

## Floor-Mounted Seismic Restraints

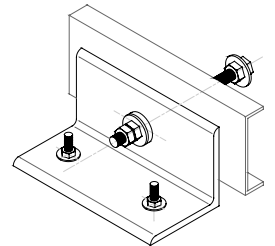
### Restrained Spring Isolators Model FLSS

- Combination spring isolator & seismic restraint
- All-directional restraint with vertical limit stops



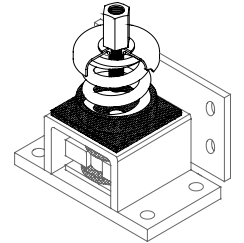
### Seismic Snubber Model HS-5

- Double axis horizontal and vertical seismic restraint
- Standard capacities to 3,275 lbs.
- Can be bolted or welded in place

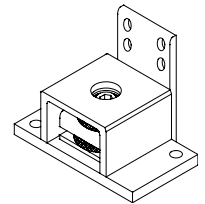


### Modular Restraint/Isolator Model FMS

- Can be used as a restraint device or as a seismically rated vibration isolator assembly
- Restraint components are available in 8 sizes with horizontal force ratings to 70,000 lbs.
- Standard isolation elements are available to 4" deflection with support capacities to 23,000 lbs.
- Ideal for equipment mounted on structural frame or concrete inertia bases



Kinetics FMS with isolator



Kinetics FMS without isolator



kineticsnoise.com  
sales@kineticsnoise.com  
1-800-959-1229