

# KINETICS®

## Fiberglass Isolators

### Model KIP

#### Description

KIP fiberglass noise, shock, and vibration isolation pads offer many advantages versus natural rubber, neoprene, or other elastomeric pads. Uniquely permanent and dynamically predictable, due to precise manufacturing methods using inorganic materials, this isolation media provides freedom of design and use unprecedented by any other material.

KIP fiberglass pads are a high-density matrix of compressed molded fiberglass; individually coated with a flexible, moisture-impervious elastomeric membrane, designed to allow controlled air movement in the fiber media. The pumping action of air between fibers provides viscous damping, reducing motion caused by transient shock and vibration.

A range of sizes, densities, and spring rates are available to provide load-bearing capacities from 5 to 500 PSI (0.35 to 35 kg per sq. cm) of pad surface area. The matrix of glass leaf springs is bonded at all fiber intersections with a water-resistant binder during the molding process, under controlled heat and pressure. The material is then stabilized by ten (10) precompression cycles to 300% the maximum published load capacity for the media.

KIP isolation pads uniquely allow a wide range of loading on a given isolator while maintaining a constant natural frequency. Natural frequency of KIP fiberglass media is controlled by isolator thickness rather than static deflection as with linear steel springs. To determine the natural frequency for other than 1" (25 mm) isolator thickness, the 1" (25 mm) thick isolator natural frequency is divided by the square root of the actual thickness to be used, i.e. the natural frequency of a 4" (102 mm) thick isolator is one-half the natural frequency of a 1" (25 mm) isolator at the same load for the same density material.

KIP pads unique as a structural support in that applied loads are substantially below precompression loads thus providing 200% overload safety factor. The result is permanent resiliency with constant natural frequency.

KIP fiberglass isolation pads are non-corrosive, non-combustible, non-absorbent, and resists rust, ozone, mildew and fungus. It is vermin proof, will not shrink, swell, or decompose. Isolation characteristics of the media are constant over a temperature range of -40°F to 250°F (-40°C to 121°C).



#### Features

- Inorganic fiberglass media
- Flexible elastomeric coating
- Constant natural frequency in wide load range
- Permanent and predictable resiliency
- Predictable dynamic response
- High-energy dissipation
- Controlled viscous damping
- Load capacities 5 PSI to 500 PSI (0.35 to 35 kg per sq. cm.)

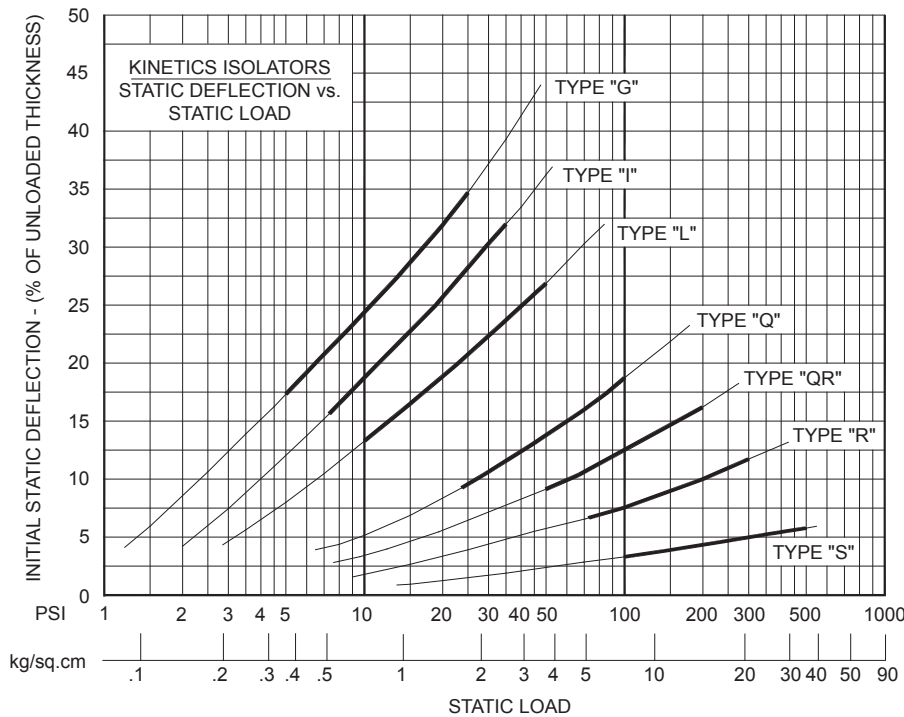
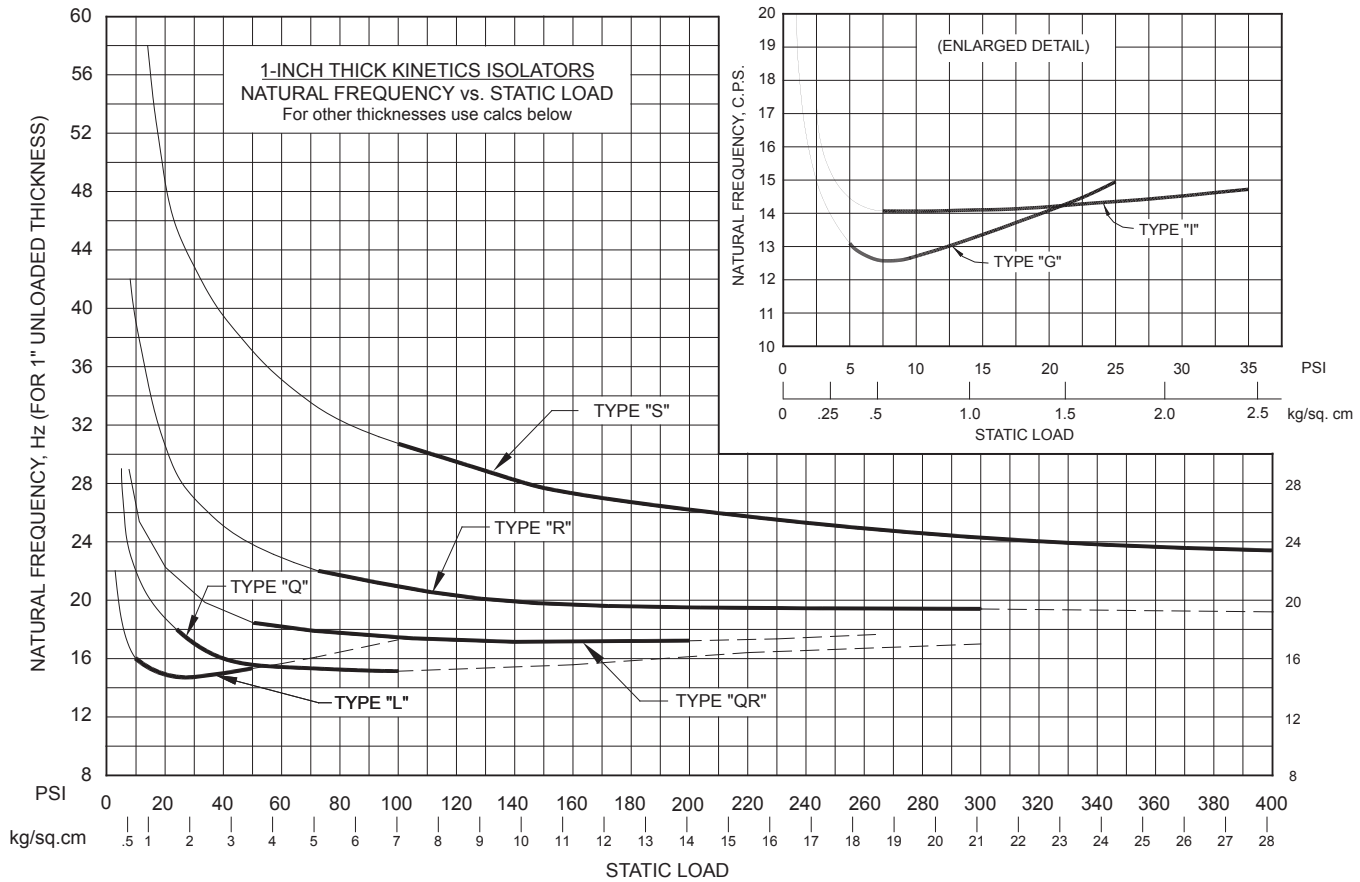
#### Application

KIP fiberglass isolators can be applied in a wide range of noise, shock, and vibration isolation uses, and are recommended whenever predictable dynamic response and permanent load support characteristics are important. KIP fiberglass isolators are available in a wide range of standard and special mount configurations for various load ranges, natural frequencies, and other support characteristics.

Typical noise isolation applications include the use of KIP fiberglass isolators integrated into RIM and FC to create high STC and IIC floating floors.

Typical shock isolation applications include the use of KIP fiberglass isolators as support mounts for punch presses, metal shears, and similar industrial process machinery.

Typical vibration isolation applications include the use of KIP fiberglass isolators as support mounts for high speed fans, pumps, and chillers, on grade, having operating speeds of 1750 RPM and higher.



**To determine natural frequency for other thickness KIP pads.**

- for 1/2" (13 mm) pads, multiply 1" (25mm) natural frequency by 1.41
- for 1-1/2" (38 mm) pads, multiply 1" (25mm) natural frequency by 0.82
- for 2" (51 mm) pads, multiply 1" (25mm) natural frequency by 0.71
- for 3" (76 mm) pads, multiply 1" (25mm) natural frequency by 0.58
- for 4" (102 mm) pads, multiply 1" (25mm) natural frequency by 0.50

**Note:** Enlarged portion of curves indicates the optimal load range for various Model KIP isolators used in typical applications. Model KIP selection for floors exposed to **high impact/shock loads** will vary depending on the floor construction. Factors such as mass and stiffness of the floor assembly as well as stiffness of the entrapped air can affect the actual loads to which individual isolators are exposed under dynamic conditions. Lightweight plywood floor assemblies on KIP are not recommended for heavy shock load (weight drop) applications. Please contact Kinetics Noise Control Engineering Group for design guidelines to ensure proper isolator selection for this type of service.



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