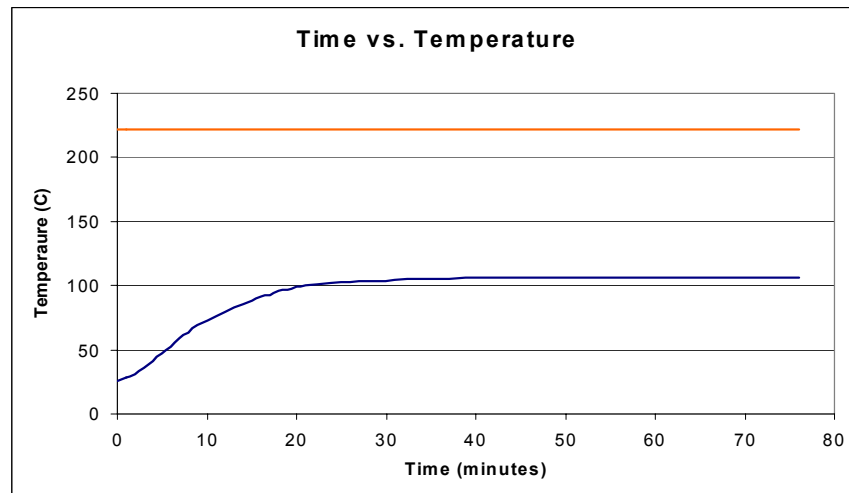




Thermal Isolator for IEPE accelerometers

In high temperature applications which exceed the temperature limits of IEPE (Integrated Electronic Piezo-Electric) accelerometers, and where the cost or the disadvantages of charge-type accelerometers and charge amplifiers are prohibitive, it is possible to use a Thermal Isolator with a low cost IEPE type accelerometer to measure vibration on elevated temperature surfaces. It is important to note that ambient temperature must be substantially lower for any significant reduction in temperature at the accelerometer mounting surface.

As an example, a Thermal Isolator was tested on a surface with a constant 220 C temperature, with an ambient, circulating air temperature of 22 C. The graph below shows the temperature response at the opposite end of the Thermal Isolator (the accelerometer mounting surface). The red line represents the surface temperature, while the blue line represent the accelerometer mounting surface. An equilibrium temperature of 105 C was reached after approximately 30 minutes operation. This represents a differential of 115C, which is likely the highest temperature differential we might expect to achieve. It is most important to note that except for the Thermal Isolator's low thermal conductivity, the cool, circulating air is the largest factor allowing this temperature differential. Since most IEPE accelerometers will function to 120 C, we can conclude that it is possible to use IEPE accelerometers with a Thermal Isolator on surface temperatures up to 235 C and still obtain reasonable data, without damaging the sensor. Note that in the long term, accelerometer life will be reduced at higher temperatures.

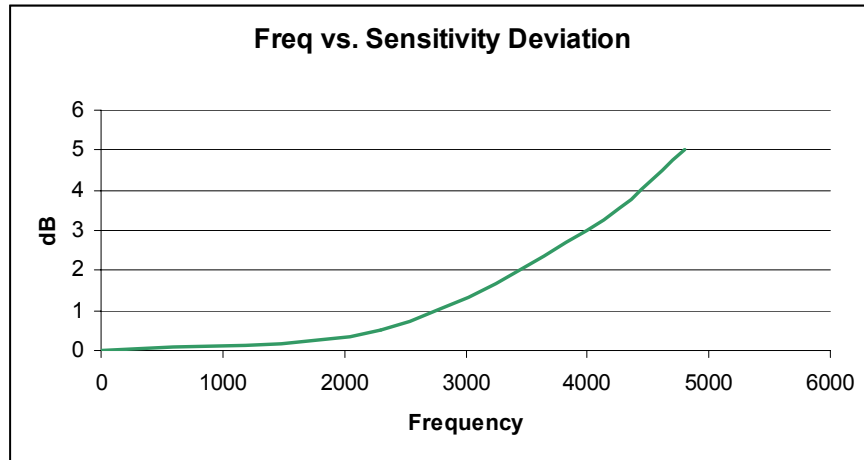


Equipment Used: xxx Hotplate, Fluke xxxx, Model 1018 accelerometer



Thermal Isolator for IEPE accelerometers

The graph below represents the distortion in frequency response using a Thermal Isolator. A 3 dB deviation of frequency response is reached at 4 KHz, so we can conclude the unit may be satisfactory for applications focused on frequencies less than 4 kHz.



Features

- Durable ceramic/stainless steel construction
- Allows use if IEPE accelerometers on extended temperature surfaces
- Up to 115 C (240 F) temperature differential, depending on ambient temperature

Operating Specifications

Dynamic

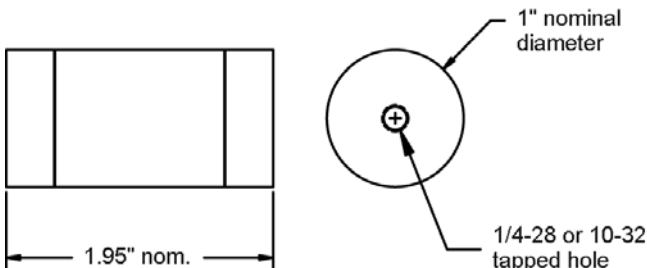
Frequency Range	1 Hz – 2.3 kHz
±5%	1 Hz – 4 kHz
±3dB	±75 g peak
Amplitude Range	5 kHz
Mounted Resonance	

Environmental

Temperature Range	Material maximum 700 F / 370 C
Shock Limit	75 g peak

Physical

Physical Dimensions	1.95" h x 1.0" diameter 5cm x 2.5cm diameter
Weight	4.2 oz. / 118 grams
Material	Ceramic, stainless steel
Design	Epoxy/Threaded assembly
Mounting	¼-28, or 10-32 tapped
Mounting Torque	25 in - lb. (2.8 N-m)



For more information about Vibra-Metrics products, call us today at 609-716-4130, or visit us on-line at www.vibrametrics.com



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