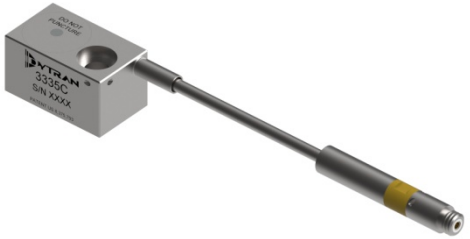
Model 3335C: Ultra High Temperature Accelerometer

SENSORS THAT DRIVE INNOVATION

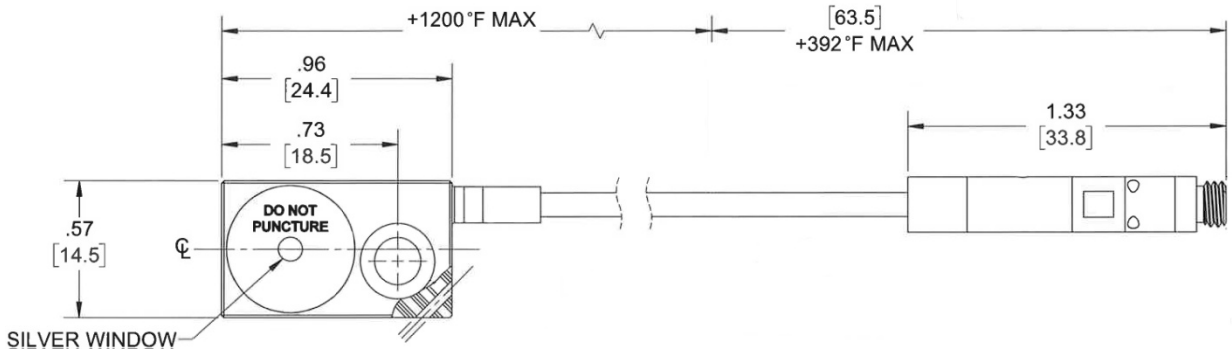
What Can This Product Do for You?:



- Electrically isolated, charge mode accelerometer operates at extremely high temperatures up to 1200°F (649°C), and can take temperature excursions up to 1,400°F (760°C)
- High performance and long durability
- Small size makes it ideal for use in locations inaccessible to larger high temperature accelerometers
- Integrated hard line cable is robust and survives harsh environments to transmit a reliable signal to the data acquisition unit
- Design considerations make model 3335C able to sustain severe thermal shocks and harsh conditions
- Uses better designed crystals and internal elements that are made with a perfect match of coefficient of thermal expansions, and high temperature alloys that assure there are no corrosion issues
- Cost Effective - robust sensor at a competitive price

Specification Summary:

- 1-2 pC/g sensitivity
- [4] to 2500 Hz frequency range (±5%)
- Operating temperature: 1200°F (649°C)
- Charge mode, electrically isolated
- Weight: 35 grams
- Hermetically sealed
- 10-32 axial connector
- Case ground isolated
- Mounting screw, Model 6971
- Integral stainless steel hard-line cable
- Housing and internal components are made from super alloy Inconel™ 600



Applications:

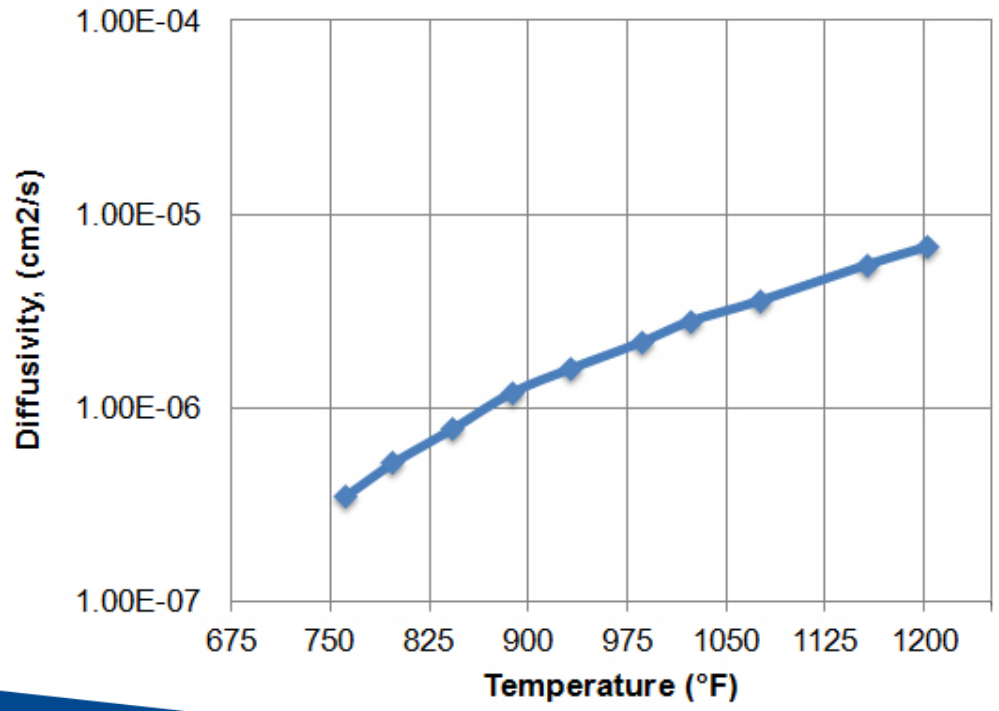
- Gas and turbine engine testing
- Automotive vibration studies
- Nuclear reactor cooling tubes
- Exhaust system NVH analysis
- Catalytic converter studies
- Environmental Stress Screening
- Rocket engine testing
- General purpose high temperature vibration measurements

Main Design Features:

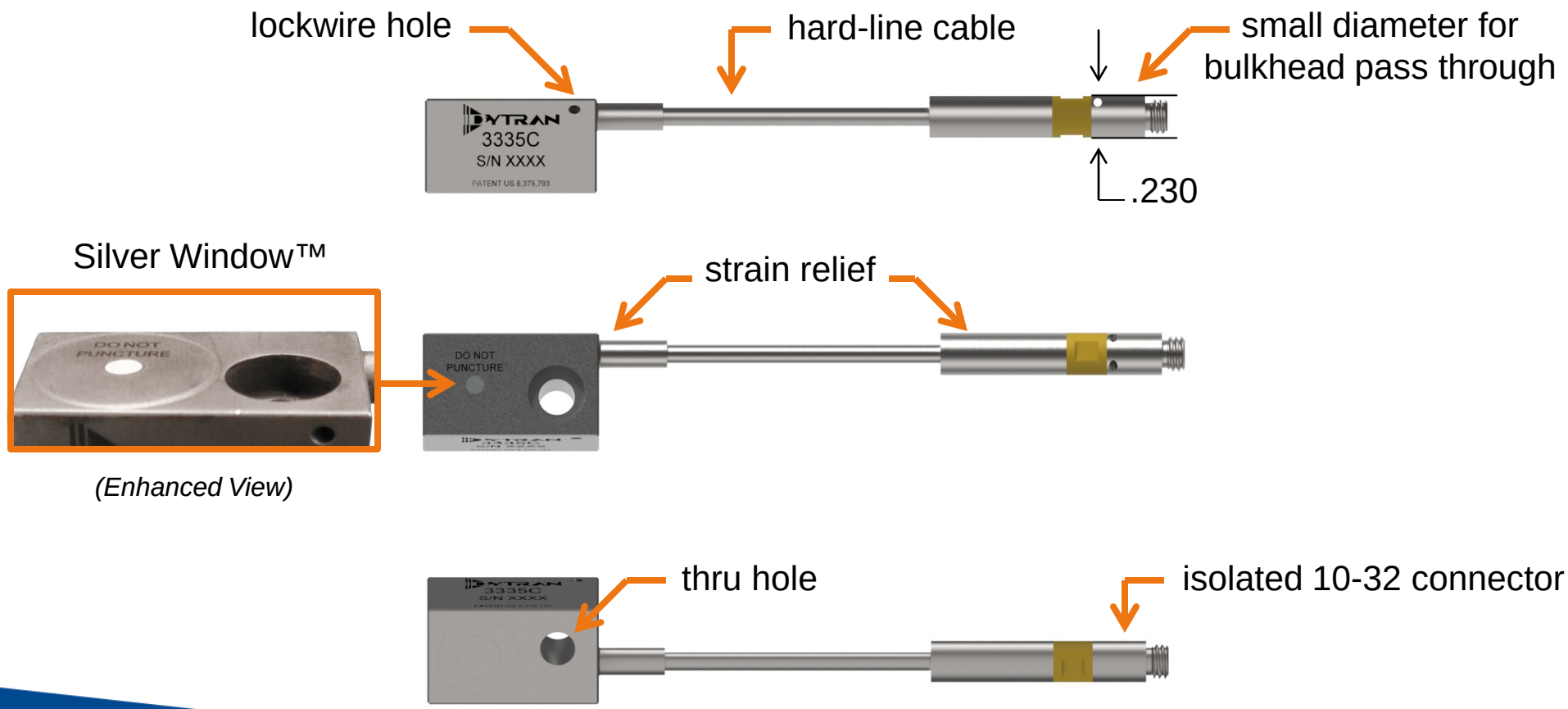
- Employs patented Silver Window™ technology: A "silver window" on the top cover of the accelerometer housing allows a diffused oxygen molecule to pass through at high temperatures, replenishing oxygen to the crystal while maintaining the hermetic seal integrity. This innovative feature assures continued high temperature operation with no loss of insulation resistance due to oxygen deprivation.
- Housing and internal components are made out of super alloy Inconel™ 600. This metal alloy has better electrochemical compatibility with steels and alloys utilized in high temperature applications, thus avoiding galvanic corrosion with the test structure.
- Internal electrical isolation independent of sensing element, adding robustness
- Lockwire hole capability added for securing the sensor to the structure
- Rated to 649°C with allowable excursions to 760°C

Typical Diffusivity Rate of O_2 Through Silver Metal:

- As the temperature rises, the Silver Window™ allows more oxygen ingress into the sensing element. This feature replenishes oxygen to the crystal and assures continued high temperature operation with minimal loss of insulation resistance due to oxygen depravation.

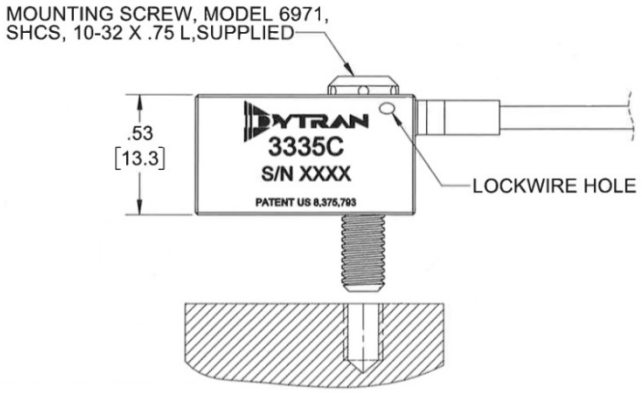


Product Functionality:



Installation:

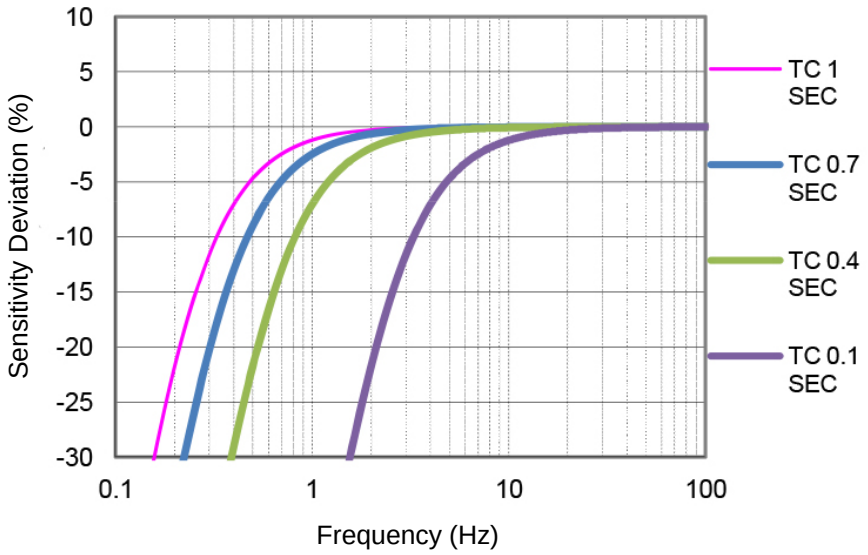
1. Select a smooth surface at least 1.0in x 1.0in. Clean off all oil, debris and any contaminants or foreign matter that would preclude good contact between mating surfaces. This is important for best frequency response.
2. The selected mounting area should be flat to within .001 in TIR for best high frequency response.
3. Install the accelerometer to the test surface using the supplied 10-32 screw (Model 6971). Torque unit to 10-12 lb-in.
4. Connect the accelerometer to the charge amplifier using extension hard-line cables (Dytran Models 6979A, 60016A or 6946A) or, if the test temperature is not greater than 400°F, a low noise miniature coaxial cable such as Dytran Model 6013A (10-32 to 10-32).
5. If a fair amount of motion is expected during the test, it is good practice to tie the cables down to a stationary point as close as possible to the accelerometer (but not closer than 1 inch) to avoid potentially damaging cable whip.
6. You are now ready to connect model 3335C to the charge amplifier. Since the insulation resistance of model 3335C at the high end of its temperature range might drop to hundreds of kilo-ohms, there is a need for a special charge amplifier that would be able to accept such a low level of insulation resistance. For that purpose, Dytran model 4754B in-line charge amplifier would be a suitable choice.



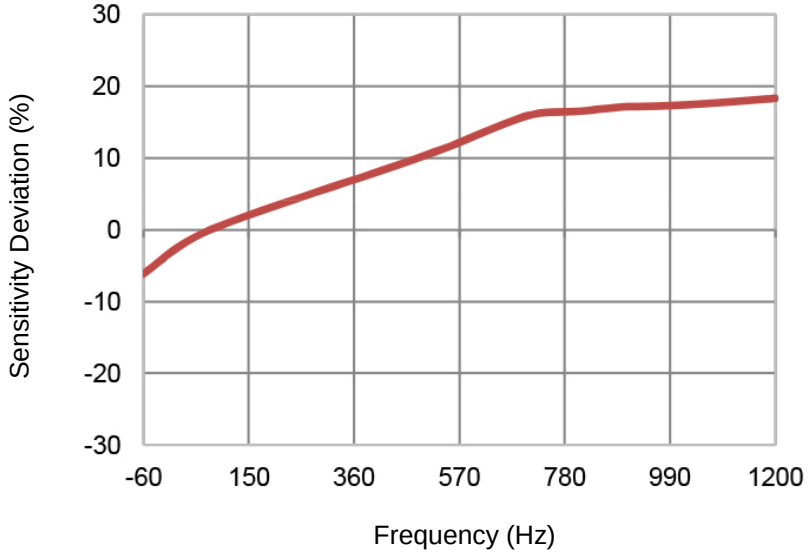
Typical Frequency and Temperature Response:

TYPICAL LOW FREQUENCY RESPONSE

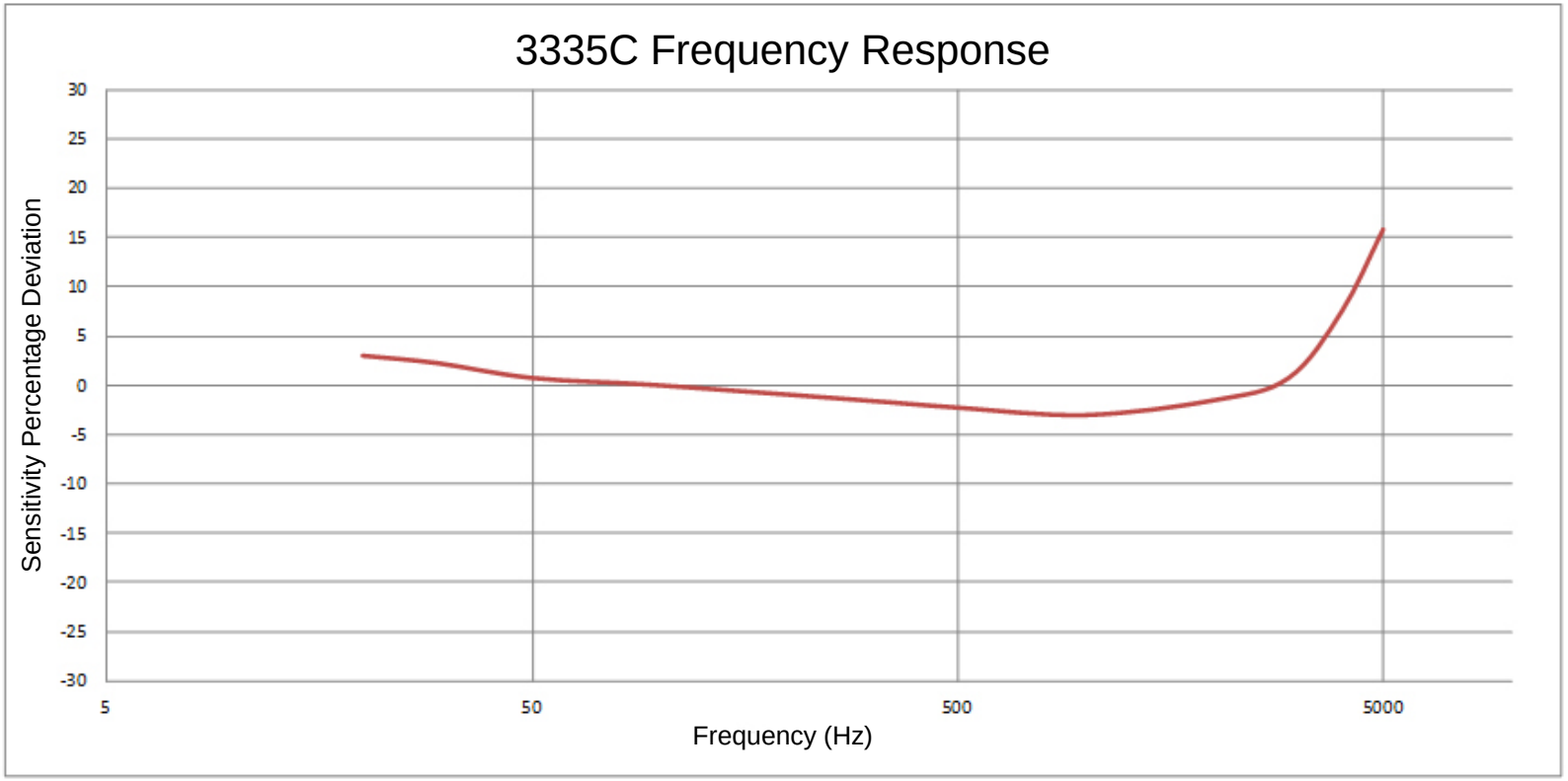
(Dependent upon charge amplifier specifications and sensor insulation resistance)



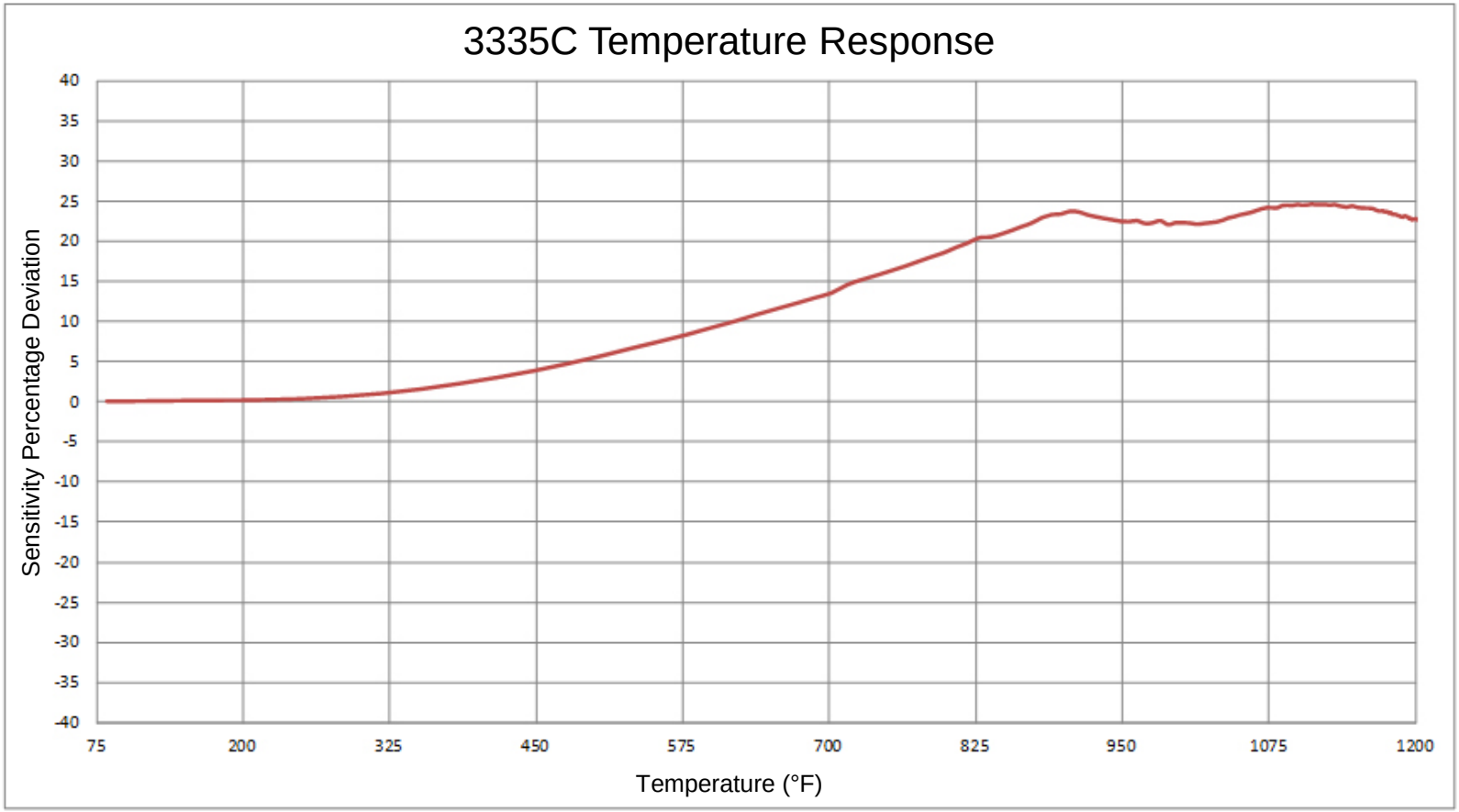
TYPICAL TEMPERATURE RESPONSE



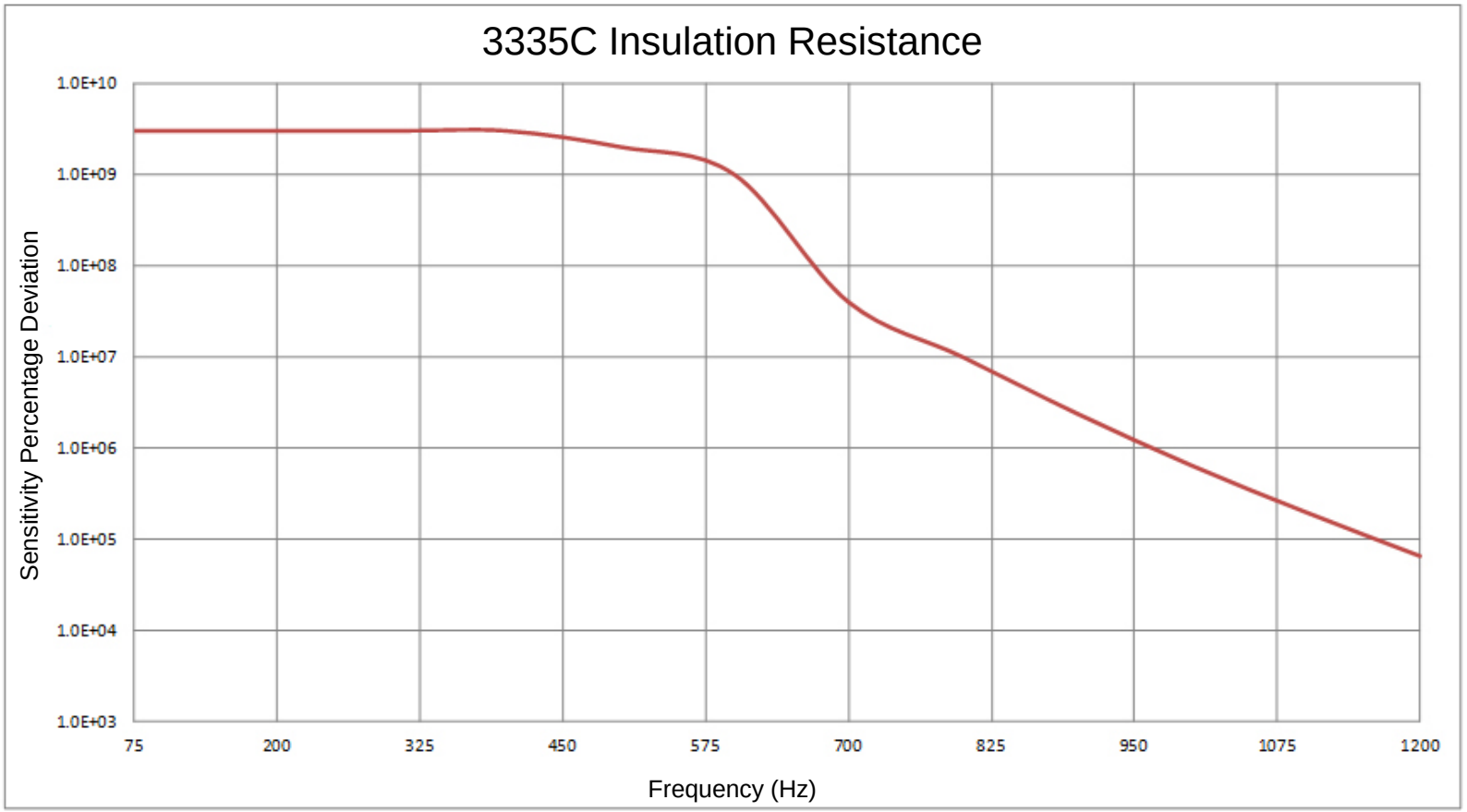
Typical Frequency Response on an Electrodynamic Shaker:



Typical Temperature Coefficient:



Typical Insulation Resistance vs. Temperature:



Contact Us to Learn More About Model 3335C

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