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Product Information

NOISE & VIBRATION DAMPED STEEL

Description

These products have a very thin (0.05mm) HIP2 viscoelastic polymer layer which is between two outer layers of steel. The steel may be of a number of different types and the properties of the polymer layer has been customised to allow the steel to be fabricated into parts by normal metalworking processes. They are designed to be made into panels, covers and support members for noise reduction and vibration damping purposes and eliminate the need to use expensive additional noise reduction parts.

Construction:

Product	304 Stainless Steel
2120	0.5mm
2124	0.6mm
2134	0.8mm
2141	1.0mm
2149	1.2mm
2165	1.6mm
2181	2.0mm
	Electrogalvanised Steel
2234	0.8mm
2241	1.0mm
2249	1.2mm
2265	1.6mm
2281	2.0mm

Damping Properties

The Loss Factor and Storage Modulus of a material are 2 parameters that define its damping performance. These two parameters identify a materials ability to convert vibrational energy. The curve overleaf shows the performance of HIP2 plotted against temperature and frequency in the form of a reduced temperature nomograph, emphasising both the high performance and the temperature dependent qualities of our damping systems.
The performance of most damping devices is highly dependent on the interaction between the device and the system to which it is applied. A constrained layer control system is no different to a typical damping device and its ability to provide the desired performance is affected by

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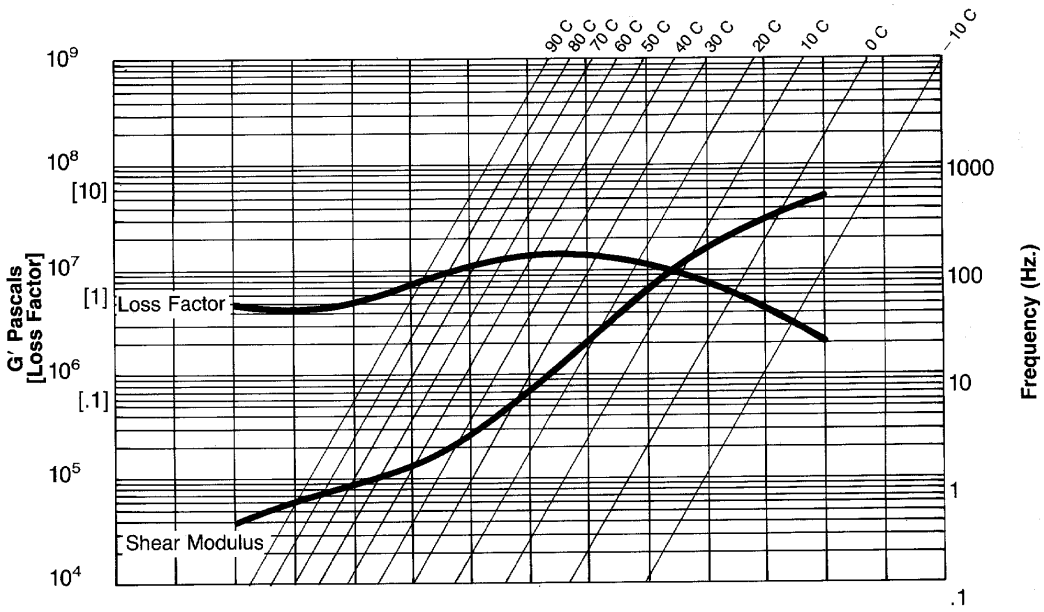
parameters other than the temperature and frequency. Namely the geometry, stiffness, mass and resonance mode shape of the structure to which the control system is applied.

Nomograph Of Hip2 Polymer Damping Properties



Characteristics

Excellent aging qualities of the polymer provide long term performance.
Wide temperature range for damping. 0 to 40 Celsius at 100 Hz.
Meet B.S and Afnor performance criteria for flammability, smoke production and toxic emissions in transportation vehicles. (Request separate Test reports for details.)

Potential Applications for user evaluation

For general noise and vibration reduction in relatively thin structures.
For electronic equipment and small appliances.
To reduce unwanted resonant noise and vibration -and thus fatigue-in metal panels and support structures.

Instructions for reading the nomograph

To determine the damping properties at the desired temperature and frequency proceed to read the nomograph as follows:

1. Locate the desired frequency on the right vertical scale.
2. Follow the chosen frequency line to the desired temperature isotherm.
3. From this intersect go vertically down (or up) until crossing both the modulus and loss factor curves.
4. Where you cross these curves read the appropriate modulus and loss factor values from the dual scale on the left vertical side.