A/V RoomService, Ltd.
The Science of Perfected Sound

Equipment Vibration Protectors

Tech & Spec Sheet

The purpose of vibration isolation for audio equipment is to control unwanted vibrations and resonances from causing adverse effects to both electrical audio signals and sound waves, both airborne and structureborne.

These effects can cause many kinds of audible distortions, which interfere with the potential performance of the audio equipment, as well as the original artistic intent. **The Result in sound quality with EVP** is improved clarity, dynamics, timbre and soundstage because resonances and vibrations are eliminated and can no longer compete, mask or interfere with the original signal. **The Result in sound transmission with EVP** is about an 80% or more reduction in vibrations being transferred to the equipment, and/or from the equipment to neighboring spaces via the interconnected structure, because the EVP de-couples those vibrations and dissipates them as heat. **With EVPs in place, your walls, floor, ceiling, equipment and furnishings no longer vibrate and re-radiate sound energy.**

Vibration isolation works whether the equipment itself is the source of unwanted vibrations, or is the recipient. Vibration transfer is a two-way street.

A vibration isolator is a resilient support which decouples an object from forced vibration. Natural frequency and damping are the properties which determine the transmissibility of the system.

The natural frequency is a function of the stiffness of the isolation system in conjunction with the mass (load) being supported. The purpose of tuned damping is to dissipate the unintended energy as quickly as possible. Transmissibility is the ratio of the output vibration divided by the input vibration. It is the amount of vibration passing through the system. The isolation efficiency of the EVP is conservatively >80% from about 5 – 14 Hz. (depending EVP size, density and load) and up. This means that better than 80% of the vibratory force is *not* transmitted to the support structure or the equipment. The varying EVP effective low-frequency is a function of the size and density of the isolation pad, and the load placed on it.

The EVP core is a matrix of precisely compressed high-density molded glass fibers, which allows controlled air movement through the fibers. This action provides viscous damping, reducing physical motion, while widening the frequency bandwidth of attenuation. As sound energy moves fibers against fibers, the friction transfers sound energy to heat energy.

The annealed fiberglass is produced by a multiple flame attenuation process which generates fibers having modulus of elasticity of 10.5 million PSI (738,223 kg/sq. cm) and nominal fiber diameters of less than .00027 inches (6.8 microns). The matrix of the glass leaf springs is bonded at all fiber intersections with a low VOC water-resistant binder during the molding process under controlled heat and pressure. The material is then stabilized by multiple precompression cycles to many times the maximum published load capacity for the specific density of the media.

The cold-rolled steel plates on the top and bottom of the pad function to evenly deflect the weight across the whole surface for even weight distribution. They also allow cone or spikes to be used without damaging or compromising the performance of the pad.

Our own RoomDamp 2 constrained-layer damping compound is used to bond the steel plates to the fiberglass core, and the rubber to the steel plates. This damping further improves the EVP absorption properties by lowering the Q-factor, which broadens the bandwidth, reduces ringing, etc. RoomDamp 2 is a viscoelastic paste that remains pliable and never hardens. Since it is not glue, it can easily separate from the pad. A touch of rubber cement can be used to repair the pad without changing the performance.

The paint applied to the fiberglass pad is a very special formula that allows flexing. This elasticity means the pad can be compressed without the paint cracking or flaking. The formula contains low VOCs and is UV protected. The flexible paint does cause slow shape-return after pad compression.

Unlike other elastomeric materials, EVPs are resistant to water, mold, sunlight, humidity, age and extreme temperatures.

EVP materials, manufacturing and assembly is **U.S.A. Made**. They are not sexy, but they are very functional and affordable.

Specifications:

EVP Isolation Efficiency- >80% from about 5-14 Hz. and up, depending on pad size, density and load.

EVP Natural Frequency- 3.1-12.5 Hz. depending on pad size, density and load.

EVP Deflection- 10 – 30% when properly loaded.

EVP Loading- A single EVP will perform properly when loaded within the following weight:

2” square Medium Density: 2-5 lbs. (0.9-2.26 kg)

2” square Heavy Density: 3-19 lbs. (1.3-8.6 kg)

4” square Medium Density: 8-20 lbs. (3.6-9 kg)

4” square Heavy Density: 12-76 lbs. (5.4-34.4 kg)

Felt EVP Dimensions- 2” or 4” square X 1.18” tall (50.8 or 101.6 X 29.9mm)

Felt EVP Weight- 2” square = 0.32 lbs (0.14g), 4” square = 1.1 lbs (0.5 g)

Rubber EVP Dimensions- 2” or 4” square X 1.7” tall (50.8 or 101.6 X 43.2mm)

Rubber EVP Weight- 2” square 0.46 lbs (0.2 g), 4” square 1.14 lbs. (0.51 g)