

Properties of Universal Acoustics VibroPads against Auralex MoPads and why VibroPad material out performs Auralex material.

This note is intended to provide information relating to the properties of Universal Acoustics and Auralex speaker pads in order to avoid possible confusion with customers incorrectly thinking MoPADS might out perform Vibro-Pads. Please see the following information provided by our test lab.

Auralex MoPads feel hard but are actually exhibiting stiffness because they are low density and have low resilience. UA Vibro-Pads are actually hard and dense giving more resilience.

The MT65 HLB (high load bearing foam) specially manufactured for UA Vibro-Pads is more dense and harder (as measured to European and international standards) and it is less stiff therefore it exhibits higher resilience.

Materials that are stiff can be subject to fatigue if exposed to large forces, this will lead to a reduction in the materials performance.

MTP65 needs 500N - (50 kg-force) - to deflect 25% for a 50 mm thick piece - see data sheet item 3. So if you put a 50 kg speaker on it will deflect 25%.

When the density increases the hardness value also increase. The Indentation Load Deflection (ILD) of hardness as per ISO 2439 standard states that the equal force that is required to press a mattress core until 25 %, 40 % or 60% from its original height with a circular plate of 322 cm². The Compression Load Deflection (CLD) hardness as per ISO 3386 standard, which is the force apply to press the mattress core 25 % of its original height Measured in kPa (kilo Pascal)

Universal Acoustics - Vibro-Pads information overview.

Superior homogeneous cell structure for optimum acoustic performance

Excellent acoustic properties

UL 94 HFI classification

Each Pad set includes it's own pre-cut levelling wedge adjuster which can be set in 3 positions to provide either level, 5° or 10° slope up or down.

Minimal evidence of blow holes

True Resilience to compression over long lifespan.

Strong dynamic and vibrant fade resistant dark Charcoal colour

Contemporary and original design profile

Good availability and price stability due to manufacturing in the UK.

Data Sheet

Open cell polyurethane foam has three distinct properties apart from things like colour, fire retardance etc.

As a plastic these can be described as follows;

1 - Density - This is how much per unit volume. The more dense the materials the heavier it is for a given thickness. To BSEN ISO 845 1995.

2 - Stiffness - This is a measure of the elasticity of a material. The more elastic a material is the less stiff it is.

3 - Hardness - This is a measure of the foams resilience. The harder a material is the more able it is to withstand heavy loads and recover.

It can often be the case that hardness and stiffness can confuse people.

A stiff material may feel hard however if subjected to excessive force can suffer from fatigue as the material is not elastic enough to recover.

This will result in a drop in height over time in applications such as seating, shockpads and building isolation.

It is therefore important to select a material that has a combination of elasticity and hardness.

Hardness is measured to BS4443 Part 2, Method 7:1998, in Newtons.

For packaging ASTM 3574-03 Test B1, 25% in lb force.

There is also a Service Class to BSEN ISO 3385 which measures the suitability for seating applications This is used to help classify seating from X - Extreme to S - Soft.

in the test described in BSENISO 3385 and given in table B.1 of BS3379: 1991 (AMD 7126).

Compression Load Deflection is used to measure recover ability at 40% measured in kPa to BS 4443, Part 1 1998.

Basically if a material feels hard unless the hardness is measured using the above methods it could be exhibiting stiffness.

If these two properties are not evaluated then there is the possibility of fatigue and possible failure of a foam system.

This would also apply to polyethylene foams which feel hard but are mostly stiff.

This has resulted in polyethylene foam not being able to be used in resilient layers for acoustic and vibration isolation in certain building applications and being removed from Document E of the Building Regulations for these applications.

Most resilient layers in building are based on open cell composite polyurethane foam or similar rubber type products, though rubber can be quite dense so can increase the dynamic stiffness thus reducing the isolation capabilities of the system.=

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