

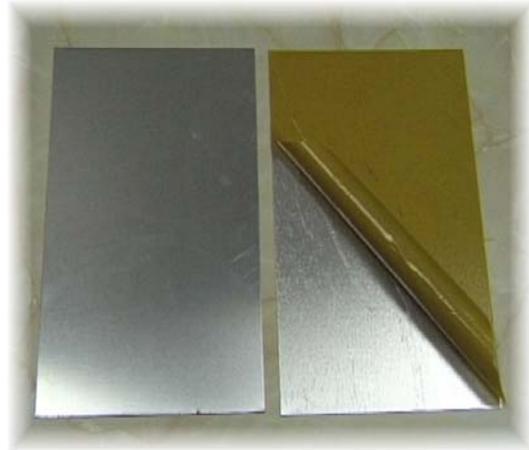
Sonphonon AliDamp



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Description

SDS AliDamp is manufactured from 0.5mm aluminium with an energy absorbing visco-elastic polymer on one side. It is supplied unpainted in its natural colour. It is designed to minimise noise and vibration radiating from resonating structures. AliDamp can reduce noise by up to 30dB. AliDamp is available in flat sheets and can be cut, punched or lasered to size and shape. The material is supplied with a release paper enabling it to be bonded directly on to a substrate.



Application

AliDamp is used extensively in the transport and food processing industries and on heating and ventilating ducts, hoppers, silos and waste extractors. It is particularly suitable for damping any panels manufactured from aluminium or steel which radiate or transmit noise.

Operating Temperatures

AliDamp can be used at continuous operating temperatures from -40oC to 120oC. Optimum damping is achieved at temperatures up to 75oC. A Higher temperature variant is available which operates from -40oC to 180oC if required.

Fire Performance

AliDamp complies with the Class 'O' requirements of the Building Regulations, when tested to BS476: Part 6: 1981 and Part 7: 1987. It also meets the rail industry requirements and the smoke, fire, toxicity and spread of flame requirements of BS6853. Certification is shown on www.sounddeadsteel.com.

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Acoustic Performance

Measurements of 2 mm aluminium plate with and without 0.5 AliDamp.

David Thompson, ISVR, University of Southampton.

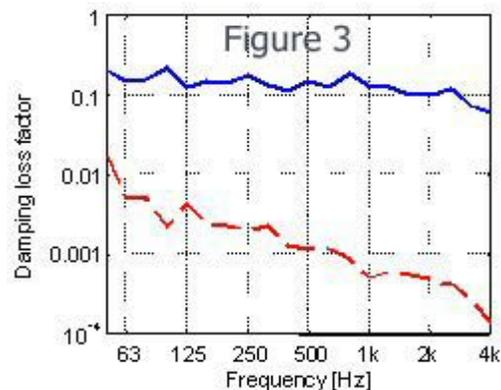
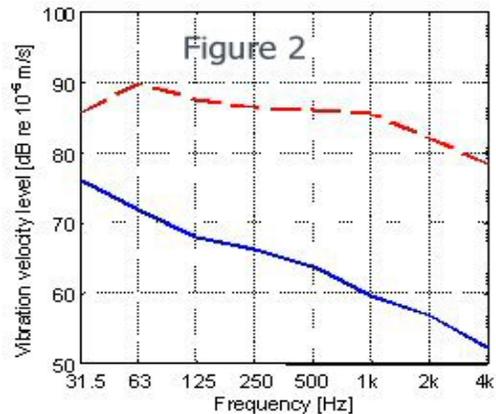
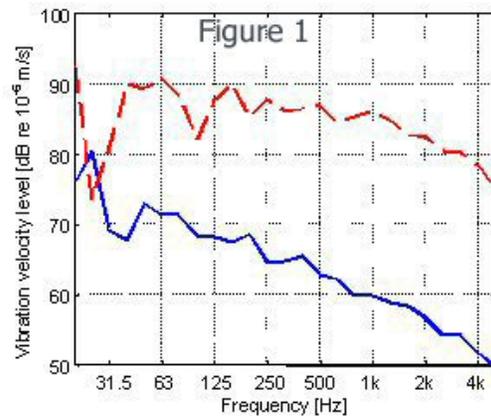
Two aluminium plates were supplied, each 2 mm thick and 1.0×0.8 m. One was untreated, the other had 0.5mm AliDamp bonded to it. Measurements of both were taken using an instrumented impact hammer and an accelerometer, with the plates freely suspended. The measurement results correspond to the spatially-averaged vibration due to a unit force at a fixed position. The difference in spatially-averaged vibration level is directly equivalent to a difference in noise level.

Figure 1 shows the vibration velocity levels on the two plates for a unit force in one-third octave frequency bands. Figure 2 shows the same results in octave bands.

Figure 1. Blue = treated, red = untreated.
Figure 2. Blue = treated, red = untreated.
From these results it can be seen that the damping treatment has produced a reduction in vibration of more than 20 dB at most frequencies. The corresponding noise reduction would be identical to the difference. It is also possible from these results to determine the damping loss factor of the plates. This is actually more meaningful than the noise reduction, as untreated panels usually have higher damping when mounted *in situ* than when freely suspended as here. The loss factors are shown in Figure 3. The loss factor of the treated panel is between 0.1 and 0.2 at most frequencies.

Figure 3. Blue = treated, red = untreated.

David Thompson, 23 December 2003



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Application

The optimum damping performance of AliDamp is achieved when 70-80% of the panel to be treated is covered. To obtain optimum bond strength from the polymer on AliDamp follow these instructions:

Clean and dry the substrate with an appropriate cleaner i.e. methylated spirit or isopropyl alcohol so that it is free from oil, grease, rust, dust or other particles. Peel off the protective backing, position material onto panel and apply a constant forward and downward pressure to the surface of AliDamp to ensure it is securely bonded onto the substrate. A hard timber or steel roller is recommended for this purpose. Particular care must be taken to avoid forming air pockets between the substrate and the polymer, as this will weaken the bond and reduce the vibration damping performance.

The surface that receives the AliDamp needs to be smooth and not dented with shot blasting or other.

Dampers can be rolled to clad circular pipe work.