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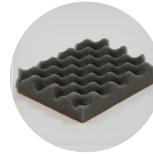
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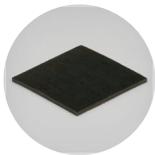
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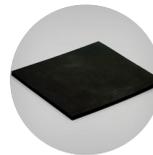
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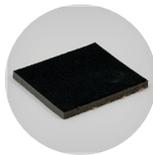
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Soundproof materials

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Sound absorbents, sheet damping and soundproofing materials

- 1 Sound absorbents** absorb and reduce noise (as opposed to, for example, steel and concrete) in the room they are used in. They do not work as a noise barrier, which is why there should be a heavy and dense material behind them. The materials are porous, like mineral wool or foam plastic. If there are requirements for hygiene, cleaning or protection from oil or water spray (e.g. in food machinery, engine compartments, hospital equipment), the materials can be fitted with a tight, thin surface film.
- 2 Sheet damping materials** dampen sound propagation in solid materials such as metal, wood and plastic. These materials are particularly effective against impact loads, and they come as either damping cardboard, film or mass, and are mounted (adhered) to the surface which is to be dampened.
- 3 Soundproof materials** isolate against sound penetration, for example in screen wall constructions. These materials are heavy and are used either alone as soundproof curtains or for audio improvement of an existing construction.

There are also sound materials which combine the above properties, such as combined sound absorbents and sheet damping material, just as a number of the soundproof materials have sheet damping properties.

Product description

Very effective sound absorbent, fitted with self-adhesive on one side. The sound absorbent is made of compressed polyether granulate with open cells held together with a binding agent. This gives the material a relatively high density and a "speckled appearance".

Application

For sound absorption for noise damping of machinery and equipment, including in machine enclosures, engine compartments and sound effects where high noise reduction is required.

IKALON 135 is extremely robust when exposed to mechanical stresses such as shock and wear. In the thin sheet constructions, IKALON MK 135 will potentially act as an anti-vibration damper on sheet vibrations.

Acoustic data

The material's sound-damping property depends on the absorption coefficient that indicates the ratio of absorbed and incident sound energy. This means the larger the absorption coefficient, the better the noise damping. The absorption coefficient depends on the frequency and material thickness, see the graphs to the right.

Assembly

The underlay is cleaned of dust, grease, moisture and other contaminants. Even an underlay like IKALON must be at room temperature (about 20 °C) before starting the assembly.



Cut with a sharp knife or similar before the protective paper is removed.

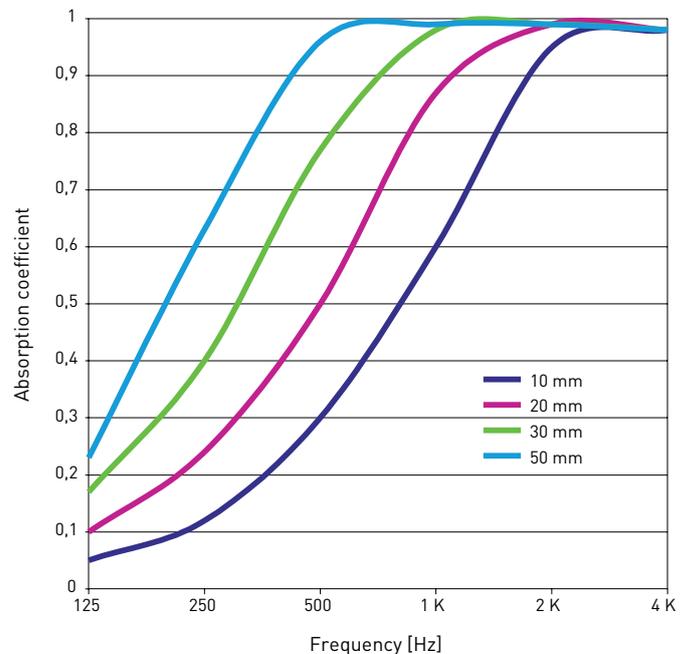


Absorbent underlay, such as untreated wooden boards, should be primed with a contact adhesive type 555.

Mechanical attachment: Under extreme conditions (bad gluing surface, downward-facing underlay, difficult installation conditions), further mechanical fastening is recommended, such as screws and washers. Mechanical mounting is always recommended during assembly of the two heaviest types (30 and 50 mm) on the downward-facing surfaces.



Absorption coefficient according to DIN 52 215



	Product data			
	10 mm	20 mm	30 mm	50 mm
Thickness	10 mm	20 mm	30 mm	50 mm
Width	1.0 m	1.0 m	1.0 m	1.0 m
Length	2.0 m	2.0 m	2.0 m	2.0 m
Density	135 kg/m ³	135 kg/m ³	135 kg/m ³	135 kg/m ³
Adhesiveness	15 N/cm ²	15 N/cm ²	15 N/cm ²	15 N/cm ²
Colour	Shades of grey			
Temperature range	-40 °C to +100 °C			
Properties	Flame retardant according to MVSS 302, class SE. The material is self-extinguishing and we recommend that it is placed at least 20 cm from hot metal parts. It must not be placed where it could soak up flammable liquids.			

Product description

Self-adhesive foam absorbent which is covered with aluminised polyester film. The sound absorbent is made of compressed polyether granulate and has a silver protective film.

Application

For sound absorption when noise damping machinery and equipment, including in machine enclosures, engine compartments within the food industry and in places where moisture occurs. The film protects against the ingress of water, certain oils, microorganisms, etc., and is easy to clean.

IKALON 135 ALU/MK is robust against mechanical stresses.

In the thin sheet constructions, IKALON ALU/MK 135 will potentially act as an anti-vibration damper on sheet vibrations. The aluminium foil is also heat-reflective against radiant heat.

Acoustic data

The material's sound-damping property depends on the absorption coefficient that indicates the ratio of absorbed and incident sound energy. This means the larger the absorption coefficient, the better the noise damping. The absorption coefficient depends on the frequency and material thickness, see the graphs to the right.

Assembly

The underlay is cleaned of dust, grease, moisture and other contaminants. Even an underlay like IKALON must be at room temperature (minimum 15 °C) before starting assembly.



Cut with a sharp knife or similar before the protective paper is removed.

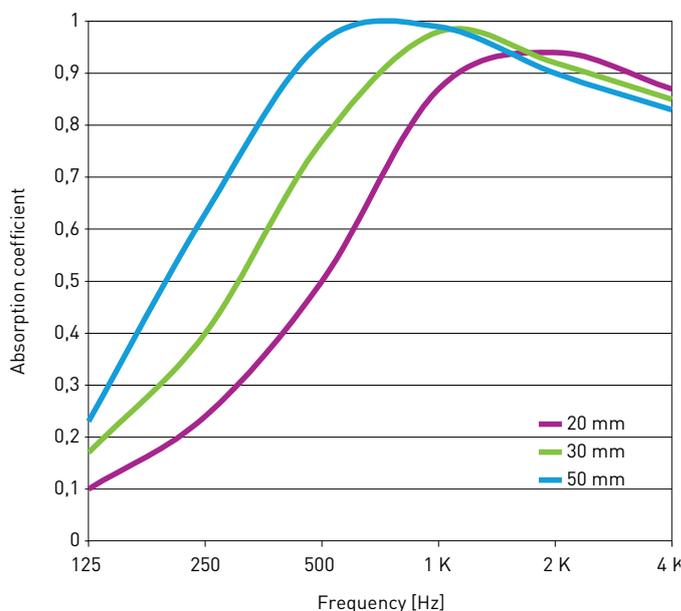


Absorbent underlay, such as untreated wooden boards, should be primed with a contact adhesive type 555.

Mechanical attachment: Under extreme conditions (bad gluing surface, downward-facing underlay, difficult installation conditions), further mechanical fastening is recommended, such as screws and washers. Mechanical mounting is always recommended during assembly of the two heaviest types (30 and 50 mm) on the downward-facing surfaces.



Absorption coefficient according to DIN 52 215



	Product data		
Thickness	20 mm	30 mm	50 mm
Width	1.0 m	1.0 m	1.0 m
Length	1.0 m	1.0 m	1.0 m
Density	135 kg/m ³	135 kg/m ³	135 kg/m ³
Adhesiveness	15 N/cm ²	15 N/cm ²	15 N/cm ²
Colour	Shades of grey foam with a silver foil surface		
Temperature range	-40 °C to +100 °C		
Properties	Flame retardant according to MVSS 302, class SE. The material is self-extinguishing and we recommend that it is placed at least 20 cm from hot metal parts. It must not be placed where it could absorb flammable liquids.		

Product description

Effective sound absorbent which is covered with a flexible polyurethane film on one side and has self-adhesive on the other side. The sound absorbent is made of polyether and is homogeneous grey expanded plastic with a light grey or black protective film.

Application

For sound absorption when noise damping machinery and equipment, including in machine enclosures, engine compartments within the food industry and in places where moisture occurs. The film protects against the ingress of water, certain oils, microorganisms, etc., and is easy to clean.

On thin sheets, it is advantageous to use Ikalon MF in connection with a soundproof film such as AVP or AVF. This dampens the vibrations more efficiently and soundproofing is increased.

Acoustic data

The material's sound-damping property depends on the absorption coefficient that indicates the ratio of absorbed and incident sound energy. This means the larger the absorption coefficient, the better the noise damping. The absorption coefficient depends on the frequency and material thickness, see the graphs to the right.

Assembly

The underlay is cleaned of dust, grease, moisture and other contaminants. Even an underlay like IKALON must be at room temperature (about 20 °C) before starting the assembly.



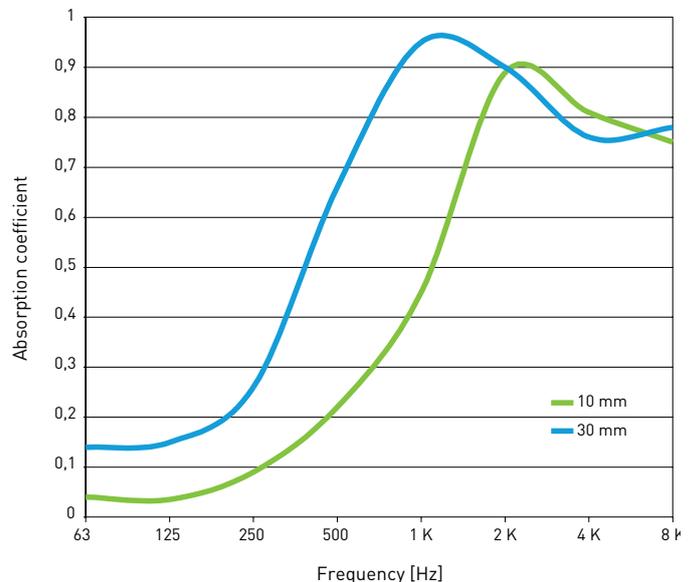
Cut with a sharp knife or similar before the protective paper is removed.



Absorbent underlay, such as untreated wooden boards, should be primed with a contact adhesive type 555.



Absorption coefficient according to DIN 52 215



	Product data		
	10 mm	20 mm	30 mm
Thickness	10 mm	20 mm	30 mm
Width	1.2 m	1.2 m	1.2 m
Length	2.0 m	2.0 m	2.0 m
Density	30 kg/m ²	30 kg/m ³	30 kg/m ³
Adhesiveness	13 N/cm ²	13 N/cm ²	13 N/cm ²
Colour	Grey foam with a light grey or black foil		
Temperature range	-20 °C to +80 °C		
Properties	Flame retardant according to FMVSS 302. The material may burn when the temperature becomes sufficiently high and must therefore be situated at least 20 cm from hot metal parts, and must not be placed where it could absorb flammable fluids. Strong heating releases toxic gases that may be harmful.		

Product description

Self-adhesive sound absorbent foam material that has a textured surface (see the sketch below). The sound absorbent is made of charcoal grey polyester foam.

Application

As sound-absorbing casing for printer boxes, machine guards and the like. Can be used as soundproofing in ceilings in drivers' cabs. The sound absorbent is particularly suitable for damping high-frequency noise, i.e. sound waves with a short wave length such as ultrasound.

Acoustic data

The material's sound-damping property depends on the absorption coefficient that indicates the ratio of absorbed and incident sound energy. This means the larger the absorption coefficient, the better the noise damping. The absorption coefficient depends on the frequency and material thickness; see the graph to the right.

Assembly

The underlay is cleaned of dust, grease, moisture and other contaminants. Even an underlay like IKALON must be at room temperature (about 20 °C) before starting assembly.



Cut with a sharp knife or similar before the protective paper is removed.

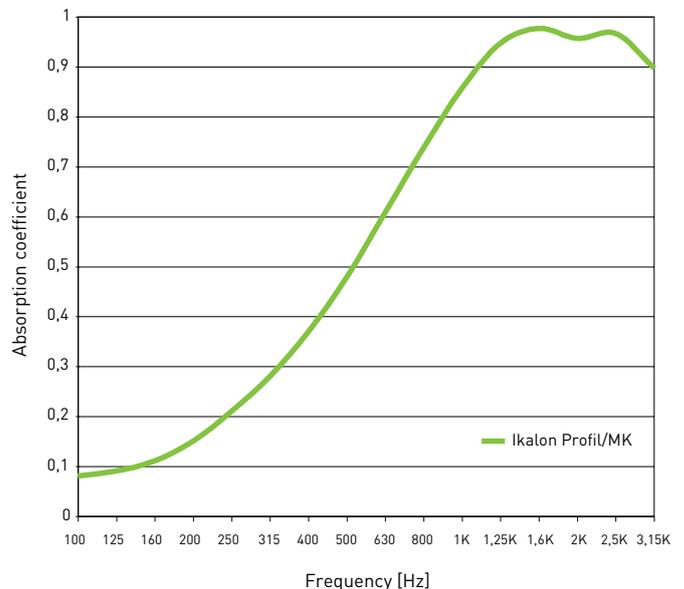


Absorbent underlay, such as untreated wooden boards, should be primed with a contact adhesive type 555.

Mechanical attachment: Under extreme conditions (bad gluing surface, downward-facing underlay, difficult installation conditions), further mechanical fastening is recommended, such as screws and washers.



Absorption coefficient according to DIN 52 215



	Product data
Thickness	See the sketch above
Width	1.2 m
Length	2.0 m
Density	33 kg/m ³
Coefficient of thermal conductivity	0.036 w/m °C
Colour	Charcoal grey
Temperature range	-30 °C to +90 °C. For short times, up to 120 °C
Properties	Flame retardant according to FMVSS 302. The material may burn when the temperature becomes sufficiently high and must therefore be situated at least 20 cm from hot metal parts. It must not be placed where it might absorb flammable fluids. Strong heating releases toxic gases that may be harmful

Product description

Effective sound absorbent covered with aluminised polyester film and self-adhesive.

Application

For sound absorption when noise damping machinery and equipment, including in machine enclosures, engine compartments, as well as in the food industry where there are high fire requirements. Other uses include in the wind turbine industry, for buses and in shipbuilding.

On thin sheets it is advantageous to use LA SE in connection with an anti-vibration film such as AVP or AVF. This dampens the vibrations more efficiently and soundproofing is increased.

Acoustic data

The material's sound-damping property depends on the absorption coefficient that indicates the ratio of absorbed and incident sound energy. This means the larger the absorption coefficient, the better the noise damping. The absorption coefficient depends on the frequency and material thickness, see the graphs to the right.

Assembly

The underlay is cleaned of dust, grease, moisture and other contaminants. Even an underlay like LA SE must be at room temperature (about 20 °C) before starting assembly.



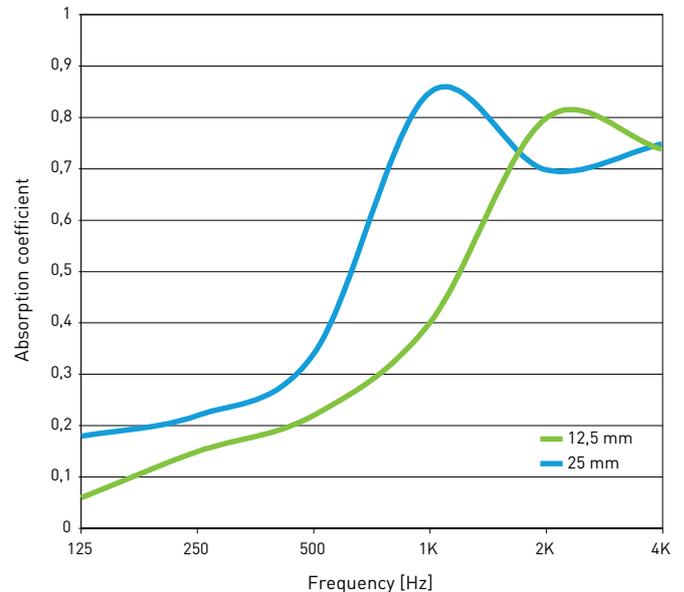
Cut with a sharp knife or similar before the protective paper is removed.



Absorbent underlay, such as untreated wooden boards, should be primed with a contact adhesive type 555.



Absorption coefficient according to DIN 52 215



	Product data	
	Thickness	12.5 mm
Width	1.0 m	1.0 m
Length	1.0 m	1.5 m
Surface weight	1 kg/m ²	2 kg/m ²
Colour	Grey foam with aluminised film	
Temperature range	-40 °C to +120 °C	
Properties	The film surface on LA SE is heat reflective and can easily be cleaned. LA SE is self-extinguishing and meets the following fire standards: ASTM D 2863-74, ASTM D 1692, FMVSS 302 and UL 94 HBF	

Product description

Self-adhesive expanded plastic absorbent with a durable surface of perforated PVC film (Perforated area: 2 %).

Application

Sound absorption when noise damping machinery, vehicles and appliances.

The surface film is easy to clean, increases resistance to mechanical impact and looks nice. This makes the absorbent especially suitable for use where it is visible, for example in drivers' cabs.

Acoustic data

The material's sound-damping property depends on the absorption coefficient that indicates the ratio of absorbed and incident sound energy. This means the larger the absorption coefficient, the better the noise damping. The absorption coefficient depends on the frequency and material thickness; see the graph to the right.

Assembly

The underlay is cleaned of dust, grease, moisture and other contaminants. The attaching is easiest if the sheet is bent and attached along the shorter side first. Press the sheet firmly into place.

Even an underlay like LA V2 must be at room temperature (minimum 15 °C) before starting assembly.



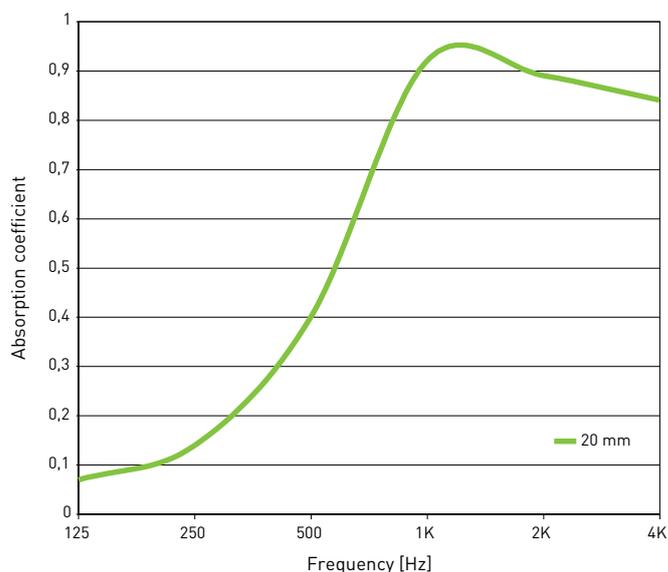
Cut with a sharp knife or similar before the protective paper is removed.



Absorbent underlay, such as untreated wooden boards, should be primed with a contact adhesive type 555.



Absorption coefficient according to DIN 52 215



	Product data	
Thickness	10 mm	20 mm
Width	1.2 m	1.2 m
Length	1.5 m	1.5 m
Surface weight	0.9 kg/m ²	2.0 kg/m ²
Adhesiveness	15 N/m ²	15 N/m ²
Colour	Grey expanded plastic with black or grey surface film	
Temperature range	-30 °C to +90 °C	
Properties	Self-extinguishing in accordance with FMVSS 302. The material may burn when the temperature becomes sufficiently high and must therefore be situated at least 20 cm from the hot metal parts. In addition to this, it must not be placed so that it can absorb flammable fluids	
Storage	Store at temperatures of 0 °C to 30 °C	

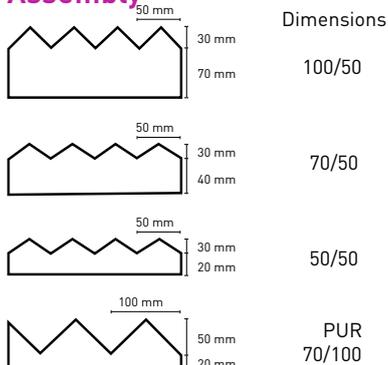
Product benefits

- 1 Easy to mount with contact adhesive.
- 2 Environment-friendly as the absorbent does not sprinkle fibres or degasser halogens or CFCs.
- 3 Lower transport costs due to the material's low weight.
- 4 Super sound-absorbing properties due to the profiled surface.
- 5 The absorbent is available in individual colours.
- 6 Varying thicknesses of the absorbent can be ordered.
- 7 Available in various types of foam and pyramid.

Absorbent types

Profiled on one side as follows:

Assembly



Can be cut with a sharp knife or the like.

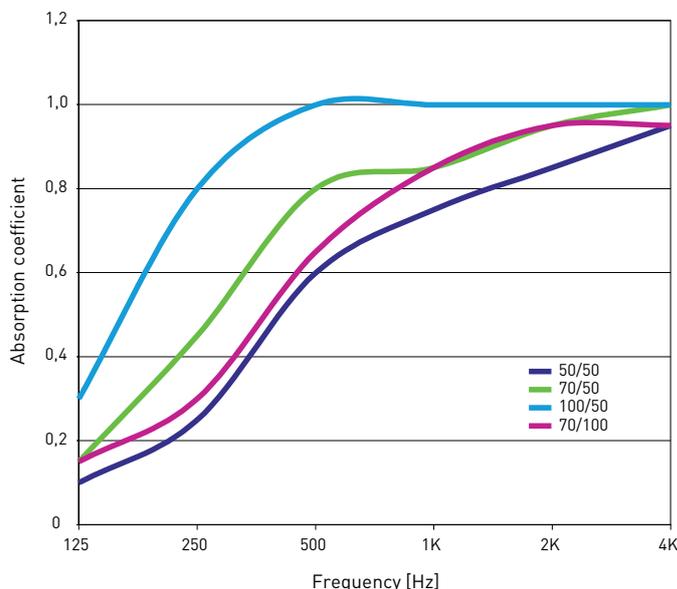


Bonding: The underlay is cleaned of dust, grease, moisture and other contaminants. VIKAS type acoustical adhesive (10 L tin) is applied to one surface.

Even an underlay like Vikas Pyramid must be at room temperature (about 20 °C) before starting assembly. Consumption: about 0.5 l/m² of adhesive on the entire surface.



Absorption coefficient according to DIN EN ISO 11654



	Product data	
	PYRAMID	PYRAMID PUR
Basic material	Melamine	Polyether – PUR – soft foam
Dimensions	1200 x 600 mm Dimension tolerances according to DIN 7715 P3	1000 x 1000 mm Dimension tolerances according to DIN 7715 P3
Density*	9.5 ± 1.5 kg/m ³ according to EN ISO 845	5.27 to 32.5 kg/m ³ according to EN ISO 845
Colour	White, grey, anthracite Other colours can be offered for orders > 100 m ²	Anthracite Other colours can be offered for orders > 100 m ²
Sound absorption coefficient	α according to DIN EN ISO 11654	
Temperature, renewable	150 °C	80 °C
Fire properties	Flame retardant according to DIN 4102 B1	Without colour surface B3, very flammable. With standard colour surface B2, flammable according to DIN 4102
Test certificate signed by an accredited testing company	P-NDS04-291	P-NDS04-204

The absorbers may have pores of different sizes depending on the surface.

*According to EN ISO 845 performed on test subjects with the following minimum dimensions: 250 x 250 x 250 mm.

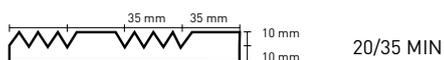
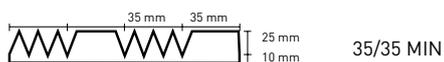
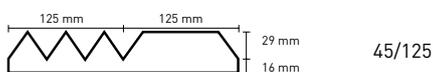
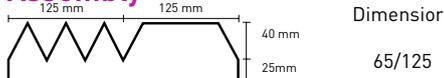
Product benefits

- 1 Easy to mount with contact adhesive.
- 2 Environment-friendly as the absorbent does not sprinkle fibres or degasser halogens or CFCs.
- 3 Lower transport costs due to the material's low weight.
- 4 Super sound-absorbing properties due to the profiled surface.
- 5 The absorbent is available in individual colours.
- 6 Varying thicknesses of the absorbent can be ordered.
- 7 Available in various types of foam and pyramid.

Absorbent types

Profiled on one side as follows:

Assembly



Can be cut with a sharp knife or the like.

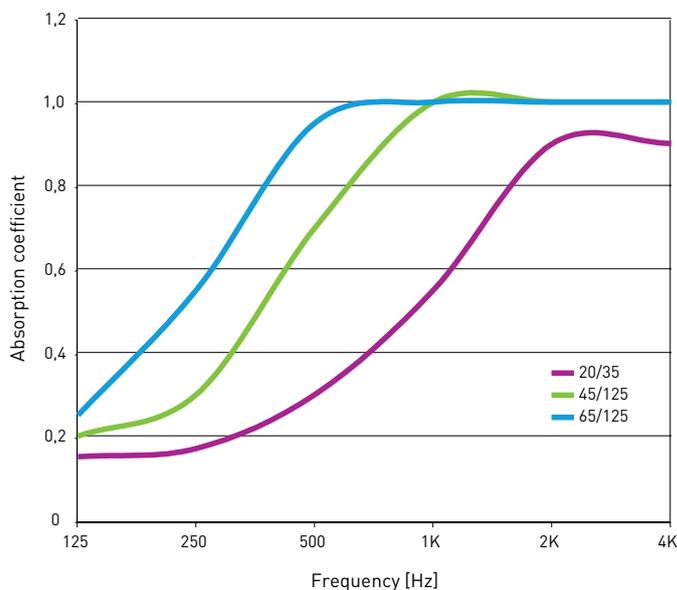


Bonding: The underlay is cleaned of dust, grease, moisture and other contaminants. VIKAS type acoustical adhesive (10 L tin) is applied to one surface.

Even an underlay like Vikas Pyramid must be at room temperature (about 20 °C) before starting assembly. Consumption: about 0.5 l/m² of adhesive on the entire surface.



Absorption coefficient according to DIN EN ISO 11654



Product data	
Basic material	Polyether – PUR – soft foam
Dimensions	1000 x 1000 mm Dimension tolerances according to DIN 7715 P3
Density*	5.27 to 32.5 kg/m ³ according to EN ISO 845
Colour	Anthracite Other colours can be offered for orders > 100 m ²
Sound absorption coefficient	α according to DIN EN ISO 11654
Temperature, renewable	80 °C
Fire properties	Without colour surface B3, very flammable. With standard colour surface B2, flammable according to DIN 4102
Test certificate signed by an accredited testing company	P-NDS04-204

The absorbents may have pores of different sizes depending on the surface. *According to EN ISO 845 performed on test subjects with the following minimum dimensions: 250 x 250 x 250 mm.

Product description

The AVP sheet is made of heavy fillers mixed with an EVA-based rubber. The sheet has a self-adhesive with protection paper.

Application

For damping vibrations in thin sheets, as well as increasing the sound reduction value. Used in the machinery, shipping, transport and construction industries for noise damping of machines, vehicles, boats, pipes and ducts, etc.

The sheet is used, for example, in engine compartments, cabinets, partitions and machine enclosures.

Acoustic data

The material's sound-absorbing properties are based on increases of the loss factor and reduction value. The loss factor is a measure of the vibration energy converted into heat, and the reduction value represents the isolating capacity against sound penetration.

The reduction value is shown in the graphs to the right.

Assembly



Cut with scissors or a knife before removing the protective paper. The underlay is cleaned of dust, grease, moisture and other contaminants.



Attachment is easiest if the sheet is bent and attached along the shorter side first.

Press the sheet firmly into place and if necessary use a roll so that air bubbles are avoided (air bubbles degrade the damping). The items can put be under pressure to achieve better adhesion.

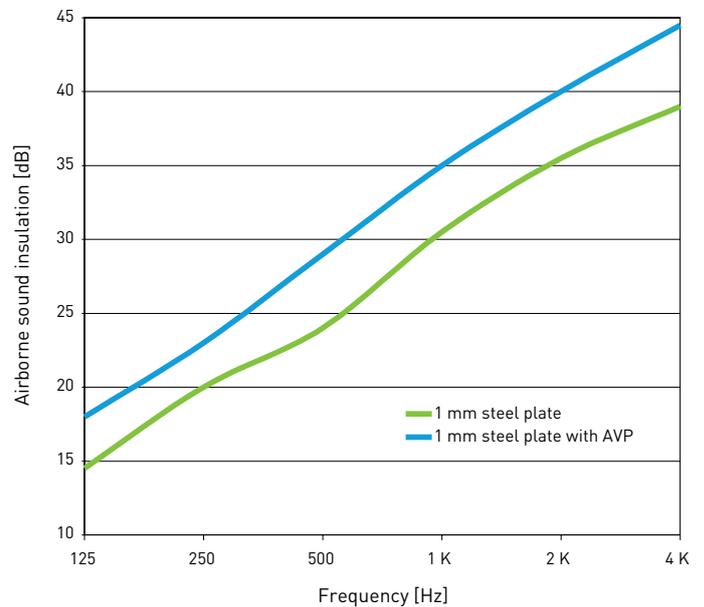
The underlay and sheet must be at room temperature (about 20 °C) prior to assembly.

AVP may be softened and shaped by gentle heating with a heat gun.

For vertical or downwards mounting, the adhesive must be supplemented with mechanical fastening, e.g. screws and washers.



Airborne sound insulation



	Product data	
Thickness	3.5 mm	
Width	0.75 m	1.0 m
Length	1.0 m	1.5 m
Surface weight	7.5 kg/m ²	
Adhesiveness	10 N/m ²	
Colour	Black	
Temperature range	-30 °C to +100 °C, for short periods up to +170 °C	
Properties	Self-extinguishing in accordance with FMVSS 302	
Storage	Store at temperatures of 0 °C to 30 °C	

Product description

The soundproof and plate damping material MX5 is a heavy thermoplastic plate. MX5 is made from a polymer base of synthetic rubber and thermoplastic materials. MX5 is self-adhesive, and the adhesive is protected by a thin film.

MX5 is an alternative for products which must not contain PVC.

Application

For damping vibrations in thin sheets, as well as increasing the sound reduction index. MX5 is particularly suited to affixing to complex constructions as the material is very flexible and can easily be bent over curved surfaces.

Used in the machinery, shipping, transport and construction industries for

noise damping on machines, vehicles, ships, pipes, ducts, etc.

MX-5 is used, for example, in engine compartments, cabinets, partitions and in machine enclosures and ventilation ducts.

Can also be used as a soundproof curtain

Acoustic data

Typical transmission loss curve of MX5 according to ISO R140, free-hanging curtain, see to the right.

Assembly



Cut with scissors or a knife before removing the protective paper. The underlay is cleaned of dust, grease, moisture and other contaminants.



Attachment is easiest if the sheet is bent and attached along the shorter side first.

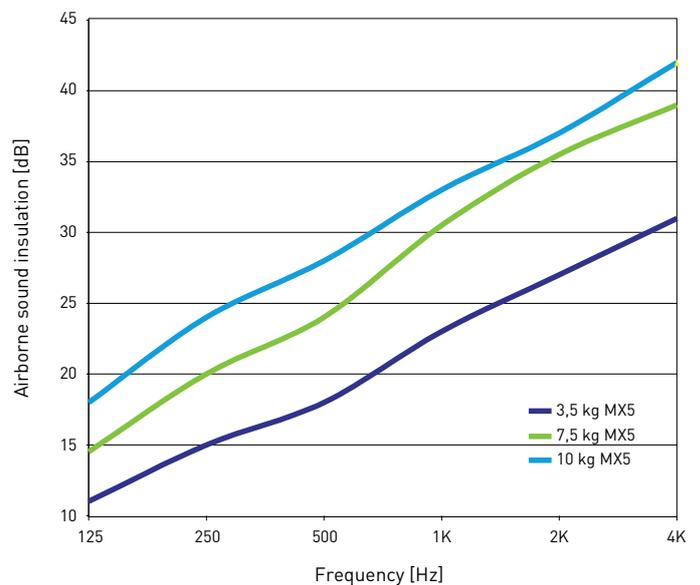
Press the sheet firmly into place and if necessary use a roll so that air bubbles are avoided (air bubbles degrade the damping). The items can put be under pressure to achieve better adhesion.

The underlay and sheet must be at room temperature (about 20 °C) prior to assembly.

For downwards mounting the adhesive must be supplemented with mechanical fastening, e.g. screws and washers.



Airborne sound insulation according to ISO/R140-4



Product data	
Colour	Black
Density	3.5 kg/m ²
Thickness*	(approx.) 1.8 mm
Temperature range (static)	-30 °C to +65 °C
Fire class	FMVSS302: PASS

*Created according to weight tolerance

Product description

IKANET is a soft magnetic damping sheet composed of 70 % barium ferrite and 30 % synthetic material. IKANET has rubber's flexible properties.

Application

For damping noise, for example steel plate processing. Especially useful where you do not want to affix a permanent soundproof plate. Quick to mount – easy to remove. Can be used again and again; can only be applied to magnetic materials (iron). Is used, among other things, in body workshops, service stations, record shops, car repair shops, Klein media, polishers and places that work with sheet metal ducts. Also used for experiments prior to gluing or spraying of the usual Vikas soundproof sheets type AVP, MX5 & AVF and damping mass type DC. IKANET can be used on sheets with a thickness of up to 5 mm.

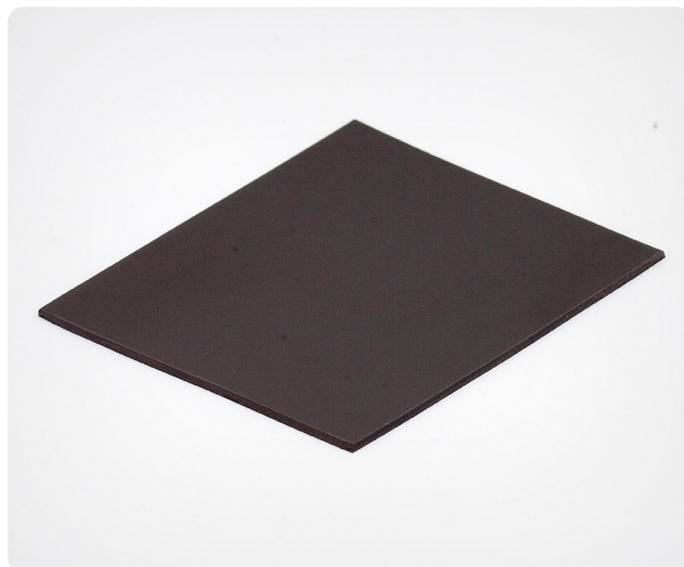
Acoustic data

The effect is based on an increase in the loss factor of the sheet construction. The achievable noise reduction therefore varies from a few dB up to about 30 dB.

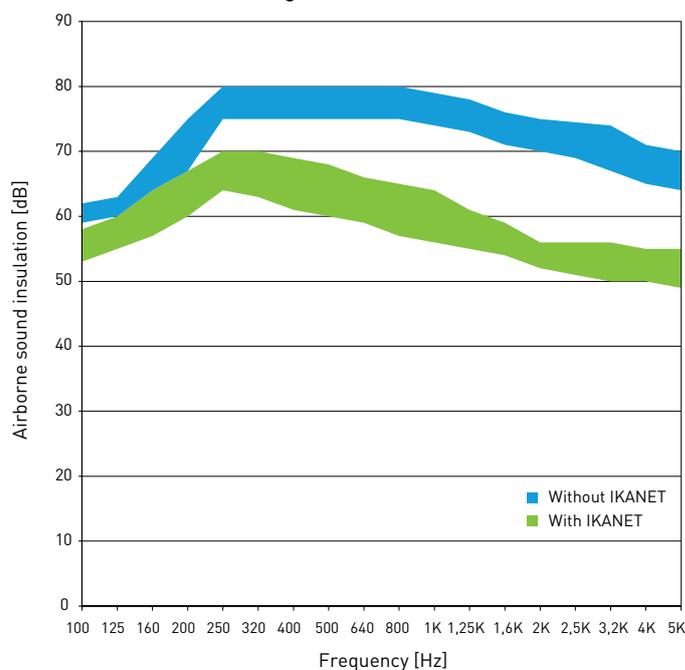
Assembly

Only a minor part (30-60 %) of the noise-causing construction surface needs to be covered by IKANET to achieve a significant noise reduction.

IKANET is placed in the middle of the respective surfaces. For curved surfaces, IKANET is cut into strips.



Noise reduction of tin channel (0.8 mm) that is being worked on with a hammer



	Product data
Surface weight	4.0 kg/m ²
Thickness	1.5 mm
Width	0.7 m
Length	1.0 m
Adhesiveness	450 kg/m ²
Colour	Dark brown
Temperature range	-15 °C to +60 °C

Product description

AVF is made from a PVC base, mixed with selected heavy fillers.

The sheet comes in two thicknesses with a surface weight of 7 to 14 kg/m².

Application

For damping vibrations in sheet materials, as well as increasing constructions' sound reduction index. Used in the machine, shipping, transport and building industries for noise reduction of machines, vehicles, boats, pipes and ducts, etc., as well as in engine compartments, partitions and machine enclosures.

Acoustic data

The AVF sheet's noise-damping effect is due to the small bending stiffness, high loss factor and high surface weight.

The loss factor, which is a measure of the vibration energy which is converted into heat, typically ranges from 0.001 to 0.01 for thin sheet constructions.

If the AVF sheet is stuck onto a 1 mm steel plate, a loss factor of 0.1–0.2 and up to 0.3 is obtained with a 5 mm thick sheet.

The reduction value of airborne noise is illustrated in the graphs to the right.

Assembly



It is cut with a sharp knife and stuck to the surfaces which are to be damped. If greater sound reduction is desired, the sound film can be glued to a sound absorbent, for example, type Ikalon 135. The absorbent is mounted towards the noise source.



Bonding: For sticking, use contact adhesive type 555, applied to the surfaces using a brush or a fine-toothed putty knife. Use about 0.3 L/m² for non-absorbent surfaces. After assembly with adhesive, the temperature should not exceed 50 °C.

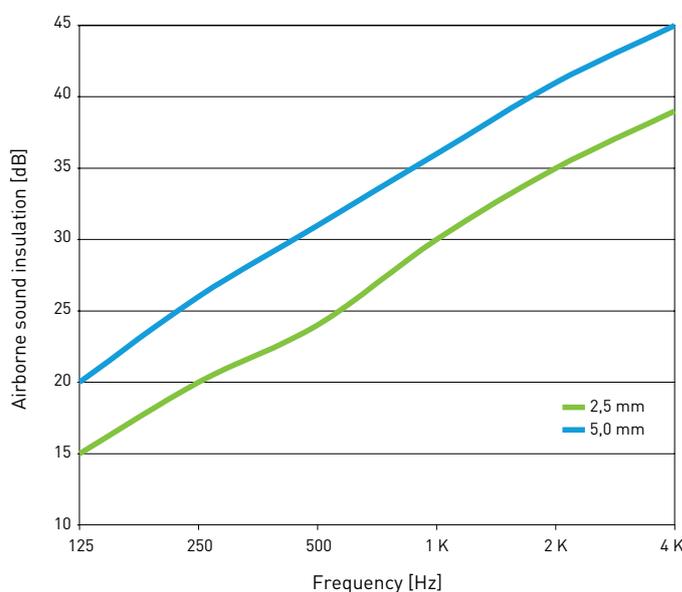
It is crucial for the adhesion that preparation (cleaning, degreasing, etc.) is done carefully, as well as that the temperature conditions are correct. It must also be ensured that the film has full adhesive contact with the surface – use a rubber hammer or hand roller for assembly.

Mechanical attachment: Under extreme conditions (bad gluing surface, downward-facing underlay, difficult installation conditions), further mechanical fastening is recommended, for example screws and washers.

Surface treatment: Can be painted, for example with polyurethane paint.



Airborne sound insulation according to ISO/R140-4 as MX5



	Product data	
Thickness	2.5 mm	5 mm
Width	1.2 m	1.2 m
Roll length	10 m	5 m
Surface weight	7 kg/m ²	14 kg/m ²
Colour	Black	
Temperature range	-30 °C to +80 °C	
Properties	Self-extinguishing and meets the requirements of ASTM D 1692-68	

Product description

BM is made of PVC plastisol with a barite (baryta) filler.

BM comes in one thickness which has a surface weight of: 7.5 kg/m².

Application

BM is used as soundproof sheet, i.e. it is directly bonded to sheet constructions which are intended to be soundproof. Use a contact adhesive (type 555).

BM is resistant to water and certain types of oil.

Acoustic data

The material's excellent sound damping properties (reduction value) are based on a high loss factor and great surface weight. The loss factor is a measure of the vibration energy which is converted to heat, and the reduction value expresses the isolating capacity against sound penetration.

Assembly



The BM sheet is cut with a sharp knife or similar, and is glued to the underlay with a contact adhesive (type 555).



The glue is applied to the sheet and the underlay using a brush or a fine-toothed putty knife.

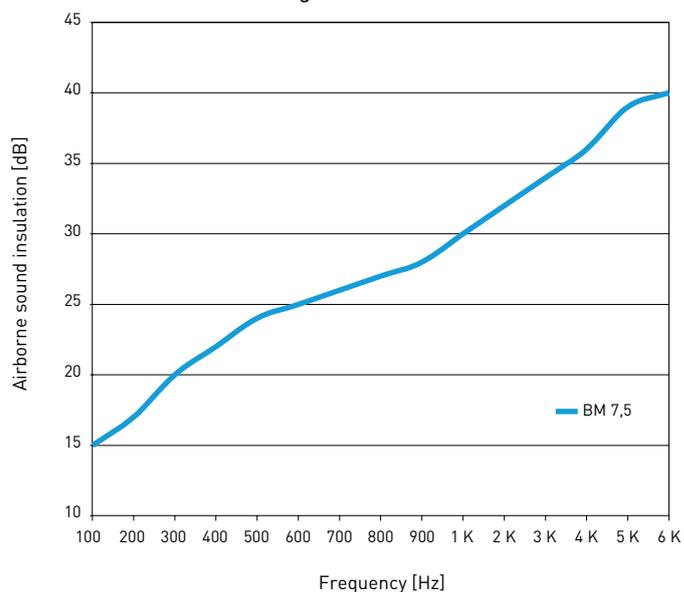
It is crucial for the adhesion that preparation (cleaning, degreasing, etc.) is done carefully, just as the gluing should not be carried out under room temperature (20 °C). The film must have full adhesive contact with the surface – use a rubber hammer or hand roller for applying it.

After assembling with glue, the temperature should not exceed 50 °C.

Under extreme conditions (bad gluing surface, downward-facing underlay, difficult installation conditions), further mechanical fastening is recommended, such as screws and washers.



Airborne sound insulation according to ISO/R140-4 as MX5



	Product data	
Thickness	4.0 mm	5.0 mm
Width	1.25 m	1.0 m
Roll length ¹	3.0 m	1.5 m
Surface weight	7.5 kg/m ²	10 kg/m ²
Adhesiveness	10 N/m ²	
Colour	Black	
Temperature range	-30 °C to +65 °C	
Properties	Self-extinguishing according to FMVSS 302, ASTM D 1692-68. Strong heating releases toxic gases that can be harmful if inhaled.	

¹available in other lengths for larger deliveries

Product description

LD-13 is a self-adhesive damping sheet. The sheet is impregnated so that it does not absorb water and mineral oil.

Application

For damping vibrations in thin sheets of metal. Used, for example, in ducts, steel cupboards, furniture, washing machines, office machines and in vehicles and steel panels.

Acoustic data

The material's sound damping properties are primarily based primarily on an increase in the loss factor of the overall construction. The loss factor is a measure of the vibrational energy converted into heat. If LD 13 is stuck to a 1 mm steel plate, the loss factor increases from about 0.001 to 0.1 or 0.2.

The loss factor is temperature dependent, as shown in the graphs to the right. Likewise, it is clear from the graphs that the loss factor is dependent on the frequency.

Assembly



Cut with scissors or knife before removing the protective paper.



The underlay must be cleaned of dust, grease, moisture or other contaminants.

Attachment is easiest if the sheet is bent and attached along the shorter side first. LD-13 can be softened and shaped by gentle heating with a heat gun.

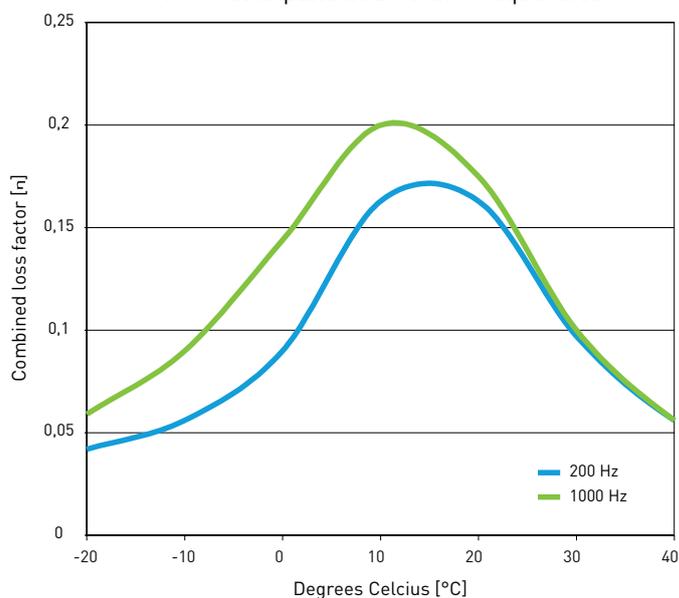
Press the sheet firmly into place and if necessary use a roll so that air bubbles are avoided (air bubbles degrade the damping). The items can put be under pressure to achieve better adhesion.

The underlay and sheet must be at room temperature (about 20 °C) prior to assembly.

Absorbent substrates such as untreated wooden boards should be primed with a contact adhesive type 555.



Loss factor for LD13 placed on a 1 mm steelplate at different frequencies



	Product data
Thickness	1.6 mm
Width	1.0 m
Length	1.02 m
Surface weight	1.6 kg/m ²
Adhesiveness	15 N/cm ² at 20 °C
Colour	Grey-black
Temperature range	-30 °C to +120 °C
Storage	Store at temperatures of 0 °C to 30 °C

Product description

D1D is a bitumen-impregnated viscoelastic sheet which is covered with self-adhesive on both sides.

Application

For damping oscillations in metal and wooden structures, as per the sandwich principle. The sheet is placed between the construction that is intended to be noise damped and a counter-sheet whose thickness is adapted according to the thickness of the base construction. Is suitable for thin sheet constructions and for greater wall thicknesses, and can be used in machine constructions, conveyor systems, vehicles, stairs, floor plates, loading docks, floors, etc.

Acoustic data

The material's sound damping qualities depend on an increase in the mechanical loss factor, which is a measure of the vibration energy which is converted into heat energy. The best results are achieved if the counter-sheet and the base construction have the same thickness, but good results are obtained at thickness ratios up to 4:1.

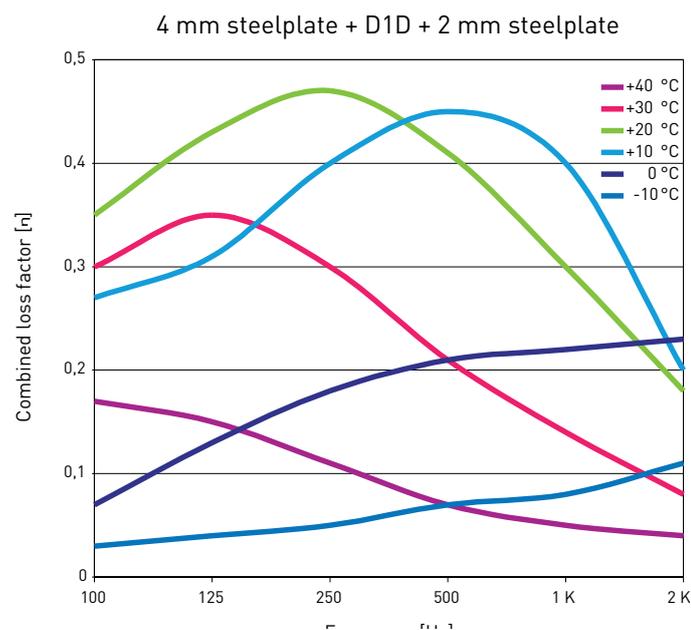


Fig. 1 Shows the loss factor's dependence on the frequency at different temperatures for a construction consisting of a 4 mm steel plate, D1D and a 2 mm steel counter-sheet.

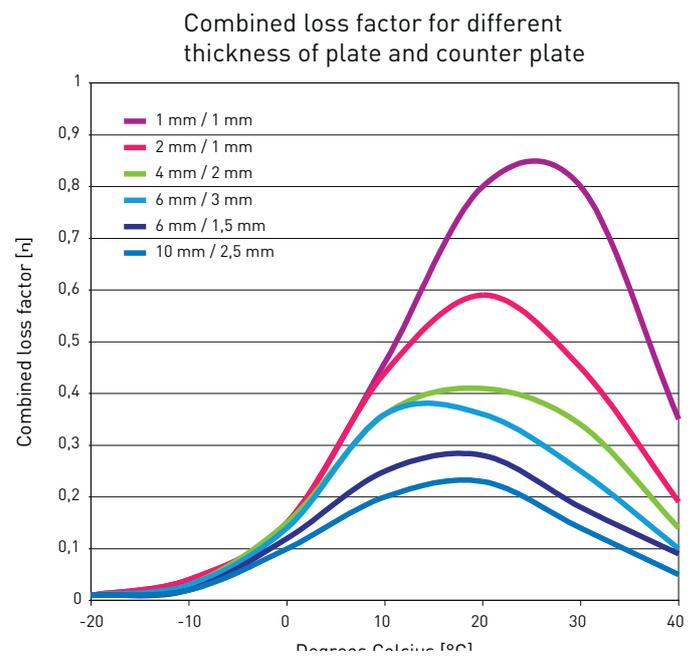


Fig.2 The loss factor's dependence on the temperature at a frequency of 200 Hz. The curves shown indicate the thickness of the basic construction in steel and the counter-sheet in steel.

	Product data
Surface weight	1.3 kg/m ²
Sheet format	1 x 0.6 m x m
Thickness	1.3 mm
Colour	Black
Temperature	-30 °C to +90 °C
Adhesiveness	40 N/cm ² [after compression at 32 N/cm ² for 5 min.]
Storage	Between 0 °C and 30 °C

Product description

Water-based, polymer-borne viscoelastic damping mass with low density and good fire retardant properties.

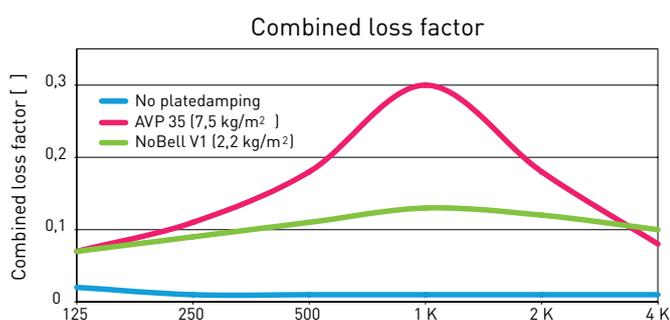
Application

Made to dampen sheet vibrations and structure-borne noise produced by either stationary mechanical oscillations or impulse influences. Since NoBell is a liquid damping mass, it is particularly suitable for applying to irregular surfaces. Typical applications are car bodies, railway wagons, diesel locomotives, ships, air ducts, doors, metal stairs, machine guards, internal fittings, conveying systems, household appliances, data systems, etc. NoBell is highly adhesive and water-resistant after drying. Due to its low density, it lends itself to be used in lightweight constructions. The damping mass is resistant to many solvents and oils after hardening. Also contains an anti-corrosion agent and has a thermal insulating ability.

Acoustic data

The material's vibration-damping characteristics are based on an increase in the loss factor. The loss factor is a measure of the vibrational energy which is converted into heat. The figure below shows the loss factor of a step of 2 mm galvanised steel plate with 8 mm diameter holes. The curves show the effect of applying AVP 3.5 mm sheet damping material and NoBell V1 damping mass, respectively.

The loss factor depends on temperature conditions. For example, the combined loss factor will be reduced by half if the temperature is lowered to 0 °C.



Consumption

For optimal resonance and sound damping, an even layer of dry 1.0–4.0 mm film should be applied, depending on the sheet thickness.

The following table shows the approximate thickness and consumption of DC NoBell V1 when damping steel plates:

Plate thickness	DC NoBell V1 (dry)	DC NoBell V1 (wet)
1 mm	1.0 mm	1.6 mm
2–4 mm	1.5–2.5 mm	2.5–4.2 mm
5–8 mm	3–4 mm	5.0–6.7 mm

Assembly

The achieved noise damping for the step is shown in the following figure:

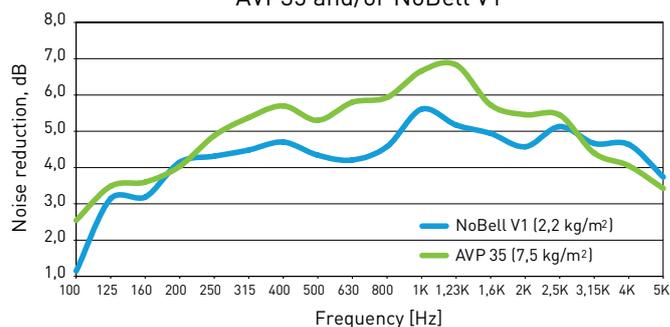


NoBell can be sprayed, painted or rolled onto a cleaned surface. Untreated steel plates (stainless-steel plates) should

be primed prior to damping mass being applied. The damping mass is applied in layers in 0.5–1.0 mm wet film which has to dry before the next layer is applied. The drying time is 6–12 hours at normal room temperature. Lower temperatures increase the drying time considerably. The product dries and hardens in two phases. During the first 6–12 hours the water is eliminated, and over the subsequent 7–14 days, a chemical hardening takes place. The hardening time depends on temperature. After the first phase, the film is dry, and the damping effect will then be approximately 80 % of the damping which will be achieved after the second phase. A new layer of NoBell can be applied after about 12 hours, but it is recommended that you test a small area before application.

In case of lack of space, you can apply, for example, 50 % on either side of the metal sheet without altering the properties of the material. Immediately after spraying, the pressure feed container, tubing and spray gun should be cleaned thoroughly with water (this also applies to the barrel pump system).

Noise reduction of stairs with AVP35 and/or NoBell V1



	Product data
Density	990 kg/m ³ in wet state
Dry matter	64 ± 2 %
Application temp.	-30–+100 °C
Colour	Wet state: grey-white. After drying: light brown
Odour	None after drying
Dilution	Water
Packaging	1, 5, 20, or 200-litre metal containers. Also available in 0.6-litre spray bottles
Properties	VOLVO meets the standard STD 5031, 1 point S4.3(a)
Flash point	> 100 °C
Storage	6 months in unopened tins at +2 to +20 °C.

Product description

SPG is a transparent soundproof curtain made from soft PVC.

Application

For screening off noisy machines and workplaces, as well as for sectioning of premises in noisy and non-noisy areas. The soundproof curtain can also be used in openings where the passage or thoroughfare of, for example, materials, is required.

Acoustic data

The soundproof curtain's reduction value is shown in the following dimensioning curve. The noise damping achieved by screening off will be in about 5–10 dB – although it depends on factors such as the room's acoustics, the noise frequency composition, the height of the curtains and the sound source's location relative to the soundproof curtains.

Assembly

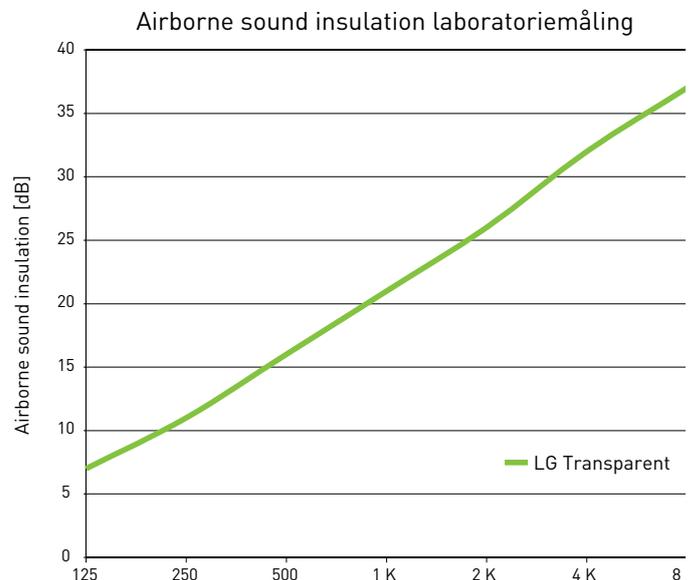
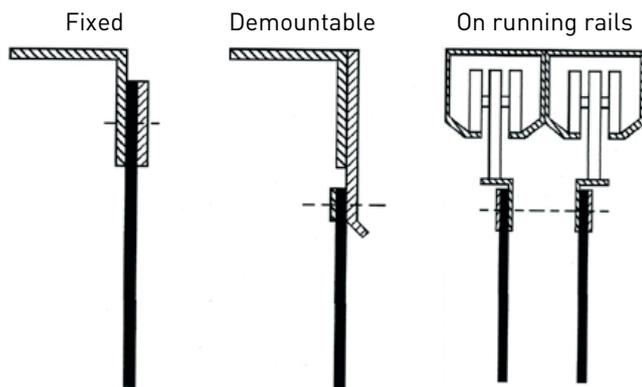
The individual curtain tracks are installed free hanging. The suspension can be fixed or on running rails so that the curtain can be slid to the side; see the examples below.

The overlap between the tracks should be 100 to 200 mm

NB! The soundproof curtain should not be suspended from tracks which are longer than 3–4 m or the dead weight will stretch the material.

If longer lengths are needed, clamp rails of should be fitted made of, for example, steel strips.

Assembly examples



Product data	
Surface weight	3.7 kg/m ²
Thickness	3.0 mm
Width	1.2 m Also available in other widths
Length	20 m Also available in other lengths
Weight	4.5 kg/lb. md.
Conduction	0.15 W/mK
Colour	Transparent
Temperature range	-30 °C to +40 °C (for short amounts of time, up to 100 °C)
Properties	Self-extinguishing and does not continue to glow. Tested in accordance with DIN 53382
Storage	Store at temperatures of 0 °C to 30 °C

Product description

BMJ is made of PVC plastisol with a barite (baryta) filler. The soundproof curtain has a top coat of black patterned PVC film and a base fabric of jute. The jute provides shape stability and increases the strength against tensile stresses. BMJ is available in four thicknesses with surface weights of: 5–7.5 – 10– 5 kg/m².

Application

For screening off noisy machines and workplaces, as well as for sectioning premises in noisy and non-noisy areas. Can also be used in openings where the passage or thoroughfare of materials is required. BMJ may also be used as a soundproofing sheet, i.e. directly applied to sheet constructions which require soundproofing. Use a contact adhesive (type 555). BMJ is resistant to water and certain types of oil.

Acoustic data

The material's excellent sound damping properties (reduction value) are based on a high loss factor and great surface weight. The loss factor is a measure of the vibration energy which is converted to heat, and the reduction value expresses the isolating capacity against sound penetration.

Assembly

When hanging BMJ as a soundproof curtain, the noise damping depends heavily on factors such as the room's acoustics, the noise frequency's composition, the height of the curtain, densities and the sound source's location relative to the recipient, etc.



As a soundproof sheet: Cut the BMJ sheet with a sharp knife or similar and glue it to the underlay using contact adhesive (type 555). The adhesive is applied to the side with jute and the underlay using a brush or a fine-toothed putty knife.



It is crucial for the adhesion that preparation (cleaning, degreasing, etc.) is done carefully, just as the gluing should not be carried out under room temperature (20 °C). The film must have full adhesive contact with the surface – use a rubber hammer or hand roller for applying it.

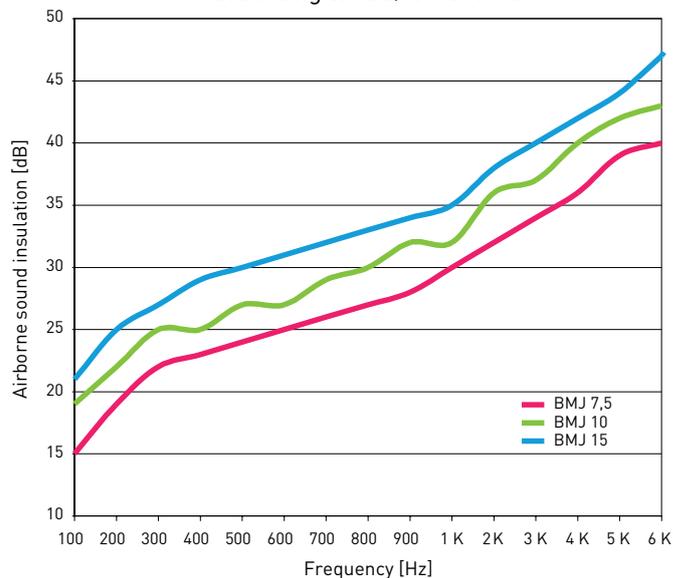
After application using glue, the temperature should not exceed 50 °C.

Under extreme conditions (bad gluing surface, downward-facing underlay, difficult installation conditions), further mechanical fastening is recommended, such as screws and washers.

As a soundproof curtain: The individual curtain tracks are installed free hanging. The suspension may be fixed or on running rails so that the curtain can be slid to the side. The overlap between the tracks should be 10–20 cm and should moreover be fitted as tightly as possible to achieve maximum sound isolation.



Airborne sound insulation according to ISO/R140-1960



	Product data		
Surface weight	7.5 kg/m ²	10.0 kg/m ²	15.0 kg/m ²
Thickness	5 mm	6 mm	8 mm
Width	1.25 m	1.25 m	1.25 m
Roll length ¹	1.5 m	1.5 m	1.5 m
Colour	Black		
Temperature range	-30 °C to +50 °C		
Properties	Self-extinguishing according to FMVSS 302, ASTM D 1692-68. Strong heating releases toxic gases that can be harmful if inhaled.		

¹available in other lengths for larger deliveries

Product description

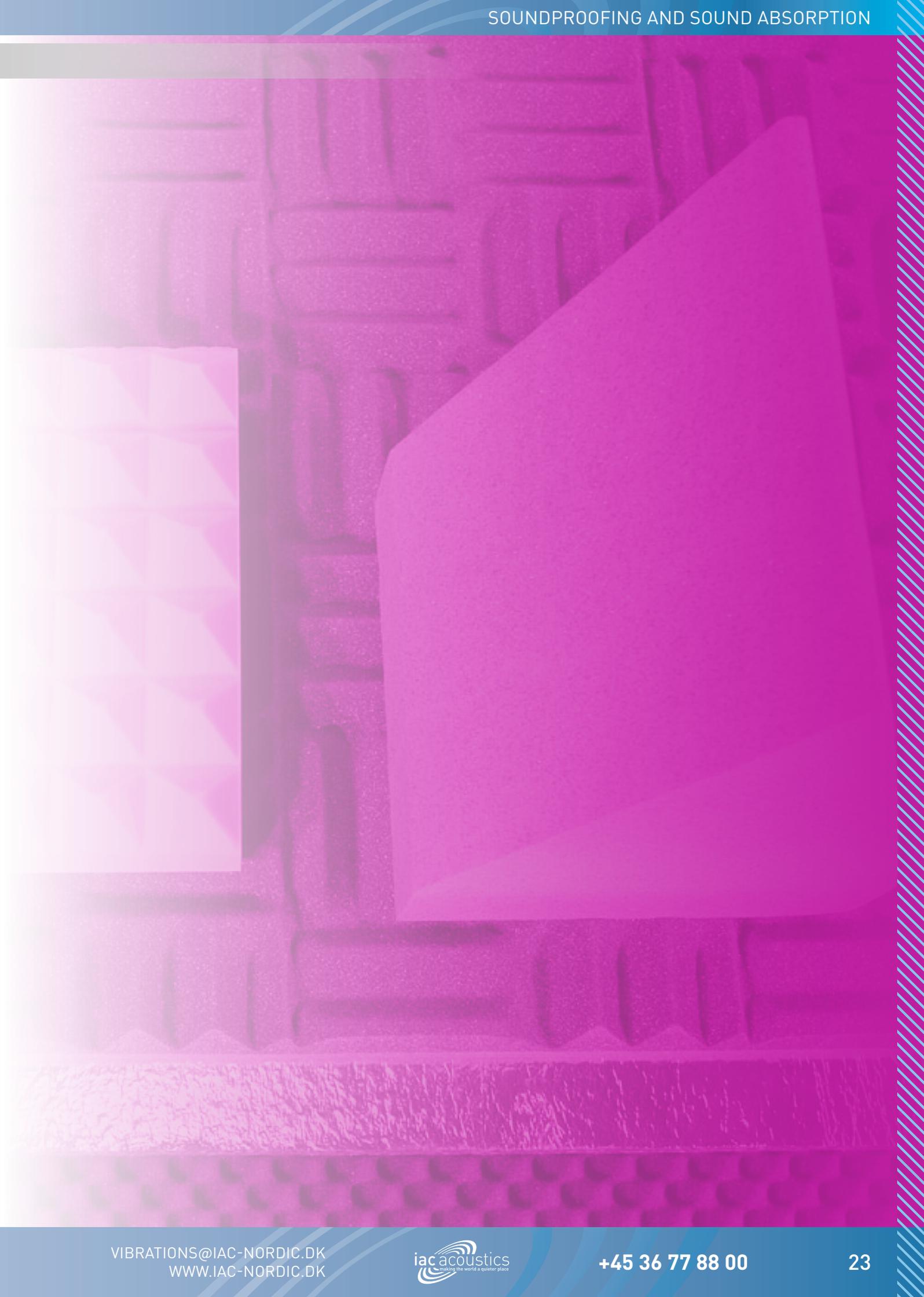
Robust and highly durable waterproof floor and soundproof mat. The mat is composed of a 5 mm heavy plastisol mat with fillers of minerals and a 5 mm spacer of cross-linked polyethylene. The square pattern on the surface provides good non-slip properties. Resistant to many oils and oil products.

Application

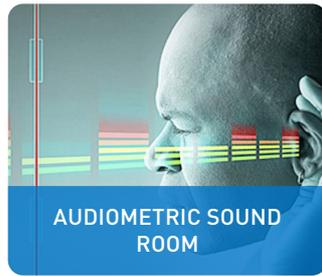
Designed to provide sound reduction at medium and high frequencies without significantly increasing the weight of the existing construction. Especially suitable for cabins in vehicles, for example in tractor cabs, excavators, trucks, etc., as well as a floor mat.



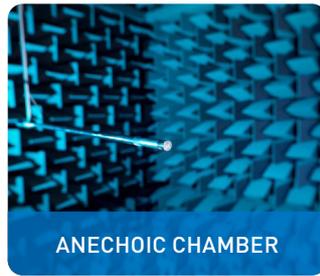
	Product data
Surface weight	7.5 kg/m ² ± 10 %
Thickness	10.0 mm
Width	1.25 m
Length	1.5 or 3.0 m
Appearance	Black checked surface with a light grey back
Temperature range	-30 °C to +80 °C (for short amounts of time, up to 100 °C)
Properties	Self-extinguishing, both surfaces in accordance with FMVSS 302
Tensile strength	700 N/cm ² (903 BS part A2)
Tearing strength	60 kN/m (BS 903 part A3)
Elongation in case of breaks	150 % (903 BS part A2)
Resistance to liquids	Good resistance to a wide range of common liquids such as water, diesel oil, anti-rust agent and brake fluid



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FLOOR PADS WALL MOUNTS & CEILING HANGERS



NOISE SCREENS



SOUNDPROOF DOORS AND SOUNDPROOF WINDOWS



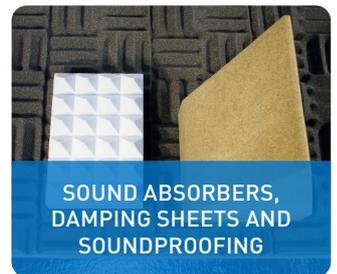
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