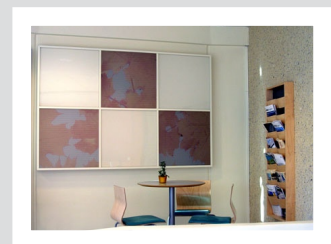
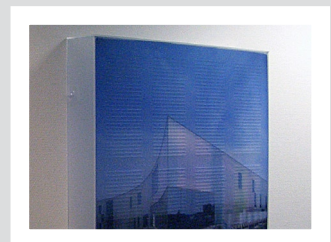
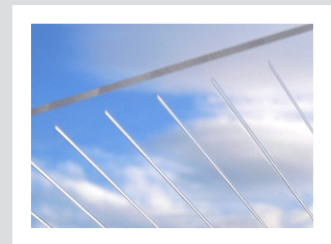
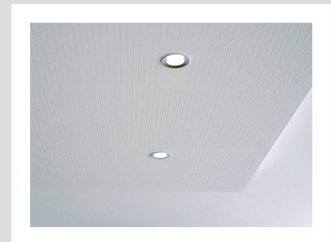


DeAmp Product Catalog

The new generation in sound absorbing



www.deamp.com

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The New Generation in Sound Absorbing

DeAmp is developing and marketing fiber free acoustical ceilings and walls in hard materials like metal and plastic. We offer the most affordable solution covering all demands for customers with a desire for smart design, high acoustic quality and a healthier indoor environment.

Unique Patented Technology

DeAmp's technology is developed during 10 years of research at SINTEF and The Norwegian University of Science and Technology. The technology is based on the well-known acoustic principle Helmholtz resonator. DeAmp's unique technology utilizes laser cut micro slits to perforate the surface. When sound waves, defined as compressed air, hit the perforated surface an overpressure arises on the front of the panel. To equalize the pressure, the compressed air is forced through the micro slits, and viscous forces between the very narrow slit and the air causes friction. Hence the sound waves are absorbed and transformed into heat without use of any porous fiber-materials. The technology is internationally patented by DeAmp.

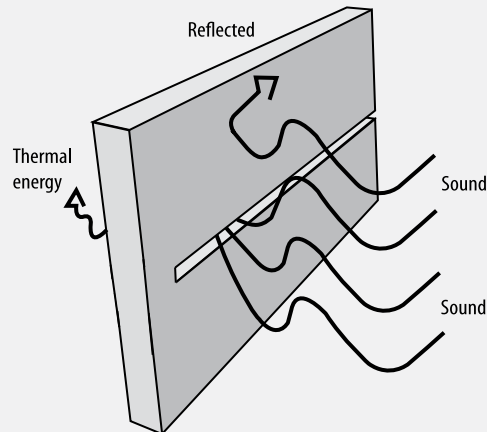
Excellent Esthetical Properties

Our sound absorbers offer excellent esthetical properties treasured by architects. We offer clean and smooth surfaces and a wide variety of colors and surface finishes. DeAmp's absorbers can be anodized, painted, engraved or printed on, and because they are fiber free they can be transparent, translucent or colored. Panels can be mounted in traditional ceiling suspensions, directly on walls, as panel elements in office furniture systems or stand alone partition walls.

The Safe and Healthy Alternative

Fiber free sound absorbers ensure a better indoor environment, especially for children and people with respiratory disorders. The products do not emit fiber particles, nor do they collect dust in the slits. They do not absorb moisture, which can lead to fungi and rot, and they are easy to clean with water based products. These benefits reduce costs related to sick leave, loss of productivity and maintenance of facilities.

Dust from porous materials can be inflammable and create life-threatening hazards because of limited visibility and breathing difficulties in a fire emergency. DeAmp metal absorbers are made from 100% solid aluminum or steel without the use of porous layers or fiber membranes.



High Light Reflection

The laser cut micro perforated slits are less than 0.2mm wide and therefore barely visible at a normal distance from the ceiling. They cover less than 1% of the panel surface and consequently over 99% of the material is left as a reflecting area. By utilization of the reflecting or transparent surfaces, DeAmp panels can lead the light into the room, something which has been difficult with traditional sound absorbers. Exploitation of daylight reduces lighting costs, and improves the users' well-being.

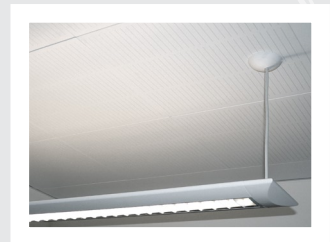
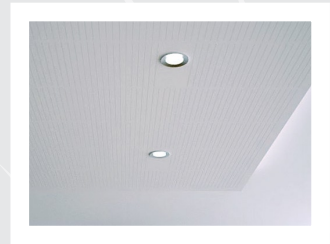
Energy Efficiency

Traditional suspended fiber based ceiling systems, in combination with active cooling in a concrete ceiling, will reduce the performance of the cooling system. The fibers will work as an insulating layer, and hence increase the energy consumption of the cooling system. Scientific reports on the energy efficiency of DeAmp products, states that this increase can be reduced with 50% by using DeAmp's aluminum absorbers compared to traditional fiber absorbers. The effect will also be considerable when utilizing the thermal inertia of the building materials to keep the temperature at a comfortable and more stable level during the shifting day and night conditions.

Sound Absorption

Compared to the best porous absorbers, micro perforated products perform somewhat poorer in higher frequencies. However, higher frequencies are more easily absorbed by furniture, people and surface elements in the room. Therefore excellent acoustic conditions can still be achieved based on the high absorption at low and middle frequencies. Scientific measurements from our reference projects show that values are below the required reverberation time for the whole frequency band.

Metal Series



Long product lifetime

High acoustic performance

Absorption properties can easily be adjusted

Available in all NCS and RAL coded color schemes

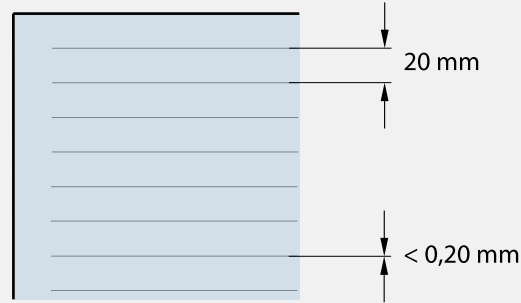
Completely free of fibers and does not emit health impairing particles

No restrictions concerning moisture and the product is easily cleanable

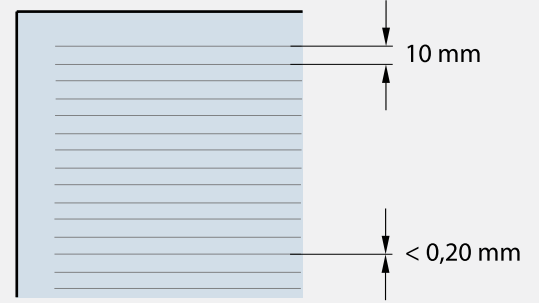
Metal Ceiling

Perforations

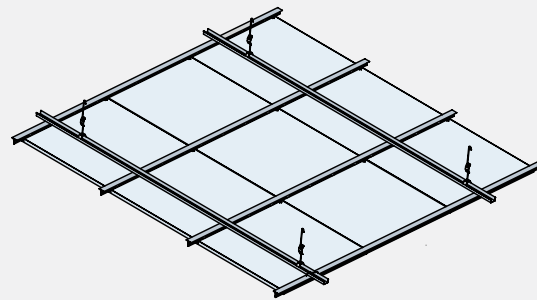
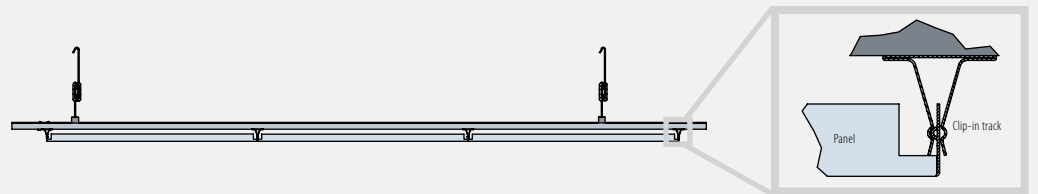
Approximately 0.85% open area



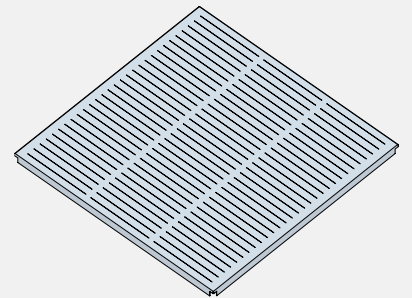
Approximately 1.60% open area



Clip-in Ceiling Panel

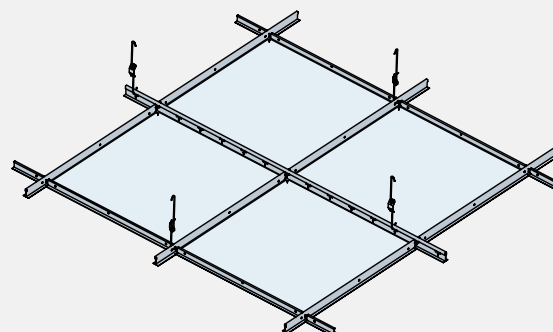
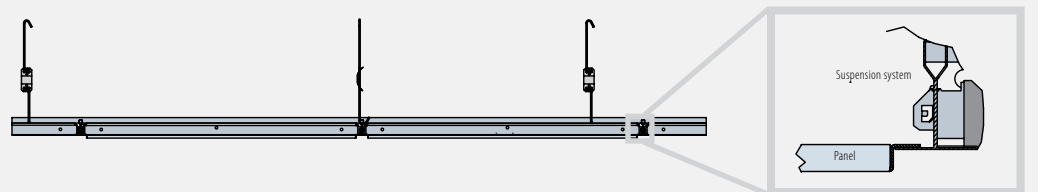


Typical suspension system for clip-in ceiling panels

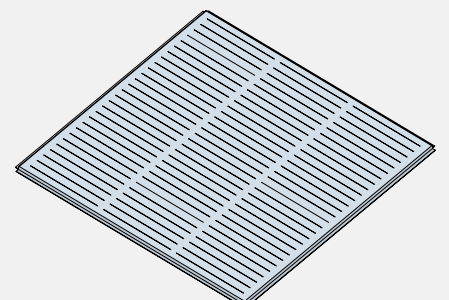


Clip-in panel, module 600x600 mm

Lay-in Ceiling Panel



Typical suspension system for lay-in ceiling panels



Lay-in panel, module 600x600 mm

Collaboration with Meta AS

DeAmp has teamed up with Meta AS, Norway's largest ceiling manufacturer, in order to offer our customers flexibility in terms of suspension systems and customizations for fitting with ventilation and lightning systems.



Technical Data

Material	aluminum or steel
Thickness	from 0.7 mm to 1 mm
Size	standard 600 x 600 mm / 600 x 1200 mm customizations available
Color	standard RAL 9010 all NCS- and RAL coded colors available
Sound absorption	NRC 0.50 to 0.80
Fire standards	UK, BS 476 Part 7 - Class 1

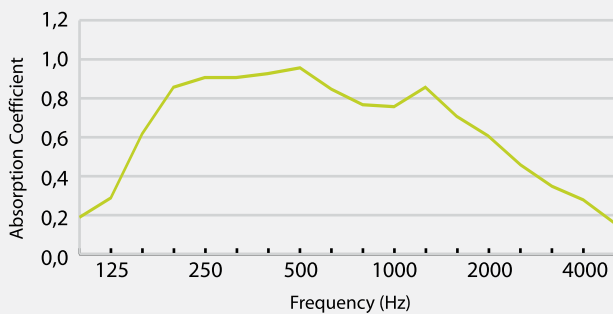
Recyclability

DeAmp aluminum panels are made from recycled metal and our ceiling panels are 100% recyclable.



Sound Absorption

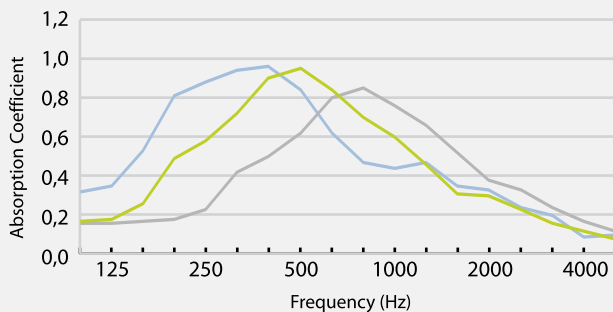
The absorption coefficient is adjustable to the desired frequency area.



Suspension height, H (mm):

- Layer 1: 100 mm ¹⁾
- Layer 2: 125 mm

This figure shows the absorption coefficient using double layers mounted 100 mm and 125 mm from the noise reflecting surface.



Suspension height, H (mm):

- 200 mm ²⁾
- 100 mm ¹⁾
- 40 mm ²⁾

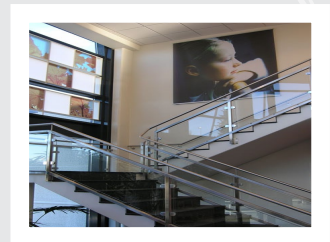
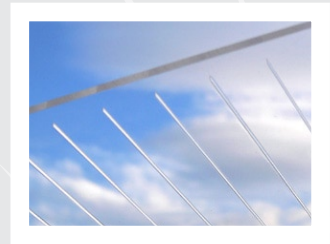
This figure illustrates the absorption coefficient when the absorbing panel is placed respectively 200, 100 and 40 mm from the noise reflecting surface behind.

H (mm)	125	250	500	1000	2000	4000	NRC
■ 100 / 125 ¹⁾	0.29	0.91	0.96	0.76	0.61	0.28	0.80
■ 40 ²⁾	0.16	0.23	0.62	0.76	0.38	0.17	0.50
■ 100 ¹⁾	0.18	0.58	0.95	0.60	0.30	0.12	0.60
■ 200 ²⁾	0.35	0.88	0.84	0.44	0.33	0.09	0.60

¹⁾ Measured results from SINTEF/NTNU acoustic laboratory. All tests are performed by Professor Tor Erik Vigran.

²⁾ Calculated results.

Acrylic Series



Long product lifetime

High acoustic performance

Absorption properties can easily be adjusted

Completely free of fibers and does not emit health impairing particles

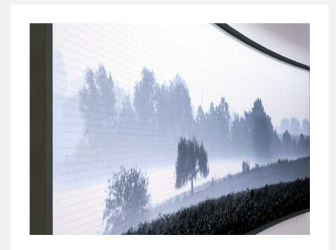
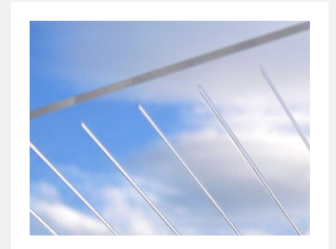
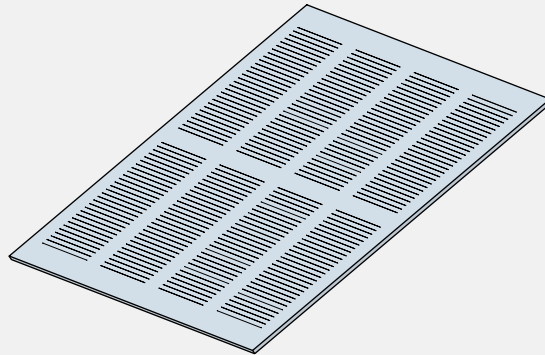
No restrictions concerning moisture and the product is easily cleanable

The absorbers can be transparent, printed on or delivered in a variety of colors

Panel Absorber

DeAmp panel absorbers are perfect for use in facilities with extensive use of glass, concrete and other hard surfaces. Our panels can be mounted directly on the wall, or in front of windows, pictures or light sources. It is also possible to print directly on the panels. DeAmp corner absorbers can be installed towards ceilings or walls and deliver excellent absorption performance compared to its limited size.

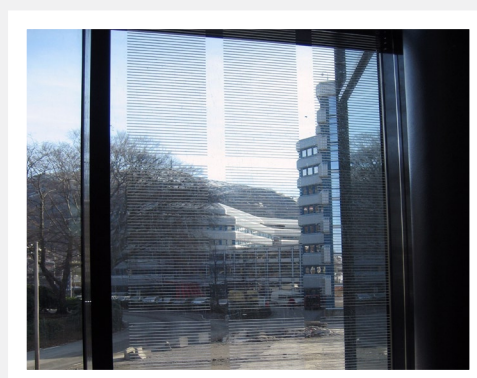
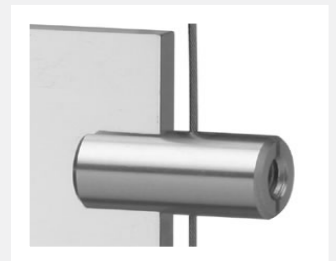
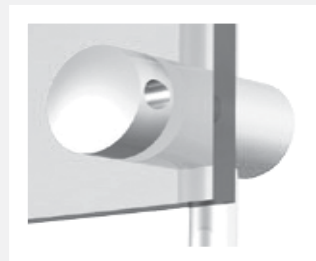
Product Options



Size	standard 600 x 600 mm customizations available
Maximum size	2000 x 3000 mm
Thickness	from 4 mm to 15 mm

Installation

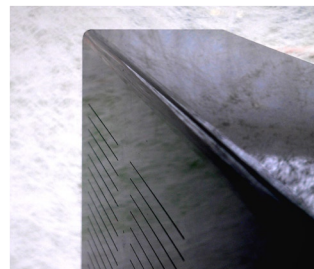
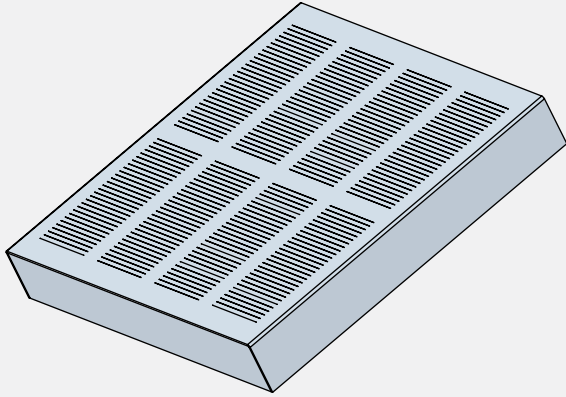
DeAmp panels can be mounted with exposed hardware as standoff pins or in wire systems. Customized solutions for mounting in front of light sources and window surfaces are also available.



Box Absorber

DeAmp box absorbers are very easy to install without the need for any additional suspension or mounting system. They are suitable in small installations or as building blocks in larger installations. In addition they can be customized with printing and fitted for home theater use.

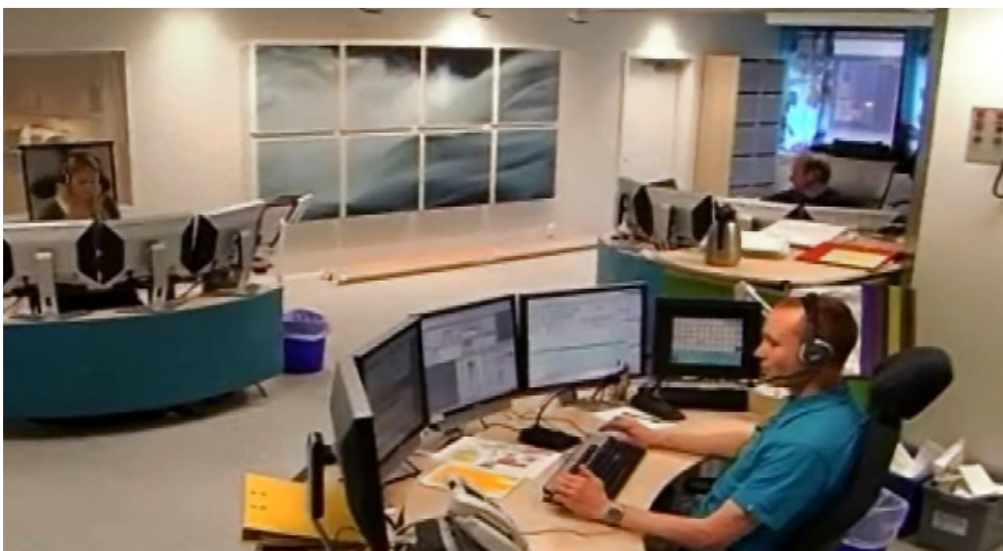
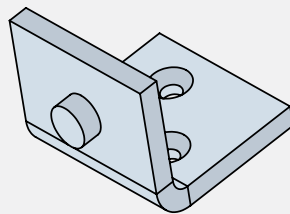
Product Options



Height	700 mm
Width	700 mm
Depth	100 mm

Installation

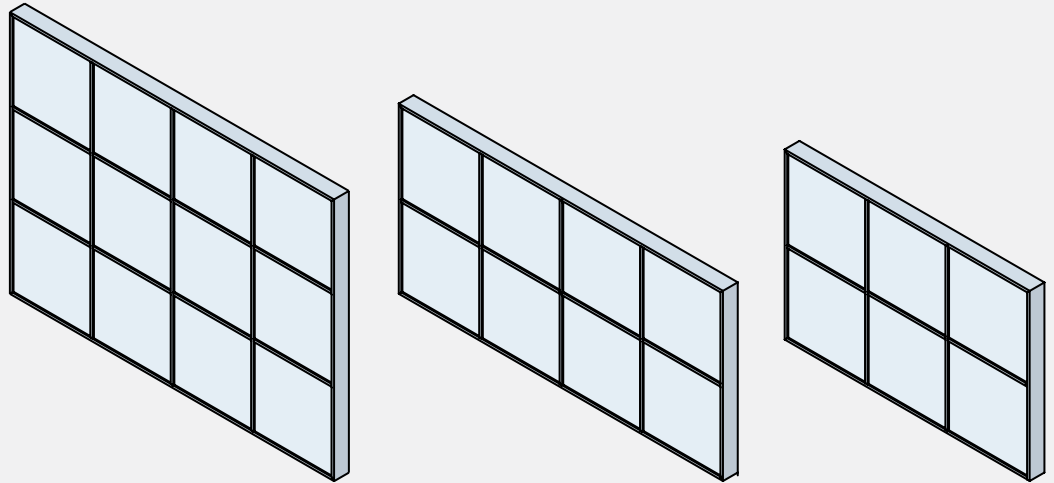
DeAmp box absorbers can be mounted directly on wall surfaces or in front of windows. The box absorbers are easily installed with prefabricated suspension brackets.



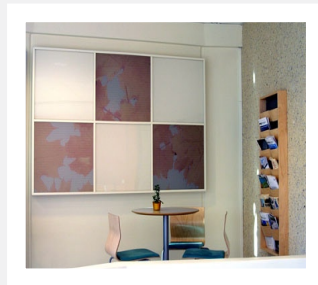
Framed Wall Absorber

DeAmp framed wall absorbers are perfect for small renovation projects or as supplementary product to acoustical ceiling tiles. It is also suitable in buildings where acoustical ceiling tiles can not be used. DeAmp framed wall absorbers can be mounted directly on the wall or used in front of windows or light sources to create a stylish effect. The product is compounded of our standard 600 x 600 mm acrylic panels and prefabricated MDF frameworks. Panels and frameworks are available in various colors and customized sizes.

Product Options

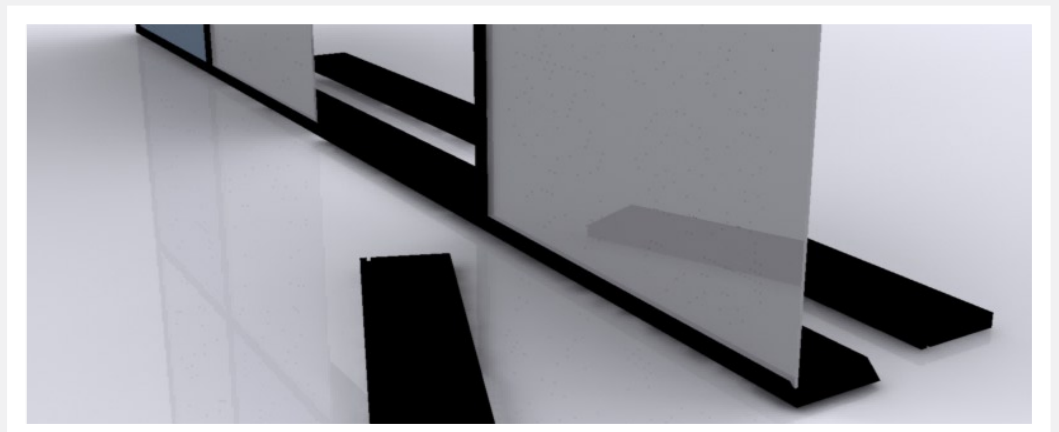


Height	1816 mm	1217 mm	1217 mm
Width	2415 mm	2415 mm	1816 mm
Depth	110 mm	110 mm	110 mm

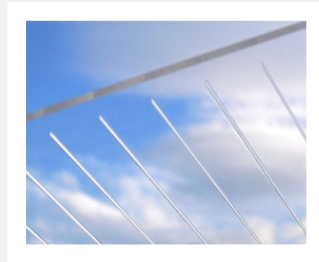


Assembly

The framework is easy to assembly and install, and only basic tools are required.



Color Scheme



DeAmp acrylic series is available in transparent acrylics, frosted and in a wide range of colors. Our acrylic panels can also be engraved or printed on. DeAmp acrylic series has excellent UV resistance.

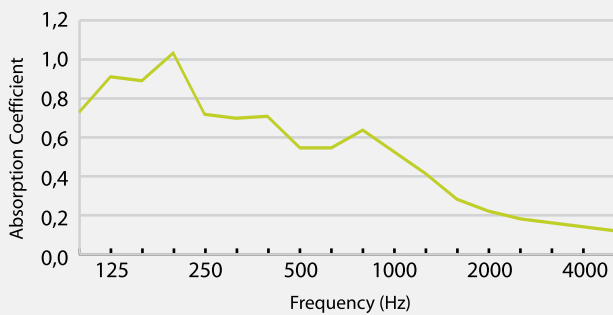
Technical Data

Material	cast acrylic (PMMA) ¹⁾	
Thickness	from 4 mm to 15 mm	
Size	customizations available	
Color	colored, transparent or translucent	
Sound absorption	NRC 0.45 to 0.55	
Flammability	UK, BS 476 Part 7 - Class 3 DIN 4102 - B2 ¹⁾ NFP 92-507 - M4	UL94 - HB ISO 11925-2 - E

¹⁾ Also available in PETG with flammability class B1 (DIN 4102) / class 1Y (UK, BS 476 Part 7)

Sound Absorption

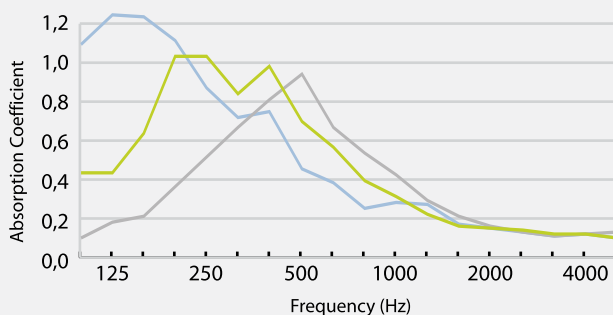
The absorption coefficient is adjustable to the desired frequency area.



Suspension height, H (mm):

- Layer 1: 110 mm ²⁾
- Layer 2: 130 mm

This figure shows the absorption coefficient using double layers mounted 110 mm and 130 mm from the noise reflecting surface.



Suspension height, H (mm):

- 197 mm ²⁾
- 97 mm ²⁾
- 54 mm ²⁾

This figure shows the absorption coefficient when the absorbing panel is placed respectively 197, 97 and 54 mm from the noise reflecting surface behind.

H (mm)	125	250	500	1000	2000	4000	NRC
■ 110 / 130 ²⁾	0.90	0.71	0.54	0.52	0.22	0.14	0.50
■ 54 ²⁾	0.19	0.52	0.94	0.43	0.17	0.13	0.50
■ 97 ²⁾	0.44	1.03	0.70	0.32	0.16	0.13	0.55
■ 197 ²⁾	1.24	0.87	0.46	0.29	0.16	0.13	0.45

²⁾ Measured results from tests performed by SINTEF ICT according to ISO 354 nad ISO 11654.



References

Tide, one of Norway's largest privately owned public transportation companies, recently moved to their new office locations in Bergen, Norway. They used innovative interior solutions to create an efficient and pleasant open office landscape. The glass window facade is soundproofed and DeAmp's perforated wall panels absorb sound within the open office landscape. The wall panels are also part of the visual expression created in the building.

More reference projects available on our website: www.deamp.com



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