



NEW: 5 mm Insulation thickness

Thinner than the standard!

kaivenience[®]

Setting limits on noise – with Kaimann's sound insulation solutions

- Multilayer noise protection system for insulation of waste water, rain water and sewage pipes
- Efficient sound insulation and absorption enhances buildings, increases both productivity and users' well-being while reducing stress-related health risks
- Easy application – high durability
- Smooth waterproof finish, that can be easily cleaned, protects against mechanical impact





Why sound insulation?

Noises from water supply and sewage lines are often perceived as very loud and annoying when these lines run next to rooms where noise protection is needed, like living rooms and bedrooms. Constant noise in working areas can also lead to reduced productivity. Among the causes of disturbing noises are falling water and impact in bends (air noise). If a line is in direct physical contact with another object, such as a mounting bracket, the vibrations can also propagate from surface to surface and cause structure-borne sound.

Noise from technical systems in a building inhibits concentration and reduces well-being and quality of life; it is a major factor in the health of residents and users of the building. Whether in residential, hotel or office buildings, effective soundproofing improves quality of life and adds value to a property.

The minimum requirements for the soundproofing of technical systems and plumbing fittings and devices are defined in DIN 4109 "Soundproofing in building construction". According to the German Federal Environment Agency, the purpose of DIN 4109 is to ensure that people in residential and office spaces within buildings are protected against "unacceptable disturbance" due to sound emissions. VDI 4100 is also used as a standard in Germany. VDI distinguishes between three

soundproofing levels (SSt). Depending on the level and type of building, interior technical systems must not cause noise levels exceeding 35 dB (SSt I) or 22 dB (SSt III). Only then does the insulation of technical systems and pipelines meet soundproofing standards.

If noise disturbance occurs, the planner or architect as well as the installing contractor can be held to account. Retrofitting insulation can be very costly or even impossible, since sometimes lines and ducts cannot be accessed after the building has been completed. If this is the case, the building developer or owner can make very high claims for damages. Therefore, it is in the interest of architects and installers that a detailed soundproofing plan be in place right from the beginning of a project.

Kaivenience makes a major contribution to the soundproofing of sewage, wastewater and rainwater pipelines and to compliance with technical requirements. Applied to synthetic or cast-iron pipes, Kaivenience prevents vibrations from being transmitted by structures and also attenuates airborne sound.





Insulation system for efficient noise reduction




Kaivenience is a multi-layered system based on an acoustic insulation material in combination with various coatings, which is particularly suitable for indoor and outdoor rainwater and sewage pipes.

Its open-cell elastomer foam has a very high $>300 \text{ kg/m}^3$ density and absorbs structure-borne and airborne sound, even at a very low insulation thickness of 5 mm. As sound waves enter the cell structure, they are scattered many times over, attenuated and absorbed. This weakens the sound waves (reduces their amplitude) as they pass through

the material. This applies to almost all frequencies. Whether falling, impact or flow noises, the material enables the system to absorb the different frequencies of water noises and minimise the sound produced.

The coatings further enhance noise reduction by reflecting the sound back into the elastomer foam, where it is further attenuated. This largely prevents structure-borne noise propagation and its conversion into airborne noise.

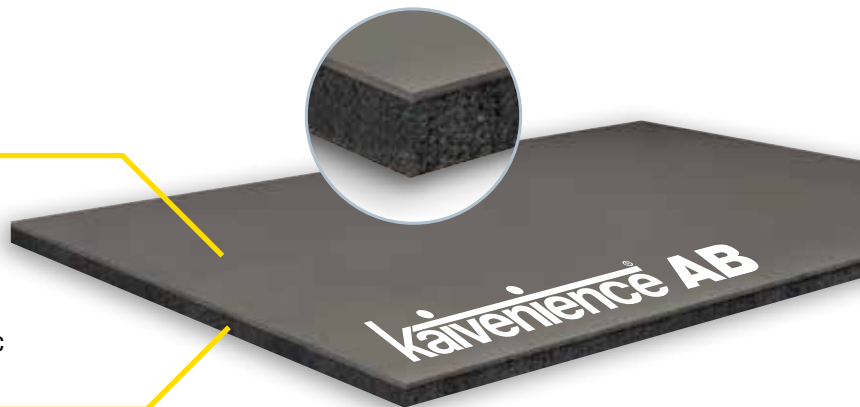
Kaivenience Overview

	Kaivenience AB	Kaivenience AB-ALU	Kaivenience PLUS
Description	Multilayer system consisting of elastomeric foam and heavy foil 	Multilayer system consisting of elastomeric foam, heavy foil and aluminium covering 	Multilayer system consisting of elastomeric foam and polymeric covering 
Colour	Black / Anthracite	Black / Anthracite / Silver	Black / Grey
Product type / Insulation thickness	Sheet / Self-adhesive sheet 5 / 10 mm		
Euroclass	E	D-s2, d0 (5 mm) or D-s3, d0 (10 mm)	E
Water vapour permeability	$\mu \geq 100.000$		
Max. achievable soundproofing	SSt III / SSt EB II *		–
Outdoor applications	–	•	•
Dimensions	Length x Width: 1,18 x 0,83 m ($\approx 1,00 \text{ m}^2$)		
Packaging units	2 (10 mm) or 3 (5 mm) sheets rolled in carton, 24 cartons per pallet Larger packaging units available on request.		

* All results are determined without further shielding, such as by plasterboard. With shielding, soundproofing class SSt EB II (basement front) can generally be assumed.

Heavy foil based on polymer, lead-free,
filled with inorganic materials

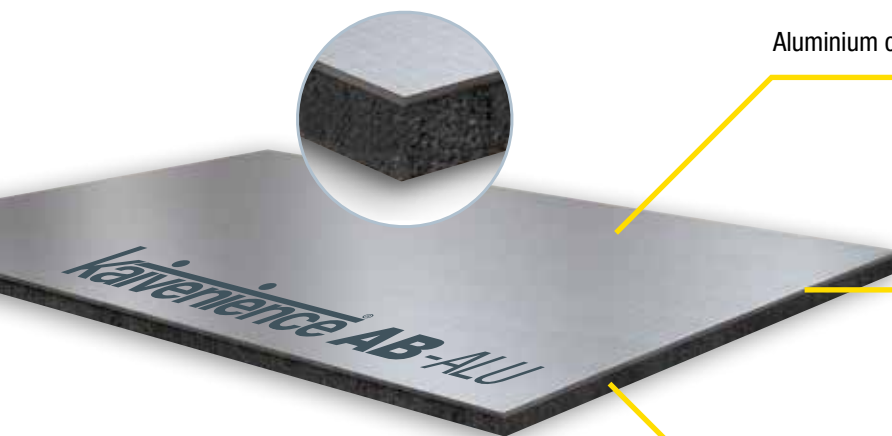
Open porous, hydrophobic and flexible acoustic
insulation material based on synthetic rubber



Aluminium composite foil with glass-fibre scrim

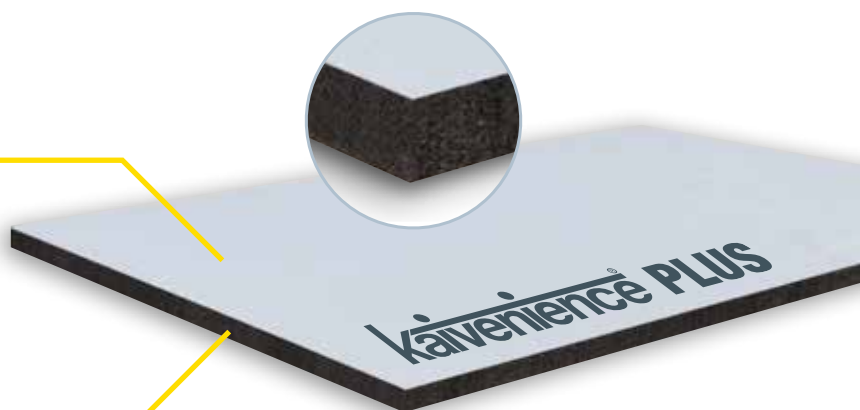
Heavy foil based on polymer, lead-free,
filled with inorganic materials

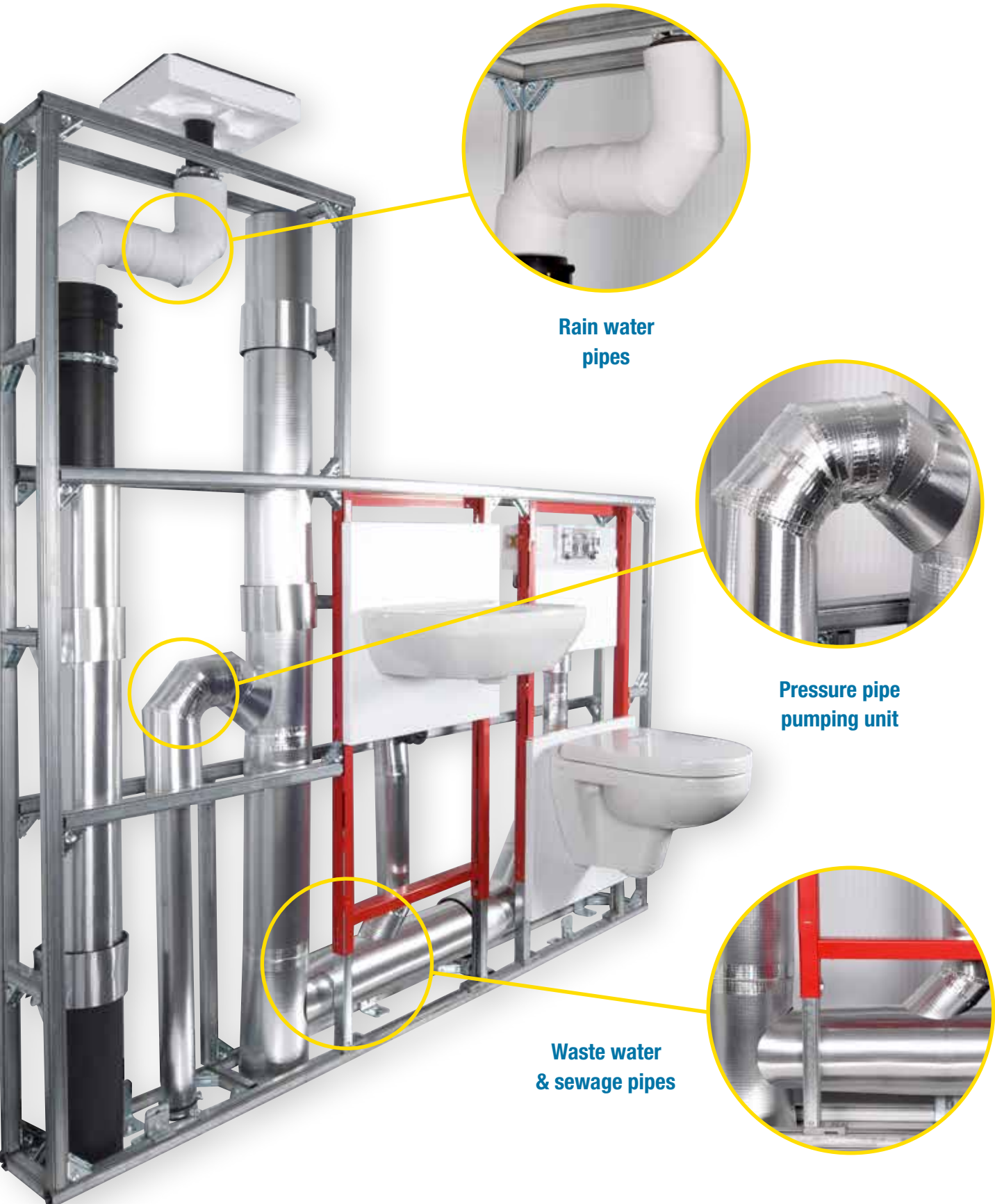
Open porous, hydrophobic and flexible acoustic
insulation material based on synthetic rubber



High density, high durability polymeric cladding

Open porous, hydrophobic and flexible acoustic
insulation material based on synthetic rubber





Multilayer noise protection system with many advantages



Effective soundproofing reduces noise disturbance

At a water flow of 2 l/s in a light sewage system of plastic, Kaivenience achieves a level reduction of up to 15 dB (A) in the installation space and up to 18 dB (A) in the room behind the installation wall.



Simple installation

Just 5 to 10 mm thin, this solution developed by Kaimann is thinner than other systems and is therefore suitable even for very tight spaces. For example, if the pipe shaft is narrow or the line is close to the house wall, this thin and very flexible material can still be quickly and easily applied around the pipes, even when retrofitting as part of renovation.



High durability

Thanks to its coatings, Kaivenience is less affected by ambient conditions and damage, and integrates harmoniously into its surroundings if installed where visible. Kaivenience AB can also be painted with standard alkyd paints or Kaifinish Color.



Low smoke emission and reliable condensation prevention

Thanks to its extremely high 100000 μ water diffusion resistance, Kaivenience reliably protects against the formation of water condensation. Its Euroclass up to B₁-s2, d0* contributes to personal safety in case of fire.



Easy handling

Kaivenience is supplied in handy 203 x 203 x 841 mm packaging, so that individual boxes can be transported at the construction site without problems.



Documented tests

To demonstrate the noise reduction effect of Kaivenience, official tests were performed at the Fraunhofer Institute for Building Physics, IBP, in Stuttgart based on DIN 4109:2018-01 and DIN- EN 14366:2005-2.

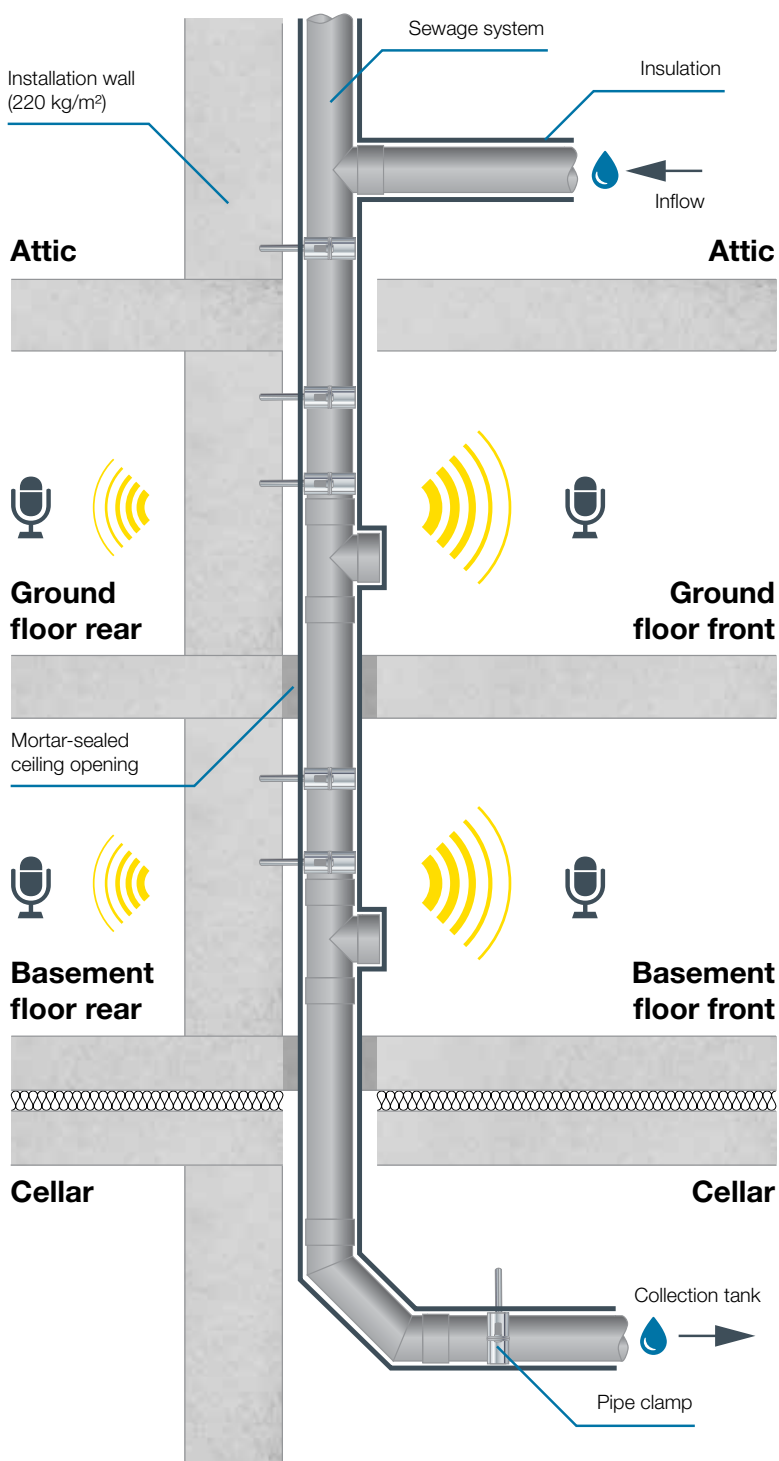
The noise level generated by a sewage pipe was simulated using constant water flow rates of 0.5, 1.0, 2.0 and 4.0 l/s through a DN 100 diameter pipe. The 2.0 l/s rate corresponds to the average flow rate of a toilet flush.



In this simulation, two types of noise level were measured. One was the airborne noise directly in the installation space without further shielding (such as plasterboard) (basement front). The other was the structure-borne noise propagated by the pipe brackets through the installation wall into the room behind it (basement rear). The reference measurement to determine the structure-borne noise attenuation was performed on a sewage system without pipe coating in a mortar-sealed ceiling opening.



Tested **without** plasterboard shielding



Up to 18 dB (A)
level attenuation

The results show that at a water flow of 2 l/s in a light sewage system of plastic, Kaivenience pipe coating achieves a level reduction of **up to 15 dB (A)** in the installation space and **up to 18 dB (A)** in the room behind the installation wall.

Kaivenience AB / AB-ALU Technical Data

Components	Base material	Multilayer system consisting of elastomeric foam, heavy foil and (optional) aluminium covering	
	Heavy foil	Open porous, hydrophobic and flexible acoustic insulation material based on synthetic rubber with broad variation of cavity geometries for multi-frequency absorption	
	Covering (Kaivenience AB-ALU only)	Heavy foil based on polymer, lead-free, filled with inorganic materials Aluminium composite foil with glass-fibre scrim	
Colour	Base material	Black	See remark (1)
	Heavy foil	Anthracite	
	Covering (Kaivenience AB-ALU only)	Silver	
Upper temperature limit		+100 °C	
Lower temperature limit		–30 °C	See remark (2)
Water vapour permeability	Moisture resistance factor μ	≥ 100000	In acc. with DIN EN 13469 DIN EN 12086
Euroclass [°]	Kaivenience AB	E	In acc. with EN 13823 EN ISO 11925-2 See remark (3)
	Kaivenience AB-ALU	D-s2, d0 (5 mm) or D-s3, d0 (10 mm)	
Practical fire behaviour		Self-extinguishing	See remark (4)
Density	Base material	>300 kg/m ³	In acc. with ISO 845 ASTM D1622 See remark (4)
	Heavy foil	approx. 2000 kg/m ³	
Health aspects		Fibre free: For high hygiene requirements Free from hazardous substances	In acc. with (EG) Nr. 1907/2006
Shelf life		Material has to be mounted within two years after supply and proper storage. Self-adhesive material within one year.	Store in a dry room away from UV and sunlight at a typical relative humidity (between 50 % and 70 %) and room temperature (between +5 °C and +35 °C)
Outdoor applications	Kaivenience AB-ALU	No additional protection required	

Remark (1) Colour deviations of 15 % may be possible. When used in visible areas, Kaivenience AB can be coated with commercially available alkyd colours or Kaifinish Color.

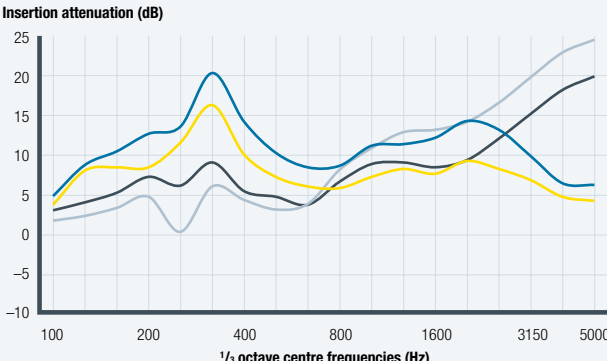
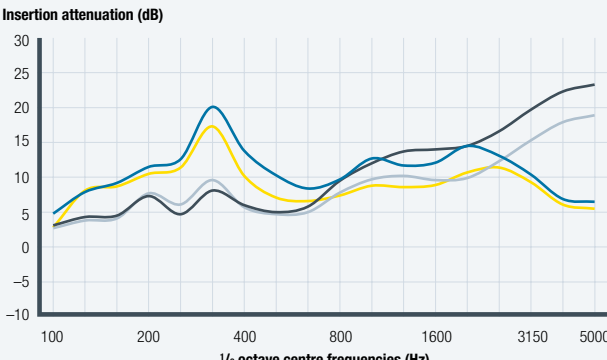
Remark (2) For temperatures below –30 °C please contact our Technical Support Team for advice.

Remark (3) In-house production control, up to B₁-s2, d0, depending on the application.

Remark (4) In-house production control.

[°] The Euroclass rating applies to metallic or solid mineral substrates.

Kaivenience AB / AB-ALU Technical Data

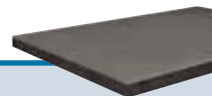
Sound transmission Kaivenience AB	Measurements on pipe type „Plastic Pipe HTEM“ *		
	Volumetric flow: 2,0 l/s		
	Insulation thickness (mm)	Airborne sound reduction in installation room „Basement floor front“	Airborne sound reduction in adjacent room ** „Basement floor back“
		A-noise level reduction (dB)	
	5	12	10
10	14	13	
Insertion attenuation (dB)			
			
Sound transmission Kaivenience AB-ALU	Measurements on pipe type „Plastic Pipe HTEM“ *		
	Volumetric flow: 2,0 l/s		
	Insulation thickness (mm)	Airborne sound reduction in installation room „Basement floor front“	Airborne sound reduction in adjacent room ** „Basement floor back“
		A-noise level reduction (dB)	
	5	12	11
10	15	13	
Insertion attenuation (dB)			
			
Test acc. to DIN 4109 or VDI 4100, Setup acc. to DIN EN 14366			

* Results have been obtained without further shielding, such as plasterboard. The reference measurement to determine the airborne sound reduction in adjacent room was carried out on the waste water system without insulation grouted with mortar in the ceiling opening.

** Reduced transmission of structure-borne sound

For results of measurements on pipe type „Geberit Silent-dB20“ please contact our customer service.

Kaivenience AB Sheet · coated (heavy foil) · flat

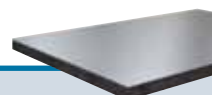


Colour: Black / Anthracite				
Insulation thickness mm	Sheet · flat 1,18 x 0,83 m (≈ 1,00 m²)			
	Reference	Order No.	pcs / carton	m²/ carton
5	KVAB-05-PL-S	4013002	3	≈ 3
10	KVAB-10-PL-S	4013000	2	≈ 2

* No stock item, delivery time on request.

Larger packaging units and self-adhesive sheets available on request.

Kaivenience AB-ALU Sheet · coated (heavy foil & aluminium foil) · flat

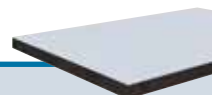


Colour: Black / Anthracite / Silver				
Insulation thickness mm	Sheet · flat 1,18 x 0,83 m (≈ 1,00 m²)			
	Reference	Order No.	pcs / carton	m²/ carton
5	KVABA-05-PL-S	4013012 *	3	≈ 3
10	KVABA-10-PL-S	4013010 *	2	≈ 2

* No stock item, delivery time on request.

Larger packaging units and self-adhesive sheets available on request.




Kaivenience Plus Platte · coated (polymeric foil) · flat





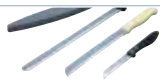

Colour: Black / Grey

Available on request

Adhesive · Cleaner · Protective Coating



	Description	Order No.	Can content	pcs/ carton
	Adhesive			
	Adhesive 414 · toluene-free · paintbrush tin	4004706	220 g	24
	Adhesive 414 · toluene-free	4004708	660 g	20
	Adhesive 414 · toluene-free	4004710	2200 g	6
	Cleaner			
	Cleaner	4004732	1.0 l	12
	Protective Coating			
	Kaifinish Protective Coating · pure white RAL 9010	4004719	0.75 l	4
	Kaifinish Protective Coating · Grey RAL 7035	4004720	0.75 l	4

Tools

	Description	Order No.	content/ PU
	Glue pump		
	Glue pump · long spout · Brush 17 mm	4004718	1
	Glue pump · short spout · Brush 17 mm	4004715	1
	Brush 11 mm	4004716	1
	Brush 17 mm	4004717	1
	Knives		
	Ceramic knife · knife with ceramic blade (15 cm) and plastic handle (14 cm)	4004737	1
	Sheet knife	4004735	1
	Kaiflex set of knives · 3 knives, 1 whetstone	4004736	1
	Gel Ink Pen		
	Gel Ink Pen · Silver · for marking on insulation materials	4004730 *	12

* No stock item, delivery time on request.

Tapes

	Description	Order No.	Width mm	Rolls/ carton
	Protect BLACK Butyl-Tape · 25 m length	4004685	50	2
		4004686	100	1
	Protect Alu Tape · 25 m length	4004401 *	19	36
	Protect Alu Tape · 50 m length	4004402	50	24
		4004403	100	12

* No stock item, delivery time on request.

KEEP NOISE INSIDE!

Setting limits on noise –
with Kaimann's sound insulation solutions.



There is a lot of noise where mechanical systems are operating. Sound pressure, which can already have an adverse effect on well-being in residential construction, is becoming a nuisance in commercial units such as hotels, offices, etc. – as well as industrial buildings. They often have noisy units, workplaces and quiet zones alongside each other. Kaimann's effective sound insulation and absorption enhances buildings, increases both productivity and users' well-being while reducing stress-related health risks.