



# *kaisound*<sup>®</sup>

The most flexible approach to soundproofing

Kaisound soundproofing systems are based on the world's first acoustically absorbing elastomeric foam with R-FORCE technology.

- Soundproofing system
- Absorption and reflection
- Insulation and damping
- Flexible and variable



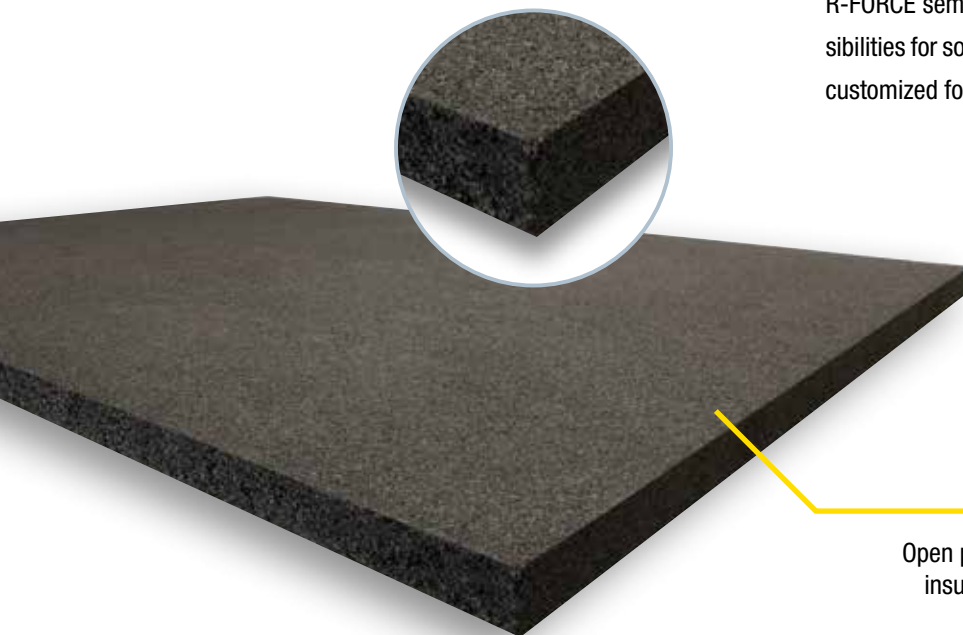


## The material

Kaisound is very special: it is “foamed foam”, means it comprises foamed parts being arranged in a way that the final material is again porous. The resulting interpenetrating pore network exhibits extremely versatile pore morphology. These various pores will reflect and absorb almost any kind of frequency bringing the amplitudes down significantly by chang-

ing the sound energy into calorific energy which is dispersed into the visco-elastic matrix: the sound waves will undergo “viscous death”.

Kaisound may be composed from foams of varying cell size, cell morphology or even be based on raw materials of different dynamic stiffness –including the patent pending R-FORCE semi-rigid foam – leading to a broad range of possibilities for sound reduction: frequency related, broadband or customized for the application.

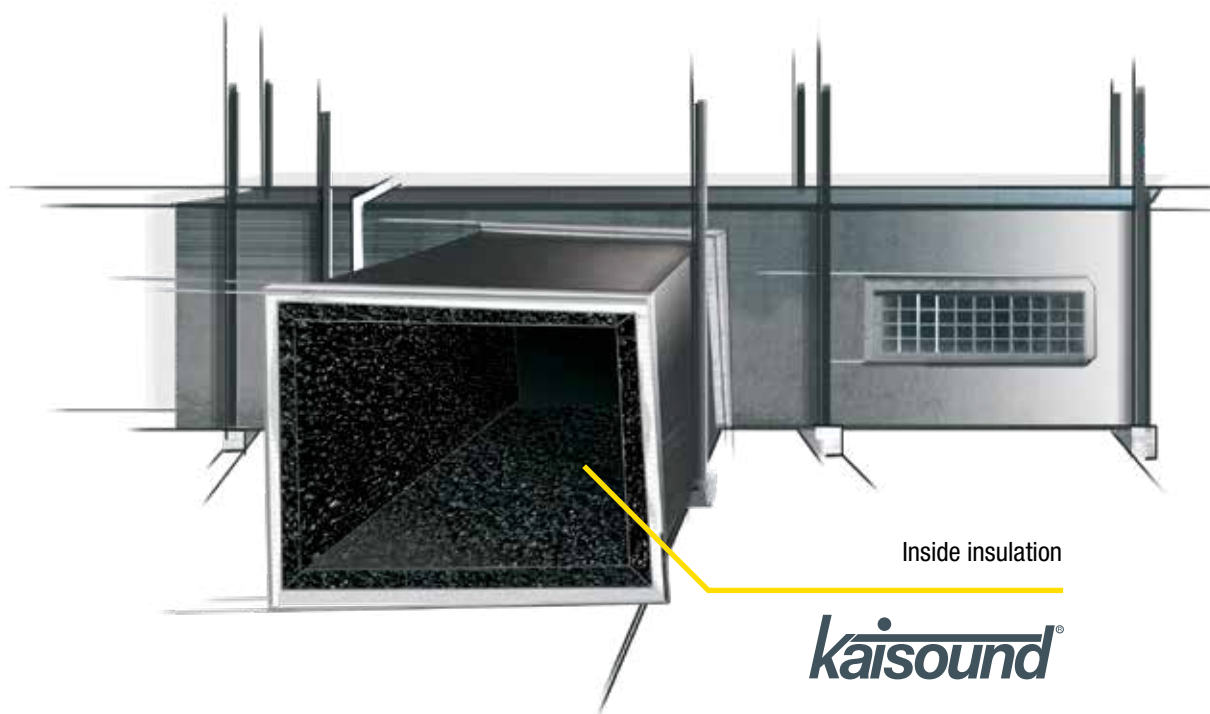


**kaisound®**

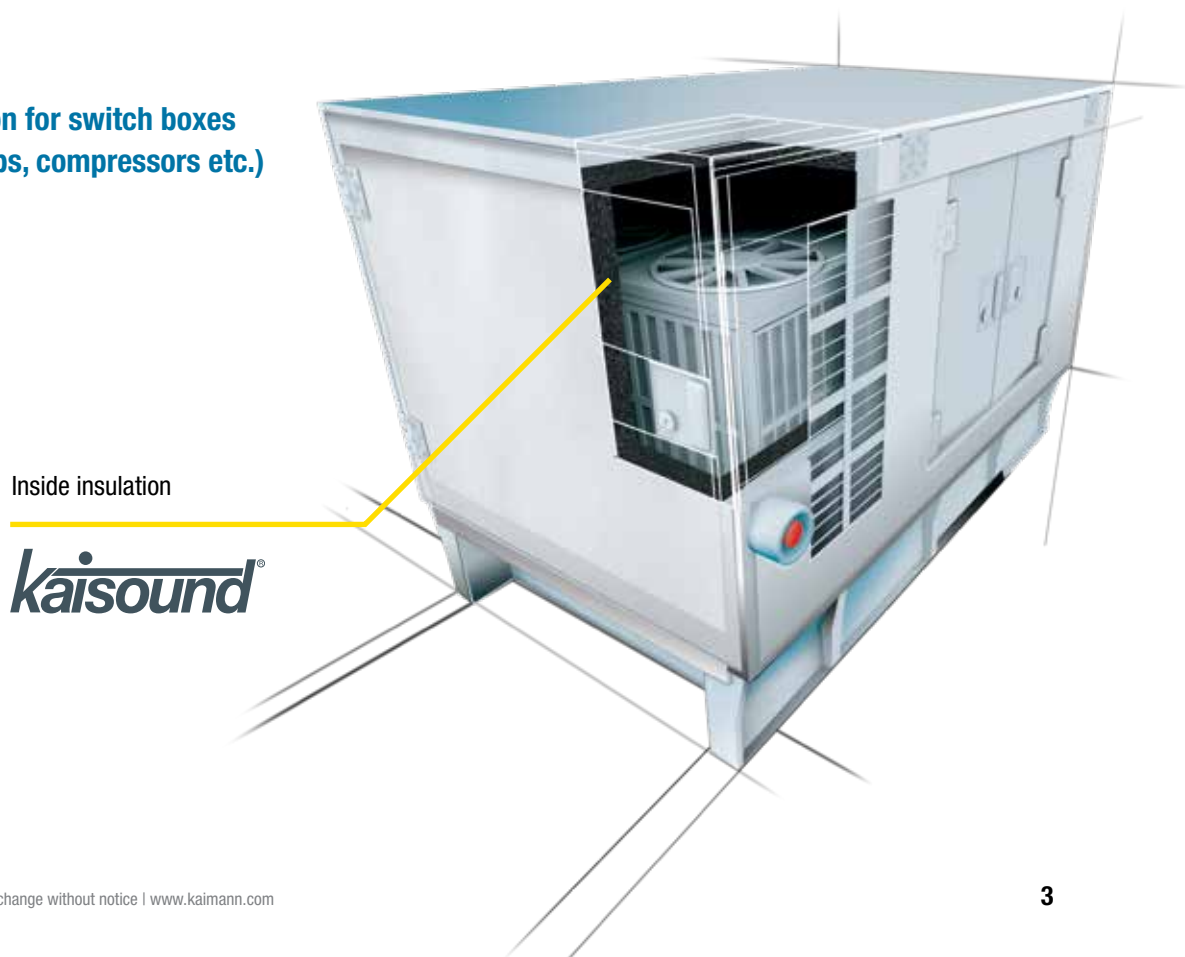
Open porous, hydrophobic and flexible acoustic insulation material based on synthetic rubber

## The applications

### Acoustic noise reduction for air ducts



### Sound protection for switch boxes and units (pumps, compressors etc.)





### Kaisound 240 Technical Data

<b>Material</b>		Open porous, hydrophobic and flexible acoustic insulation material based on synthetic rubber	
<b>Cell structure</b>		Open cell, with broad variation of cavity geometries for multi-frequency absorption	
<b>Colour</b>		Black	
<b>Upper temperature limit</b>		+85 °C (+250 °C)	
<b>Lower temperature limit</b>		-20 °C (-200 °C)	See remark (1)
<b>Thermal conductivity</b>	$\lambda_{10}$ at -10 °C  at 0 °C  at +10 °C	Kaisound 240: $0,062 + 8,0 \cdot 10^{-5} \vartheta + 7,0 \cdot 10^{-7} \vartheta^2$ Kaisound 140: $0,041 + 8,0 \cdot 10^{-5} \vartheta + 7,0 \cdot 10^{-7} \vartheta^2$  Kaisound 240: $\leq 0,061$ W/(m·K) Kaisound 140: $\leq 0,040$ W/(m·K)  Kaisound 240: $\leq 0,062$ W/(m·K) Kaisound 140: $\leq 0,041$ W/(m·K)  Kaisound 240: $\leq 0,063$ W/(m·K) Kaisound 140: $\leq 0,042$ W/(m·K)	Test acc. to DIN EN 12667
<b>Fire performance</b>		Class 1	Test acc. to BS 476-7
<b>Practical fire behaviour</b>		Self-extinguishing, no drips, does not support flame spread	
<b>Density</b>		220 to 360 kg/m <sup>3</sup> (average: 240 kg/m <sup>3</sup> )	Test acc. to ISO 845 ASTM D1622
<b>Acoustic insertion loss</b>		Complies to ISO 15665 – Classes A to C – and Shell DEP 31.46.00.31-Gen – Class D when used as part of an insulation system	Test acc. to ISO 3741 (equivalent method ASTM E1222) Classification acc. to ISO 15665
<b>Other certificates / approvals</b>		Satisfies classes 6, 7 and 8 of NORSOK R-004 when used as part of a “Kaimann Industrial Solutions” insulation system	Test acc. to ISO 3741 Classification acc. to ISO 15665
<b>Tensile strength</b>		50 to 200 kPa	Test acc. to ISO 1798
<b>Tear strength</b>		0,5 to 1,5 kN/m	Test acc. to ISO 34-1
<b>Elongation at break</b>		50 to 90 %	Test acc. to ISO 1798
<b>Health aspects</b>		Dust & fibre free  No bacterial or fungal growth	Test acc. to ISO 846 ASTM G-21 ASTM G-22
<b>Water absorption</b>		<5 % by volume	Test acc. to AGI Q 136 See remark (2)
<b>Application and handling conditions</b>	Ambient temperature Max. relative humidity	+5 °C to +35 °C 80 %	
<b>Shelf life</b>		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)
<b>Outdoor applications</b>		Coverings – such as Protect (R) HD, comCLAD, metal cladding or GRP – must be applied when Kaisound would be directly exposed to the environment	See remark (3)

For industrial applications it is recommended to consult the Kaimann Industrial Systems Application Manual and other relevant Kaimann installation instructions and application manuals.

Remark (1) For temperatures below -20 °C please contact our Technical Support Team for advice.

Remark (2) Based on single test results which are not monitored in regular frequency. Can be used for information/reference only.

Remark (3) Please contact our Technical Support Team for advice.

## Kaisound 240 Technical Data

Octave band sound absorption coefficients $\alpha_s$ (Measurements in impedance tube)							
Thickness (mm)	Frequency (Hz)						
	125	250	500	1.000	2.000	2.500	4.000
10	0,04	0,05	0,11	0,39	0,82	0,80	0,64
15	0,03	0,04	0,09	0,25	0,86	0,99	0,75
20	0,04	0,08	0,27	0,72	0,75	0,58	0,62
25	0,05	0,14	0,51	0,91	0,65	0,56	0,80

Test acc. to ISO 10534-1:1996

Octave band sound absorption coefficients $\alpha_s$ (Measurements in reverberation room)							
Thickness (mm)	Frequency (Hz)						
	125	250	500	1.000	2.000	4.000	
6	0,00	0,02	0,06	0,14	0,32	0,30	
10	0,00	0,05	0,12	0,33	0,72	0,88	
15	0,02	0,08	0,24	0,65	0,98	0,91	
20	0,05	0,14	0,45	0,89	0,91	0,93	
25	0,05	0,18	0,55	1,01	0,92	0,96	
50	0,24	0,66	0,88	0,86	0,93	0,94	

Test acc. to ISO 354:2003

Weighted sound absorption coefficients $\alpha_w$							
	Thickness (mm)						
	6	10	15	20	25	50	
$\alpha_w$	0,15 (H)	0,20 (H)	0,30 (MH)	0,45 (MH)	0,50 (MH)	0,90 (MH)	
Class	E	E	D	D	D	A	

Rated acc. to EN ISO 11654

Noise reduction coefficients (NRC)							
	Thickness (mm)						
	6	10	15	20	25	50	
NRC	0,15	0,30	0,50	0,60	0,65	0,85	

Calculated acc. to ASTM C423-01

Sound absorption (Typical values) \*

\* The octave band and 1/3rd octave band sound absorption coefficients shown in the table and chart respectively, are provided as examples which are based on single test results. The values presented can be used for information /reference only.

## Kaisound 240 Sheet · flat



Colour: Black								
Insulation thickness mm	Sheet · flat 1,20 x 0,84 m (= 1,00 m <sup>2</sup> )				Sheet · flat · self-adhesive 1,20 x 0,84 m (= 1,00 m <sup>2</sup> )			
	Reference	Order No.	pcs / carton	m <sup>2</sup> / carton	Reference	Order No.	pcs / carton	m <sup>2</sup> / carton
6	KS240-06-PL-M	4010596 *	16	16	KS240-06-PL-SK-M	4010608 *	16	16
10	KS240-10-PL-M	4010597 *	10	10	KS240-10-PL-SK-M	4010609 *	10	10
15	KS240-15-PL-M	4010598 *	6	6	KS240-15-PL-SK-M	4010610 *	6	6
20	KS240-20-PL-M	4010599 *	5	5	KS240-20-PL-SK-M	4010611 *	5	5
25	KS240-25-PL-M	4010600 *	4	4	KS240-25-PL-SK-M	4010612 *	4	4
50	KS240-50-PL-M	4010601 *	2	2	KS240-50-PL-SK-M	4010613 *	2	2

\* No stock item, delivery time on request.

## Kaisound 140 Sheet · flat



Colour: Black								
Insulation thickness mm	Sheet · flat 1,20 x 0,84 m (= 1,00 m <sup>2</sup> )				Sheet · flat · self-adhesive 1,20 x 0,84 m (= 1,00 m <sup>2</sup> )			
	Reference	Order No.	pcs / carton	m <sup>2</sup> / carton	Reference	Order No.	pcs / carton	m <sup>2</sup> / carton
6	KS140-06-PL-M	4010584 *	16	16	KS140-06-PL-SK-M	4010620 *	16	16
10	KS140-10-PL-M	4010585 *	10	10	KS140-10-PL-SK-M	4010375 *	10	10
15	KS140-15-PL-M	4010586 *	6	6	KS140-15-PL-SK-M	4010621 *	6	6
20	KS140-20-PL-M	4010587 *	5	5	KS140-20-PL-SK-M	4010376 *	5	5
25	KS140-25-PL-M	4010588 *	4	4	KS140-25-PL-SK-M	4010622 *	4	4
50	KS140-50-PL-M	4010589 *	2	2	KS140-50-PL-SK-M	4010623 *	2	2



\* No stock item, delivery time on request.

# ACCESSORIES


## Adhesive · Cleaner

	Description	Order No.	Can content	pcs./ carton
	<b>Adhesive</b>			
	Adhesive 414 · toluene free · can	4004706	220 g	24
	Adhesive 414 · toluene free	4004708	660 g	20
	Adhesive 414 · toluene free	4004710	2.200 g	6
	<b>Cleaner</b>			
	Cleaner	4004732	1,0 l	12

## Tools

	Description	Order No.	content/ PU
	<b>Glue pump</b>		
	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
	<b>Knives</b>		
	Ceramic knife · knife with ceramic blade (12 cm) and plastic handle (12 cm)	4004737	1
	Sheet knife	4004735	1
	Kaiflex set of knives · 3 knives, 1 whetstone	4004736	1

## Tape

	Description	Order No.	Width mm	Rolls/ carton
	<b>Tape · self-adhesive</b>			
	Protect BLACK Butyl-Tape · 25 m Length	4004685	50	1
		4004686	100	1

