

# AKUSTIKTHERM

For thermal active building systems (TABS)



## QUICK FACTS

- Thermal comfort according to EN ISO 7730
- For buildings with component activation
- Superior sound absorption values (class A)
- Height is individually adjustable
- Optional cooling sail function (type Base Plus)
- Integration of various components
  - Different lighting designs
  - Sprinklers
  - Smoke detectors
  - Supply / extract air elements

Output (water)	
Cooling	Heating
Up to 95 W/m <sup>2</sup> (8 K), EN 14240:2004	Up to 133 W/m <sup>2</sup> (15 K), EN 14037:2016
Acoustics	
α <sub>w</sub> : up to 1,00	

# Technical description

## General

AKUSTIKTHERM is an acoustically effective and thermally conductive ceiling sail system for use in buildings with component activation (Thermo Active Building Systems, TABS). The sail transfers the energy from the concrete surface into the room and at the same time offers large sound absorption surfaces.

If required, through activatable cooling registers it is possible to produce cooling capacity in addition to component activation.

Whether you want to improve the acoustics in an open-plan office, event room or restaurant, AKUSTIKTHERM is the ideal solution for creating a pleasant acoustic environment and increasing the productivity and satisfaction of your employees, customers or guests.

## Activation

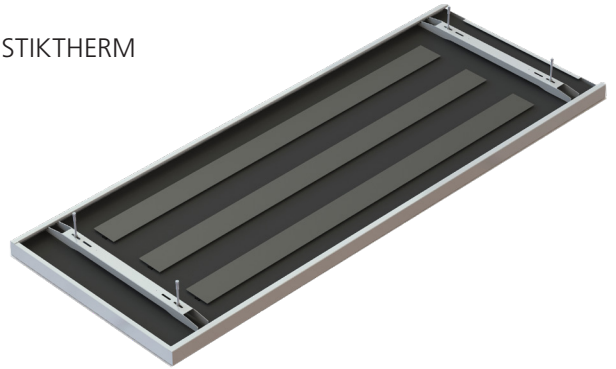
Type Base Plus: For generating an additional, very high cooling capacity in addition to component activation: Integrated cooling register for the water system, consisting of copper pipe (12 mm), welded on aluminum heat conducting rails.

## Functions

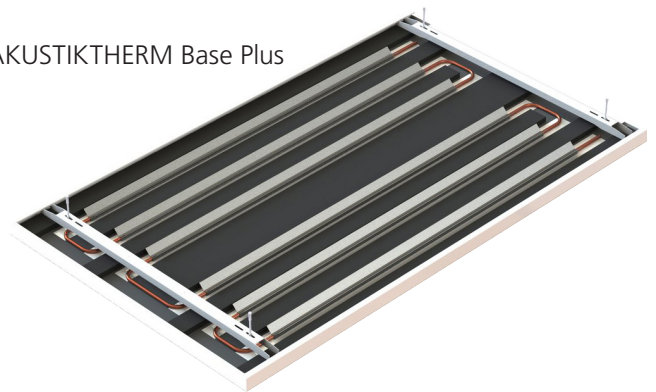
Assembly by threaded rods on the concrete ceiling. The suspension height is individually adjustable from 60 to 500 mm (the energy transfer via thermal radiation works at any height).

The surface of the concrete ceiling is not insulated.

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AKUSTIKTHERM Base Plus



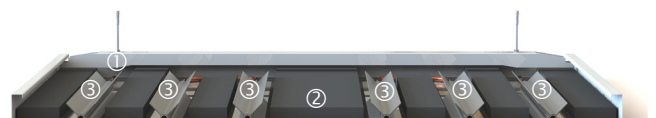
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### Construction

- ① Ceiling panel with acoustic fleece (glued on) and threaded rods
- ② Additional inlay mineral wool panels in PE foil
- ③ Heat exchanger

AKUSTIKTHERM Base Plus



### Construction

- ① Ceiling panel with acoustic fleece (glued on) and threaded rods
- ② Additional inlay mineral wool panels in PE foil
- ③ Heat exchanger incl. activation register for heating/cooling function (use optional)

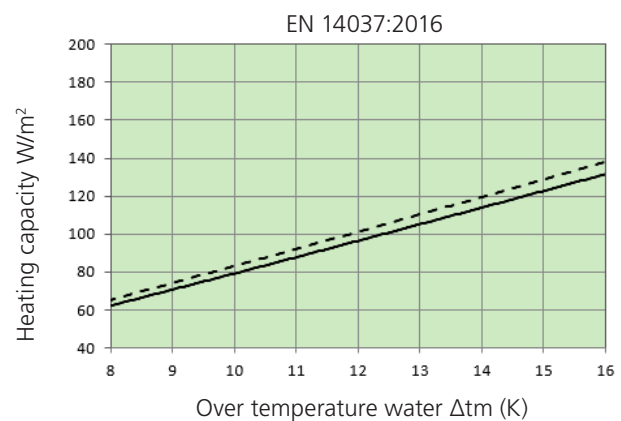
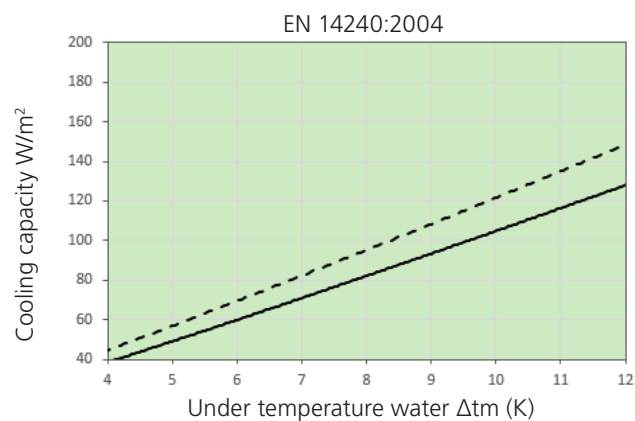
# Technical data

## Capacity

Initial data is presented below.

Example	Conventional heating/cooling sail	AKUSTIKTHERM Base Plus
Material ceiling panel	Steel	Steel
Perforation	Rg 1,5 – 11 %	Rg 1,5 – 11 %
Distance heat conducting rails	150 mm	150 mm
Sound absorption inlay	Fleece	Fleece
Additional inlay mineral wool (80 kg/m <sup>3</sup> )	30 mm	30 mm
Supply air / Exhaust air	without	without
Cooling capacity <sup>1)</sup> (EN 14240:2004)	82 W/m <sup>2</sup> (8 K)	95 W/m <sup>2</sup> (8 K)
Heating capacity (EN 14037:2016)	122 W/m <sup>2</sup> (15 K)	133 W/m <sup>2</sup> (15 K)

<sup>1)</sup> Values excluding concrete management, without property-specific capacity increases.



Version	Cooling 8 K	Cooling 10 K	Heating 15 K
Conventional heating/cooling sail	up to 82 W/m <sup>2</sup>	up to 105 W/m <sup>2</sup>	up to 122 W/m <sup>2</sup> (———)
AKUSTIKTHERM Base Plus	up to 95 W/m <sup>2</sup>	up to 122 W/m <sup>2</sup>	up to 133 W/m <sup>2</sup> (- - - - -)

### Notice

- SN EN 14240: The cooling capacity is related to the active area according to SN EN 14240:2004. The active area is calculated according to SN EN 14240 from the number of heat-conducting rails x length of heat conducting rail x distance between heat conducting rails.
- SN EN 14037: The heating capacity is related to the active area according to SN EN 14037:2016. The active area is calculated according to SN EN 14037 from the length of the ceiling panel x the width of the ceiling panel.

## Recommendations for operation

### Water

- Temperature
  - Cooling 16 – 18 °C
  - Heating 28 – 37 °C
- Temperature distance  $\Delta t$  (VL-RL): 2 – 3 K
- Pressure drop: 20 – 25 kPa
- Water flow: 80 – 150 l/h
- Max. operating pressure up to 9 bar
- Water quality according to: SWKI BT 102-01, BTGA 3.003, VDI 2035

### Surrounding

- Ambient temperatures: +5 – 50 °C
- Humidity: up to 90 % relative humidity

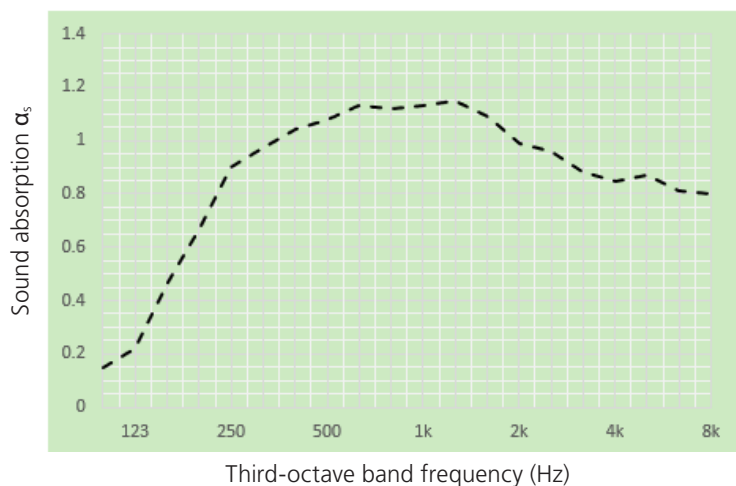
## Acoustics

Initial data is presented below.

Suspension height	Suspension height 100 mm -----	Suspension height 200 mm .....
Material ceiling panel	Steel	Steel
Perforation	Rg 1,5 – 11 %	Rg 1,5 – 11 %
Sound absorption inlay	Fleece	Fleece
Additional inlay mineral wool (80 kg/m <sup>3</sup> )	30 mm	30 mm
Sound absorption $\alpha_p$	250: 0,90 500: 1,08 1k: 1,13 2k: 0,99 4k: 0,85	250: 0,75 500: 1,21 1k: 1,17 2k: 0,92 4k: 0,74
Sound absorption $\alpha_w$	$\alpha_w$ : 0,95	$\alpha_w$ : 1,0
Sound absorption class (EN ISO 11654)	A	A

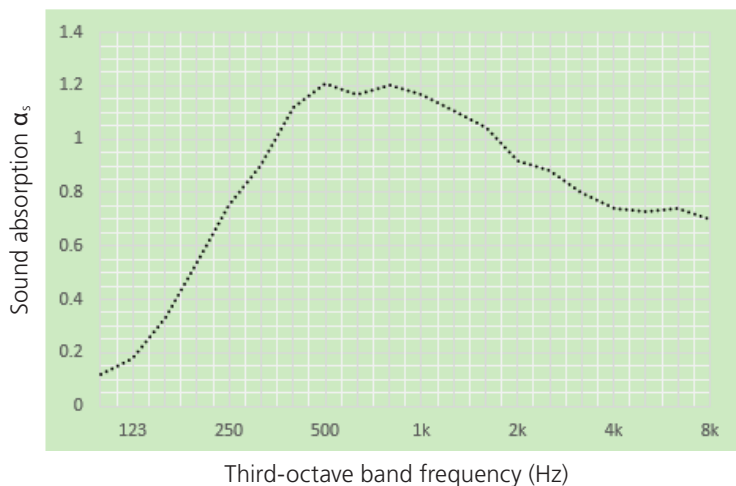
### Suspension height 100 mm

EN ISO 11654



### Suspension height 200 mm

EN ISO 11654



# System

## Ceiling system

- Sail
  - Square and rectangular panels

## Installation systems

- Installation high: 60 – 500 mm
  - Hook-on system
  - Threaded rods or ropes

# Materials, weight and dimensions

## Materials and weight

Material	Weight (incl. activation, water)
Aluminum 1,00 mm	approx. 15 kg/m <sup>2</sup> without water when activated
Steel 0,70 mm	approx. 18 kg/m <sup>2</sup>

Building material class: A2-s1, d0, EN 13501-1 (depending on the acoustic solution).

## Dimensions

Panel length	Panel width	Panel height
max. 2500 mm	max. 1100 mm	30 – 50 mm

Special dimensions on request.

## Surface

### Versions

- Powder coating
- Digital printing on request

### Colors

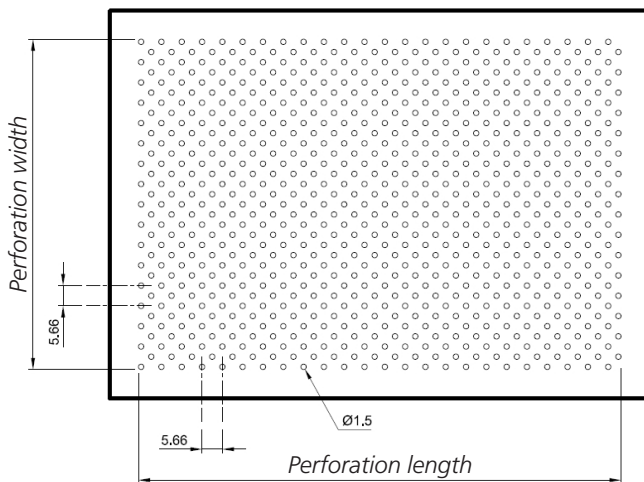
- Standard RAL 9010
- Other RAL / NCS colors on request

### Perforations

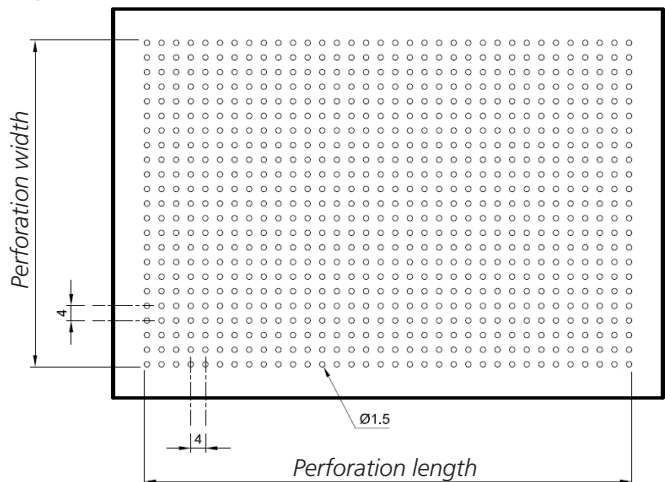
- Standard perforations
- Other perforations on request

Standard perforations:

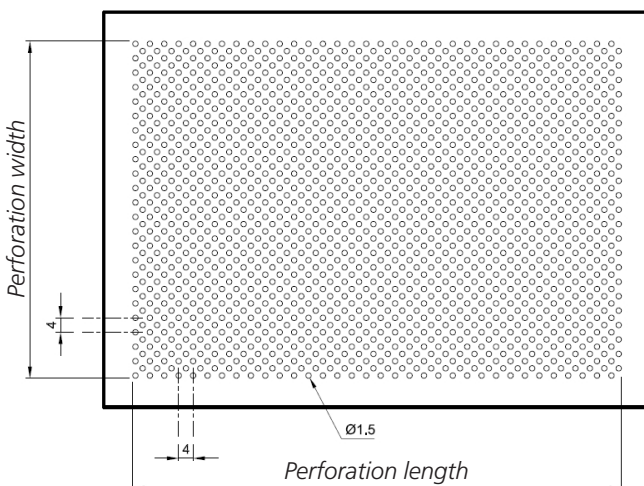
Rd 1,5 – 11 %



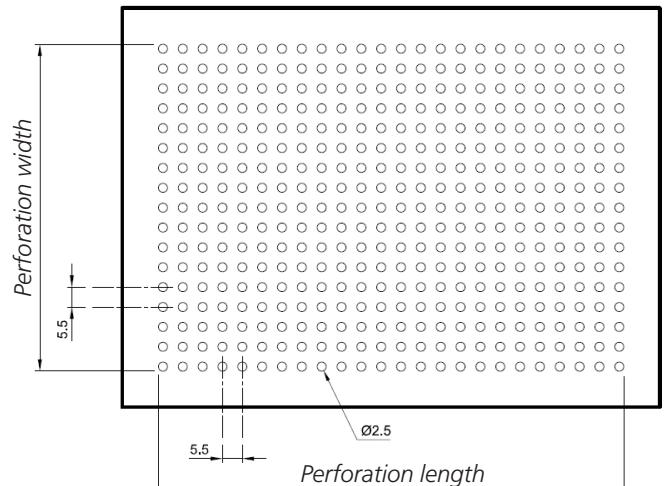
Rg 1,5 – 11 %



Rd 1,5 – 22 %



Rg 2,5 – 16 %



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