

SPECTRA M-S

Radiant metal ceiling sail with magnetic technology



QUICK FACTS

- Thermal comfort according to EN ISO 7730, SIA 382/1
- Building material class B-s2, d0 according to EN 13501-1
- Environmental Product Declaration (EPD) available
- Very high heating and cooling capacity
- Superior sound absorption values (class A)
- Ceiling panels and activation registers connected using magnetic technology
- Tool-free installation and removal of the registers
- Product components can be separated by material type
- Can be combined with AQUILO, CAURUS and FAVO
- Integration of various components
 - Different lighting designs
 - Sprinklers
 - Smoke detectors
 - Supply / extract air elements

Output (water)	
Cooling	Heating
Up to 103 W/m ² (8 K), EN 14240:2004	Up to 119 W/m ² (15 K), EN 14037:2016
Acoustics	
αw: up to 1,00	



Technical description

General

The SPECTRA M-S radiant ceiling sail is a climate ceiling system with very high heating and cooling capacity and superior sound absorption values. The magnetic connection between the activation register and the ceiling panel enables parallel prefabrication and separate delivery of both components to the construction site, where they are assembled.

The SPECTRA M register is suitable for retrofitting buildings where existing metal ceilings are to be thermally activated later. Furthermore, the registers can be fixed and hydraulically connected independently of the ceiling panels. This means that the heating and cooling technology can be installed and commissioned before the ceiling surface is completed. The registers can also be used in advance for temporary construction heating.

To support acoustic effectiveness, an acoustic fleece is applied to the rear side of the ceiling panels. In areas with higher acoustic requirements, insulation strips can also be inserted at the sides of the register.

The design of the SPECTRA M register enables the individual components to be separated by material type. At the end of their service life, the materials can therefore be separated and, depending on the available recycling options, directed to the appropriate recovery routes.

Activation

Water system: The radiant ceiling is a passive system that in the case of cooling absorbs heat from the room via the ceiling surface, transfers it to the water, which is conducted in activation registers, and dissipates it, respectively emits heat in the case of heating.

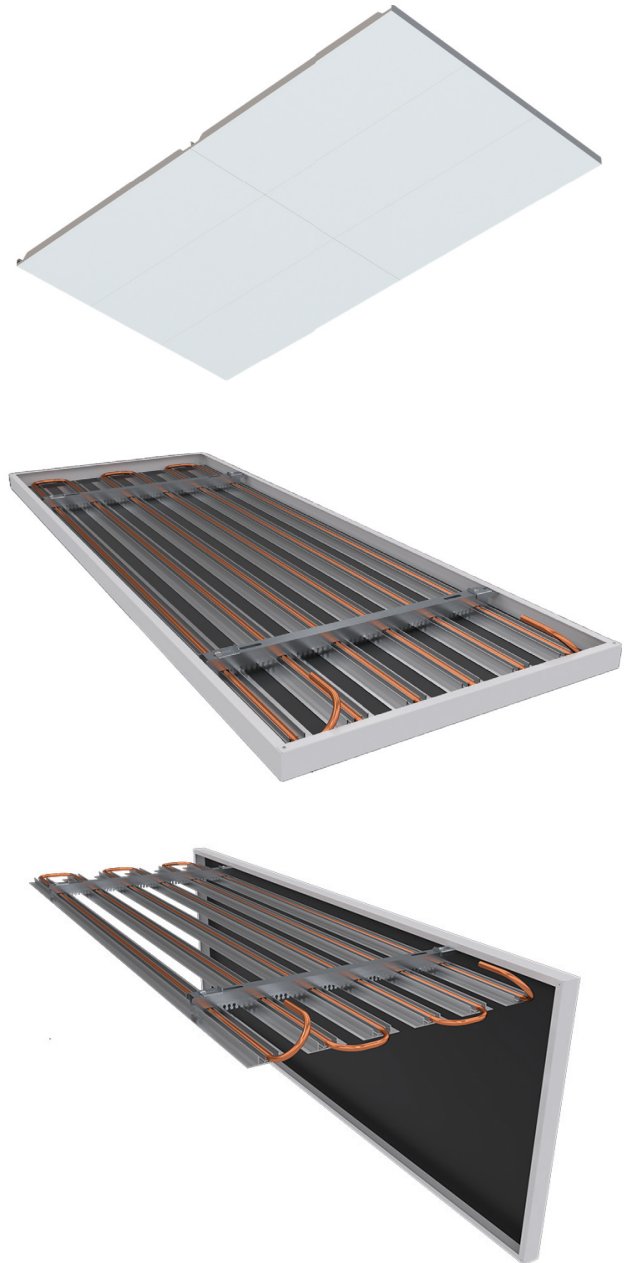
The activation of the SPECTRA M radiant metal ceiling system consists of meandering copper pipes (outside diameter 12 mm), which are pressed into aluminum heat-conducting profiles. The connection between the activation register and the ceiling panel is made with magnet technology.

Functions

The SPECTRA M-S radiant metal ceiling sail is multifunctional. In addition to the thermal functions of cooling/heating, there is the possibility of further integration: acoustically effective inserts, special supply air solution (CAURUS, AQUILO, FAVO), various built-in components (e.g. smoke detectors, lighting).

Combination

- SPECTRA M-S radiant metal ceiling sail + CAURUS
- SPECTRA M-S radiant metal ceiling sail + AQUILO
- SPECTRA M-S radiant metal ceiling sail + FAVO



Technical data

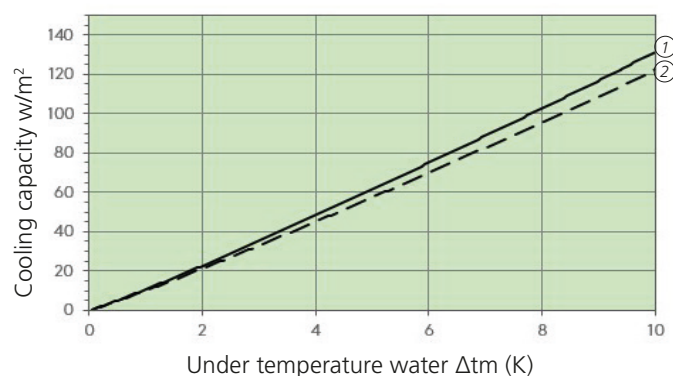
Capacity

Initial data is presented below.

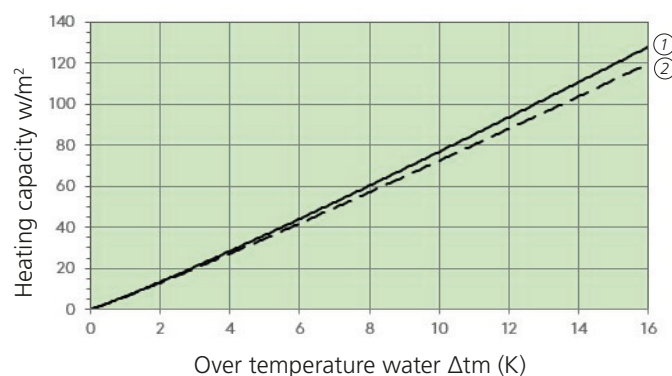
Material ceiling panel	Steel	Steel
Perforation	Rg 1,5 – 11 %	Rg 1,5 – 11 %
Distance heat conducting rails (hcr)	100 mm — ①	120 mm — ②
Acoustic inlay	Fleece	Fleece
Activation method	magnetic	magnetic

(Capacity information without project-specific performance-influencing factors.)

EN 14240:2004



EN 14037:2016



Version	Cooling 8 K	Cooling 10 K	Heating 15 K
① Steel 100 mm	up to 103 w/m²	up to 131 w/m²	up to 119 w/m²
② Steel 120 mm	up to 96 w/m²	up to 122 w/m²	up to 112 w/m²

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 Δt (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

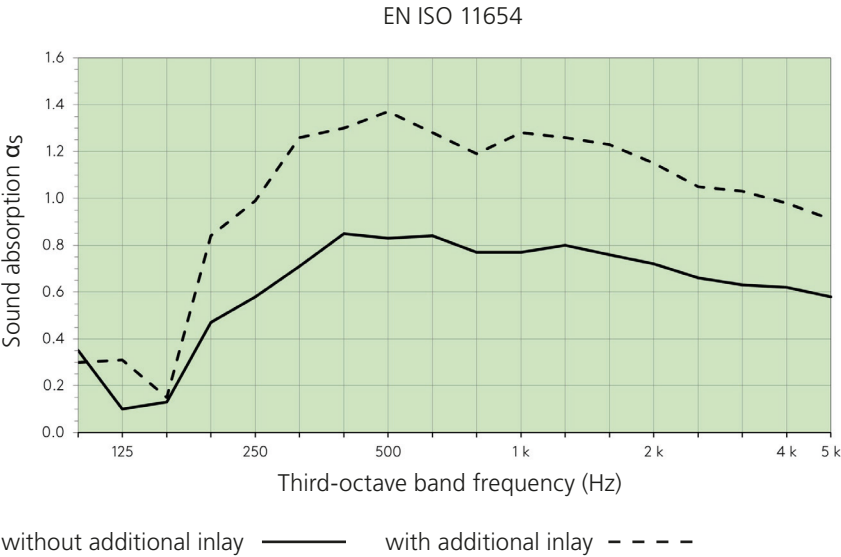
Surrounding

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

Acoustics

Initial data is presented below.

Perforation	Rg 1,5 – 11 %	Rg 1,5 – 11 %
Distance heat conducting rails (hcr)	100 mm	100 mm
Installation height	200 mm	200 mm
Acoustic inlay	Fleece	Fleece
Additional inlay (mineral wool)	without ———	with - - - -
Sound absorption α_p	250: 0,60 500: 0,85 1k: 0,80 2k: 0,70 4k: 0,60	250: 1,00 500: 1,00 1k: 1,00 2k: 1,00 4k: 0,95
Sound absorption α_w	α_w : 0,75	α_w : 1,00
Sound absorption class (EN ISO 11654)	C	A



System

Ceiling system

- Sail
 - Square and rectangular panels, single or several connected

Installation systems

- Installation height: min. 80 mm
 - Threaded rods or ropes

Materials, weight and dimensions

Materials and weight

Material	Weight (incl. activation, water)
Steel 0,70 mm	10,0 – 13,3 kg/m ²

Building material class: B-s2, d0, EN 13501-1 (depending on the acoustic solution).

Dimensions

Lenght	Width	Height
min. 800 mm	min. 400 mm	min. 30 mm
max. 3000 mm	max. 1200 mm	max. 40 mm

Surface

Versions

- Powder coating
- Digital printing on request

Colors

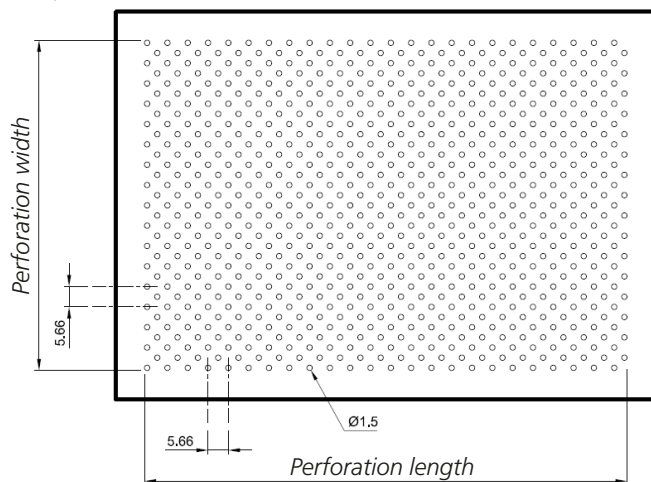
- Standard RAL 9010
- Other RAL / NCS colors on request

Perforations

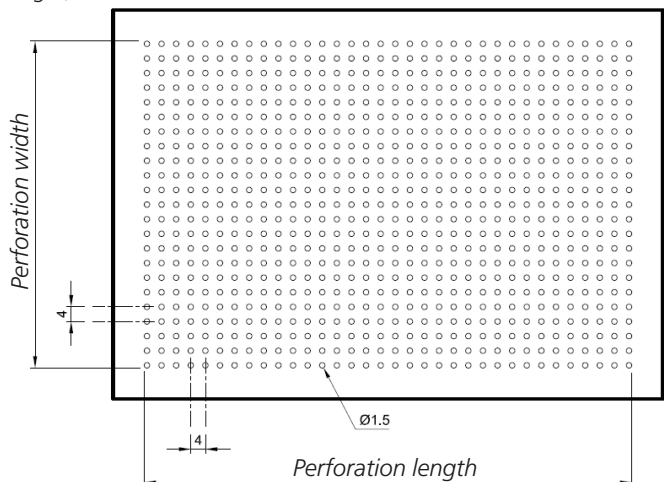
- Standard perforations
- Other perforations on request

Standard perforations:

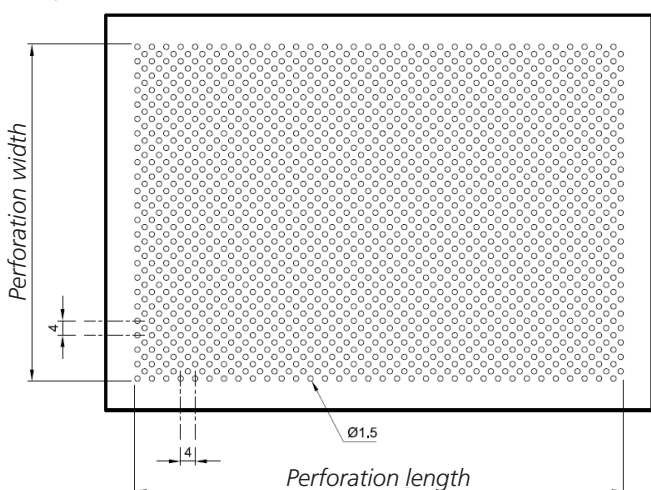
Rd 1,5 – 11 %



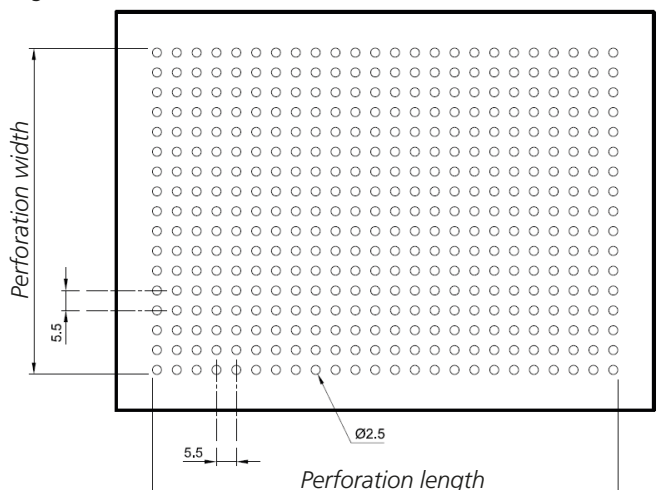
Rg 1,5 – 11 %



Rd 1,5 – 22 %



Rg 2,5 – 16 %



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