

A11-S

Radiant metal ceiling sail



QUICK FACTS

- Thermal comfort according to EN ISO 7730
- Very high heating and cooling capacity: heating up to 117 w/m^2 (15 K), cooling up to 105 w/m^2 (8 K)
- Superior acoustic properties: α_w up to 1,00
- Easy to install
- Functions
 - Cooling
 - Heating
 - Acoustics
 - Supply and exhaust air
 - Integral components

Technical description

General

The radiant metal ceiling sail A11 is a climate ceiling system with a very high performance, which is completely surrounded by room air. If there is no full-surface insulation insert, the back of the sail also actively contributes to cooling the room. A further increase in performance can be achieved by using the Convector Wings developed by Barcol-Air. The radiant ceiling system also has superior acoustic properties.

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 radiant metal ceiling system A11 consists of meandering copper pipes (outside diameter 12 mm) and aluminum heat-conducting rails (width 80 mm), which are connected by laser spot welding and glued into the ceiling panels.

Optional performance plus: Convector Wings

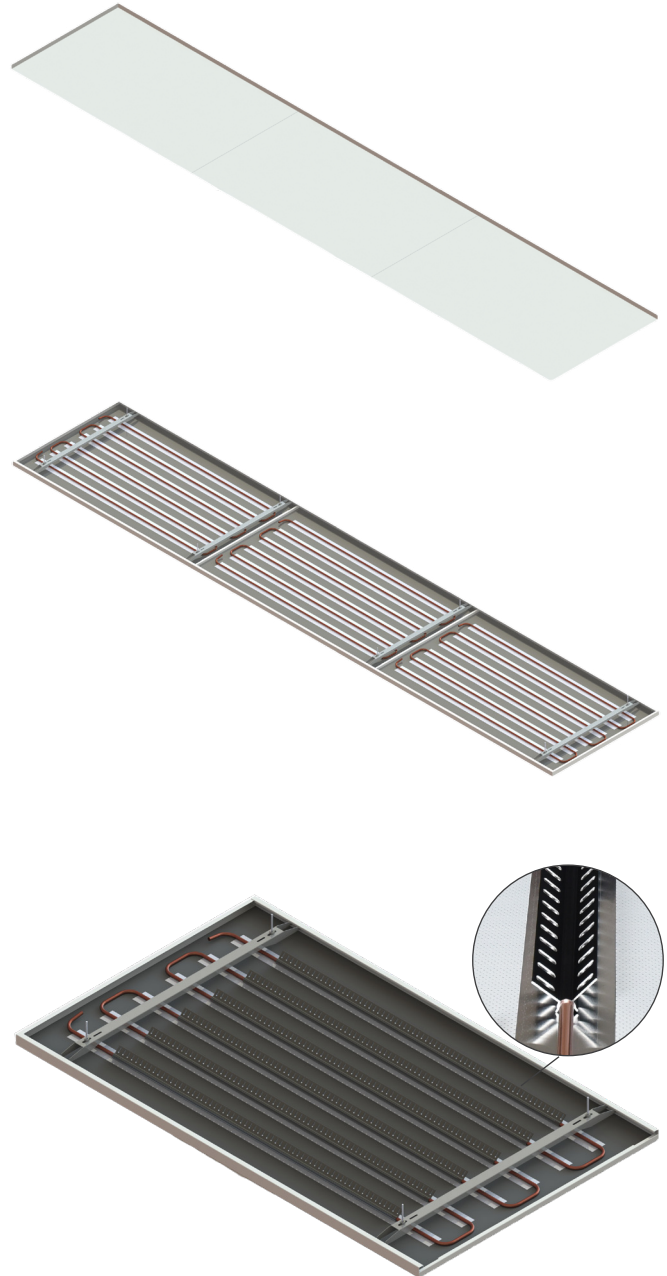
Convector Wings are matt black anodized aluminum profiles with slotted «wings» on both sides. With the profile that opens downwards, the Convector Wings can be attached to the straight sections of a pipe meander. This multiplies the heat exchange surface of the radiant ceiling sail, which leads to an increase in water capacity.

Functions

The radiant metal ceiling sail A11 is multifunctional. In addition to the thermal functions of cooling/heating, there is the possibility of further integration: acoustically effective inserts or baffles (Archisonic®), special supply air solutions (Aquilo, Caurus), various built-in components (e.g. smoke detectors, lighting).

Combinations

- Radiant Metal Ceiling System A11 + Archisonic®
- Radiant Metal Ceiling Sail A11 + Aquilo
- Radiant Metal Ceiling Sail + Caurus



Optional performance plus: Convector Wings

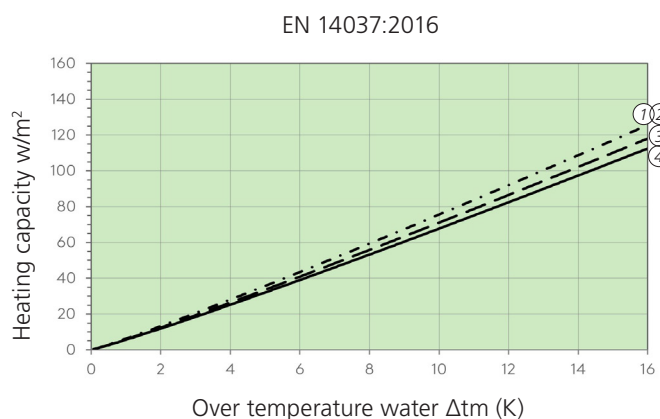
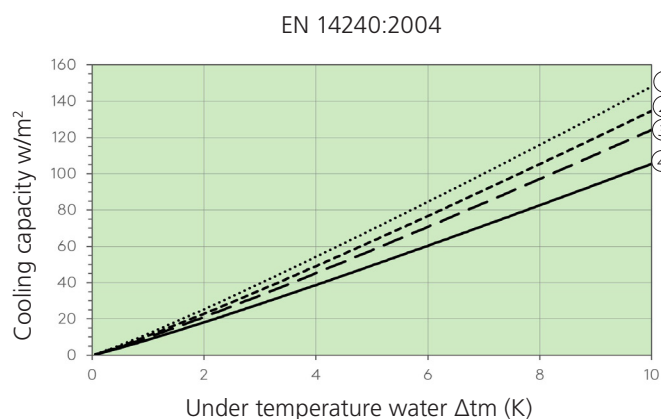
Technical data

Capacity

Initial data is presented below.

Material ceiling panel	Aluminium	Steel
Perforation	Rg 1,5 – 11 %	Rg 1,5 – 11 %
Distance heat conducting rails (hcr)	100 mm ---② 150 mm —③	100 mm + Convector Wings① 150 mm —④
Activation method	on fleece	on fleece

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



Version	Cooling 8 K	Cooling 10 K	Heating 15 K
① Steel 100 mm + Convector Wings	up to 116 w/m ²	up to 148 w/m ²	up to 117 w/m ² (---→)
② Aluminium 100 mm	up to 105 w/m ²	up to 135 w/m ²	up to 117 w/m ² (---→)
③ Aluminium 150 mm	up to 97 w/m ²	up to 124 w/m ²	up to 110 w/m ²
④ Steel 150 mm	up to 83 w/m ²	up to 106 w/m ²	up to 105 w/m ²

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

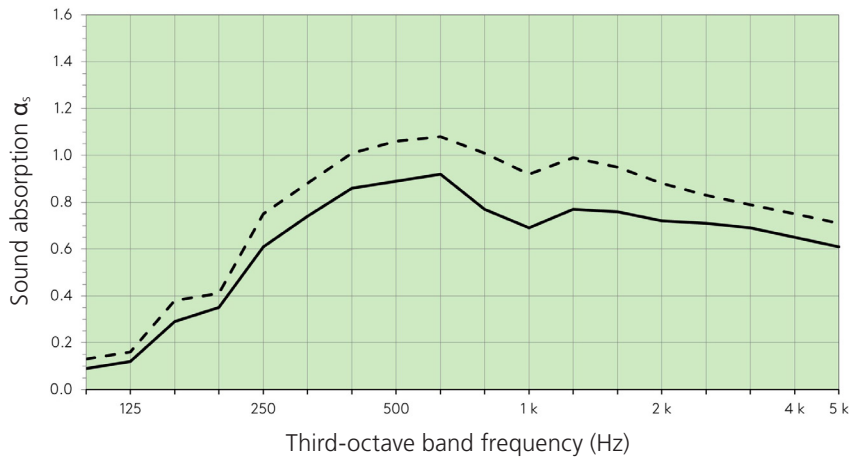
- Ambient temperatures: +5 – 50 °C
- Humidity: up to 90 % relative humidity

Acoustics

Initial data is presented below.

Perforation	Rg 1,5 – 11 %	Rg 1,5 – 11 %
Distance heat conducting rails (hcr)	150 mm	150 mm
Installation height	200 mm	200 mm
Acoustic inlay	Fleece	Fleece
Additional inlay (mineral wool)	without ———	with - - - -
Sound absorption α_p	250: 0,55 500: 0,90 1k: 0,75 2k: 0,75 4k: 0,65	250: 1,00 500: 1,00 1k: 1,00 2k: 1,00 4k: 0,90
Sound absorption α_w	α_w : 0,75	α_w : 1,00
Sound absorption class (EN ISO 11654)	C	A

EN ISO 11654



without additional inlay ——— with additional inlay - - - -

System

Ceiling system

- Sail
 - Square and rectangular panels
 - Special solutions on request

Installation systems

- Installation high: 75 – 800 mm
 - Hook-on system
 - Threaded rods or ropes

Materials, weight and dimensions

Materials and weight

Material	Weight (incl. activation, water)
Aluminium 1,00 mm	3,5 – 6,0 kg/m ²
Steel 0,70 mm	6,26 – 8,58 kg/m ²

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

Dimensions

Panel length	Panel width	Panel height
min. 400 mm	min. 200 mm	min. 30 mm
max. 2500 mm	max. 1200 mm	max. 120 mm

Special dimensions on request.

Surface

Versions

- Powder coating
- Digital printing on request

Colors

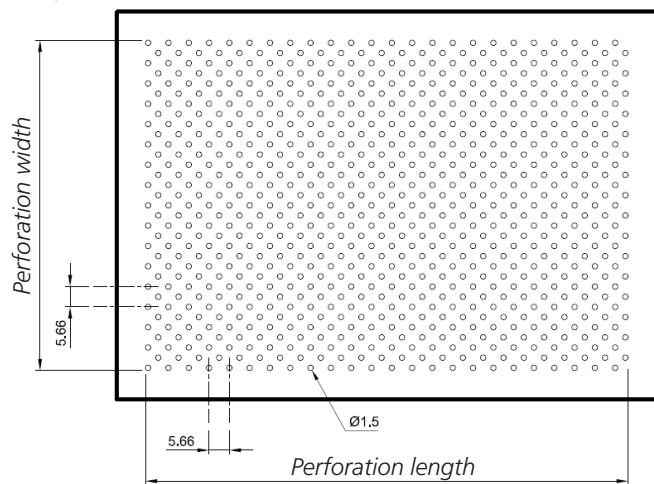
- Standard RAL 9010
- Other RAL / NCS colors on request

Perforations

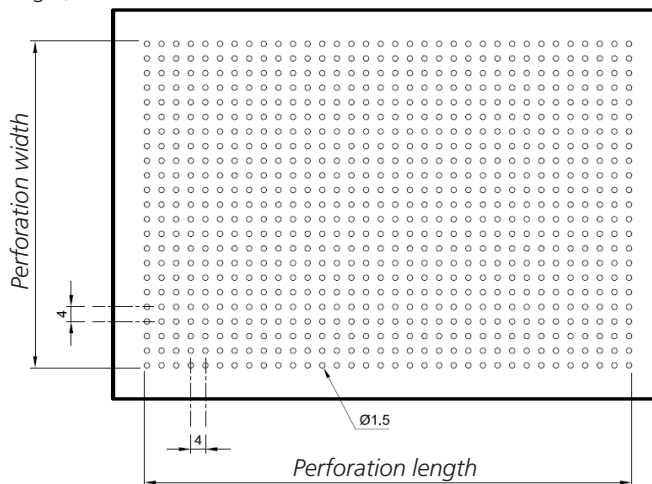
- Standard perforations
- Other perforations on request

Standard perforations:

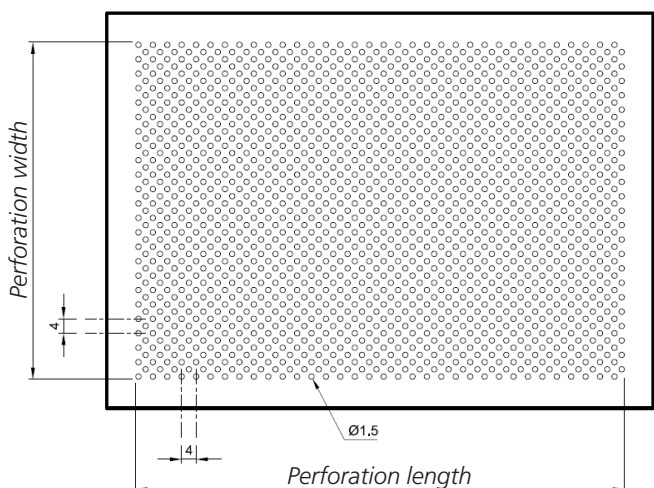
Rd 1,5 – 11 %



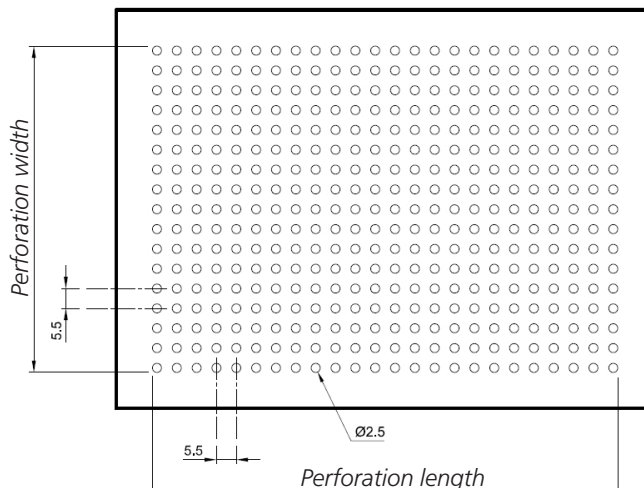
Rg 1,5 – 11 %



Rd 1,5 – 22 %



Rg 2,5 – 16 %



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