

A11-C

Radiant metal ceiling



QUICK FACTS

- Thermal comfort according to EN ISO 7730, SIA 382/1
- Building material class A2-s1, d0 according to EN 13501-1
- Environmental Product Declaration (EPD) available
- High heating and cooling capacity
- Advanced sound absorption values (class B)
- Can be combined with common metal ceiling systems
- Low system weight
- Suitable for rooms with high heat loads
- Can be combined with VENTAMIC, AQUILO and ARCHISONIC®
- Integration of various components
 - Different lighting designs
 - Sprinklers
 - Smoke detectors
 - Supply / extract air elements

Output (water)	
Cooling	Heating
Up to 100 W/m ² (8 K), EN 14240:2004	Up to 104 W/m ² (15 K), EN 14037:2016
Acoustics	
α _w : up to 0,85	



Technical description

General

The A11-C radiant heating and cooling ceiling is suitable for rooms with high heat loads and enables draught-free room temperature control via the ceiling surface. The climate ceiling system also contributes to sound absorption in the room.

With the A11 activation, copper pipe and aluminium heat-conducting rails are joined using laser welding technology. The registers are permanently bonded to the metal panels with a special adhesive under high pressure. This enables good heat transfer between the activation and the ceiling panel.

The bonding technology also allows aluminium panels to be activated. Depending on the design, higher thermal capacities can therefore be achieved.

For areas with higher acoustic requirements, additional insulation strips can be inserted. Full-surface insulation can also be provided. The respective design is configured according to the thermal and acoustic requirements of the project.

A11-C can be combined with different installation variants and detailing solutions from metal ceiling construction. These include linear grid concepts as well as hook-on and clip-in systems. This allows the system to be adapted to different room geometries, ceiling concepts and architectural requirements.

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.

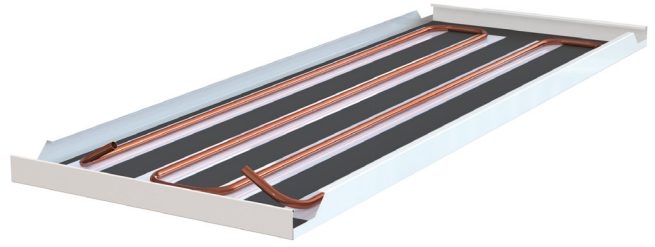
The activation of the A11 radiant metal ceiling system consists of meandering copper pipes (outside diameter 12 mm) and aluminum heat-conducting rails (width 80 mm), which are connected by laser spot welding and glued into the ceiling panels.

Functions

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

Combinations

- A11-C Radiant metal ceiling + VENTAMIC
- A11-C Radiant metal ceiling + AQUILO
- A11-C Radiant metal ceiling + ARCHISONIC®



Technical data

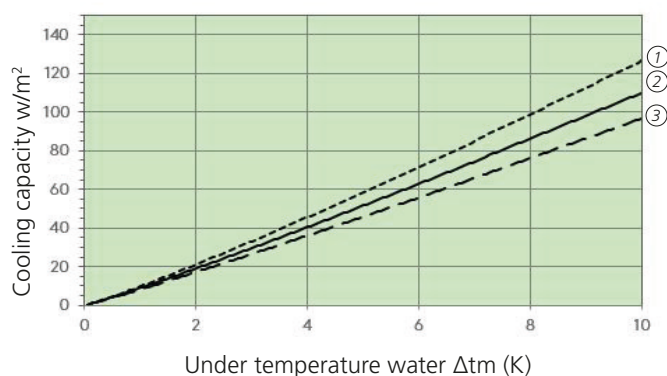
Capacity

Initial data is presented below.

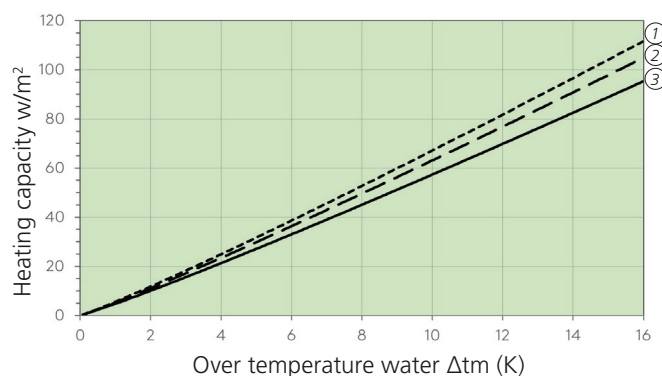
Material ceiling panel	Aluminium	Steel
Perforation	150 mm	Rg 1,5 – 11 %
Distance heat conducting rails (hcr)	100 mm --- ① 150 mm - - ②	150 mm — ③
Activation method	on fleece	on fleece

(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 Aluminium 100 mm	up to 100 w/m²	up to 125 w/m²	up to 104 w/m²
② Aluminium 150 mm	up to 86 w/m²	up to 110 w/m²	up to 98 w/m²
③ Steel 150 mm	up to 75 w/m²	up to 97 w/m²	up to 89 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

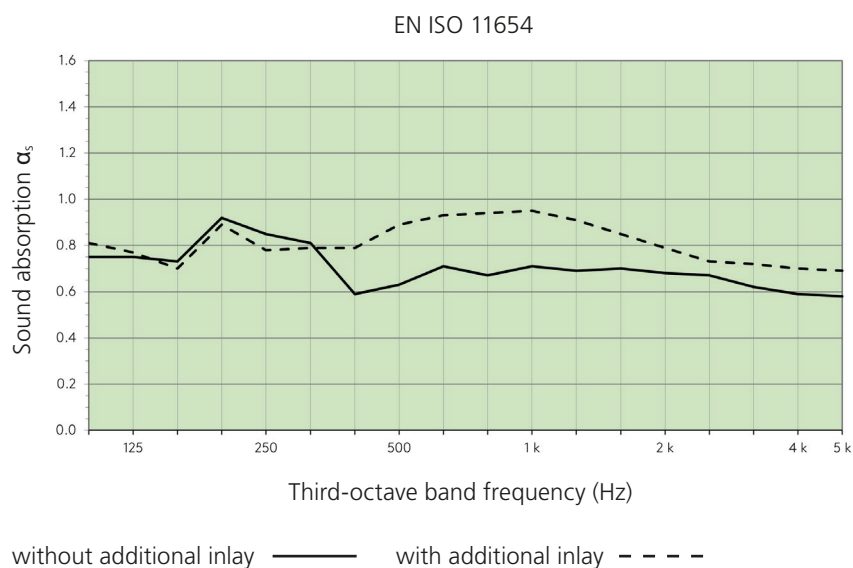
Surrounding

- 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)	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: 0,85 500: 0,65 1k: 0,70 2k: 0,70 4k: 0,60	250: 0,80 500: 0,85 1k: 0,95 2k: 0,80 4k: 0,70
Sound absorption α_w	α_w : 0,70 (L)	α_w : 0,85
Sound absorption class (EN ISO 11654)	C	B



System

Ceiling system

- Closed ceiling
 - Square and rectangular panels
 - Special solutions on request

Installation systems

- Installation height: min. 100 mm
 - Lay-in system
 - Hook-on system
 - Clip-in system
 - C-channel systems

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

Length	Width	Height
min. 600 mm	min. 400 mm	min. 30 mm
max. 3000 mm	max. 1200 mm	max. 50 mm

Special dimensions on request.

Surface

Versions

- Powder coating
- Digital printing on request

Colors

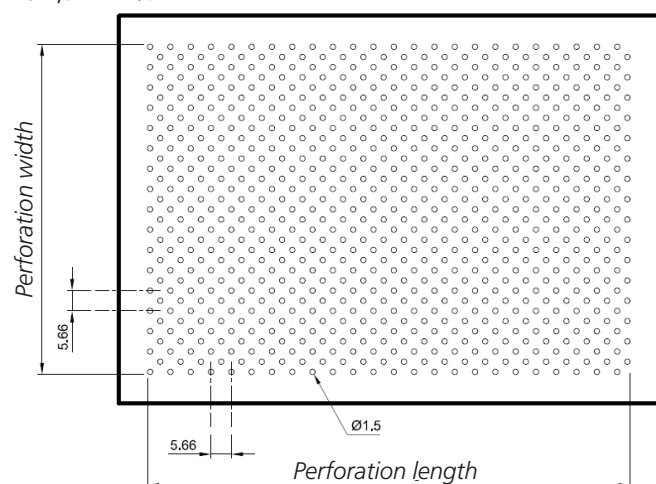
- Standard RAL 9010
- Other RAL / NCS colors on request

Perforations

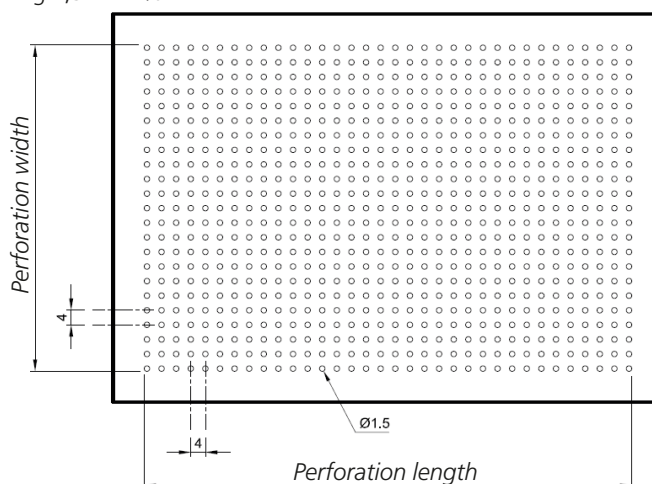
- Standard perforations
- Other perforations on request

Standard perforations:

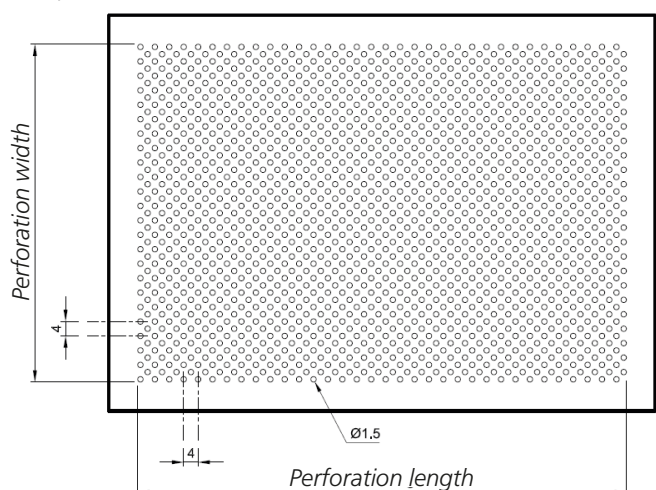
Rd 1,5 – 11 %



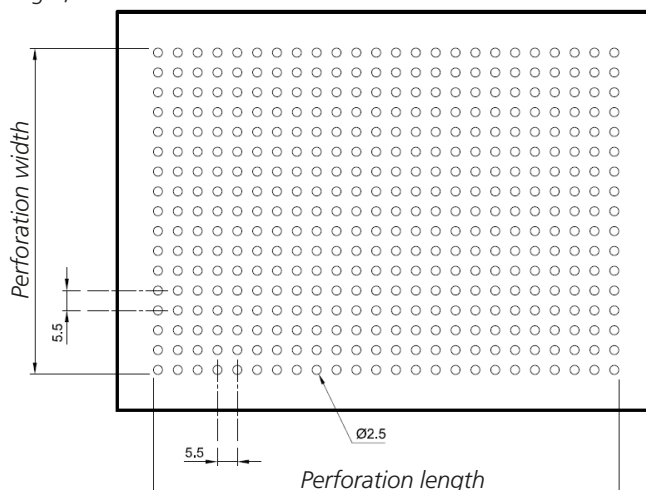
Rg 1,5 – 11 %



Rd 1,5 – 22 %



Rg 2,5 – 16 %



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