

ECO M-C

Radiant metal ceiling 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
- High heating and cooling capacity
- Advanced sound absorption values (class B)
- 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
- Existing metal ceilings can be retrofitted with the ECO M magnetic system
- Integration of various components
 - Different lighting designs
 - Sprinklers
 - Smoke detectors
 - Supply / extract air elements

Output (water)	
Cooling	Heating
Up to 80 W/m ² (8 K), EN 14240:2004	Up to 80 W/m ² (15 K), EN 14037:2016
Acoustics	
α _w : up to 0,85	

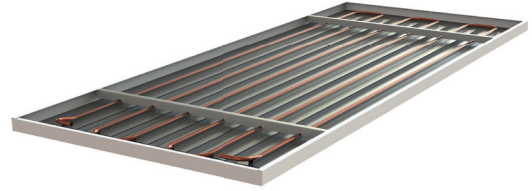
Technical description

General

ECO M-C is a water-based radiant heating and cooling ceiling system. The heating and cooling register is connected to the ceiling cladding by means of a magnetic connection. The system operates predominantly on the radiant principle and enables draught-free room temperature control.

The ceiling system offers various application and design options. It is suitable for office and administration buildings, retail areas, training and conference rooms, as well as treatment rooms in hospitals, among other applications.

The magnetic connection enables the heating and cooling registers to be installed and removed without damaging the ceiling panel. Previously inactive ceiling panels can also be thermally activated at a later stage.



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 ECO M-C 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 ECO M-C heating and cooling coil and the sheet steel ceiling panels are manufactured separately and then assembled on site. This reduces the time needed to complete the ceiling as a whole, as the coil and ceiling panels can be (pre-)fabricated and then installed at the same time.

ECO M-C heating and cooling coils can be clamped into the ceiling panel by means of an optional holding rail. This is useful if inspection hatches in the ceiling are planned.

In addition to their thermal function – cooling and heating – they can be fitted with additional features, such as acoustic elements, smoke detectors and lighting.

If only partial coverage is required initially, additional ECO M-C coils can be easily installed at a later date. ECO M-C is also ideal for retrofitting old, thermally inactive metal ceilings in radiant ceiling systems without having to remove the ceiling panels from the building.

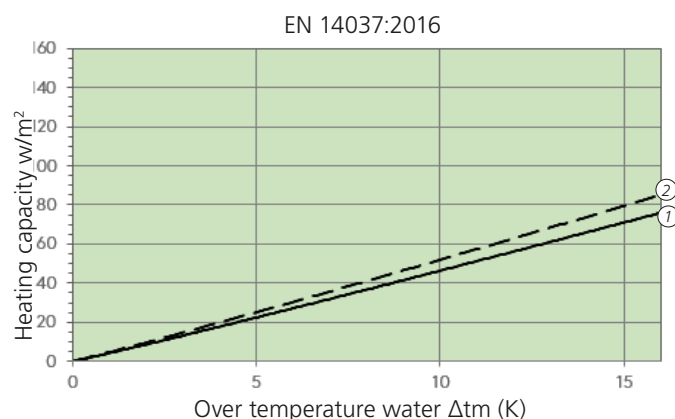
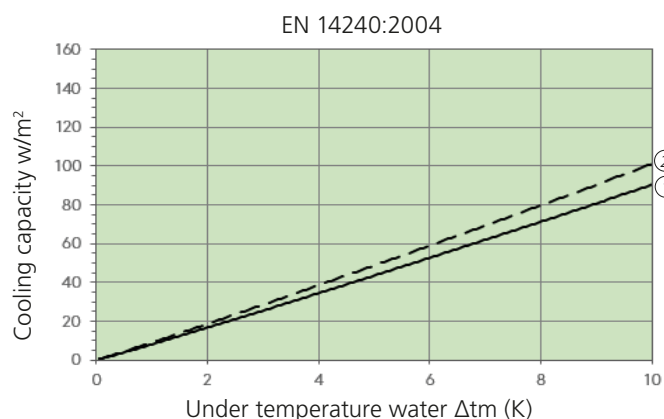
Technical data

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)	Blank 130 mm — ①	Black 130 mm — ②
Acoustic inlay	Fleece	Fleece
Activation method	magnetic	magnetic

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



Version	Cooling 8 K	Cooling 10 K	Heating 15 K
① Steel (hcr blank)	up to 72 w/m ²	up to 90 w/m ²	up to 71 w/m ²
② Steel (hcr black)	up to 80 w/m ²	up to 101 w/m ²	up to 80 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):
 - Cooling 2 – 3 K
 - Heating 3 – 5 K
- Pressure drop: 20 – 25 kPa
- Water flow: 90 – 200 l/h
- Max. operating pressure up to 9 bar
- Water quality according to: SWKI BT 102-01, BTGA 3.003, VDI 2035

Surrounding

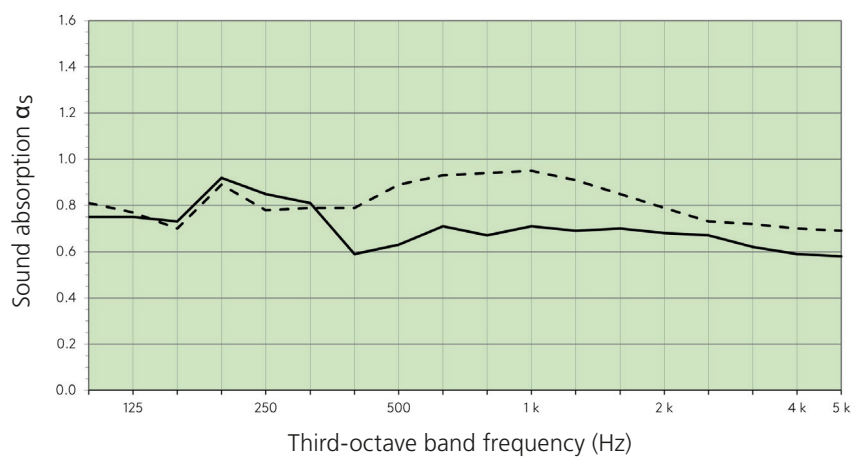
- Ambient temperatures: +5 – 50 °C
- Humidity: up to 90 % relative humidity

Acoustics

Initial data is presented below.

Perforation	Rg 1,5 – 11 %	Rg 1,5 – 11 %
Distance heat conducting rails (hcr)	130 mm	130 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

EN ISO 11654



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

System

Ceiling system

- Closed ceiling
 - Lay-in system
 - Hook-on system
 - Clip-in system
 - C-channel systems

Installation systems

- Installation height: 200 mm
Depends on the chosen ceiling system

Materials, weight and dimensions

Materials and weight

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

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

Dimensions

Lenght	Width	Height
min. 500 mm	min. 300 mm	min. 30 mm
max. 2000 mm	max. 800 mm	max. 40 mm

Dimensions are dependent on the ceiling system and may vary.
Custom dimensions on request.

Surface

Versions

- Powder coating
- Digital printing on request

Colors

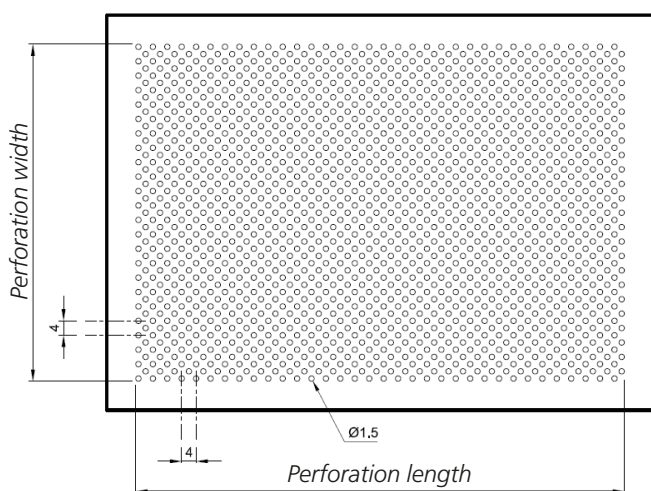
- Standard RAL 9010
- Other RAL / NCS colors on request

Perforations

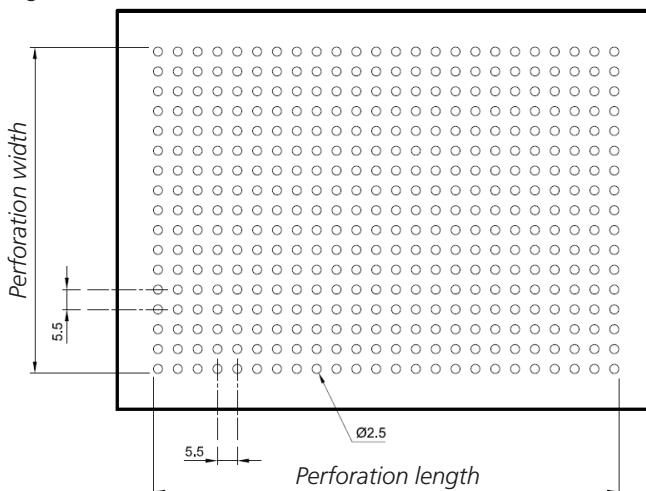
- Standard perforations
- Other perforations on request

Standard perforations:

Rd 1,5 – 22 %



Rg 2,5 – 16 %



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