

# QUELLO

Concealed air supply



## QUICK FACTS

- Thermal comfort according to EN ISO 7730
- High heating and cooling capacity: heating up to  $90 \text{ W/m}^2$  (15 K), cooling up to  $75 \text{ W/m}^2$  (8 K)
- Active concrete management
- Draught-free to EN ISO 7730, class A/B
- Advanced acoustic properties:  $\alpha_w$  up to 0,85
- Low Sound power level  $L_w$ :  $< 30 \text{ dB (A)}$
- Ceiling panels and activation registers are connected with magnet technology
- Easy to install
- Functions
  - Cooling
  - Heating
  - Mass connection
  - Acoustics
  - Supply and exhaust air
  - Integral components

# Technical description

## General

The closed radiant metal ceiling Spectra M + Quello is a water-based climate ceiling system with high thermal and advanced acoustic effectiveness and with integrated supply air boxes for fresh air, which are not visible from the living area. The air enters the room from strip-shaped openings on the underside of the air rails through the perforated ceiling panel and is therefore draught-free. In addition, this climate ceiling system includes the storage mass for dissipating heat loads according to the principle of the thermo-active component system.

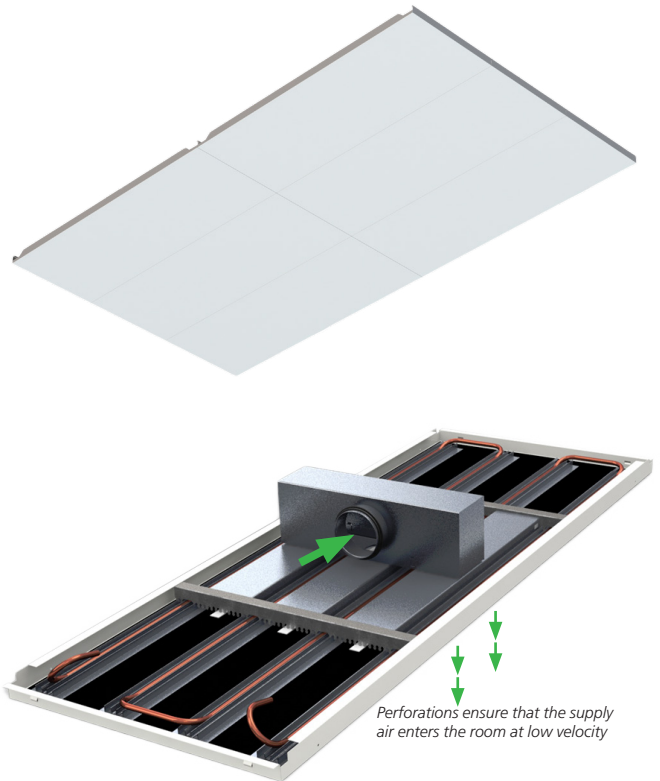
## Activation

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.

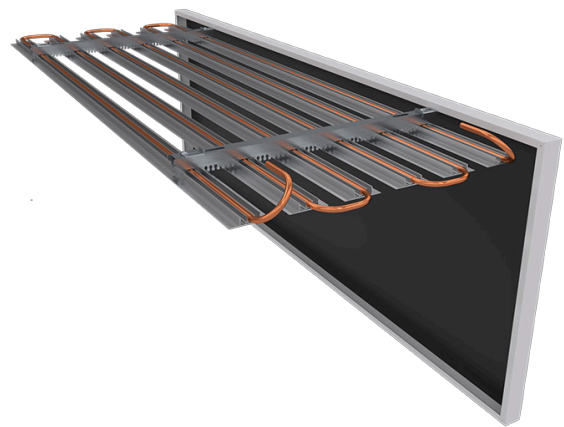
The activation of the radiant metal ceiling system Spectra M consists of meandering copper pipes (outside diameter 10 mm), which are pressed into aluminum heat-conducting profiles. The connection between the activation register and the ceiling panel is made with magnet technology. This allows the components to be prefabricated concurrently and delivered separately to the construction site for assembly there. As a result, the manufacturing time for the ceiling as a whole is significantly reduced. If only partial occupancy is planned initially, additional registers can be easily installed at a later date. A further advantage of the system is that the magnet technology and U support rails used to secure the activation registers in place prevent the panels from sagging, even with larger panel formats.

## Functions

The radiant metal ceiling Metall Spectra M + Quello is multifunctional. In addition to the thermal functions of cooling/heating and the active concrete management, there is the possibility of further integration: acoustically effective inserts, various built-in components (e.g. smoke detectors, lighting).



Quello type QLS-3 showing supply air flow characteristics.



Spectra M activation register with magnet technology for connection to the ceiling panel.

# Technical data

## Capacity

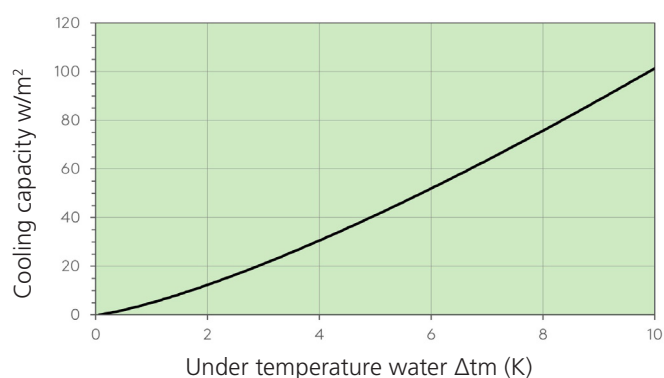
### Water

Initial data is presented below:

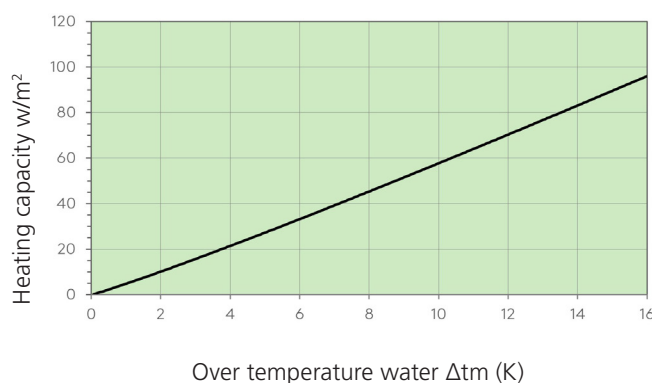
Material ceiling panel	Steel
Randfuge	with
Perforation	Rg 1,5 – 11 %
Distance heat conducting rails (hcr)	150 mm
Acoustic inlay	Fleece
Activation method	Magnetic

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

EN 14240:2004



EN 14037:2016



Version	<sup>1)</sup> Cooling 8 K	<sup>1)</sup> Cooling 10 K	Heating 15 K
Steel 150 mm	up to 75 W/m <sup>2</sup>	up to 102 W/m <sup>2</sup>	up to 90 W/m <sup>2</sup>

<sup>1)</sup> Depending on the configuration, an additional capacity of 10 W/m<sup>2</sup> of panel area is achieved through concrete management.

### 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
- 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

### Supply air

- Supply air temperature: 2 K - 8 K under temperature

### Surrounding

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

### Air

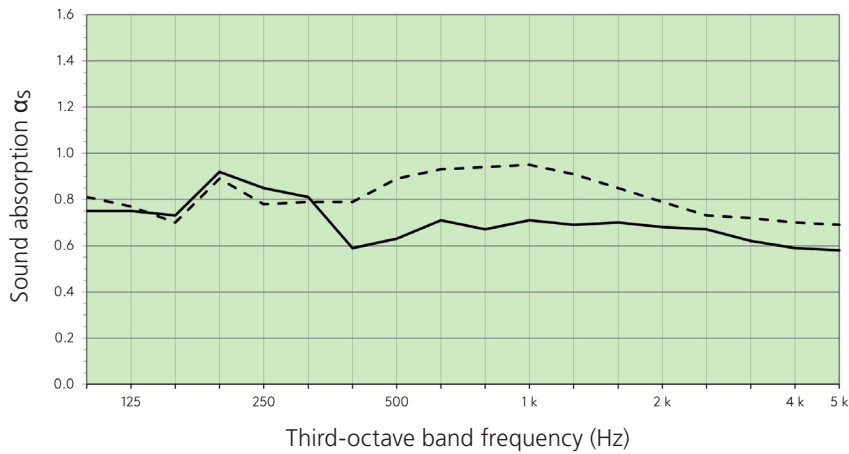
Quello-Type	Air flow:	Air performance (8 K)	Sound pressure level
QLS-2: 2 Air rails	up to 50 m <sup>3</sup> /h	135 W	24 dB(A)
QLS-3: 3 Air rails	up to 75 m <sup>3</sup> /h	200 W	28 dB(A)

**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 $\alpha_p$	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 $\alpha_w$	$\alpha_w$ : 0,70 (L)	$\alpha_w$ : 0,85
Sound absorption class (EN ISO 11654)	C	B

EN ISO 11654



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

# System

## Ceiling system

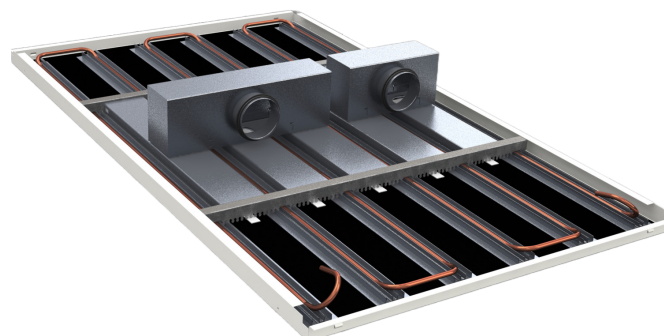
- Closed ceiling (with edge joint)
  - Rectangular panels

## Installation systems

- Installation height: min. 170 mm
  - Lay-in system
  - Hook-on system
  - Clip-in system
  - C-channel systems

## Quello-Types

- Type QLS-2: 2 air rails
- Type QLS-3: 3 air rails



# Materials, weight and dimensions

## Materials and weight

Material ceiling panels	Wight ceiling panels (incl. activation, water)	Wight air boxe Quello (sheet steel)
Steel 0,70 mm	10,0 – 13,3 kg/m <sup>2</sup>	QLS-2: approx. 2 kg QLS-3: approx. 3 kg

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

## Dimensions

Type	Dimensions
Width	200 – 1200 mm
Lenght	500 – 2200 mm
Height	30 – 40 mm
Activation register length	min. 850 mm
Assembly height (incl. Quello)	160 mm
Installation height	min. 170 mm
Quello air rails lenght	600 mm
Quello connection	DN 100

## Surface

### Versions

- Powder coating
- Digital printing on request

### Colors

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

### Perforations

- Standard perforations
  - Rd 1,5 – 11 %
  - Rg 1,5 – 11 %
  - Rd 1,5 – 22 %
  - Rg 2,5 – 16 %
- Other perforations on request

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