VENTAMIC

Hybrid system with building mass connection

QUICK FACTS

- In combination with A11-C, SPECTRA M-C
- Very high heating & cooling capacity
- Superior sound absorption values (class A)
- Enhanced energy efficiency thanks to active building mass connection
- Sound power level Lw: < 35 dB (A)
- Fresh air intake is silent and draught-free
- Components can be integrated

BARCOL-AIR
by Swegon

Technical description

General

VENTAMIC + the radiant metal ceiling A11-C or SPECTRA M-C are highly efficient ceiling system with integrated supply air and superior acoustic effectiveness. The VENTAMIC hybrid system delivers highly effective ventilation results. The air speed in occupied areas remains extremely low thanks to the Coanda effect.

The supply air jet generates negative pressure in the ceiling cavity, which increases the convective capacity and significantly heightens the heating and cooling effect of the water-based radiant ceiling. Furthermore, this system is using the building mass to store energy temporarily. With this function, the heat-load peaks can be broken down. The system works according to the principle of thermally active buliding systems.

Activation

Water system: The A11-C 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-C 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.

The activation of the SPECTRA 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

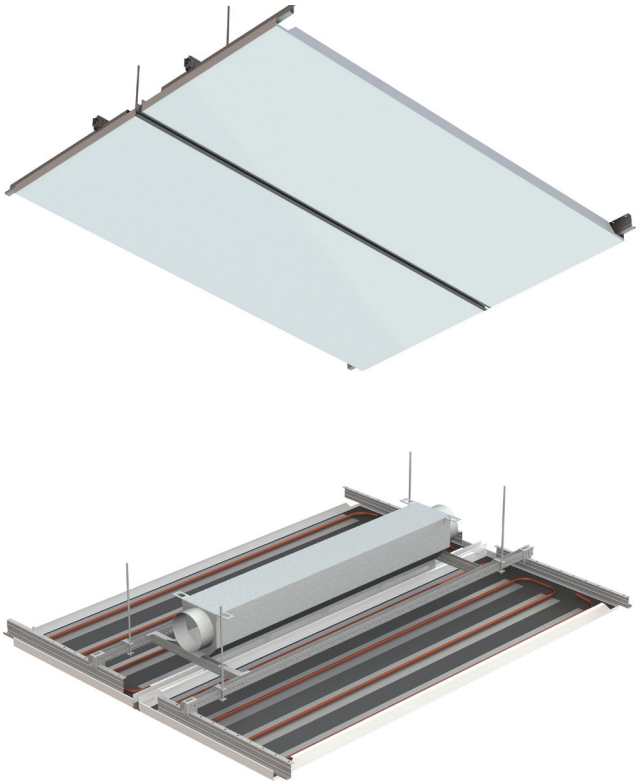
VENTAMIC + the radiant metal ceiling A11 is multifunctional. In addition to the thermal functions of cooling/heating and the active concrete management, there is the possibility of further integration: acoustically effective inserts, various built-in components (e.g. smoke detectors, lighting).

Combinations

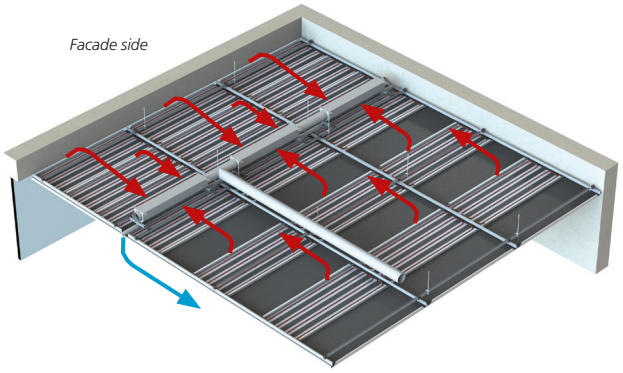
- VENTAMIC + A11-C Radiant metal ceiling system
- VENTAMIC + SPECTRA M-C metal ceiling system

Hygiene conformity

- Hygiene conform to VDI 6022 / SWKI VA104-01



Ceiling cutout with a VENTAMIC between two ceiling panels.



Flow characteristics of the supply air: The supply air jet creates a negative pressure in the ceiling cavity, which draws in warm air from the room through the joints on the facade and between the ceiling panels and returns it to the room cooled by the circulating air effect.

Technical data

Capacity

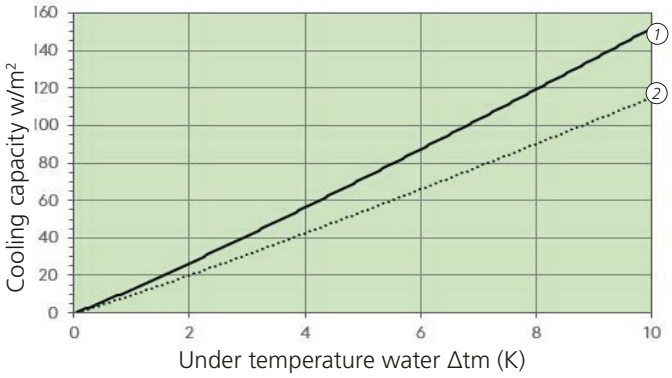
Water

Initial data is presented below.

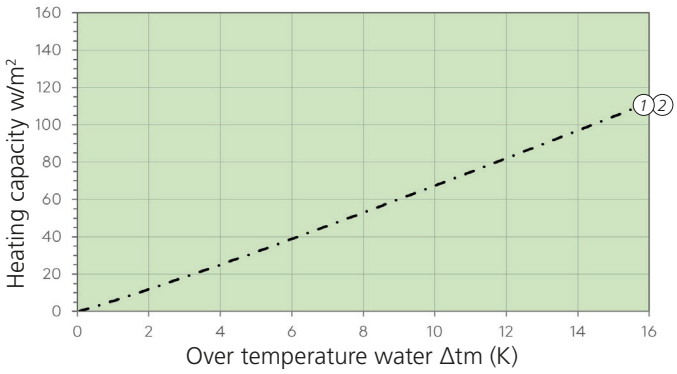
Systems in comparison (with edge joints and panel joints)	VENTAMIC + A11-C / SPECTRA M-C ——①	A11-C / SPECTRA M-C - - - -②
Material	Steel	Steel
Perforation	Rg 1,5 – 11 %	Rg 1,5 – 11 %
Activation method	on metal	on metal
Acoustic inlay	Fleece	Fleece
Additional inlay	Strip insulation between heat conduction rails	Strip insulation between heat conduction rails

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

EN 14240:2004



EN 14037:2016



Version	[1] Cooling 8 K	[1] Cooling 10 K	Heating 15 K
① VENTAMIC + A11-C / SPECTRA M-C Alu	up to 119 w/m²	up to 152 w/m²	up to 104 w/m² (–·–·–)
② A11-C / SPECTRA M-C Steel	up to 100 w/m²	up to 125 w/m²	up to 104 w/m² (–·–·–)

[1] Depending on the configuration, an additional output of 10 w/m² 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.

Water (recommendations)

- 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

Air

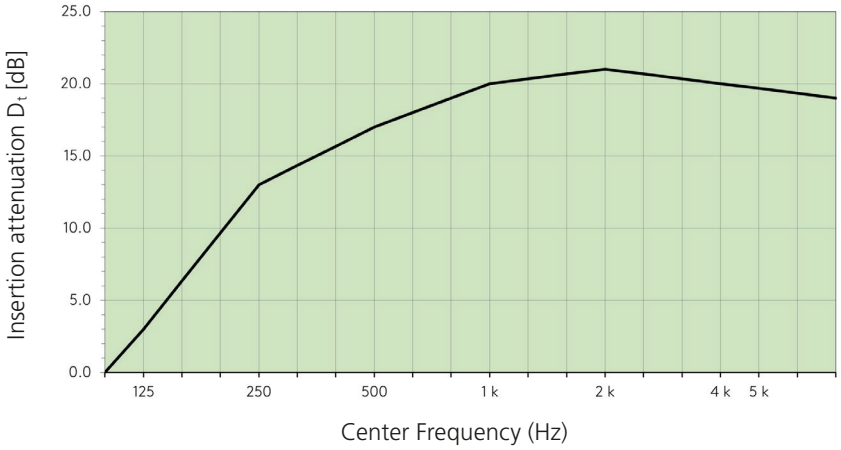
Situation	Volume flow per linear meter VENTAMIC	4 K	6 K	8 K
Office	60 m³/h*lm	77 W	115 W	153 W
Meeting room	80 m³/h*lm	102 W	153 W	204 W

Base: ρ_L = 1,15 kg/m³ / c_L = 1,006 KJ/kgK

Acoustic

Insertion attenuation D_t in octave band

EN ISO 7235



Centre frequency f in [Hz]	125	250	500	1000	2000	4000	8000
Air connection box insulated inside D_t in [dB]	3	13	17	20	21	20	19

Sound power level and pressure losses

Situation	Volume flow m³/h*lm	Ap [Pa]	Sound power level [db(A)]
Minimum	30	7	< 25
Single office	40	11	27
Open plan office	60	25	32
Meeting room	80	45	38

Sound absorption according to EN ISO 11654

Ceiling panel	Soundabsorption value a_w	Sound absorption class
with acoustic fleece without acoustic strips	0,65	C
with acoustic fleece with acoustic strips at the edge	0,80	B
with acoustic fleece with acoustic strips at the edge and center	0,85	B
with acoustic fleece with acoustic strips full-surface	0,90	A

Initial data: values at installation high 200 mm.

System

Ceiling system

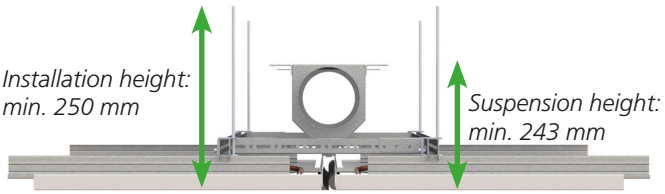
- Ceiling closed (with edge joint and panel joints)
  - Rectangular panels

System components

- VENTAMIC with slot diffuser
- Air connection box for access in the corridor

Installation systems

- Installation height: min. 250 mm
  - Lay-in system
  - Hook-on system
  - C-channel systems



Materials, weight and dimensions

Materials and weight

Material ceiling panel	Weight ceiling panel (incl. activation, water)	Weight VENTAMIC (Steel sheet)
Aluminium 1,00 mm	4,0 – 6,5 kg/m²	5,0 kg/piece
Steel 0,70 mm	6,5 – 9,0 kg/m²	

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

Dimensions

Panel lenght	Panel width	Panel height
min. 600 mm	min. 400 mm	40 mm
max. 3000 mm	max. 1200 mm	40 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
  - Rd 1,5 – 11 %
  - Rg 1,5 – 11 %
  - Rd 1,5 – 22 %
  - Rg 2,5 – 16 %
- Other perforations on request

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