

PLASTER ON CONCRETE - CEILING

with capillary tube mat OPTIMAT SB 20.00



System description



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SYSTEM DESCRIPTION

Design

The capillary tube mats are plastered directly underneath a concrete ceiling. On the visible side, a closed, jointless plaster ceiling is created for the dissipation or supply of sensitive heat loads. The water circulates noiselessly in the capillary tube mats and regulates the room temperature largely by radiation, partly by convection.

Capillary tube mat

The Clina capillary tube mat OPTIMAT SB 20.00 is recommended for this design.

Length & Width

The capillary tube mats are custom-made in length and width for each project. On the construction site the mat distributor pipes are connected to each other by heating element socket welding.

This is a secure, non-detachable connection.

Hydraulic connection

Mat distributor pipes and supply lines are accommodated in the suspended ceiling of the corridor, in a slot or a casing at the front of the room. The capillary tube mats welded together to a hydraulic circuit are connected to the supply and return lines.

Of course, the ceiling void can also be used for further installations.

Mounting

The capillary tube mats are fastened, depending on the nature of the sub-surface, either with Clina Optifix, double-sided adhesive tape, Knauf plaster pins or a full-surface plaster base.

Lamps & Ventilation

Larger openings must be considered in the planning phase. Up to approx. 100 mm, openings can also be realised during the construction phase by simply pulling the capillary tubes apart.

Plaster

All commercially available plasters such as gypsum, lime, cement or acoustic plaster are suitable. For example, they are applied using the spraying method up to a plaster layer thickness of 15 mm.

Regulation

The system can be regulated room-by-room.

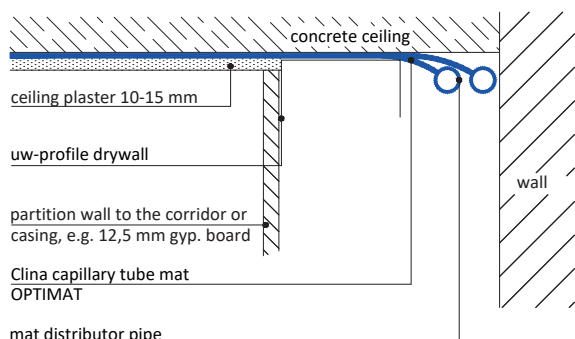
Fields of application

Suitable for all types of buildings, such as office buildings, residential buildings, hotels, etc., whether new construction or renovation.

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STRUCTURE



View of a ceiling section: plaster on bare concrete

The capillary tube mats are plastered directly underneath a concrete ceiling.

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The capillary tube mats are fastened, depending on the nature of the subsurface, either with Clina Optifix, double-sided adhesive tape, Knauf plaster pins or a full-surface plaster base.

Plaster, for example, is applied using the spraying method up to a layer thickness of 15 mm.

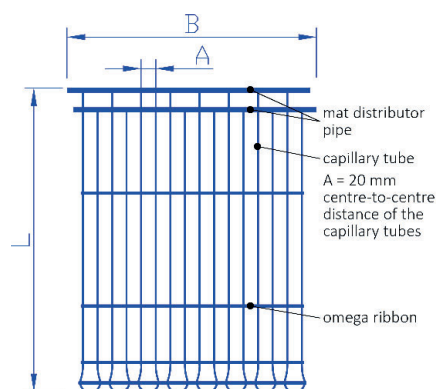
RECOMMENDED CAPILLARY TUBE MAT

The OPTIMAT SB 20.00 consists of 2 round mat distributor pipes (20 x 2,0 mm) and capillary tubes (4,3 x 0,8 mm).

The constant distance between the capillary tubes (centre-to-centre distance) is 20 mm and is guaranteed by the omega ribbons.

Special features

- high mechanical resilience
- low pressure loss
- good venting



GENERAL INFORMATION ON CAPILLARY TUBE SYSTEMS

Clina capillary tube mats are used very successfully worldwide for heating and cooling various buildings.

The capillary tube system is extremely **comfortable**:

- noiseless temperature control
- draught-free
- even when heating, the surface temperature of the ceiling is always below the body temperature of the user (high thermal comfort)
- fast reaction

Advantages compared to classic single-pipe systems:

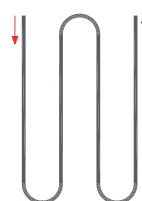
- low pressure loss
- very even temperature distribution and transmission
- larger exchange surface
- ideal for the use of environmental energy due to very small temperature differences between system and room temperature
- in combination with the heat pump, best COP values can be achieved

Capillary tube mats are **safe & durable**

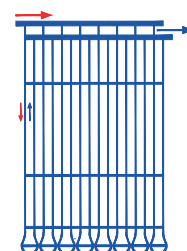
Each individual Clina capillary tube mat is subjected to a leak test before dispatch. The test pressure is 20 bar - which corresponds to approximately 10 times the operating pressure.

A 15-year extended warranty applies to all Clina mats. The expected service life is more than 50 years under normal conditions of use. All Clina capillary tube mats are produced exclusively in a TÜV SÜD-certified manufacturing facility in Berlin-Brandenburg.

Single-pipe system



Capillary tube system



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ADVANTAGES

Cooling and heating with one system

In most buildings, the heat requirement to be covered is so low due to the well-insulated building envelope that capillary tube mats invisibly integrated into the ceiling not only provide excellent cooling in the summer, but can also be used to heat very comfortably and energy-efficient in the cold season.

High performance and dynamics

Due to the capillary tubes completely enclosed by the plaster, a large-area heat conduction is achieved. The near-surface layer with a low plaster coverage ensures a fast response. This design allows a maximum degree of activation of the ceiling.

Good price/performance ratio

The use of large-sized capillary tube mats reduces the installation effort. The usual plaster layer thickness is not affected by the capillary tube mat. There are no additional costs for material.

Very low installation height

A complete embedding of the capillary tubes is achieved with a plaster layer thickness of **10-15 mm**. Mat distributor pipes and supply lines are accommodated in the suspended ceiling of the corridor, a slot or a decking at the front of the room. Ideal for maximum utilisation of the building height.

Very flexible

This design can be adapted to all spatial conditions, e.g. also to spaces with vaults and archs.

Individual room control

The temperature can be regulated room-by-room.

Better than component activation

The plaster ceiling convinces with significantly higher dynamics, performance and surface quality.

VALUES



HEATING CAPACITY

according to DIN EN 14037/5

105,3 W/m² (MP 75)

$\Delta T = 15$ K, active mat surface



COOLING CAPACITY

according to DIN EN 14240

90,6 W/m² (MP 75)

$\Delta T = 10$ K, active mat surface



ACOUSTICS

weighted sound absorption coefficient according to plaster manufacturer's specifications

INSTALLATION HIGHT:

(without mat distributor pipe and supply lines)

10-15 mm in plaster

SYSTEM WEIGHT (filled with water):

750 g/m² plus plaster

PRESSURE STAGE:

PN 10

REFERENCES

Please note the following documents for further information:

- Plaster on concrete-ceiling System data sheet
- OPTIMAT SB 20 Product data sheet
- Plaster ceilings Performance values
- Plaster on concrete ceiling Installation guideline
- Website: www.clina.de

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