

# CONVECTOR GRAVIMAT

Cooling, heating & dehumidifying with capillary tube mats OVAMAT G 10



System description



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## SYSTEM DESCRIPTION

### Design

The capillary tube mats are arranged vertically and hooked in a frame, as a front-wall installation or integrated into the wall, behind any air-permeable and moisture-resistant material. On the visible side, there is a neutral or decorative room element, depending on the customer's requirements, for the dissipation or supply of sensitive heat loads. The water circulates noiselessly in the capillary tube mats, regulating the room temperature and dehumidifying rooms.

While cooling in summer, dehumidification takes place parallel to the temperature reduction as soon as the temperature falls below the dew point. In contrast to an air conditioning system, however, temperature and humidity cannot be controlled individually. Cooling and dehumidification are coupled together. The respective intensity depends on constructive parameters of the GRAVIMAT, the cold water

temperature, the mass flow rate and of course on the room air condition.

### Capillary tube mat

The capillary tube mat OVAMAT G 10 is recommended for this design.

### Length & Width & Depth

The capillary tube mats are custom-made in length and width for each project.

The dimensions for the GRAVIMAT frame are also variable. The standard frame has the dimensions 2.270 x 1.160 x 150 mm (H x W x D).

### Hydraulic connection

The capillary tube mats are connected to each other via a header.

### Mounting

The capillary tube mats are hooked vertically into a frame.

The mats are arranged parallel to each other. They are tightened by a spring mechanism.

### Frame and panelling/covering

The frame is galvanized. Any type of air-permeable and moisture-resistant material can be used for the panelling. This can be a cupboard door with upper and lower opening, blinds, wooden slats, perforated metal plates, etc.

### Regulation

The system can be controlled room-by-room.

### Fields of application

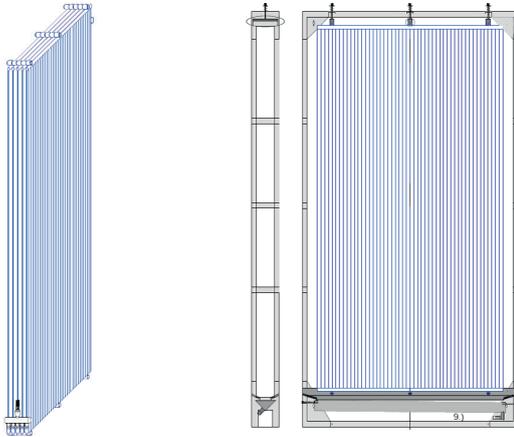
Ideal for weather conditions or climate zones with high humidity. Suitable for all types of buildings, such as office buildings, residential buildings, hotels, medical practices, but also stables, etc., whether new buildings or renovation.

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## STRUCTURE



The GRAVIMAT can be installed as a front-wall installation or integrated into the wall. The capillary tube mats are hooked vertically into a frame. This frame is made of galvanised customary steel profiles and can be mounted on site.

The capillary tube mats are connected to each other via a header. Depending on the required capacity, up to five capillary tube mats can be connected in parallel.

At the lower end of the convector there is a condensate tray for the condensate. The condensate can be drained via a hose. If a condensate pump is used, a power connection must be provided.

## RECOMMENDED CAPILLARY TUBE MAT

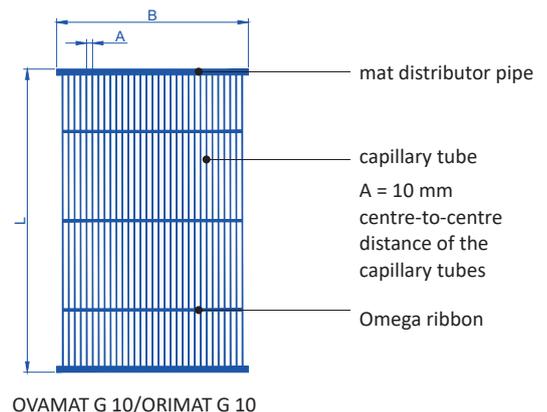
The capillary tube mat OVAMAT G 10 consists of an oval mat distributor pipe (20 x 12 x 2,0 mm) and capillary tubes (3,4 x 0,55 mm).

The constant distance between the capillary tubes (centre-to-centre distance) is 10 mm and is guaranteed by the omega ribbons.

Alternatively or depending on the installation situation, the ORIMAT G 10 with 2 round mat distributor pipes (20 x 2,0 mm) can be used.

### Special features

- low pressure loss
- good venting
- large surface



## GENERAL INFORMATION ON CAPILLARY TUBE SYSTEMS

Clina capillary tube mats are used very successfully world-wide 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**

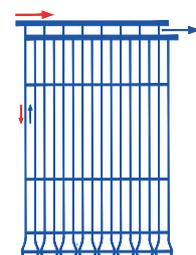
Each individual Clina capillary tube mat is subjected to a leak test before dispatch. The test pressure is 20 bar - which corresponds to approximately 10 times the operating pressure.

All Clina mats are covered by a 15-year extended warranty. The expected service life is more than 50 years under normal conditions of use. All Clina capillary tube mats are produced with high-tech machines & equipment in our manufacturing plant in Berlin-Brandenburg.

Single-pipe system



Capillary tube system



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## ADVANTAGES

### Cooling, heating & dehumidifying with one system

The GRAVIMAT represents a cost-effective alternative to conventional systems such as air conditioning, fan coil units or split systems.

In principle, the installation of a Clina convector comes close to the operation of an air conditioning system.

### High heating and cooling capacities

High heating and cooling capacities can be achieved. They can be determined by the size of the convector or the size and number of mats. In addition, the flow temperature is also an influencing variable.

Suitable for climate zones with extreme weather conditions, with high humidity. The GRAVIMAT is predestined for operation below the dew point, as the condensate accumulates in the convector and can also be discharged from there.

### Comfort without draught

A natural convection is created in the room, where the driving „force“ is the temperature difference between the room air temperature and the surface temperature of the capillary tube mats. In contrast to forced convection with fans, a greater well-being is achieved.

### Cooling at high humidity is possible

Particularly suitable for premises located in regions or climate zones with extreme weather conditions and high humidity.

### Low installation height

The ceiling only needs to be suspended by approx. 10 cm to attach the Clina capillary tube mats and supply lines. Alternatively, the supply lines can be installed through the wall.

### Simple installation and easy retrofitting

As front-wall installation or integrated in the wall, the GRAVIMAT requires only little space. It can be adapted to any interior.

Installation and cleaning are very easy (the capillary tube mats can be removed if necessary).

The openings for the flow of the room air can be freely arranged.

### Self-regulating effect

Output and air flow are depending on the temperature difference between room air and surface of the capillary tube mats.

### Low life-cycle costs

The GRAVIMAT is inexpensive, if necessary, customary elements can be used as frames.

The capillary tube mats have a long service life.

For the cooling water circuit only low pump capacities are required.

## VALUES



### HEATING CAPACITY

at free convection

**approx. 350 W**

$\Delta T = 15 \text{ K}$

(between room air and flow temperature) for standard design



### COOLING CAPACITY

at free convection

**approx. 600 W**

$\Delta T = 10 \text{ K}$

(between room air and flow temperature) for standard design



### DEHUMIDIFICATION



### ACOUSTICS

sound absorption possible with appropriate materials

### MOUNTING FRAME standard:

height x width x depth  
**2.270 x 1.160 x 150 mm**

### SYSTEM WEIGHT mat unit:

5 mats filled with water  
**approx. 11 kg/m<sup>2</sup> plus frame**

### SYSTEM WEIGHT

standard mounting frame:  
**approx. 13,8 kg**

### PRESSURE STAGE

PN 10

## REFERENCES

Please note the following documents for further information:

- Convector GRAVIMAT System data sheet
- Convector GRAVIMAT Product data sheet
- OVAMAT G 10 Product data sheet
- ORIMAT G 10 Product data sheet
- Website: [www.clina.de](http://www.clina.de)

## CONTACT

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