

Capillary tube mat

The ideal radiant heating and cooling system for ceiling, wall and under floor.



Capillary Tube Mat system is an innovative technology developed to replace the conventional heating and cooling system. Capillary tube is extremely thin pipe made of Polypropylene, carrying water throughout the piping system to exchange heat with the space air by radiation. Capillary tube can be installed on roof, wall, and floor, under the surface decorative materials.

Capillary Tube Mat is normally used in combination with Ground Source Heat Pump / air source heat pump and independent dehumidifying system.

Due to the following advantages/benefits, Capillary Tube Mat system is becoming very popular heating and cooling solution:

1. Very effective heating and cooling solution
2. have the highest efficiency heat exchange surfaces
2. Highly energy saving: High temperature for cooling and low temperature for heating offers a variety of options for an optimum of use of regenerative energy
3. No air flow feeling, much higher comfort
4. No noise, the quietest heating/cooling system
5. Easy installation and maintenance
6. Save space
7. "Invisible technology" with drastic reduction in space requirement for installation
8. Higher level of comfort through radiation cooling and heating.

Specification of capillary tube mat

<p>The diagram illustrates a capillary tube mat. It shows a series of horizontal collector pipes (blue bars) with vertical capillary tubes (blue lines) connected to them. The distance between the collector pipes is labeled 'A', and the distance between the capillary tubes is labeled 'A'. The total width of the mat is labeled 'B', and the total length is labeled 'L'. The bottom of the mat shows a series of circular distribution tubes.</p>	<p> \varnothing Collector pipe: 20*1.5mm \varnothing Capillary tube: 4.3*0.9mm Capillary tube distance (A): 20mm Length (L): 1000mm ~ 6500mm Width (B): 680mm Specific water content: approx. 0.37 l/m² Specific weight (filled): up to approx. 740 g/m² Mass flow rate in mats: up to 40 kg/h m² Pressure losses in mats: dependent on the size of the cooling circuit zone, approx. 0.1 to 2 mWs Cooling ceiling: Room conditions: t room = 26°C t water average = 16°C Cooling capacity, metal cassettes: 84 W/m² (26.5 BTU/h ft²) Cooling capacity, plaster ceilings: 81 W/m² (25.5 BTU/h ft²) Cooling capacity, plasterboard ceilings: 70 W/m² (22.2 BTU/h ft²) Heating capacity: 60-70w/m2 27-30degree Allow. heating water temp.80 degree: Operating pressure: Max.10 bar </p>
	<p> Capillary 4.3 x 0.9mm, round distribution tube 20 x 1.5mm. The mat element pre-configured in a perforated plastic folie backing film for application on plane surfaces in flooring, wall and ceiling area. </p>

Application:



1) underfloor heating

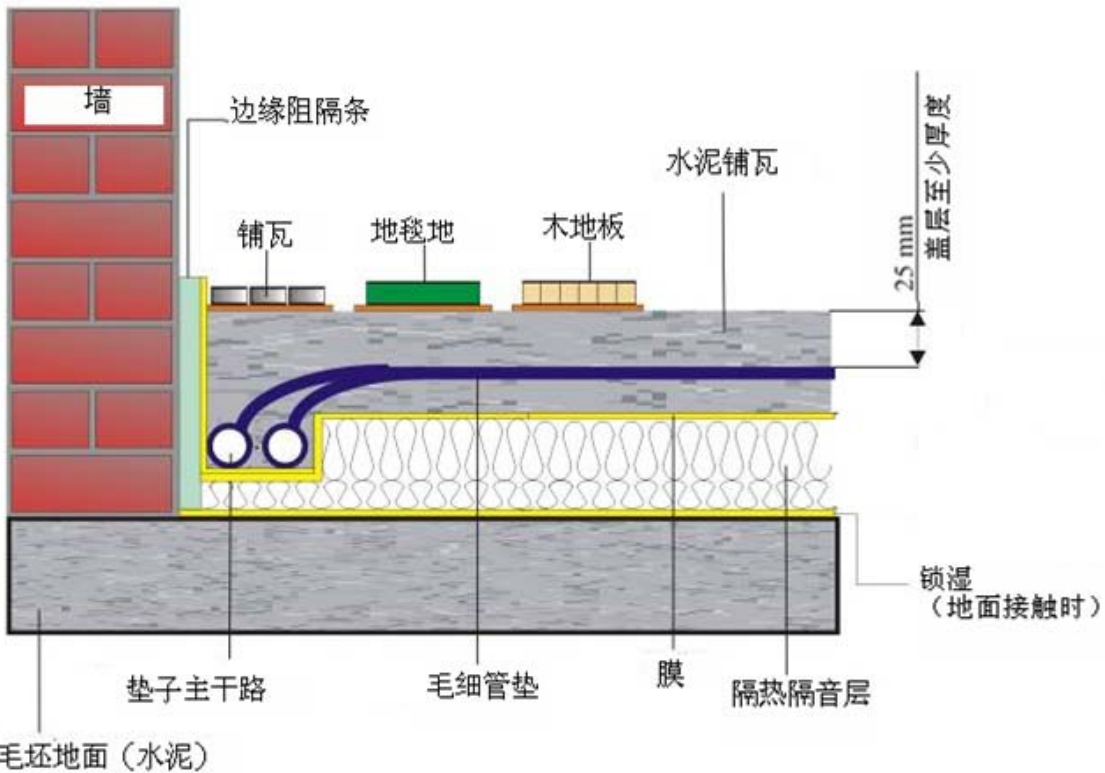
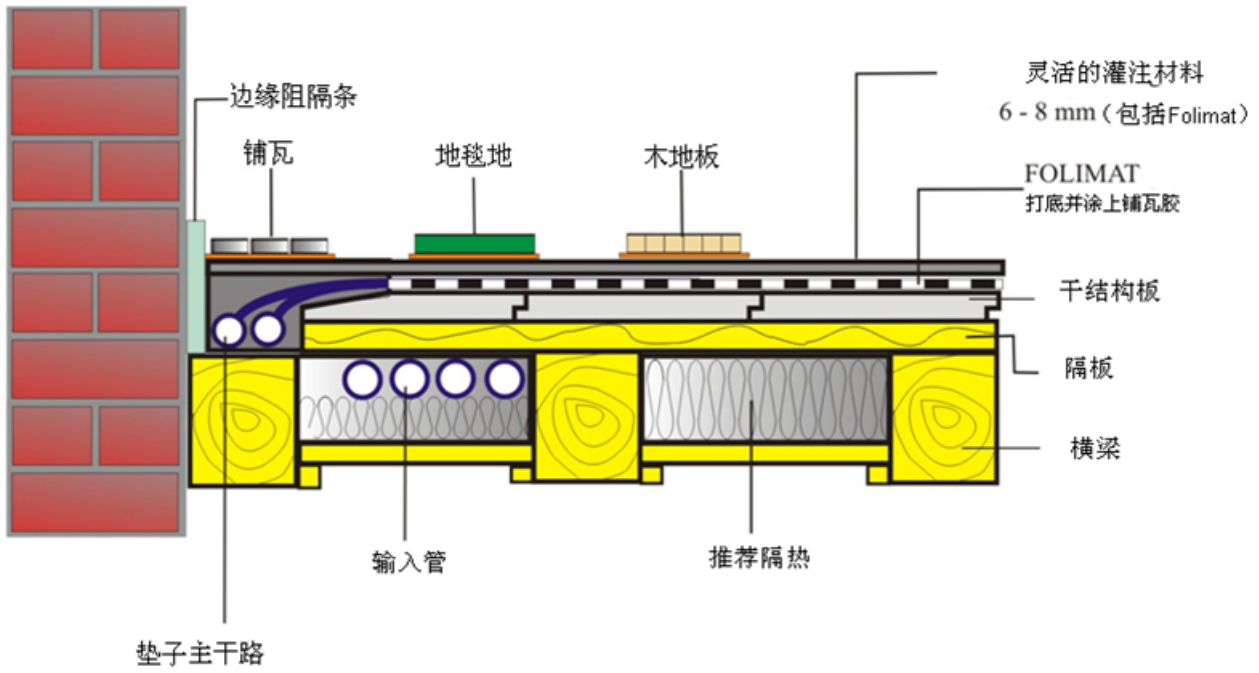
Floorheating systems with capillary tube mats can be used in all kind of buildings - in new buildings as far as in older buildings for retrofitting.

The big heat exchange surface of the capillary tube mats allows a very low pre flow temperature with a high output and a very homogeneous temperature at the floor. Furthermore capillary tube mats need a significant lower reaction time – floorheating systems with capillary tube mats are the fastest and most comfortable systems known in the world.

The energy transferred as thermal radiation is perceived as being particularly comfortable to humans since it corresponds to the natural heat balance of the body. The temperature felt is around 2–3°C higher than the actual room temperature, lowering the consumption of heat energy.

Laying capillary tube mats directly into the top layer of the floor screed causes extreme quick reaction times of system. The desired surface temperatures are attained after just a few minutes. Even when laying in screed, the capillary tube system needs only about a ¼ of the heat-up times of conventional underfloor heating systems.

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2) heating and cooling ceiling

Capillary tube mats embedded into plaster

Metal cassette ceilings with capillary tube mat

TUBE capillary tube mats in metal cassette ceiling

Capillary tube mats of TUBE can be integrated into each metal cassette ceiling. It is easy to connect with quick connectors and flexible hoses. The supplying tubes and the flexible hoses can be placed into the hollow space above

the metal cassettes. Also existing metal cassette ceilings can be activated with TUBE Capillary tube mats.

Used in metal cassette ceilings with holes for better acoustic function the Capillary tube mats of TUBE don't influence the acoustic benefits like other cooling systems embedded into aluminum profiles.

Advantages of TUBE capillary tube mats in metal cassette ceiling:

Easy, fast and clean installation

The λ hollow space above the ceiling is easy to reach for further installations

The metal cassettes are easy to remove and to λ change

Very good to use in metal cassettes with acoustic λ function

Existing metal cassette ceilings can be activated with TUBE capillary tube mats



3) wall heating

