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TYCO UNDERFLOOR HEATING INSULATION PANEL

1. Description of the TYCO underfloor heating insulation PANEL (TYCO UHP)

1.1Specification & components

TYCO UHP consists of grooved extruded polystyrene (XPS) and brown paper and aluminum foil. The aluminum foil and brown paper is laminated in the grooved side of XPS.

1.2Applications

TYCO UHP is used as an alternative to a screed type system when using water under floor heating systems. It is only 25/30mm thick and come with the pipework grooves cut out ready to fit the pipe inside, an 16/20mm floating chipboard sub floor can then be laid directly on top of the panels ready for floor covering such as carpets, tiles etc, or an 16/20mm engineered click wood flooring can be installed straight on top of the panels.

1.3drawing

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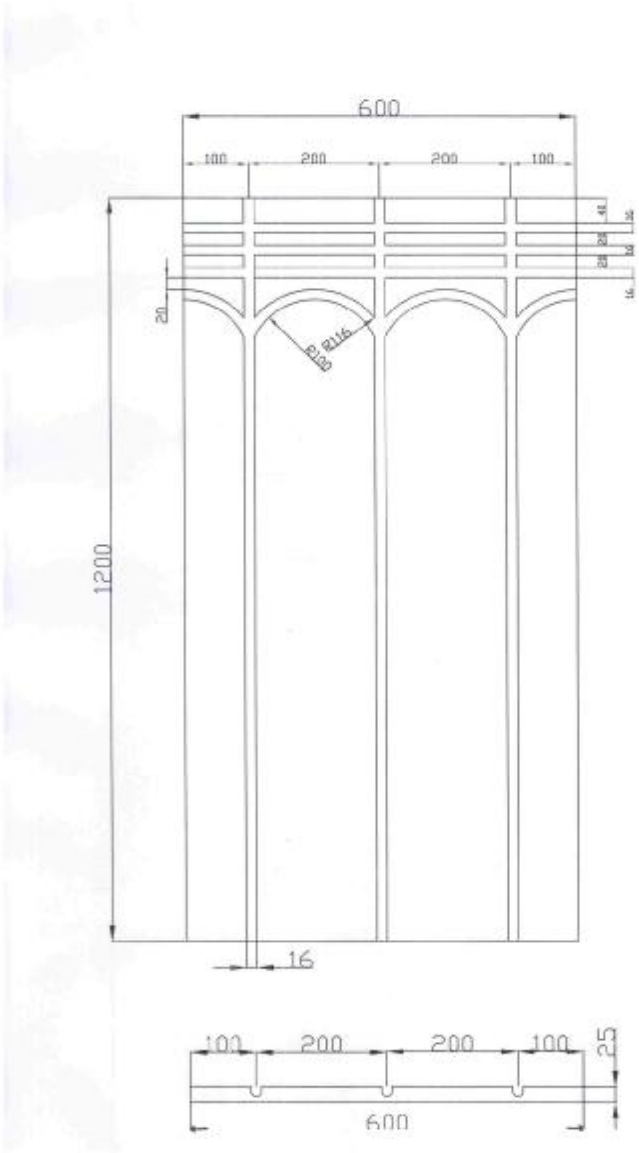


1.4Sizes

Panel size	Distance between grooves	Suit to pipe
1200*600*25mm	20/15cm	OD 16mm
1200*600*30mm	20/15cm	OD 20/16mm

Density tolerance: 32±3kg/m3
Tyco UHP has dimension tolerance as follow:
Length: ±2mm
Width: ±2mm
Thickness: ±1mm

2. Technical performance of the TYCO UHP

		XPS
Density of core board	Kg/m3	32±3kg/m3
Thermal conductivity, 90 days, 10°C	W/mK	0.03~0.034
Compressive strength at 10% deflection or yield, (vertical)	kPa	≥200
Tensile strength	kPa	≥200
Water absorption	Vol-%	<=1.00%
Capillarity	nil	nil
Coefficient of linear thermal expansion	mm/mK	0.07
Temperature limits	°C	-50°C, +75°C

3. Maintains and installation of the TYCO UHP

3. 1 Maintains of the TYCO UHP

3.1.1Handling

General Handling: Provide adequate ventilation, and local exhaust as needed.
Avoid generation of dust.
Wear suitable protective clothing and gloves.
For mechanical processing: dust formation. The use of local exhaust ventilation is recommended. Do not breathe dust.
Precautions against fire and explosion, avoid open flames. Keep away from heat.

3.1.2Storage

Avoid contact with, such as Oxidizing agents, aldehydes, amines, ester, organic solvents, Fuel (liquid)
Requirements for storerooms and containers:
Provide adequate ventilation.
Protect against direct sunlight.
Protect from moisture.
The product should be stored flat.

3. 2 Installation of the TYCO UHP

Underlay Installation board with aluminum foil apply to water heating system under tile use, The tile finished installing underlay insulation system as fig 2,

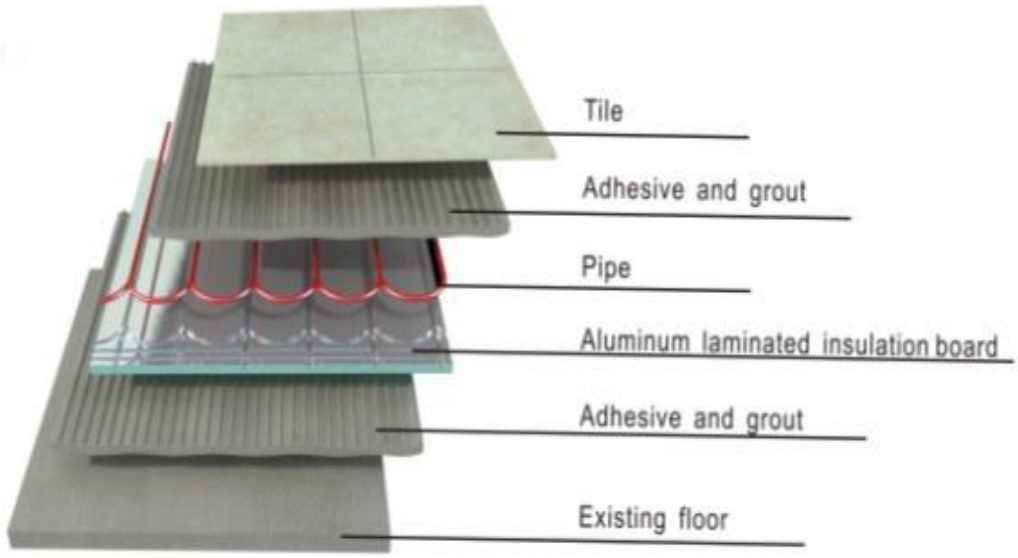


Fig 2

3.2.1 Preparation before install of the TYCO UHP

Before installation the TYCO UHP, please make sure that your floor base is flat, no bump area. Use screws to fix the bump area in laminate floor. Design how pipe walks through the whole heating area, how many pipe chanels, how long of the water pipe. Then you can know that how many circles of the pipe in each heating area, and where to change the pipe direction.

3.2.2 Installation:

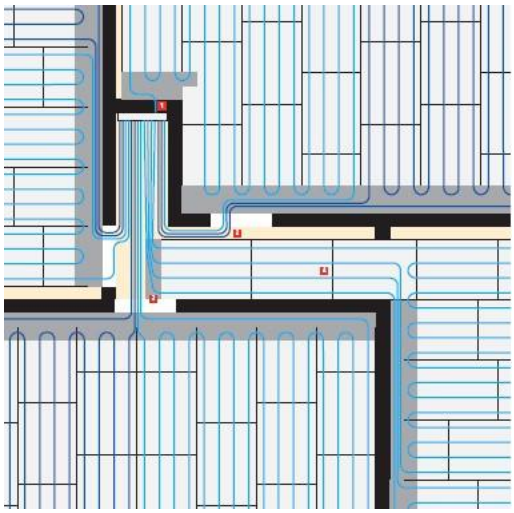
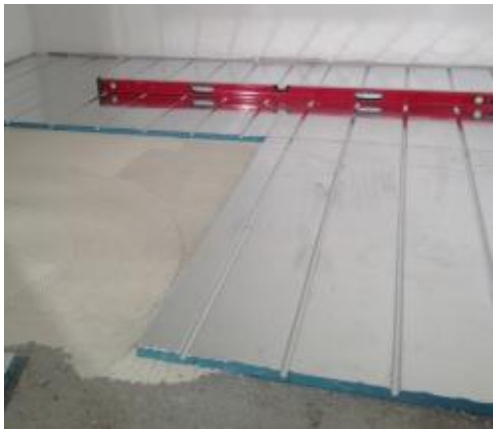
3.2.2.1. Lay adhesive and grout in existing floor, then stick the TYCO UHP on the adhesive and grout coating. After finish all heating areas insulation boards sticking, wait for about 2 weeks to make sure that the TYCO UHP are stable as step 3.

3.2.2.2. Installing heating pipe according with preplanned design. Each insulation board have three horizontal lines and three vertical lines, horizontal lines for different pipe branches walks to different target areas, vertical for pipe walk through the target area. Grooved curve for pipe walks to change its direction. In horizontal line to change pipe direction you can cut the aluminum foil by knife as step 4 and step 5.

3.2.2.3. After finish pipe installing, fix the pipe with adhesive tape as step 6(this step can leave out if necessary). Please we have to pay attention to the pipe installation and test the heating effect, in this step we must make sure the pipe installing in good condition, heating system works well, because it is different to find problem and maintenance after tiles finishing.

3.2.2.4. When pipe checking well installed, then put the adhesive and grout layer and

stick tiles as usual.

STEP 1. Planning the installation will save time later and make installation easier. The main consideration is the amount of runs and the route those pipes will take from the manifold. There are a number of parallel grooves at either end of the boards. If more transit grooves are needed then the grooves at the opposite ends can be cut off and used. Where possible route pipes through rather than around walls and doorways to cut down on pipework congestion. When lining up panels use a short length of pipe placed in the grooves to align them together	
STEP 2. Plates need to be supported so that they sit level and make a good contact with the floor placed on them from above. Maintaining this contact is essential in producing good heat transfer performance.	
STEP 3. After placing the boards and ensuring they are fl at and level and the joints are butted up firmly, tape the joints using aluminum self adhesive tape.	
STEP 4. Start laying the pipework by pressing it firmly into the grooves. Where the pipework is connected to the manifold	

there will be a need to use plain insulation and pipe staples to accommodate the closer pipe centres	
STEP 5. Where the pipe changes direction cut the foil in the return loops using a craft knife to prevent damage to the board. This will ensure a tight fit for the pipework.	
STEP 6. After installing the pipework , Aluminum self-adhesive tape can be placed over the end loops to prevent the pipework from becoming dislodged during the installation of the finished floor.