Uponor Underfloor Heating
Dry installation

FAST AND EASY TO ACHIEVE
General view of dry and quick installation

**Between the joists**

**Features and benefits** – Easy to install with our heat emission plates or cassettes. Can be done from above and underneath. It becomes part of the floor construction and gives no extra height.

The installation is done between the joists with a panel above for carrying the normal floor load. It can even be done from underneath if it is required. Normal joist spacing is 600 mm or less.

**On the joists**

**Features and benefits** – Use our 22 mm chip boards or standard battens to have a working floor. The heat emission panel makes for even heat distribution.

UFH installation can be done directly on the joist and by using our chip board, which can carry normal loads and becomes part of the working floor.

**Dry floor/floating floor**

**Features and benefits** – Our EPS panels (15-36 mm) give good comfort, high insulation values and is light and easy to install. Available for pipe sizes from 12 up to 20 mm.

A dry and quick installation on top of the existing floor can be done with our polystyrene panel with pre-grooved channels for the pipe. Use heat emission plates for more even distribution of heat.
Criteria to choose system

Extra floor height
Different kinds of underfloor heating plates result in extra floor height.

**Between joist**
- 0 mm .......... Uponor UFH Cassette 20 with insulation

**On joist**
- 22 mm .......... Uponor UFH Chip board 17

**Dry floor/floating floor**
- 15 mm .......... Uponor UFH Styropore plate 12
- 24 mm .......... Uponor Sound Reduction panel 17
- 25 mm .......... Uponor Siccus board 14
- 30 mm .......... Uponor Styropore plate 20
- 36 mm .......... Uponor Sound Reduction panel 20

Water temperature, heating
Water temperature required to achieve an equivalent heat output. Lower water temperature gives lower running costs.

*Measurements done by WTP in Berlin*

**For heat output 70 W/m² at a room temperature of 20 °C with floor surface 14 mm parquet (0.1 m²K/W)**

- 24.5 K .......... Uponor UFH Styropore plate 12
- 24.5 K .......... Uponor Siccus board 14
- 28 K .......... Uponor UFH Chip board 17
- 29 K .......... Uponor Sound Reduction panel 17
- 34 K .......... Uponor Sound Reduction panel 20
- 35 K .......... Uponor Styropore plate 20
- 37 K .......... Uponor Cassette 20 *)

Water temperature, cooling

*Measurements done by WTP in Berlin*

**For cooling absorption 15 W/m² with floor surface 14 mm parquet (0.1 m²K/W)**

Temperature differences needed to have above value between room temperature and water.

- 6.0 K .......... Uponor UFH Styropore plate 12
- 6.0 K .......... Uponor Siccus board 14
- 7.0 K .......... Uponor UFH Chip board 17
- 7.0 K .......... Uponor Sound Reduction panel 17
- 8.0 K .......... Uponor Styropore plate 20
- 9.0 K .......... Uponor Sound Reduction panel 20
- 9.0 K .......... Uponor Cassette 20 *)

Pipe dimension
Bigger pipes can cover larger floor areas with same heat demand.

- 12x1.7 mm .... Uponor UFH Styropore plate 12
- 14x2.0 mm .... Uponor Siccus board 14
- 17x2.0 mm .... Uponor Sound Reduction panel 17
- 20x2.0 mm .... Uponor UFH Chip board 17
- 20x2.0 mm .... Uponor Styropore plate 20
- 20x2.0 mm .... Uponor UFH Cassette 20 with insulation
- 20x2.0 mm .... Uponor Sound Reduction panel 20

*) With floor surface 22 mm parquet (0.15 m²K/W)
Solutions for a dry and quick installation

BETWEEN THE JOISTS

Uponor UFH Cassette 20 with insulation

A system developed for installation between joists without increase to finished floor level. It can support a persons load during installation.

In a wooden joist floor you just mount support battens 32 mm below top surface of the joist using our template. We have even developed a special holder for Granab joist system.

32 mm cassette installed between joists for Uponor pePEX Q&E 20x2.0 mm. Mount our system between joists with contact to the underside of the floor surface covering.

Wooden joist is mostly used in single family houses. Extra joist system, such as steel joist, is used in multi-family houses, commercial buildings etc.

Uponor pePEX Q&E 20x2.0 mm

<table>
<thead>
<tr>
<th>Uponor No.</th>
<th>Description</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1034362</td>
<td>Uponor UFH Cassette 20 with insulation</td>
<td>1155x545x34 mm</td>
</tr>
<tr>
<td>1009132</td>
<td>Heat emission plate for 20 mm</td>
<td>1150x280x0.55/20 mm</td>
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<tr>
<td>1034364</td>
<td>Uponor Template, Fix 20</td>
<td>width = 70 mm, height = 35 mm</td>
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<tr>
<td>1034363</td>
<td>Uponor Cassette Support</td>
<td>555x24x10/1.5 mm</td>
</tr>
<tr>
<td>1034554</td>
<td>Uponor Flipflex pipe bend support</td>
<td>20 mm</td>
</tr>
<tr>
<td>1005171</td>
<td>Uponor Compression adapter, Eurocone</td>
<td>20xG ¼</td>
</tr>
</tbody>
</table>
Calculation diagram Heating/Cooling for Uponor UFH Cassette 20 with insulation

1) Limit curve valid for $\vartheta_i = 20 \, ^\circ C \text{ and } \vartheta_s, \text{max} = 29 \, ^\circ C$

2) Temperature diff. between heating medium and room

3) Temperature diff. between room and cooling medium

When used for cooling the supply temperature should be controlled by dew point temperature, via humidity sensor(s).
A system developed for quick installation on joists to give a working floor to accommodate the floor covering.

Use a simple tool to make grooves or use specially made turn plates.

22 mm thick panels for installation on joists for Uponor pePEX Q&E 17x2.0 mm. Mount our system directly onto the structural floor and cover it with the floor surface.

Uponor UFH Chip board, grooved 17

Uponor pePEX Q&E 17x2.0 mm

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<tr>
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<tbody>
<tr>
<td>1034353</td>
<td>Uponor UFH Chip Board, Grooved 17</td>
<td>1800x600x22 mm</td>
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<tr>
<td>1009129</td>
<td>Uponor Heat Emission Plate 17</td>
<td>1150x190x0.45 mm</td>
</tr>
<tr>
<td>1009130</td>
<td>Uponor Turning Plate 17 with heat emission plates</td>
<td>600x400x22 mm</td>
</tr>
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</table>

Use a simple tool to make grooves, or use specially made turn plates

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<tbody>
<tr>
<td>1034354</td>
<td>Uponor Milling machine</td>
<td>710 W, 230 V, 3.4 A</td>
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<tr>
<td>1036659</td>
<td>Uponor Handle, Big Milling machine</td>
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<tr>
<td>1034554</td>
<td>Uponor Flipflex pipe bend support</td>
<td>20 mm</td>
</tr>
<tr>
<td>1005170</td>
<td>Uponor Compression adapter eurocone</td>
<td>17xG ¾</td>
</tr>
</tbody>
</table>

Battens on joist

Chipboard on joist

Chipboard on installation floor

Battens on joist Chipboard on joist Chipboard on installation floor
When used for cooling the supply temperature should be controlled by dew point temperature, via humidity sensor(s).
Using Uponor Underfloor heating styropore plates gives a floating floor with even heat distribution and a very high comfort level. It is easy to install underfloor heating using the styropore plates. Thanks to the low construction height, this installation alternative is also very useful in most renovation projects.

Uponor Underfloor Heating System 12 with styropore plates can be mounted on an existing wooden or concrete floor.

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<tbody>
<tr>
<td>1034338</td>
<td>Uponor UFH Styropore plate 12</td>
<td>1200x750x15 mm</td>
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<tr>
<td>1034340</td>
<td>Uponor UFH Styropore feed plate 12</td>
<td>1200x250x15 mm</td>
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<tr>
<td>1034358</td>
<td>Uponor Heat emission plate 12</td>
<td>1200x110x0.3 mm</td>
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<td>1033974</td>
<td>Uponor Pipe bend support, galv. steel</td>
<td>10-12 mm</td>
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<td>1045545</td>
<td>Uponor Coupling kit 12x1.7 - G ¾ Euro</td>
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Calculation diagram Heating/Cooling, DRY 12 with 14 mm parquett and 1.5 mm craft paper (s_u = 15.5 mm with λ_u = 0.182 W/mK), or with gypsum board (s_u = 25 mm with λ_u = 0.32 W/mK)

When used for cooling the supply temperature should be controlled by dew point temperature, via humidity sensor(s).
The sound reduction system with 17/20 mm pipes is developed to give good sound environment.

17 mm pipes are laid with pipe pitch 200 mm, and 20 mm pipes with pipe pitch 300 mm.

Such a panel mounted on a hollow concrete floor gives following values.

| Step noise level | L’nw = 51-54 dB |
| Airborne sound level | R’w = 56-58 dB |

This system exists with two different thicknesses depending on which pipe size is chosen.

- 24 mm thick for Uponor pePEX Q&E 17x2.0 mm
- 36 mm thick for Uponor pePEX Q&E 20x2.0 mm

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<td>1034348</td>
<td>Uponor Sound Reduction plate 17</td>
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<tr>
<td>1036656</td>
<td>Uponor Sound Reduction feed plate 17</td>
<td>1800x600x24 mm</td>
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<tr>
<td>1034349</td>
<td>Uponor Sound Reduction turn plate 17</td>
<td>1600x300x24 mm</td>
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<tr>
<td>1034554</td>
<td>Uponor Flipflex pipe bend support</td>
<td>20 mm</td>
</tr>
<tr>
<td>1005170</td>
<td>Uponor Compression adapter eurocone</td>
<td>17xG ¼</td>
</tr>
<tr>
<td>1009129</td>
<td>Uponor Heat emission plate 17</td>
<td>1150x190x0.45 mm</td>
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<tbody>
<tr>
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<td>Uponor Sound Reduction plate 20</td>
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<tr>
<td>1034345</td>
<td>Uponor Sound Reduction feed plate 20</td>
<td>1800x600x36 mm</td>
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<tr>
<td>1034346</td>
<td>Uponor Sound Reduction turn plate 20</td>
<td>1800x300x36 mm</td>
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<tr>
<td>1009132</td>
<td>Uponor Heat emission plate for 20 mm</td>
<td>1150x280x0.55/20 mm</td>
</tr>
</tbody>
</table>
Calculation diagram Heating/Cooling for Uponor Sound reduction panel 17 and 20 with 22 mm parquet and rag paper

1) Limit curve valid for \( \theta_i = 20 \, ^\circ\text{C} \) and \( \theta_{S, \text{max}} = 29 \, ^\circ\text{C} \)
2) Temperature diff. between heating medium and room
3) Temperature diff. between room and cooling medium

When used for cooling the supply temperature should be controlled by dew point temperature, via humidity sensor(s).
### The rapid dry-fit system

One for all: the Uponor Siccus floor heating system has been developed as a universal system specifically for modernizing old buildings and for use with suspended timber floors.

Uponor Siccus is a dry-fit system using floor sheets and Uponor evalPEX Q&E 14x2.0 mm pipes (minimum construction height 25 mm). It is rapid and clean to fit and can be walked on immediately after installation.

All conventional floor coverings, including tiles, parquet, carpet and plastics with a maximum $R_\lambda$, $B = 0.15 \text{ m}^2 \text{ K}/\text{W}$, are suitable for Uponor Siccus.

The minimum installation height with synthetic resin-modified cement screed for load distribution is 55 mm.

This system is even approved for sports centres.

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#### Uponor evalPEX Q&E 14x2.0 mm

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<tr>
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<tbody>
<tr>
<td>1005485</td>
<td>Uponor Siccus insulation board</td>
<td>1197x1050x25 mm</td>
</tr>
<tr>
<td>1005486</td>
<td>Uponor Siccus lightweight heat emission plate</td>
<td>1180 mm</td>
</tr>
</tbody>
</table>
Limit curve valid for $\vartheta_i = 20 ^\circ C$ and $\vartheta_{S, \text{max}} = 29 ^\circ C$

1) Limit curve valid for $\vartheta_i = 20 ^\circ C$ and $\vartheta_{S, \text{max}} = 29 ^\circ C$
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When used for cooling the supply temperature should be controlled by dew point temperature, via humidity sensor(s).
Uponor UFH Styropore plate 20

This is a system developed for larger areas and giving a soft floating floor. 30 or 50 mm thick for Uponor pePEX Q&E 20x2.0 mm.

**On existing floors**
Pre-grooved polystyrene plates are laid on the old floor, which is first covered with a vapour barrier. The pipe is laid in continuous, joint less loops connected to a manifold. Rag paper, e.g. thin card board, is laid over the plates and finally the new floor covering.

**Uponor pePEX Q&E 20x2.0 mm**

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<tbody>
<tr>
<td>1034347</td>
<td>Uponor UFH styropore plate 20</td>
<td>1200x790x30 mm</td>
</tr>
<tr>
<td>1034352</td>
<td>Uponor UFH styropore plate 20</td>
<td>1200x790x50 mm</td>
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<tr>
<td>1009132</td>
<td>Uponor Heat emission plate 20</td>
<td>1150x280x0.55 mm</td>
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Calculation diagram Heating/Cooling for Uponor UFH styropore plate 20 with 22 mm parquet and rag paper

1) Limit curve valid for $\vartheta_i = 20 \, ^\circ\text{C}$ and $\vartheta_{s, \text{max}} = 29 \, ^\circ\text{C}$
2) Temperature diff. between heating medium and room
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When used for cooling the supply temperature should be controlled by dew point temperature, via humidity sensor(s).
Installation of a floor finish

**Parquet**
Mount 14 mm thick parquet panels direct on top of the Uponor system.

**Carpet, plastic or other soft covering**
Mount 14 mm thick chip board direct on top of the Uponor system.
Then install the floor covering.

**Ceramic**
Mount 6 + 6 mm Aqua panels direct on Uponor system. Ceramic tiles can then be mounted on top. The base floor has to be flat and take up the load required.

**Bathroom, when having floor trap**
Mount 12 + 12 mm Aqua panels direct on Uponor system. Control that you receive good drainage.