

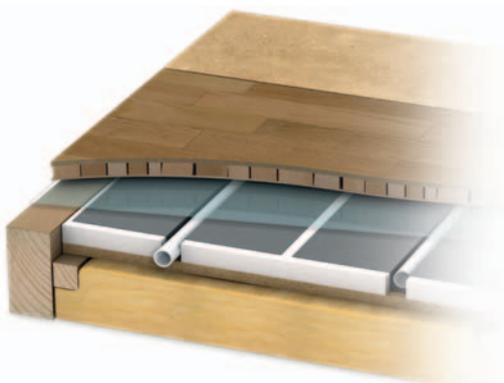


Uponor

## 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

Diffent 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/m<sup>2</sup> at a room temperature of 20 °C with floor surface 14 mm parquet (0.1 m<sup>2</sup>K/W)

Temperature difference between water and room temperature needed to achieve above heat output.

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/m<sup>2</sup> with floor surface 14 mm parquet (0.1 m<sup>2</sup>K/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  
                    Uponor UFH Chip board 17  
20x2.0 mm .... Uponor Styropore plate 20  
                    Uponor UFH Cassette 20 with insulation  
                    Uponor Sound Reduction panel 20

\*) With floor surface 22 mm parquet (0.15 m<sup>2</sup>K/W)

# Solutions for a dry and quick installation

## BETWEEN THE JOISTS

### Uponor UFH Cassette 20 with insulation



Wooden joist



Wooden joist



Steel joist, type Granab 2000

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

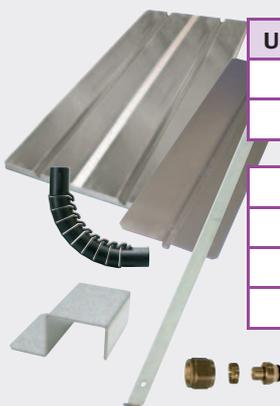
In a wooden joist floor you just mount support battens 32 mm below top surface of the joist using our template. We have even

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.

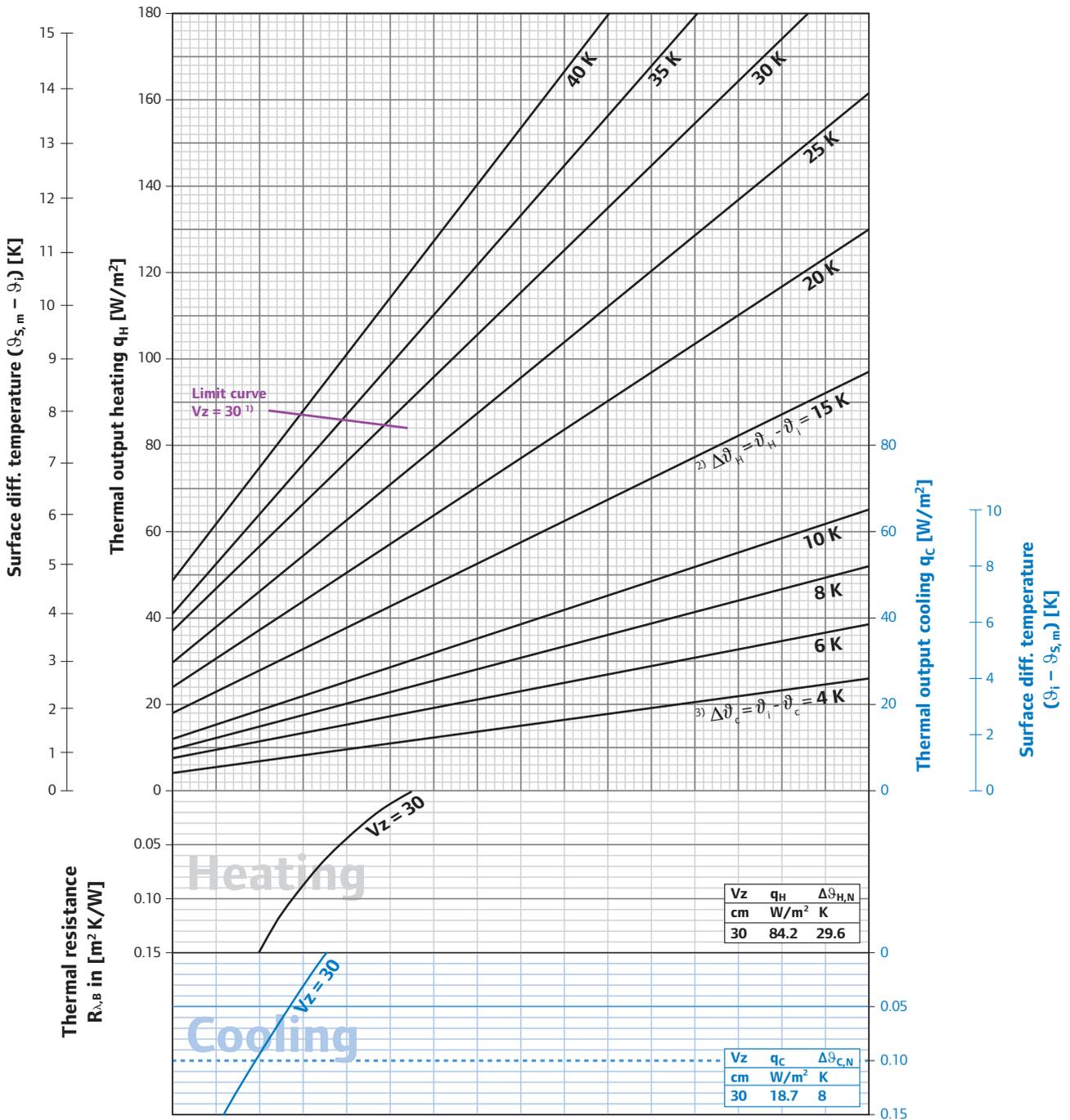
Wooden joist is mostly used in single family houses. Extra joist system, such as steel joist, is used in multi-family houses, commercial buildings etc.

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



Uponor No.	Description	Dimension
1034362	Uponor UFH Cassette 20 with insulation	1155x545x34 mm
1009132	Heat emission plate for 20 mm	1150x280x0.55/20 mm
1034364	Uponor Template, Fix 20	width = 70 mm, height = 35 mm
1034363	Uponor Cassette Support	555x24x10/1.5 mm
1034554	Uponor Flipflex pipe bend support	20 mm
1005171	Uponor Compression adapter, Eurocone	20xG 3/4

Calculation diagram Heating/Cooling for Uponor UFH Cassette 20 with insulation

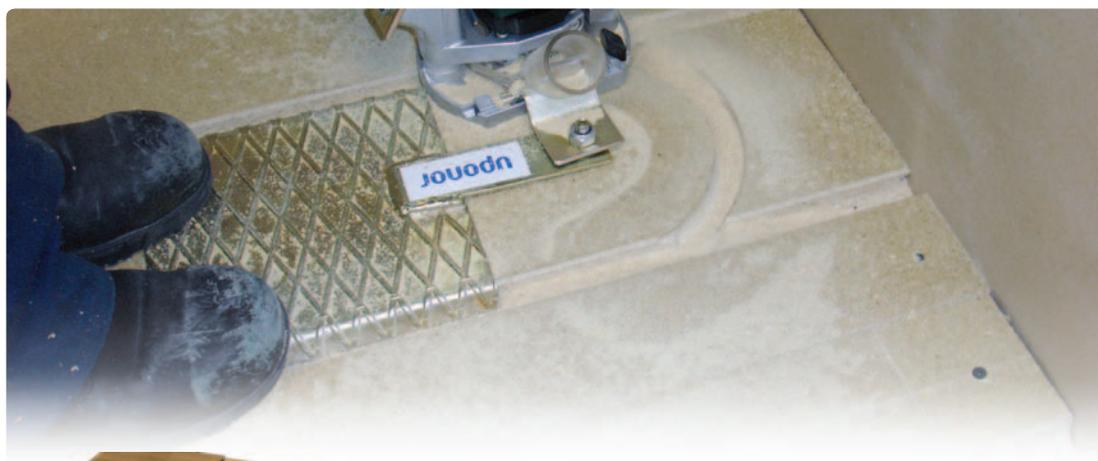


<sup>1)</sup> Limit curve valid for θ<sub>i</sub> = 20 °C and θ<sub>s, max</sub> = 29 °C  
<sup>2)</sup> Temperature diff. between heating medium and room  
<sup>3)</sup> Temperature diff. between room and cooling medium

When used for cooling the supply temperature should be controlled by dew point temperature, via humidity sensor(s).

## ON THE JOISTS

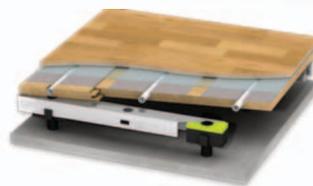
### Uponor UFH Chip board, grooved 17



Battens on joist



Chipboard on joist



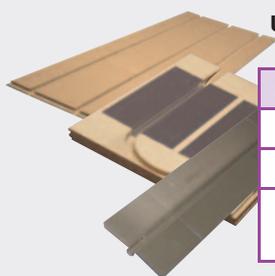
Chipboard on installation floor

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.

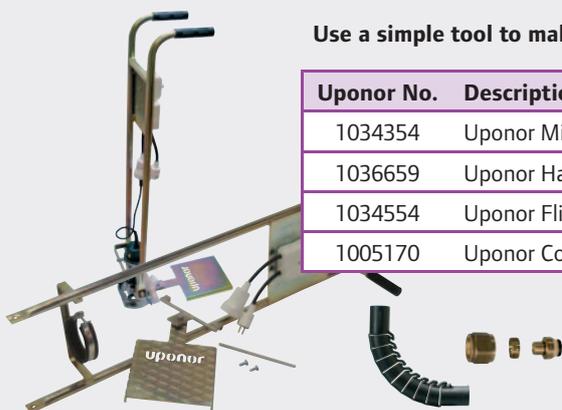
### Uponor pePEX Q&E 17x2.0 mm



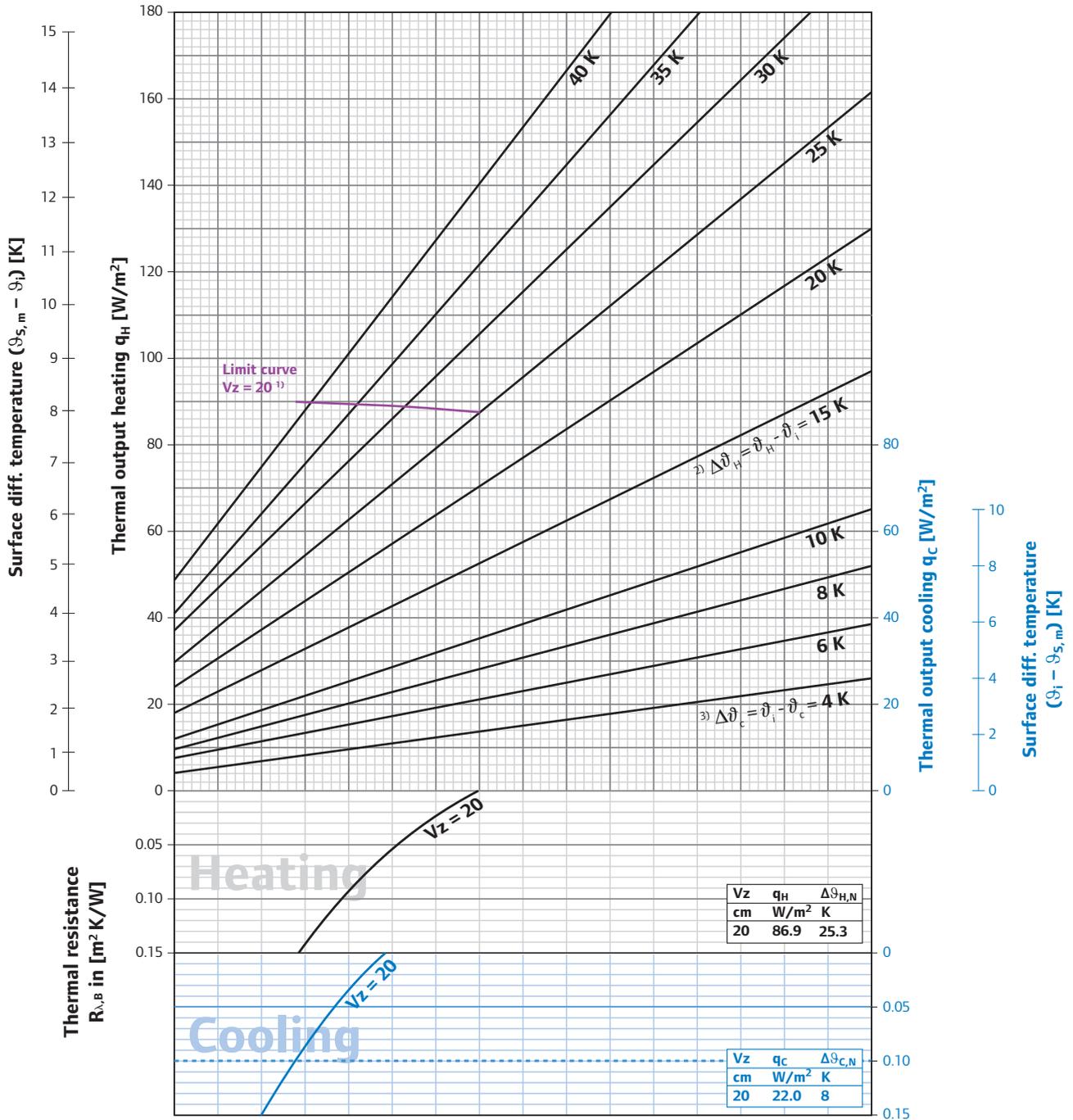
Uponor No.	Description	Dimension
1034353	Uponor UFH Chip Board, Grooved 17	1800x600x22 mm
1009129	Uponor Heat Emission Plate 17	1150x190x0.45 mm
1009130	Uponor Turning Plate 17 with heat emission plates	600x400x22 mm

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

Uponor No.	Description	Dimension
1034354	Uponor Milling machine	710 W, 230 V, 3.4 A
1036659	Uponor Handle, Big Milling machine	
1034554	Uponor Flipflex pipe bend support	20 mm
1005170	Uponor Compression adapter eurocone	17xG ¾



Calculation diagram Heating/Cooling for Uponor Chipboard 17 with heat emission plate, 17x2.0 mm pipe and 22 mm parquet



<sup>1)</sup> Limit curve valid for  $\vartheta_i = 20$  °C and  $\vartheta_{s,max} = 29$  °C  
<sup>2)</sup> Temperature diff. between heating medium and room  
<sup>3)</sup> 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).

## DRY FLOOR/FLOATING FLOOR

If the base floor is not even, use one of below alternatives to make an even level.

### 1 Polystyrene panels in combination with Uponor Base material

Uponor Binded fill to level pipes,  
Uponor No. 1000052

Heat conductivity: 0.07 W/mK  
Density: 145 kg/m<sup>3</sup>

### 2 A quick drying material, such as EPCement

EPS Cement EC350K ready dry mixed in bags on 50 litres - 17 kg. Add water, mix and cast. Dry after 1 hour.

Designed for batch mixing and application by hand.

### 3 Dry sand

Dry sand can be fixed by cement water. Please check local regulations.

## Uponor UFH Styropore plate 12



Floating floor

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.

The Uponor evalPEX Q&E pipe 12x1.7 mm should always be laid with a pipe pitch distance of 125 mm. Supply and return lines are

drawn through a special feed panel, which also constitutes an active part of the heating system.

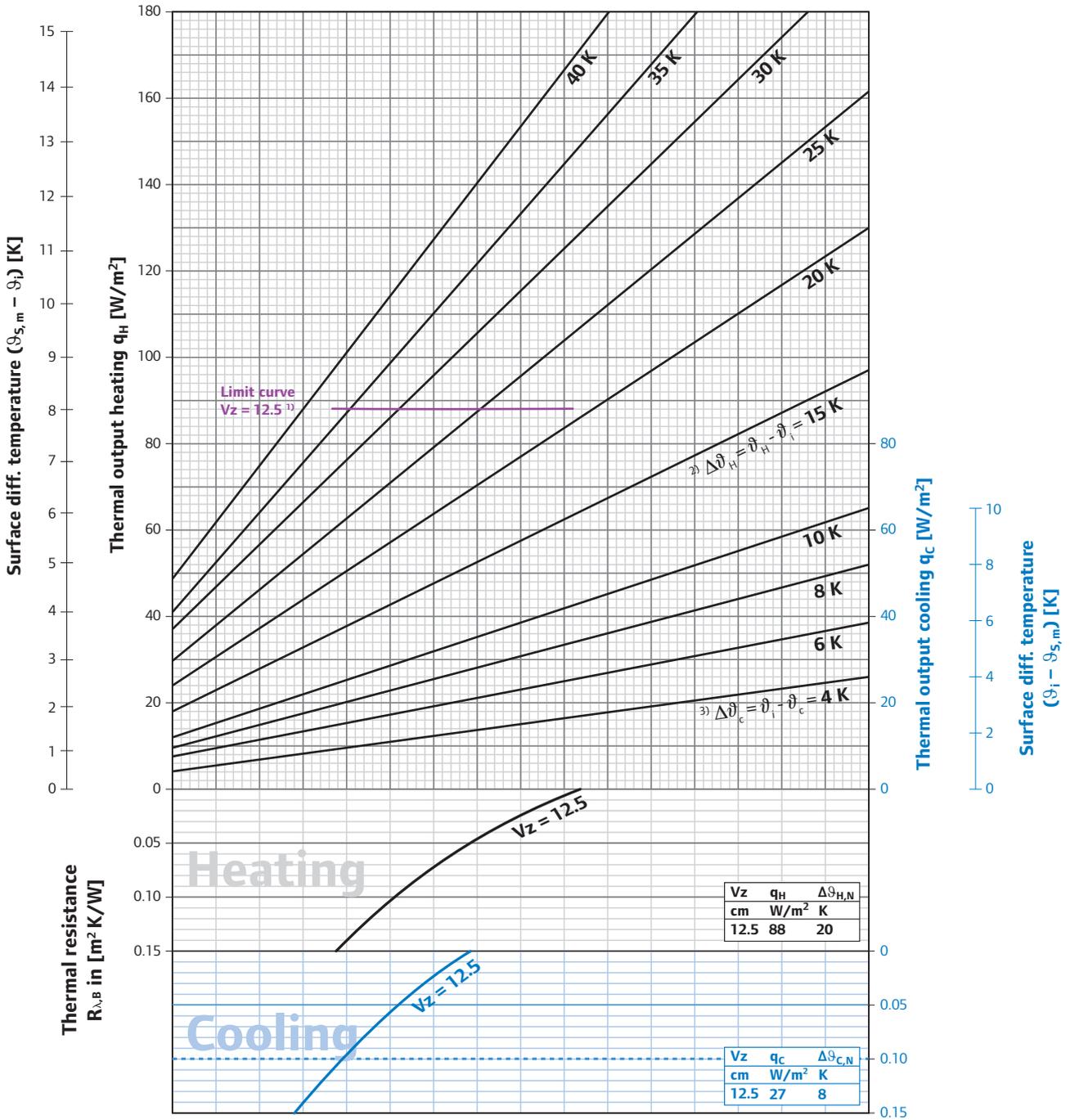
Uponor Underfloor Heating System 12 with styropore plates can be mounted on an existing wooden or concrete floor.

### Uponor evalPEX Q&E 12x1.7 mm



Uponor No.	Description	Dimension
1034338	Uponor UFH Styropore plate 12	1200x750x15 mm
1034340	Uponor UFH Styropore feed plate 12	1200x250x15 mm
1034358	Uponor Heat emission plate 12	1200x110x0.3 mm
1033974	Uponor Pipe bend support, galv. steel	10-12 mm
1045545	Uponor Coupling kit 12x1.7 - G ¾ Euro	

Calculation diagram Heating/Cooling, DRY 12 with 14 mm parquett and 1.5 mm craft paper ( $s_{\text{ii}} = 15.5 \text{ mm}$  with  $\lambda_{\text{ii}} = 0.182 \text{ W/mK}$ ), or with gypsum board ( $s_{\text{ii}} = 25 \text{ mm}$  with  $\lambda_{\text{ii}} = 0.32 \text{ W/mK}$ )



<sup>1)</sup> Limit curve valid for  $\vartheta_i = 20 \text{ °C}$  and  $\vartheta_{s, \text{max}} = 29 \text{ °C}$   
<sup>2)</sup> Temperature diff. between heating medium and room  
<sup>3)</sup> 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).

## Uponor Sound Reduction panel 17 and 20



Wooden floor

Concrete floor

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

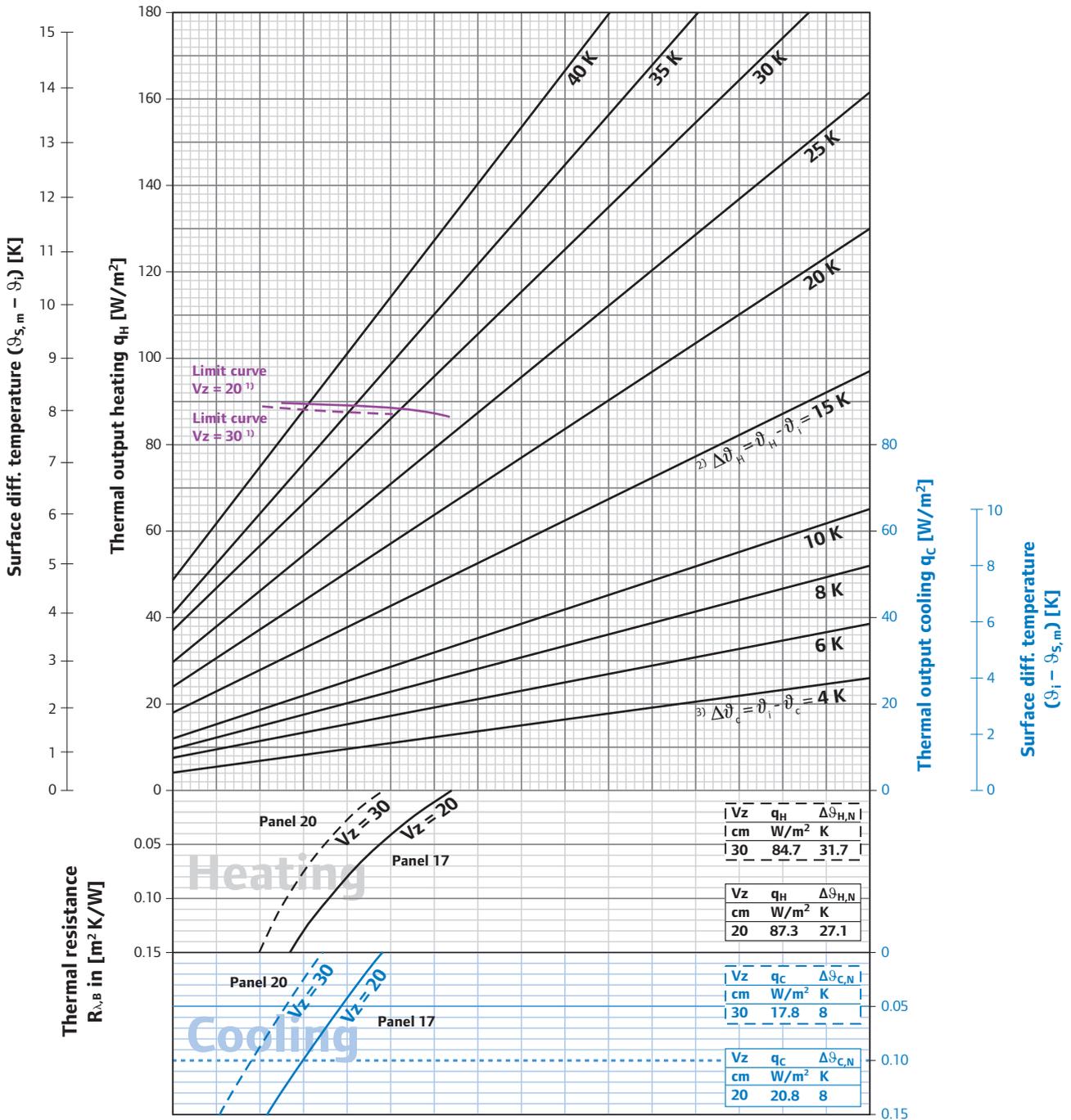
### Uponor pePEX Q&E 17x2.0 mm

Uponor No.	Description	Dimension
1034348	Uponor Sound Reduction plate 17	1800x600x24 mm
1036656	Uponor Sound Reduction feed plate 17	1800x600x24 mm
1034349	Uponor Sound Reduction turn plate 17	1600x300x24 mm
1034554	Uponor Flipflex pipe bend support	20 mm
1005170	Uponor Compression adapter eurocone	17xG ¾
1009129	Uponor Heat emission plate 17	1150x190x0.45 mm

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

Uponor No.	Description	Dimension
1034344	Uponor Sound Reduction plate 20	1800x600x36 mm
1034345	Uponor Sound Reduction feed plate 20	1800x600x36 mm
1034346	Uponor Sound Reduction turn plate 20	1800x300x36 mm
1034554	Uponor Flipflex pipe bend support	20 mm
1005171	Uponor Compression adapter eurocone	20xG ¾
1009132	Uponor Heat emission plate for 20 mm	1150x280x0.55/20 mm

Calculation diagram Heating/Cooling for Uponor Sound reduction panel 17 and 20 with 22 mm parquet and rag paper



<sup>1)</sup> Limit curve valid for  $\vartheta_i = 20$  °C and  $\vartheta_{s,max} = 29$  °C  
<sup>2)</sup> Temperature diff. between heating medium and room  
<sup>3)</sup> 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).

## Uponor Siccus board 14



### 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  $R\lambda, B = 0.15 \text{ m}^2 \text{ K/W}$ , are suitable for Uponor Siccus.

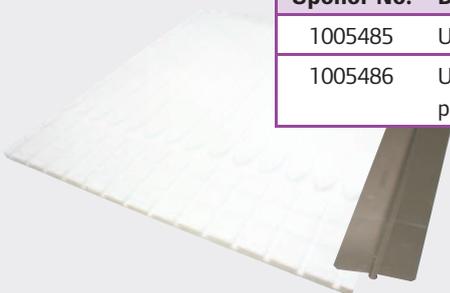
The minimum installation height with synthetic resin-modified cement screed for load distribution is 55 mm.

This system is even approved for sports centres.

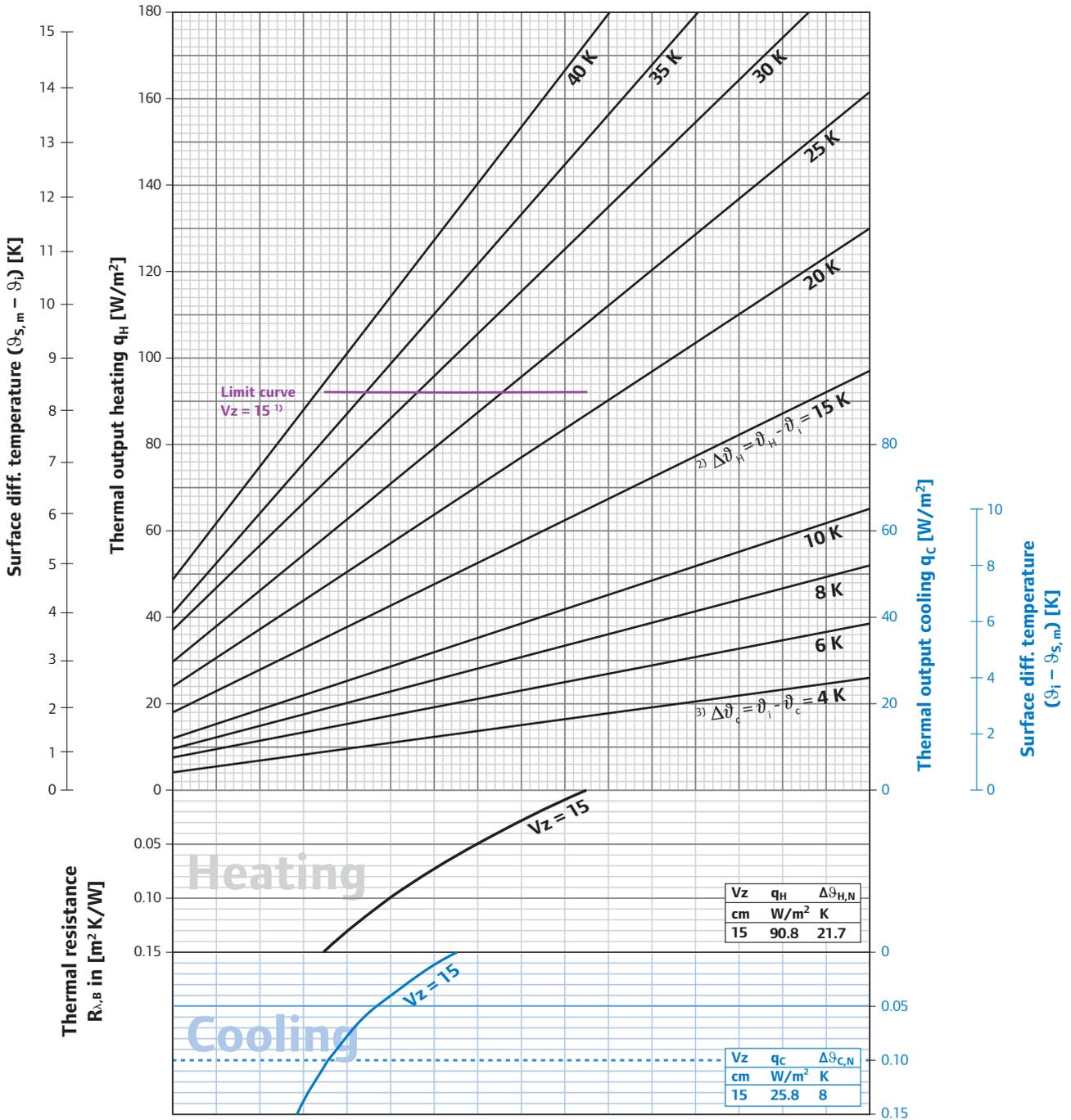


### Uponor evalPEX Q&E 14x2.0 mm

Uponor No.	Description	Dimension
1005485	Uponor Siccus insulation board	1197x1050x25 mm
1005486	Uponor Siccus lightweight heat emission plate	1180 mm



Calculation diagram Heating/Cooling for Uponor Siccus 14  
with dry flooring elements 25 mm



<sup>1)</sup> Limit curve valid for  $\vartheta_i = 20$  °C and  $\vartheta_{s,max} = 29$  °C  
<sup>2)</sup> Temperature diff. between heating medium and room  
<sup>3)</sup> 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).

## Uponor UFH Styropore plate 20



Floating floor

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.

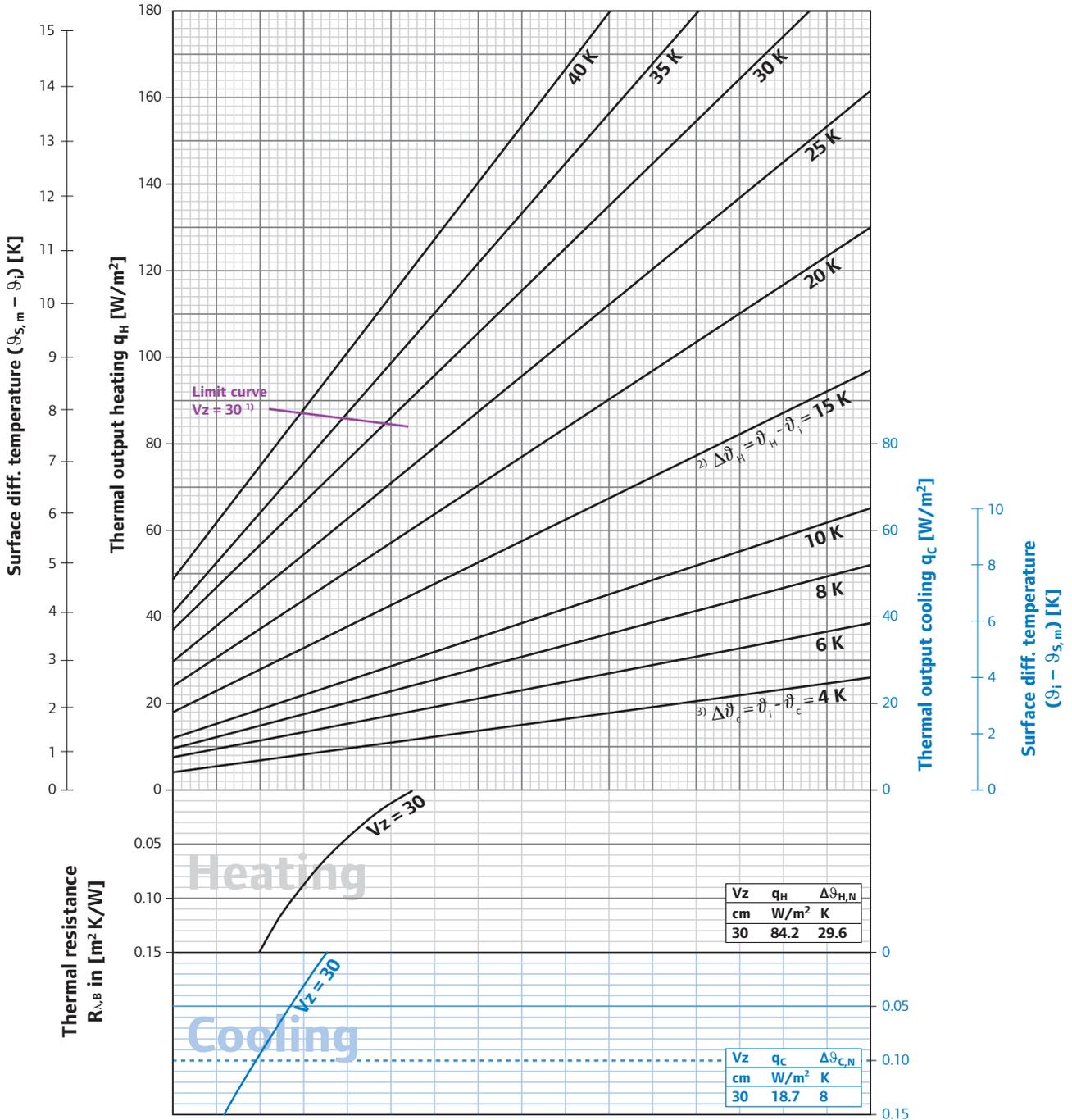
Rag paper, e.g. thin card board, is laid over the plates and finally the new floor covering

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



Uponor No.	Description	Dimension
1034347	Uponor UFH styropore plate 20	1200x790x30 mm
1034352	Uponor UFH styropore plate 20	1200x790x50 mm
1009132	Uponor Heat emission plate 20	1150x280x0.55 mm
1034554	Uponor Flipflex pipe bend support	20 mm
1005171	Uponor Compression adapter, Eurocone	20xG 3/4

Calculation diagram Heating/Cooling for Uponor UFH styropore plate 20 with 22 mm parquet and rag paper



<sup>1)</sup> Limit curve valid for 9i = 20 °C and 9s,max = 29 °C  
<sup>2)</sup> Temperature diff. between heating medium and room  
<sup>3)</sup> 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).

# 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.

