



Uponor

Uponor komposiittoru ja muid uudiseid

Jüri Püss
17.02.2015





Uponor

Uponor Uni Pipe PLUS – keevitusesta tulevik

Uponor torude uus põlvkond



Uponor Uni Pipe PLUS

Pidev areng

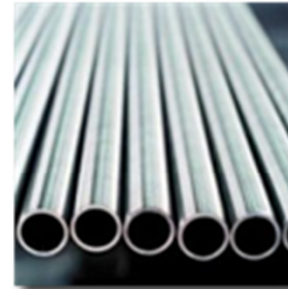
5000 EKr
bambus (Hiina)



XVIII sajand
kivi, puit, raud ja
plii



XX sajand
terastorude kasutuselevõtt



3000 EKr
vask (Egiptus)



XIX sajand
valumalm



XXI sajand
algab plasttorude
pealetung

Paigaldustrendid



Süsteemide ohutus ja
usaldusväärsus

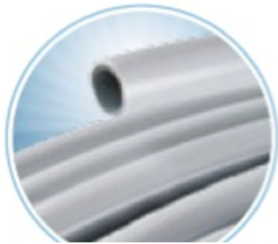
Kiire ja lihtne paigaldus

Väiksem korrosioonirisk

Hügieenilisus ja säästlikkus



Pidev uuenemisprotsess



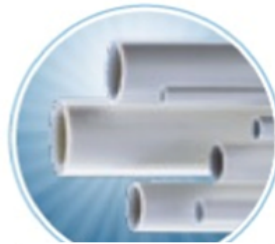
1990

Esimene Uponor
põkk-keevitusega
komposiittoru



1993

Pressliitmikud



1999

Komposiittorud
kuni läbimõõduni
110mm



2001

Distsantsvõruga
pressliitmikud.
Toru ei vaja
faasimist



2007

Pressimise
indikaatori ja
värvkoodidega
liitmikud



2009

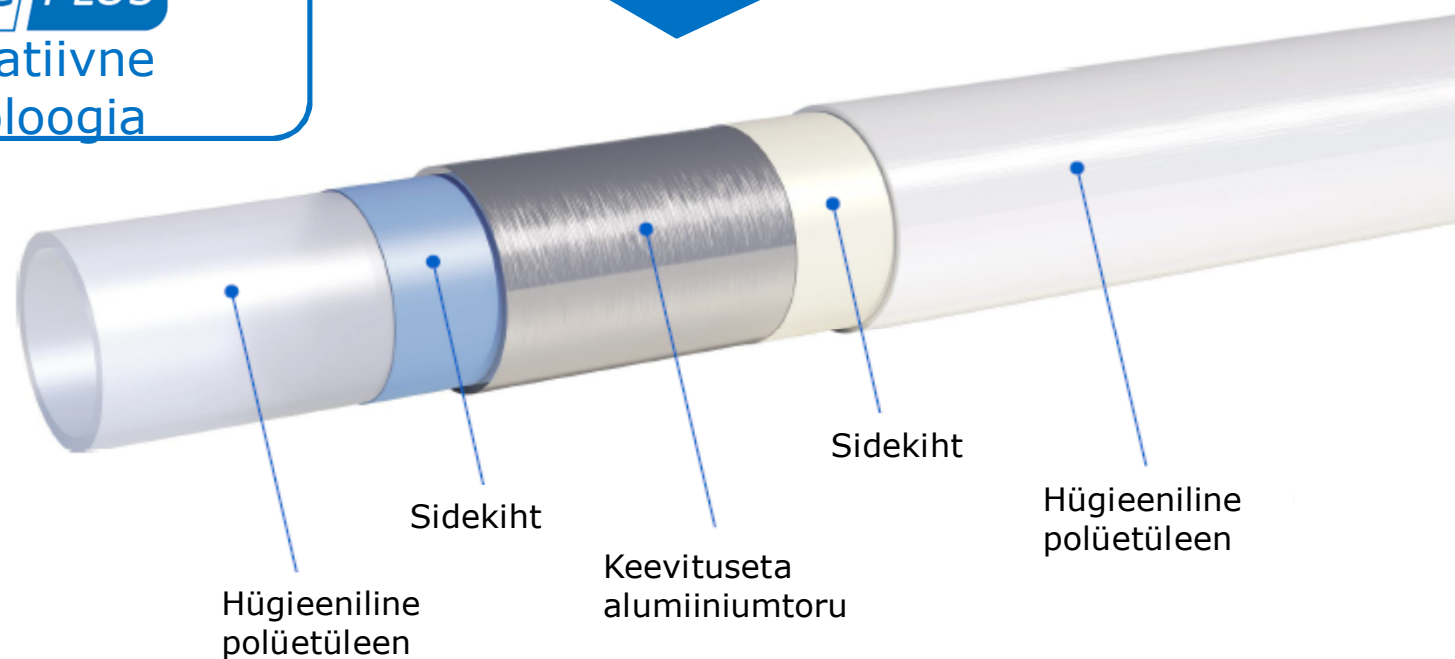
Moodulsüsteem
suurematele
läbimõõtudele

Uponor täiendab pidevalt oma tootevalikut lahendusi vastavalt turu nõudmiste muutustele.

Uni Pipe PLUS – esimene ja ainus

Uni pipe PLUS
Innovatiivne
tehnoloogia

Meie uus komposiitkoru Uni Pipe PLUS ühendab metall- ja plasttorude parimad omadused ühes lahenduses.



Uni Pipe PLUS: uus torude põlvkond

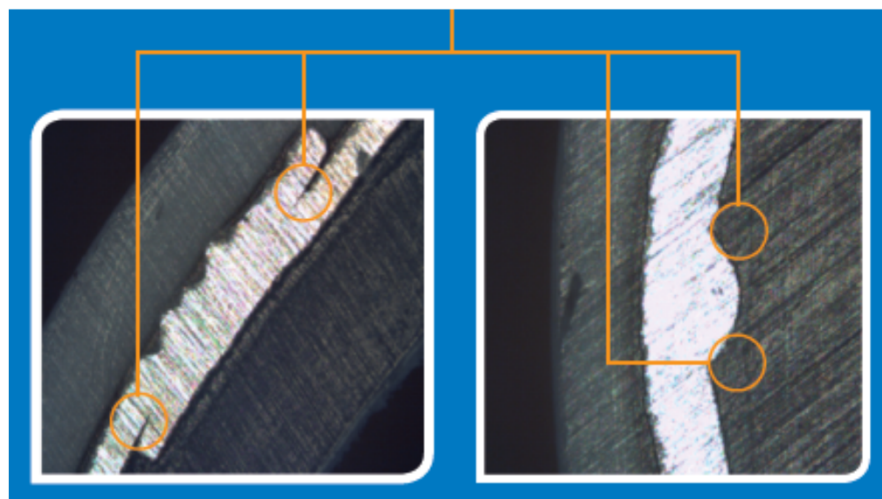
Väiksem painderaadius

- 40% parem painderaadius
- Materjali (põlvede) kokkuhoid
- Aja kokkuhoid
- Lihtsam paigaldus
- Vähem ühendusi

Ohutum

- Keevituseta

Ohukohad



Töö efektiivsus paraneb

Väiksem painderaadius

painutatavus on kuni 40% parem kui muudel turul olevatel torudel

➔ Väiksem mõlkimise oht



Dimension	Multilayer pipes	Uni Pipe
16	4 x OD	2,5 x OD
20	4 x OD	2,5 x OD
25	4 x OD	2,5 x OD
32	4 x OD	2,5 x OD

* OD: Outer diameter

Dimension	Multilayer pipes	Uni Pipe
16	5 x OD	3 x OD
20	5 x OD	3 x OD
25	5 x OD	3 x OD
32	5 x OD	3 x OD

* OD: Outer diameter

Töö efektiivsus paraneb

Väiksem painderaadius

Paigaldusel väheneb vajadus põlvede kasutamiseks: kuni **15%** väiksem materjali kulu *

Paigaldusaeg väheneb kuni **30 min** *

➔ Materjali ja aja kokkuhoid

* Võrreldud paigaldust 100 m eramu veevärgi rajamisel



Töö efektiivsus paraneb

Väiksem ajakulu ja vähem liitmikke



Keevitusvaba tulevik

Innovatiivne
SACP
tehnoloogia



Sobib igat tüüpi liitmikega



Metall press süsteem

- Ei vaja toru kalibreerimist
- O-tihendite paigutus välistab nende vigastamise
- pressimisindikaator
- Värvkood



Surveliitmikud

- Ei vaja kalibreerimist
- Lihtne paigaldus ilma spetsiaalsete tööriistadeta



PPSU süsteem

- Kerge kaal

Uni Pipe PLUS: Uponori uuendus



Uus pakend



Sinine sidekiht

Kokkuvõte



Saadaval läbimõõtudes 16, 20, 25
ja 32 mm

Sobib kõikide Uponor liitmikega

Kiire ja mugav paigaldus

Väheneb paigaldusaeg ja liitmike
maksumus

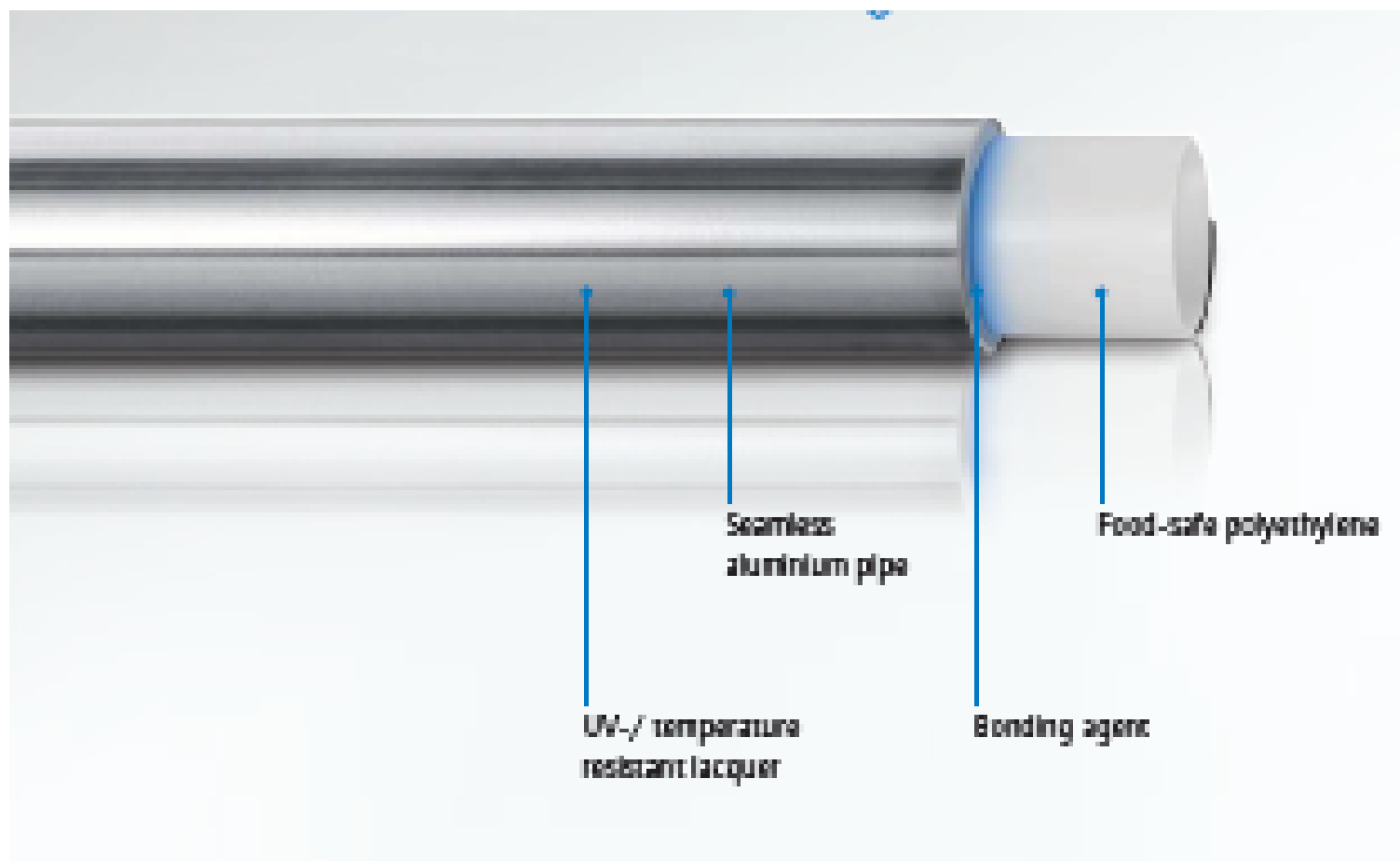


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Uponor Metallic Pipe PLUS – mitte ainult keevituseta

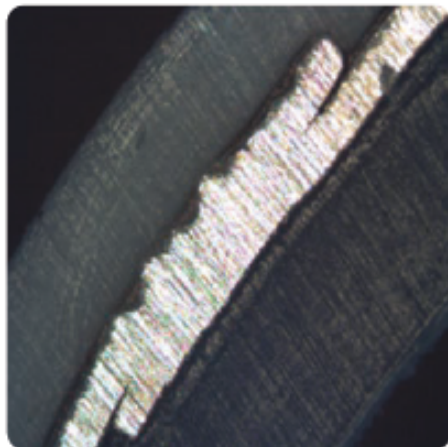


Uponor Metallic Pipe PLUS



Uponor Metallic Pipe PLUS

Old technology:

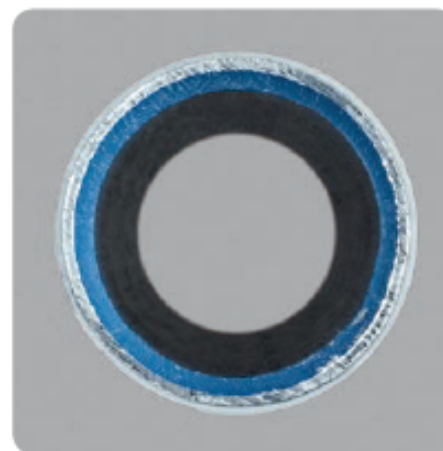


Overlapped,
welded aluminium
(latest technology)

SACP technology:



Butt-welded
aluminium
(latest technology)



Uponor Metallic Pipe PLUS

- **Saadaval läbimõõdud 16 ja 20 mm**
- **Sirged latid, 5 m**
- **Kasutatakse ainult koos pressliidetega (messing või PPSU)**





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Uponor põrandkütte/jahutuse lahendused

Uponor Classic

Põrandküttetorud valatud betooni või anhidriidsegu kihti.

Torud kinnitatud armatuurvõrgule.

Torud Comfort Pipe Plus: 14, 16 ja 20 mm

MLC punane: 14 ja 16 mm



Uponor klamber võõ paigalduspaneeliga süsteem



Uniform and clear pipe-laying pattern thanks to printed installation grid and sturdy fastening staple nail



7F 216
MLCP RED
14x1.6



7F 185
PE-Xa 14x2

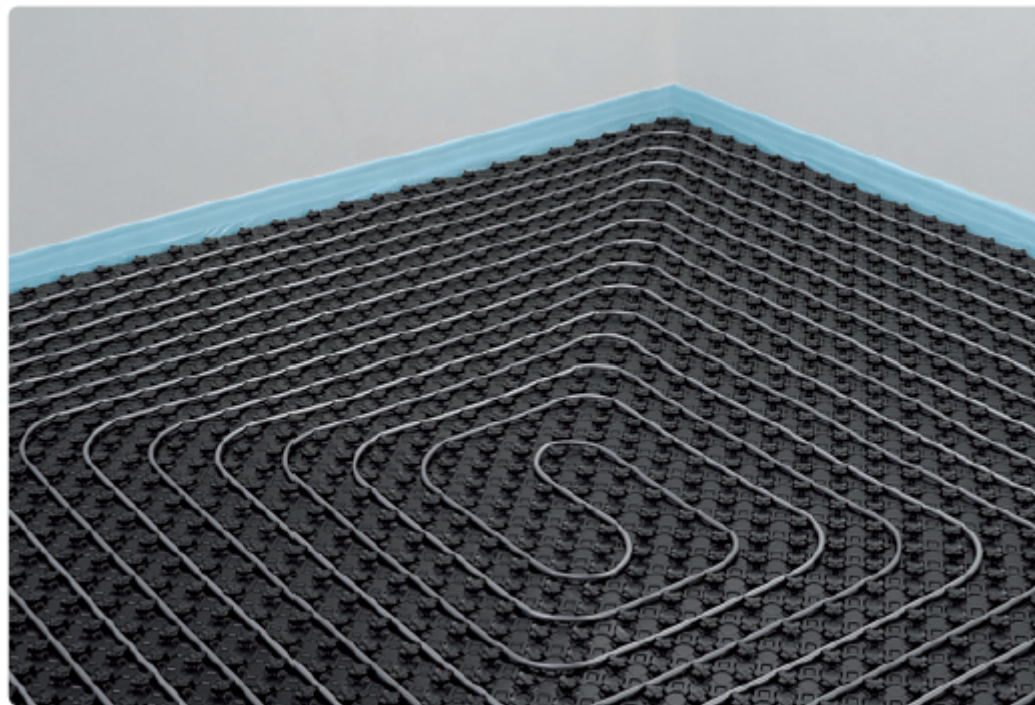


7F 287 -F
MLCP RED
16x2



7F 077 -F
PE-Xa 16x1.8

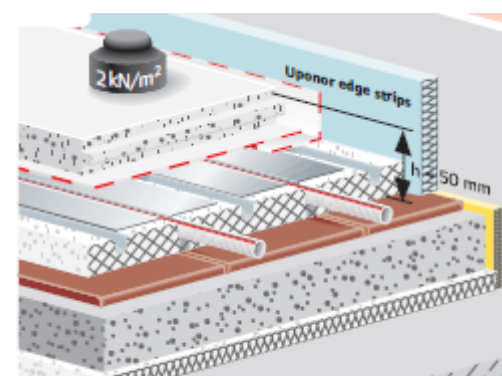
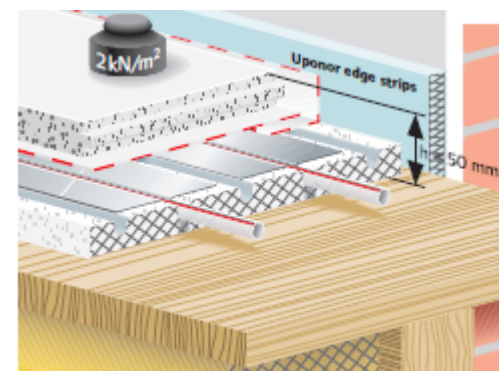
Uponor klamber vői paigalduspaneeliga süsteem



Uponor nap foil system – flexible installation with predefined pipe spacing

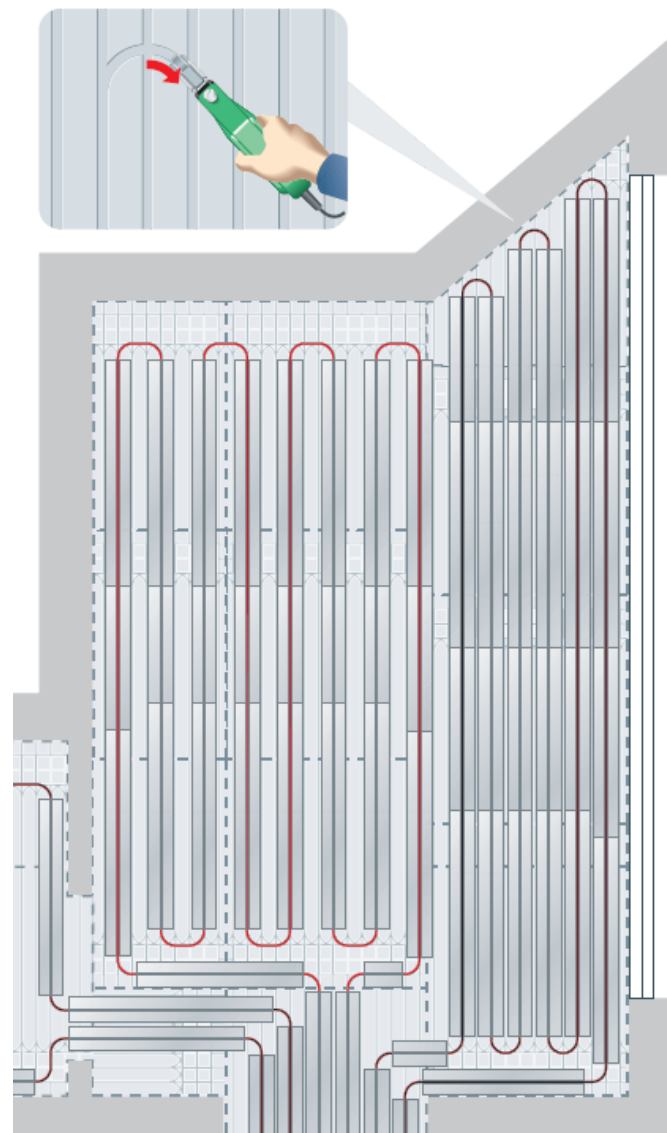
Torud: Comfort Pipe Plus 14x2,0 & 16x2,0
MLCP RED 14x1,6 & 16x2,0

Uponor Siccus kergpaigaldussüsteem

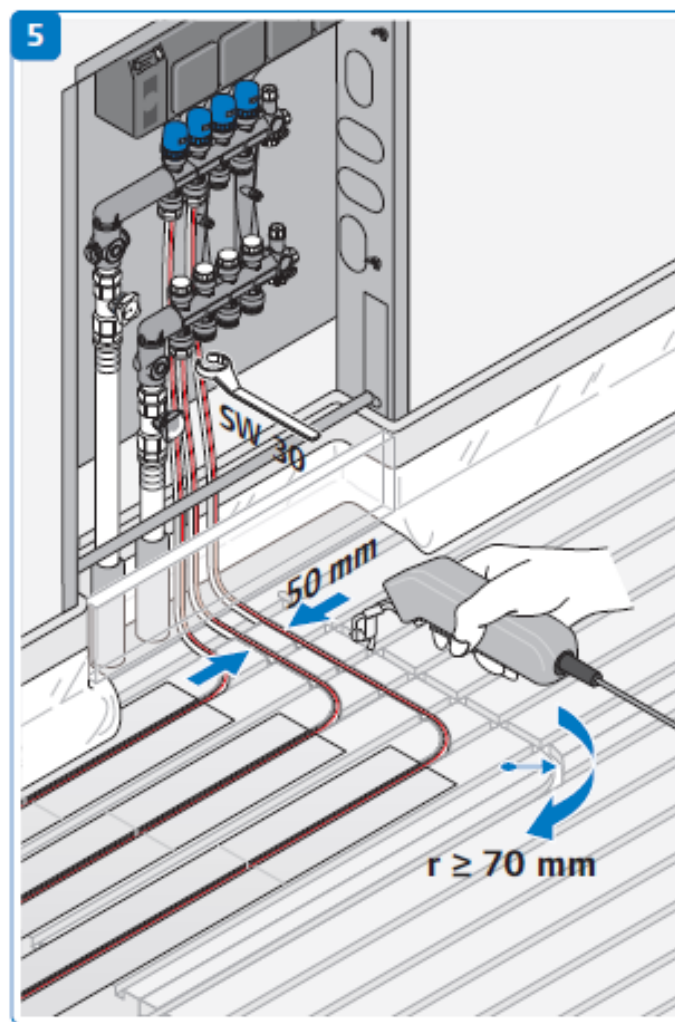


Uponor Siccus installed on an existing floor covering

Uponor Siccus kergpaigaldussüsteem



Uponor Siccus kergpaigaldussüsteem



Connecting the pipe with the manifold



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Uponor seinkütte/jahutuse süsteem

Uponor seinkütte/jahutuse süsteem



Uponor Siccus wall heating installation with drywall panels



Uponor wall heating system with wet construction

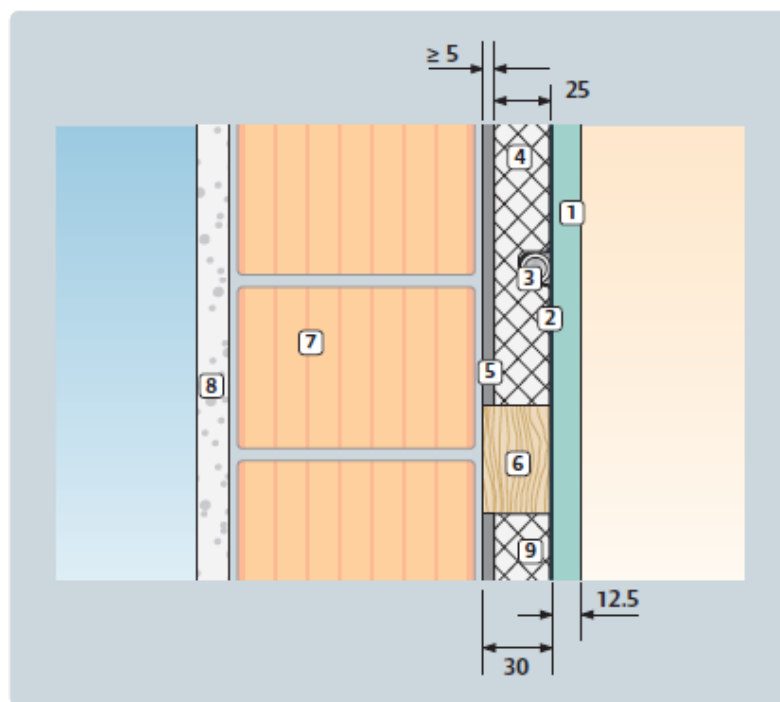
Max. supply temperature

Plasterboards: $\leq 45\text{ °C}$

Gypsum fibre boards: $\leq 50\text{ °C}$

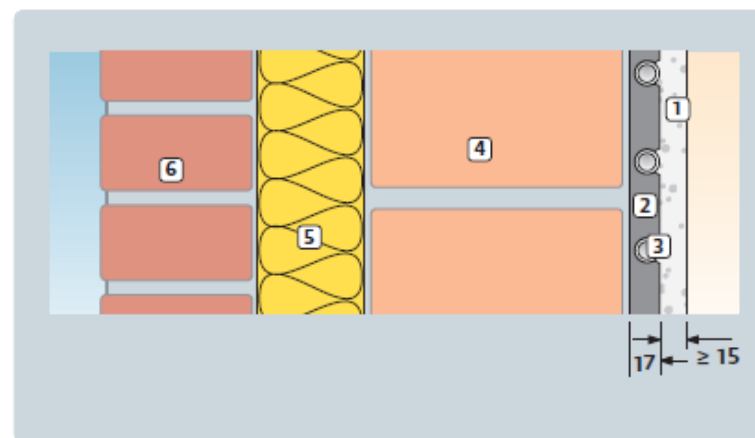
Ensure that the boards are approved for installation with wall heating systems.

Uponor seinkütte/iahutuse süsteem



Uponor Siccus with additional insulation installed on external wall (vertical section)

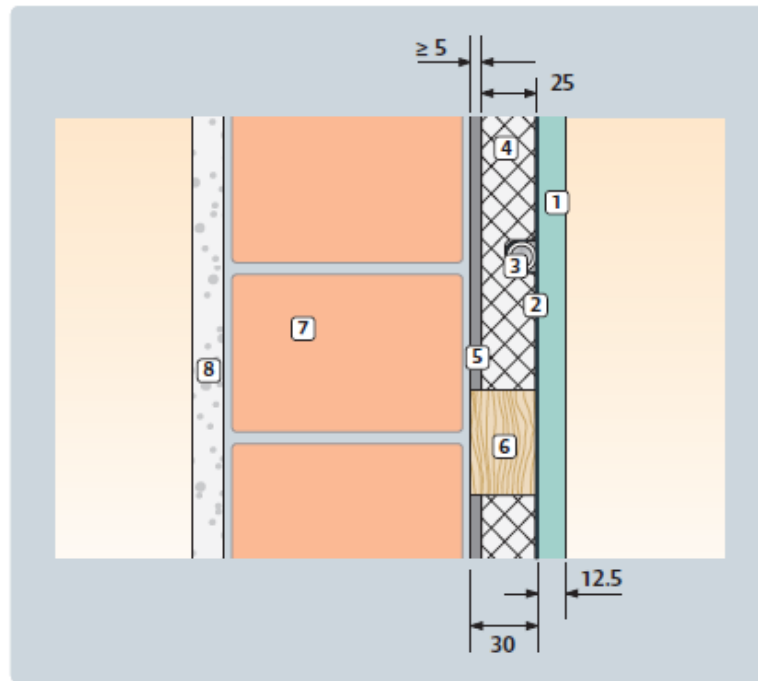
- 1 Dry construction panel
- 2 Uponor Siccus heat emission plate
- 3 Uponor PE-Xa pipe 14 x 2 / Uponor MLCP RED pipe 14 x 1.6
- 4 Uponor Siccus installation panel
- 5 Additional insulation
- 6 Timber lath construction
- 7 Brickwork
- 8 External render
- 9 Optional vapour barrier



Uponor wet construction wall heating system installed on external wall (vertical section)

- 1 Plaster
- 2 Uponor clamp track 14
- 3 Uponor PE-Xa pipe 14 x 2 / Uponor MLCP RED pipe 14 x 1.6
- 4 Brickwork
- 5 Insulation
- 6 External brickwork

Uponor seinkütte/jahutuse süsteem



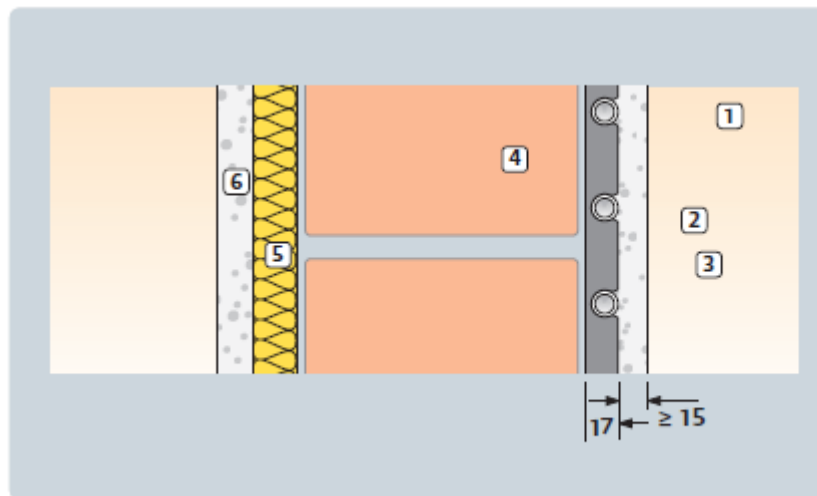
Uponor Siccus with additional insulation installed on internal wall (vertical section)

- 1 Dry construction panel
- 2 Uponor Siccus heat emission plate
- 3 Uponor PE-Xa pipe 14 x 2 / Uponor MLCP RED pipe 14 x 1.6
- 4 Uponor Siccus installation panel
- 5 Additional insulation
- 6 Timber lath construction
- 7 Brickwork
- 8 Plaster

Formula (1)

According to DIN EN 1264 part 3:

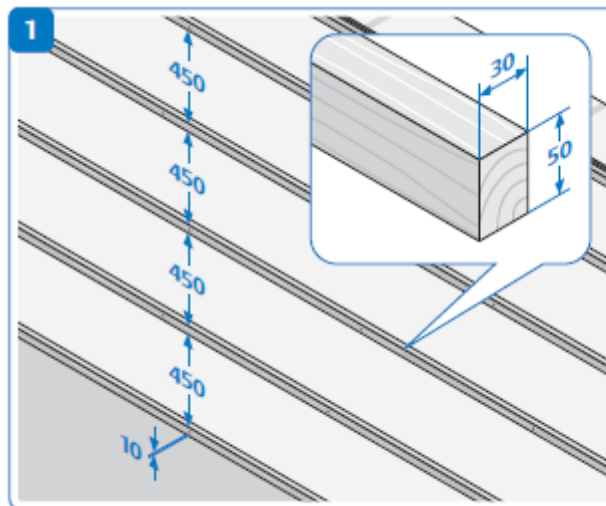
$$\Delta\theta_H = \frac{\theta_V - \theta_R}{\ln \frac{\theta_V - \theta_i}{\theta_R - \theta_i}}$$



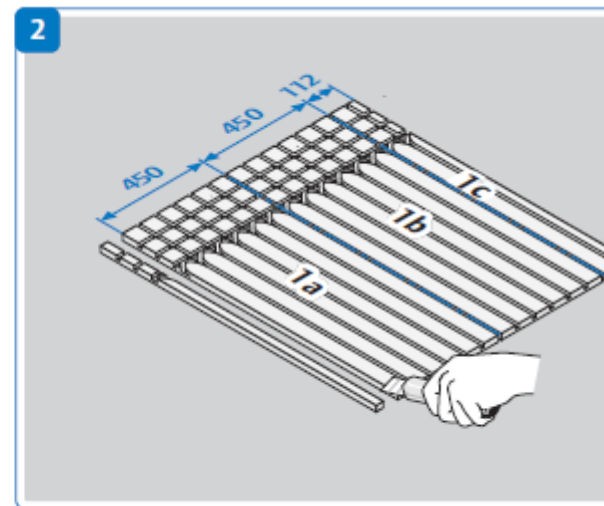
Uponor wet construction wall heating system installed on internal wall (vertical section)

- 1 Plaster
- 2 Uponor clamp track 14
- 3 Uponor PE-Xa pipe 14 x 2 / Uponor MLCP RED pipe 14 x 1.6
- 4 Brickwork
- 5 Optional insulation
- 6 Plaster

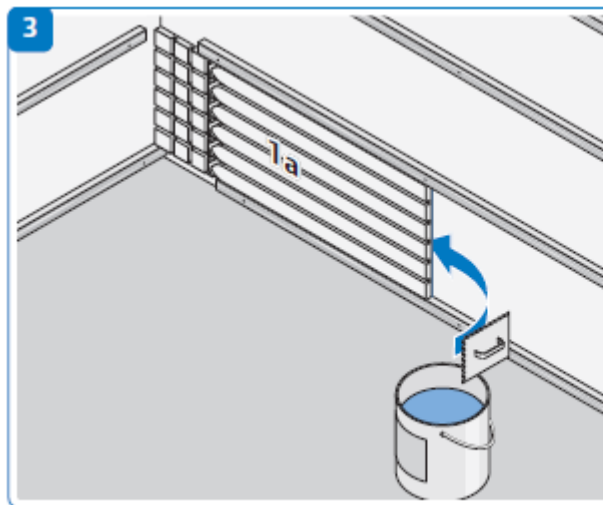
Uponor seinkütte/jahutuse süsteem



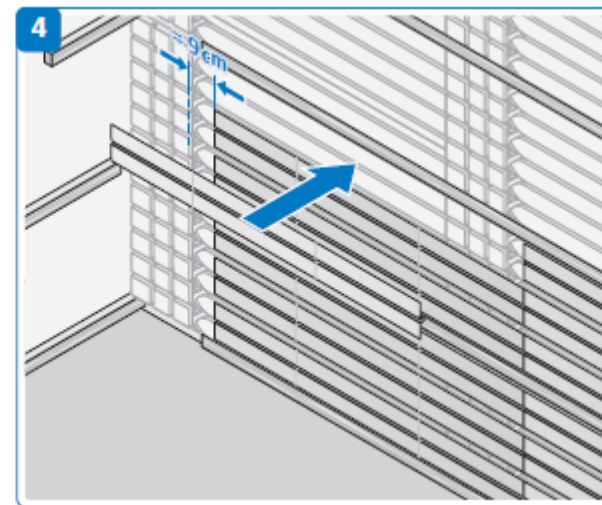
Install timber laths frame



Cut installation panels to size

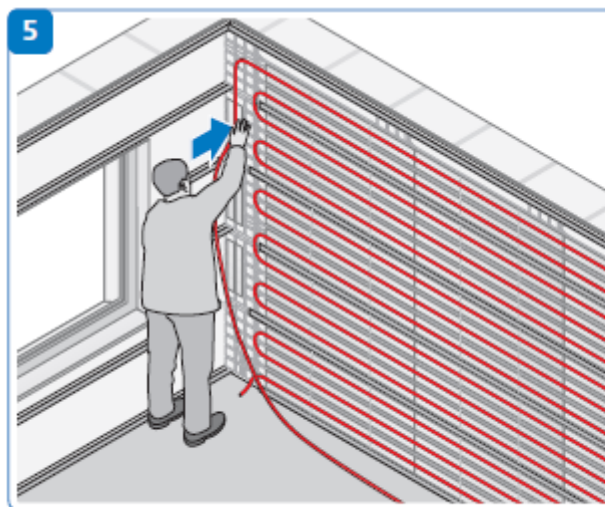


Mount installation panel to wall, using gypsum or adhesive

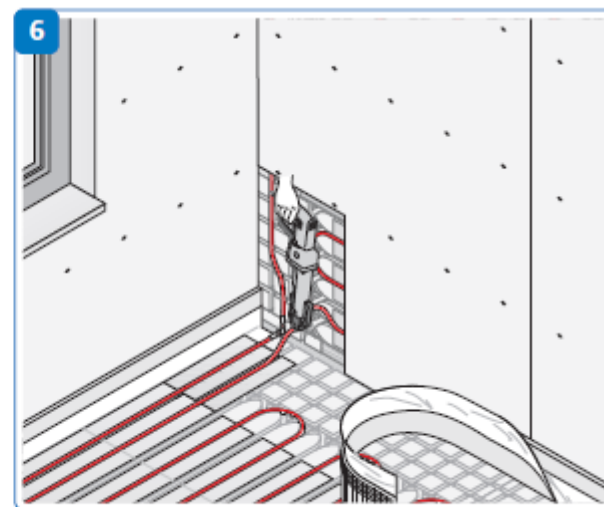


Push in heat emission plates

Uponor seinkütte/jahutuse süsteem



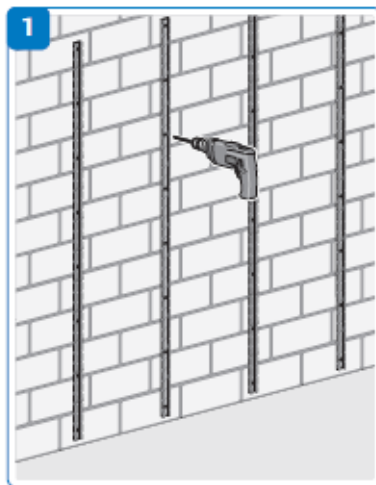
Install pipes



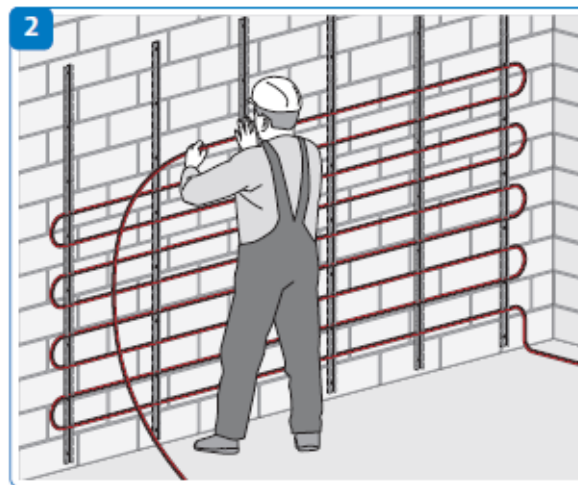
Mount boards/panels and fit connecting lines

Uponor seinkütte/jahutuse süsteem

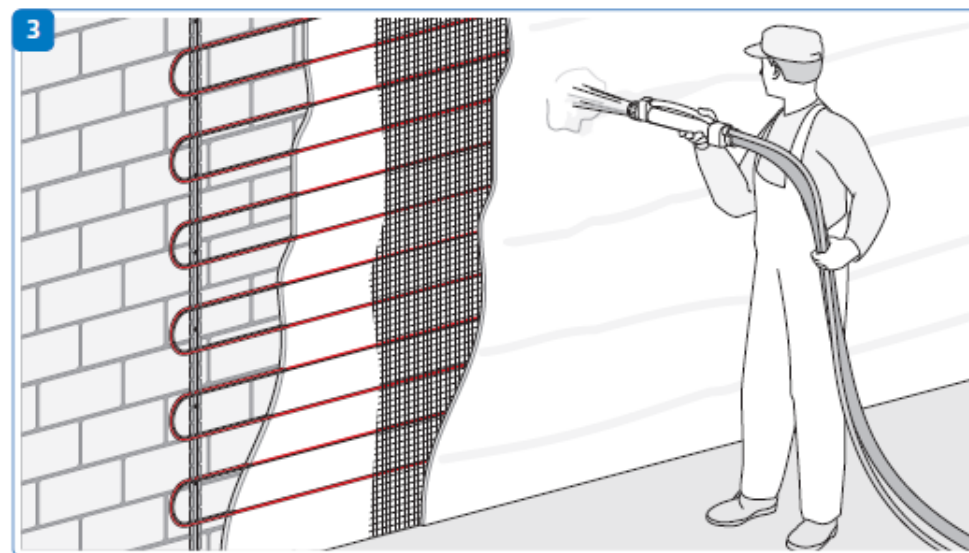
Uponor wet construction wall heating system – installation steps



Mount clamp tracks on wall at distances of approx. 60 cm



Install pipes



Apply plaster; if necessary install plaster reinforcement and apply second plaster layer



Uponor

Uponor sportpörandad

Uponor sportpörandad



Uponor sportpõrandad



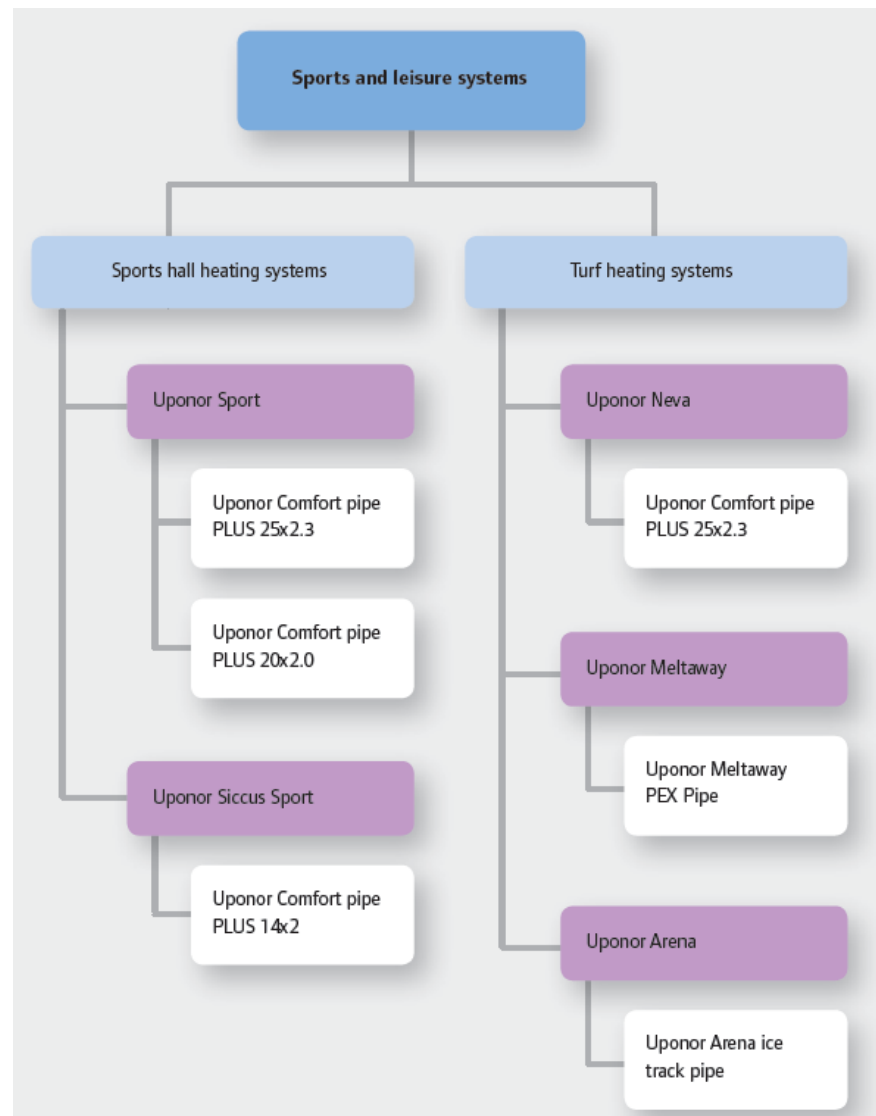
Uponor sportpörandad



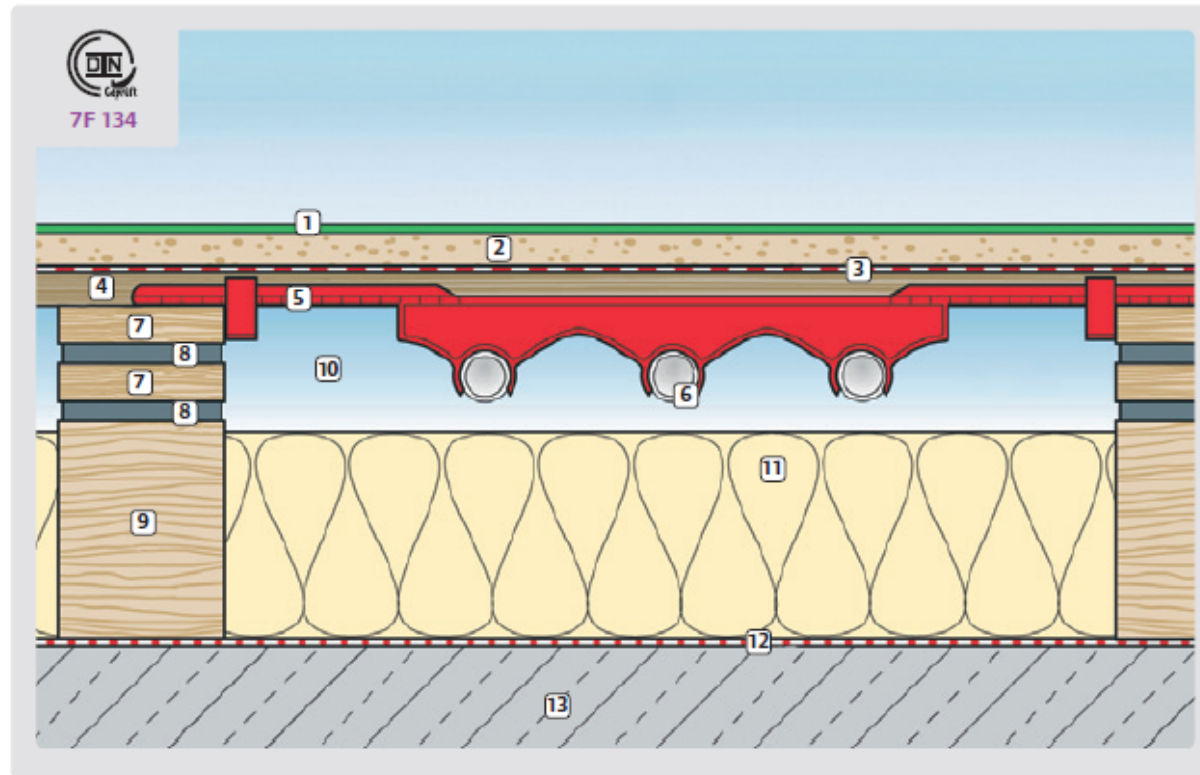
Uponor sportpörandad



Uponor sportpõrandad



Uponor sportpõrandad



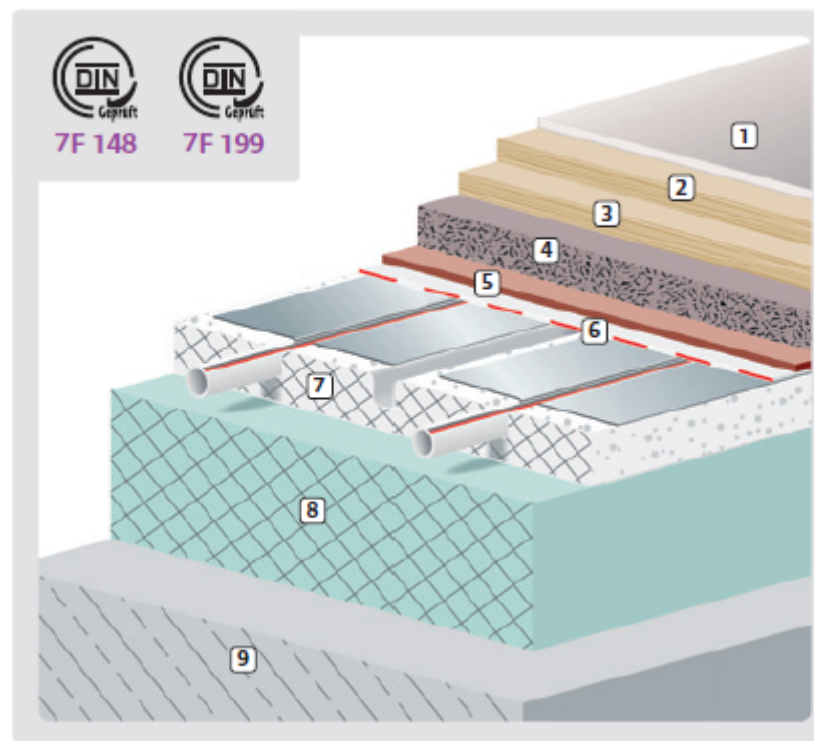
- 1 PVC or linoleum floor cover
- 2 Chipboard
- 3 PE foil
- 4 False floor
- 5 Uponor pipe clips
- 6 Uponor PE-Xa pipe
- 7 Double sprung beams
- 8 Elastic pads
- 9 Base block
- 10 Air space
- 11 Thermal insulation
- 12 Damp-proofing course
- 13 Concrete



Pindelastne põrand Uponor Sport

Uponor sportpõrandad

Pindelastne põrand Uponor Siccus Sport

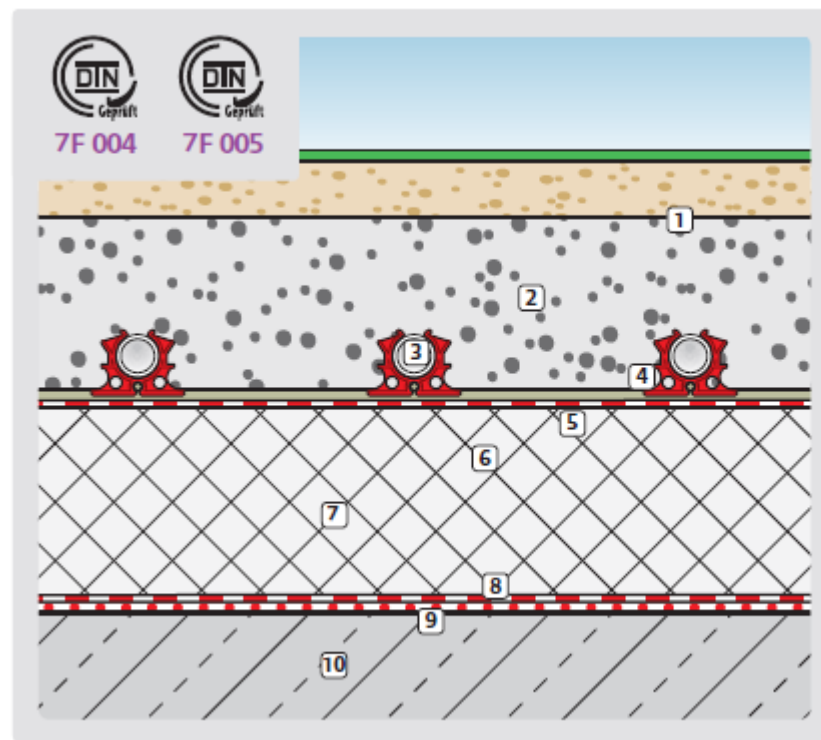


Uponor radiant heating system in surface-elastic sports floor – sandwich construction

- 1 Linoleum/PVC 4/2 mm
- 2 Birch plywood 9 mm
- 3 Birch plywood 9 mm
- 4 Elastic layer 15 mm
- 5 Hardboard 3.2 mm or sheet steel 2 x 0.6 mm
- 6 Foil 0.2 mm
- 7 Uponor Siccus 25 mm
- 8 Additional thermal insulation, e.g. PUR 55 mm
- 9 Level substrate

Uponor sportpõrandad

Punkt elastne sportpõrand



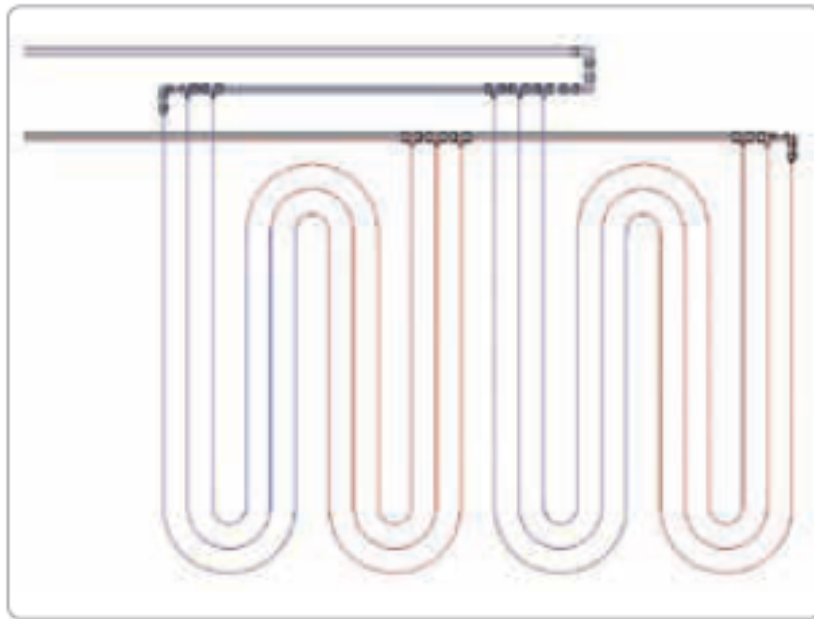
Uponor Flächen-
heizung unter
punkt-elastischem
Sportboden

- 1 Point-elastic
sports floor
- 2 Heating screed
- 3 Uponor PE-Xa
pipe
- 4 Uponor pipe
clips
- 5 Uponor support
element
- 6 Uponor cover
foil
- 7 Uponor insula-
tion
- 8 Uponor separa-
ting foil
- 9 Damp-proofing
course
- 10 Concrete

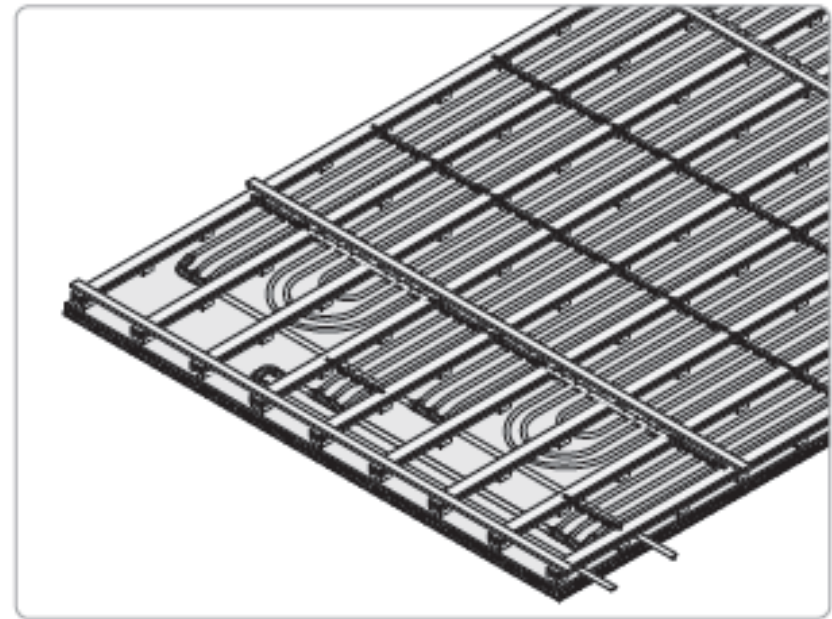
Uponor sportpörandad

Type of construction	Heating system
Surface-elastic construction (sprung floor)	Uponor Sport with Uponor Comfort pipe PLUS 25x2.5, Uponor Sport Q&E Tichelmann manifold
Surface-elastic layer (sandwich)	Uponor Siccus Sport with Uponor Comfort pipe PLUS 14x2 or MLCP (white) 14x2, Uponor Vario PLUS manifold or Uponor Sport Q&E Tichelmann manifold
Point-elastic floor construction (screed/wet floor)	Underfloor heating system for screed, Uponor Vario PLUS manifold or Uponor Sport Q&E Tichelmann manifold

Uponor sportpörandad

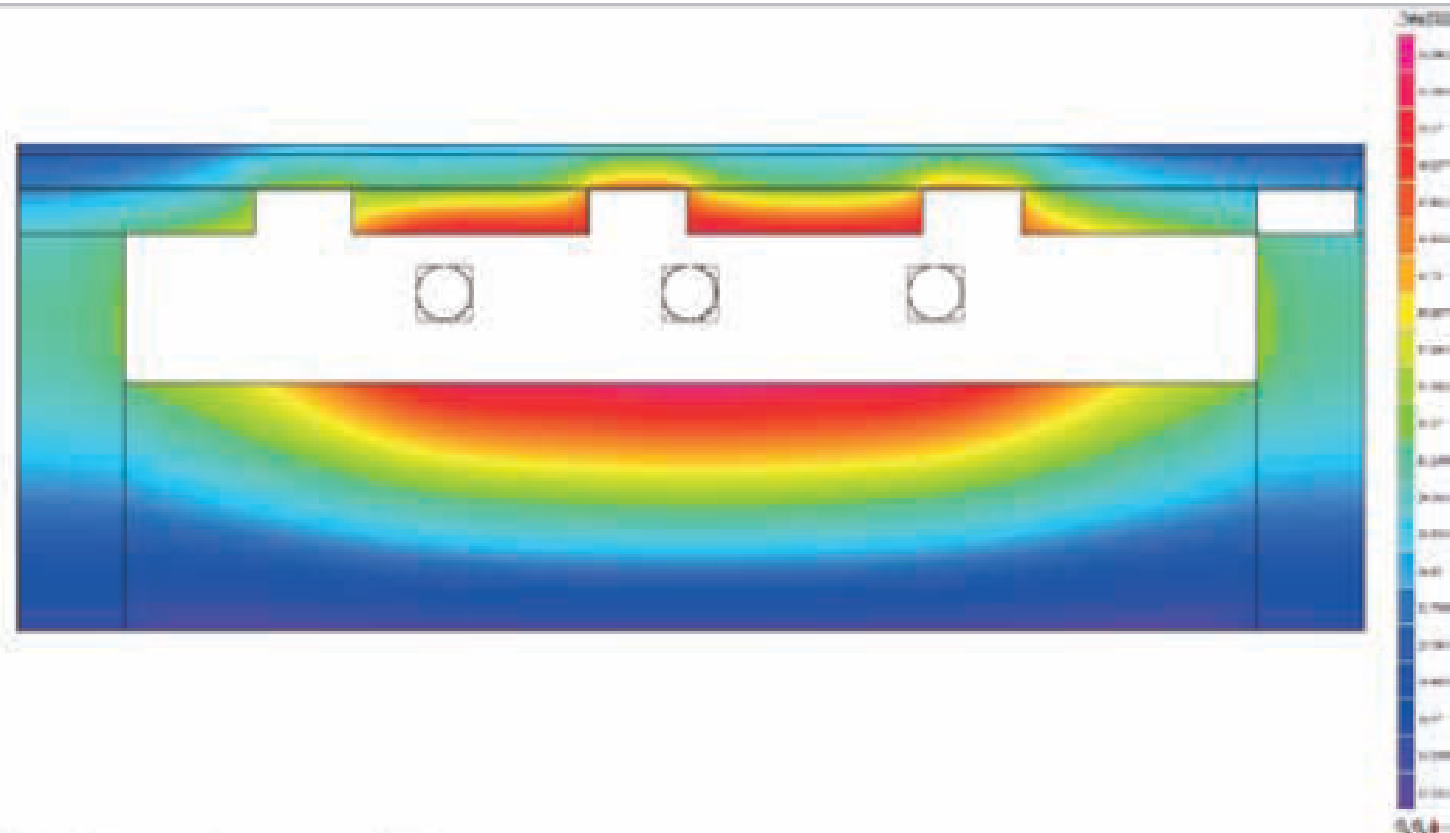


Loop design planning



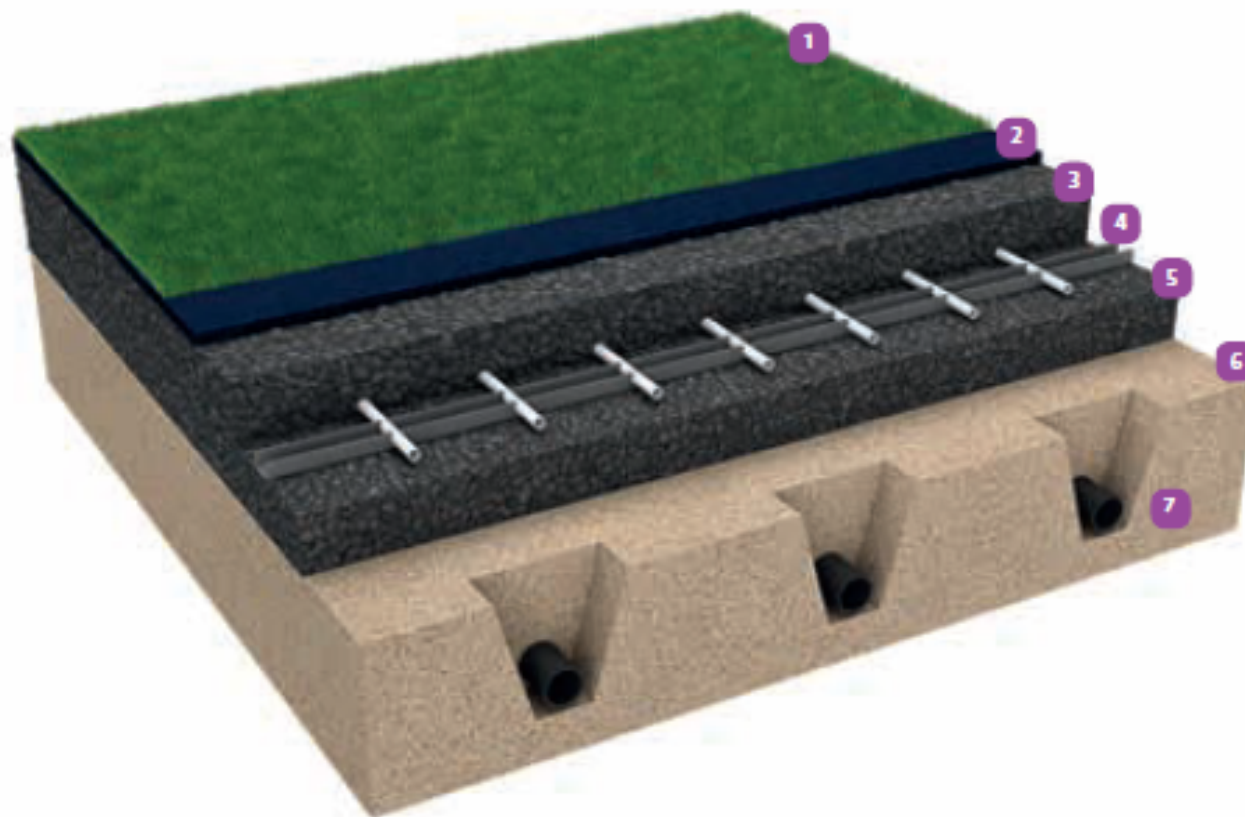
Uponor Sport with Uponor Sport Q&E Tichelmann manifold

Uponor sportpõrandad



Uponor sportpörandad

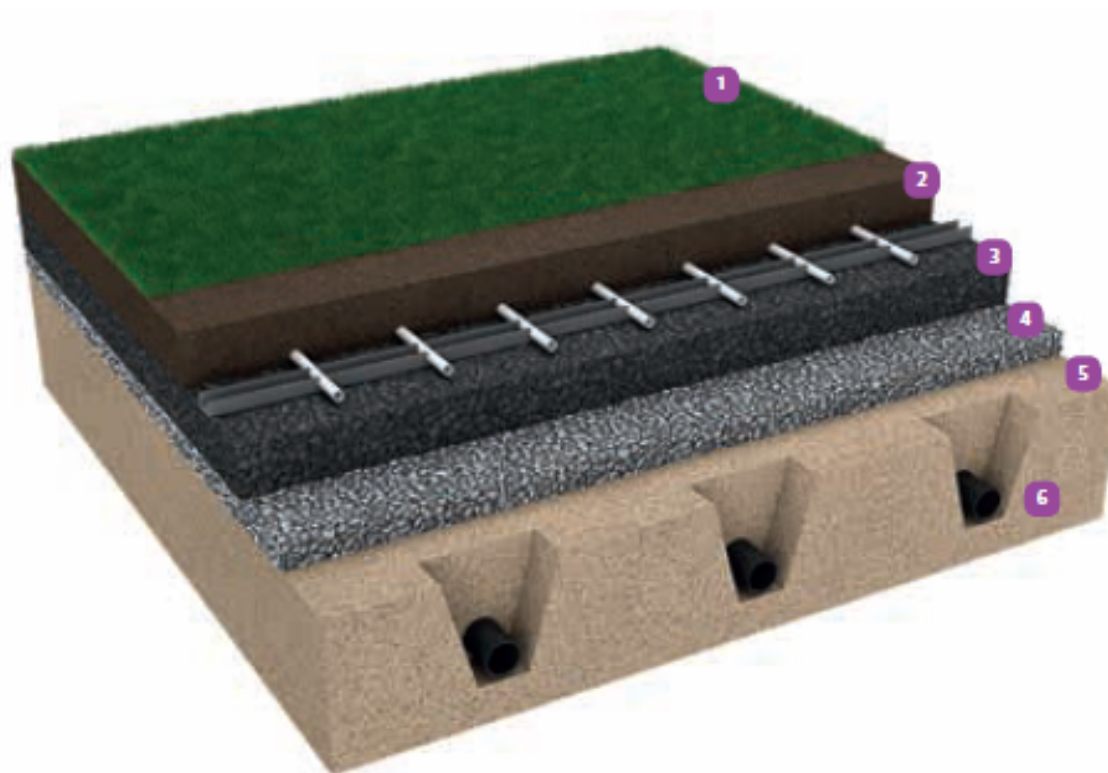
Artificial lawn



1. Artificial lawn
2. Rubber granulate and quartz sand
3. Elastic layer
4. Absorber in quartz sand
5. Elastic layer
6. Subsoil
7. Drainage system

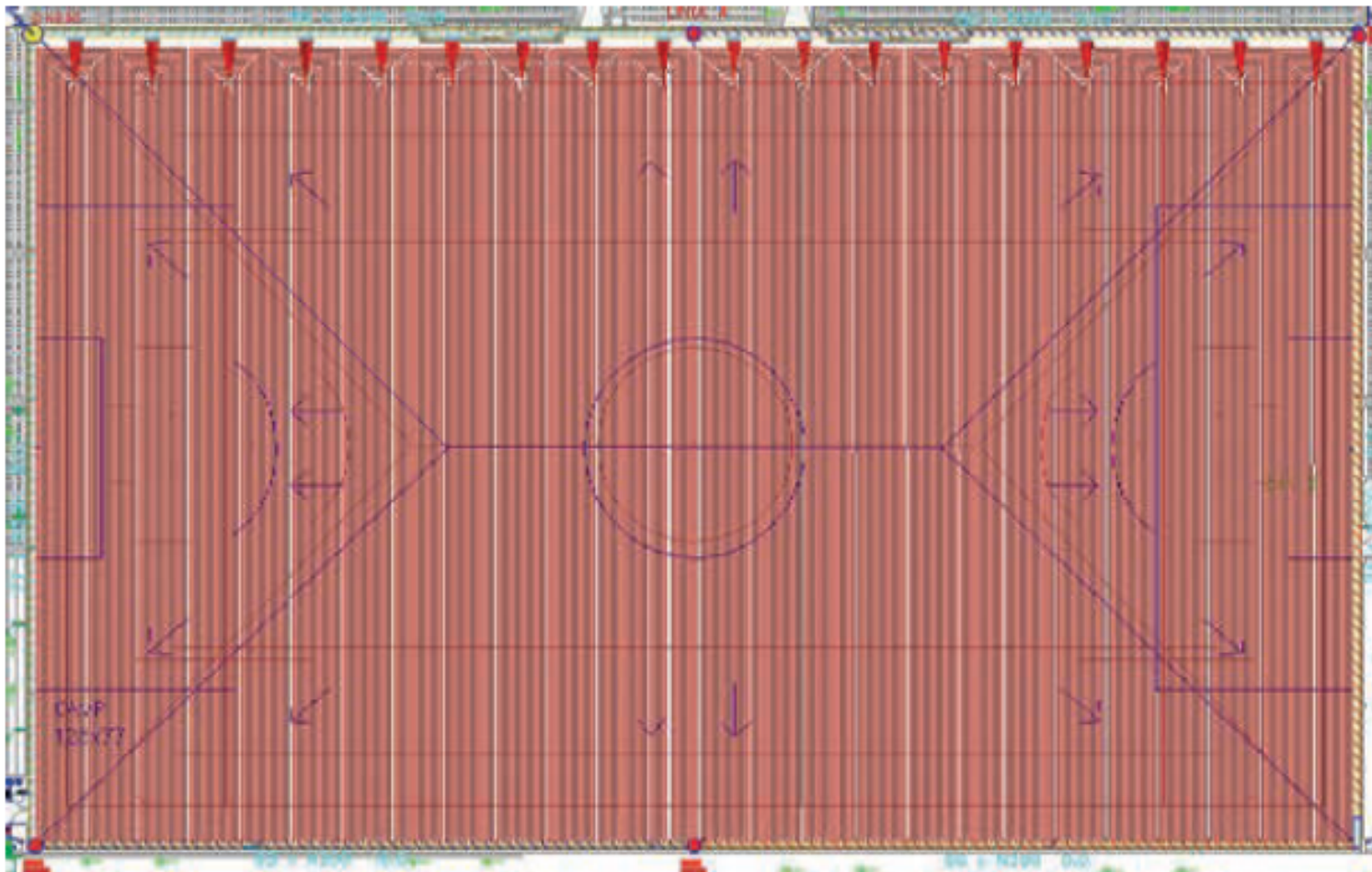
Uponor sportpörandad

Natural lawn

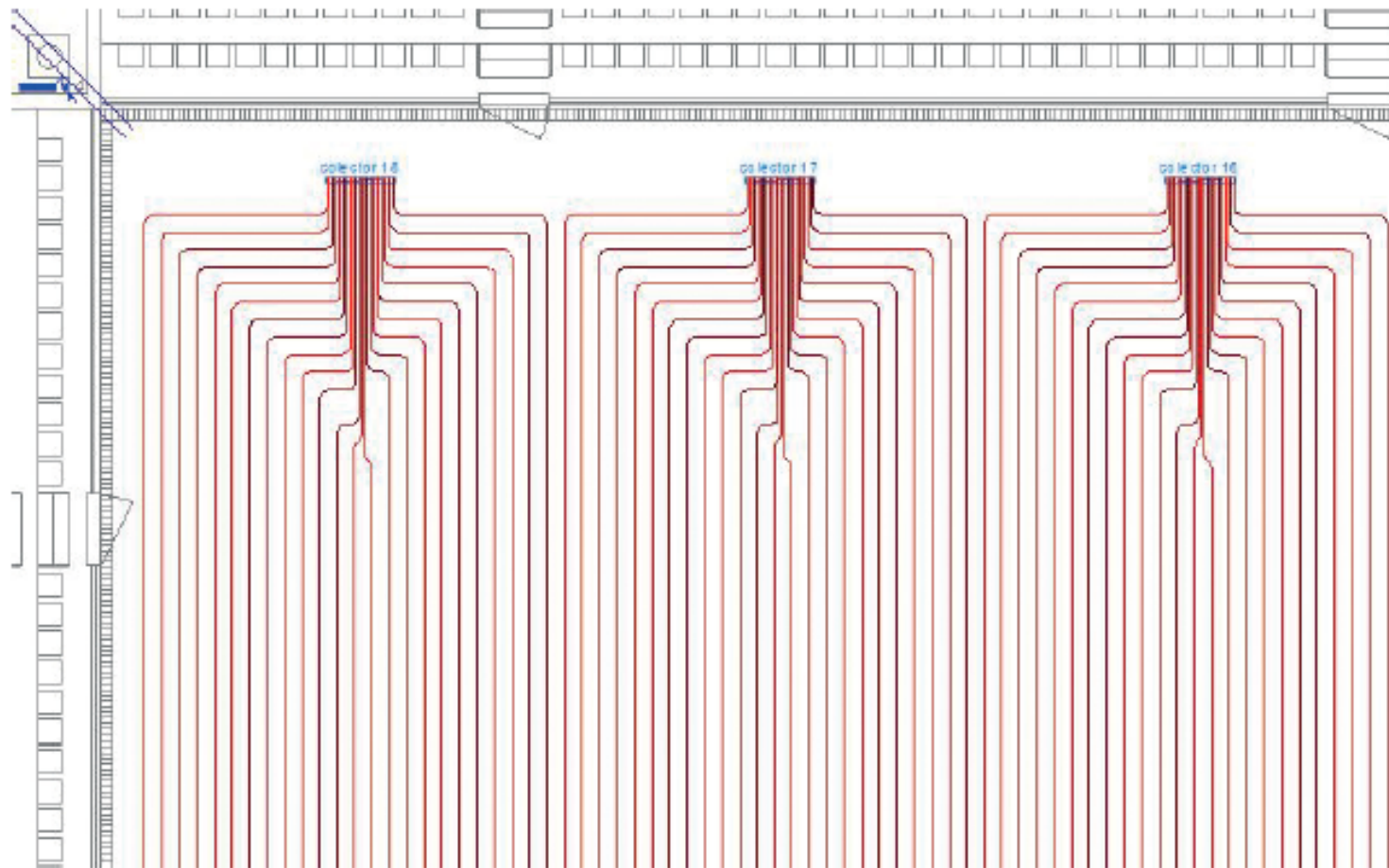


1. Sports lawn
2. Top soil
3. Volcanic gravel
4. Coarse gravel
5. Subsoil
6. Drainage system

Uponor sportpõrandad



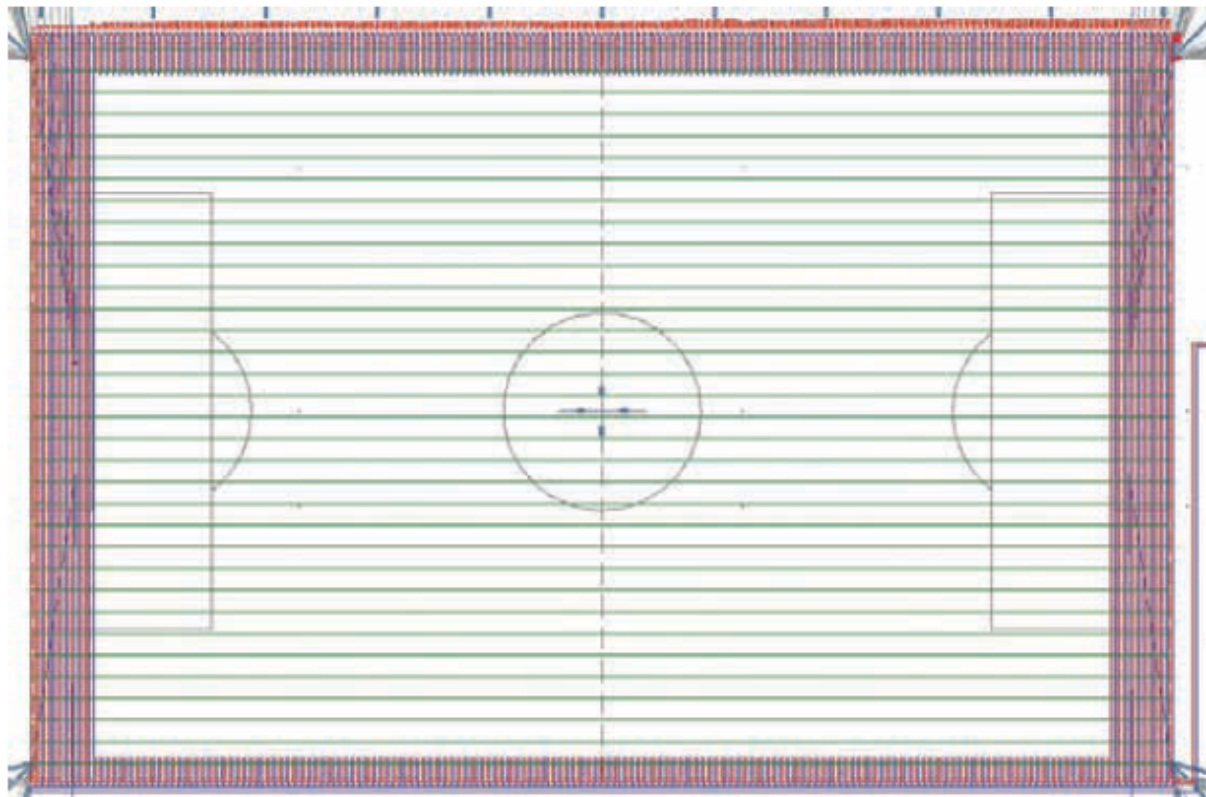
Uponor sportpõrandad



Uponor sportpörandad

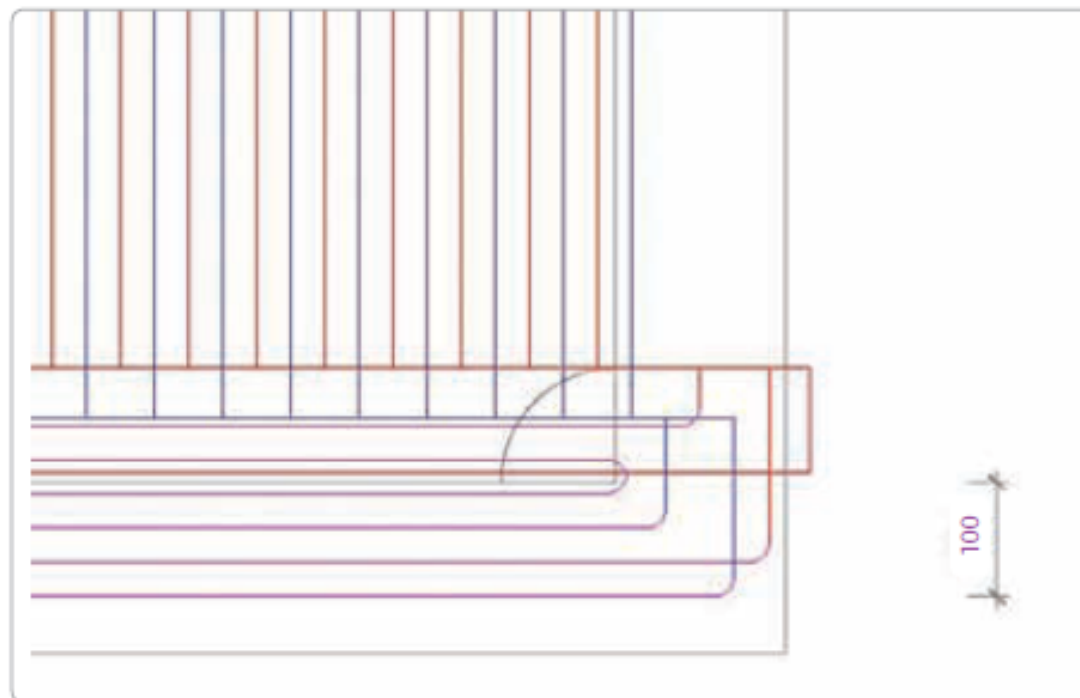
2. Twin return (Tichelmann) connection

The Tichelmann system is normally installed along the length of the field. Each loop has a length of around 150 m (2 x 75 m). There are approx. 180 loops, depending on the size of the field. All turf areas need to be heated (also areas outside the field). The largest dimension of Tichelmann pipe is 160 mm or 180 mm - dimensions decrease in size in steps of:
 $160 > 125 > 110 > 90 > 75$ mm.



Uponor sportpõrandad

Tichelmanni süsteemi fragment





Täna Teid mulle pühendatud aja eest!!!

Pikka liugu!