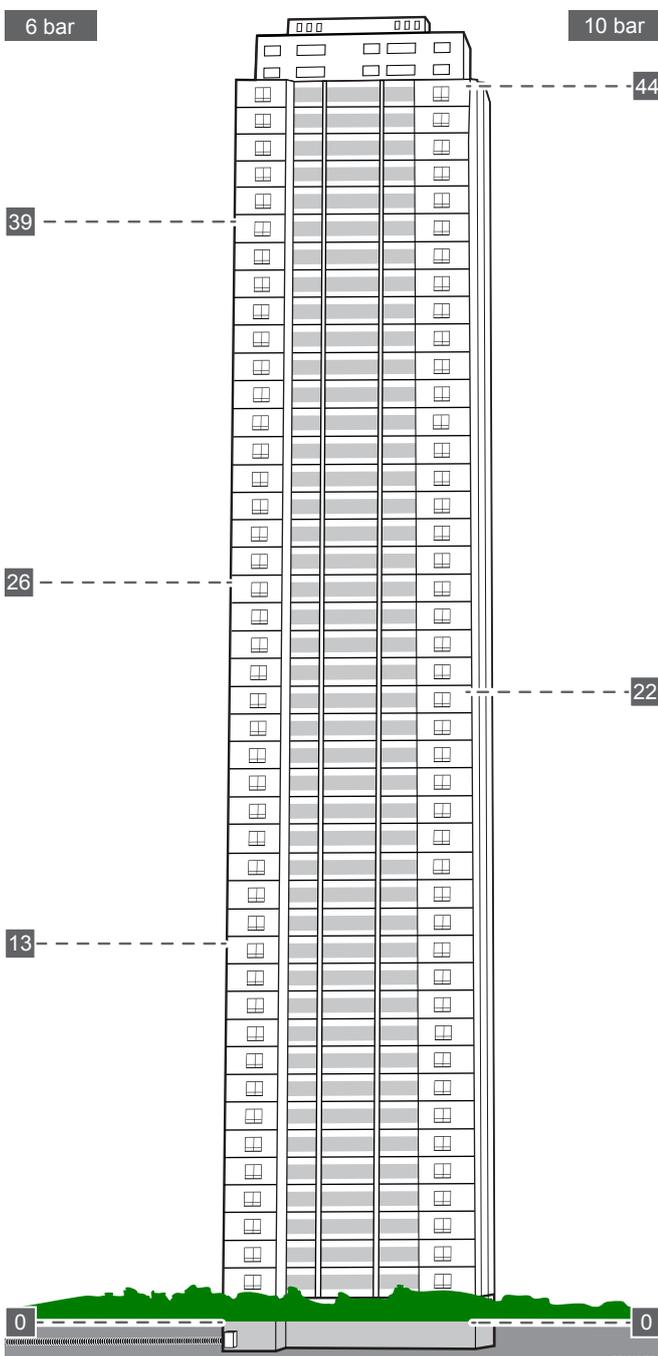


## Uponor underfloor heating system 10 bar



The Uponor underfloor heating system 10 bar offers possibility to install underfloor heating (UFH) in multi-storey buildings with operating pressures up to 10 bar instead of standard 6 bar. This results in cost-reducing advantages in planning and design, as normally required components for pressure reduction and heat transfer can be saved.

All system components are exposed to higher loads than usual over a long time during operation. Uponor has subjected the appropriate components from the portfolio to a system test, in order to be able to guarantee our customers overall and long-term functional reliability.

Fewer components ultimately lead to higher operational reliability over many years. In addition, there is a higher safety in setting and maintaining the filling pressure of the system.

This document describes the planning for the certified Uponor underfloor heating system for installation in high-rise buildings with maximum operating pressure of 10 bar at maximum operating temperature of 60 °C.

### Certified system

Uponor underfloor heating system 10 bar is a certified system by KOMO K107486 for 10 bar operational pressure at max. 60 °C according to Kiwa BRL - K5603 and EN ISO 15875-5.

Uponor Vario S LS manifolds are certified by KIWA LTV CV K107523 according to BRL K17701.

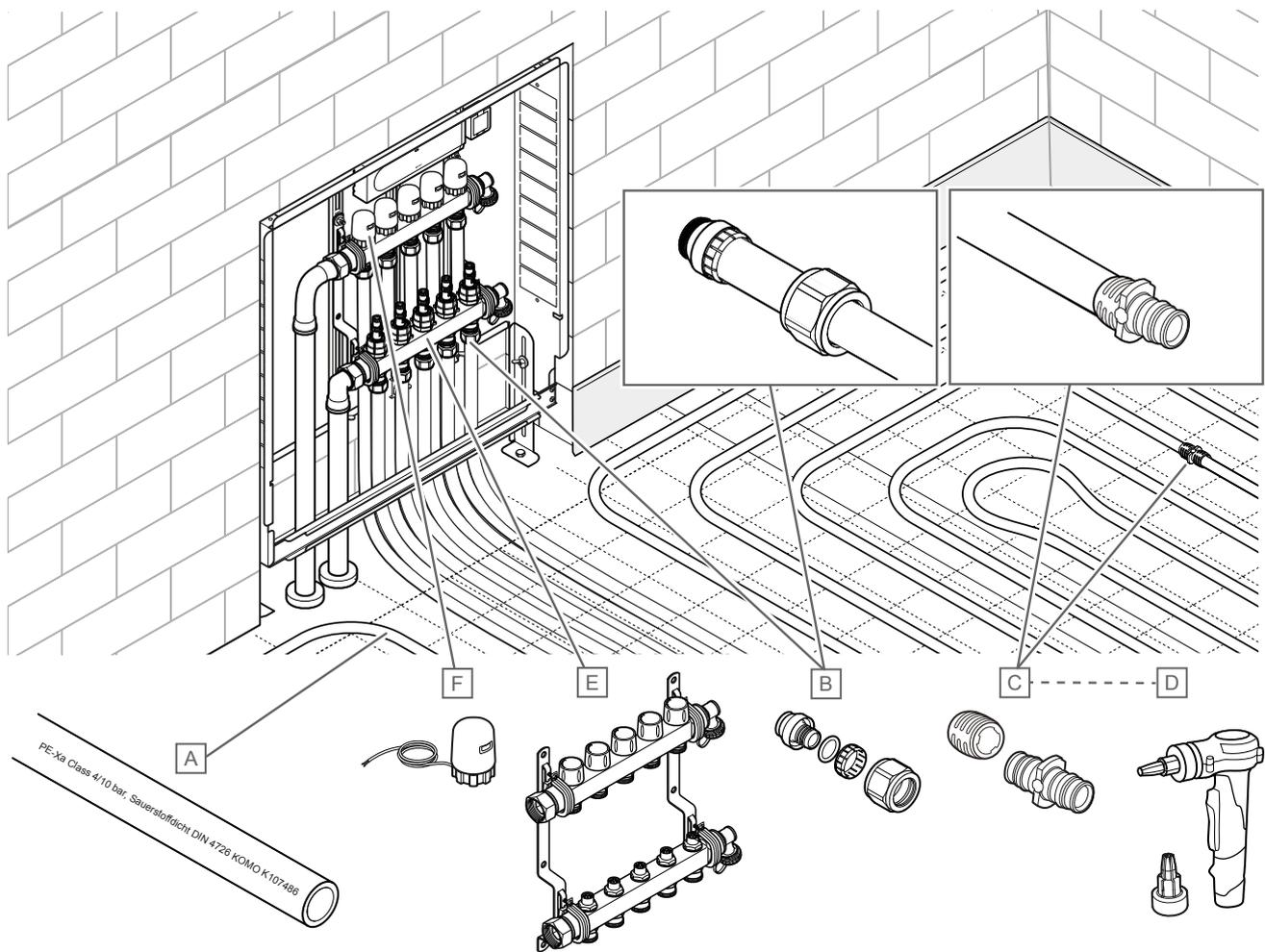
The certification has been carried out by the following testing requirements: "DIN-EN-ISO 15875-5, Plastics piping systems for hot and cold water installations — Crosslinked polyethylene (PE-X) — Part 5: Fitness for purpose of the system".

Certification rule: Kiwa BRL5603

- Internal pressure tests (10 bar, 80 °C, long-term)
- Pull-out tests (tightness of pipe joints under mechanical stress)
- Thermal cycling tests (5000 cycles; 15 min at 80 °C, 15 min at 20 °C)
- Leak tightness under vacuum (vacuum test, P -0,8 bar, max.  $\Delta P$  0,05 bar)
- Other inspections and stress tests

Uponor actuators have been tested and qualified in a test lab at operating pressure 10 bar and constantly running water.

## System description



SD0000127

| Item | Description                                       |
|------|---|
| A    | Uponor Comfort Pipe PN 10 16x2,2/20x2,8 mm        |
| B    | Uponor Flex-X adapter plated PEX 3/4" FT Euro     |
| C    | Uponor Q&E coupling PPSU 16-16/20-20 mm           |
| D    | Uponor Q&E expansion tool with heads M12          |
| E    | Uponor Vario S manifold 3/4 LS                    |
| F    | Uponor Vario S actuator ST 24V/230V NC FT M30x1,5 |

The first water based UFH solution, certified for full system operation at 10 bar, consists of all parts under the operating pressure: pipes and fittings, manifold, valves and actuators.

For more detailed information, product range and documentation please visit the Uponor website: [www.uponor.com](http://www.uponor.com).

### A — Uponor Comfort Pipe PN 10 16x2,2/20x2,8 mm

**Uponor Comfort pipe PN 10 PE-Xa pipe** with an oxygen diffusion layer of EVOH (ethylene vinyl alcohol).

Complying with EN ISO 15875 "Plastic piping systems for hot and cold water installation - Cross-linked polyethylene"

Application class 4 acc EN ISO 15875 - Underfloor heating and cooling systems.

Max. operating pressure: 10 bar.

Max. operating temperature: 70 °C

Fire class: E according DIN EN 13501-1

### B — Uponor Flex-X adapter plated PEX 3/4" FT Euro

**Uponor Flex-X adapter Eurocone** is made of plated brass.

For connection of Uponor PE-Xa pipes 10 bar to radiator assemblies and manifolds with 3/4" Eurocone male thread.

The adapter is also suitable for Uponor Comfort Pipe PN 10 for underfloor heating and jointing with Uponor Vario S manifold (stainless steel).

## C — Uponor Q&E coupling PPSU 16-16/20-20 mm

**Uponor Q&E coupling** made of PPSU for the connection of Uponor Comfort Pipe PN 10.

Free of corrosion and part of the O-ring free and durable sealing Uponor Q&E connection technology.

## D — Uponor Q&E expansion tool with heads M12

**Uponor Q&E expansion tool** is required when connecting Uponor PE-X pipes 10 bar with the Uponor Q&E couplings in PPSU.

The Uponor Q&E expansion tool with heads M12 16/20/25 10 bar is used together with either Uponor Q&E expansion head M12/18 16x1,8/2,0/2,2 mm or expansion head M12/M18 20x2,8 mm.

## E — Uponor Vario S manifold ¾ LS

**Uponor Vario S pre-assembled stainless steel manifold** for connection of circuits with ¾ " Eurocone thread-clamping adapters.

The return manifold is equipped with balancing valves with manual adjustment and complete loop closure (kvs = 3,1 m³/h).

Application: for radiator, underfloor heating and cooling systems.

Maximum temperature: 60 °C.

Maximum operating pressure: 10 bar

## F — Uponor Vario S actuator ST 24V/ 230V NC FT M30x1,5

**Uponor Vario S actuator** (for steel manifold) with open/closed indicator, suitable for use with Uponor Vario S (stainless steel). The actuator closes when idle.

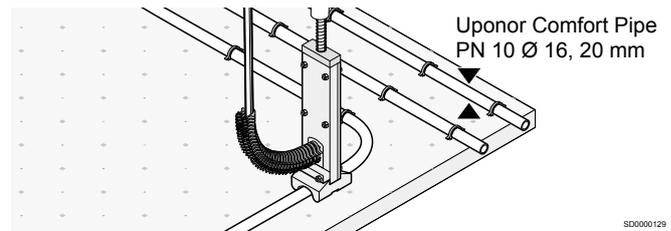
Threaded connector M 30 x 1,5 mm FT (female thread).

Suitable for operation at ambient temperature of up to 60 °C and for manifold operating pressure of max. 10 bar.

All-round shower protection (IP 54).

Conformity: CE

## Uponor Tacker



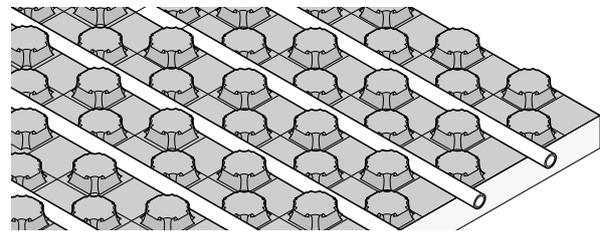
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### Benefits

The benefits with using Uponor Tacker are:

- Suitable for all types of screeds
- Universal pipe clips available for fixation of Uponor Comfort Pipe PN 10
- Flexible: composite panels or rolls, different thermal and step sound insulation layers
- Fast to install: integrated insulation layer and cover

## Uponor Tecto



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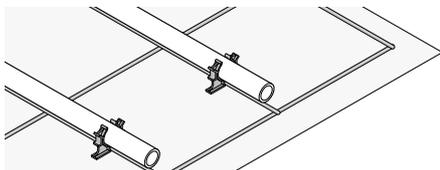
### Benefits

The benefits with using Uponor Tecto are:

- For use with Uponor Comfort pipe PN 10 Ø 16x2,2 mm
- Easy: optimally matched system components
- Different thermal and step sound insulation layers
- Profit from long-term, proven Uponor quality

## Suitable underfloor heating product lines

### Uponor Classic



SD0000128

### Benefits

The benefits with using Uponor Classic are:

- Reliable: long-term, proven system
- Flexible: choice of insulation material
- Cost efficient: flexible, fast and easy to install
- Security: no damage to insulation covering

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Production: Uponor/ELO

Uponor reserves the right to make changes, without prior notification,  
to the specification of incorporated components in line with its policy of  
continuous improvement and development.



[www.uponor.com](http://www.uponor.com)