

Uponor Vario Heat Protect

EN Technical information



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1 System description



Uponor Vario Heat Protect is a laying system for underfloor heating connecting lines provides protection againt uncontrolled overheating in hallways and passageways. The system also ensures that the maximum permissible surface temperatures are met in rooms where heating circuit distribution units are installed. The system consists of two different insulation panels with integrated pipe guides for installing the connecting lines in front of the distribution unit, hallways, and storage rooms. The elements are installed at insulation level and covered with Uponor Klett twinboard elements. The Uponor Vario Heat Protect connection plate's unique design ensures that supply lines in the transition area to individual heating circuits in adjacent rooms are screedproof when routed to the heating level.

1.1 Benefits

- · Reduces the surface temperature to avoid uncontrolled heating
- Heat output is reduced by up to 80%
- The pipe channels are moulded-in, so no special tools are needed to install
- Available in two version: a distribution plate for up to 12 heating circuit supply lines and a connection plate for continuous heating circuit supply lines
- This system is ideal for use with Uponor Klett Twinboard, and can be used as a continuous insulating layer cover as per DIN 18560

1.2 Components

Note

For more detailed information, product range and documentation, please visit the Uponor website: www.uponor.com.

Note

For detailed information about the product range, dimensions and availability, please refer to the Uponor price list.

Uponor Vario Heat Protect distribution panel



The Uponor Vario Heat Protect distribution panel is an XPS insulation board ideal for quick and easy installation of heating circuit connection lines within the insulation level. The panel is installed

directly in front of the distribution unit and can accommodate up to 12 heating circuit supply lines.

The panel is suitable for use with Uponor Comfort Pipe PLUS and Uponor Klett MLCP RED pipes with 14 and 16 mm dimensions.

It is available without thermal and impact sound insulation or with thermal and impact sound insulation in version EPS-DES as per DIN EN 13163.

Live load up to 2 KN/m² can use this panel.

Uponor Vario Heat Protect connecting panel



The Uponor Vario Heat Protect connecting panel is an XPS insulation board ideal for quick and easy installation of heating circuit connection lines within the insulation level. The panel is installed directly in front of the distribution unit for continous heating circuit supply lines.

The panel is suitable for use with Uponor Comfort Pipe PLUS and Uponor Klett MLCP RED pipes with 14 and 16 mm dimensions.

It is available without thermal and impact sound insulation and can be improved by installing EPS-DES under Vario Heat Protect as per DIN EN 13163.

Live load up to 2 KN/m² can use this panel.

Uponor Klett Twinboard



The Uponor Klett Twinboard is a 3 mm PP double wall foldable board with a live load up to 5 kN/m². It can be installed separately on top of the existing insulation.

The installation area is 2,4 x 1 m (2,4 m²).

Uponor Klett Comfort Pipe PLUS



Uponor Comfort Pipe PLUS is a highly flexible PE-Xa pipe spiral wound with hook tape with 5 layers in dimensions 14 x 2,0 mm and 16 x 2,0 mm.

The pipe fulfils the requirements for oxygen diffusion tightness as per DIN 4726.

Uponor Klett MLCP RED



Uponor MLCP RED is a composite pipe spiral wound with hook tape which is stable and easy to install, available in the dimensions $16 \times 2,0$ mm.

The pipe fulfils the requirements for oxygen diffusion tightness as per DIN 4726.

1.3 Copyright and disclaimer

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2 Planning/ design

2.1 Floor constructions

On-site impact sound insulation



Item	Description
N	Minimum screed thickness
Н	Insulation layer thickness (mm)
A	Structural height
В	Existing floor
С	Insulation EPS DEO
D	Insulation EPS DES
E	Uponor Vario Heat Protect (27 mm)
F	Uponor Klett Twinboard (3 mm)
G	Uponor Klett DES 30-2 mm
I	Edging strip
J	Uponor Klett Comfort Pipe PLUS/ Uponor Klett MLCP RED (connecting pipe to other heating loop)
К	Uponor Klett Comfort Pipe PLUS/ Uponor Klett MLCP
	RED

Integrated with impact sound insulation



Item	Description
Ν	Minimum screed thickness
Н	Insulation layer thickness (mm)
A	Structural height
В	Existing floor
С	Uponor Klett DES 35-3 mm
D	Uponor Vario Heat Protect with impact sound protection (32 mm)
E	Uponor Klett Twinboard (3 mm)
F	Edging strip
G	Uponor Klett Comfort Pipe PLUS/ Uponor Klett MLCP RED (connecting pipe to other heating loop)
I	Uponor Klett Comfort Pipe PLUS/ Uponor Klett MLCP RED

As a result of combining insulations, the following constructions comply with the European minimum insulation requirements (refer to EN 1264-4 or EN 15377) for residential and non-residential buildings. Additional planning information for special insulation requirements for non-residential buildings that deviate from this are described under "Thermal insulation requirements for radiant heating".

The masses per unit area of the ceiling and the screed as well as the dynamic stiffness of the Uponor heat and impact sound insulation have to be considered in providing the proof of impact sound insulation. The rated impact sound improvement of the floorings is calculated from the weight per unit area of the screed and the dynamic stiffness of the insulation or indicated by an equivalent test report.

Floor construction tables

These abbreviations are used in the following construction tables:

Abbreviations	Description
СТ	Cement screed
CAF	Anhydride liquid screed
ΔLw [dB]	Impact sound improvement factor of flooring
ΔLw,P [dB]	Impact sound improvement factor of tested flooring

Uponor Vario Heat Protect

On-site impact sound insulation

Thermal insulation requirements	Insulation layer thickness	Thermal resistance of insulation	Impact sound im factor of flooring ∆Lw [dB]	provement	Structural height	: A (2,0 kN/m²) ²⁾
	H [mm]	$R_{\lambda, ins} [m^2 K/W]$	CT N ≥ 45 [mm]	CAF ³⁾ N≥35 [mm]	CT N ≥ 45 [mm]	CAF ³⁾ N ≥ 35 [mm]
Apartment ceilin	g separating heated rooms					
EN 1264-4	Klett Twinboard = 3 Vario Heat Protect = 27 EPS DES 30-2 = 30 Total H = 60	1,48	29	28	≥ 121 (119)	≥ 111 (109)
Floor slabs ¹), cei	lings against unheated rooms in re	sidential and non-	residential buildin	gs		
EN 1264-4	Klett Twinboard = 3 Vario Heat Protect = 27 EPS DES 30-2 = 30 Total H = 60	1,48	29	28	≥ 121 (119)	≥ 111 (109)
Floor ceilings ag	ainst outside air in residential and r	non-residential bu	ildings (ગ ેi ≥ 19 °C))		
EN 1264-4	Klett Twinboard = 3 Vario Heat Protect = 27 EPS DES 60-2 = 60 Total H = 90	2,23	29	28	≥ 151 (149)	≥ 141 (139)
¹⁾ Observe additio (refer to DIN 1853	onal construction height for structura 33). Groundwater level ≥ 5 m.	l waterproofing	³⁾ Observe man	ufacturer's descrip s.	tions regarding th	e minimum

(refer to DIN 18533). Groundwater level \ge 5 m. ²⁾ Observe dimensional tolerances at building site (refer to

DIN 18202, Tab.2 and 3).

Integrated with impact sound insulation

Thermal insulation requirements	Insulation layer thickness	Thermal resistance of insulation	Impact sound im factor of tested f \(\Delta Lw,P [dB]^4) (\Delta)	nprovement flooring	Structural heigh	t A (2,0 kN/m²) ²⁾
	H [mm]	$R_{\lambda, ins}$ [m ² K/W]	CT N ≥ 45 [mm]	CAF ³⁾ N≥35 [mm]	CT N≥45 [mm]	CAF ³⁾ N ≥ 35 [mm]
Apartment ceilin	g separating heated rooms					
	Klett Twinboard = 3 Vario Heat Protect = 32 Total H = 35	0,86	28	-	≥ 96 (94)	≥ 86 (84)
EN 1264-4						
Floor slabs ¹), ce	ilings against unheated rooms in re	sidential and non-	-residential buildir	ngs		
	Klett Twinboard = 3 Vario Heat Protect = 32 EPS DEO 20 = 20	1,44	28	-	≥ 116 (114)	≥ 106 (104)
EN 1264-4	Total H = 55					
Floor ceilings ag	ainst outside air in residential and	non-residential bu	iildings (ર ીi ≥ 19 °C)		
	Klett Twinboard = 3 Vario Heat Protect = 32 EPS DEO 45 = 45	2,15	28	-	≥ 141 (139)	≥ 131 (129)
EN 1264-4	Total H = 80					
 ¹⁾ Observe additio (refer to DIN 1853 ²⁾ Observe dimen DIN 18202, Tab.2 ³⁾ Observe manuf 	ponal construction height for structura 33). Groundwater level \geq 5 m. sional tolerances at building site (re 2 and 3).	l waterproofing fer to	⁴⁾ Measurement sound insulation laboratories or a based on a suff (coment screed	t and evaluation of n suitability has be a suitable certificat face with the mass) = 160 kg/m ² . Be	Uponor Vario He en conducted by a tion body. The me per unit area: Su	at for proof of accredited testing asured values are face covering

Observe manufacturer's descriptions regarding the minimum screed thickness.

(cement screed) ² 160 kg/m²; Reinforced concrete covering = 400 kg/m^2 .

2.2 Catridge adhesive

For fixing the Uponor Vario Heat Protect panels to the cleaned substrate, a cartridge adhesive suitable for EPS is applied.

Catridge adhesive ¹⁾	Suitable substrates				
Designation	Suitable for	Screed	Wood	EPS	Aluminium
BEKO Allcon 10	EPS, XPS	x	х	x	х
Conel structural adhesive	EPS, XPS	x	x	x	x
Butler power adhesive for construction	EPS, XPS	-	-	x	x
Pattex installation adhesive	EPS, XPS	x	x	х	x

1) Observe manufacturer's application and processing instructions.

3 Installation

3.1 Installation process



Note

Installation must be performed by a qualified person in accordance with local standards and regulations.

As a guidance, always read and follow the instructions given in respective Uponor installation manual.



2. Panels installation



3. Pipes installation



4. Uponor Klett Twinboard panels installation



4 Technical data

4.1 Technical specifications

Uponor Vario Heat Protect distribution panel

Description	Value	Value
Туре	Uponor Vario Heat Protect distribution panel without impact sound insulation	Uponor Vario Heat Protect distribution panel integrated with impact sound insulation
Material	XPS insulation board	XPS insulation board with an EPS panel underneath
Dimension	1200 x 600 x 27 mm	1200 x 600 x 32 mm
Max. live load	2,0 kN/m ²	2,0 kN/m ²
Thermal resistance	0,47 m ² K/W	0,61 m²K/W
Dynamic stiffness	-	36 MN/m ³
Compressive stress (with Twinboard)	200 kPa	120 kPa
Reaction to fire (refer to EN 13501-1)	Class E	Class E

Uponor Vario Heat Protect connecting panel

Description	Value	Value
Туре	Uponor Vario Heat Protect connecting panel without impact sound insulation	Uponor Vario Heat Protect connecting panel integrated with impact sound insulation
Material	XPS insulation board	XPS insulation board with an EPS panel underneath
Dimension	1200 x 600 x 27 mm	1200 x 600 x 32 mm
Max. live load	2,0 kN/m ²	2,0 kN/m ²
Thermal resistance	0,61 m²K/W	0,74 m²K/W
Dynamic stiffness	-	36 MN/m ³
Compressive stress (with Twinboard)	200 kPa	120 kPa
Reaction to fire (refer to EN 13501-1)	Class E	Class E

Uponor Klett Comfort Pipe PLUS

	14 x 2,0 mm	16 x 2,0 mm
Pipe designation	Uponor Klett Comfort Pipe PLUS	Uponor Klett Comfort Pipe PLUS
Pipe dimension	14 x 2,0 mm	16 x 2,0 mm
Pipe length	240 m; 640 m	240 m; 640 m
Material	PE-Xa, five-layer pipe	PE-Xa, five-layer pipe
Colour	White with two blue longitudinal stripes	White with two blue longitudinal stripes
Manufacturing	Refer to EN ISO 15875	Refer to EN ISO 15875
Certificates	KOMO, DIN CERTCO	KOMO, DIN CERTCO
Area of application	Class 4 + 5 / 6 bar (EN ISO 15875)	Class 4 + 5 / 6 bar (EN ISO 15875)
Max. operating temperature	70 °C (EN ISO 15875)	70 °C (EN ISO 15875)
Pipe jointings	Uponor screw connection, Uponor Smart press coupling, Uponor Q&E technology	Uponor screw connection, Uponor Smart press coupling, Uponor Q&E technology
Weight	0,079 kg/m	0,091 kg/m
Water content	0,079 l/m	0,121 l/m
Oxygen tightness	Refer to ISO 17455; DIN 4726	Refer to ISO 17455; DIN 4726
Density	0,934 g/cm ³	0,934 g/cm ³
Material class	Class B2 and class E, DIN 4102 / EN 13501	Class B2 and class E, DIN 4102 / EN 13501
Min. bending radius	8 x D; free-hand bending (112 mm) 5 x D; supported bending (70 mm)	8 x D; free-hand bending (128 mm) 5 x D; supported bending (80 mm)
Pipe roughness	0,007 mm	0,007 mm

	14 x 2,0 mm	16 x 2,0 mm
Ideal installation temperature	> 0 °C	> 0 °C
UV protection	Opaque cardboard (store remaining quantities in the cardboard box)	Opaque cardboard (store remaining quantities in the cardboard box)

Uponor Klett MLCP RED

Description	Value
Pipe designation	Uponor Klett MLCP RED
Pipe dimension	16 x 2,0 mm
Pipe length	240 m; 480 m
Material	Multi-layer composite pipe (PE-RT - aluminium - PE-RT), monitored by SKZ (Southern German Plastics Centre), oxygen-tight refer to DIN 4726.
Colour	Red
Manufacturing	Refer to EN ISO 21003
Certificates	KOMO, DIN CERTCO
Area of application	Class 4 / 5 (ISO 10508)
Max. operating temperature	60 °C
Max. operating pressure	4 bar
Pipe jointings	Uponor screw connection
Weight	0,076 kg/m
Water volume	0,091 l/m
Oxygen tightness	Refer to ISO 17455; DIN 4726
Building material class	B2 according to DIN 4102
Min. bending radius	4xd if free bending (64 mm) 3xd if supported bend (48 mm)
Pipe roughness	0,004 mm
Best mounting temperature	≥ 0 °C
UV protection	Brown cardboard (store remaining quantities in the cardboard box)



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