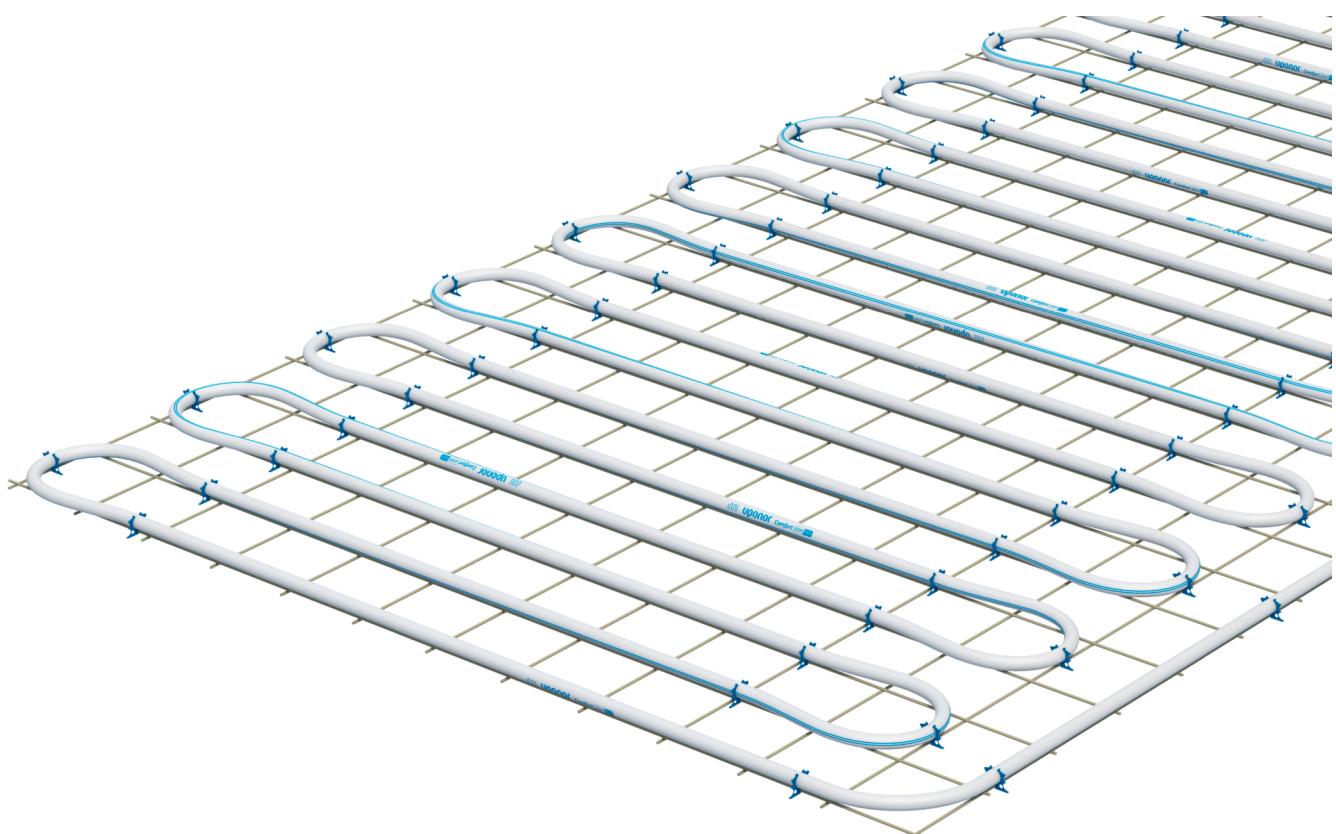


uponor

Uponor Classic underfloor heating/ cooling system

EN

Technical information



RP0000354

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1 System description



The Uponor Classic is a wet installation underfloor heating and cooling system for different floor structures in residential and commercial buildings. The Uponor Classic has three different mat grids that allow the spacing between heating pipes to be adjusted according to heating requirements. The coated supporting elements and robust pipe holders reliably secure the piping system and ensure the screed surround is optimal at the heating level.

Combining the system with heavy-duty insulation materials can be used in high-traffic areas such as car dealerships, production facilities, sales rooms, etc. Uponor Comfort Pipe PLUS with 16 mm and 20 mm pipe diameters enable long heating circuits without connecting points, which is especially useful when installing the system in a large area.

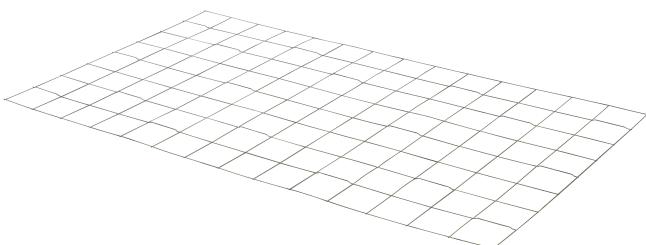
1.1 Benefits

- **Cost efficient:** flexible, fast and easy to install
- **Flexible:** choice of insulation material
- **Secured:** no damage to insulation covering
- **Suitable:** for high payloads with additional insulation
- **Reliable:** long-lifetime proven technology

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 Classic steel mesh



RP0000356

The Uponor Classic steel mesh is ideal for installing pipe fixations and is optionally available in coated steel to prevent corrosion. The smooth edges protect the system pipes during installation.

Uponor Multi foil PE



RP0000363

The Uponor Multi foil is PE-foil and transparent. It can be installed on top of existing thermal insulation.

Uponor Classic master clip



RP0000355

The Uponor master clips are for fixing the Uponor pipes to the Uponor Classic steel mesh using an Uponor Classic clipmaster tool.

The single-size clips fit for all pipe dimensions from 16 mm to 20 mm.

Uponor Classic clipmaster



RP0000357

The Uponor Classic clipmaster is an ergonomic and lightweight tool used with Uponor pipe clip magazines for reliable application. Optionally, it comes with a robust metal tool case.

The pipe spacing is based on the heating or cooling requirements: 5 cm, 10 cm and 15 cm.

Uponor Comfort Pipe PLUS



RP0000302

Uponor Comfort Pipe PLUS is a highly flexible PE-Xa pipe with 5 layers available in the dimensions 16 x 2,0 mm, 17 x 2,0 mm and 20 x 2,0 mm.

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

Uponor Magna pipe PLUS



RP0000302

Uponor Magna Pipe PLUS is a highly flexible PE-Xa pipe with 5 layers available in dimension 20 x 2,0 mm.

The pipe fulfils the requirements for oxygen diffusion resistance as per DIN 4726 and ISO 22391.

Uponor Comfort Pipe



RP0000302

Uponor Comfort Pipe is a highly flexible PE-Xa pipe available in the dimension 16 x 1,8 mm.

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

Uponor Smart UFH-pipe



RP0000347

Uponor Smart UFH-pipe is an economic system for underfloor heating available in the dimensions 16 x 2,0 mm and 20 x 2,0 mm.

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

Uponor jointing technology



Note

Only use fittings recommended by Uponor or its representatives.



RP0000358

Compression, Press, and Q&E joints are available to connect with respective pipes.

1.3 Copyright and disclaimer

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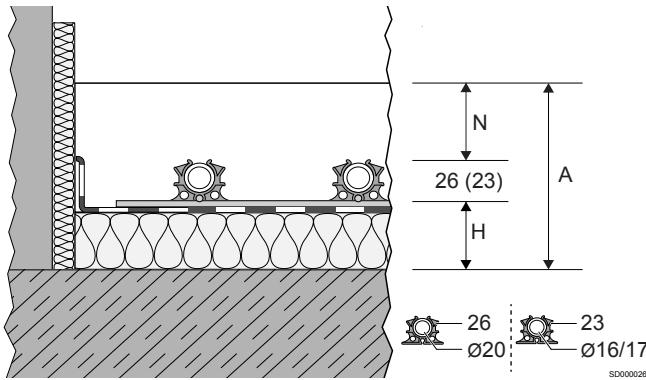
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2 Planning/ design

2.1 Floor constructions



Item	Description
N	Minimum screed thickness
H	Insulation layer thickness (mm)
A	Structural height

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
CT	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 Classic steel mesh

Thermal insulation requirements	Insulation layer thickness	Thermal resistance of insulation $R_{\lambda, \text{ins}} [\text{m}^2 \text{ K/W}]$	Impact sound improvement factor of flooring ΔLw [dB]		Structural height A (2,0 kN/m²) 	
			CT N ≥ 45 [mm]	CAF ³⁾ N ≥ 35 [mm]	CT N ≥ 45 [mm]	CAF ³⁾ N ≥ 35 [mm]

Apartment ceiling separating heated rooms

	Classic EPS 30-2 = 30	0,75	30	29	≥ 101 (98)	≥ 91 (88)
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EN 1264-4

Floor slabs¹⁾, ceilings against unheated rooms in residential and non-residential buildings

	Classic EPS 30-2 = 30 EPS 035 DEO dm 20 = 20 Total H = 50	1,32	30	29	≥ 121 (118)	≥ 111 (108)
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EN 1264-4

Floor ceilings against outside air in residential and non-residential buildings (9i ≥ 19 °C)

	Classic EPS 30-2 = 30 EPS 035 DEO dm 45 = 45 Total H = 75	2,04	30	29	≥ 146 (143)	≥ 136 (133)
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EN 1264-4

Thermal insulation requirements	Insulation layer thickness	Thermal resistance of insulation $R_{\lambda, \text{ins}} [\text{m}^2 \text{ K/W}]$	Impact sound improvement factor of flooring ΔLw [dB]		Structural height A (5,0 kN/m²) 	
			CT N ≥ 75 [mm]	CAF ³⁾ N ≥ 65 [mm]	CT N ≥ 75 [mm]	CAF ³⁾ N ≥ 65 [mm]

Apartment ceiling separating heated rooms

	Classic EPS 30-2 = 30	0,75	32	32	≥ 131 (128)	≥ 121 (118)
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EN 1264-4

Thermal insulation requirements	Insulation layer thickness	Thermal resistance of insulation	Impact sound improvement factor of flooring ΔLw [dB]		Structural height A (5,0 kN/m ²) ²⁾	
			CT N ≥ 75 [mm]	CAF ³⁾ N ≥ 65 [mm]	CT N ≥ 75 [mm]	CAF ³⁾ N ≥ 65 [mm]

Floor slabs¹⁾, ceilings against unheated rooms in residential and non-residential buildings

	Classic EPS 30-2 = 30 EPS 035 DEO dm 20 = 20 Total H = 50	1,32	32	32	≥ 151 (148)	≥ 141 (138)
EN 1264-4						

Floor ceilings against outside air in residential and non-residential buildings ($\vartheta_i \geq 19$ °C)

	Classic EPS 30-2 = 30 EPS 035 DEO dm 45 = 45 Total H = 75	2,04	32	32	≥ 176 (173)	≥ 166 (163)
EN 1264-4						

¹⁾ Observe additional construction height for structural waterproofing (refer to DIN 18533). Groundwater level ≥ 5 m.

²⁾ Observe dimensional tolerances at building site (refer to DIN 18202, Tab.2 and 3).

³⁾ Observe manufacturer's descriptions regarding the minimum screed thickness.

2.2 Dimensioning diagrams

Bathrooms, showers, toilets and the like are excluded when determining the design flow temperature.

The limit curves must not be exceeded.

$\Delta\vartheta_{H,G}$ is found through the limit curve for the occupied zone with the smallest pipe spacing.

The design supply water temperature maximum must be:

$$\Delta\vartheta_{V,des} = \Delta\vartheta_{H,G} + \Delta\vartheta_i + 2.5 \text{ K.}$$

In cooling mode the supply water temperature depends on the dew point temperature, therefore a humidity sensor has to be installed.

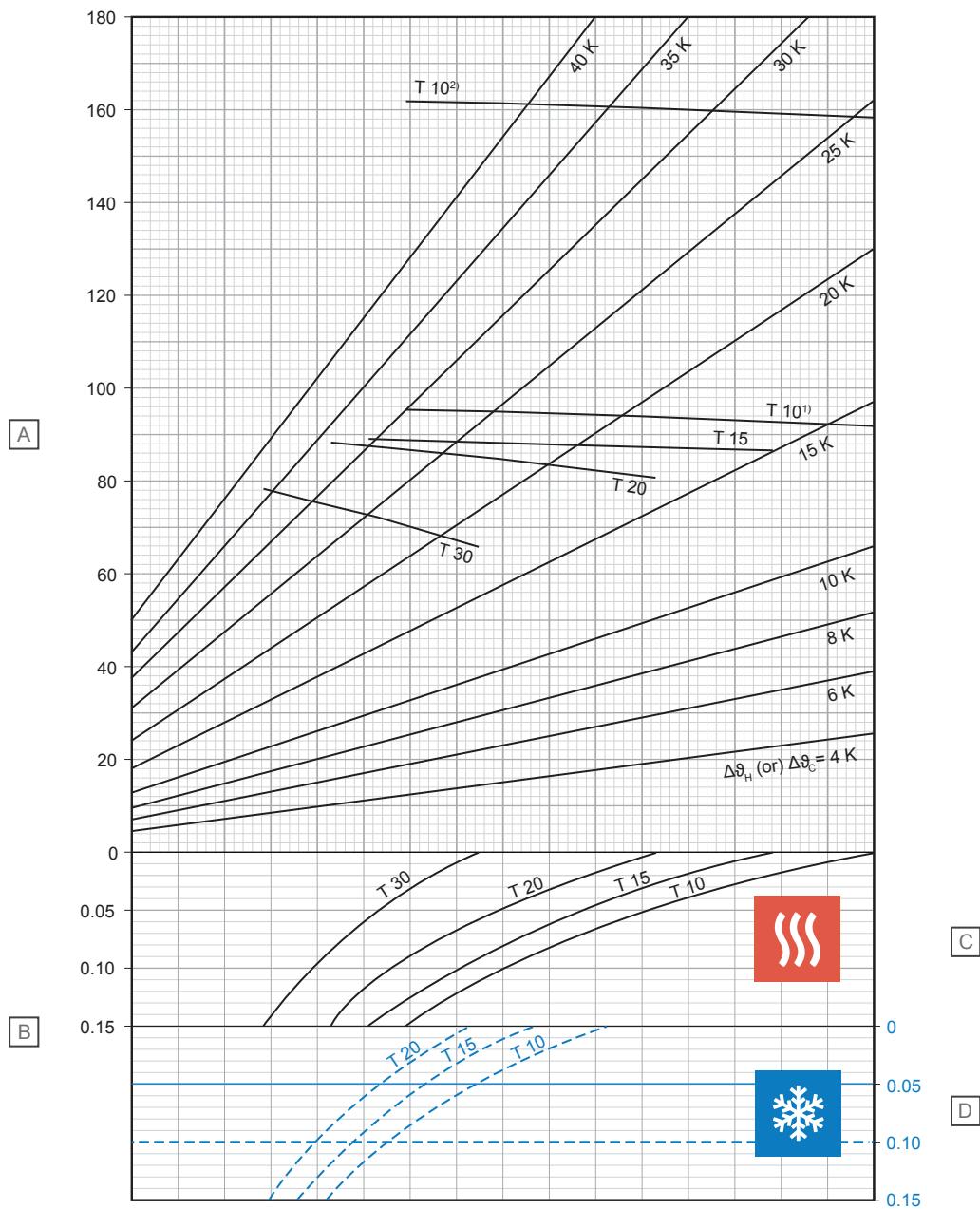
The following diagrams results are accurate and in accordance with EN 1264.

Abbreviations

These abbreviations are used in the following diagrams:

Abbreviations	Unit	Description
$A_{F,max}$	m^2	Maximum surface area of the heating/ cooling area
q_c	W/m^2	Specific thermal output of embedded cooling systems
q_{des}	W/m^2	Design specific thermal output of floor heating systems
$q_{G,max}$	W/m^2	Maximum limit of specific thermal output of floor heating systems
q_H	W/m^2	Specific thermal output of embedded heating systems, excluding floor heating
q_N	W/m^2	Standard thermal output of floor heating systems
$R_{\lambda,B}$	$m^2 K/W$	Thermal resistance of floor covering effective thermal resistance of carpeted covering
$R_{\lambda,ins}$	$m^2 K/W$	Thermal resistance of thermal insulation
s_u	mm	Thickness of the layer above the pipe
T	cm	Pipe spacing
$\vartheta_{F,max}$	$^{\circ}C$	Maximum floor surface temperature
ϑ_H	$^{\circ}C$	Average temperature of the heating medium
ϑ_i	$^{\circ}C$	Standard indoor room temperature
$\Delta\vartheta_c$	K	Temperature difference between room and cooling medium for cooling systems
$\Delta\vartheta_{C,N}$	K	Standard temperature difference between room and cooling medium for cooling systems
$\Delta\vartheta_H$	K	Temperature difference between heating medium and room
$\Delta\vartheta_{H,G}$	K	Limit temperature difference between heating medium and room for floor heating systems
$\Delta\vartheta_{H,N}$	K	Standard temperature difference between heating medium and room for heating systems, with the exception of floor heating
$\Delta\vartheta_{V,des}$	K	Design temperature difference between flow of heating medium and room of floor heating systems, determined by room with q_{max}
λ_u	W/mK	Thermal conductivity

Uponor Comfort Pipe PLUS 16 x 2,0 mm with screed load distribution layer (su = 35 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000302

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output $[q_H \text{ or } q_C]$
B	$\text{m}^2\text{K/W}$	Thermal resistance $[R_{\lambda,B}]$
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\vartheta_{H,N} (\text{K})$
10	92,2	13,5
15	86,2	14,7
20	80,3	15,9
30	64,9	17,3

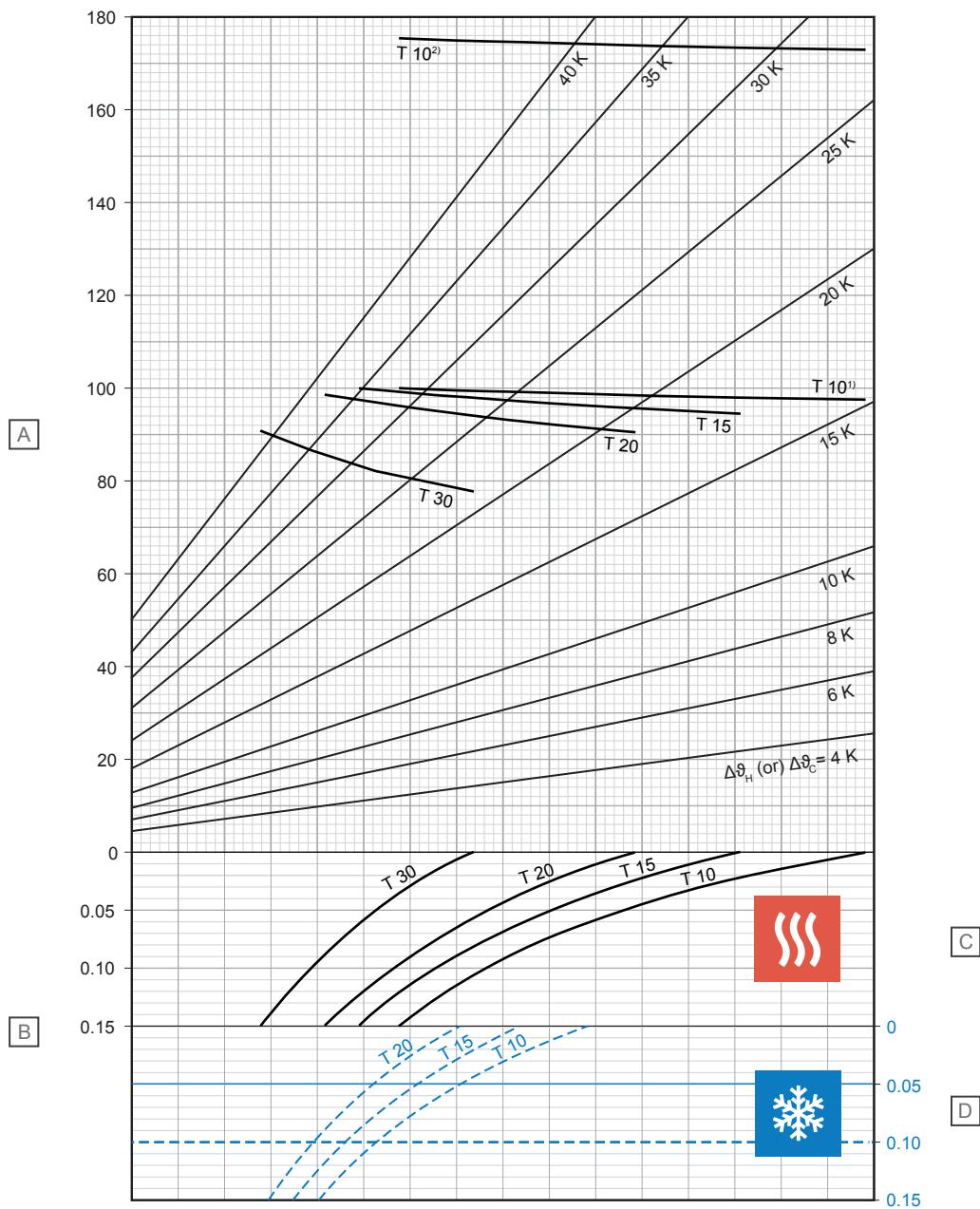
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\vartheta_{C,N} (\text{K})$
10	37,4	8
15	33,2	8
20	29,6	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Comfort Pipe PLUS 16 x 2,0 mm with screed load distribution layer (su = 45 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000303

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	97,7	15,2
15	94,7	17,1
20	90,6	18,9
30	77,0	21,3

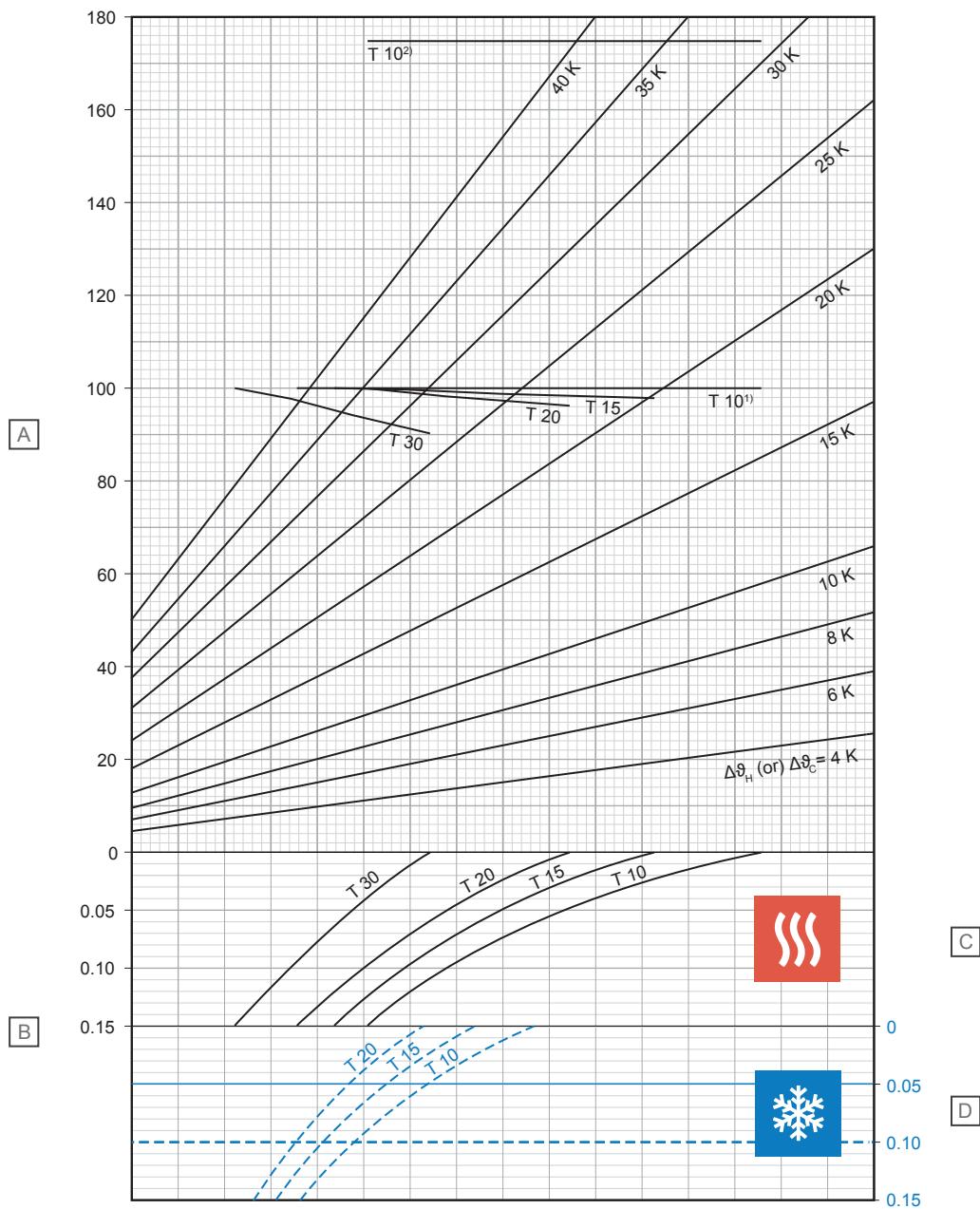
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	35,8	8
15	31,9	8
20	28,5	8

¹⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,max}$ 29 °C or ϑ_i 24 °C and $\vartheta_{F,max}$ 33 °C

²⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,max}$ 35 °C

Uponor Comfort Pipe PLUS 16 x 2,0 mm with screed load distribution layer (su = 65 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000304

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	100,0	17,6
15	98,0	19,8
20	96,4	22,2
30	90,3	27,0

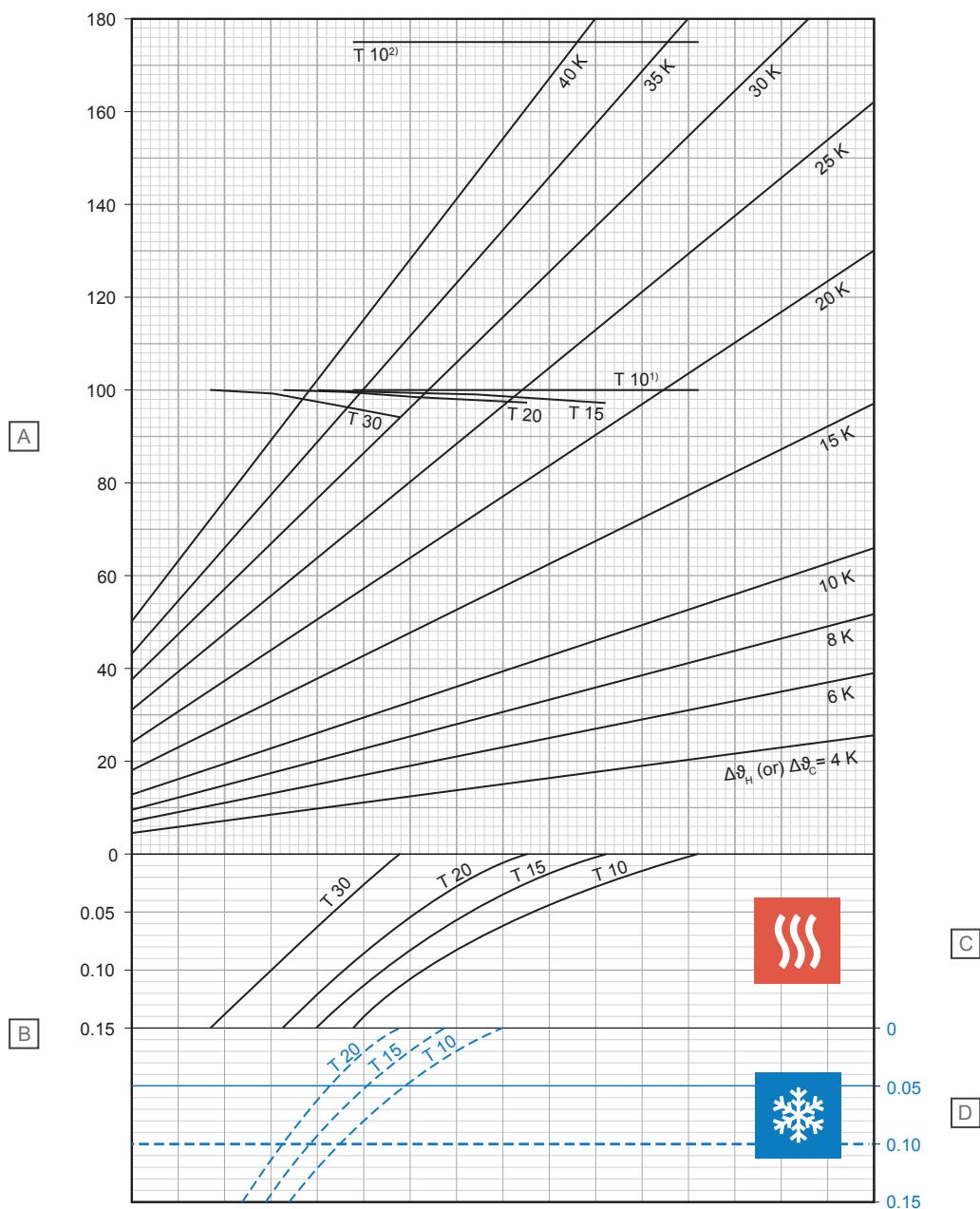
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	32,7	8
15	29,4	8
20	26,4	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Comfort Pipe PLUS 16 x 2,0 mm with screed load distribution layer (su = 75 mm with $\lambda_u = 1,2 \text{ W/mK}$)



DI0000305

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	q_H (W/m^2)	$\Delta\vartheta_{H,N}$ (K)
10	100,0	18,7
15	98,8	21,1
20	97,3	23,6
30	93,8	29,1

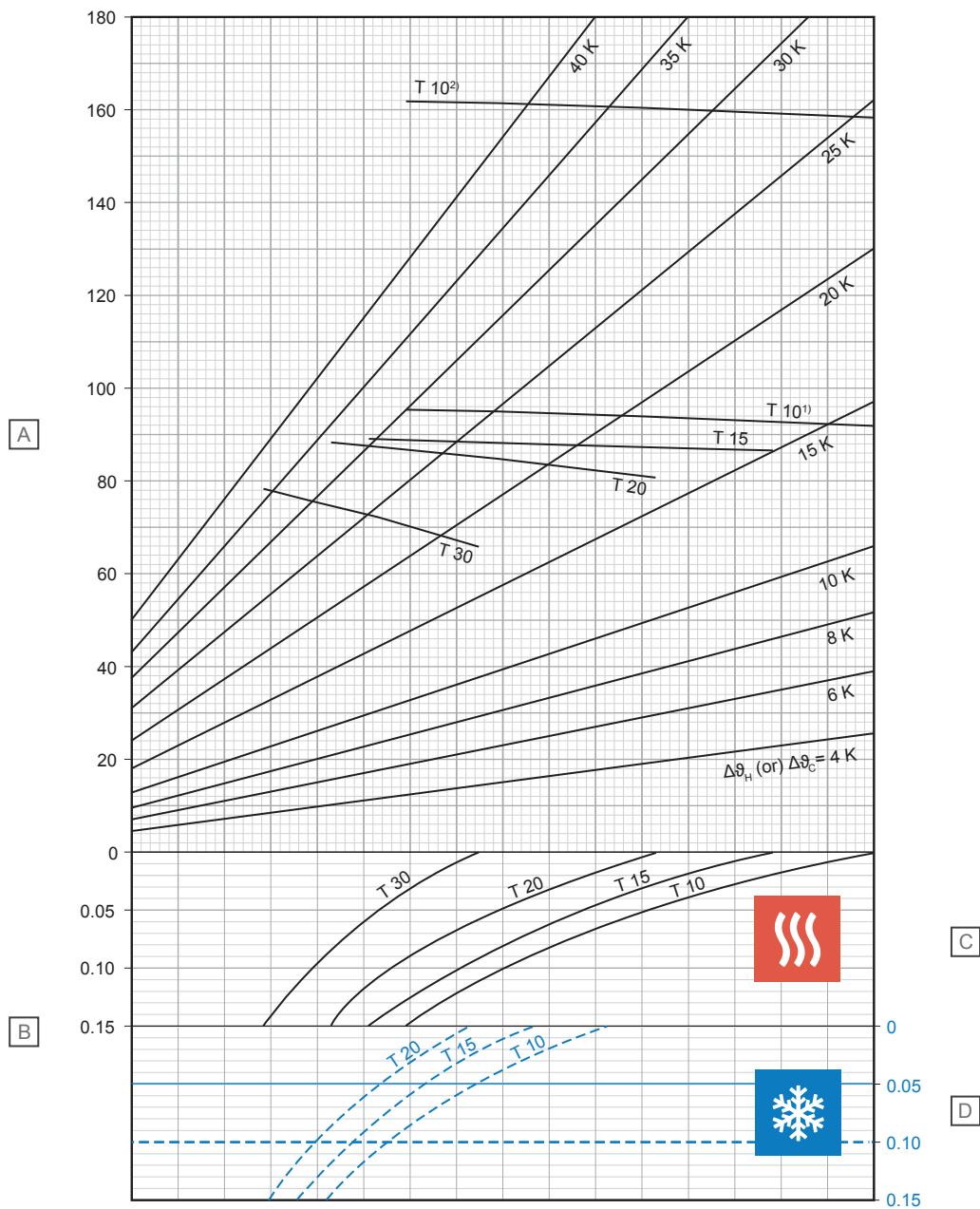
D - Cooling

T (cm)	q_C (W/m^2)	$\Delta\vartheta_{C,N}$ (K)
10	31,3	8
15	28,2	8
20	25,5	8

¹⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,max}$ 29 °C or ϑ_i 24 °C and $\vartheta_{F,max}$ 33 °C

²⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,max}$ 35 °C

Uponor Comfort Pipe PLUS 17 x 2,0 mm with screed load distribution layer (su = 35 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000306

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output $[q_H \text{ or } q_C]$
B	$\text{m}^2\text{K/W}$	Thermal resistance $[R_{\lambda,B}]$
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\vartheta_{H,N} (\text{K})$
10	92,2	13,4
15	86,2	14,6
20	80,1	15,7
30	64,7	17,0

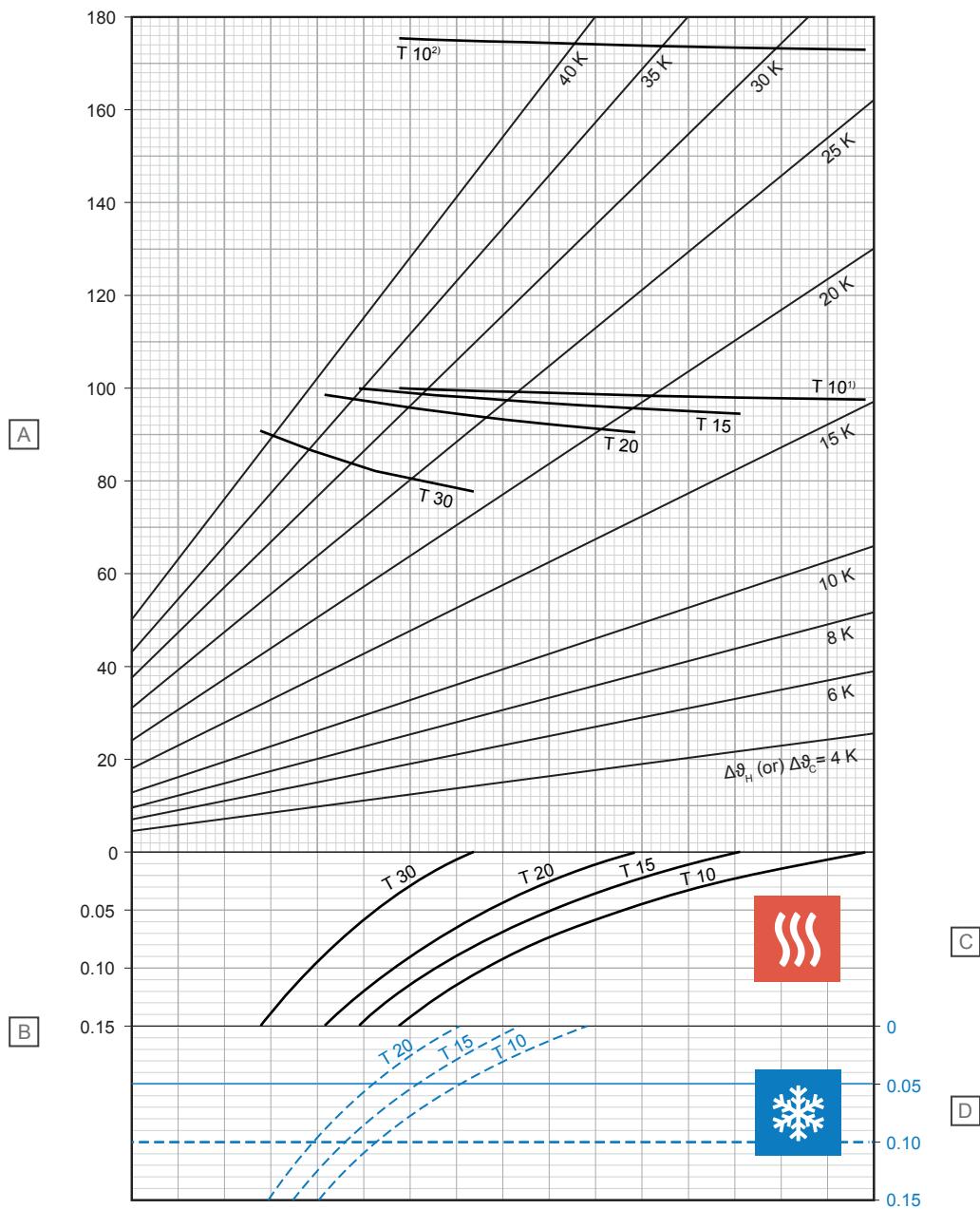
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\vartheta_{C,N} (\text{K})$
10	37,6	8
15	33,5	8
25	26,6	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Comfort Pipe PLUS 17 x 2,0 mm with screed load distribution layer (su = 45 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000307

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\vartheta_{H,N} (\text{K})$
10	97,7	15,1
15	94,6	16,9
20	90,4	18,6
30	76,7	20,9

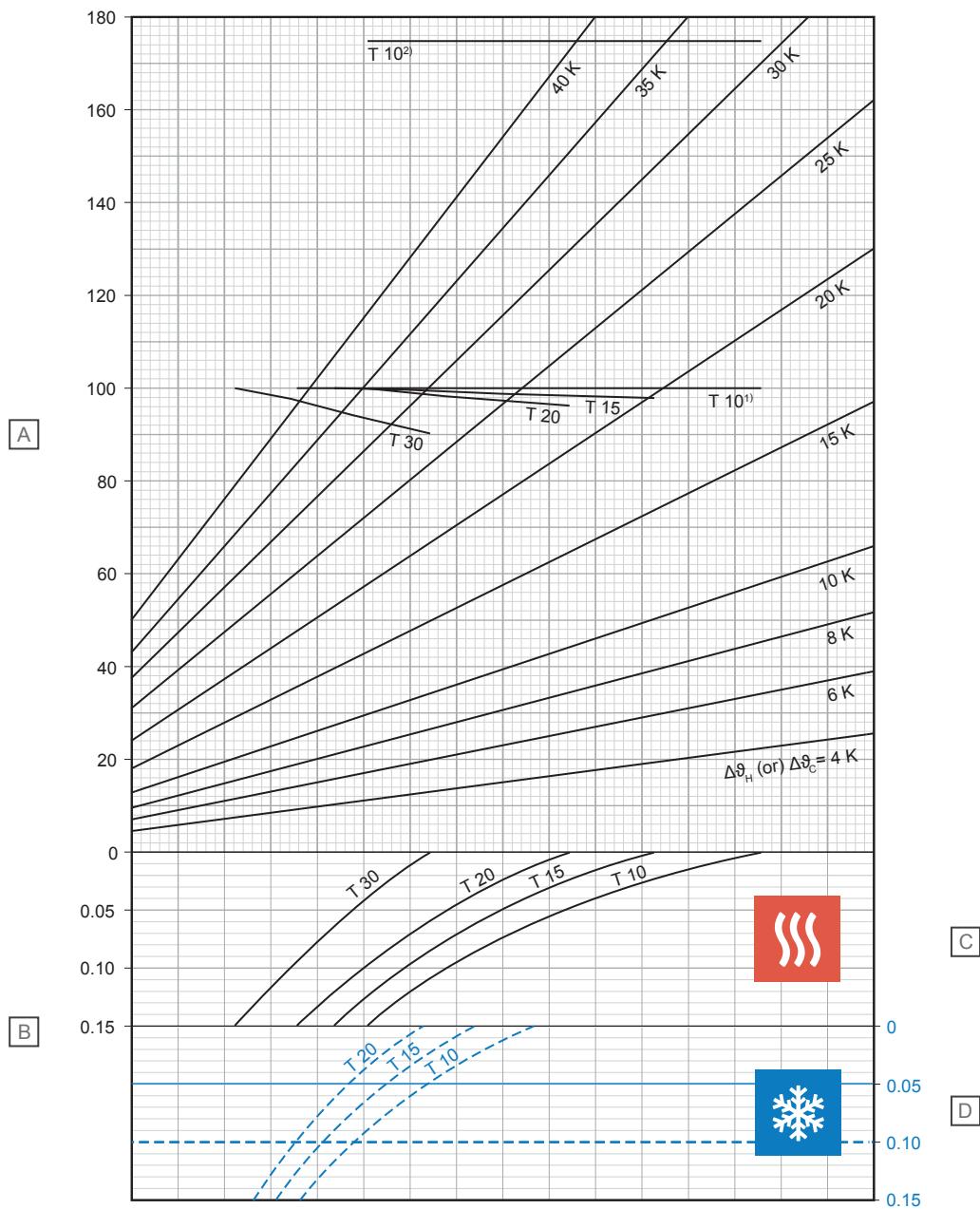
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\vartheta_{C,N} (\text{K})$
10	36,0	8
15	32,1	8
20	28,7	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Comfort Pipe PLUS 17 x 2,0 mm with screed load distribution layer (su = 65 mm with $\lambda_u = 1,2 \text{ W/mK}$)



Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	100,0	17,5
15	98,0	19,6
20	96,3	21,9
30	90,0	26,6

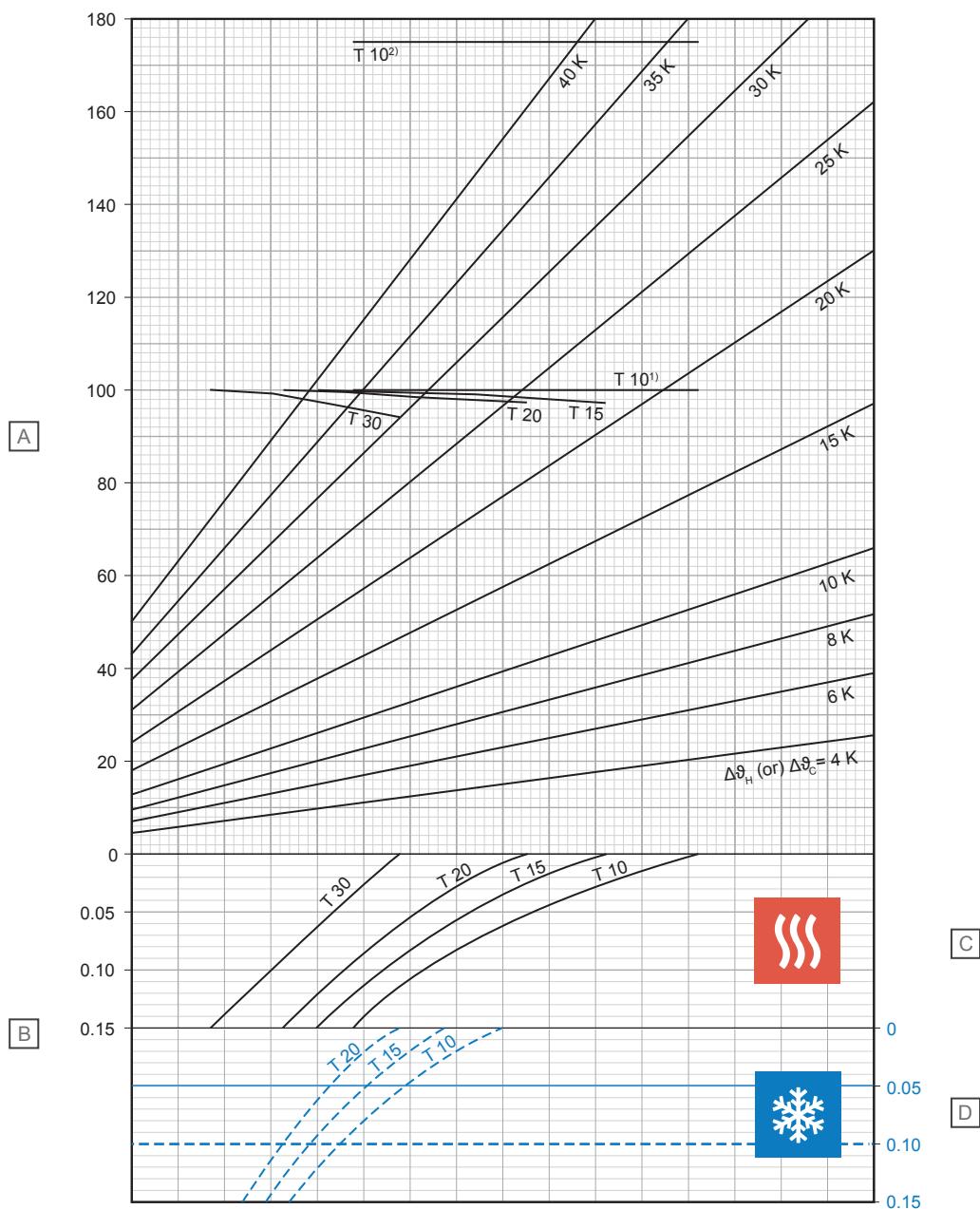
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	32,9	8
15	29,6	8
20	26,7	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Comfort Pipe PLUS 17 x 2,0 mm with screed load distribution layer (su = 75 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000309

Item	Unit	Description
A	W/m ²	Specific thermal heating or cooling output [q_H or q_C]
B	m ² K/W	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	q_H (W/m ²)	$\Delta\theta_{H,N}$ (K)
10	100,0	18,6
15	98,7	20,8
20	97,3	23,3
30	93,5	28,7

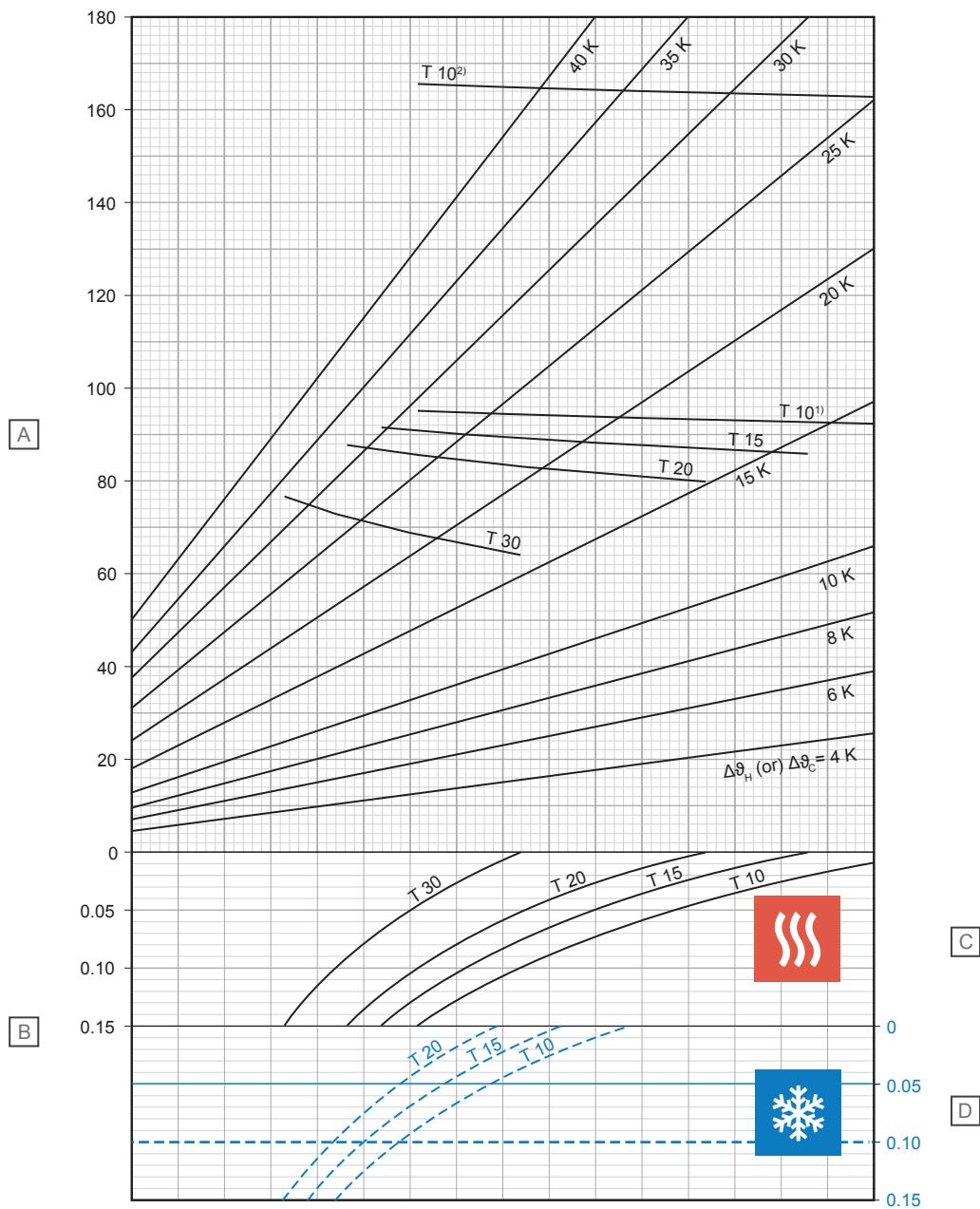
D - Cooling

T (cm)	q_C (W/m ²)	$\Delta\theta_{C,N}$ (K)
10	31,4	8
15	28,4	8
20	25,7	8

¹⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,\max}$ 29 °C or ϑ_i 24 °C and $\vartheta_{F,\max}$ 33 °C

²⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,\max}$ 35 °C

Uponor Comfort Pipe PLUS 20 x 2,0 mm with screed load distribution layer (su = 35 mm with $\lambda_u = 1,2 \text{ W/mK}$)



DI0000310

Item	Unit	Description
A	W/m ²	Specific thermal heating or cooling output [q_H or q_C]
B	m ² K/W	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	q_H (W/m ²)	$\Delta\theta_{H,N}$ (K)
10	92,1	13,1
15	85,9	14,1
20	79,7	15,1
30	63,8	16,1

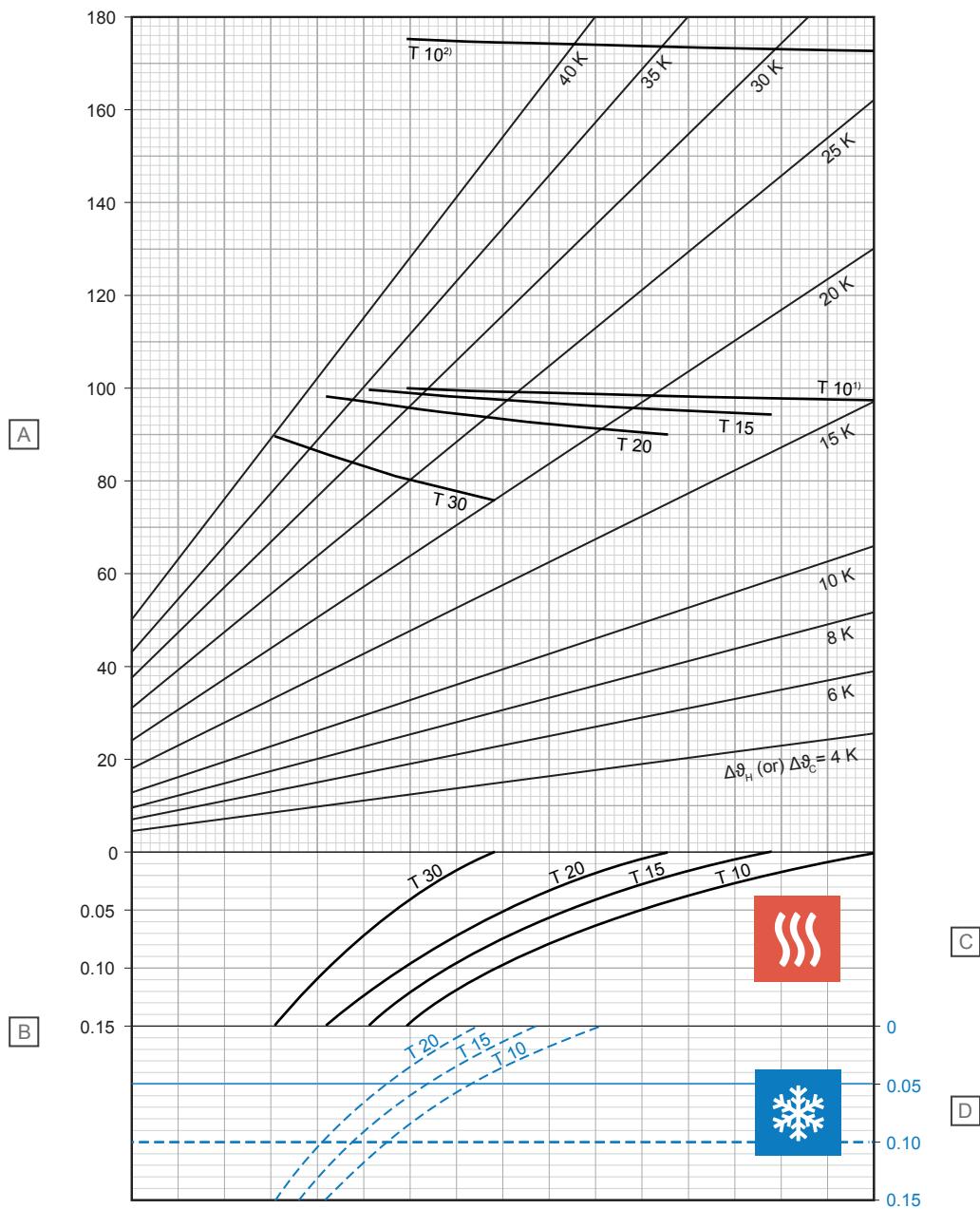
D - Cooling

T (cm)	q_C (W/m ²)	$\Delta\theta_{C,N}$ (K)
10	38,2	8
15	34,2	8
20	30,6	8

¹⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,max}$ 29 °C or ϑ_i 24 °C and $\vartheta_{F,max}$ 33 °C

²⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,max}$ 35 °C

Uponor Comfort Pipe PLUS 20 x 2,0 mm with screed load distribution layer (su = 45 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000311

Item	Unit	Description
A	W/m ²	Specific thermal heating or cooling output [q_H or q_C]
B	m ² K/W	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	q_H (W/m ²)	$\Delta\vartheta_{H,N}$ (K)
10	97,6	14,8
15	94,4	16,4
20	90,0	17,9
30	75,7	19,9

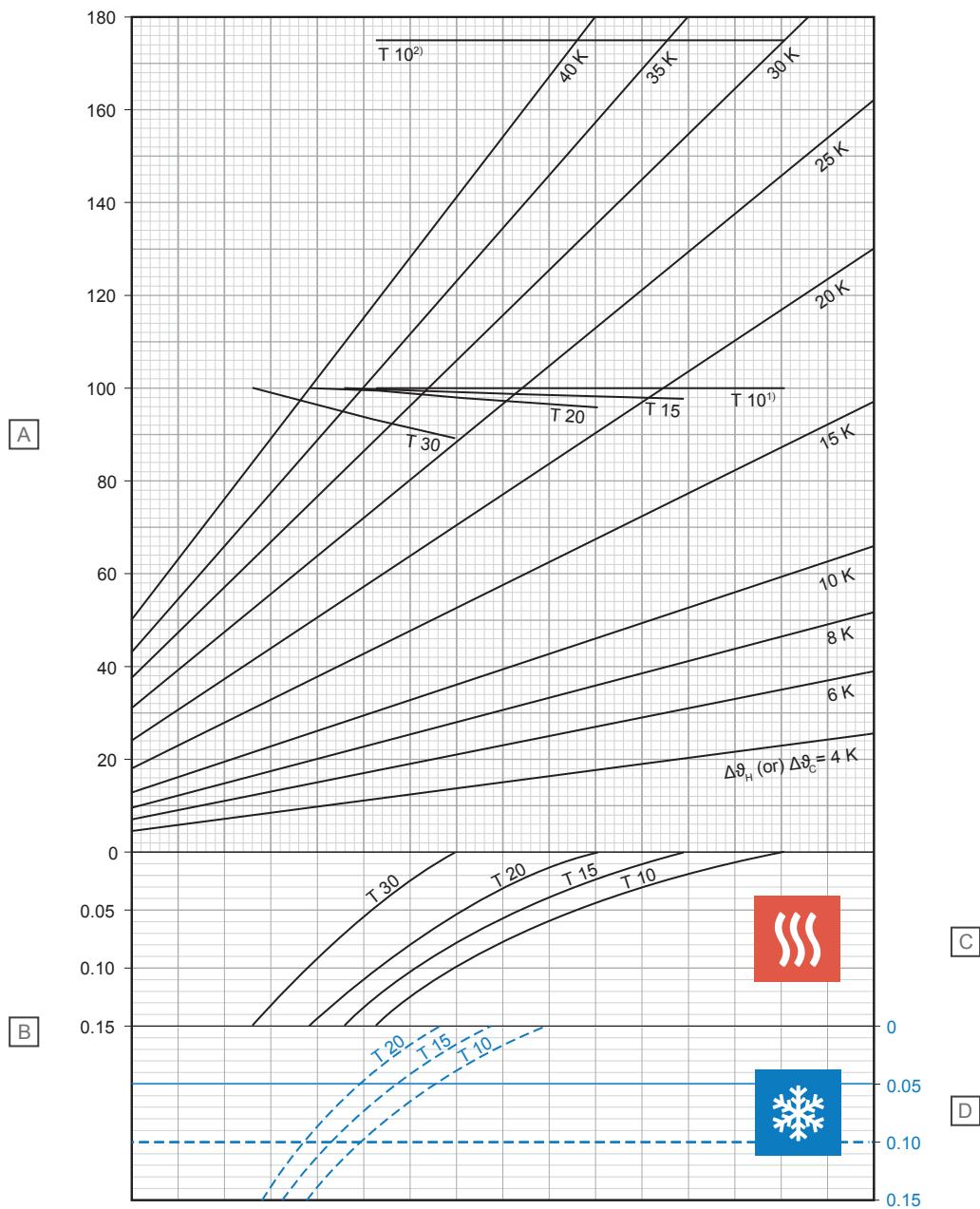
D - Cooling

T (cm)	q_C (W/m ²)	$\Delta\vartheta_{C,N}$ (K)
10	36,6	8
15	32,9	8
20	29,5	8

¹⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,max}$ 29 °C or ϑ_i 24 °C and $\vartheta_{F,max}$ 33 °C

²⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,max}$ 35 °C

Uponor Comfort Pipe PLUS 20 x 2,0 mm with screed load distribution layer (su = 65 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000312

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	100,0	17,1
15	97,9	19,0
20	96,0	21,1
30	89,2	25,3

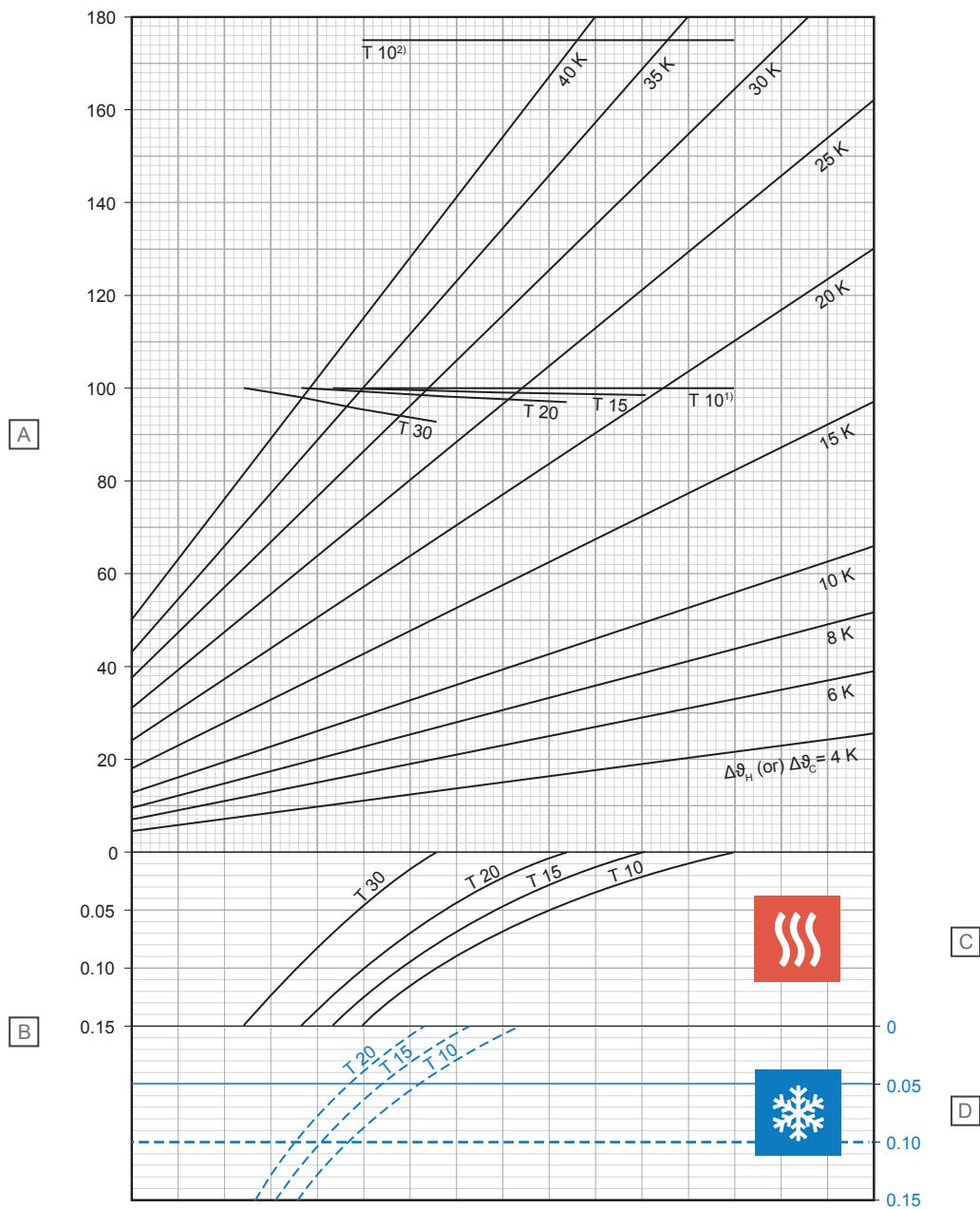
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	33,4	8
15	30,3	8
20	27,4	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Comfort Pipe PLUS 20 x 2,0 mm with screed load distribution layer (su = 75 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D0000313

Item	Unit	Description
A	W/m ²	Specific thermal heating or cooling output [q_H or q_C]
B	m ² K/W	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	q_H (W/m ²)	$\Delta\vartheta_{H,N}$ (K)
10	100,0	18,2
15	98,7	20,2
20	97,1	22,5
30	92,9	27,4

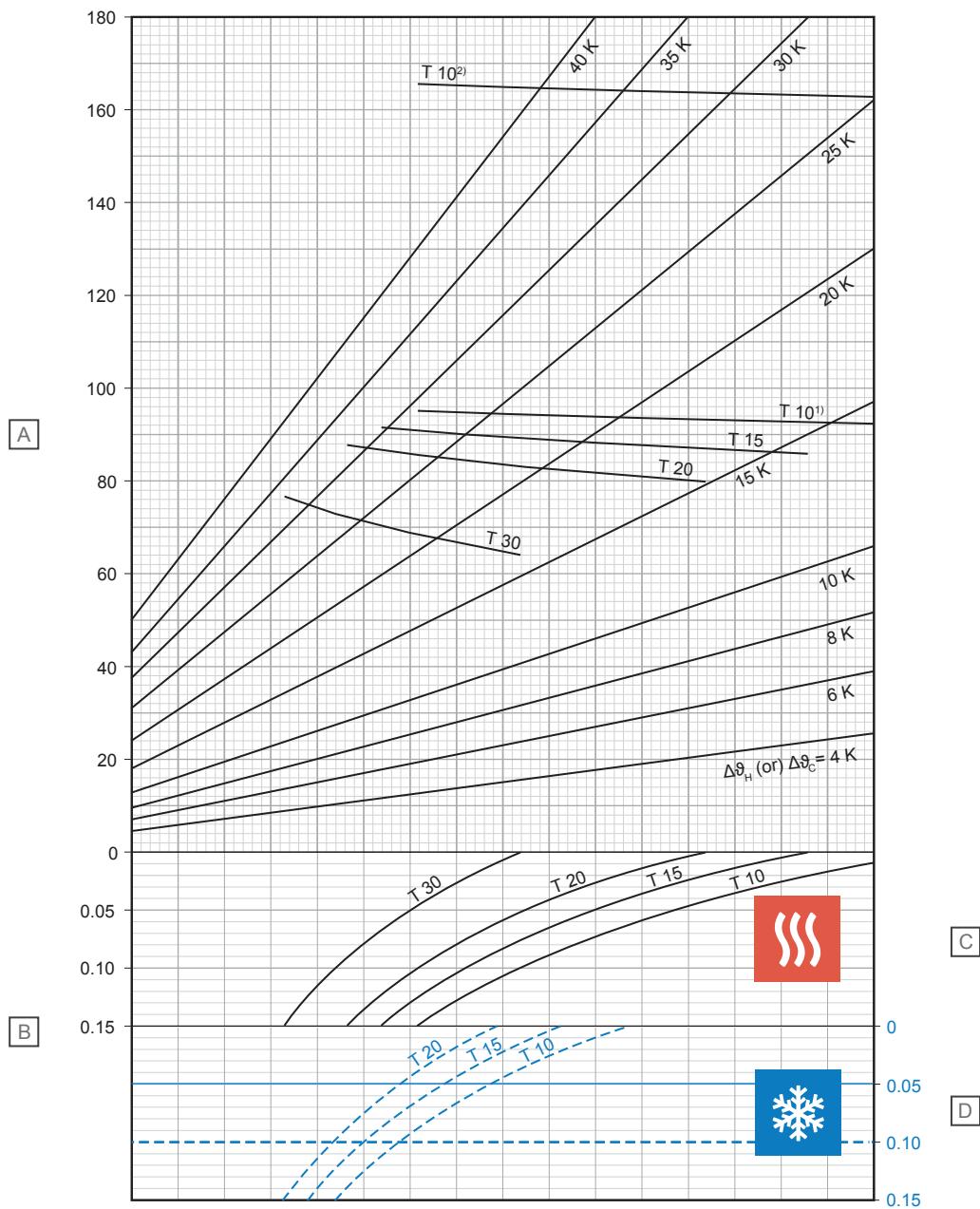
D - Cooling

T (cm)	q_C (W/m ²)	$\Delta\vartheta_{C,N}$ (K)
10	32,0	8
15	29,1	8
20	26,4	8

¹⁾ Limit curve valid for $\vartheta_i = 20^\circ\text{C}$ and $\vartheta_{F,max} = 29^\circ\text{C}$ or $\vartheta_i = 24^\circ\text{C}$ and $\vartheta_{F,max} = 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i = 20^\circ\text{C}$ and $\vartheta_{F,max} = 35^\circ\text{C}$

Uponor Magna Pipe PLUS 20 x 2,0 mm with screed load distribution layer (su = 35 mm with $\lambda_u = 1,2 \text{ W/mK}$)



Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	92,1	13,1
15	85,9	14,1
20	79,7	15,1
30	63,8	16,1

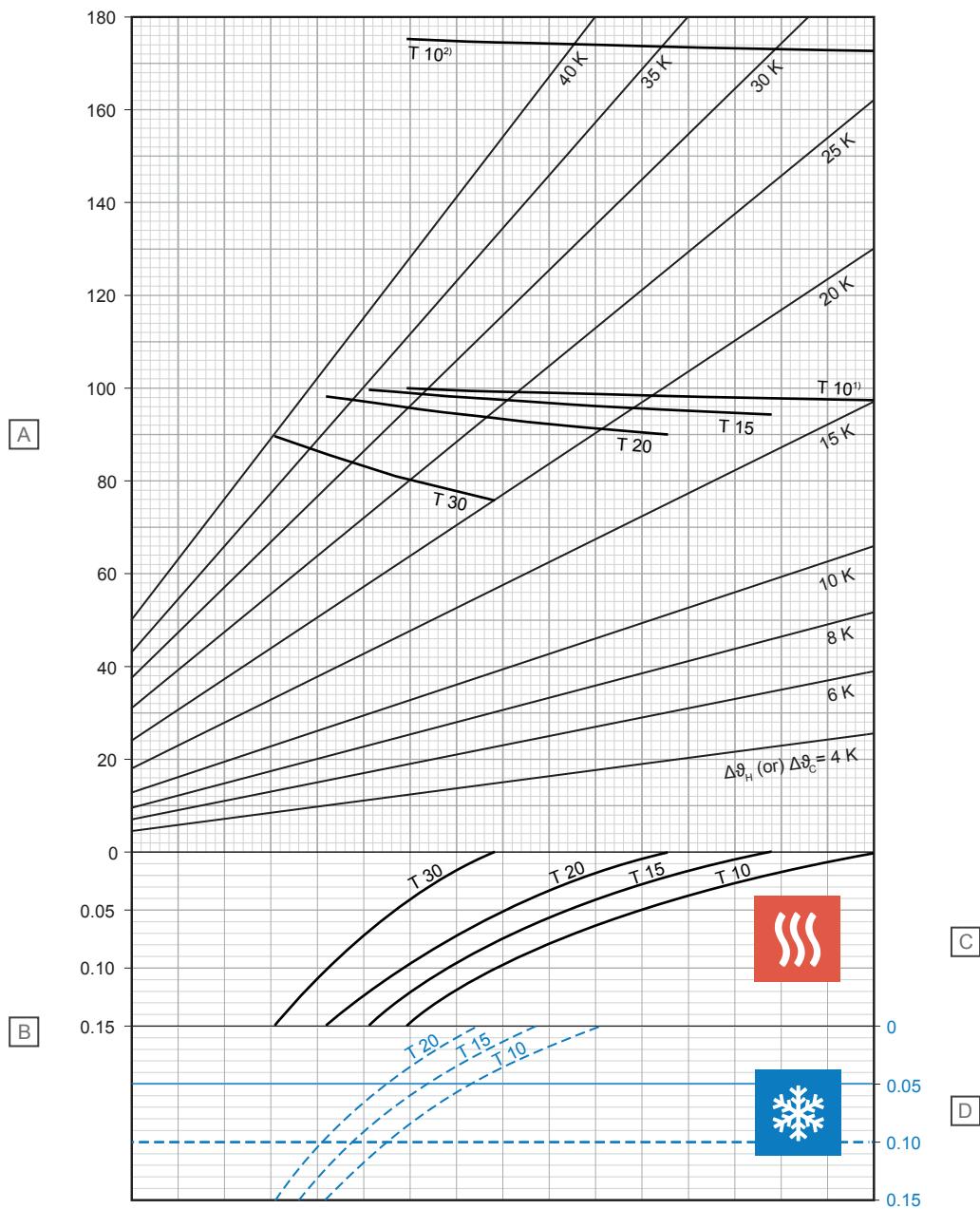
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	38,2	8
15	34,2	8
20	30,6	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Magna Pipe PLUS 20 x 2,0 mm with screed load distribution layer (su = 45 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000311

Item	Unit	Description
A	W/m ²	Specific thermal heating or cooling output [q _H or q _C]
B	m ² K/W	Thermal resistance [R _{A,B}]
C - Heating		
T (cm)	q _H (W/m ²)	Δθ _{H,N} (K)
10	97,6	14,8
15	94,4	16,4
20	90,0	17,9
30	75,7	19,9

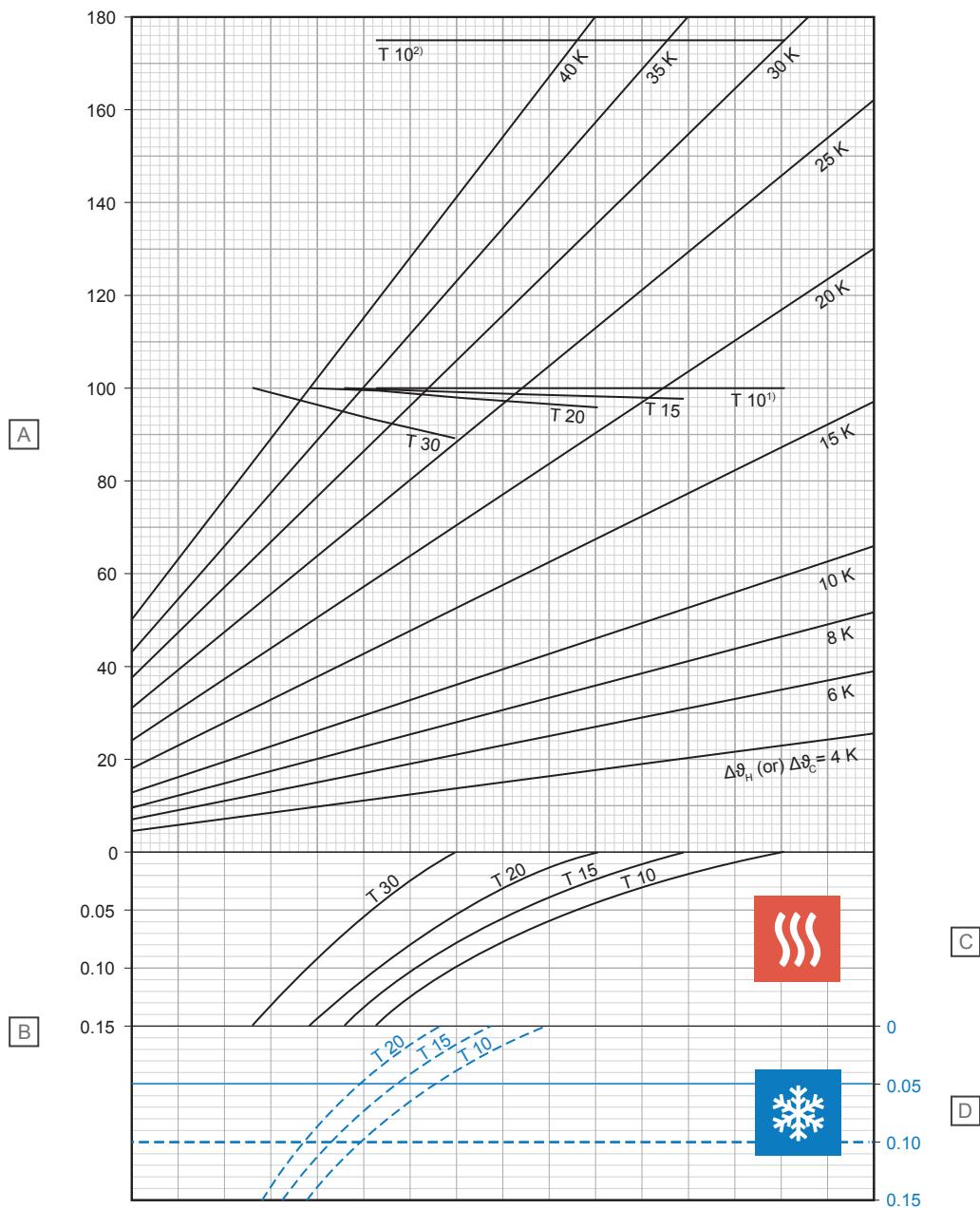
D - Cooling

T (cm)	q _C (W/m ²)	Δθ _{C,N} (K)
10	36,6	8
15	32,9	8
20	29,5	8

¹⁾ Limit curve valid for θ_i 20 °C and θ_{F,max} 29 °C or θ_i 24 °C and θ_{F,max} 33 °C

²⁾ Limit curve valid for θ_i 20 °C and θ_{F,max} 35 °C

Uponor Magna Pipe PLUS 20 x 2,0 mm with screed load distribution layer (su = 65 mm with $\lambda_u = 1,2 \text{ W/mK}$)



Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	100,0	17,1
15	97,9	19,0
20	96,0	21,1
30	89,2	25,3

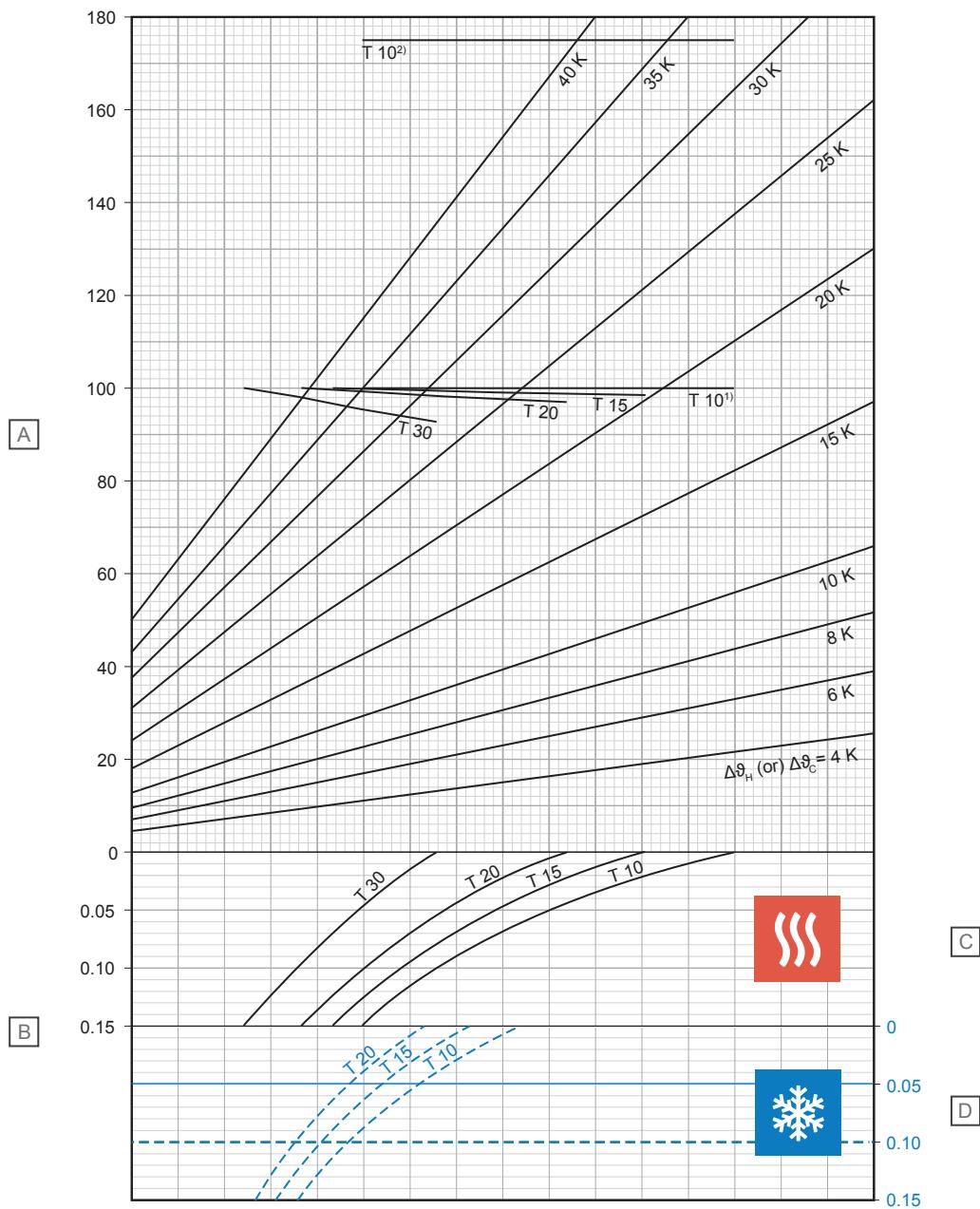
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	33,4	8
15	30,3	8
20	27,4	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Magna Pipe PLUS 20 x 2,0 mm with screed load distribution layer (su = 75 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D0000313

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\vartheta_{H,N} (\text{K})$
10	100,0	18,2
15	98,7	20,2
20	97,1	22,5
30	92,9	27,4

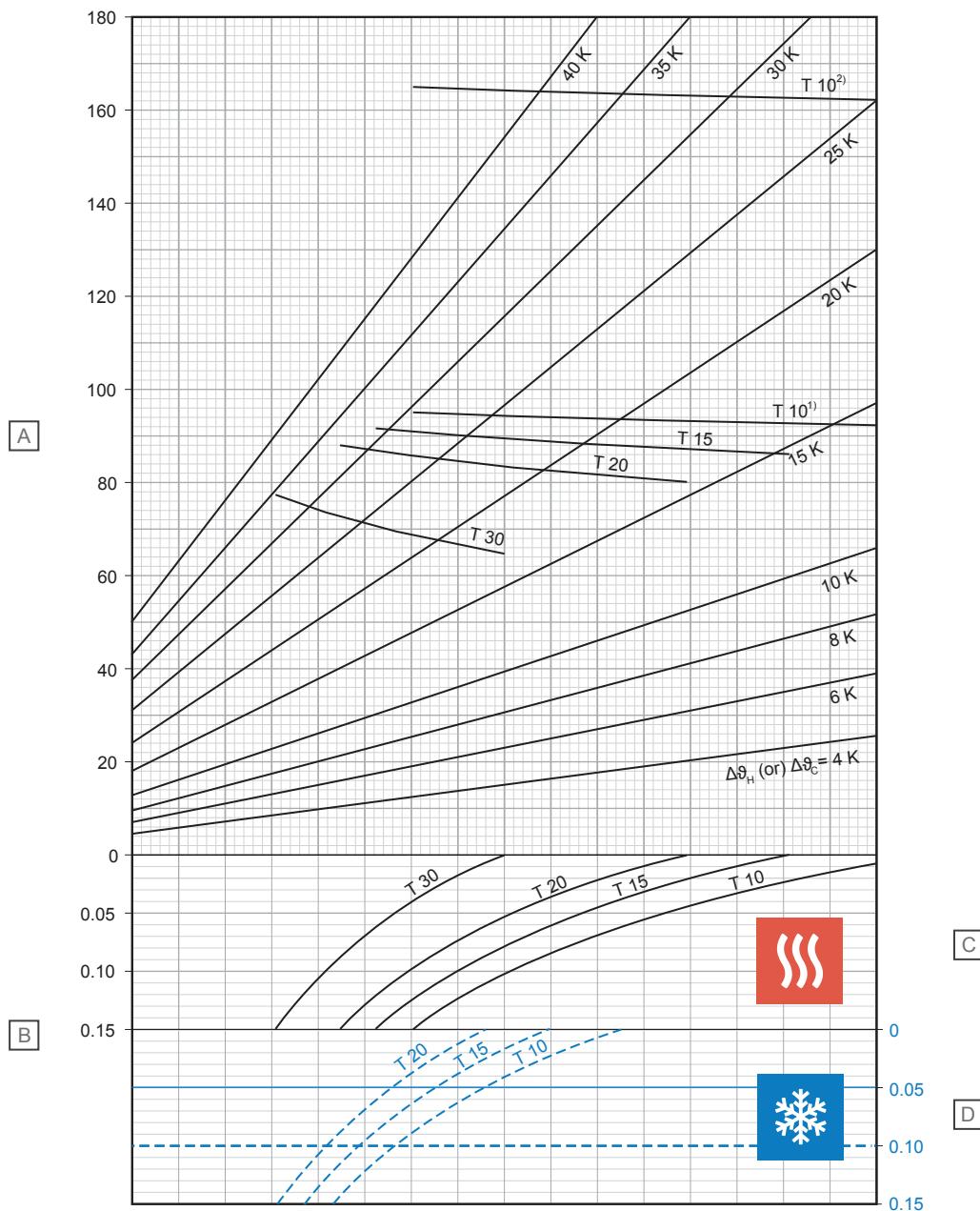
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\vartheta_{C,N} (\text{K})$
10	32,0	8
15	29,1	8
20	26,4	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Comfort Pipe 16 x 1,8 mm with screed load distribution layer (su = 35 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000314

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output $[q_H \text{ or } q_C]$
B	$\text{m}^2\text{K/W}$	Thermal resistance $[R_{A,B}]$
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\vartheta_{H,N} (\text{K})$
10	92,2	13,3
15	86,1	14,5
20	80,1	15,6
30	64,5	16,8

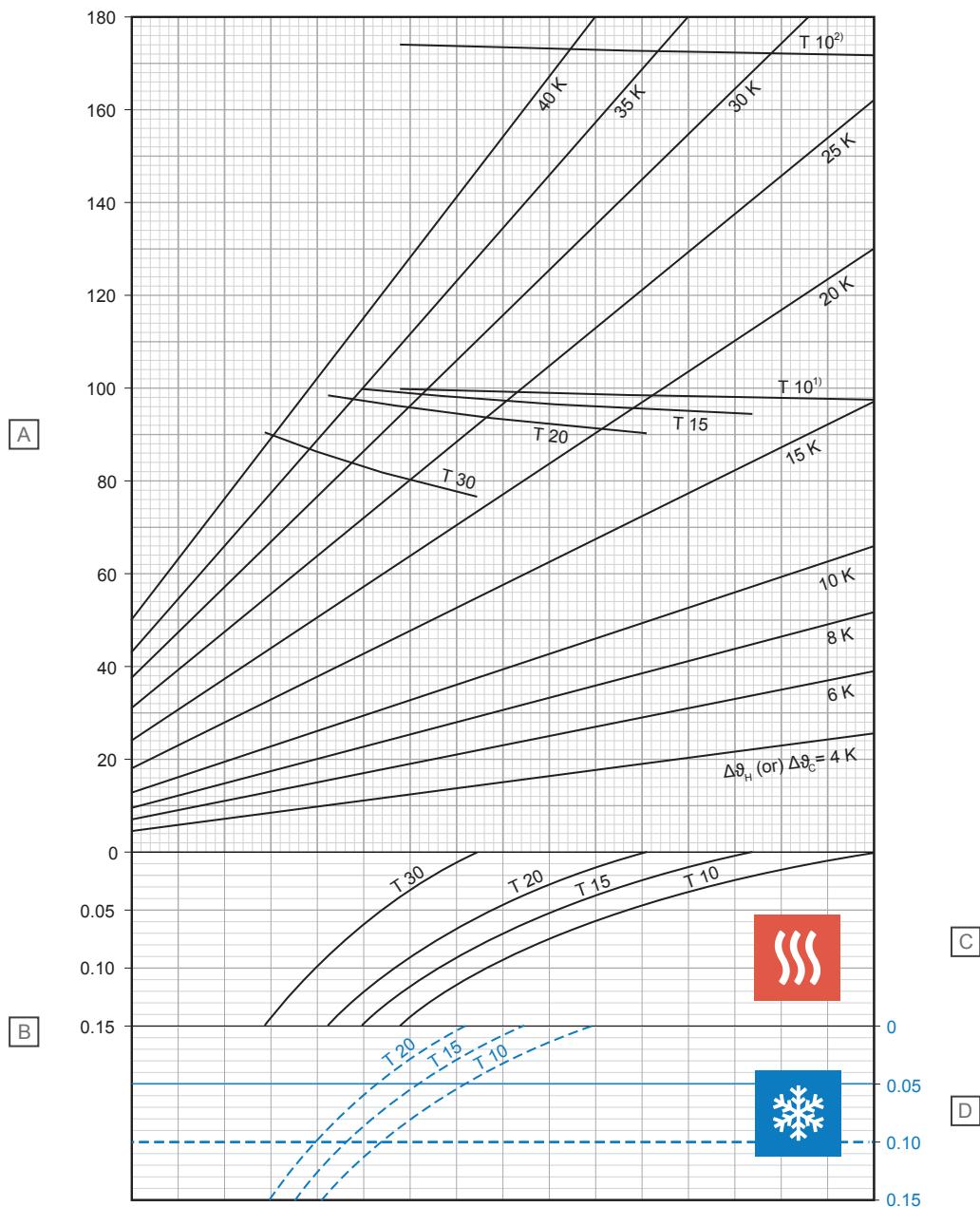
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\vartheta_{C,N} (\text{K})$
10	37,7	8
15	33,6	8
20	29,9	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Comfort Pipe 16 x 1,8 mm with screed load distribution layer (su = 45 mm with $\lambda_u = 1,2 \text{ W/mK}$)



DI0000315

Item	Unit	Description
A	W/m ²	Specific thermal heating or cooling output [q _H or q _C]
B	m ² K/W	Thermal resistance [R _{A,B}]
C - Heating		
T (cm)	q _H (W/m ²)	Δθ _{H,N} (K)
10	97,7	15,0
15	94,6	16,8
20	90,4	18,5
30	76,6	20,8

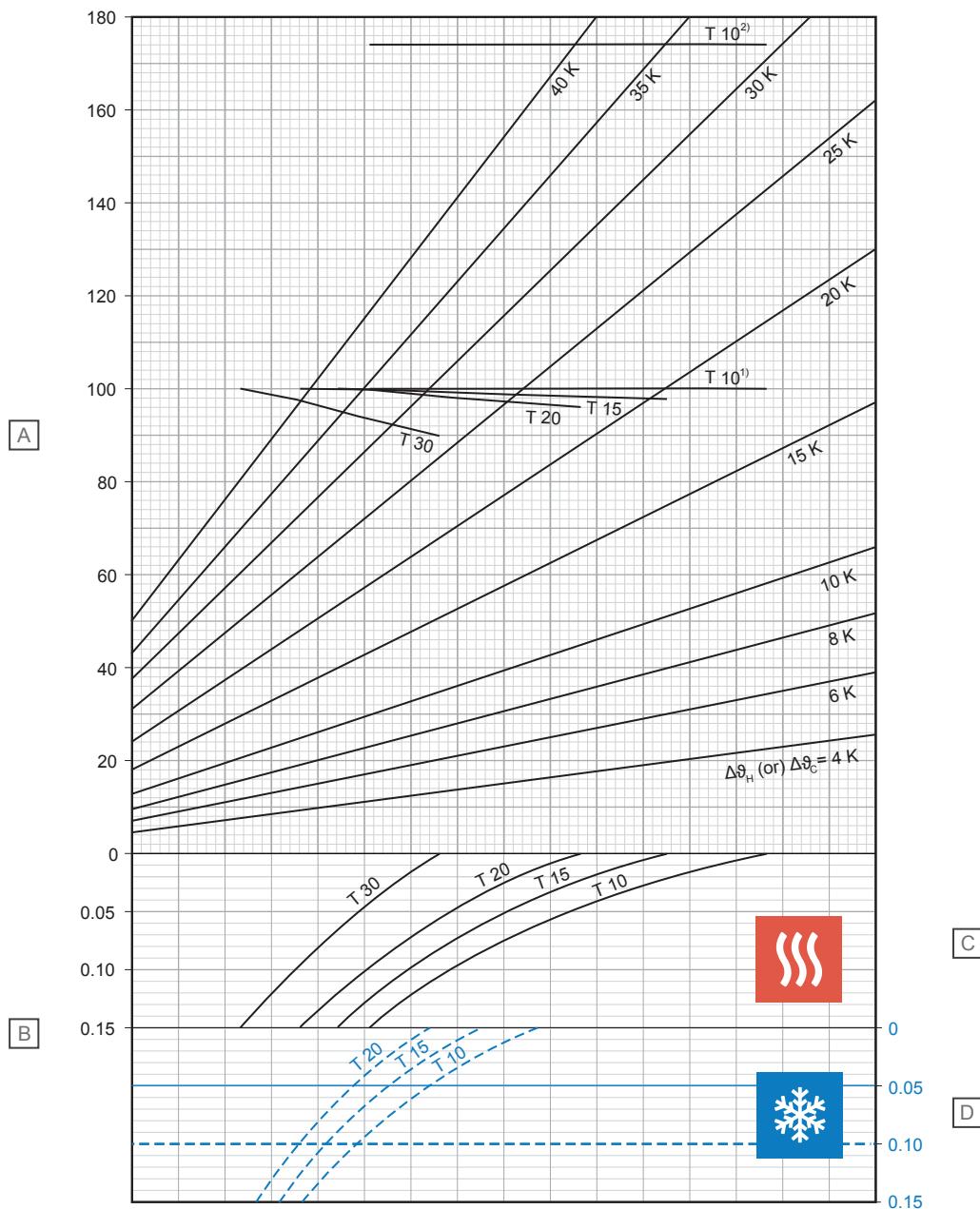
D - Cooling

T (cm)	q _C (W/m ²)	Δθ _{C,N} (K)
10	36,0	8
15	32,2	8
20	28,8	8

¹⁾ Limit curve valid for θ_i 20 °C and θ_{F,max} 29 °C or θ_i 24 °C and θ_{F,max} 33 °C

²⁾ Limit curve valid for θ_i 20 °C and θ_{F,max} 35 °C

Uponor Comfort Pipe 16 x 1,8 mm with screed load distribution layer (su = 65 mm with $\lambda_u = 1,2 \text{ W/mK}$)



Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	100,0	17,5
15	98,0	19,5
20	96,2	21,8
30	89,9	26,4

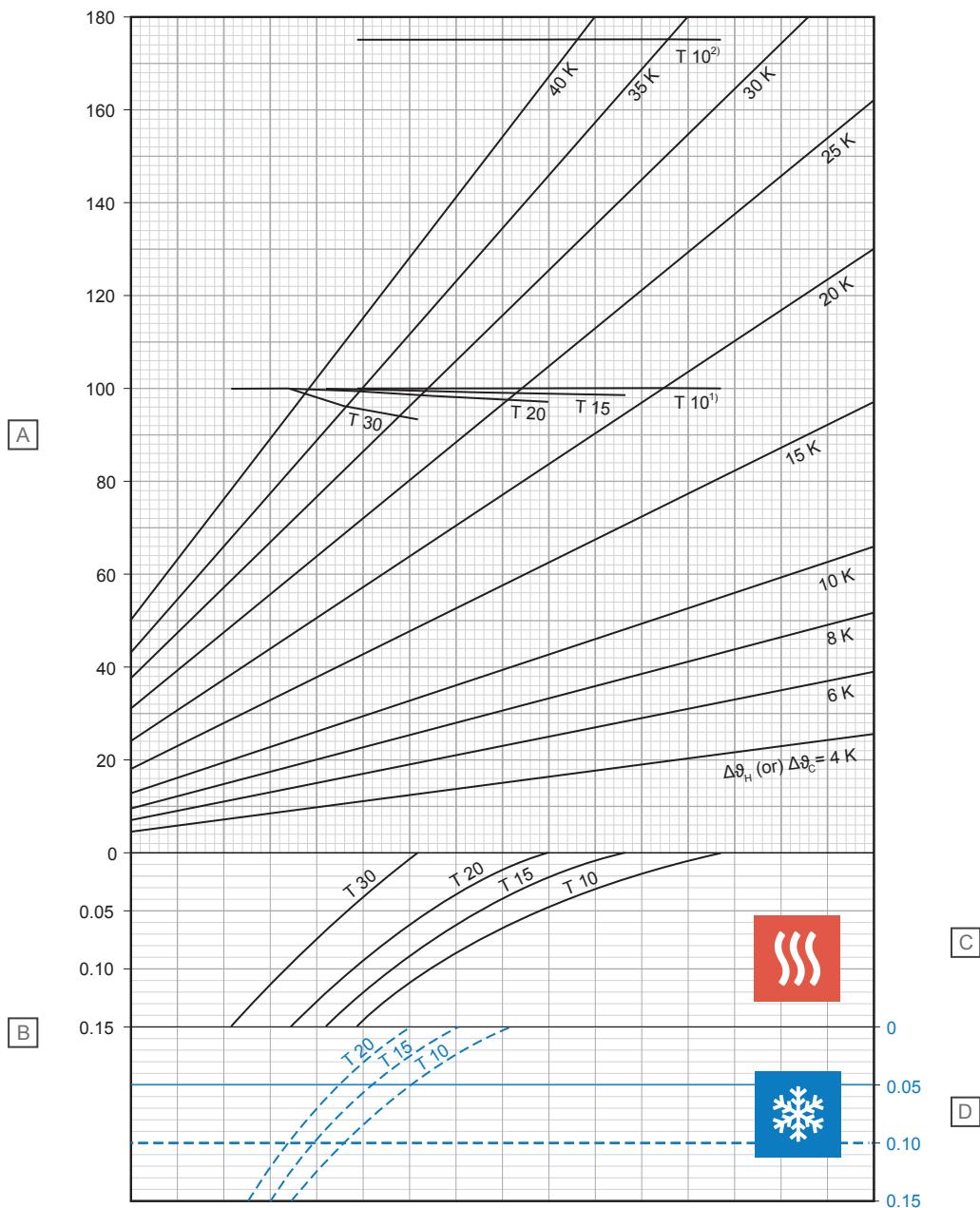
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	32,9	8
15	29,6	8
20	26,7	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Comfort Pipe 16 x 1,8 mm with screed load distribution layer (su = 75 mm with $\lambda_u = 1,2 \text{ W/mK}$)



Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	100,0	18,5
15	98,7	20,8
20	97,3	23,2
30	93,5	28,6

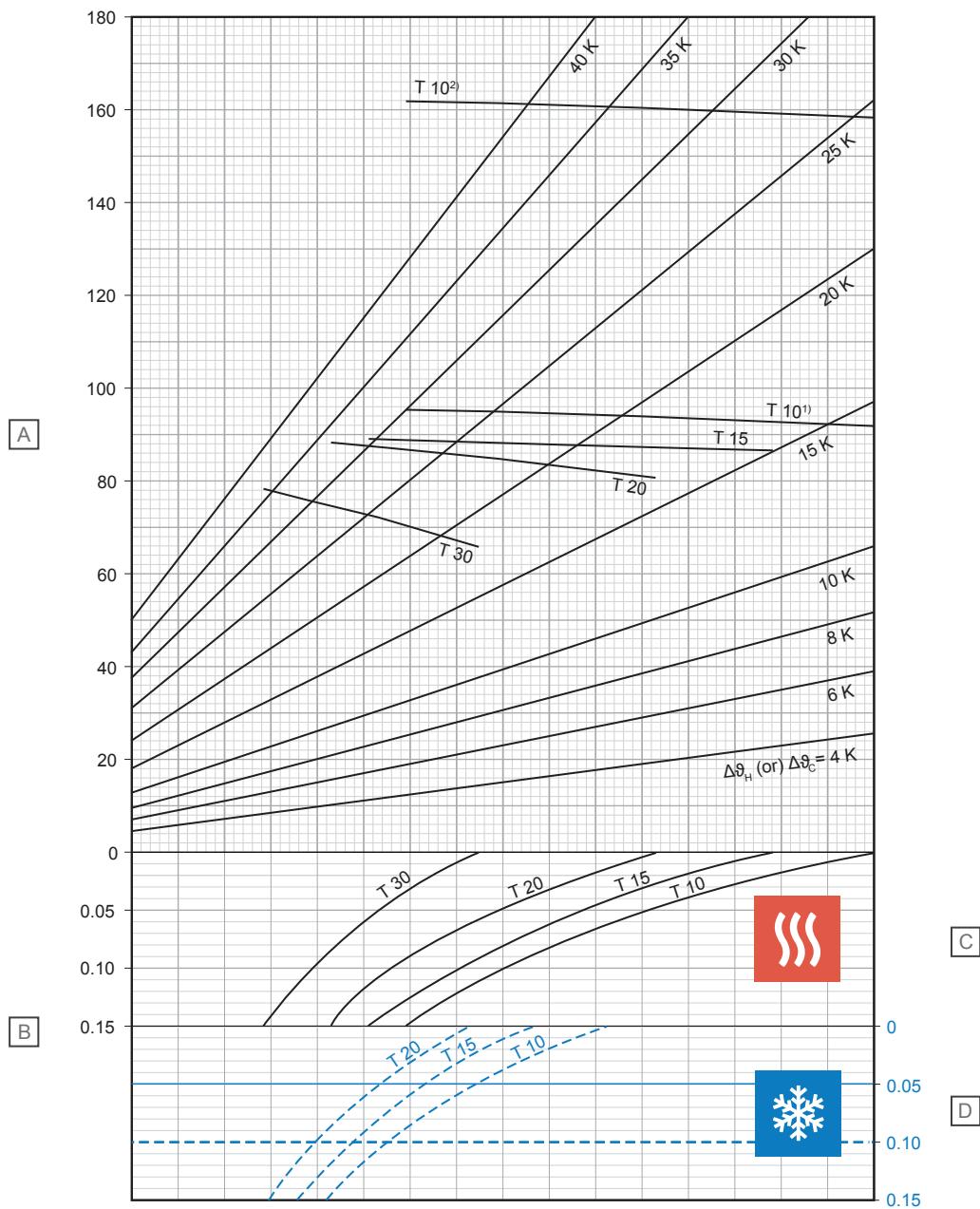
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	31,5	8
15	28,4	8
20	25,7	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Smart UFH-pipe 16 x 2,0 mm with screed load distribution layer (su = 35 mm with $\lambda_u = 1,2 \text{ W/mK}$)



Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	92,2	13,5
15	86,2	14,7
20	80,3	15,9
30	64,9	17,3

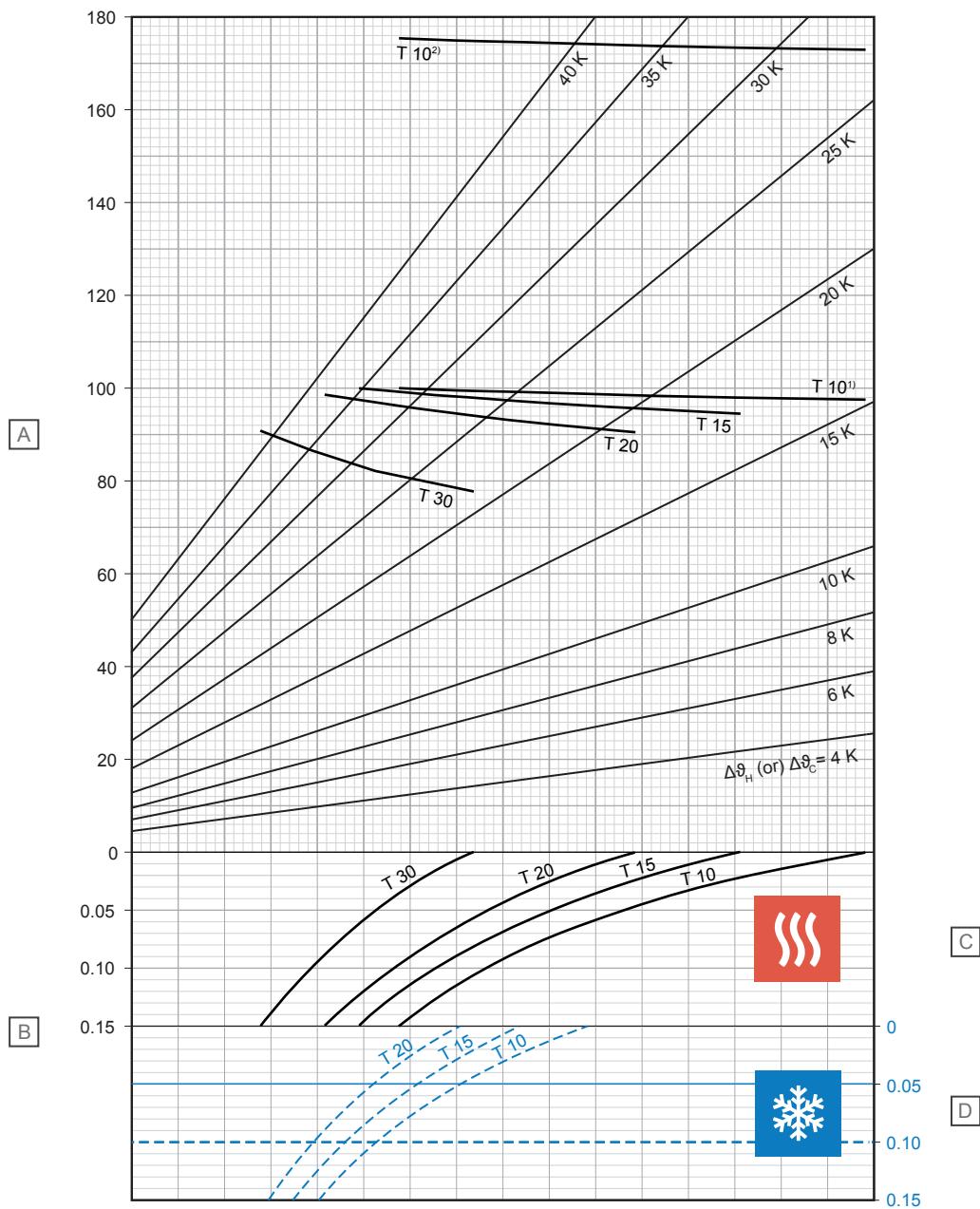
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	37,4	8
15	33,2	8
20	29,6	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Smart UFH-pipe 16 x 2,0 mm with screed load distribution layer (su = 45 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000303

Item	Unit	Description
A	W/m ²	Specific thermal heating or cooling output [q _H or q _C]
B	m ² K/W	Thermal resistance [R _{\lambda,B}]
C - Heating		
T (cm)	q _H (W/m ²)	$\Delta\vartheta_{H,N}$ (K)
10	97,7	15,2
15	94,7	17,1
20	90,6	18,9
30	77,0	21,3

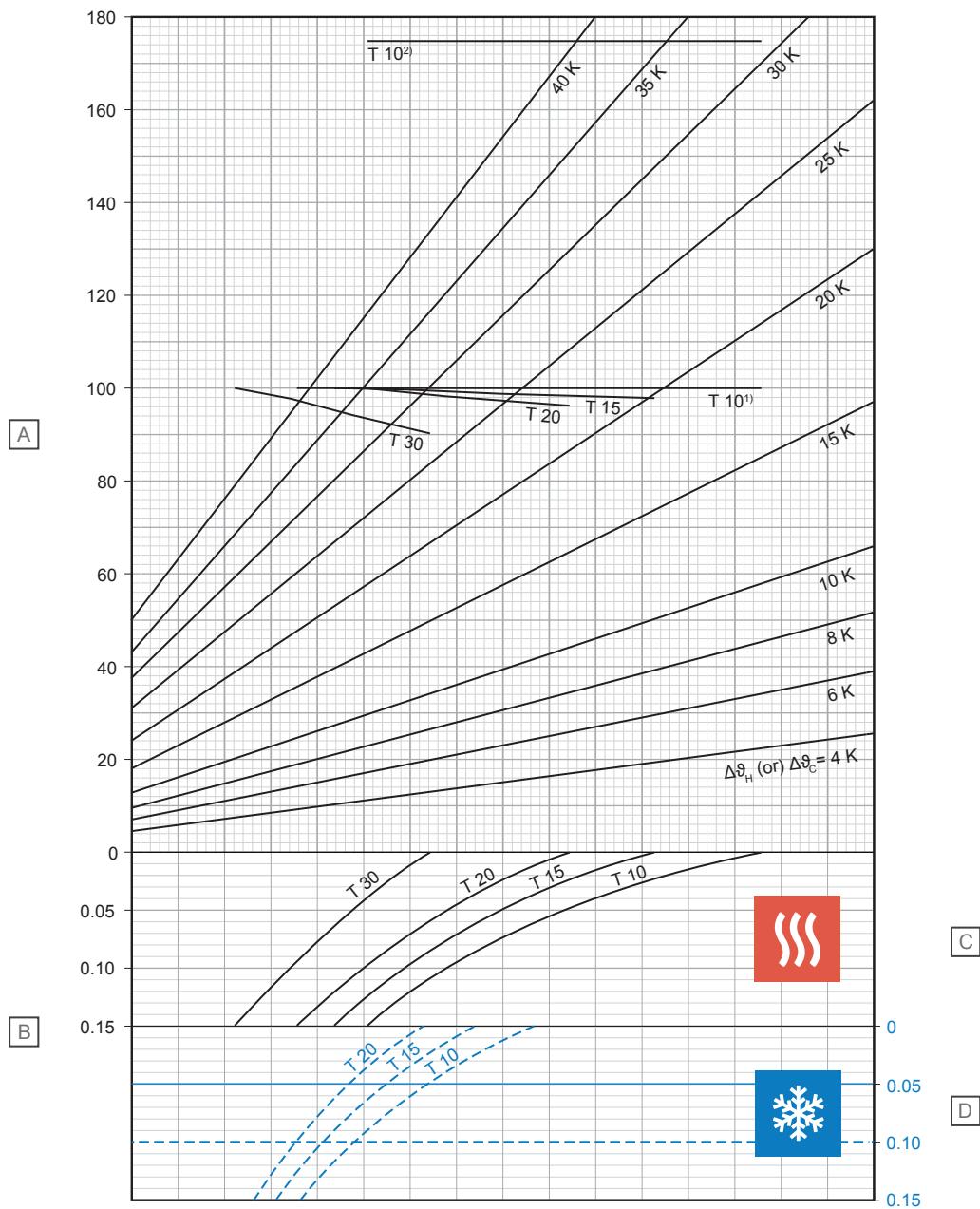
D - Cooling

T (cm)	q _C (W/m ²)	$\Delta\vartheta_{C,N}$ (K)
10	35,8	8
15	31,9	8
20	28,5	8

¹⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,\max}$ 29 °C or ϑ_i 24 °C and $\vartheta_{F,\max}$ 33 °C

²⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,\max}$ 35 °C

Uponor Smart UFH-pipe 16 x 2,0 mm with screed load distribution layer (su = 65 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000304

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\vartheta_{H,N} (\text{K})$
10	100,0	17,6
15	98,0	19,8
20	96,4	22,2
30	90,3	27,0

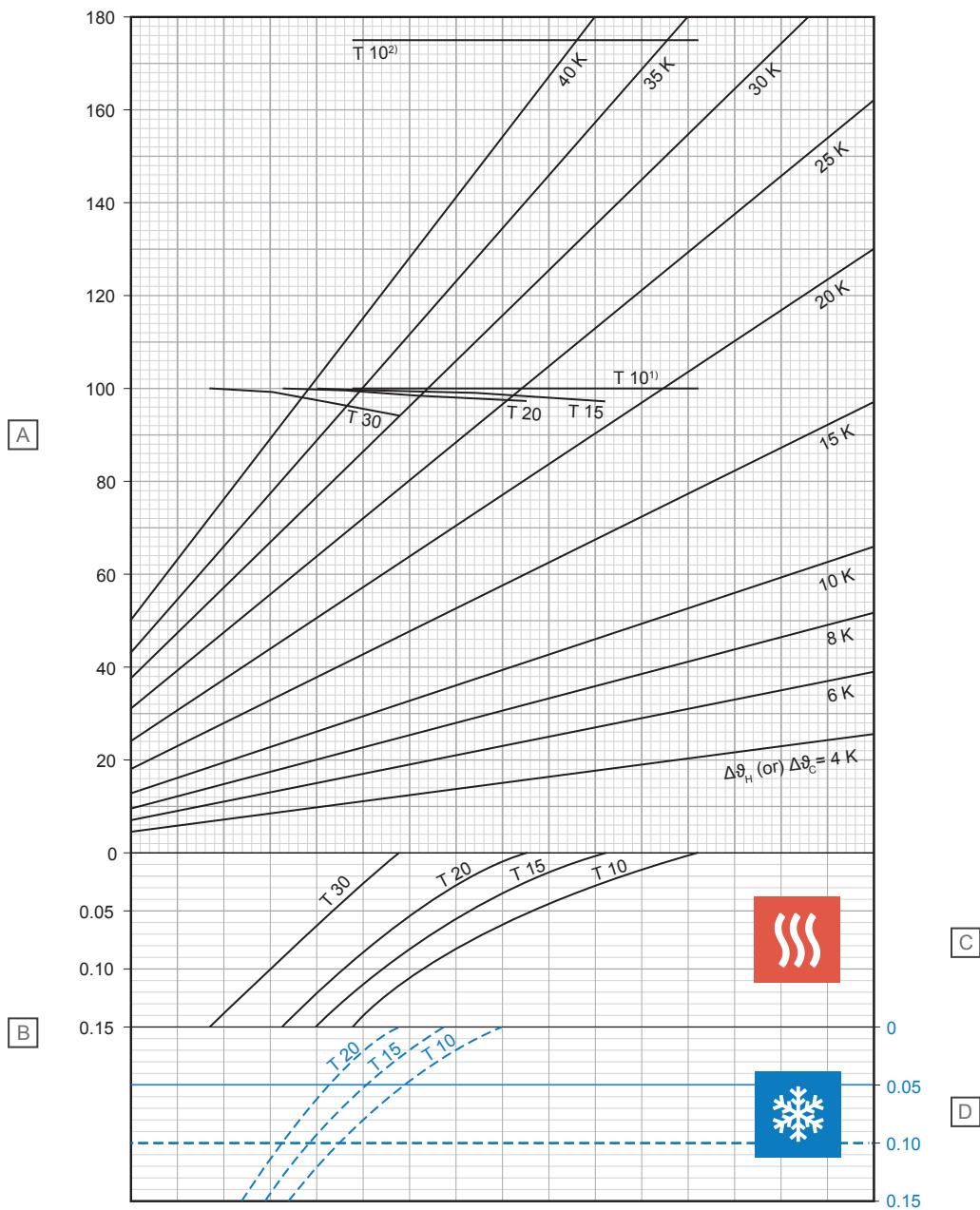
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\vartheta_{C,N} (\text{K})$
10	32,7	8
15	29,4	8
20	26,4	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Smart UFH-pipe 16 x 2,0 mm with screed load distribution layer (su = 75 mm with $\lambda_u = 1,2 \text{ W/mK}$)



D10000305

Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{\lambda,B}$]
C - Heating		
T (cm)	q_H (W/m^2)	$\Delta\vartheta_{H,N}$ (K)
10	100,0	18,7
15	98,8	21,1
20	97,3	23,6
30	93,8	29,1

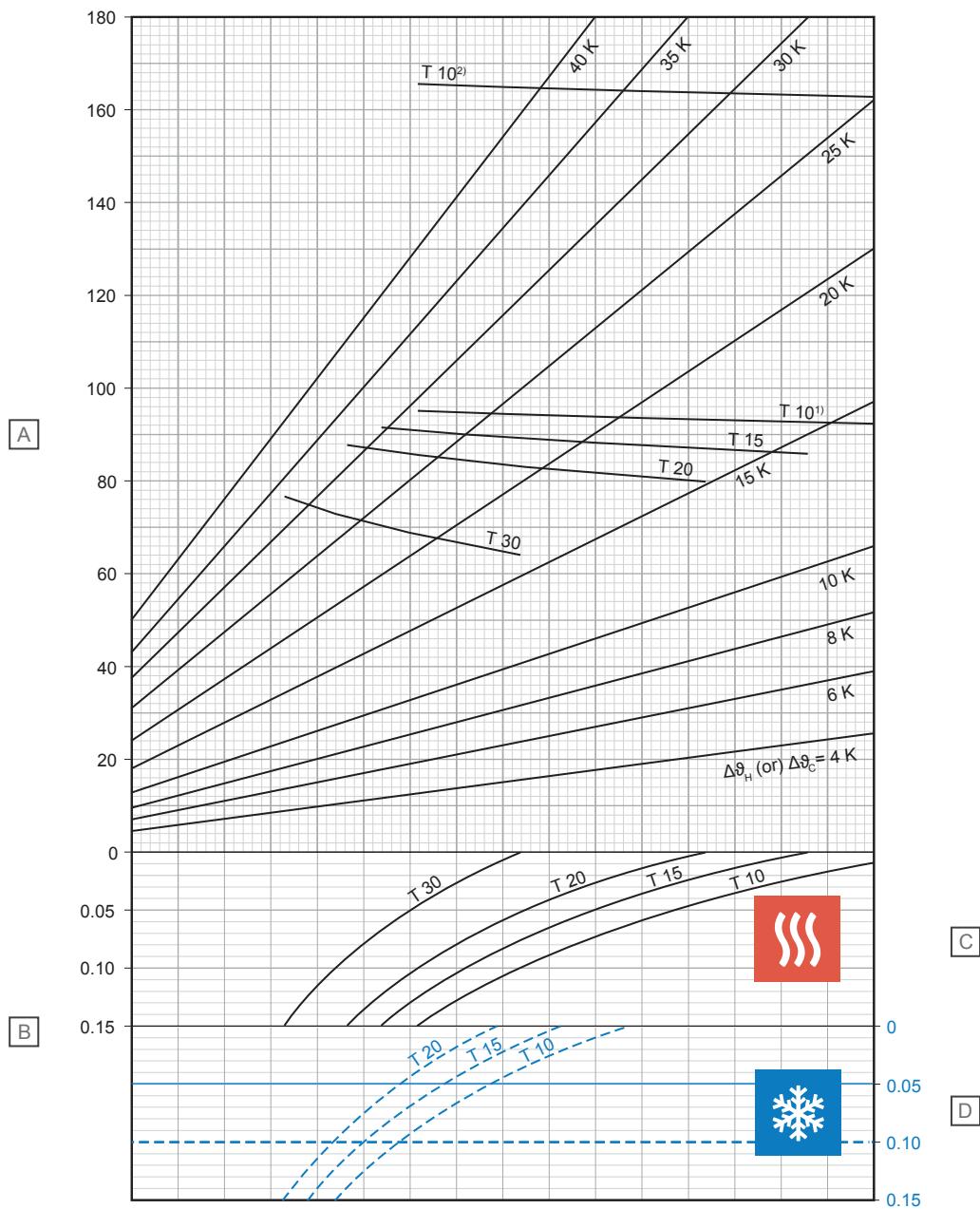
D - Cooling

T (cm)	q_C (W/m^2)	$\Delta\vartheta_{C,N}$ (K)
10	31,3	8
15	28,2	8
20	25,5	8

¹⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,\max}$ 29 °C or ϑ_i 24 °C and $\vartheta_{F,\max}$ 33 °C

²⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,\max}$ 35 °C

Uponor Smart UFH-pipe 20 x 2,0 mm with screed load distribution layer (su = 35 mm with $\lambda_u = 1,2 \text{ W/mK}$)



DI0000310

Item	Unit	Description
A	W/m ²	Specific thermal heating or cooling output [q_H or q_C]
B	m ² K/W	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	q_H (W/m ²)	$\Delta\theta_{H,N}$ (K)
10	92,1	13,1
15	85,9	14,1
20	79,7	15,1
30	63,8	16,1

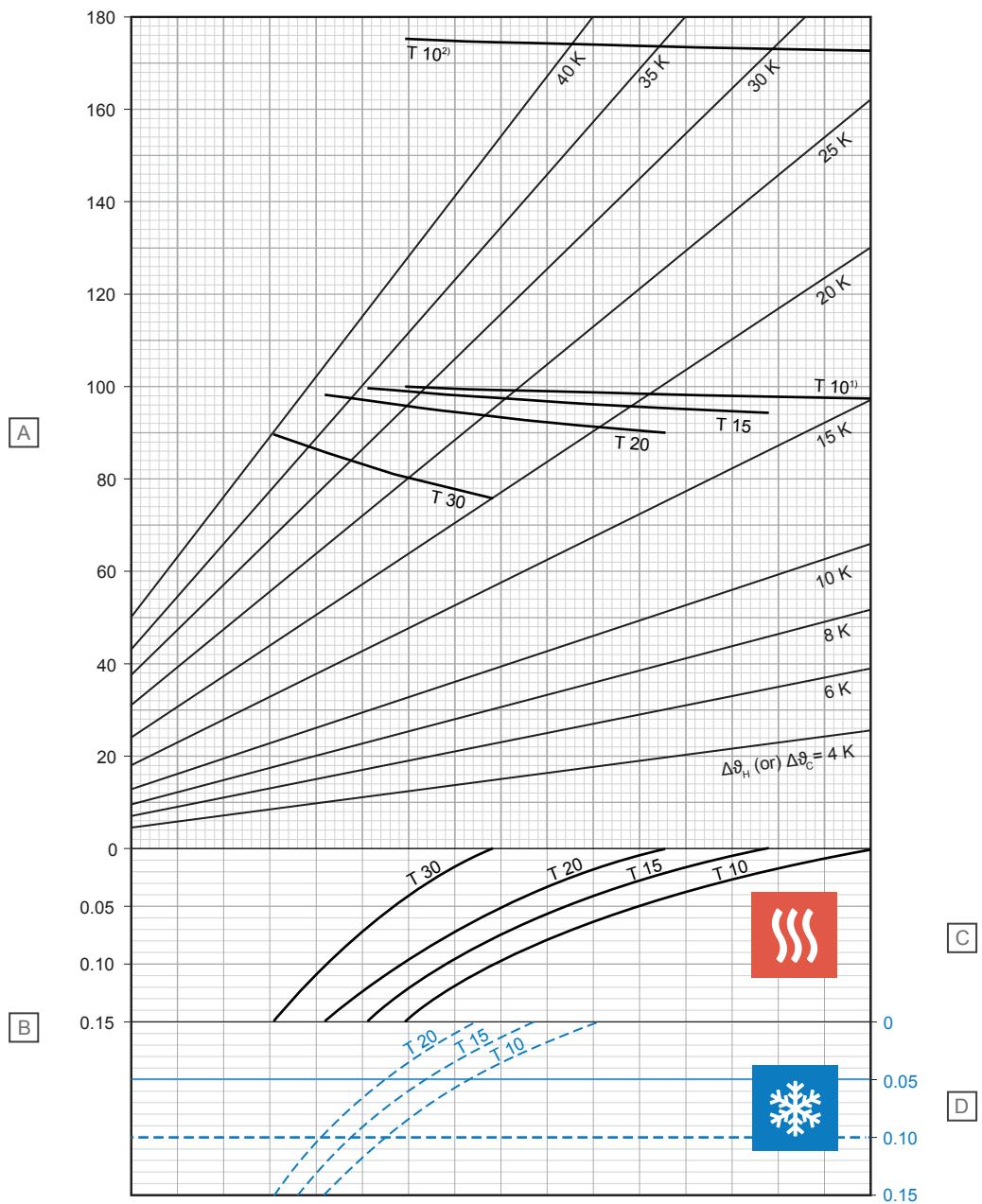
D - Cooling

T (cm)	q_C (W/m ²)	$\Delta\theta_{C,N}$ (K)
10	38,2	8
15	34,2	8
20	30,6	8

¹⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,\max}$ 29 °C or ϑ_i 24 °C and $\vartheta_{F,\max}$ 33 °C

²⁾ Limit curve valid for ϑ_i 20 °C and $\vartheta_{F,\max}$ 35 °C

Uponor Smart UFH-pipe 20 x 2,0 mm with screed load distribution layer (su = 45 mm with $\lambda_u = 1,2 \text{ W/mK}$)



Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	97,6	14,8
15	94,4	16,4
20	90,0	17,9
30	75,7	19,9

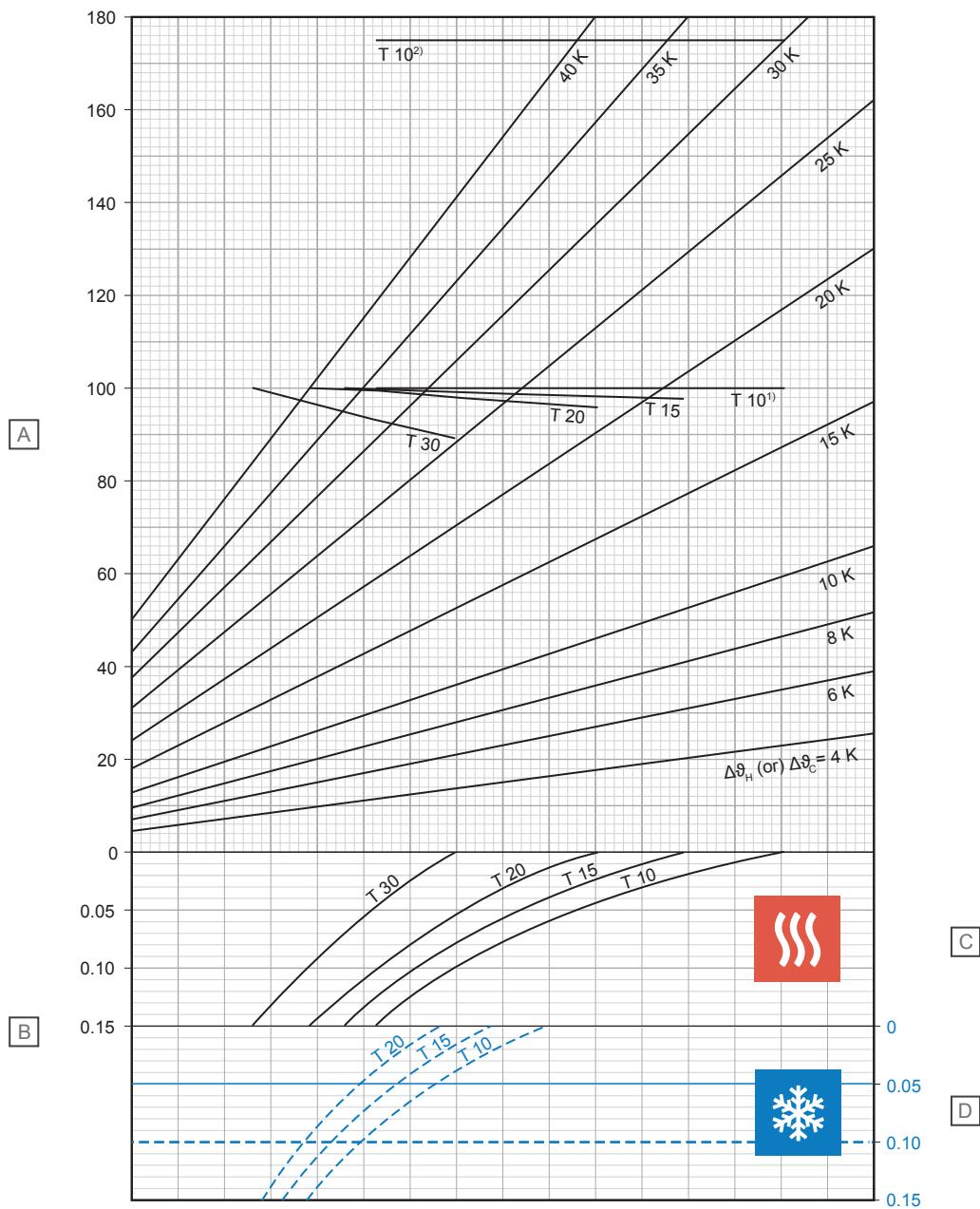
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	36,6	8
15	32,9	8
20	29,5	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Smart UFH-pipe 20 x 2,0 mm with screed load distribution layer (su = 65 mm with $\lambda_u = 1,2 \text{ W/mK}$)



Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	100,0	17,1
15	97,9	19,0
20	96,0	21,1
30	89,2	25,3

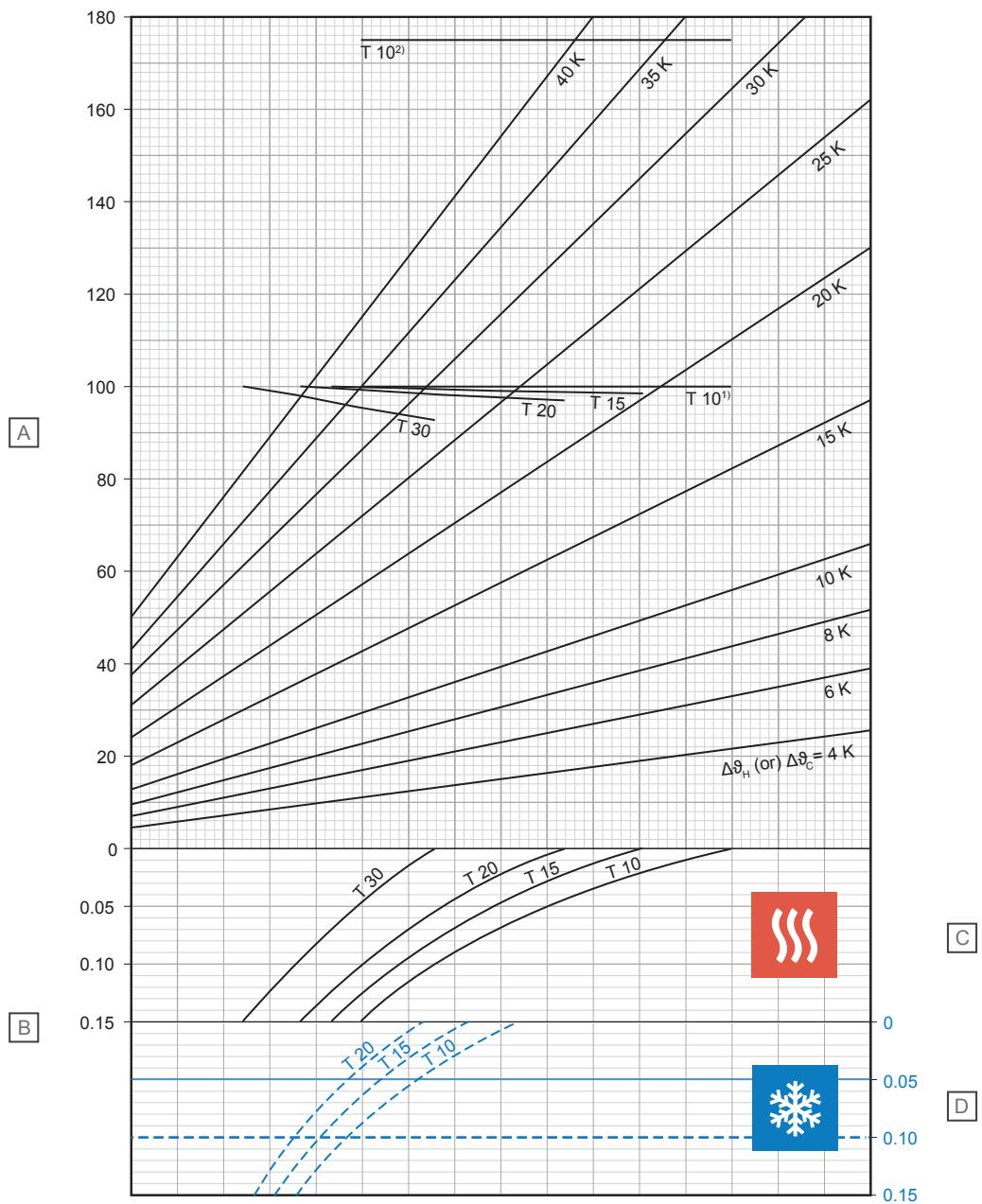
D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	33,4	8
15	30,3	8
20	27,4	8

¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

Uponor Smart UFH-pipe 20 x 2,0 mm with screed load distribution layer (su = 75 mm with $\lambda_u = 1,2 \text{ W/mK}$)



Item	Unit	Description
A	W/m^2	Specific thermal heating or cooling output [q_H or q_C]
B	$\text{m}^2\text{K/W}$	Thermal resistance [$R_{A,B}$]
C - Heating		
T (cm)	$q_H (\text{W/m}^2)$	$\Delta\theta_{H,N} (\text{K})$
10	100,0	18,2
15	98,7	20,2
20	97,1	22,5
30	92,9	27,4

D - Cooling

T (cm)	$q_C (\text{W/m}^2)$	$\Delta\theta_{C,N} (\text{K})$
10	32,0	8
15	29,1	8
20	26,4	8

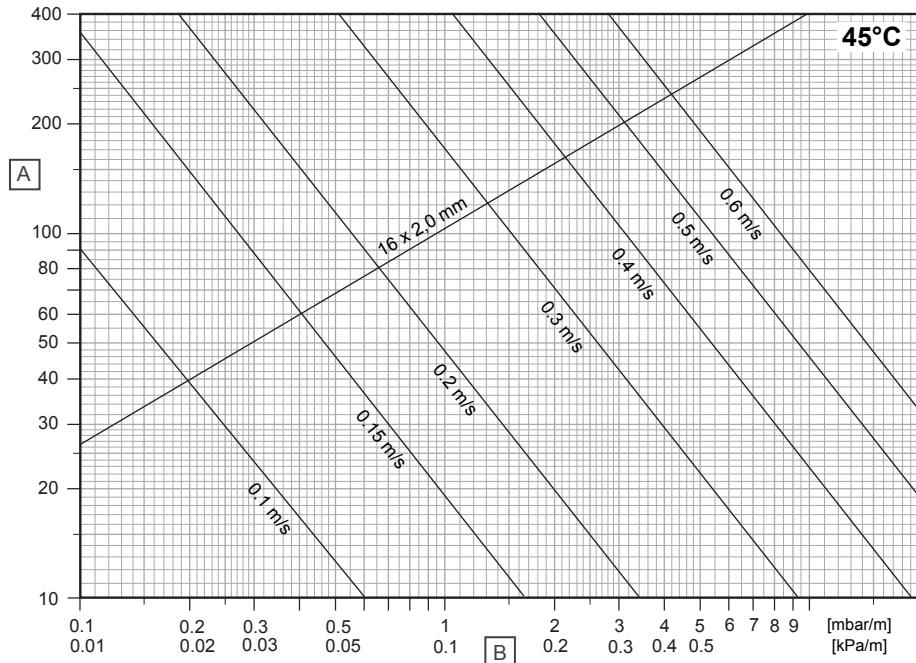
¹⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 29^\circ\text{C}$ or $\vartheta_i 24^\circ\text{C}$ and $\vartheta_{F,\max} 33^\circ\text{C}$

²⁾ Limit curve valid for $\vartheta_i 20^\circ\text{C}$ and $\vartheta_{F,\max} 35^\circ\text{C}$

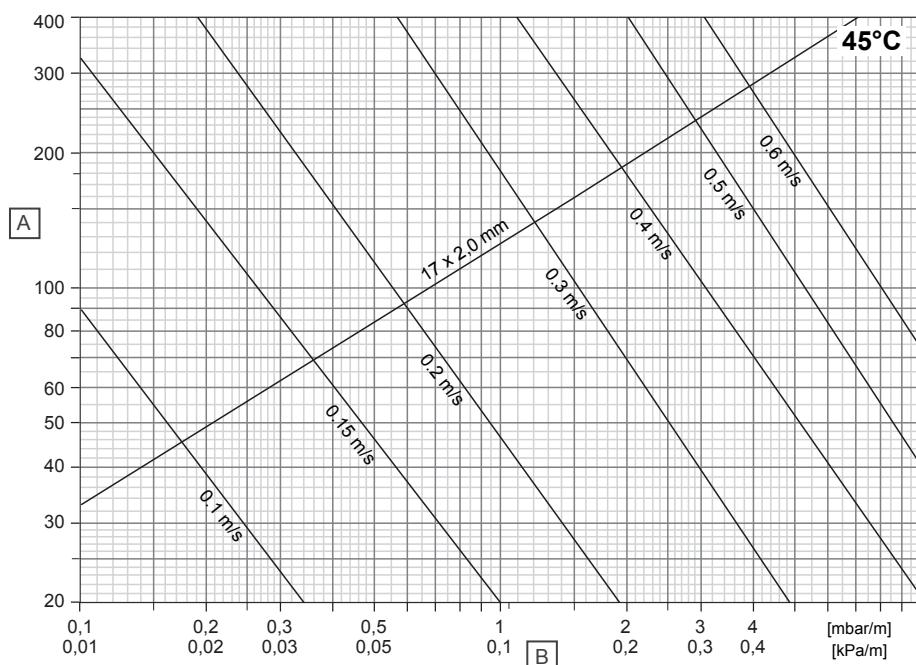
2.3 Pressure drop diagrams

Uponor Comfort Pipe PLUS

Pipe dimension 16 x 2,0 mm

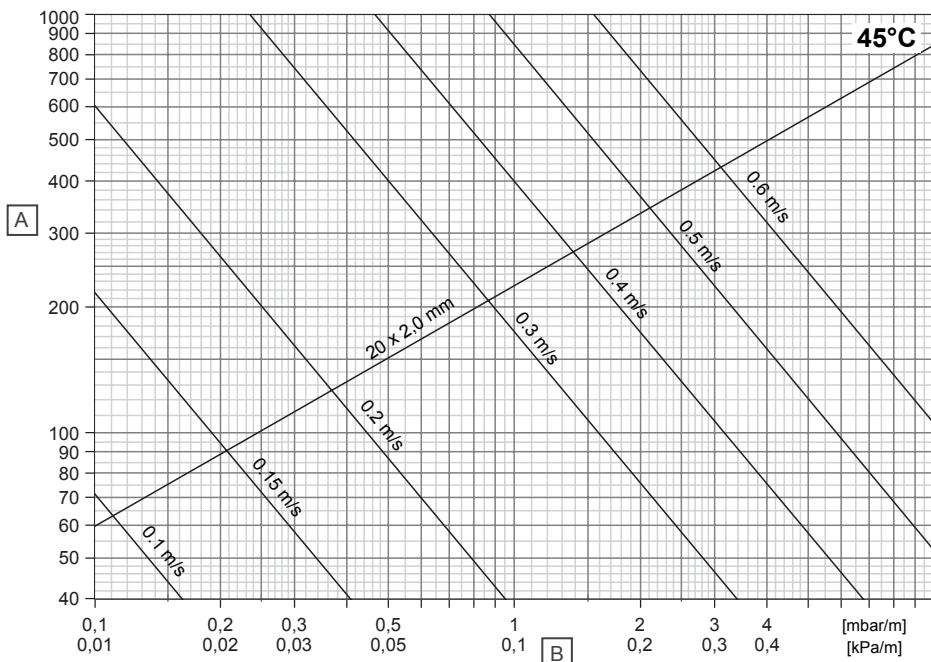


Pipe dimension 17 x 2,0 mm



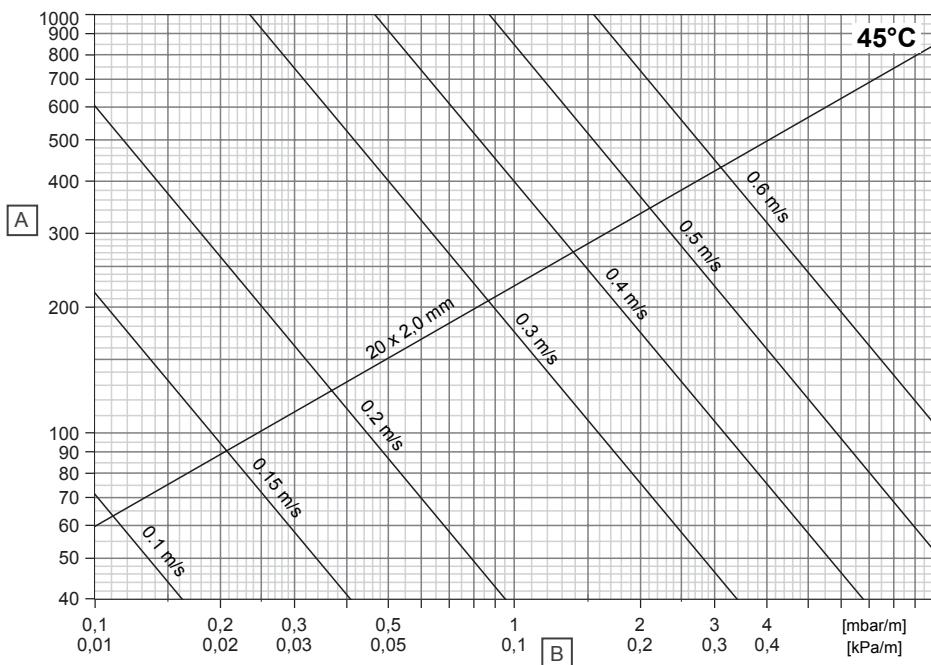
Item	Unit	Description
A	kg/h	Mass flow rate
B	R	Pressure gradient

Pipe dimension 20 x 2,0 mm



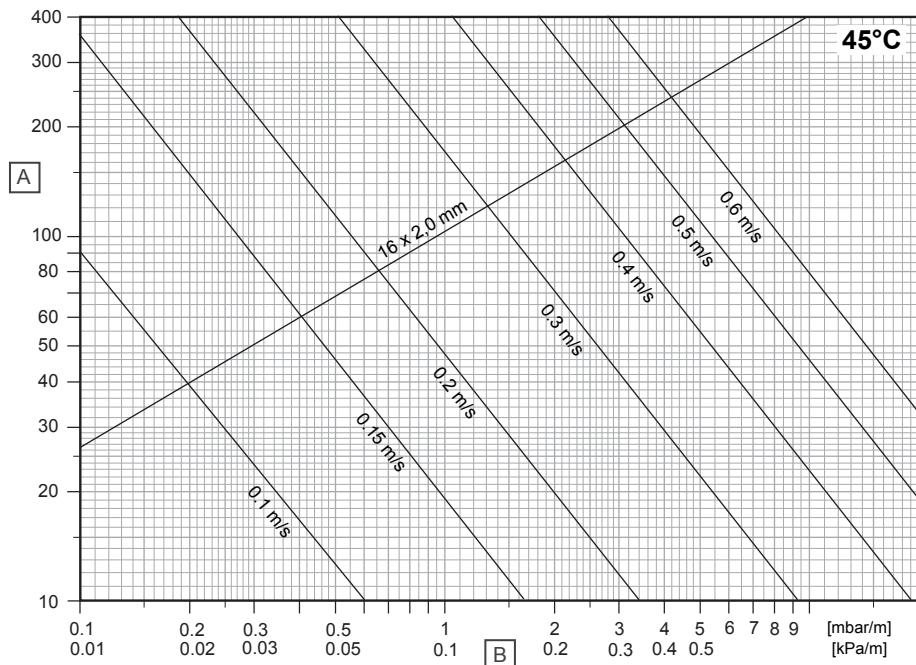
Item	Unit	Description
A	kg/h	Mass flow rate
B	R	Pressure gradient

Uponor Magna pipe PLUS



Item	Unit	Description
A	kg/h	Mass flow rate
B	R	Pressure gradient

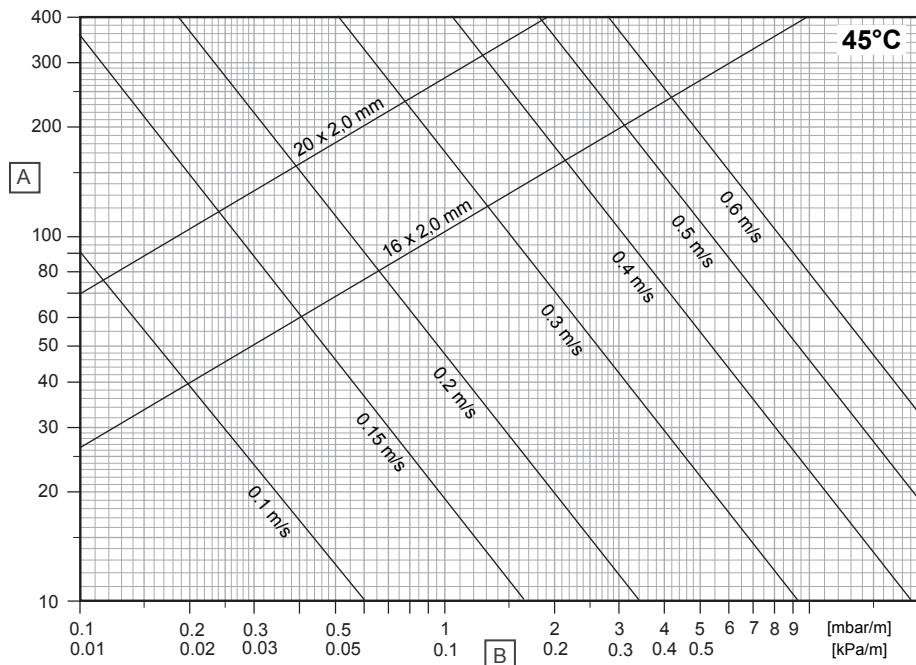
Uponor Comfort Pipe



D10000262

Item	Unit	Description
A	kg/h	Mass flow rate
B	R	Pressure gradient

Uponor Smart UFH-pipe



D10000322

Item	Unit	Description
A	kg/h	Mass flow rate
B	R	Pressure gradient

3 Installation

3.1 Installation process

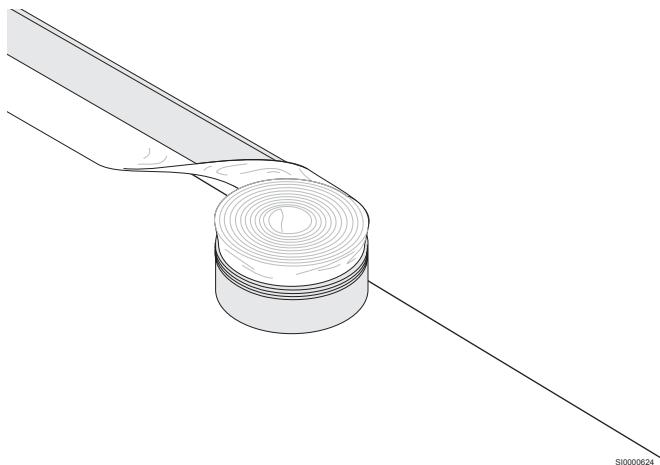


Note

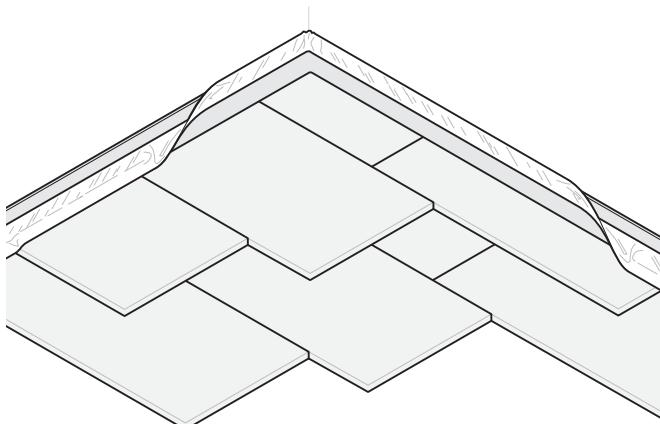
Installation must be performed by a qualified person in accordance with local standards and regulations.

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

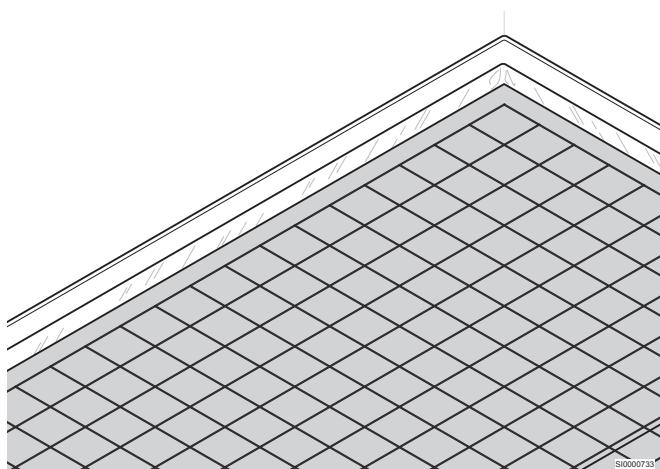
1. Edging strip installation



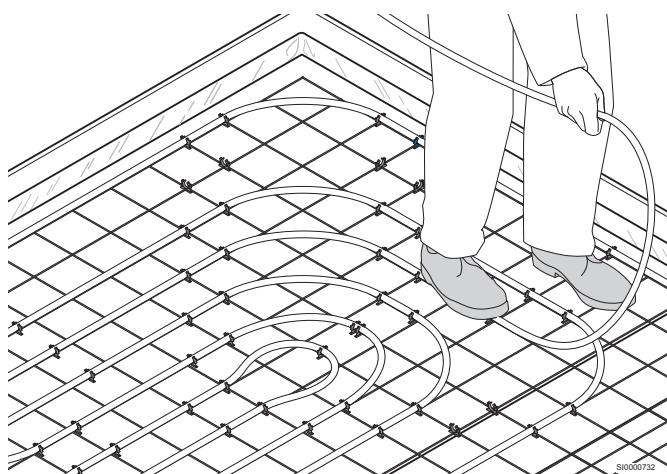
2. Insulation installation



3. Classic steel mesh installation



4. Pipe installation



4 Technical data

4.1 Technical specifications

Uponor Classic steel mesh

Description	Value	Value
Type	Uponor Classic steel mesh, coated	Uponor Classic steel mesh
Material	Coated steel	Steel
Dimension	2150 x 750 x 3 mm, 2100 x 1200 x 3 mm	2100 x 1200 x 3 mm
Max. live load	5,0 kN/m ²	5,0 kN/m ²
Installation distances	5, 10, 15 cm	5, 10, 15 cm
Type of system	Wet system	Wet system
Load distribution layer	Cement screed or anhydrite screed	Cement screed or anhydrite screed

Uponor Comfort Pipe PLUS

	Value	Value	Value
Pipe designation	Uponor Comfort Pipe PLUS 16 x 2,0 mm	Uponor Comfort Pipe PLUS 17 x 2,0 mm	Uponor Comfort Pipe PLUS 20 x 2,0 mm
Pipe dimension	16 x 2,0 mm	17 x 2,0 mm	20 x 2,0 mm
Pipe length	120; 240; 640 m	120; 240; 480; 640 m	120; 240; 480; 600; 1000 m
Material	PE-Xa, five-layer pipe	PE-Xa, five-layer pipe	PE-Xa, five-layer pipe
Colour	White with two blue longitudinal stripes	White with two blue longitudinal stripes	White with two blue longitudinal stripes
Manufacturing	Refer to EN ISO 15875	Refer to EN ISO 15875	Refer to EN ISO 15875
Certificates	KOMO, DIN CERTCO	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)	Class 4 + 5 / 6 bar (EN ISO 15875)
Max. operating temperature	90 °C (EN ISO 15875)	90 °C (EN ISO 15875)	90 °C (EN ISO 15875)
Max. operating pressure	6 bar at 70 °C	6 bar at 70 °C	6 bar at 70 °C
Pipe jointings	Uponor screw connection Uponor Q&E technology	Uponor screw connection Uponor Q&E technology	Uponor screw connection Uponor Q&E technology
Weight	0,091 kg/m	0,115 kg/m	0,115 kg/m
Water content	0,11 l/m	0,13 l/m	0,20 l/m
Oxygen tightness	Refer to ISO 17455; DIN 4726	Refer to ISO 17455; DIN 4726	Refer to ISO 17455; DIN 4726
Density	0,934 g/cm ³	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	Class B2 and class E, DIN 4102 / EN 13501
Min. bending radius	8 x D; free-hand bending (128 mm) 5 x D; supported bending (80 mm)	8 x D; free-hand bending (136 mm) 5 x D; supported bending (85 mm)	8 x D; free-hand bending (160 mm) 5 x D; supported bending (100 mm)
Pipe roughness	0,007 mm	0,007 mm	0,007 mm
Ideal installation temperature	≥ 0 °C	≥ 0 °C	≥ 0 °C
UV protection	Opaque cardboard (store remaining quantities in the cardboard box)	Opaque cardboard (store remaining quantities in the cardboard box)	Opaque cardboard (store remaining quantities in the cardboard box)

Uponor Magna pipe PLUS

Description	Value
Product name	Uponor Magna pipe PLUS 20 x 2,0 mm
Pipe dimension	20 x 2,0 mm
Coil length	240; 480 m
Material	PE-Xa, 5-layer pipe

Description	Value
Colour	White outer layer with 2 blue longitudinal stripes
Manufacturing	Refer to EN ISO 22391
Certificates	KOMO, DIN CERTCO
Application	Class 4 + 5 / 6 bar (EN ISO 15875)
Max. operating temperature	90 °C (EN ISO 15875)
Max. operating pressure	6,5 bar at 70 °C (safety factor 1,5) (EN ISO 15875)
Pipe jointings	Uponor compression fittings (e.g. Rapex) Uponor Q&E fittings
Weight	0,122 kg/m
Water volume	0,191 l/m
Oxygen tightness	Refer to ISO 17455; DIN 4726
Density	0,934 g/cm³/more flexible
Material class	Class B2 and class E, DIN 4102 / EN 13501
Min. bending radius	8xd if free bending (160 mm) 5xd if supported bend 100 mm)
Pipe roughness	0,005 mm
Best mounting temperature	≥ 0 °C
UV protection	Opaque cardboard (store remaining quantities in the cardboard box)

Uponor Comfort Pipe

	Value
Pipe designation	Uponor Comfort Pipe 16 x 1,8 mm
Pipe dimension	16 x 1,8 mm
Pipe length	120; 240; 640 m
Material	PE-Xa, five-layer pipe
Colour	White with two blue longitudinal stripes
Manufacturing	Refer to EN ISO 15875
Certificates	KOMO, DIN CERTCO
Area of application	Class 4 + 5 / 6 bar (EN ISO 15875)
Max. operating temperature	90 °C (EN ISO 15875)
Max. operating pressure	6 bar at 70 °C
Pipe jointings	Uponor screw connection Uponor Q&E technology
Weight	0,076 kg/m
Water content	0,121 l/m
Oxygen tightness	Refer to ISO 17455; DIN 4726
Density	0,934 g/cm³
Material class	Class B2 and class E, DIN 4102 / EN 13501
Min. bending radius	8 x D; free-hand bending (128 mm) 5 x D; supported bending (80 mm)
Pipe roughness	0,007 mm
Ideal installation temperature	≥ 0 °C
UV protection	Opaque cardboard (store remaining quantities in the cardboard box)

Uponor Smart UFH-pipe

	Value	Value
Pipe designation	Uponor Smart UFH-pipe 16 x 2,0 mm	Uponor Smart UFH-pipe 20 x 2,0 mm
Pipe dimension	16 x 2,0 mm	20 x 2,0 mm
Pipe length	240; 640 m	240; 480 m
Material	PE-RT Type II, five-layer pipe	PE-RT Type II, five-layer pipe
Colour	Natural colour	Natural colour
Manufacturing	Refer to EN ISO 22391	Refer to EN ISO 22391
Certificates	KOMO, DIN CERTCO	KOMO, DIN CERTCO

	Value	Value
Area of application	Class 4 + 5 / 6 bar (EN ISO 15875)	Class 4 + 5 / 6 bar (EN ISO 15875)
Max. operating temperature	90 °C (EN ISO 15875)	90 °C (EN ISO 15875)
Max. operating pressure	6 bar at 70° C	6 bar at 70° C
Pipe jointings	Uponor screw connection Uponor Q&E technology	Uponor screw connection Uponor Q&E technology
Weight	0,0846 kg/m	0,118 kg/m
Water content	0,113 l/m	0,196 l/m
Oxygen tightness	Refer to ISO 17455; DIN 4726	Refer to ISO 17455; DIN 4726
Density	0,941 g/cm³	0,941 g/cm³
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 (128 mm) 5 x D; supported bending (80 mm)	8 x D; free-hand bending (160 mm) 5 x D; supported bending (100 mm)
Pipe roughness	0,007 mm	0,007 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

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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.



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