

Recommended Thickness

Warm pipes

NB (Inch)	Steel		Thickness (mm)
	NB (mm)	OD (mm)	
3/8	10	17,2	15
1/2	15	21,3	15
3/4	20	26,9	15
1	25	33,7	15
1 1/4	32	42,4	15
1 1/2	40	48,3	15
2	50	60,3	20
2 1/2	65	76,1	20
3	80	88,9	20
3 1/2	100	114,3	20
4	125	139,7	20
5	150	168,3	20
6	200	219,1	25
8	250	273,0	25
10	300	323,9	25
12	350	355,6	25
14	> 400		30

Parameters: $T_s = 70^\circ\text{C}$; $T_{amb} = 20^\circ\text{C}$; wind = 0 m/s; Finishing = Reinforced aluminium ($\epsilon = 0,05$).

The data in the above tables are based on general averages within Europe.

Please contact our Techline department (techline.hvac@kingspan.com) for country- and region-specific thickness tables.



COPPER			
NB (Inch)	NB (mm)	OD (mm)	Thickness (mm)
	10,0	12,0	15
	13,0	15,0	15
	16,0	18,0	15
	19,8	22,0	15
	25,6	28,0	15
	32,4	35,0	15
	39,2	42,0	15
	51,0	54,0	15
	60,0	64,0	20
	63,2	66,7	20
	72,1	76,1	20
	75,8	80,0	20
	84,9	88,9	20
	101,0	106,0	20
	103,0	108,0	20

Parameters: $T_s = 70^\circ\text{C}$; $T_{amb} = 20^\circ\text{C}$; wind = 0 m/s; Finishing = Reinforced aluminium ($\epsilon = 0,05$).

MULTILAYER			
NB (Inch)	NB (mm)	OD (mm)	Thickness (mm)
	12	16	15
	14	18	15
	16	20	15
	19	25	15
	20	26	15
	26	32	15
	33	40	15
	42	50	15
	54	63	20

Parameters: $T_s = 70^\circ\text{C}$; $T_{amb} = 20^\circ\text{C}$; wind = 0 m/s; Finishing = Reinforced aluminium ($\epsilon = 0,05$).

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Recommended Thickness

Cold pipes (with condensation correction)

STEEL			Anti-condensation	Anti-condensation	Anti-condensation
			25°C - 65%	25°C - 75%	30°C - 75%
NB (Inch)	NB (mm)	OD (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)
3/8	10	17,2	15	15	20
1/2	15	21,3	15	15	20
3/4	20	26,9	15	15	20
1	25	33,7	20	20	20
1 1/4	32	42,4	20	20	20
1 1/2	40	48,3	20	20	25
2	50	60,3	20	20	25
2 1/2	65	76,1	20	20	25
3	80	88,9	20	20	25
4	100	114,3	25	25	30
5	125	139,7	25	25	30
6	150	168,3	25	25	30
8	200	219,1	25	30	35
10	250	273,0	25	30	35
12	300	323,9	30	30	40
14	350	355,6	30	30	40
16	> 400	406,4	30	35	40

Parameters: $T_s = 5^\circ\text{C}$; $T_{amb} = 25^\circ\text{C}$; $wind = 0 \text{ m/s}$; Finishing = Reinforced aluminium ($\epsilon = 0,05$).

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Cold pipes (with condensation correction)

COPPER			Anti-condensation 25°C - 65%	Anti-condensation 25°C - 75%	Anti-condensation 30°C - 75%
NB (Inch)	NB (mm)	OD (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)
	10,0	12,0	15	15	20
	13,0	15,0	15	15	20
	16,0	18,0	15	15	20
	19,8	22,0	15	15	20
	25,6	28,0	20	20	20
	32,4	35,0	20	20	20
	39,2	42,0	20	20	25
	51,0	54,0	20	20	25
	60,0	64,0	20	20	25
	63,2	66,7	20	20	25
	72,1	76,1	20	20	25
	75,8	80,0	20	20	25
	84,9	88,9	20	20	25
	101,0	106,0	25	25	30
	103,0	108,0	25	25	30

Parameters: $T_s = 5^\circ\text{C}$; $T_{amb} = 25^\circ\text{C}$; wind = 0 m/s; Finishing = Reinforced aluminium ($\epsilon = 0,05$).

MULTILAYER			Anti-condensation 25°C - 65%	Anti-condensation 25°C - 75%	Anti-condensation 30°C - 75%
NB (Inch)	NB (mm)	OD (mm)	Thickness (mm)	Thickness (mm)	Thickness (mm)
	12	16	15	15	20
	14	18	15	15	20
	16	20	15	15	20
	19	25	15	15	20
	20	26	15	15	20
	26	32	20	20	20
	33	40	20	20	25
	42	50	20	20	25
	54	63	20	20	25

Parameters: $T_s = 5^\circ\text{C}$; $T_{amb} = 25^\circ\text{C}$; wind = 0 m/s; Finishing = Reinforced aluminium ($\epsilon = 0,05$).

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Insulation Table to Protect Against Freezing

Steel Pipe Size				Pipe Location	
DN (Inch)	DN (mm)	DA (mm)	ID (mm)	Indoor	Outdoor
1/2	15	21,3	16,0	30	75
3/4	20	26,9	21,6	15	30
1	25	33,7	27,2	15	20
1 1/4	32	42,4	35,9	15	15
1 1/2	40	48,3	41,8	15	15
2	50	60,3	53,0	15	15
2 1/2	65	76,1	68,8	20	20
3	80	88,9	80,8	20	20

Copper Pipe Size		Pipe Location	
DN (mm)	ID (mm)	Binnen	Buiten
15	13,6	35	130
22	20,2	15	20
28	26,2	15	20
35	32,6	15	15
42	39,6	15	15
54	51,6	15	15
76,1	73,1	20	20
108	105,0	20	20

Ambient Air Temperature – Indoor:	-6°C
Ambient Air Temperature – Outdoor:	-10°C
Initial Water Temperature:	+2°C
Evaluation Period:	12 uur
Permitted Ice Formation:	50%
Assumed Thermal Conductivity (k-value) of Insulation:	Kooltherm® FM 0,025 W/m·K

Minimum Thickness (mm) of Insulation required to give protection against freezing under specified commercial and institutional conditions. (According ISO 12241)

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