System AWM II

Penetration sealing system for pipes

Fire resistant penetration sealing system for plastic pipes in accordance with ETA-17/0753.
Maximum fire resistance class EI 120 in accordance with EN 13501-2, KB 321100704-A Rev. 1 and KB 321031804-A, Rev. 5.

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1. Preliminary remarks / Overview

1.1 Target group

The installation instructions are intended solely for personnel trained in fire protection.

1.2 Use of the instructions

Before starting work, read through these installation instructions completely once. Pay particular attention to the following safety instructions.
The authorisation holder assumes no liability for damage caused by failure to comply with these instructions.
Pictorial representations serve as examples only. Installation results may differ in appearance.
Unless stated otherwise, all lengths are specified in mm.
All information in this document represents the state of the art at the time of writing or the current version of the standard.
Upon request, Flamro will be pleased to provide the relevant legal and technical framework and manufacturer specifications for each individual case.

1.3 Safety instructions

Consult the respective safety information for the individual penetration seal components.
Personal protective equipment:

	Wear protective clothing and non-slip shoes.

	Use safety goggles or safety glasses.

Safety instructions for the installation of floor penetration seals

	The area below the floor penetration seal must be cordoned off against entry during penetration seal work (barrier tape and warning sign: warning of possible falling objects, do not enter the area, penetration seal work in floor component openings).

	The contractor for the production of floor penetration seals must inform the client in writing (for forwarding to the client or appointed representative) that fire protection seals installed in floors must be secured on site against loads – in particular against being walked on – by suitable measures (e.g. by fencing them off or by covering them with grating).

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1.4 Field of application

The usability of the pipe penetration sealing system AWM II has been assessed in accordance with ETA 10/0117 and ETA 11/0208 in terms of the „Reaction to fire“, „Resistance to fire“, „Release of dangerous substances“ and „Durability and serviceability“ product characteristics.

Reaction to fire		
Product	**Reaction to fire class**	**in accordance with**
ROKU® Strip	E	ETA 10/0117
Metal casing	A1	ETA 11/0208

Resistance to fire

System AWM II maximally meets the requirements of class EI 120 in accordance with EN 13501-2.
When installed in walls or floors with a lower fire resistance duration, the fire resistance duration of the penetration seal is also reduced to that of the fire resistance class of the wall or floor.

Release of dangerous substances

The components of System AWM II do not contain any substances identified as dangerous in the list of the European Commission.

Durability and serviceability

The intumescent material ROKU® Strip meets the requirements of type X in accordance with EAD 340454-00-1104, provided that the metal casing is sufficiently protected from corrosion.

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1.5 Building elements

Plasterboard walls

The plasterboard wall must have a minimum thickness of 100 mm. Its resistance to fire must be assessed in accordance with EN 13501-2. The wall must be a non-load-bearing partition wall in stud design with a subconstruction made of steel in accordance with EN 14195 and double-sided cladding of at least two gypsum fibre boards with a total thickness of 25 mm (minimal thickness per board 12.5 mm) in accordance with EN 520. All inserts between the studs must be filled at a depth of at least 40 mm with rock wool insulation with a minimum density of 85–115 kg/m³, class A1 in accordance with EN 13501-1. In the stud wall there must be a distance of at least 100 mm between studs and seal, and the cavities between seal and studs must be filled with at least 100 mm insulation of class A1 or A2 in accordance with EN 13501–1.

Solid walls

The wall must be made (depending on pipe dimensions, intended fire resistance class and joint configuration) of concrete, reinforced concrete, aerated concrete or masonry with a minimal density of 650 kg/m³. Its resistance to fire must be assessed in accordance with EN 13501-2.

Solid floors

The wall must have a thickness of ≥ 150 mm and be made of concrete, reinforced concrete or aerated concrete with a minimum density of 650 kg/m³. Its resistance to fire must be assessed in accordance with EN 13501-2.

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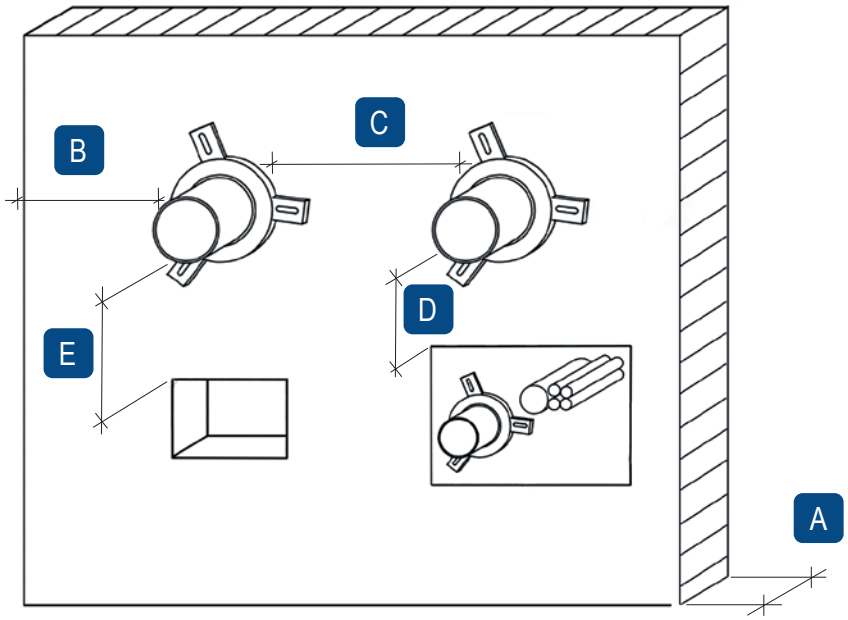
1.6 Thicknesses / penetration seal distances

Dimensions				
Pos.	**Building element**	**Fire resistance class**	**Thickness of building element [mm]**	**Penetration seal thickness [mm]**
A	Plasterboard wall	max. EI 120	≥ 100	60 (single layer)* 100 (double layer)
	Solid wall		≥ 100	
	Solid floor		≥ 150	

* in connection with the penetration sealing system KSL single layer

Pos.	**Distance of opening to:**	**Minimal spacing distance**
B	Reveal	≥ 25
C	Pipe penetration sealings with AWM II	≥ 50
D	Penetration sealings as per other certificates of usability	≥ 100
E	other openings or installations	≥ 100



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1.7 Annular gap

In standard construction

Dimensions			
Annular gap size	**Backfilling**	**Joint sealant**	**Filling depth**
≤ 20 mm	Mineral wool (in plasterboard walls) or general sealing material (in solid walls and floors)	General sealing material	≥ 25 mm

In System KSL single layer

Dimensions			
Annular gap size	**Backfilling**	**Joint sealant**	**Filling depth**
0–5 mm	–	BMK	60 mm / thickness of board
> 5–25 mm	Mineral wool (ρ ≥ 40 kg/m^3)	BMK/BML/BMS	≥ 1 mm

In System KSL double layer

Dimensions			
Annular gap size	**Backfilling**	**Joint sealant**	**Filling depth**
0–5 mm	–	BMK	50 mm on both sides / thickness of boards
> 5–25 mm	Mineral wool (ρ ≥ 40 kg/m^3)	BMK/BML/BMS	≥ 1 mm

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2. Fire resistance classes

2.1 Plasterboard walls

Type of pipe	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
PVC-U	32–50	1.8–5.6	straight	–	–	EI 120-U/U
	32–160	2.7–4.6		PE	5.0	EI 120-U/U
	50–160	1.8–12.3		–	–	EI 90-U/U
	90–160	1.8–3.2		PE	5.0	EI 60-U/U
	110	1.8	45° diagonally	–	–	EI 120-U/C
		10.0	straight	PE	5.0	EI 120-U/U
PE-HD	32–110	1.8–10.0	straight	–	–	EI 120-U/C
	≤ 50	1.8–4.6		–	–	EI 120-U/U
	50	4.6	45° diagonally	–	–	EI 120-U/C
	50–160	1.9–14.6	straight	–	–	EI 90-U/U
	110	2.7		–	–	EI 120-U/U
	110	2.7	45° diagonally	–	–	EI 120-U/C
	125–160	4.0–14.6	straight	–	–	EI 120-U/C
PP-H	32–110	1.8–10.0	straight	–	–	EI 120-U/C
	≤ 50	1.8–4.6		–	–	EI 120-U/U
	50–160	1.9–14.6		–	–	EI 90-U/U
	110	2.7		–	–	EI 120-U/U
	125–160	4.0–14.6		–	–	EI 120-U/C
POLO-KAL 3S	75	3.8	straight	–	–	EI 60-U/C
	125	5.3		–	–	EI 60-U/C
	110	4.8		PE	4.0	EI 60-U/C
	110	4.8	straight with pipe sleeve	PE	4.0	EI 60-U/C
	125	5.3	straight	PE	4.0	EI 90-U/C
	160	7.5		PE	4.0	EI 60-U/C
POLO-KAL NG	40–110	1.8–3.4	straight	PE	5.0	EI 120-U/U
	50–110	2.0–3.4	straight with pipe sleeve	PE	4.0	EI 120-U/U

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Installation in plasterboard walls						
Type of pipe	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
POLO-KAL XS	40–110	1.8–3.4	straight	PE	5.0	EI 120-U/U
	50–110	2.0–3.4	straight with pipe sleeve	PE	4.0	EI 120-U/U
Geberit Silent PP	32–160	2.0–5.2	straight	PE	5.0	EI 120-U/U
	50–90	2.0–3.1	45° diagonally	PE	4.0	EI 90-U/C
	50–110	2.0–3.6	straight with pipe sleeve	PE	4.0	EI 120-U/C
	50–110	2.0–3.6	2 × 45°, bends	PE	4.0	EI 120-U/C
	110	3.6	45° diagonally	PE	4.0	EI 120-U/C
	125–160	4.2–5.2	straight, zero distance	PE	4.0	EI 90-U/C
Geberit Silent Pro	50–110	2.6–4.1	straight with pipe sleeve	PE	5.0	EI 120-U/U
	50–160	3.0–6.0	straight	PE	5.0	EI 120-U/U
Geberit Silent dB 20	56–110	3.2–6.0	straight	PE	5.0	EI 120-U/U
	56–160	3.2–7.0	straight	PE	5.0	EI 90-U/U
GF Silenta Premium	58	4.0	45° diagonally	PE	4.0	EI 120-U/U
	58–110	4.0–5.3	straight with pipe sleeve	PE	4.0	EI 120-U/U
	58–160	4.0–5.3	straight	PE	4.0	EI 120-U/U
	78–110	4.6–5.3	45° diagonally	PE	4.0	EI 90-U/U
	110–135	5.3	straight, zero distance	PE	4.0	EI 120-U/U
coes Blue Power	50	1.8	straight	PE	4.0	EI 120-U/C
	50–90	1.8–3.4	straight with pipe sleeve	PE	4.0	EI 120-U/C
	110	3.4	straight with pipe sleeve	PE	4.0	EI 90-U/C
Wavin SiTech+	32–75	1.8–2.6	straight with pipe sleeve	PE	4.0	EI 120-U/C
	32–125	1.8–3.9	straight	FEF	9.0–40.0	EI 120-U/C
	32–160	1.8–5.0	straight	PE	5.0	EI 120-U/U
REHAU RAUPIANO LIGHT	40–160	1.8–3.9	straight	PE	5.0	EI 120-U/U
CONEL DRAIN	40–160	1.8–3.9	straight	PE	5.0	EI 120-U/U

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Installation in plasterboard walls						
Type of pipe	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
REHAU RAUPIANO PLUS	50–160	1.8–3.9	straight	PE	5.0	EI 120-U/U
Pipelife MASTER 3 PLUS	40–160	1.8–4.4	straight	PE	5.0	EI 120-U/U
KE KELIT PHONEX AS	58–160	4.0–5.3	straight	PE	5.0	EI 120-U/U
Wavin AS	58–160	4.0–5.3	straight	PE	5.0	EI 120-U/U
Valsir Triplus®	32–160	1.8–4.9	straight	PE	5.0	EI 120-U/U
GF Cool-Fit 2.0 / 2.0F	32/75 – 140/200	–	straight	–	–	EI 120-U/C
GF Cool-Fit 4.0	110/180	–	straight	–	–	EI 120-U/C
GF Cool-Fit 4.0F	63/110	–	straight	–	–	EI 120-U/C
Pellet delivery hose PVC-Cu	60	–	straight	–	–	EI 120-U/C
Pellet delivery hose PUR-Cu	60	–	straight	–	–	EI 120-U/C
aquatherm blue pipe SDR 9 MF RP	32	3.6	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
aquatherm blue pipe SDR 11 MF RP	40	3.7	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	50	4.6	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	63	5.8	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	75	6.8	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	90	8.2	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	110	10.0	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	125	11.4	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	160	14.6	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	200	18.2	straight	PE	5.0	EI 120-U/C

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Installation in plasterboard walls						
Type of pipe	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
aquatherm blue pipe SDR 17.6 MF RP	125	7.1	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	160	9.1	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	200	11.4	straight	PE	5.0	EI 120-U/C
aquatherm blue pipe SDR 9 MF RP OT	32	3.6	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	18.0–39.5	EI 120-U/C
aquatherm blue pipe SDR 11 MF RP OT	40	3.7	straight	PE	5.0	EI 120-U/C
	50	4.6	straight	PE	5.0	EI 120-U/C
	125	11.4	straight	PE	5.0	EI 120-U/C
aquatherm green pipe SDR 9 MF RP	32	3.6	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	18.0–39.5	EI 120-U/C
	40	4.5	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	50	5.6	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	63	7.1	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	75	8.4	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	90	10.0	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	110	12.3	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	125	14.0	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	160	17.9	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	200	22.4	straight	PE	5.0	EI 120-U/C

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Installation in plasterboard walls						
Type of pipe	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
aquatherm green pipe SDR 6 S	32	5.4	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	18.0–39.5	EI 120-U/C
	40	6.7	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	50	8.3	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	63	10.5	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	75	12.5	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–50.0	EI 120-U/C
	90	15.0	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.5–50.0	EI 120-U/C
	110	18.3	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
aquatherm green pipe SDR 7.4 S	32	4.4	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	18.0–39.5	EI 120-U/C
	40	5.5	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	50	6.9	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	63	8.6	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C

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Installation in plasterboard walls						
Type of pipe	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
aquatherm green pipe SDR 11 S	32	2.9	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	18.0–39.5	EI 120-U/C
	40	3.7	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	50	4.6	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	63	5.8	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	75	6.8	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.0–50.0	EI 120-U/C
	90	8.2	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	22.5–50.0	EI 120-U/C
	110	10.0	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	125	11.4	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	160	14.6	straight	PE	5.0	EI 120-U/C
			straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	200	18.2	straight	PE	5.0	EI 120-U/C

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2.2 Solid walls

Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
PVC-U	100	180–200	4.0–9.6	straight	–	–	EI 120-U/C
	300	225–400	5.0–11.7	straight	–	–	EI 120-U/C
PE-HD	100	180–200	4.9–11.4	straight	–	–	EI 120-U/C
	300	225–400	9.8–22.7	straight	–	–	EI 120-U/C
PP-H	100	180–200	4.9–18.2	straight	–	–	EI 120-U/C
POLO-KAL 3S	100	75	3.8	45° diagonally	PE	4.0	EI 120-U/C
		125	5.3	45° diagonally	–	–	EI 120-U/C
				45° diagonally	PE	4.0	EI 120-U/C
GF Cool-Fit 4.0	240	160/250	–	straight	–	–	EI 120-U/C
	300	225/315–355/500	–	straight	–	–	EI 90-U/C
GF Cool-Fit 4.0 F	240	160/250–225/315	–	straight	–	–	EI 120-U/C
aquatherm blue pipe SDR 11 MF RP	≥ 240	40	3.7	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	50	4.6	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	63	5.8	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	75	6.8	straight	FEF (LS, ≥ 800 mm)	22.0–50.0	EI 120-U/C
	≥ 240	90	8.2	straight	FEF (LS, ≥ 800 mm)	22.0–50.0	EI 120-U/C
	≥ 240	110	10.0	straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 50.0	EI 120-U/C
	≥ 240	125	11.4	straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 50.0	EI 120-U/C
	≥ 240	160	14.6	straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 38.0	EI 120-U/C
	≥ 300	200	18.2	straight	FEF (LS, ≥ 940 mm)	19.0–38.0	EI 120-U/C
	≥ 240	250	22.7	straight	PE	5.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 1000 mm)	19.0–38.0	EI 90-U/C
	≥ 240	315	28.6	straight	PE	5.0	EI 90-U/C
	≥ 300				FEF (LS, ≥ 1000 mm)	19.0–38.0	EI 90-U/C
	≥ 240	355	32.2	straight	PE	5.0	EI 90-U/C
	≥ 300				FEF (LS, ≥ 1000 mm)	19.0	EI 90-U/C

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Installation in solid walls							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
aquatherm blue pipe SDR 17.6 MF RP	≥ 240	125	7.1	straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 50.0	EI 120-U/C
	≥ 240	160	9.1	straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	≥ 300			straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 38.0	EI 120-U/C
	≥ 240	200	11.4	straight	FEF (LS, ≥ 940 mm)	19.0	EI 120-U/C
	≥ 300			straight	FEF (LS, ≥ 940 mm)	19.0–38.0	EI 120-U/C
	≥ 240	250	14.2	straight	PE	5.0	EI 120-U/C
	≥ 300			straight	FEF (LS, ≥ 1000 mm)	19.0–38.0	EI 90-U/C
	≥ 240	315	17.9	straight	PE	5.0	EI 45-U/C
	≥ 300			straight	FEF (LS, ≥ 1000 mm)	19.0–50.0	EI 120-U/C
	≥ 240	355	20.1	straight	PE	5.0	EI 45-U/C
	≥ 300			straight	FEF (LS, ≥ 1000 mm)	19.0	EI 90-U/C
aquatherm blue pipe SDR 9 MF RP	≥ 240	32	3.6	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
aquatherm blue pipe SDR 11 MF RP OT	≥ 240	250	22.7	straight	PE	5.0	EI 120-U/C

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Installation in solid walls							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
aquatherm green pipe SDR 9 MF RP	≥ 240	32	3.6	straight	FEF (LS, ≥ 800 mm)	18.0–39.5	EI 120-U/C
	≥ 240	40	4.5	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	50	5.6	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	63	7.1	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	75	8.4	straight	FEF (LS, ≥ 800 mm)	22.0–50.0	EI 120-U/C
	≥ 240	90	10.0	straight	FEF (LS, ≥ 800 mm)	22.5–50.0	EI 120-U/C
	≥ 240	110	12.3	straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 50.0	EI 120-U/C
	≥ 240	125	14.0	straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 50.0	EI 120-U/C
	≥ 240	160	17.9	straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	≥ 300			straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 38.0	EI 120-U/C
	≥ 240	200	22.4	straight	FEF (LS, ≥ 940 mm)	19.0	EI 120-U/C
	≥ 240	250	27.9	straight	PE	5.0	EI 120-U/C
	≥ 240	315	35.2	straight	PE	5.0	EI 120-U/C
	≥ 240	355	39.7	straight	PE	5.0	EI 120-U/C
	≥ 300	200	22.4	straight	FEF (LS, ≥ 940 mm)	19.0–38.0	EI 120-U/C
	≥ 300	250	27.9	straight	FEF (LS, ≥ 1000 mm)	19.0–50.0	EI 120-U/C
	≥ 300	315	35.2	straight	FEF (LS, ≥ 1000 mm)	19.0–50.0	EI 120-U/C
	≥ 300	355	39.7	straight	FEF (LS, ≥ 1000 mm)	19.0	EI 120-U/C
aquatherm green pipe SDR 11 S	≥ 240	250	22.7	straight	PE	5.0	EI 90-U/C
	≥ 240	315	28.6	straight	PE	5.0	EI 90-U/C

System AWM II

Installation in solid walls							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
aquatherm green pipe SDR 6 S	≥ 240	32	5.4	straight	FEF (LS, ≥ 800 mm)	18.0–39.5	EI 120-U/C
	≥ 240	40	6.7	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	50	8.3	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	63	10.5	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	75	12.5	straight	FEF (LS, ≥ 800 mm)	22.0–50.0	EI 120-U/C
	≥ 240	90	15.0	straight	FEF (LS, ≥ 800 mm)	22.5–50.0	EI 120-U/C
	≥ 240	110	18.3	straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 50.0	EI 120-U/C
aquatherm green pipe SDR 7.4 S	≥ 240	32	4.4	straight	FEF (LS, ≥ 800 mm)	18.0–39.5	EI 120-U/C
	≥ 240	40	5.5	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	50	6.9	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	63	8.6	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
aquatherm green pipe SDR 11 S	≥ 240	32	2.9	straight	FEF (LS, ≥ 800 mm)	18.0–39.5	EI 120-U/C
	≥ 240	40	3.7	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	50	4.6	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	63	5.8	straight	FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
	≥ 240	75	6.8	straight	FEF (LS, ≥ 800 mm)	22.0–50.0	EI 120-U/C
	≥ 240	90	8.2	straight	FEF (LS, ≥ 800 mm)	22.5–50.0	EI 120-U/C
	≥ 240	110	10.0	straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 50.0	EI 120-U/C
	≥ 240	125	11.4	straight	FEF (LS, ≥ 800 mm) FEF (LS, ≥ 940 mm)	19.0 50.0	EI 120-U/C
	≥ 240	160	14.6	straight	FEF (LS, ≥ 800 mm)	19.0	EI 120-U/C
	≥ 240	200	18.2	straight	FEF (LS, ≥ 940 mm)	19.0	EI 120-U/C

System AWM II

2.3 Installation in System KSL single layer in plasterboard walls and solid walls ≥ 100 mm

All information regarding fire resistance classes in System KSL single layer refers to KB 321100704-A Rev. 1.

Type of pipe	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
PVC-U	32–50	1.5–5.6	straight	PE	5.0	EI 90-U/U
	63–75	1.6–6.6				EI 90-U/U
	90–110	1.8–8.1				EI 90-U/U
	125–160	3.2–11.8				EI 90-U/U
PE-HD	32–50	1.8–4.6	straight	PE	5.0	EI 90-U/U
	63–75	2.2–6.6				EI 60-U/U
		5.1–6.6				EI 90-U/U
	90–110	2.7–10.0				EI 60-U/U
		10.0				EI 90-U/U
	125–160	4.0–14.6				EI 90-U/U
PP	32–50	1.8–4.6	straight	PE	5.0	EI 90-U/U
	63–75	2.2–6.6				EI 90-U/U
	90–110	2.7–10.0				EI 90-U/U
	125–160	4.0				EI 90-U/U
		4.0–14.6				EI 60-U/U
REHAU RAUPIANO LIGHT REHAU RAUSILENTO CONEL DRAIN	40	1.8	straight	PE	5.0	EI 90-U/U
	50	1.8				EI 90-U/U
	75	1.9				EI 90-U/U
	90	2.2				EI 60-U/U
	110	2.7				EI 90-U/U
Geberit Silent-db20	56	3.2	straight	PE	5.0	EI 90-U/U
	75	3.6				EI 90-U/U
	90	5.5				EI 90-U/U
	110	6.0				EI 90-U/U
	135	6.0				EI 90-U/U
	160	7.0				EI 90-U/U
Geberit Silent-PP	32–50	2.0	straight	PE	5.0	EI 90-U/U
	75	2.6				EI 90-U/U
	90	3.1				EI 90-U/U
	110	3.6				EI 90-U/U
	125	4.2				EI 90-U/U
	160	5.2				EI 90-U/U
Geberit Silent-Pro	50	3.0	straight	PE	5.0	EI 90-U/U
	75	3.8				EI 90-U/U
	90	4.3				EI 90-U/U
	110	4.5				EI 90-U/U
	125	5.0				EI 90-U/U
	160	6.0				EI 90-U/U

System AWM II

Installation in System KSL single layer in plasterboard walls and solid walls ≥ 100 mm						
Type of pipe	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
POLO-KAL NG POLO-KAL XS	40	1.8	straight	PE	5.0	EI 90-U/U
	50	2.0				EI 90-U/U
	75	2.6				EI 90-U/U
	90	3.0				EI 90-U/U
	110	3.4				EI 90-U/U
	125	3.9				EI 90-U/U
	160	4.0				EI 90-U/U
REHAU RAUPIANO PLUS	50	1.8	straight	PE	5.0	EI 90-U/U
	75	1.9				EI 90-U/U
	90	2.2				EI 90-U/U
	110	2.7				EI 90-U/U
	125	3.1				EI 90-U/U
	160	3.9				EI 90-U/U
Wavin AS+	50	3.0	straight	PE	5.0	EI 90-U/U
	75	3.5				EI 90-U/U
	90	4.6				EI 90-U/U
	110	5.3				EI 90-U/U
	125	5.3				EI 90-U/U
	160	5.6				EI 90-U/U

Pipe collars are fastened with continuous threaded rods Ø M6–M8.

System AWM II

2.4 Installation in System KSL double layer in plasterboard walls and solid walls ≥ 100 mm

All information regarding fire resistance classes in System KSL double layer refers to KB 321031804-A, Rev. 5.

Type of pipe	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
PVC-U	32–50	1.8–5.6	straight*	PE	5.0	EI 90-U/U
	63–75	1.8–8.4	straight*			EI 90-U/U
	90	1.8	straight**			EI 60-U/U
		1.8–10.0	straight*			EI 90-U/U
	110	1.8	straight**			EI 60-U/U
		1.8–12.3	straight*			EI 90-U/U
	125	2.2	straight**			EI 60-U/U
		2.5–9.3	straight*			EI 120 U/U
	140–160	3.2–14.6	straight*			EI 90-U/U
	160	3.2	straight**			EI 60-U/U
PE-HD	32–50	1.8– 4.6	straight*	PE	5.0	EI 90-U/U
		4.6	straight**			EI 120-U/U
	63–75	2.2–6.9	straight*			EI 90-U/U
	75	3.8–4.5	straight**			EI 120-U/U
	90	2.4-8.2	straight*			EI 90-U/U
	90–110	2.7–4.3	straight**			EI 120-U/U
	110	2.7–10.0	straight*			EI 90-U/U
	125	3.1	straight*			EI 120-U/U
		3.1–4.2	straight**			EI 120-U/U
		9.1	straight*			EI 90-U/U
	140–160	4.0–14.6	straight*			EI 90-U/U
	160	4.0	straight**			EI 120-U/U
PP	32–50	1.8	straight*	PE	5.0	EI 120-U/U
		1.8–4.6	straight*	FEF	6.0–32.0	EI 120-U/U
	63-75	2.2–5.2	straight*	PE	5.0	EI 90-U/U
		2.2–6.8	straight*	FEF	6.0–32.0	EI 120-U/U
	90	2.4–7.3	straight*	PE	5.0	EI 90-U/U
	90–110	2.7–10.0	straight*	FEF	6.0–32.0	EI 120-U/U
	110	2.7	straight*	PE	5.0	EI 120-U/U
		2.7–10.0	straight*	PE	5.0	EI 90-U/U
		10.0	straight**	PE	5.0	EI 120-U/U
	125	3.1	straight*	PE	5.0	EI 120-U/U
	140–160	4.0–14.6	straight*	PE	5.0	EI 90-U/U

* fastened with coarse thread screws (allowed products: WÜRTH ASSY® 8 × 70 mm, HECO-TOPIX®plus 8 × 80 mm, SPAX T-STAR plus 8 × 80 mm)
** fastened with spiral screws (allowed products: Rockwool Conlit Screw 65 mm, Bohl Fireprotect Screw 60 mm)

System AWM II

Installation in System KSL double layer in plasterboard walls and solid walls ≥ 100 mm						
Type of pipe	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
REHAU RAUPIANO LIGHT REHAU RAUSILENTO CONEL DRAIN	40–50	1.8	straight	PE	5.0	EI 120-U/U
	75	1.9				EI 120-U/U
	90	2.2				EI 120-U/U
	110	2.7				EI 120-U/U
	125	3.1				EI 120-U/U
	160	3.9				EI 120-U/U
Pipelife MASTER 3 Pipelife MASTER 3 PLUS SANHA MASTER 3	40	1.8	straight	PE	5.0	EI 120-U/U
	50	2.0				EI 120-U/U
	75	2.1				EI 120-U/U
	90	2.5				EI 120-U/U
	110	3.0				EI 120-U/U
	125	3.5				EI 120-U/U
	160	4.4				EI 120-U/U
KE KELIT PHONEX AS Wavin AS	58	4.0	straight	PE	5.0	EI 90-U/U
	78	4.5				EI 90-U/U
	110	5.3				EI 90-U/U
	135	5.3				EI 90-U/U
	160	5.3				EI 90-U/U
POLO-KAL 3S	75	3.8	straight	PE	5.0	EI 120-U/U
	90	4.5				EI 120-U/U
	110	4.8				EI 120-U/U
POLO-KAL NG POLO-KAL XS	40	1.8	straight	PE	5.0	EI 120-U/U
	50	2.0				EI 120-U/U
	75	2.6				EI 120-U/U
	90	3.0				EI 120-U/U
	110	3.4				EI 120-U/U
	125	3.9				EI 120-U/U
	160	4.0				EI 120-U/U
REHAU RAUPIANO PLUS	50	1.8	straight	PE	5.0	EI 120-U/U
	75	1.9				EI 120-U/U
	90	2.2				EI 120-U/U
	110	2.7				EI 120-U/U
	125	3.1				EI 120-U/U
	160	3.9				EI 120-U/U
Geberit Silent-db20	56	3.2	straight	PE	5.0	EI 120-U/U
	75	3.6				EI 120-U/U
	90	5.5				EI 120-U/U
	110	6.0				EI 120-U/U
	135	6.0				EI 90-U/U
	160	7.0				EI 90-U/U

System AWM II

Installation in System KSL double layer in plasterboard walls and solid walls ≥ 100 mm						
Type of pipe	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
Geberit Silent-PP	32–50	2.0	straight	PE	5.0	EI 120-U/U
	75	2.6				EI 120-U/U
	90	3.1				EI 120-U/U
	110	3.6				EI 120-U/U
	125	4.2				EI 120-U/U
	160	5.2				EI 120-U/U
Geberit Silent-Pro	50	3.0	straight	PE	5.0	EI 120-U/U
	75	3.8				EI 120-U/U
	90	4.3				EI 120-U/U
	110	4.5				EI 120-U/U
	125	5.0				EI 120-U/U
	160	6.0				EI 120-U/U
GF Silenta Premium Hakan Silenta Premium	58	4.1	straight	PE	5.0	EI 120-U/U
	78	4.6				EI 120-U/U
	90	4.7				EI 120-U/U
	110	5.3				EI 120-U/U
	135	5.3				EI 120-U/U
	160	5.3				EI 120-U/U
Wavin SiTech+	32	1.8	straight	PE	5.0	EI 120-U/U
	50	2.1				EI 120-U/U
	75	2.6				EI 120-U/U
	90	3.1				EI 120-U/U
	110	3.6				EI 120-U/U
	125	4.0				EI 120-U/U
	160	5.0				EI 120-U/U
Valsir Triplus®	32–50	1.8	straight	PE	5.0	EI 120-U/U
	75	2.5				EI 120-U/U
	90	2.9				EI 120-U/U
	110	3.4				EI 120-U/U
	125	3.9				EI 120-U/U
	160	4.9				EI 120-U/U

Pipe collars are fastened with continuous threaded rods Ø M6–M8.

System AWM II

2.5 Solid floors

Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
PVC-U	150	32–50	1.8–5.6	straight	–	–	EI 120-U/U
		> 50 – ≤ 160	1.8–12.3	straight	–	–	EI 90-U/U
		63–75	2.2–8.4	straight	–	–	EI 120-U/C
		≤ 75	1.8	straight	–	–	EI 120-U/U
		90–110	2.2–12.3	straight	–	–	EI 120-U/C
		110	8.2	45° diagonally	PE	4.0	EI 120-U/C
		125–160	3.2–11.8	straight	–	–	EI 120-U/C
		180–200	4.0–9.6	straight	–	–	EI 120-U/C
	300	225–400	5.0–11.7	straight	–	–	EI 120-U/C
PE-HD	150	32–50	1.8–4.6	straight	–	–	EI 120-U/U
		50–110	4.6–10.0	45° diagonally	PE	4.0	EI 120-U/C
		50–125	1.8–14.6	straight	–	–	EI 120-U/U
		63–75	2.7–6.9	straight	–	–	EI 120-U/C
		90–110	2.7–10.0	straight	–	–	EI 120-U/C
		125–160	4.0–14.6	straight	–	–	EI 120-U/C
		125–160	4.0–14.6	straight	–	–	EI 60-U/U
		160	4.0	straight	PE	5.0	EI 90-U/U
		180–200	4.9–18.2	straight	–	–	EI 120-U/C
	300	225–400	9.8–22.7	straight	–	–	EI 120-U/C

System AWM II

Installation in solid floors							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
PP-H	150	≤ 50	1.8–4.6	straight	–	–	EI 120-U/U
		63–75	2.7–6.9	straight	–	–	EI 120-U/C
		≤ 75	1.9 – < 10.0	straight	–	–	EI 90-U/U
		≤ 75	10.0	straight	–	–	EI 120-U/U
		90–110	2.7–10.0	straight	–	–	EI 120-U/C
		≤ 110	2.7 – < 10.0	straight	–	–	EI 90-U/U
		110	2.7	straight	–	–	EI 120-U/U
		110	10.0	straight	–	–	EI 120-U/U
		≤ 125	3.1 – < 11.4	straight	–	–	EI 90-U/U
		≤ 125	11.4	straight	–	–	EI 120-U/U
		125–160	4.0–14.6	straight	–	–	EI 120-U/C
		≤ 160	4.0–14.6	straight	–	–	EI 120-U/U
		180–200	4.9–11.4	straight	–	–	EI 120-U/C
	300	225–315	> 7.7 – 19.6	straight	–	–	EI 90-U/C
		315	7.7	straight	–	–	EI 120-U/C
POLO-KAL 3S	150	75–110	3.8–4.8	straight	–	–	EI 90-U/C
		75–110	3.8–4.8	straight with pipe sleeve	PE	4.0	EI 90-U/C
		75–110	3.8–4.8	45° diagonally	PE	4.0	EI 90-U/C
		125	5.3	45° diagonally	–	–	EI 90-U/C
		125	5.3	35°	PE	4.0	EI 120-U/C
		125	5.3	2 × 45°, bends	PE	4.0	EI 120-U/C
POLO-KAL NG	150	40–160	1.8–4.9	straight	PE	5.0	EI 60-U/U
		90–160	3.0–4.9	straight	PE	5.0	EI 90-U/U
POLO-KAL XS	150	40–160	1.8–4.9	straight	PE	5.0	EI 60-U/U
		50–110	1.8–3.4	straight with pipe sleeve	PE	4.0	EI 120-U/U
		50–110	1.8–3.4	2 × 45°, bends	PE	4.0	EI 120-U/U
		90–160	3.0–4.9	straight	PE	5.0	EI 90-U/U

System AWM II

Installation in solid floors							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
Geberit Silent PP	150	40–110	2.0–3.6	straight	PE	5.0	EI 90-U/U
		40–160	2.0–5.2	straight	PE	5.0	EI 60-U/U
		50–110	1.8–3.4	straight with pipe sleeve	PE	4.0	EI 120-U/C
			1.8–3.4	45° diagonally	PE	4.0	EI 120-U/C
			1.8–3.4	2 × 45°, bends	PE	4.0	EI 120-U/C
		50–160	1.8–4.9	straight	PE	4.0	EI 120-U/C
		125–160	3.9–4.9	straight, zero distance	PE	4.0	EI 120-U/C
Geberit Silent Pro	150	50–90	2.6–3.9	straight with pipe sleeve	PE	5.0	EI 120-U/U
		50–110	2.6–4.1	straight, pipe collar inside structural element	PE	5.0	EI 120-U/U
		50–110	2.6–4.1	2 × 45°, bends	PE	5.0	EI 120-U/U
		50–160	2.6–5.6	straight	PE	5.0	EI 120-U/U
					FEF	9.0–25.0	EI 120-U/U
		125	4.6	2 × 45°, bends	PE	5.0	EI 90-U/U
GF Silenta Premium	150	58–110	4.0–5.3	straight with pipe sleeve	PE	4.0	EI 120-U/U
		58–110	4.0–5.3	2 × 45°, bends	PE	4.0	EI 120-U/U
		58–160	4.0–5.3	straight	PE	4.0	EI 120-U/U
		110–135	5.3	straight, zero distance	PE	4.0	EI 120-U/U
Wavin SiTech	150	110	3.4	straight	PE	4.0	EI 120-U/C
REHAU RAUPIANO PLUS	150	110	2.7	straight	PE	4.0	EI 120-U/C
Ostendorf Skolan dB	150	110	5.3	straight	PE	4.0	EI 120-U/C

System AWM II

Installation in solid floors							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
CONEL DRAIN	150	40–110	1.8–2.7	straight	PE	5.0	EI 60 U/U
		50–110	1.8–2.7	straight	PE	4.0	EI 120-U/C
				straight with pipe sleeve	PE	4.0	EI 120-U/C
				2 × 45°, bends	PE	4.0	EI 120-U/C
		75–110	1.9–2.7	straight	PE	5.0	EI 90 U/U
REHAU RAUPIANO LIGHT	150	40–110	1.8–2.7	straight	PE	5.0	EI 60 U/U
		75–110	1.9–2.7	straight	PE	5.0	EI 90 U/U
Wavin SiTECH+	150	32–75	1.8–2.6	straight	PE	4.0	EI 120-U/C
		32, 75–160	1.8, 2.6–5.0	straight	PE	5.0	EI 90 U/U
		58–110	4.1–5.3	straight	PE	5.0	EI 60 U/U
		50–160	1.8–4.9	straight	PE	4.0	EI 120-U/C
				straight	FEF	9.0–34.0	EI 120-U/C
		50+125	1.8+3.9	2 × 45°, bends	PE	4.0	EI 120-U/C
Valsir Triplus®	150	32–50	1.8	straight	PE	5.0	EI 90 U/U
GF Cool-Fit 2.0 / 2.0F	150	32/75–110/160	–	straight	–	–	EI 120-U/C
		140/200	–	straight	–	–	EI 90-U/C
GF Cool-Fit 4.0	150	110/180-160/250	–	straight	–	–	EI 90-U/C
		280/400–355/500	–	straight	–	–	EI 120-U/C
GF Cool-Fit 4.0F	150	63/125	–	straight	–	–	EI 120-U/C
		75/140–160/250	–	straight	–	–	EI 90-U/C
		225/315	–	straight	–	–	EI 120-U/C
Pellet delivery hose PVC-Cu	150	60	–	straight	–	–	EI 120-U/C
Pellet delivery hose PUR-Cu	150	60	–	straight	–	–	EI 120-U/C

System AWM II

Installation in solid floors							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
aquatherm blue pipe SDR 9 MF RP	≥ 150	32	3.6	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 800 mm)	22.0–39.5	EI 120-U/C
aquatherm blue pipe SDR 11 MF RP	≥ 150	40	3.7	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
		50	4.6	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
		63	5.8	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
		75	6.8	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–50.0	EI 120-U/C
		90	8.2	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.5–50.0	EI 120-U/C
		110	10.0	straight	PE	5.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	22.5	EI 120-U/C
	≥ 150	125	11.4	straight	PE	5.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 150	160	14.6	straight	PE	5.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 150	200	18.2	straight	PE	5.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 200	250	22.7	straight	PE	5.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 200	315	28.6	straight	PE	5.0	EI 90-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 300	355	32.2	straight	FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C

System AWM II

Installation in solid floors							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
aquatherm blue pipe SDR 17.6 MF RP	≥ 150	125	7.1	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 200			straight	FEF (LS, ≥ 850 mm)	19.0–50.0	EI 120-U/C
	≥ 150	160	9.1	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 150	200	11.4	straight	PE	5.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 200	250	14.2	straight	PE	5.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 200	315	17.9	straight	PE	5.0	EI 45-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 300	355	20.1	straight	FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
aquatherm blue pipe SDR 9 MF RP OT	≥ 150	32	3.6	straight	PE	5.0	EI 120-U/C
		40	3.7	straight	PE	5.0	EI 120-U/C
		50	4.6	straight	PE	5.0	EI 120-U/C
		63	5.8	straight	PE	5.0	EI 120-U/C
		75	6.8	straight	PE	5.0	EI 120-U/C
		90	8.2	straight	PE	5.0	EI 120-U/C
		110	10.0	straight	PE	5.0	EI 120-U/C
		125	11.4	straight	PE	5.0	EI 120-U/C
		160	14.6	straight	PE	5.0	EI 120-U/C
		200	18.2	straight	PE	5.0	EI 120-U/C
		250	22.7	straight	PE	5.0	EI 120-U/C

System AWM II

Installation in solid floors							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
aquatherm green pipe SDR 9 MF RP	≥ 150	32	3.6	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	40	4.5	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	50	5.6	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	63	7.1	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	75	8.4	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–50.0	EI 120-U/C
	≥ 150	90	10.0	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.5–50.0	EI 120-U/C
	≥ 150	110	12.3	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.5	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0–50.0	EI 120-U/C
	≥ 150	125	14.0	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0–50.0	EI 120-U/C
	≥ 150	160	17.9	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 150	200	22.4	straight	PE	5.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 200	250	27.9	straight	PE	5.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 200	315	35.2	straight	PE	5.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 200	355	39.7	straight	PE	5.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C

System AWM II

Installation in solid floors							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
aquatherm green pipe SDR 6 S	≥ 150	32	5.4	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	40	6.7	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	50	8.3	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	63	10.5	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	75	12.5	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–50.0	EI 120-U/C
	≥ 150	90	15.0	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.5–50.0	EI 120-U/C
	≥ 150	110	18.3	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.5	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0–50.0	EI 120-U/C
aquatherm green pipe SDR 7.4 S	≥ 150	32	4.4	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	40	5.5	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	50	6.9	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	63	8.6	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C

System AWM II

Installation in solid floors							
Type of pipe	Thickness of structural element [mm]	Pipe outer Ø (max.) [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
					Type	Thickness [mm]	
aquatherm green pipe SDR 11 S	≥ 150	32	2.9	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	40	3.7	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	50	4.6	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	63	5.8	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–39.5	EI 120-U/C
	≥ 150	75	6.8	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.0–50.0	EI 120-U/C
	≥ 150	90	8.2	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.5–50.0	EI 120-U/C
	≥ 150	110	10.0	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	22.5	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0–50.0	EI 120-U/C
	≥ 150	125	11.4	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0–50.0	EI 120-U/C
	≥ 150	160	14.6	straight	PE	5.0	EI 120-U/C
					FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 150	200	18.2	straight	PE	5.0	EI 120-U/C
	≥ 200				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 200	250	22.7	straight	PE	5.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0–38.0	EI 120-U/C
	≥ 200	315	28.6	straight	PE	5.0	EI 120-U/C
	≥ 300				FEF (LS, ≥ 850 mm)	19.0	EI 120-U/C

System AWM II

2.6 Installation in System KSL single layer in solid floors ≥ 150 mm

All information regarding fire resistance classes in System KSL single layer refers to KB 321100704-A Rev. 1.

Type of pipe	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
PVC-U	32–50	1.5	straight	PE	5.0	EI 60-U/U
	63–75	1.6–4.2				EI 60-U/U
	90–110	1.8–8.1				EI 60-U/U
	125–160	3.2				EI 60-U/U
PE-HD	32–50	1.8–4.6	straight	PE	5.0	EI 60-U/U
	63–75	5.1–6.6				EI 60-U/U
	90–110	10.0				EI 60-U/U
	125–160	4.0–14.6				EI 60-U/U
PP	32–50	1.8–4.6	straight	PE	5.0	EI 60-U/U
	125–160	4.0–14.6				EI 60-U/U

Pipe collars are fastened with continuous threaded rods M6.

2.7 Installation in System KSL double layer in solid floors ≥ 150 mm

All information regarding fire resistance classes in System KSL double layer refers to KB 321031804-A, Rev. 5.

Type of pipe	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
PVC-U	32–50	1.8	straight**	PE	5.0	EI 60-U/U
		1.8–5.6	straight*	PE	5.0	EI 90-U/U
	63–75	1.8–2.1	straight**	PE	5.0	EI 60-U/U
		1.8–8.4	straight*	PE	5.0	EI 90-U/U
	90	1.8–10.0	straight*	PE	5.0	EI 90-U/U
	90–110	1.8–2.6	straight**	PE	5.0	EI 60-U/U
	110	1.8	straight*	PE	5.0	EI 120-U/U
		1.8–12.3	straight*	PE	5.0	EI 90-U/U
	125	2.2–2.7	straight**	PE	5.0	EI 60-U/U
		2.5	straight*	PE	5.0	EI 120-U/U
	140–160	3.2–11.9	straight*	PE	5.0	EI 90-U/U
	160	3.2	straight*	PE	5.0	EI 120-U/U
			straight**	PE	5.0	EI 60-U/U
PE-HD	32–50	1.8–4.6	straight*	PE	5.0	EI 90-U/U
	63–75	2.2–6.9	straight*	PE	5.0	EI 90-U/U
	90	2.4–8.2	straight*	PE	5.0	EI 90-U/U
	110	2.7–10.0	straight*	PE	5.0	EI 90-U/U
	125	3.1	straight*	PE	5.0	EI 120-U/U
	140–160	4.0–14.6	straight*	PE	5.0	EI 90-U/U
	160	4.0	straight**	PE	5.0	EI 90-U/U

System AWM II

Installation in System KSL double layer in solid floors ≥ 150 mm						
Type of pipe	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
PP	32–50	1.8	straight*	PE	5.0	EI 120-U/U
			straight*	FEF	6.0	EI 120-U/U
			straight*	FEF	6.0–32.0	EI 90-U/U
		1.8–4.6	straight*	PE	5.0	EI 90-U/U
	63–75	2.2	straight*	PE	5.0	EI 120-U/U
			straight*	FEF	6.0	EI 120-U/U
			straight*	FEF	6.0–32.0	EI 90-U/U
		2.2–6.9	straight*	PE	5.0	EI 90-U/U
	90	2.4	straight*	PE	5.0	EI 120-U/U
		2.4–8.2	straight*	PE	5.0	EI 90-U/U
	90–110	2.7	straight*	FEF	6.0–32.0	EI 120-U/U
	110	2.7	straight*	PE	5.0	EI 120-U/U
		2.7–10.0	straight*	PE	5.0	EI 90-U/U
	125	3.1	straight*	PE	5.0	EI 120-U/U
		3.1–11.4	straight*	PE	5.0	EI 90-U/U
	140–160	4.0–14.6	straight*	PE	5.0	EI 90-U/U
REHAU RAUPIANO LIGHT REHAU RAUSILENTO CONEL DRAIN	40–50	1.8	straight*	PE	5.0	EI 60-U/U
	75	1.9	straight*	PE	5.0	EI 90-U/U
	90	2.2	straight*	PE	5.0	EI 90-U/U
	110	2.7	straight*	PE	5.0	EI 90-U/U
POLO-KAL NG POLO-KAL XS	40	1.8	straight*	PE	5.0	EI 90-U/U
	50	2.0	straight*	PE	5.0	EI 90-U/U
	75	2.6	straight*	PE	5.0	EI 90-U/U
	90	3.0	straight*	PE	5.0	EI 90-U/U
	110	3.4	straight*	PE	5.0	EI 90-U/U
	125	3.9	straight*	PE	5.0	EI 90-U/U
	160	4.0	straight*	PE	5.0	EI 90-U/U
POLO-KAL 3S	75	3.8	straight*	PE	5.0	EI 120-U/U
	90	4.5	straight*	PE	5.0	EI 120-U/U
Geberit Silent-PP	32–50	2.0	straight*	PE	5.0	EI 90-U/U
	75	2.6	straight*	PE	5.0	EI 90-U/U
	90	3.1	straight*	PE	5.0	EI 90-U/U
	110	3.6	straight*	PE	5.0	EI 90-U/U
	125	4.2	straight*	PE	5.0	EI 60-U/U
	160	5.2	straight*	PE	5.0	EI 60-U/U
Geberit Silent-Pro	50	3.0	straight*	PE	5.0	EI 90-U/U
	75	3.8	straight*	PE	5.0	EI 90-U/U
	90	4.3	straight*	PE	5.0	EI 90-U/U
	110	4.5	straight*	PE	5.0	EI 90-U/U
	125	5.0	straight*	PE	5.0	EI 60-U/U
	160	6.0	straight*	PE	5.0	EI 120-U/U

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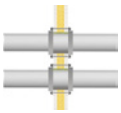
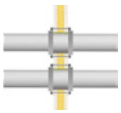
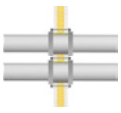
Installation in System KSL double layer in solid floors ≥ 150 mm						
Type of pipe	Pipe outer Ø [mm]	Pipe wall thickness [mm]	Design variant	Insulation		Fire resistance class
				Type	Thickness [mm]	
GF Silenta Premium Hakan Silenta Premium	58	4.1	straight*	PE	5.0	EI 90-U/U
	78	4.6	straight*	PE	5.0	EI 90-U/U
	90	4.7	straight*	PE	5.0	EI 90-U/U
	110	5.3	straight*	PE	5.0	EI 90-U/U
	135	5.3	straight*	PE	5.0	EI 60-U/U
	160	5.3	straight*	PE	5.0	EI 60-U/U
Wavin SiTech+	32	1.8	straight*	PE	5.0	EI 90-U/U
	50	2.1	straight*	PE	5.0	EI 90-U/U
	75	2.6	straight*	PE	5.0	EI 90-U/U
	90	3.1	straight*	PE	5.0	EI 90-U/U
	110	3.6	straight*	PE	5.0	EI 90-U/U
	125	4.0	straight*	PE	5.0	EI 90-U/U
	160	5.0	straight*	PE	5.0	EI 90-U/U
Valsir Triplus®	32–50	1.8	straight*	PE	5.0	EI 90-U/U
	75	2.5	straight*	PE	5.0	EI 90-U/U
	90	2.9	straight*	PE	5.0	EI 90-U/U
	110	3.4	straight*	PE	5.0	EI 90-U/U
	125	3.9	straight*	PE	5.0	EI 90-U/U
	160	4.9	straight*	PE	5.0	EI 90-U/U

** fastened with coarse thread screws (allowed products: WÜRTH ASSY® 8 × 70 mm, HECO-TOPIX®-plus 8 × 80 mm, SPAX T-STAR plus 8 × 80 mm)
** fastened with spiral screws (allowed products: Rockwool Conlit Screw 65 mm, Bohl Fireprotect Screw 60 mm)

System AWM II

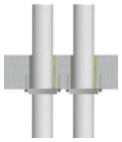
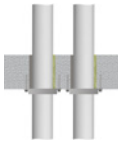
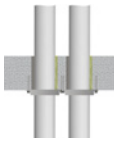
3. Spacing distances for pipes

3.1 Spacing distances in walls

		Wall [mm]
	Distance from pipe to pipe in straight installation	≥ 100
	Distance from pipe to pipe when installing with pipe sleeves	≥ 100
	Distance from pipe to pipe in diagonal installation	≥ 100
	Distance from pipe to pipe when installing with FEF insulation	≥ 100
	Distance from pipe to pipe in installations with Geberit Silent PP and GF Silenta Premium	≥ 0

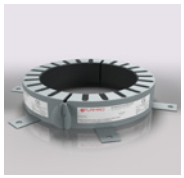
System AWM II

3.2 Spacing distances in floors

		Floor [mm]
	Distance from pipe to pipe in straight installation	≥ 100
	Distance from pipe to pipe when installing with pipe sleeves	≥ 100
	Distance from pipe to pipe in diagonal installation	≥ 100
	Distance from pipe to pipe when installing with two 45° pipe sleeves	≥ 100
	Distance from pipe to pipe when installing with FEF insulation	≥ 100
	Distance from pipe to pipe in installations with Geberit Silent PP and GF Silenta Premium	≥ 0

System AWM II

4. Included products



AWM II fire protection collar
in accordance with ETA-17/0753
Ø 32 mm – Ø 500 mm

Dimensions [mm]	Inner Ø collar [mm]	Outer Ø collar [mm]	Overall height [mm]	Number of tabs [n]	Art. no.
32	36–40	50–54	26.0	2	01142032
40	44–48	58–62	26.0	2	01142040
50	54–57	68–71	26.0	2	01142050
63	67–70	94–97	26.0	4	01142063
75	79–83	106–110	26.0	4	01142075
90	94–100	132–138	26.6	4	01142090
110	114–120	155–161	26.6	4	01142110
125	129–135	172–178	40.0	4	01142125
140	144–152	200–206	40.0	6	01142140
160	164–169	220–225	40.0	6	01142160
180	184	264	40.0	8	01142180
200	204	284	40.0	8	01142200
225 MAX	239	328	51.5	10	01142225
250 MAX	264	353	51.5	10	01142250
280 MAX	289	378	51.5	12	01142280
300 MAX	314	403	51.5	12	01142300
315 MAX	328	417	51.5	12	01142315
355 MAX	370	459	51.5	12	01142355
400 MAX	415	504	51.5	12	01142400
450 MAX	465	554	51.5	14	01142450
500 MAX	515	604	51.5	14	01142500

Fasteners	
Ø 32–50 mm	01146050
Ø 63–125 mm	01146125
Ø 140–160 mm	01146160
Ø 180–200 mm	01146200
Ø 225–250 mm	01146250
Ø 280–400 mm	01146400
Ø 450–500 mm	0707002070

System AWM II

BML fire stop compound

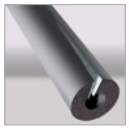
5 kg pail – Art. no 40050
12.5 kg pail – Art. no 40125

BMS fire stop filler

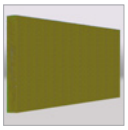
5 kg pail – Art. no 10500
12.5 kg pail – Art. no 10125

BMK filler

0.4 kg cartridge – Art. no 30004



Section and protective insulations made of flexible elastomeric foam (FEF)
in accordance with DIN EN 14304



Mineral fibre board

Criteria: bulk density ≥ 150 kg/m³
Class of reaction to fire A1 in acc. with EN 13501:1
Melting point ≥ 1000 °C
Thickness ≥ 50 mm

Mineral wool A1

Class of reaction to fire in acc. with EN 13501-1: A1
Melting point ≥ 1000 °C
10 kg bag – Art. no 01183000

General sealing material

Dimensionally stable, non-combustible (class A1 or A2-s1,d0 in acc. with EN 13501-1) material such as concrete, cement mortar, gypsum mortar

4.1 Declarations of Performance

The Declarations of Performance for featured Flamro products are available for download on our website:
https://flamro.com/eu/downloads/

System AWM II

5. Design variants

The annular gap may not be wider than 20 mm and must be filled with gypsum or mortar at a depth of at least 25 mm. The remaining cavity must be filled densely and completely with mineral wool (class of reaction to fire in accordance with EN 13501-1: A1; apparent density > 100 kg/m^3).

Fastening in standard construction:

- in plasterboard walls with continuous threaded rods (M6 or M8)
- in solid walls and floors with suitable metal dowels and screws or other allowed fasteners

Fastening in System KSL single layer and System KSL double layer:

- with coarse thread screws (allowed products: WÜRTH ASSY® 8 × 70 mm, HECO-TOPIX®-plus 8 × 80 mm, SPAX T-STAR plus 8 × 80 mm),
- with spiral screws (allowed products: Rockwool Conlit Screw 65 mm, Bohl Fireprotect Screw 60 mm)

5.1 Initial brackets (supports)

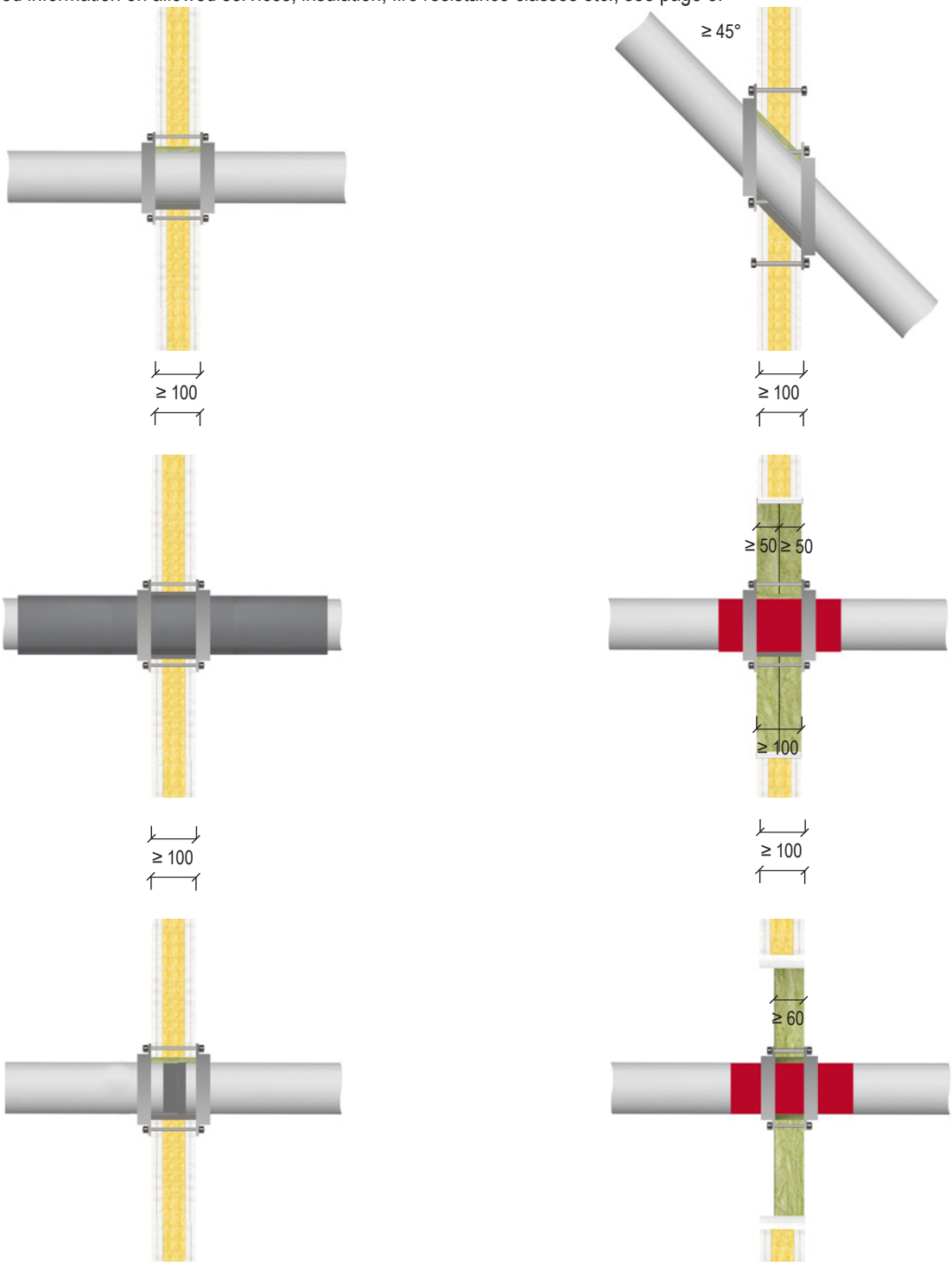
Essential parts of the brackets/supports for combustible pipes in wall and floor must be non-combustible and must be configured with a spacing as per the overview on both sides.
In case of fire the sealing system may not be subjected to additional mechanical stress.

Services	Wall	Floor
Combustible pipes / hoses	≤ 470 mm	≤ 470 mm

System AWM II

Design variants in plasterboard walls

- Pipe collars are fastened in plasterboard walls with continuous threaded rods and nuts.
- For detailed information on allowed services, insulation, fire resistance classes etc., see page 8.

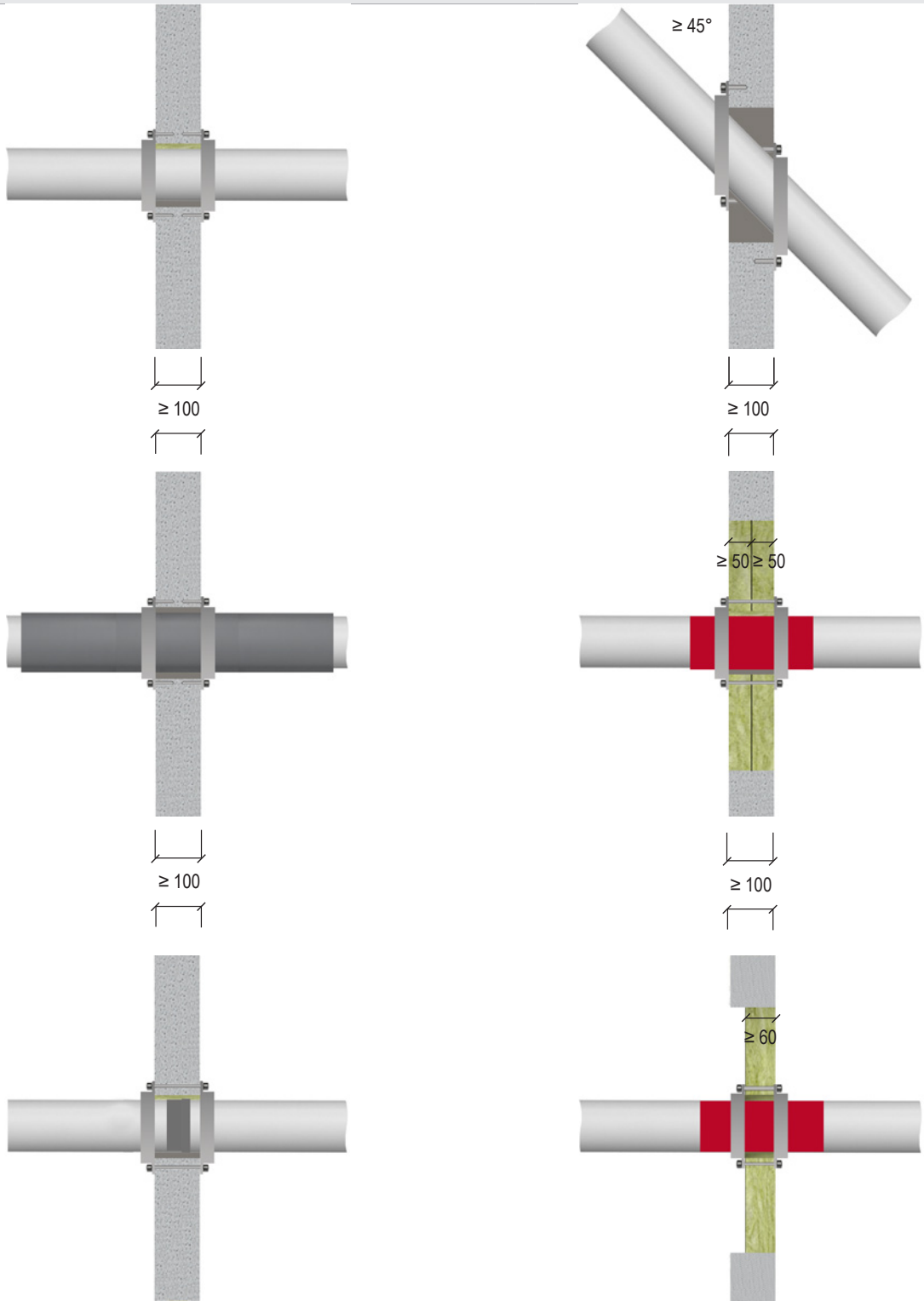


All specifications in mm

System AWM II

• For detailed information on allowed services, insulation, fire resistance classes etc., see page 14.

Design variants in solid walls

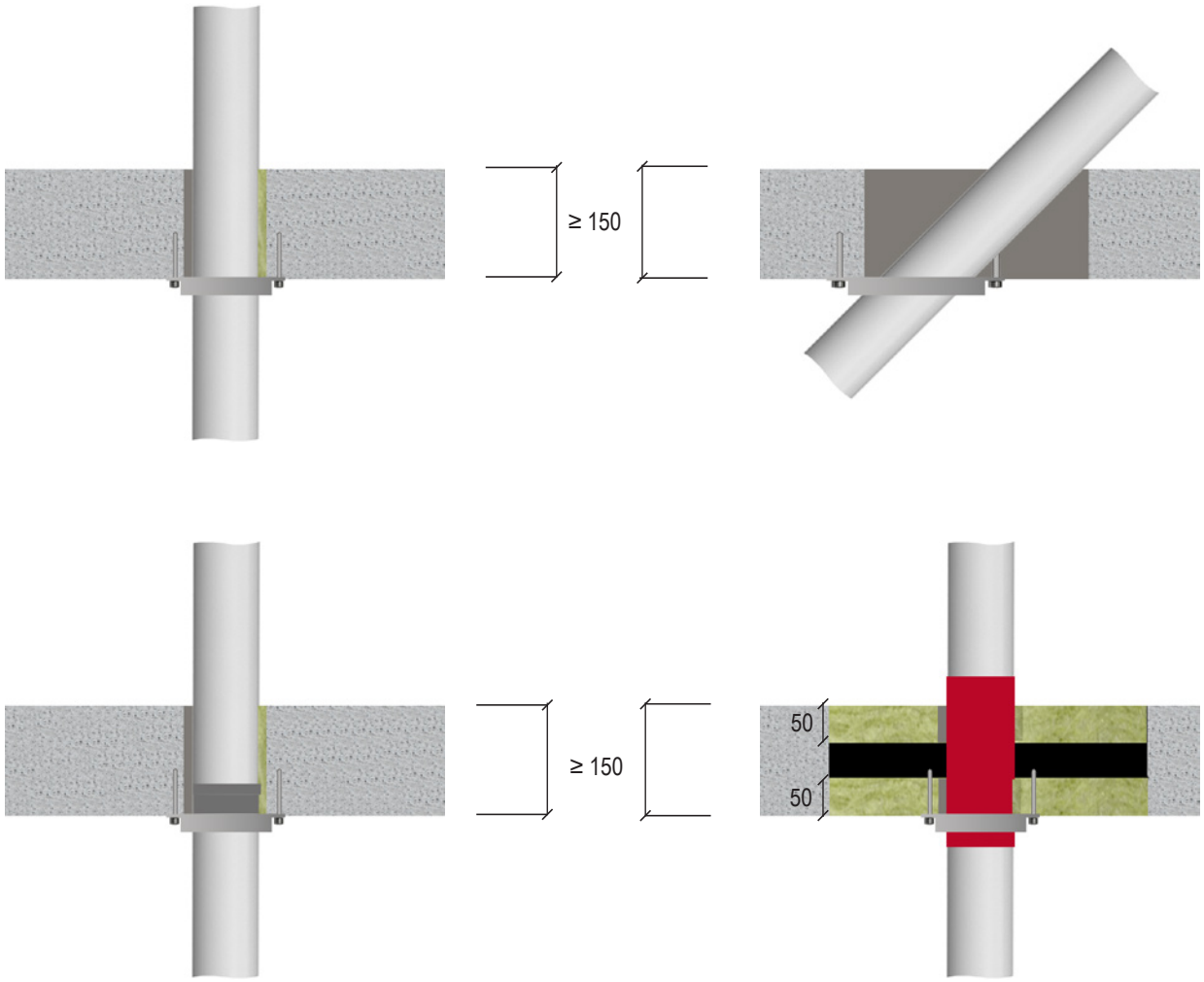


All specifications in mm

System AWM II

• For detailed information on allowed services, insulation, fire resistance classes etc., see page 23.

Design variants in solid floors

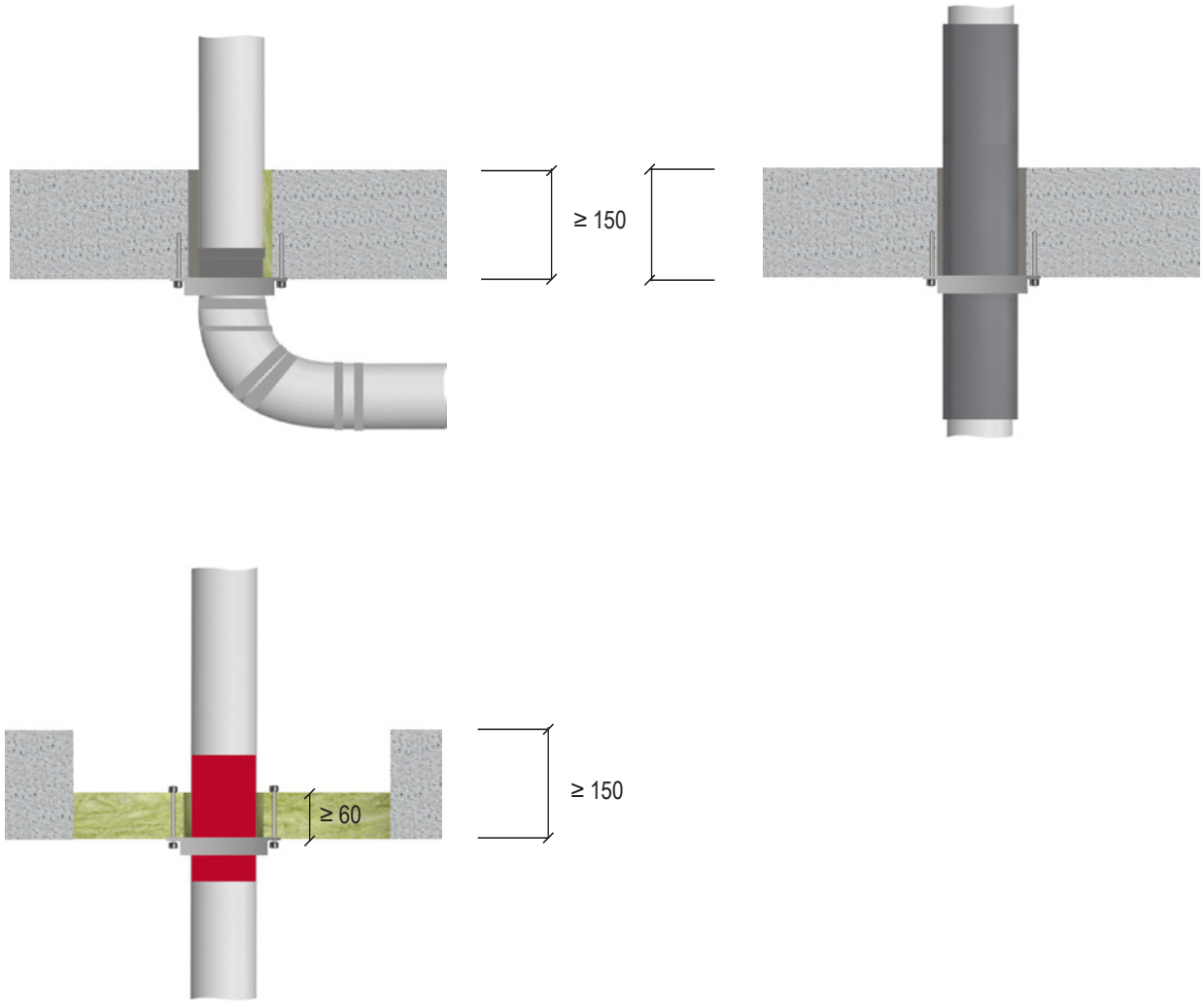


All specifications in mm

System AWM II

• For detailed information on allowed services, insulation, fire resistance classes etc., see page 23.

Design variants in solid floors



All specifications in mm

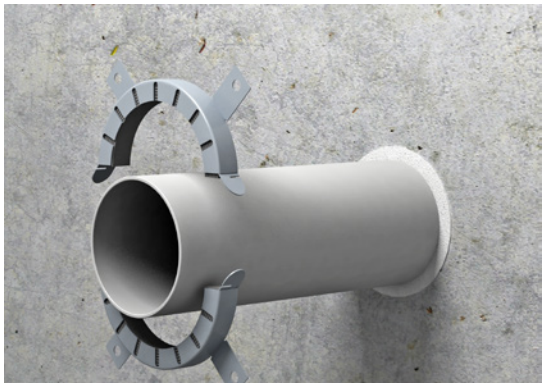
System AWM II

6. Installation steps

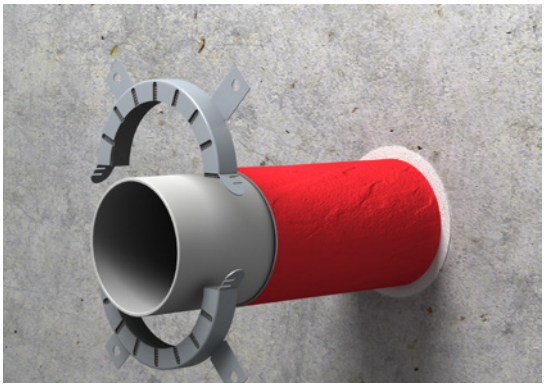
Always use the smallest pipe collar fitting the pipe diameter.

1. Fill the annular gap with mineral wool or general sealing material and seal it (see chapter „Annular gap“ on page 7).

2. Place the collar around the pipe and close it – on both sides when installing in walls, on the lower side when installing in floors.
Always use the smallest fitting collar.



2a The pipe collar has a double slot.
Use the slot fitting the pipe diameter.



3. Fasten the colar with suitable threaded rods or screws (see chapter „Initial brackets (supports)“ on page 39). Use all available fastening points.