NSTALLATION INSTRUCTIONS

Date: 6th of September 2016 Rev.: date: 5th of March 2021 Rev.: 5

Prepared by: PP Approved by: AK Page: 1 of 43

Approval: ETA - 16/0094 DoP: FIR/PP/GRA-01-08 2016

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PRODUCT DESCRIPTION

FIRESAFE FT Graphite is a special product suitable for penetration sealing of combustible installations. Firesafe FT Graphite is a heat-expanding, one-component water-based graphite joint sealant. The sealant expands at a temperature as low as approximately 180°C. The product thus has very good fire stopping properties.

AREAS OF APPLICATION

- Penetration sealing of copper and steel pipes with combustible and non-combustible pipe insulation.
- Penetration sealing of pipes of the type AluPEX with combustible and non-combustible pipe insulation.
- Penetration sealing of plastic pipes of the type PE-Xa with combustible and non-combustible pipe insulation.
- Penetration sealing of plastic electrical cable conduit
- Penetration sealing of electrical cables.
- Penetration sealing of combustible heating/water/sanitation plastic pipes. See further explanation on the last page.
- PVC + PVC-C + PVC-U poly vinyl chloride.
- PP-MD noise-dampened.
- PP-R high pressure + high temperature pipe.
- PP-Polypropylene.
- PP-MX noise-dampened.
- PE-Xa high pressure + high temperature PE pipe.
- AluPEX heating + water supply, Al composite pipe or multi-layer pipe
- PE-LD + PE-HD polyethylene.

FIRESAFE FT Graphite is generally used for single installation penetrations with a maximum opening ≤ 15 mm between the installation penetration and the structure. For openings ≥ 15 mm between the installation penetration and the structure, or for multiple installation penetrations, FIRESAFE FT Graphite is used in combination with FIRESAFE FT Board or FIRESAFE GPG MORTAR. See installation details on the following pages in these installation instructions or see also the installation instruction for FIRESAFE FT Board for details.

CERTIFICATION/ FIRE RESISTANCE/ ARTICLE NO/ EL- NO

- FIRESAFE FT Graphite has been tested according to NS-EN 1366-3 (2009) and EN 13501-1/2.
- Certified according to ETA-16/0094
- Fire resistance EI 30 to EI 240 with extensive areas of application for walls and floors.
- Fire-classified walls according to EN 1363-1: Plasterboard or masonry/cast construction (density 600 650 kg/m³) ≥100 mm.
- Fire-classified floors according to EN 1363-1.: Floors of masonry/cast construction (density 600 650 kg/m³) ≥150 mm.
- Approved as a smoke sealant in accordance with EN 1634-3.
- For more details, see the DoP on www.firesafe.no.
- Article No: 100046
- El- no: 1217813

APPLICATION

- Ensure that any openings to be sealed with Firesafe FT Graphite are free from dust and grease.
- Treat absorbent materials with water or primer first.
- Fill the opening with backing material (stone wool, ceramic fibre or PE board) where necessary.
- Smooth the sealant over the opening; for straight edges, use masking tape.
- The sealant can normally be over-coated after 24 hours.
- Firesafe FT Graphite must not be applied at temperatures lower than +5 °C.
- The sealant is applied using a sealant gun and a standard sealant finishing tool.





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SEE FIRE RESISTANCE CLASS AND INSTALLATION DETAILS ON THE NEXT PAGES.

TYPE OF PENETRATION:	FIRE RESISTANCE CLASS:	DETAILS:	PAGE:	
Plastic pipe type PE/PP/PVC ≤ Ø 110 mm.	EI 90	Figures 1–2	4	
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.				
Plastic pipe type PE/PP/PVC ≤ Ø 90 mm. Examples FIRESAFE GPG MORTAR and FIRESAFE FT BOARD	El 120	Figures 3–4	5	
Flexible and rigid wall ≥ 100 mm.				
Plastic pipe type PP-R ≤ Ø 110 mm.	EI 60 - EI 240	Figures 5–6	6	
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.				
Plastic pipe type PP-R ≤ Ø 110 mm.	EI 60 - EI 240	Figure 7	7	
Rigid wall ≥ 150 mm.				
Plastic pipe type PP-MD ≤ Ø 110 mm.	EI 60 - EI 240	Figures 8–9	8	
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.				
Plastic pipe type PP-MD ≤ Ø 110 mm.	EI 180 - EI 240	Figure 10	9	
Rigid wall ≥ 150 mm.				
Plastic pipe type PP-MX ≤ Ø 110 mm.	EI 90 - EI 240	Figures 11–12	10	
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.				
Plastic pipe type PP-MX ≤ Ø 110 mm.	El 90 - El 240	Figure 13	11	
Rigid wall ≥ 150 mm.		_		
Uninsulated plastic pipe type PE-X Ø 54 mm.	EI 120 - EI 240	Figures 14–15	12	
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.				
Plastic pipe type PE-X Ø 25 mm insulated with polyolefin.	El 120 - El 240	Figures 16–17	13	
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.				
Plastic pipe type PE-X Ø 54 mm insulated with polyolefin.	EI 90	Figures 18–19	14	
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.				
Plastic pipe type PE $\leq \emptyset$ 110 mm insulated with synthetic rubber.	EI 60	Figure 20	15	
Flexible and rigid wall ≥ 100 mm.				
Plastic pipe in bundle type PE-X insulated with polyolefin and electrical cable conduit.	El 120 - El 240	Figures 21–22	16	
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.				
Plastic pipe in bundle type PE-X insulated with polyolefin and electrical cable conduit.	EI 60	Figures 23–24	17	
Flexible shaft wall ≥ 75 mm.				
Aluminium pipe type aluP-EX Ø 16 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Flexible and rigid wall ≥ 100 mm.	EI 120	Figure 25	18	
Aluminium pipe type aluP-EX ≤ Ø 75 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Flexible and rigid wall ≥ 100 mm.	EI 120	Figure 26	19	
Aluminium pipe type aluP-EX Ø 16 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Rigid wall and rigid floor ≥ 150 mm.	EI 240	Figure 27	20	
Aluminium pipe type aluP-EX ≤ Ø 75 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Rigid wall and rigid floor ≥ 150 mm.	EI 240	Figure 28	21	
Copper and steel pipe $\leq \emptyset$ 15 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Flexible and rigid wall \geq 100 mm.	EI 120	Figure 29	22	



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SEE FIRE RESISTANCE CLASS AND INSTALLATION DETAILS ON THE NEXT PAGES.

Copper and steel pipe ≤ Ø 76 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Flexible and rigid wall ≥ 100 mm. Copper and steel pipe ≤ Ø 15 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Rigid wall and rigid floor ≥ 150 mm. Copper and steel pipe ≤ Ø 76 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Rigid wall and rigid floor ≥ 150 mm. Steel pipe ≤ Ø 42.2 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Flexible and rigid wall ≥ 100 mm. Steel pipe ≤ Ø 42.2 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Rigid wall and rigid floor ≥ 150 mm. Steel pipe ≤ Ø 219.1 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Flexible and rigid wall ≥ 100 mm. Steel pipe ≤ Ø 219.1 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Rigid floor ≥ 150 mm. Steel pipe ≤ Ø 42.2 mm insulated with PIR. Flexible and rigid wall ≥ 100 mm. Steel pipe ≤ Ø 42.2 mm insulated with PIR. Flexible and rigid floor ≥ 150 mm. Steel pipe ≤ Ø 42.1 mm insulated with PIR. Flexible and rigid floor ≥ 150 mm. Steel pipe ≤ Ø 219.1 mm insulated with PIR. Flexible and rigid wall ≥ 100 mm.	I 240 F O - El 240 F O - El 240 F O - El 180 F O - El 120 F	rigure 30 rigure 31 rigure 32 rigure 33 rigure 34 rigure 35	23 24 25 26 27 28
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Rigid floor ≥ 150 mm. Steel pipe ≤ Ø 42.2 mm insulated with PIR. Flexible and rigid wall ≥ 100 mm. Steel pipe ≤ Ø 42.2 mm insulated with PIR. Rigid wall and rigid floor ≥ 150 mm. Steel pipe ≤ Ø 219.1 mm insulated with PIR. Flexible and rigid wall ≥ 100 mm. Steel pipe ≤ Ø 219.1 mm insulated with PIR. Flexible and rigid wall ≥ 100 mm. Steel pipe ≤ Ø 219.1 mm insulated with PIR. El 90		igure 36	
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Rigid wall and rigid floor \geq 150 mm. Steel pipe \leq Ø 219.1 mm insulated with PIR. Flexible and rigid wall \geq 100 mm. Steel pipe \leq Ø 219.1 mm insulated with PIR. EI 90			
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Flexible and rigid wall \geq 100 mm. Steel pipe \leq Ø 219.1 mm insulated with PIR. El 90			
Steel pipe $\leq \emptyset$ 219.1 mm insulated with PIR.	E I 60 F	igure 40	32
Rigid floor > 150 mm) - El 180 F	igure 41	33
Ngiu 11001 ≤ 130 (1111).			
Aluminium pipe type aluPE-X $\leq \emptyset$ 75 mm insulated with synthetic rubber, example FIRESAFE GPG MORTAR. Flexible and rigid wall \geq 100 mm and rigid floor \geq 150 mm.	l 120 Figu	ures 42–43	34
Aluminium pipe type aluPE-X $\leq \emptyset$ 75 mm insulated with synthetic rubber m, example FIRESAFE FT BOARD. Flexible and rigid wall \geq 100 mm and rigid floor \geq 150 mm.	Figu	ures 44–45	35
Steel pipe $\leq \emptyset$ 8 mm insulated with neoprene.	E I 60 F	igure 46	36
Flexible and rigid wall ≥ 100 mm.			
Copper and steel pipe $\leq \emptyset$ 35 mm insulated with synthetic rubber.	E I 90 F	igure 47	37
Flexible and rigid wall ≥ 100 mm.			
Steel pipe Ø 15 - Ø 42.2 mm insulated with synthetic rubber m.) - El 180 Figu	ures 48–49	38
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.			
) - El 240 Figu	ures 50–51	39
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.	1.50		
Steel pipe Ø 15 - Ø 219.1 mm insulated with stone wool.) - El 120 Figu	ures 52–53	40
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.			
-	I 120 Figu	ures 54–55	41
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.			
	E I 60 Fi	igures 56	42
Flexible wall ≥ 100 mm.		Da. 63 30	



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	Width × depth FT Graphi	te Backing, type, density,	Fire resistance class	See detail
Plastic pipe diameter ≤ (Ø) 110 mm	from two sides (mm)	thickness (mm)	Fire resistance class	figure:
Plastic pipe type PE/PP/PVC ≤ Ø 110 mm, pipe wa	l thickness (t): 2.7 – 10 mm		•	
Plastic pipe type PE/PP/PVC ≤ Ø 110 mm in wall. Pipe wall thickness (t): 2.7 - 10 mm. Max. opening in wall: Ø 130 mm	10 x 25 mm	With or without backing	EI 90	Figure 1
Plastic pipe type PE/PP/PVC ≤ Ø 110 mm in floor. Pipe wall thickness (t): 2.7 - 10 mm. Max. opening in floor: Ø 140 mm	15 x 25 mm	With or without backing	EI 90	Figure 2
Figure 1		F	igure 2	
Apply the sealant around the pipe on both sides of Graphite to a joint width of 10 mm and a depth of 2 plastic pipe.		Apply the sealant around the pi Graphite to a joint width of 15 r plastic pipe.		

Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes



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Flexible and rigid wall ≥ 100 mm.						
Plastic pipe diameter ≤ (Ø) 90 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail figure:		
lastic pipe type PE/PP/PVC ≤ Ø 90 mm, pipe wa	all thickness (t): 3.0 – 8.2 mm	. U/C + C/C.				
Plastic pipe type PE/PP/PVC ≤ Ø 90 mm in wall. n combination with FIRESAFE GPG MORTAR. Max. opening in wall: 200 x 1000 mm.	10 x 25 mm	With or without backing	EI 120	Figure 3		
Plastic pipe type PE/PP/PVC ≤ Ø 90 mm in wall. In combination with FIRESAFE FT Board. Max. opening in wall: 200 x 1000 mm.	10 x 25 mm	With or without backing	EI 120	Figure 4		
Figure 3 apply the sealant around the pipe on both sides of applied to a joint width of 10 mm and a depth of lastic pipe in the GPG sealant. GPG MORTAR this	of 25 mm around the	pply the sealant around the p iraphite to a joint width of 10 lastic pipe in FT Board. FIRESA	mm and a depth of 25 mr	m around the		

Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.



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Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm						
Plastic pipe diameter ≤ (Ø) 110 mm	Width × depth FT Gr from two sides (m	-	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Plastic pipe type PP-R, Green and Blue Power ≤ Ø 110	mm, pipe wall thicknes	ss (t): 3.	7 – 15.1 mm. U/C + C/C.		•	
Pipe type PP-R, Green and Blue Power ≤ Ø 40 mm in wall. Pipe wall thickness (t): 3.7 - 5.5 mm. Max. opening in wall: Ø 60 mm.	10 x 40 mm		With or without backing	EI 120	Figure 5	
Pipe type PP-R, Green and Blue Power ≤ Ø 40 mm in floor. Pipe wall thickness (t): 3.7 - 5.5 mm. Max. opening in floor: Ø 70 mm.	15 x 40 mm		With or without backing	EI 240	Figure 6	
Pipe type PP-R, Green and Blue Power ≤ Ø 63 mm in wall. Pipe wall thickness (t): 5.8 - 8.6 mm. Max. opening in wall: Ø 83 mm.	10 x 40 mm		With or without backing	EI 120	Figure 5	
Pipe type PP-R, Green and Blue Power ≤ Ø 63 mm in floor. Pipe wall thickness (t): 5.8 - 8.6 mm. Max. opening in floor: Ø 93 mm.	15 x 40 mm		With or without backing	EI 180	Figure 6	
Pipe type PP-R, Green and Blue Power ≤ Ø 75 mm in wall. pipe wall thickness (t): 6.8 - 10.3 mm. Max. opening in wall: Ø 95 mm.	10 x 40 mm		With or without backing	EI 120	Figure 5	
Pipe type PP-R, Green and Blue Power ≤ Ø 75 mm in floor. Pipe wall thickness (t): 6.8 - 10.3 mm. Max. opening in floor: Ø 105 mm.	15 x 40 mm		With or without backing	EI 180	Figure 6	
Pipe type PP-R, Green and Blue Power ≤ Ø 110 mm in wall. Pipe wall thickness (t): 10.0 - 15.1 mm. Max. opening in wall: Ø 130 mm.	10 x 40 mm		With or without backing	EI 60	Figure 5	
Pipe type PP-R, Green and Blue Power ≤ Ø 110 mm in floor. Pipe wall thickness (t): 10.0 - 15.1 mm. Max. opening in floor: Ø 140 mm.	15 x 40 mm		With or without backing	EI 90	Figure 6	
Figure 5 Apply the sealant around the pipe on both sides of the Graphite to a joint width of 10 mm and a depth of 40 m plastic pipe.		FT Grap	Figure ne sealant around the pipe o hite to a joint width of 15 m tic pipe.	n both sides of the		

Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.



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	Rigid wall ≥ 150 mm					
Plastic pipe diameter ≤ (Ø) 110 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:		
Plastic pipe type PP-R, Green and Blue Power ≤ Ø 110 mm, pipe wall thickness (t): 3.7 – 15.1 mm. U/C + C/C.						
Plastic pipe type PP-R, Green and Blue Power ≤ Ø 40 mm in wall. Pipe wall thickness (t): 3.7 - 5.5 mm. Max. opening in wall: Ø 70 mm.	15 x 40 mm	With or without backing	EI 240	Figure 7		
Plastic pipe type PP-R, Green and Blue Power ≤ Ø 63 mm in wall. Pipe wall thickness (t): 5.8 - 8.6 mm. Max. opening in wall: Ø 93 mm.	15 x 40 mm	With or without backing	EI 180	Figure 7		
Plastic pipe type PP-R, Green and Blue Power ≤ Ø 75 mm in wall. pipe wall thickness (t): 6.8 - 10.3 mm. Max. opening in wall: Ø 105 mm.	15 x 40 mm	With or without backing	EI 180	Figure 7		
Plastic pipe type PP-R, Green and Blue Power ≤ Ø 110 mm in wall. Pipe wall thickness (t): 10.0 - 15.1 mm. Max. opening in wall: Ø 140 mm.	15 x 40 mm	With or without backing	EI 60	Figure 7		

Figure 7

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 15 mm and a depth of 40 mm around the plastic pipe.



Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.



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F	lexible and rigid wall ≥ 100 m	m and rig	id floor ≥ 150 mm		
Plastic pipe diameter ≤ (Ø) 110 mm	Width × depth FT Graphite from two sides (mm)		Backing, type, density, thickness (mm)	Fire resistance class	See detail figure:
Plastic pipe type PP-MD ≤ Ø 110 mm, pipe wa	ll thickness (t): 1.8 – 3.8 mm.	U/C + C/C			
Plastic pipe type PP-MD ≤ Ø 32 mm in wall.	10 x 25 mm		With or without backing	EI 120	Figure 8
Pipe wall thickness (t): 1.8 mm.					
Max. opening in wall: Ø 52 mm.					
Plastic pipe type PP-MD $\leq \emptyset$ 32 mm in floor.	15 x 25 mm		With or without backing	EI 240	Figure 9
Pipe wall thickness (t): 1.8 mm.					
Max. opening in floor: Ø 63 mm.					
Plastic pipe type PP-MD $\leq \emptyset$ 50 mm in wall.	10 x 25 mm		With or without backing	EI 90	Figure 8
Pipe wall thickness (t): 2.0 mm.					
Max. opening in wall: Ø 70 mm.					
Plastic pipe type PP-MD ≤ Ø 50 mm in floor.	15 x 25 mm		With or without backing	EI 180	Figure 9
Pipe wall thickness (t): 2.0 mm.					
Max. opening in floor: Ø 80 mm.					
Plastic pipe type PP-MD ≤ Ø 75 mm in wall.	10 x 25 mm		With or without backing	EI 60	Figure 8
Pipe wall thickness (t): 2.6 mm.					
Max. opening in wall: Ø 95 mm.	45.05				-: 0
Plastic pipe type PP-MD $\leq \emptyset$ 75 mm in floor.	15 x 25 mm		With or without backing	EI 240	Figure 9
Pipe wall thickness (t): 2.6 mm.					
Max. opening in floor: \emptyset 105 mm. Plastic pipe type PP-MD $\leq \emptyset$ 110 mm in wall.	10 x 25 mm		With or without backing	EI 60	F: 0
Pipe wall thickness (t): 3.8 mm.	10 X 25 MM		with or without backing	EI OU	Figure 8
Max. opening in wall: Ø 130 mm.					
Plastic pipe type PP-MD ≤ Ø 110 mm in floor.	15 x 25 mm		With or without backing	EI 60	Figure 9
Pipe wall thickness (t): 3.8 mm.	13 X 23 111111		With of Without backing	L1 00	i iguie 3
Max. opening in floor: Ø 140 mm.					
Figure 8			Figure 9)	
Apply the sealant around the pipe on both side Graphite to a joint width of 10 mm and a depth plastic pipe.			ne sealant around the pipe on e to a joint width of 15 mm an	both sides of the flo	

Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.



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Rigid wall ≥ 150 mm						
Plastic pipe diameter ≤ (Ø) 75 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:		
Plastic pipe type PP-MD ≤ Ø 75 mm, pipe wall thickness (t): 1.8 – 2.6 mm. U/C + C/C.						
Plastic pipe type PP-MD ≤ Ø 32 mm in wall.	15 x 25 mm	With or without backing	EI 240	Figure 10		
Pipe wall thickness (t): 1.8 mm.						
Max. opening in wall: Ø 62 mm.						
Plastic pipe type PP-MD ≤ Ø 50 mm in wall.	15 x 25 mm	With or without backing	EI 180	Figure 10		
Pipe wall thickness (t): 2.0 mm.						
Max. opening in wall: Ø 80 mm.						
Plastic pipe type PP-MD ≤ Ø 75 mm in wall.	15 x 25 mm	With or without backing	EI 240	Figure 10		
Pipe wall thickness (t): 2.6 mm.		_				
Max. opening in wall: Ø 105 mm.						

Figure 10

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around the plastic pipe.



Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open/Closed, unventilated pipe systems, for example cold or hot water pipes.



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F	lexible and rigid wall ≥ 100 mm	n and rigid floor ≥ 150 mm		
Plastic pipe diameter ≤ (Ø) 110 mm	Width × depth FT Graphite two sides (mm)	from Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Plastic pipe type PP-MX ≤ Ø 110 mm, pipe wa	ll thickness (t): 2.7 – 4.2 mm. U	/c + c/c.		
Plastic pipe type PP-MX $\geq \emptyset$ 50 mm in wall.	10 x 25 mm	With or without backing	EI 120	Figure 11
Pipe wall thickness (t): 2.7 mm. Incl. sleeve.				
Max. opening in wall: Ø 70 mm.				
Plastic pipe type PP-MX $\geq \emptyset$ 50 mm in floor.	10 x 25 mm	With or without backing	EI 240	Figure 12
Pipe wall thickness (t): 2.7 mm. Incl. sleeve.				
Max. opening in floor: Ø 76 mm.				
Plastic pipe type PP-MX ≤ Ø 110 mm in wall.	10 x 25 mm	With or without backing	EI 90	Figure 11
Pipe wall thickness (t): 2.0 mm. Incl. sleeve.				
Max. opening in wall: Ø 130 mm.				
Plastic pipe type PP-MX ≤ Ø 110 mm in floor.	10 x 25 mm	With or without backing	EI 240	Figure 12
Pipe wall thickness (t): 4.2 mm. Incl. sleeve.				
Max. opening in floor: Ø 142 mm.				
Figure 11		Figure	- 12	

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around the plastic pipe.

Apply the sealant around the pipe on both sides of the floor. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around the plastic pipe.





Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open/Closed, unventilated pipe systems, for example cold or hot water pipes.



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Rigid wall ≥ 150 mm						
Plastic pipe diameter ≤ (Ø) 110 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:		
Plastic pipe type PP-MX ≤ Ø 110 mm, pipe wall thickness (t): 2.6 – 2.7 mm. U/C + C/C.						
Plastic pipe type PP-MX ≥ Ø 50 mm in wall.	10 x 25 mm	With or without backing	EI 240	Figure 13		
Pipe wall thickness (t): 2.7 mm. Incl. sleeve.						
Max. opening in wall: Ø 71 mm.						
Plastic pipe type PP-MX ≤ Ø 110 mm in wall.	10 x 25 mm	With or without backing	EI 90	Figure 13		
Pipe wall thickness (t): 4.2 mm. Incl. sleeve.						
Max. opening in wall: Ø 130 mm.						

Figure 13

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around the plastic pipe.



Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes



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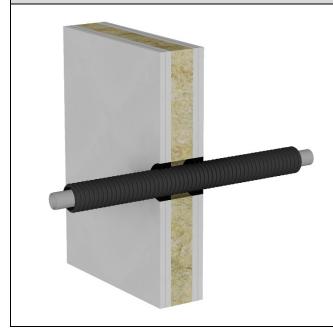
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Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm							
Plastic pipe diameter (Ø) 54 mm	Width × depth FT Graphi two sides (mm)	te from	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:		
Pipe in plastic pipe type P-EX (d) Inner diameter	Pipe in plastic pipe type P-EX (d) Inner diameter of pipe Ø 32mm – Outer diameter of pipe Ø 54 mm, pipe wall thickness (t): 4.4 mm. U/C + C/C.						
Pipe in pipe type P-EX Ø 54 mm in wall. Max. opening in wall: Ø 74 mm.	10 x 25 mm		With or without backing	EI 120	Figure 14		
Pipe in plastic pipe type P-EX Ø 54 mm in floor. Max. opening in floor: Ø 84 mm.	15 x 25 mm		With or without backing	EI 240	Figure 15		
Figure 14							

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around the plastic pipe.

Apply the sealant around the pipe on both sides of the floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around the plastic pipe.





Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes



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Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm						
Plastic pipe diameter (Ø) 25 mm	Width × depth FT Gra from two sides (m	•	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Pipe in plastic pipe type P-EX (d) Inner diameter of pipe Ø 16mm – Outer diameter of pipe Ø 25 mm, pipe wall thickness (t): 2.2 mm. U/C + C/C.						
Pipe in pipe type P-EX Ø 25 mm in wall.	10 x 25 mm		With or without backing	EI 120	Figure 16	
Pipe insulated with polyolefin*, thickness <u>10 mm</u> .						
Max. opening in wall: Ø 65 mm.						
Pipe in plastic pipe type P-EX Ø 25 mm in floor.	15 x 25 mm		With or without backing	EI 240	Figure 17	
Pipe insulated with polyolefin*, thickness <u>10 mm</u> .						
Max. opening in floor: Ø 65 mm.						
Figure 16 Figure 17						

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around the plastic pipe.

Apply the sealant around the pipe on both sides of the floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around the plastic pipe.





Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

* Pipe insulated with 10 mm polyolefin, example Uponor density 28kg/m3.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation with minimum insulation length of 1200 mm, including through the penetration itself. Or continuously for the entire length of

CI: Specified insulation interrupted in the penetration and insulation length extending out a minimum of 600 mm on both sides of a wall or floor.



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Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm					
Plastic pipe diameter (Ø) 54 mm	Width × depth FT Gr from two sides (r	•	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Pipe in plastic pipe type P-EX (d) Inner diameter of pipe Ø 32mm – Outer diameter of pipe Ø 54 mm, pipe wall thickness (t): 4.4 mm. U/C + C/C.					
Pipe in pipe type P-EX Ø 54 mm in wall.	10 x 25 mm		With or without backing	EI 90	Figure 18
Pipe insulated with polyolefin*, thickness 20 mm.					
Max. opening in wall: Ø 114 mm.					
Pipe in plastic pipe type P-EX Ø 54 mm in floor.	15 x 25 mm		With or without backing	EI 90	Figure 19
Pipe insulated with polyolefin*, thickness 20 mm.					
Max. opening in floor: Ø 124 mm.					
Figure 18	Figure 19				
Apply the sealant around the pipe on both sides of th	e wall. Apply FT	Apply the sealant around the pipe on both sides of the floor. Apply FT			

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around the plastic pipe.

Apply the sealant around the pipe on both sides of the floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around the plastic pipe.





Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

${\bf Explanations\ of\ abbreviations\ for\ pipe\ end\ configuration\ in\ test\ (see\ NS-EN\ 1366-3:\ 2009,\ Table\ 2):}$

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

* Pipe insulated with 20 mm polyolefin, example Uponor density 28kg/m3.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation with minimum insulation length of 1200 mm, including through the penetration itself. Or continuously for the entire length of the pipe.

CI: Specified insulation interrupted in the penetration and insulation length extending out a minimum of 600 mm on both sides of a wall or floor.



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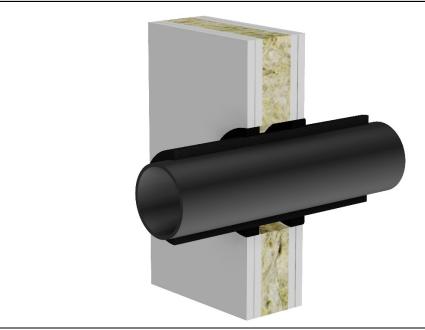
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Flexible and rigid wall ≥ 100 mm.					
Plastic pipe diameter ≤ (Ø) 110 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Insulated plastic pipe type PE ≤ Ø 110 mm in wall. Pipe v	vall thickness (t): ≥ 4.2 mm. U/	C.			
Plastic pipe type PE ≤ Ø 110 mm in wall. Pipe is insulated with synthetic rubber*, thickness <u>13mm</u> . Max. opening in wall Ø 156 mm.	10 x 25 mm	With or without backing	EI 60	Figure 20	

Figure 20

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 ° in relation to wall, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

 $\hbox{U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.}\\$

*Pipe insulated with 13 mm synthetic rubber Armaflex, or equivalent synthetic rubber in fire rating Euroclass B/ BL, s3-d0.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

LI: Specified insulation locally with specified length of 350 mm out from wall on both sides, but interrupted in the penetration itself.

CS: Specified insulation continuous through the entire length of the pipe, including in the penetration itself. CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself.



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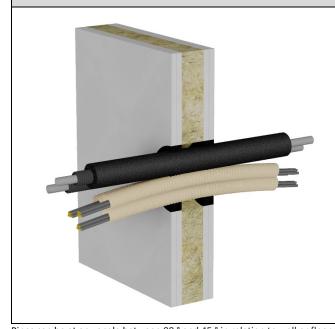
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.						
Bundled penetration ≤ (Ø) 121 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:		
Pipe in plastic pipe type P-EX (d) Outer diameter of pipe Ø 28mm, pipe wall thickness (t): 2.5 mm. U/C + C/C.						
Pipe in pipe type P-EX Ø 28 mm in wall.	10 x 25 mm	With or without backing	EI 120	Figure 21		
Pipe insulated with polyolefin*, thickness 10 mm.						
Electrical cable conduit ≤ Ø 28 mm.						
Max. opening in wall Ø 144 mm.						
Pipe in plastic pipe type P-EX Ø 32 mm in floor.	15 x 25 mm	With or without backing	EI 240	Figure 22		
Pipe insulated with polyolefin*, thickness <u>10 mm</u> .						
Electrical cable conduit ≤ Ø 28 mm.						
Plastic pipe type $PP \le \emptyset$ 110 mm cast in floor.						
Max. opening in floor Ø 110 mm.						

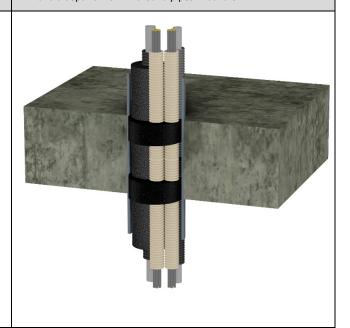
Figure 21

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around pipes in bundle.

Figure 22

Apply the sealant to interior of plastic pipe bundle level with upper edge and lower edge of floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around pipes in bundle.





Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes

 $\hbox{C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.}$

* Pipe insulated with 10 mm polyolefin, example Uponor density 28/kg/m3.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself. CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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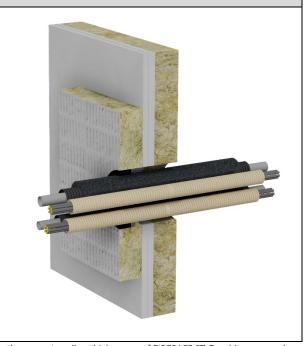
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Flexible shaft wall ≥ 75 mm.					
Bundled penetration ≤ (Ø) 121 mm	Width × depth FT from one side	•	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Pipe in plastic pipe type P-EX (d) Inner diameter of pipe Ø 15mm – Outer diameter of pipe Ø 28 mm, pipe wall thickness (t): 2.5 mm. U/C + C/C.					
Pipe in pipe PE-X Ø 28 mm in shaft wall.	10 x 25 m	m	With or without backing	EI 60	Figure 23
Pipe insulated with polyolefin*, thickness <u>10 mm</u> .					
+ Electrical cable conduit Ø 32 mm.					
Max. opening in shaft wall Ø 144 mm.					
2 pipes in pipe PE-X ≤ Ø 28 mm in shaft wall.	10 x 25 m	m	With or without backing	EI 60	Figure 24
Pipe insulated with polyolefin*, thickness 10 mm.					
2 pcs electrical cable conduit Ø 32 mm. Shaft wall with					
FIRESAFE FT Board 2 S applied on one side, thickness 50					
mm. Max. opening in shaft wall 300 x 1200 mm.					
Figure 23 Figure 24					

Apply the sealant around the pipe on one side of the shaft wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around the plastic pipe.

Apply the sealant around the pipe on one side of the shaft wall, level with FT Board. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around the plastic pipe.





Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

* Pipe insulated with 10 mm polyolefin, example Uponor density 28kg/m3.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself. CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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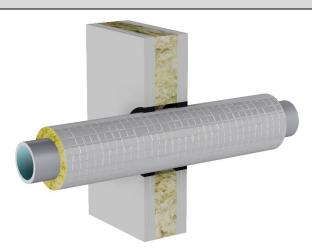
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Flexible and rigid wall ≥ 100 mm.					
Aluminium pipe diameter (Ø) 16 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Aluminium pipe type aluPE-X, (d): Ø 16 mm, pipe thickn	ess (t): 2.0 mm. U/C + C/C.			•	
Pipe in wall insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall: Ø 76 mm.	10 x 25 mm	With or without backing	EI 120	Figure 25	
Pipe in wall insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall: Ø 96 mm.	10 x 25 mm	With or without backing	EI 120	Figure 25	
Pipe in wall insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall: Ø 116 mm.	10 x 25 mm	With or without backing	EI 120	Figure 25	
Pipe in wall insulated with glass wool or stone wool*, thickness: 50mm. Max. opening in wall: Ø 136 mm.	10 x 25 mm	With or without backing	EI 120	Figure 25	
Pipe in wall insulated with glass wool or stone wool*, thickness: 60 mm. Max. opening in wall: Ø 156 mm.	10 x 25 mm	With or without backing	EI 120	Figure 25	
Pipe in wall insulated with glass wool or stone wool*, thickness: 80 mm. Max. opening in wall: Ø 196 mm.	10 x 25 mm	With or without backing	EI 120	Figure 25	

Figure 25

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2-s1, d0. Or pipe insulation of Stone wool with same density, thickness and fire resistance class.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself. CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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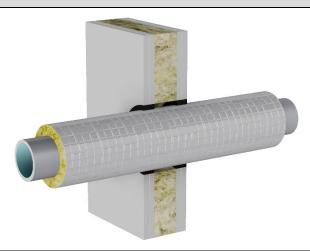
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NSTALLATION INSTRUCTIONS

	Flexible and rigid wall ≥ 100 mm.					
Aluminium pipe diameter ≤ (Ø) 75 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:		
Aluminium pipe type aluP-EX, (d): ≤ Ø 75 mm, pipe wall thickness (t): 7.5 mm. U/C + C/C.						
Pipe in wall insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall: Ø 135 mm.	10 x 25 mm	With or without backing	EI 120	Figure 26		
Pipe in wall insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall: Ø 155 mm.	10 x 25 mm	With or without backing	EI 120	Figure 26		
Pipe in wall insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall: Ø 175 mm.	10 x 25 mm	With or without backing	EI 120	Figure 26		
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>50mm</u> . Max. opening in wall: Ø 195 mm.	10 x 25 mm	With or without backing	El 120	Figure 26		
Pipe in wall insulated with glass wool or stone wool*, thickness: 60 mm. Max. opening in wall: Ø 215 mm.	10 x 25 mm	With or without backing	EI 120	Figure 26		
Pipe in wall insulated with glass wool or stone wool*, thickness: 80 mm. Max. opening in wall: Ø 255 mm.	10 x 25 mm	With or without backing	EI 120	Figure 26		

Figure 26

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2:-s1, d0. Or pipe insulation of Stone wool with same density, thickness and fire resistance class.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself. CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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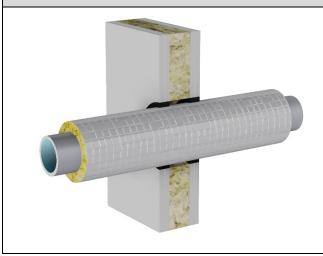
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NSTALLATION INSTRUCTIONS

Rigid wall and rigid floor ≥ 150 mm.					
Aluminium pipe diameter (Ø) 16 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Aluminium pipe type aluP-EX, (d): Ø 16 mm, pipe thick	kness (t): 2.0 mm. U/C + C/C.	•			
Pipe insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall / floor: Ø 86 mm.	15 x 25 mm	With or without backing	EI 240	Figure 27	
Pipe insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall / floor: Ø 106 mm.	15 x 25 mm	With or without backing	EI 240	Figure 27	
Pipe insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall / floor: Ø 126 mm.	15 x 25 mm	With or without backing	EI 240	Figure 27	
Pipe insulated with glass wool or stone wool*, thickness: 50mm. Max. opening in wall / floor: Ø 146 mm.	15 x 25 mm	With or without backing	EI 240	Figure 27	
Pipe insulated with glass wool or stone wool*, thickness: 60 mm. Max. opening in wall / floor: Ø 166 mm.	15 x 25 mm	With or without backing	EI 240	Figure 27	
Pipe insulated with glass wool or stone wool*, thickness: 80 mm. Max. opening in wall / floor: Ø 206 mm.	15 x 25 mm	With or without backing	EI 240	Figure 27	

Figure 27

Apply the sealant around the pipe on both sides of the wall / floor. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.





Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2L-s1, d0. Or pipe insulation of Stone wool with same density, thickness and fire resistance class.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself. CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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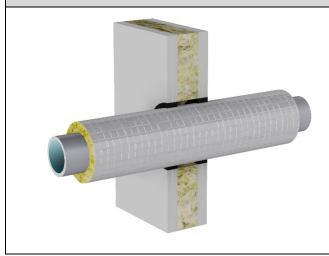
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NSTALLATION INSTRUCTIONS

Rigid wall and rigid floor ≥ 150 mm.					
Aluminium pipe diameter ≤ (Ø) 75 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Aluminium pipe type aluP-EX, (d): Ø 75 mm, pipe thick	kness (t): 7.5 mm. U/C + C/C.	•			
Pipe insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall / floor: Ø 145 mm.	15 x 25 mm	With or without backing	EI 240	Figure 28	
Pipe insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall / floor: Ø 165 mm.	15 x 25 mm	With or without backing	EI 240	Figure 28	
Pipe insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall / floor: Ø 185 mm.	15 x 25 mm	With or without backing	EI 240	Figure 28	
Pipe insulated with glass wool or stone wool*, thickness: 50mm. Max. opening in wall / floor: Ø 205 mm.	15 x 25 mm	With or without backing	EI 240	Figure 28	
Pipe insulated with glass wool or stone wool*, thickness: 60 mm. Max. opening in wall / floor: Ø 225 mm.	15 x 25 mm	With or without backing	EI 240	Figure 28	
Pipe insulated with glass wool or stone wool*, thickness: 80 mm. Max. opening in wall / floor: Ø 265 mm.	15 x 25 mm	With or without backing	EI 240	Figure 28	

Figure 28

Apply the sealant around the pipe on both sides of the wall / floor. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.





Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2:-s1, d0. Or pipe insulation of Stone wool with same density, thickness and fire resistance class.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself. CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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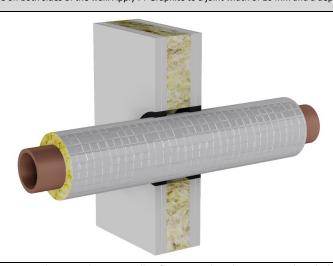
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Flexible and rigid wall ≥ 100 mm.					
Copper and steel pipe diameter (Ø) 15 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Copper and steel pipe (d): Ø 15 mm, pipe thickness (t): 1.0 mm. C/U + C/C.					
Pipe in wall insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall: Ø 75 mm.	10 x 25 mm	With or without backing	EI 120	Figure 29	
Pipe in wall insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall: Ø 95 mm.	10 x 25 mm	With or without backing	EI 120	Figure 29	
Pipe in wall insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall: Ø 115 mm.	10 x 25 mm	With or without backing	El 120	Figure 29	
Pipe in wall insulated with glass wool or stone wool*, thickness: 50 mm. Max. opening in wall: Ø 135 mm.	10 x 25 mm	With or without backing	EI 120	Figure 29	

Figure 29

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

- C/U: Capped /Uncapped. Closed /Open, unventilated pipe systems, for example cold or hot water pipes.
- C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.
- *Pipe insulation type glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2L-s1, d0. Or pipe insulation of Stone wool with same density, thickness and fire resistance class.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

- CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself.
- CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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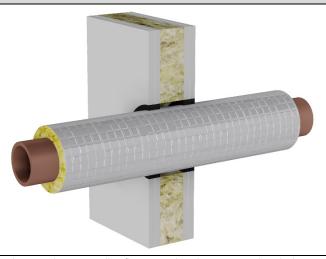
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	Flexible and rigid wall ≥ 100 n	nm.		
Copper and steel pipe diameter ≤ (Ø) 76 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Copper and steel pipe (d): ≤ (Ø) 76 mm, pipe wall thickn	ess (t): 2.1 mm. C/U + C/C.			
Pipe in wall insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall: Ø 136 mm.	10 x 25 mm	With or without backing	EI 90	Figure 30
Pipe in wall insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall: Ø 156 mm.	10 x 25 mm	With or without backing	EI 90	Figure 30
Pipe in wall insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall: Ø 176 mm.	10 x 25 mm	With or without backing	EI 90	Figure 30
Pipe in wall insulated with fibre glass wool or stone wool*, thickness: <u>50mm</u> . Max. opening in wall: Ø 196 mm.	10 x 25 mm	With or without backing	EI 90	Figure 30
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>60mm</u> . Max. opening in wall: Ø 216 mm.	10 x 25 mm	With or without backing	EI 90	Figure 30
Pipe in wall insulated with glass wool or stone wool*, thickness: 80mm. Max. opening in wall: Ø 256 mm.	10 x 25 mm	With or without backing	EI 90	Figure 30

Figure 30

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 °in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

 $\hbox{C/U: Capped /Uncapped. Closed /Open, unventilated pipe systems, for example cold or hot water pipes.}$

 $\hbox{C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.}$

*Pipe insulation type fibre glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2:-s1, d0.

Or pipe insulation of stone wool with same density, thickness and fire rating.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself.

CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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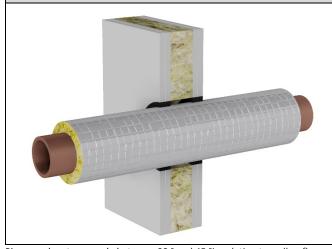
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NSTALLATION INSTRUCTIONS

	Rigid wall and rigid floor ≥ 150	mm.		
Copper and steel pipe diameter ≤ (Ø) 15 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Copper and steel pipe (d): Ø 15 mm, pipe thickness (t)	: 1.0 mm. C/U + C/C.	•		•
Pipe insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall / floor: Ø 85 mm.	15 x 25 mm	With or without backing	EI 240	Figure 31
Pipe insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall / floor: Ø 105 mm.	15 x 25 mm	With or without backing	EI 240	Figure 31
Pipe insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall / floor: Ø 125 mm.	15 x 25 mm	With or without backing	EI 240	Figure 31
Pipe insulated with glass wool or stone wool*, thickness: <u>50mm</u> . Max. opening in wall / floor: Ø 145 mm.	15 x 25 mm	With or without backing	EI 240	Figure 31
Pipe insulated with glass wool or stone wool*, thickness: 60 mm. Max. opening in wall / floor: Ø 165 mm.	15 x 25 mm	With or without backing	EI 240	Figure 31
Pipe insulated with glass wool or stone wool*, thickness: 80 mm. Max. opening in wall / floor: Ø 205 mm.	15 x 25 mm	With or without backing	EI 240	Figure 31

Figure 31

Apply the sealant around the pipe on both sides of the wall / floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around insulated pipe.





Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

C/U: Capped/ Uncapped. Closed /Open, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type fibre glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2:-s1, d0.

Or pipe insulation of stone wool with same density, thickness and fire rating.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself.

CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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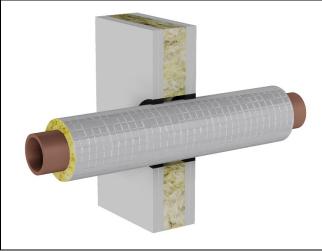
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NSTALLATION INSTRUCTIONS

Rigid wall and rigid floor ≥ 150 mm.					
Copper and steel pipe diameter ≤ (Ø) 76 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Copper and steel pipe (d): ≤ (Ø) 76 mm, pipe wall thick	ness (t): 2.1 mm. C/U + C/C.	•		•	
Pipe insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall / floor: Ø 150 mm.	15 x 25 mm	With or without backing	EI 90	Figure 32	
Pipe insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall / floor: Ø 166 mm.	15 x 25 mm	With or without backing	EI 90	Figure 32	
Pipe insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall / floor: Ø 186 mm.	15 x 25 mm	With or without backing	EI 90	Figure 32	
Pipe insulated with glass wool or stone wool*, thickness: <u>50 mm</u> . Max. opening in wall / floor: Ø 206 mm.	15 x 25 mm	With or without backing	EI 90	Figure 32	
Pipe insulated with glass wool or stone wool*, thickness: 60 mm. Max. opening in wall / floor: Ø 226 mm.	15 x 25 mm	With or without backing	EI 90	Figure 32	
Pipe insulated with glass wool or stone wool*, thickness: 80 mm. Max. opening in wall / floor: Ø 266 mm.	15 x 25 mm	With or without backing	EI 240	Figure 32	

Figure 32

Apply the sealant around the pipe on both sides of the wall / floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around insulated pipe.





Pipes can be at any angle between 90 ° and 45 °in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

C/U: Capped/ Uncapped. Closed /Open, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type fibre glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2:-s1, d0.

Or pipe insulation of stone wool with same density, thickness and fire rating.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself. CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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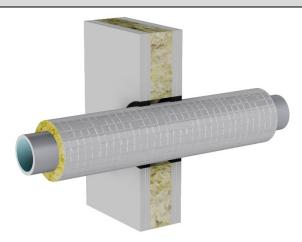
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Flexible and rigid wall ≥ 100 mm.					
Steel pipe diameter ≤ (Ø) 42.2 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Steel pipe (d): ≤ (Ø) 42.2 mm, pipe wall thickness (t): 3.2	25 mm. U/C + C/C.				
Pipe in wall insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall: Ø 102 mm.	10 x 25 mm	With or without backing	EI 120	Figure 33	
Pipe in wall insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall: Ø 122 mm.	10 x 25 mm	With or without backing	EI 120	Figure 33	
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>40 mm</u> . Max. opening in wall: Ø 142 mm.	10 x 25 mm	With or without backing	EI 120	Figure 33	
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>50 mm</u> . Max. opening in wall: Ø 162 mm.	10 x 25 mm	With or without backing	EI 120	Figure 33	
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>60 mm</u> . Max. opening in wall: Ø 182 mm.	10 x 25 mm	With or without backing	EI 90	Figure 33	
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>80 mm</u> . Max. opening in wall: Ø 222 mm.	10 x 25 mm	With or without backing	EI 90	Figure 33	

Figure 33

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 °in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

 $\hbox{U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.}\\$

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type fibre glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2.-s1, d0.

Or pipe insulation of stone wool with same density, thickness and fire rating.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself.

CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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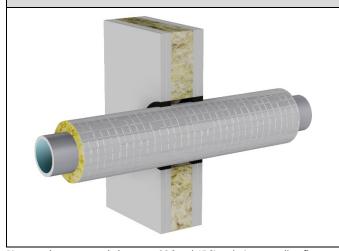
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	Rigid wall and rigid floor ≥ 150	mm.		
Steel pipe diameter ≤ (Ø) 42.2 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Steel pipe (d): ≤ Ø 42.2 mm, Pipe wall thickness (t):	3.25 mm. U/C + C/C.			
Pipe insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall / floor: Ø 112 mm.	15 x 25 mm	With or without backing	EI 90	Figure 34
Pipe insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall / floor: Ø 132 mm.	15 x 25 mm	With or without backing	EI 90	Figure 34
Pipe insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall / floor: Ø 152 mm.	15 x 25 mm	With or without backing	EI 90	Figure 34
Pipe insulated with glass wool or stone wool*, thickness: <u>50 mm</u> . Max. opening in wall / floor: Ø 172 mm.	15 x 25 mm	With or without backing	EI 90	Figure 34
Pipe insulated with glass wool or stone wool*, thickness: <u>60 mm</u> . Max. opening in wall / floor: Ø 192 mm.	15 x 25 mm	With or without backing	EI 90	Figure 34
Pipe insulated with glass wool or stone wool*, thickness: 80 mm. Max. opening in wall / floor: Ø 244 mm.	15 x 25 mm	With or without backing	EI 180	Figure 34

Figure 34

Apply the sealant around the pipe on both sides of the wall / floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around insulated pipe.





Pipes can be at any angle between 90 ° and 45 °in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type fibre glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2:-s1, d0.

Or pipe insulation of stone wool with same density, thickness and fire rating.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself. CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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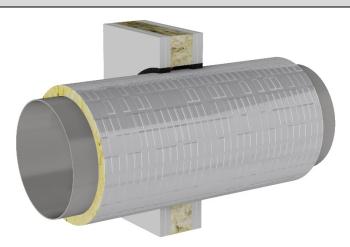
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Flexible wall and rigid wall ≥ 100 mm.					
Steel pipe diameter ≤ (Ø) 219.1 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Steel pipe (d): ≤ (Ø) 219.1 mm, pipe thickness (t): 4.5 i	mm. U/C + C/C.			•	
Pipe in wall insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in wall: Ø 279 mm.	10 x 25 mm	With or without backing	EI 60	Figure 35	
Pipe in wall insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in wall: Ø 299 mm.	10 x 25 mm	With or without backing	EI 60	Figure 35	
Pipe in wall insulated with glass wool or stone wool*, thickness: 40 mm. Max. opening in wall: Ø 319 mm.	10 x 25 mm	With or without backing	EI 60	Figure 35	
Pipe in wall insulated with glass wool or stone wool*, thickness: 50 mm. Max. opening in wall: Ø 339 mm.	10 x 25 mm	With or without backing	EI 120	Figure 35	
Pipe in wall insulated with glass wool or stone wool*, thickness: 60 mm. Max. opening in wall: Ø 359 mm.	10 x 25 mm	With or without backing	EI 120	Figure 35	
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>80 mm</u> . Max. opening in wall: Ø 399 mm.	10 x 25 mm	With or without backing	EI 120	Figure 35	

Figure 35

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 °in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

 $\hbox{C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.}$

*Pipe insulation type fibre glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2-s1, d0.

Or pipe insulation of stone wool with same density, thickness and fire rating.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself.

CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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Rigid floor ≥ 150 mm.				
Steel pipe diameter ≤ (Ø) 219.1 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Steel pipe (d): ≤ (Ø) 219.1 mm, pipe thickness (t): 4.5 m	nm. U/C + C/C.	•		•
Pipe in floor insulated with glass wool or stone wool*, thickness: 20 mm. Max. opening in floor: Ø 289 mm.	15 x 25 mm	With or without backing	EI 90	Figure 36
Pipe in floor insulated with glass wool or stone wool*, thickness: 30 mm. Max. opening in floor: Ø 309 mm.	15 x 25 mm	With or without backing	EI 90	Figure 36
Pipe in floor insulated with fibre glass wool or stone wool*, thickness: 40 mm. Max. opening in floor: Ø 329 mm.	15 x 25 mm	With or without backing	EI 90	Figure 36
Pipe in floor insulated with glass wool or stone wool*, thickness: 50 mm. Max. opening in floor: Ø 349 mm.	15 x 25 mm	With or without backing	EI 90	Figure 36
Pipe in floor insulated with glass wool or stone wool*, thickness: 60 mm. Max. opening in floor: Ø 369 mm.	15 x 25 mm	With or without backing	EI 90	Figure 36
Pipe in floor insulated with glass wool or stone wool*, thickness: <u>80 mm</u> . Max. opening in floor: Ø 409 mm.	15 x 25 mm	With or without backing	EI 180	Figure 36

Figure 36

Apply the sealant around the pipe on both sides of the floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 °in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type fibre glass wool ISOVER ClimPipe Section Alu2 with density 75 kg/m3. Fire resistance class A2L-s1, d0.

Or pipe insulation of stone wool with same density, thickness and fire rating.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1200 mm, including in the penetration itself.

CI: Specified insulation continuous through the entire length of the pipe, but interrupted in the penetration itself, minimum 600 mm on each side of the penetration.



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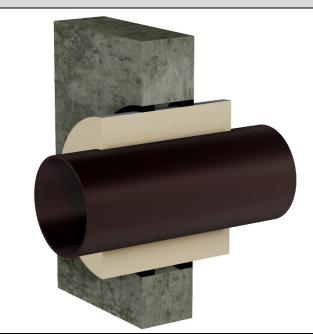
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Flexible and rigid wall ≥ 100 mm.					
Steel pipe diameter ≥ (Ø) 42.2 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Steel pipe (d): ≥ (Ø) 42.2 mm, Pipe wall thickness (t):	: 3.25 mm. U/C + C/C.				
Pipe in wall insulated with PIR*, thickness: <u>25 mm</u> . Max. opening in wall: Ø 112 mm.	10 x 25 mm	With or without backing	EI 120	Figure 37	
Pipe in wall insulated with PIR*, thickness: <u>50 mm</u> . Max. opening in wall: Ø 162 mm.	10 x 25 mm	With or without backing	EI 120	Figure 37	

Figure 37

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1000 mm, including in the penetration itself. LI: Specified insulation locally with specified length from wall on both sides, but interrupted in the penetration itself, insulation length 500 mm out on each side of the penetration.



^{*}Pipe insulation type thermoplastic PIR with density 33 kg/m3.

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Rigid wall and rigid floor ≥ 150 mm.					
Steel pipe diameter ≥ (Ø) 42.2 mm	Width × depth F from two side	-	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Steel pipe (d): ≥ (Ø) 42.2 mm, Pipe wall thickness (t): 3.25 mm. U/C + C/C.					
Pipe insulated with PIR*, thickness: <u>25 mm</u> . Max. opening in wall / floor: Ø 122 mm.	15 x 25 r	mm	With or without backing	EI 240	Figure 38
Pipe insulated with PIR*, thickness: 50 mm. Max. opening in wall / floor: Ø 172 mm.	15 x 25 r	mm	With or without backing	EI 240	Figure 39
Figure 38	Figure 38 Figure 39				

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around insulated pipe.

Apply the sealant around the pipe on both sides of the floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around insulated





Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type thermoplastic PIR with density 33 kg/m3.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1000 mm, including in the penetration itself.

LI: Specified insulation locally with specified length from wall on both sides, but interrupted in the penetration itself, insulation length 500 mm out on each side of the penetration.



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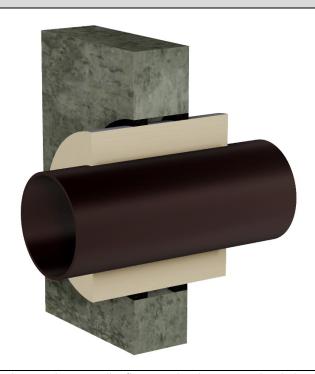
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Flexible and rigid wall ≥ 100 mm.					
Steel pipe diameter ≤ (Ø) 219.1 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Steel pipe (d): ≤ (Ø) 219.1 mm, pipe thickness (t): 4.5	5 mm. U/C + C/C.				
Pipe in wall insulated with PIR*, thickness: <u>25 mm</u> . Max. opening in wall: Ø 289 mm.	10 x 25 mm	With or without backing	EI 60	Figure 40	
Pipe in wall insulated with PIR*, thickness: <u>50 mm</u> . Max. opening in wall: Ø 339 mm.	10 x 25 mm	With or without backing	EI 60	Figure 40	

Figure 40

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulation type thermoplastic PIR with density 33 kg/m3.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1000 mm, including in the penetration itself. LI: Specified insulation locally with specified length from wall on both sides, but interrupted in the penetration itself, insulation length 500 mm out on each side of the penetration.



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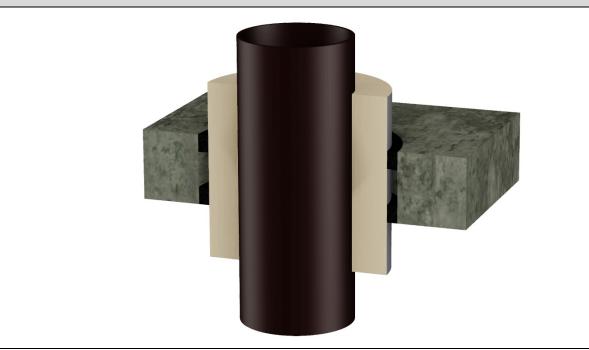
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Rigid floor ≥ 150 mm.					
Steel pipe diameter ≤ (Ø) 219.1 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Steel pipe (d): ≤ (Ø) 219.1 mm, pipe thickness (t): 4.5	5 mm. U/C + C/C.				
Pipe in floor insulated with PIR*, thickness: 25 mm.	15 x 25 mm	With or without backing	EI 180	Figure 41	
Max. opening in floor: Ø 299 mm.					
Pipe in floor insulated with PIR*, thickness: 50 mm.	15 x 25 mm	With or without backing	EI 90	Figure 41	
Max. opening in floor: Ø 349 mm.					

Figure 41

Apply the sealant around the pipe on both sides of the floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Forklaring på forkortelser ved røravslutning i test (ref. NS-EN 1366-3: 2009, Tabell 2):

*Pipe insulation type thermoplastic PIR with density 33 kg/m3.

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe or passing through a minimum of 1000 mm, including in the penetration itself. LI: Specified insulation locally with specified length from wall on both sides, but interrupted in the penetration itself, insulation length 500 mm out on

each side of the penetration.



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Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm					
Aluminium pipe diameter ≤ (Ø) 75 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Aluminium pipe AluPEX, (d): ≤ (Ø) 75 mm, pipe thickness (t): 2.0 - 7.5 mm. U/C + C/C.					
Pipe in wall insulated with synthetic rubber *,	10 x 25 mm	With or without backing	EI 120	Figure 42	
thickness <u>13 mm</u> .					
In combination with FIRESAFE GPG MORTAR.					
Max. opening in wall: 200 x 1000 mm.					
Pipe in floor insulated with synthetic rubber *,	10 x 25 mm	With or without backing	EI 120	Figure 43	
thickness <u>13 mm</u> .					
In combination with FIRESAFE GPG MORTAR.					
Max. opening in floor: 200 x 1000 mm.					

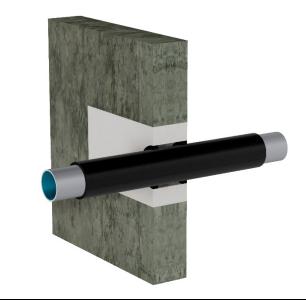
Figure 42

FIRESAFE GPG MORTAR thickness 100 mm.

Apply FIRESAFE FT Graphite around the pipe on both sides of the wall level with the GPG sealant on both sides. Apply FIRESAFE FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.

Figure 43 FIRESAFE GPG MORTAR thickness 100 mm.

Apply FIRESAFE FT Graphite around the pipe on both sides of the floor level with the GPG sealant on both sides. Apply FIRESAFE FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.





Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulated with 13 mm synthetic rubber, example type Armaflex, density 60kg/m3. Fire resistance class B/ B∟-s3-d0.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

LS: Specified insulation with minimum insulation length of 700 mm, including through the penetration itself.

LI: Specified insulation locally with specified length from wall on both sides, but interrupted in the penetration itself, insulation length 350 mm out on each side of the penetration.



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Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm					
Aluminium pipe diameter ≤ (Ø) 75 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Aluminium pipe AluPEX, (d): ≤ (Ø) 75 mm, pipe thickness (t): 2.0 - 7.5 mm. U/C + C/C.					
Pipe in wall insulated with synthetic rubber *, thickness <u>13 mm</u> . In combination with FIRESAFE FT Board 2 S. Max. opening in wall: 600 x 1200 mm.	10 x 25 mm	With or without backing	EI 60	Figure 44	
Pipe in floor insulated with synthetic rubber *, thickness <u>13 mm</u> . In combination with FIRESAFE FT Board 2 S. Max. opening in floor: 600 x 5000 mm.	10 x 25 mm	With or without backing	EI 60	Figure 45	

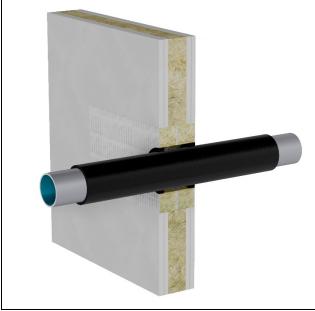
Figure 44

FIRESAFE FT Board thickness 2 x 50 mm.

Apply FIRESAFE FT Graphite around the pipe on both sides of the wall level with FT Board on both sides. Apply FIRESAFE FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.

Figure 45 FIRESAFE FT BOARD thickness 2 x 50 mm.

Apply FIRESAFE FT Graphite around the pipe on both sides of the floor level with FT Board on both sides. Apply FIRESAFE FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.





Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

 $\hbox{U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.}\\$

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulated with 13 mm synthetic rubber, example type Armaflex, density 60kg/m3. Fire resistance class B/ Bi-s3-d0.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

LS: Specified insulation with minimum insulation length of 700 mm, including through the penetration itself.

LI: Specified insulation locally with specified length from wall on both sides, but interrupted in the penetration itself, insulation length 350 mm out on each side of the penetration.



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Copper and steel pipe diameter ≤ (Ø) 8 mm Width × depth FT Graphite from two sides (mm) Backing, type, density, thickness (mm) Fire resistance figure				
Copper and steel pipe (d): ≤ (Ø) 8 mm, pipe thickness (t): 0.8 mm. U/C.			
2 pipes in wall insulated with neoprene foam*, thickness 9 mm. Max. opening in wall: Ø 72 mm.	10 x 25 mm	With or without backing	EI 60	Figure 46

Figure 46

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used. Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

* Pipe insulation type neoprene foam plastic thickness 9 mm.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

CS: Specified insulation continuous through the entire length of the pipe, including in the penetration itself.



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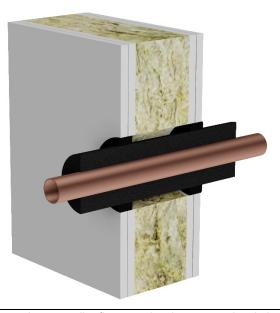
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Flexible and rigid wall ≥ 100 mm.					
Copper and steel pipe diameter ≤ (Ø) 35 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
copper and steel pipe (d) ≤ Ø 35 mm, pipe thickness (t): 1.5 mm. U/C + C/C.					
Pipe in wall insulated with synthetic rubber*,	10 x 25 mm	With or without backing	EI 90	Figure 47	
thickness: <u>13 mm</u> .				rigule 47	
Max. opening in wall: Ø 81 mm.					
Pipe in wall insulated with synthetic rubber *,	10 x 25 mm	With or without backing	EI 90	Figure 47	
thickness: <u>25 mm</u> .					
Max. opening in wall: Ø 105 mm.					

Figure 47

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.



Pipes can be at any angle between 90° and 45° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graphite are used.

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulated with 13 mm and 25 mm Armaflex density 60kg/m3, or equivalent synthetic rubber. Fire resistance class B/ B_L-s3-d0.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

LS: Specified insulation with minimum insulation length of 700 mm, including through the penetration itself.

 ${\it CS: Specified insulation continuous through the entire length of the pipe, including in the penetration itself.}$



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Width × depth from two si - 3.25 mm. U/C + 10 x 25	ides (mm) + C/C.	Backing, type, density, thickness (mm) With or without backing	Fire resistance class	See detail, figure:						
	-	With or without backing	•							
10 x 25	5 mm	With or without backing		Steel pipe (d) Ø 15 – 42.2 mm, pipe wall thickness (t): 1.0 – 3.25 mm. U/C + C/C.						
		with or without backing	EI 120	Figure 48						
10 x 25	5 mm	With or without backing	EI 90	Figure 48						
10 x 25 mm		With or without backing	EI 60	Figure 48						
10 x 25 mm		With or without backing	EI 90	Figure 48						
10 x 25 mm		With or without backing	EI 90	Figure 48						
10 x 25 mm		With or without backing	EI 120	Figure 48						
10 x 25 mm		With or without backing	EI 120	Figure 48						
10 x 25 mm		With or without backing	EI 90	Figure 49						
15 x 25 mm		With or without backing	EI 180	Figure 49						
15 x 25 mm		With or without backing	EI 180	Figure 49						
	10 x 2 10 x 2 10 x 2 10 x 2 10 x 2 10 x 2 10 x 2	10 x 25 mm 10 x 25 mm	10 x 25 mm With or without backing 15 x 25 mm With or without backing 15 x 25 mm With or without backing 15 x 25 mm With or without backing	10 x 25 mm With or without backing EI 60 10 x 25 mm With or without backing EI 90 10 x 25 mm With or without backing EI 90 10 x 25 mm With or without backing EI 120 10 x 25 mm With or without backing EI 120 10 x 25 mm With or without backing EI 120 10 x 25 mm With or without backing EI 90 15 x 25 mm With or without backing EI 180						

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around insulated pipe.

Apply the sealant around the pipe on both sides of the floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around insulated pipe.





Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulated with 13 mm and 25 mm type Armaflex density 60kg/m3, or equivalent synthetic rubber. Fire resistance class B/ Bi-s3-d0.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

LS: Specified insulation with minimum insulation length of 700 mm, including through the penetration itself.

LI: Specified insulation locally with specified length from wall/ floor on both sides, but interrupted in the penetration itself, insulation length 350 mm out on each side of the penetration.



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Flexible and r	rigid wall ≥ 100	mm and rigid flo	oor ≥ 150 mm		
Steel pipe diameter (Ø) 42.2 – 219.1 mm	Width × depth FT Graphite from two sides (mm)		Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Steel pipe (d) Ø 42.2 – 219.1 mm, pipe wall thickness (t): 3	.25 – 14.2 mm.	U/C + C/C.			
Pipe in wall Ø 42.2 mm insulated with synthetic rubber*,	10 x 25 mm		With or without backing	EI 120	Figure 50
thickness 10 mm. Max. opening in wall: Ø 83 mm.					
Pipe in wall \emptyset 101.6 mm insulated with synthetic rubber*,	10 x 2	25 mm	With or without backing	EI 60	Figure 50
thickness 13 mm. Max. opening in wall: Ø 148 mm.					
Pipe in wall \emptyset 219.1 mm insulated with synthetic rubber*,	10 x 2	25 mm	With or without backing	EI 60	Figure 50
thickness 10 mm. Max. opening in wall: Ø 259 mm.					
Pipe in wall \emptyset 219.1 mm insulated with synthetic rubber*,	10 x 2	25 mm	With or without backing	EI 120	Figure 50
thickness 13 mm. Max. opening in wall: Ø 265 mm.					
Pipe in wall \emptyset 219.1 mm insulated with synthetic rubber*,	10 x 2	25 mm	With or without backing	EI 90	Figure 50
thickness <u>25 mm</u> . Max. opening in wall: Ø 289 mm.					
Pipe in floor Ø 42.2 mm insulated with synthetic rubber*,	15 x 2	25 mm	With or without backing	EI 240	Figure 51
thickness 10 mm. Max. opening in floor: Ø 102 mm.					
Pipe in floor Ø 42.2 mm insulated with synthetic rubber*,	15 x 2	25 mm	With or without backing	EI 180	Figure 51
thickness 13 mm. Max. opening in floor: Ø 98 mm.					
Pipe in floor Ø 42.2 mm insulated with synthetic rubber*,	15 x 2	25 mm	With or without backing	EI 180	Figure 51
thickness 25 mm. Max. opening in floor: Ø 122 mm.					
Pipe in floor Ø 101.6 insulated with synthetic rubber*,	10 x 2	25 mm	With or without backing	EI 90	Figure 51
thickness 13 mm. Max. opening in floor: Ø 148 mm.					
Pipe in floor Ø 219.1 mm insulated with synthetic rubber*,	15 x 2	25 mm	With or without backing	EI 90	Figure 51
thickness 10 mm. Max. opening in floor: Ø 269 mm.					
Pipe in floor Ø 219.1 mm insulated with synthetic rubber*,	15 x 2	25 mm	With or without backing	EI 60	Figure 51
thickness 13 mm. Max. opening in floor: Ø 276 mm.					
Pipe in floor Ø 219.1 mm insulated with synthetic rubber*,	15 x 2	25 mm	With or without backing	EI 60	Figure 51
thickness 25 mm. Max. opening in floor: Ø 300 mm.					
Figure 50			Figure 51		
Apply the sealant around the pipe on both sides of the wall. Ap			ant around the pipe on both s		. ,
to a joint width of 10 mm and a depth of 25 mm around insulat	ed pipe.		oint width of 15 mm and a de	pth of 25 mm arou	nd insulated
		pipe.			
				h	
				1000000	
			desco.		
				ALCON IN	
		1	使用的数		

Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

*Pipe insulated with 10, 13- or 25-mm synthetic rubber type Armaflex density 60kg/m3, or equivalent in fire resistance class B/ B_L-s3-d0.

LS: Specified insulation with minimum insulation length of 1000 mm, including through the penetration itself.



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Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm					
Steel pipe diameter (Ø) 15 – 219.1 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Steel pipe (d) Ø 15 – 219.1 mm, pipe wall thickness (t): 1	.0 – 4.5 mm. U/C + C/C.				
Pipe in wall Ø 15 mm insulated with stone wool*, thickness 25 mm. Max. opening in wall: Ø 85 mm.	10 x 25 mm	With or without backing	EI 90	Figure 52	
Pipe in wall Ø 15 mm insulated with stone wool*, thickness <u>50 mm</u> . Max. opening in wall: Ø 128 mm.	6 x 25 mm	With or without backing	EI 120	Figure 52	
Pipe in wall Ø 35 mm insulated with stone wool*, thickness <u>25 mm</u> . Max. opening in wall: Ø 105 mm.	10 x 25 mm	With or without backing	EI 60	Figure 52	
Pipe in wall Ø 35 mm insulated with stone wool*, thickness <u>50 mm</u> . Max. opening in wall Ø 155 mm.	10 x 25 mm	With or without backing	EI 90	Figure 52	
Pipe in wall Ø 42.2 mm insulated with stone wool*, thickness <u>25 mm</u> . Max. opening in wall: Ø 112 mm.	10 x 25 mm	With or without backing	EI 90	Figure 52	
Pipe in wall Ø 42.2 mm insulated with stone wool*, thickness <u>50 mm</u> . Max. opening in wall: Ø 162 mm.	10 x 25 mm	With or without backing	EI 90	Figure 52	
Pipe in wall Ø 219.1 mm insulated with stone wool*, thickness <u>25 mm</u> . Max. opening in wall: Ø 298 mm.	10 x 25 mm	With or without backing	EI 90	Figure 52	
Pipe in wall Ø 219.1 mm insulated with stone wool*, thickness <u>50 mm</u> . Max. opening in wall: Ø 339 mm.	10 x 25 mm	With or without backing	EI 90	Figure 52	
Pipe in floor Ø 219.1 mm insulated with stone wool*, thickness <u>25 mm</u> . Max. opening in floor: Ø 300 mm.	15 x 25 mm	With or without backing	EI 120	Figure 53	

 $\label{Figure 52} Figure 52$ Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 6-10 mm and a depth of 25 mm around insulated pipe.

Figure 53

Apply the sealant around the pipe on both sides of the floor. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around insulated pipe.





Explanations of abbreviations for pipe end configuration in test (see NS-EN 1366-3: 2009, Table 2):

U/C: Uncapped /Capped. Open /Closed, unventilated pipe systems, for example cold or hot water pipes.

C/C: Capped /Capped. Closed /Closed. Closed pipe systems with permanent water pressure.

Explanations of abbreviations for pipe insulation (see NS-EN 1366-3: 2009, Table 1):

*Pipe insulated with 25 and 50 mm thick stone wool, density 90kg/m3.

LS: Specified insulation with minimum insulation length of 700 mm in wall, including through the penetration itself.

LS: Specified insulation with minimum insulation length of 1000 mm in floor, including through the penetration itself.



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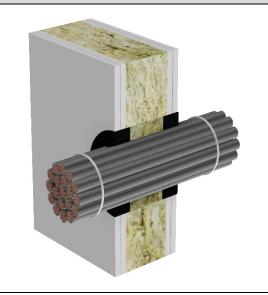
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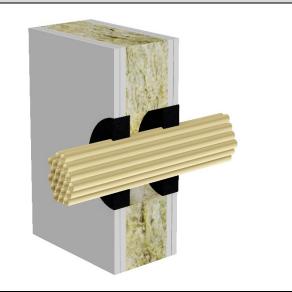
CE 0960

Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm						
Cable bundle, electrical cable conduit bundle diameter (Ø) ≤ 121	Width × depth FT from two sides	•	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:	
Cable bundle and electrical cable conduit bundle (d) Ø ≤ 121, Copper cable ≤ Ø 31 mm + fibre optic cable.						
Cable bundle (d) $\leq \emptyset$ 121 mm, with cable (d) $\leq \emptyset$ 31 mm. Max. opening in wall or floor: \emptyset 151 mm.	15 x 25 m	m	With or without backing	EI 120	Figure 54	
Electrical cable conduit in bundle (d) $\leq \emptyset$ 110 mm, cable conduit (d) $\leq \emptyset$ 20 mm. Or isolated electrical cable conduit (d) $\leq \emptyset$ 110 mm.	15 x 25 mm		With or without backing	EI 120	Figure 55	
Max. opening in wall or floor: Ø 140 mm.						
Figure 54			Figure 55			

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around the cable

Apply the sealant around the pipe on both sides of the wall. Apply FT Graphite to a joint width of 15 mm and a depth of 25 mm around the conduit bundle.





bundle.

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Flexible wall ≥ 100 mm						
Wall box PE-X sanibox diameter (Ø)	Width × depth FT Graphite from one side (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:		
Wall box PE-X sanibox (d) Ø 51 mm						
Outer diameter of plastic PE-X (d) Ø 51 mm. Pipes inside og the box (d) Ø 12 mm. Max. opening in wall: Ø 73 mm.	10 x 25 mm	With or without backing	EI 60	Figure 56		

Figure 55

Apply the sealant around the box on one side of the wall. Apply FT Graphite to a joint width of 10 mm and a depth of 25 mm around the box.



The PE-X sanibox must be in angle 90 ° in relation to wall.



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PLASTIC PIPE: TYPE OF PLASTIC AND EXAMPLE OF PRODUCT NAME AND PIPE MANUFACTURER

PE polyethylene:			
- PE-LD + PE-HD polyethylene PEX-AL-PEX AluEX heating + water supply, Al composite pipe or multi - layer pipe PE-Xa high pressure + high temperature pipe	PE-LD + PE-HD example type: Wavin TS. Agru PE 100. Agru PE 100-RC.	AluPEX example type: Uponor MLC. TECEflex. Geberit Mepla. Keketil Lelox KM 110. Rehau Rautitan Stabil. Henco AluPEX. Begetube Alpex.	PE-Xa example type: Uponor Aqua. Geberit Mepla. KE KELIT KELOX KM 110. Rehau Rautitan Flex. Rehau Rautitan Stabil.

PP polypropylene:				
- PP-R high pressure + high temperature pipe - PP-MD noise-dampened. - PP-MX noise-dampened.	PP example type: Dyka PP. Agru PP-H.	PP-R example type: Aquatherm Blue. Aquatherm Green. aquatechnik PP-R. Akatherm PP-R. Wavin Pilsa.	PP-MD example type: Uponor Decibel. Gebrit Silent-PP. Pipelife Master 3. Rehau Raupiano Plus. Poloplast Polo-Kal NG/3S. Wavin SiTech / AS. Valsir Silere / Triplus.	PP-MX example type: Gebrit Silent-Pro

DOCUMENTATION INFORMATION

A list of areas of application and fire resistance ratings is shown in these installation instructions.

Other documentation such as product data sheets, safety data sheets (SDS) and declarations of performance (DoP) can be downloaded from www.firesafe.no.

Product certification with/by declaration of performance; for more information, see certification of CE-marked construction products through ETA on www.eota.eu/

Always consult <u>www.firesafe.no</u> for the latest versions of installation instructions, product data sheets and the declaration of performance (DoP), as product development and testing are continuous processes at FIRESAFE AS.

Contact the technical department at FIRESAFE for other **EI** requirements, non-standardised solutions or complex, project-specific requirements; e-mail: firmapost@firesafe.no.

