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CE 0960

INSTRUCTIONS

**NSTALLATION** 

#### 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.

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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/m<sup>3</sup>) ≥100 mm.
- Fire-classified floors according to EN 1363-1.: Floors of masonry/cast construction (density 600 650 kg/m<sup>3</sup>) ≥150 mm.
- Approved as a smoke sealant in accordance with EN 1634-3.
- For more details, see the DoP on <u>www.firesafe.no</u>.
- 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 $\leq \emptyset$ 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 $\leq \emptyset$ 90 mm. Examples FIRESAFE GPG MORTAR and FIRESAFE FT BOARD	EI 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 $\geq$ 100 mm and rigid floor $\geq$ 150 mm.			
Plastic pipe type PP-R $\leq Ø$ 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 $\geq$ 100 mm and rigid floor $\geq$ 150 mm.		-	
Plastic pipe type PP-MX $\leq \emptyset$ 110 mm.	EI 90 - EI 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 $\geq$ 100 mm and rigid floor $\geq$ 150 mm.			
Plastic pipe type PE-X Ø 25 mm insulated with polyolefin.	EI 120 - EI 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 $\geq$ 100 mm and rigid floor $\geq$ 150 mm.			
Plastic pipe type PE $\leq \emptyset$ 110 mm insulated with synthetic rubber.	EI 60	Figure 20	15
Flexible and rigid wall $\geq$ 100 mm.			
Plastic pipe in bundle type PE-X insulated with polyolefin and electrical cable conduit.	EI 120 - EI 240	Figures 21–22	16
Flexible and rigid wall $\geq$ 100 mm and rigid floor $\geq$ 150 mm.		0	
Plastic pipe in bundle type PE-X insulated with polyolefin and electrical cable conduit.	EI 60	Figures 23–24	17
Flexible shaft wall $\geq$ 75 mm.		0	
Aluminium pipe type aluP-EX $\emptyset$ 16 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Flexible and rigid wall $\ge$ 100 mm.	EI 120	Figure 25	18
Aluminium pipe type aluP-EX $\leq \emptyset$ 75 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Flexible and rigid wall $\geq$ 100 mm.	EI 120	Figure 26	19
Aluminium pipe type aluP-EX $\emptyset$ 16 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Rigid wall and rigid floor $\ge$ 150 mm.	EI 240	Figure 27	20
Aluminium pipe type aluP-EX $\leq \emptyset$ 75 mm insulated with glass wool type ISOVER ClimPipe Section Alu2. Rigid wall and rigid floor $\geq$ 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.

INSTALLATION TYPE:	FIRE RESISTANCE	DETAIL:	PAGE:
	CLASS:		
Copper and steel pipe $\leq \emptyset$ 76 mm insulated with glass wool type ISOVER ClimPipe Section Alu2.	EI 90	Figure 30	23
Flexible and rigid wall ≥ 100 mm.			
Copper and steel pipe $\leq \emptyset$ 15 mm insulated with glass wool type ISOVER ClimPipe Section Alu2.	EI 240	Figure 31	24
Rigid wall and rigid floor ≥ 150 mm.			
Copper and steel pipe $\leq \emptyset$ 76 mm insulated with glass wool type ISOVER ClimPipe Section Alu2.	EI 90 - EI 240	Figure 32	25
Rigid wall and rigid floor ≥ 150 mm.			
Steel pipe $\leq \emptyset$ 42.2 mm insulated with glass wool type ISOVER ClimPipe Section Alu2.	EI 90 - EI 240	Figure 33	26
Flexible and rigid wall ≥ 100 mm.			
Steel pipe $\leq \emptyset$ 42.2 mm insulated with glass wool type ISOVER ClimPipe Section Alu2.	EI 90 - EI 180	Figure 34	27
Rigid wall and rigid floor ≥ 150 mm.			
Steel pipe $\leq \emptyset$ 219.1 mm insulated with glass wool type ISOVER ClimPipe Section Alu2.	EI 60 - EI 120	Figure 35	28
Flexible and rigid wall ≥ 100 mm.			
Steel pipe $\leq \emptyset$ 219.1 mm insulated with glass wool type ISOVER ClimPipe Section Alu2.	EI 90 - EI 180	Figure 36	29
Rigid floor ≥ 150 mm.			
Steel pipe $\leq \emptyset$ 42.2 mm insulated with PIR.	EI 120	Figure 37	30
Flexible and rigid wall ≥ 100 mm.			
Steel pipe $\leq \emptyset$ 42.2 mm insulated with PIR.	EI 240	Figures 38–39	31
Rigid wall and rigid floor ≥ 150 mm.			
Steel pipe $\leq \emptyset$ 219.1 mm insulated with PIR.	EI 60	Figure 40	32
Flexible and rigid wall ≥ 100 mm.			
Steel pipe $\leq \emptyset$ 219.1 mm insulated with PIR.	EI 90 - EI 180	Figure 41	33
Rigid floor ≥ 150 mm.			
Aluminium pipe type aluPE-X ≤ Ø 75 mm insulated with synthetic rubber, example FIRESAFE	EI 120	Figures 42–43	34
GPG MORTAR. Flexible and rigid wall $\ge$ 100 mm and rigid floor $\ge$ 150 mm.			
Aluminium pipe type aluPE-X $\leq \emptyset$ 75 mm insulated with synthetic rubber m, example FIRESAFE	EI 60	Figures 44–45	35
FT BOARD. Flexible and rigid wall $\geq$ 100 mm and rigid floor $\geq$ 150 mm.			
Steel pipe $\leq \emptyset$ 8 mm insulated with neoprene.	EI 60	Figure 46	36
Flexible and rigid wall ≥ 100 mm.			
Copper and steel pipe $\leq \emptyset$ 35 mm insulated with synthetic rubber.	EI 90	Figure 47	37
Flexible and rigid wall ≥ 100 mm.			
Steel pipe Ø 15 - Ø 42.2 mm insulated with synthetic rubber m.	EI 60 - EI 180	Figures 48–49	38
Flexible and rigid wall $\ge$ 100 mm and rigid floor $\ge$ 150 mm.			
Steel pipe Ø 42.2 - Ø 219.1 mm insulated with synthetic rubber.	EI 60 - EI 240	Figures 50–51	39
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.			
Steel pipe $\emptyset$ 15 - $\emptyset$ 219.1 mm insulated with stone wool.	EI 60 - EI 120	Figures 52–53	40
Flexible and rigid wall $\geq$ 100 mm and rigid floor $\geq$ 150 mm.			
Cable bundle and electrical cable conduit bundle $\emptyset$ 121 mm.	EI 120	Figures 54–55	41
Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm.			
Wall box PE-X sanibox (d) Ø 51 mm.	EI 60	Figures 56	42
Flexible wall ≥ 100 mm.			



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**NSTALLATION INSTRUCTIONS** 

Flexible and rigid wall ≥ 100 mm and rigid 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 PE/PP/PVC ≤ Ø 110 mm, pipe wa	l thickness (t): 2.7 – 10 mm.	U/C + C/C.				
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 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.	25 mm around the	Apply the sealant around the pip Graphite to a joint width of 15 m Ilastic 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.



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**NSTALLATION INSTRUCTIONS** 

	Flexible and rigid v	/all ≥ 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:
Plastic pipe type PE/PP/PVC ≤ Ø 90 mm, pipe wa	all thickness (t): 3.0 – 8.2 mr	n. U/C + C/C.	l	
Plastic pipe type PE/PP/PVC ≤ Ø 90 mm in wall. In combination with FIRESAFE GPG MORTAR. Max. opening in wall: 200 x 1000 mm.	10 x 25 mm	With or without backing	El 120	Figure 3
Plastic pipe type PE/PP/PVC ≤ Ø 90 mm in wall. n combination with FIRESAFE FT Board. Max. opening in wall: 200 x 1000 mm.	10 x 25 mm	With or without backing	El 120	Figure 4
Figure 3			Figure 4	
Graphite to a joint width of 10 mm and a depth of plastic pipe in the GPG sealant. GPG MORTAR thi		Graphite to a joint width of 10 plastic pipe in FT Board. FIRESA	•	

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):

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**NSTALLATION INSTRUCTIONS** 

Flexible ar	nd rigid wall ≥ 100 mm and rigi	d 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-R, Green and Blue Power ≤ Ø 110	mm, pipe wall thickness (t): 3.	7 – 15.1 mm. U/C + C/C.		
Pipe type PP-R, Green and Blue Power ≤ Ø 40 mm in	10 x 40 mm	With or without backing	EI 120	Figure 5
wall. Pipe wall thickness (t): 3.7 - 5.5 mm.				
Max. opening in wall: Ø 60 mm.				
Pipe type PP-R, Green and Blue Power $\leq \emptyset$ 40 mm in	15 x 40 mm	With or without backing	EI 240	Figure 6
floor. Pipe wall thickness (t): 3.7 - 5.5 mm.				
Max. opening in floor: Ø 70 mm.				
Pipe type PP-R, Green and Blue Power ≤ Ø 63 mm in	10 x 40 mm	With or without backing	EI 120	Figure 5
wall. Pipe wall thickness (t): 5.8 - 8.6 mm.				
Max. opening in wall: Ø 83 mm.				
Pipe type PP-R, Green and Blue Power $\leq \emptyset$ 63 mm in	15 x 40 mm	With or without backing	EI 180	Figure 6
floor. Pipe wall thickness (t): 5.8 - 8.6 mm.				
Max. opening in floor: Ø 93 mm.				
Pipe type PP-R, Green and Blue Power $\leq \emptyset$ 75 mm in	10 x 40 mm	With or without backing	EI 120	Figure 5
wall. pipe wall thickness (t): 6.8 - 10.3 mm.				
Max. opening in wall: Ø 95 mm.				
Pipe type PP-R, Green and Blue Power $\leq \emptyset$ 75 mm in	15 x 40 mm	With or without backing	EI 180	Figure 6
floor. Pipe wall thickness (t): 6.8 - 10.3 mm.				
Max. opening in floor: Ø 105 mm.				
Pipe type PP-R, Green and Blue Power ≤ Ø 110 mm in	10 x 40 mm	With or without backing	EI 60	Figure 5
wall. Pipe wall thickness (t): 10.0 - 15.1 mm.				
Max. opening in wall: Ø 130 mm.				
Pipe type PP-R, Green and Blue Power $\leq \emptyset$ 110 mm in	15 x 40 mm	With or without backing	EI 90	Figure 6
floor. Pipe wall thickness (t): 10.0 - 15.1 mm.				
Max. opening in floor: Ø 140 mm.				
Figure 5		Figure	5	

Figure 5

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 40 mm around the plastic pipe.

#### Figure 6

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 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.

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



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**NSTALLATION INSTRUCTIONS** 

	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

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):** 

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**NSTALLATION INSTRUCTIONS** 

FI	exible and rigid wall $\ge$ 100 mm and rig	gid 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 wal	l thickness (t): 1.8 – 3.8 mm. U/C + C/0	C.		
Plastic pipe type PP-MD $\leq \emptyset$ 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 $\leq \emptyset$ 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 $\leq \emptyset$ 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.				
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: Ø 105 mm.				
Plastic pipe type PP-MD $\leq \emptyset$ 110 mm in wall.	10 x 25 mm	With or without backing	EI 60	Figure 8
Pipe wall thickness (t): 3.8 mm.				
Max. opening in wall: Ø 130 mm.				
Plastic pipe type PP-MD $\leq \emptyset$ 110 mm in floor.	15 x 25 mm	With or without backing	EI 60	Figure 9
Pipe wall thickness (t): 3.8 mm.				
Max. opening in floor: Ø 140 mm.				

#### Figure 8

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.

#### Figure 9

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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**NSTALLATION INSTRUCTIONS** 

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 wal	l thickness (t): 1.8 – 2.6 mm. U/C + C/C			
Plastic pipe type PP-MD ≤ Ø 32 mm in wall. Pipe wall thickness (t): 1.8 mm. Max. opening in wall: Ø 62 mm.	15 x 25 mm	With or without backing	EI 240	Figure 10
Plastic pipe type PP-MD $\leq \emptyset$ 50 mm in wall. Pipe wall thickness (t): 2.0 mm. Max. opening in wall: $\emptyset$ 80 mm.	15 x 25 mm	With or without backing	EI 180	Figure 10
Plastic pipe type PP-MD ≤ Ø 75 mm in wall. Pipe wall thickness (t): 2.6 mm. Max. opening in wall: Ø 105 mm.	15 x 25 mm	With or without backing	EI 240	Figure 10
	Figure 10			
Apply the sealant around the pipe on both sides of	of the wall. Apply FT Graphite to a joint wi	dth of 15 mm and a depth of 25	mm around the plast	ic 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):

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Flexible and rigid wall ≥ 100 mm 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 wal	l thickness (t): 2.7 – 4.2 mm. U	/C + C/C.				
Plastic pipe type PP-MX ≥ Ø 50 mm in wall. Pipe wall thickness (t): 2.7 mm. Incl. sleeve. Max. opening in wall: Ø 70 mm.	10 x 25 mm	With or without backing	El 120	Figure 11		
Plastic pipe type PP-MX ≥ Ø 50 mm in floor. Pipe wall thickness (t): 2.7 mm. Incl. sleeve. Max. opening in floor: Ø 76 mm.	10 x 25 mm	With or without backing	EI 240	Figure 12		
Plastic pipe type PP-MX ≤ Ø 110 mm in wall. Pipe wall thickness (t): 2.0 mm. Incl. sleeve. Max. opening in wall: Ø 130 mm.	10 x 25 mm	With or without backing	EI 90	Figure 11		
Plastic pipe type PP-MX ≤ Ø 110 mm in floor. Pipe wall thickness (t): 4.2 mm. Incl. sleeve. Max. opening in floor: Ø 142 mm.	10 x 25 mm	With or without backing	EI 240	Figure 12		
olastic pipe.		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):

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**NSTALLATION INSTRUCTIONS** 

	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 wa	ll thickness (t): 2.6 – 2.7 mm. U/C + C/0	C.		
Plastic pipe type PP-MX ≥ Ø 50 mm in wall. Pipe wall thickness (t): 2.7 mm. Incl. sleeve. Max. opening in wall: Ø 71 mm.	10 x 25 mm	With or without backing	EI 240	Figure 13
Plastic pipe type PP-MX ≤ Ø 110 mm in wall. Pipe wall thickness (t): 4.2 mm. Incl. sleeve. Max. opening in wall: Ø 130 mm.	10 x 25 mm	With or without backing	EI 90	Figure 13
	Figure 13			
Apply the sealant around the pipe on both sides o		dth of 10 mm and a depth of 25	mm around the plast	ic 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.



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**NSTALLATION INSTRUCTIONS** 

Fle	xible and rigid wall ≥ 100 m	m and rigid	l floor ≥ 150 mm		
Plastic pipe diameter (Ø) 54 mm	Width × depth FT Graph two sides (mm)		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 di	ameter of	pipe Ø 54 mm, pipe wall thic	kness (t): 4.4 mm. (	J/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
Apply the sealant around the pipe on both sides of Graphite to a joint width of 10 mm and a depth of plastic pipe.			e sealant around the pipe on to a joint width of 15 mm an pe.		

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.



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**NSTALLATION INSTRUCTIONS** 

Flexible	and rigid wall ≥ 100 m	m and rig	id floor ≥ 150 mm		
Plastic pipe diameter (Ø) 25 mm	Width × depth FT Gr from two sides (n		Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Pipe in plastic pipe type P-EX (d) Inner diameter of pi	ipe Ø 16mm – Outer dia	ameter of	f pipe Ø 25 mm, pipe wall th	ickness (t): 2.2 mm	n. U/C + C/C.
Pipe in pipe type P-EX Ø 25 mm in wall. Pipe insulated with polyolefin*, thickness <u>10 mm</u> . Max. opening in wall: Ø 65 mm.	10 x 25 mm		With or without backing	EI 120	Figure 16
Pipe in plastic pipe type P-EX Ø 25 mm in floor. Pipe insulated with polyolefin*, thickness <u>10 mm</u> . Max. opening in floor: Ø 65 mm.	15 x 25 mm		With or without backing	EI 240	Figure 17
Figure 16			Figure	e 17	
Apply the sealant around the pipe on both sides of the Graphite to a joint width of 10 mm and a depth of 25 clastic pipe.			ne sealant around the pipe o e to a joint width of 15 mm a 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 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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**NSTALLATION INSTRUCTIONS** 

	and rigid wall ≥ 100 mr	n and rigio	d floor ≥ 150 mm		
Plastic pipe diameter (Ø) 54 mm	Width × depth FT Gr from two sides (n		Backing, type, density, thickness (mm)	Fire resistance class	See detai figure:
ipe in plastic pipe type P-EX (d) Inner diameter of pi	pe Ø 32mm – Outer dia	ameter of	pipe Ø 54 mm, pipe wall thic	kness (t): 4.4 mm. I	J/C + C/C.
ipe in pipe type P-EX Ø 54 mm in wall. ipe insulated with polyolefin*, thickness <u>20 mm</u> . 1ax. opening in wall: Ø 114 mm.	10 x 25 mm		With or without backing	EI 90	Figure 18
ipe in plastic pipe type P-EX Ø 54 mm in floor. ipe insulated with polyolefin*, thickness <u>20 mm</u> . 1ax. opening in floor: Ø 124 mm.	15 x 25 mm		With or without backing	EI 90	Figure 19
Figure 18			Figure 1	9	
lastic pipe.		plastic pi	ipe.		

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 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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**NSTALLATION INSTRUCTIONS** 

	Flexible and rigid wall $\ge$ 100 n	nm.		
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	wall thickness (t): ≥ 4.2 mm. U/	Ċ.		
Plastic pipe type PE $\leq \emptyset$ 110 mm in wall. Pipe is insulated with synthetic rubber <sup>*</sup> , thickness <u>13mm</u> . Max. opening in wall Ø 156 mm.	10 x 25 mm	With or without backing	EI 60	Figure 20
Apply the sealant around the pipe on both sides of the wall. A	Figure 20 Apply FT Graphite to a joint width	of 10 mm and a depth of 25 m	nm 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):

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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**NSTALLATION INSTRUCTIONS** 

Bundled penetration ≤ (Ø) 121 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) Outer diameter of	pipe Ø 28mm, pipe wall	thicknes	s (t): 2.5 mm. U/C + C/C.		
Pipe in pipe type P-EX Ø 28mm in wall. Pipe insulated with polyolefin*, thickness 1 <u>0mm</u> . Electrical cable conduit ≤ Ø 28mm. Max. opening in wall Ø 144mm.	10 x 25 mm		With or without backing	EI 120	Figure 21
Pipe in plastic pipe type P-EX Ø 32 mm in floor. Pipe insulated with polyolefin*, thickness <u>10mm</u> . Electrical cable conduit ≤ Ø 28 mm. Plastic pipe type PP ≤ Ø 110 mm cast in floor. Max. opening in floor Ø 110 mm.	15 x 25 mm		With or without backing	EI 240	Figure 22
<b>Figure 21</b> Apply the sealant around the pipe on both sides of th Graphite to a joint width of 10 mm and a depth of 25 bundle.		edge ar	<b>Figure</b> 2 he sealant to interior of plastic nd lower edge of floor. Apply F d a depth of 25 mm around pip	: pipe bundle level v T Graphite to a join	

Pipes can be at any angle between 90 ° and 45 ° in relation to wall or floor, providing the correct sealing thicknesses of FIRESAFE FT Graph 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 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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**NSTALLATION INSTRUCTIONS** 

	Flexible shaft wa	all ≥ 75 mm	ı.		
Bundled penetration $\leq$ (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 dia	ameter of p	pipe Ø 28 mm, pipe wall thic	kness (t): 2.5 mm.	U/C + C/C.
Pipe in pipe PE-X Ø 28mm in shaft wall. Pipe insulated with polyolefin*, thickness <u>10mm</u> . + Electrical cable conduit Ø 32mm. Max. opening in shaft wall Ø 144mm.	10 x 25 m	m	With or without backing	EI 60	Figure 23
2 pipes in pipe PE-X ≤ Ø 28 mm in shaft wall. Pipe insulated with polyolefin*, thickness <u>10 mm</u> . 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.	10 x 25 m	m	With or without backing	EI 60	Figure 24
Figure 23			Figure 2	4	
Apply the sealant around the pipe on one side of the shaft Graphite to a joint width of 10 mm and a depth of 25 mm plastic pipe.		with FT Bo	sealant around the pipe on oard. Apply FT Graphite to a 25 mm around the plastic pip	one side of the sha joint width of 15 m	

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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**NSTALLATION INSTRUCTIONS** 

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

	Flexible and rigid wall ≥ 100 n	nm.		
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: <u>20 mm</u> . 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: <u>30 mm</u> . 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: <u>40 mm</u> . 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	EI 120	Figure 26
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>60 mm</u> . 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: <u>80 mm</u> . Max. opening in wall: Ø 255 mm.	10 x 25 mm	With or without backing	EI 120	Figure 26
Apply the sealant around the pipe on both sides of the wall.	Figure 26 Apply FT Graphite to a joint width	of 10 mm and a depth of 25 m	nm around insulated	pipe.
12				

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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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:
uminium pipe type aluP-EX, (d): Ø 16 mm, pipe th	ickness (t): 2.0 mm. U/C + C/C.			
pe insulated with glass wool or stone wool*,	15 x 25 mm	With or without backing	EI 240	Figure 27
ickness: <u>20 mm</u> .				Figure 27
ax. opening in wall / floor: Ø 86 mm.				
pe insulated with glass wool or stone wool*,	15 x 25 mm	With or without backing	EI 240	Figure 27
ickness: <u>30 mm</u> .				
ax. opening in wall / floor: Ø 106 mm.				
pe insulated with glass wool or stone wool*,	15 x 25 mm	With or without backing	EI 240	Figure 27
ickness: <u>40 mm</u> .				
ax. opening in wall / floor: Ø 126 mm.				
pe insulated with glass wool or stone wool*,	15 x 25 mm	With or without backing	EI 240	Figure 27
ickness: <u>50mm</u> .				
ax. opening in wall / floor: Ø 146 mm.				
pe insulated with glass wool or stone wool*,	15 x 25 mm	With or without backing	EI 240	Figure 27
ickness: <u>60 mm</u> .				
ax. opening in wall / floor: Ø 166 mm.				
pe insulated with glass wool or stone wool*,	15 x 25 mm	With or without backing	EI 240	Figure 27
ickness: <u>80 mm</u> .				
ax. opening in wall / floor: Ø 206 mm.				





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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**NSTALLATION INSTRUCTIONS** 

	Rigid wall and rigid floor $\ge 1$	150 mm.		
Aluminium pipe diameter ≤ (Ø) 75 mm	Width × depth FT Graphite from two sides (mm)	e Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Aluminium pipe type aluP-EX, (d): Ø 75 mm, pipe thic	kness (t): 7.5 mm. U/C + C/C.			
Pipe insulated with glass wool or stone wool*, thickness: <u>20 mm</u> . 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: <u>30 mm</u> . Max. opening in wall / floor: Ø 165 mm.	15 x 25 mm	With or without backing	EI 240	Figure 28
The bins of the bi	15 x 25 mm	With or without backing	EI 240	Figure 28
history and the second	15 x 25 mm	With or without backing	EI 240	Figure 28
Pipe insulated with glass wool or stone wool*, thickness: <u>60 mm</u> . 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: <u>80 mm</u> . Max. opening in wall / floor: Ø 265 mm.	15 x 25 mm	With or without backing	EI 240	Figure 28
Apply the sealant around the pipe on both sides of the wa	<b>Figure 28</b> Il / floor. Apply FT Graphite to a j	joint width of 10 mm and a depth	of 25 mm around ins	sulated 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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**NSTALLATION INSTRUCTIONS** 

	Flexible and rigid wall $\ge$ 100 r	nm.		
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: <u>20 mm</u> . 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: <u>30 mm</u> . 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: <u>40 mm</u> . Max. opening in wall: Ø 115 mm.	10 x 25 mm	With or without backing	EI 120	Figure 29
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>50 mm</u> . Max. opening in wall: Ø 135 mm.	10 x 25 mm	With or without backing	EI 120	Figure 29

Figure

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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**NSTALLATION INSTRUCTIONS** 

	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 detai figure:
Copper and steel pipe (d): ≤ (Ø) 76 mm, pipe wall thickn	ess (t): 2.1 mm. C/U + C/C.		<b>I</b>	
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>20 mm</u> . 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: <u>30 mm</u> . 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: <u>40 mm</u> . 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: <u>80mm</u> . Max. opening in wall: Ø 256 mm.	10 x 25 mm	With or without backing	EI 90	Figure 30
Apply the sealant around the pipe on both sides of the wall.	Figure 30 Apply FT Graphite to a joint width	of 10 mm and a depth of 25 n	nm 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 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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**NSTALLATION INSTRUCTIONS** 

	Rigid wall and rigid floor $\ge$ 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	t): 1.0 mm. C/U + C/C.			
Pipe insulated with glass wool or stone wool*, thickness: <u>20 mm</u> . 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: <u>30 mm</u> . 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: <u>40 mm</u> . 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: <u>60 mm.</u> 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: <u>80 mm</u> . 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 wa	all / floor. Apply FT Graphite to a join	nt width of 15 mm and a depth	of 25 mm around ins	ulated 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 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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**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 thi	ckness (t): 2.1 mm. C/U + C/C.			
Pipe insulated with glass wool or stone wool*, thickness: <u>20 mm</u> . 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: <u>30 mm</u> . 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: <u>40 mm</u> . 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: <u>60 mm</u> . 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: <u>80 mm</u> . 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 wa	all / floor. Apply FT Graphite to a join	t width of 15 mm and a depth	of 25 mm around ins	sulated 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 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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**NSTALLATION INSTRUCTIONS** 

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
Steel pipe (d): ≤ (Ø) 42.2 mm, pipe wall thickness (t): 3.2	5 mm. U/C + C/C.			
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>20 mm</u> . 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: <u>30 mm</u> . 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
Apply the sealant around the pipe on both sides of the wall. <i>i</i>	<b>Figure 33</b> Apply FT Graphite to a joint width c	of 10 mm and a depth of 25 m	nm 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 A21-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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**NSTALLATION INSTRUCTIONS** 

	Rigid wall and rigid floor $\ge$ 150 i	nm.		
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: <u>20 mm</u> . 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: <u>30 mm</u> . 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: <u>40 mm.</u> 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: <u>80 mm</u> . 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 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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**NSTALLATION INSTRUCTIONS** 

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 ı	nm. U/C + C/C.	1			
Pipe in wall insulated with glass wool or stone wool*, thickness: <u>20 mm</u> . 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: <u>30 mm</u> . 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: <u>40 mm</u> . 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: <u>50 mm</u> . 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: <u>60 mm</u> . 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	
Apply the sealant around the pipe on both sides of the wal	I. Apply FI Graphite to a joint wid	ath of 10 mm and a depth of 25	mm around insulated	а ріре.	

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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**NSTALLATION INSTRUCTIONS** 

	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 ı	nm. U/C + C/C.		<b>L</b>	
Pipe in floor insulated with glass wool or stone wool*, thickness: <u>20 mm</u> . 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: <u>30 mm</u> . 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: <u>40 mm</u> . 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: <u>50 mm</u> . 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: <u>60 mm</u> . 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		1	

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 A21-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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**NSTALLATION INSTRUCTIONS** 

	Flexible and rigid wall $\ge 10$	0 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:
teel pipe (d): ≥ (Ø) 42.2 mm, Pipe wall thickness (t):	3.25 mm. U/C + C/C.	4		
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
ipe in wall insulated with PIR*, thickness: <u>50 mm</u> . Iax. opening in wall: Ø 162 mm.	10 x 25 mm	With or without backing	EI 120	Figure 37

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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**NSTALLATION INSTRUCTIONS** 

F	Rigid wall and rigid	d 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): 3.2	5 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	nm	With or without backing	EI 240	Figure 3
Pipe insulated with PIR*, thickness: <u>50 mm</u> . Max. opening in wall / floor: Ø 172 mm.	15 x 25 r	nm	With or without backing	EI 240	Figure 39
Figure 38 Apply the sealant around the pipe on both sides of the wall. A to a joint width of 15 mm and a depth of 25 mm around insul			Figur ealant around the pipe on both a joint width of 15 mm and a	n sides of the floor. A	

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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**NSTALLATION INSTRUCTIONS** 

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:			
teel 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			
ipe in wall insulated with PIR*, thickness: <u>50 mm</u> . Aax. opening in wall: Ø 339 mm.	10 x 25 mm	With or without backing	EI 60	Figure 40			
	Figure 40						

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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**NSTALLATION INSTRUCTIONS** 

	Rigid floor ≥ 150 mr	n.		
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:
iteel pipe (d): ≤ (Ø) 219.1 mm, pipe thickness (t): 4.5	5 mm. U/C + C/C.			
Pipe in floor insulated with PIR*, thickness: <u>25 mm</u> . Max. opening in floor: Ø 299 mm.	15 x 25 mm	With or without backing	EI 180	Figure 41
Pipe in floor insulated with PIR*, thickness: <u>50 mm</u> . Max. opening in floor: Ø 349 mm.	15 x 25 mm	With or without backing	EI 90	Figure 41
Apply the sealant around the pipe on both sides of the fl	Figure 41			

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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**NSTALLATION INSTRUCTIONS** 

Aluminium pipe diameter ≤ (Ø) 75 mm	Width × depth FT from two side		Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Aluminium pipe AluPEX, (d): ≤ (Ø) 75 mm, pipe thick	ness (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 GPG MORTAR. Max. opening in wall: 200 x 1000 mm.	10 x 25 m	m	With or without backing	EI 120	Figure 42
Pipe in floor insulated with synthetic rubber *, thickness <u>13 mm</u> . In combination with FIRESAFE GPG MORTAR. Max. opening in floor: 200 x 1000 mm.	10 x 25 m	m	With or without backing	EI 120	Figure 43
Figure 42 FIRESAFE GPG MORTAR thickness 100 mm. Apply FIRESAFE FT Graphite around the pipe on both level with the GPG sealant on both sides. Apply FIRES a joint width of 10 mm and a depth of 25 mm around	AFE FT Graphite to	Apply FIRE level with	Figure 43 GPG MORTAR thickness 100 m SAFE FT Graphite around the the GPG sealant on both sides th of 10 mm and a depth of 2	nm <b>.</b> pipe on both sides 5. Apply FIRESAFE F	T Graphite to

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/ BL-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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**NSTALLATION INSTRUCTIONS** 

Flexit	ble and rigid wall ≥ 100 n	nm and rigid	floor ≥ 150 mm		
Aluminium pipe diameter ≤ (Ø) 75 mm	Width × depth FT Grap two sides (mn		Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:
Aluminium pipe AluPEX, (d): ≤ (∅) 75 mm, pipe thi	ckness (t): 2.0 - 7.5 mm.	U/C + C/C.			
Pipe in wall insulated with synthetic rubber *, thickness <u>13 mm</u> .	10 x 25 mm		With or without backing	EI 60	Figure 44
In combination with FIRESAFE FT Board 2 S. Max. opening in wall: 600 x 1200 mm.					
Pipe in floor insulated with synthetic rubber *, thickness <u>13 mm</u> . In combination with FIRESAFE FT Board 2 S.	10 x 25 mm		With or without backing	EI 60	Figure 45
Max. opening in floor: 600 x 5000 mm.					
Figure 44 FIRESAFE FT Board thickness 2 x 50 mm. Apply FIRESAFE FT Graphite around the pipe on bot level with FT Board on both sides. Apply FIRESAFE F width of 10 mm and a depth of 25 mm around insu	T Graphite to a joint	Apply FIRE level with l	Figure T BOARD thickness 2 x 50 m SAFE FT Graphite around the FT Board on both sides. Appl 0 mm and a depth of 25 mm	m. e pipe on both sides y FIRESAFE FT Grapl	hite to a joint

Pipes can be at any angle between90 ° 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/ BL-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 m	m.		
Copper and steel pipe diameter ≤ (Ø) 8 mm	Width × depth FT Graphite from two sides (mm)	Backing, type, density, thickness (mm)	Fire resistance class	See detai figure:
Copper and steel pipe (d): ≤ (∅) 8 mm, pipe thickness (1	t): 0.8 mm. U/C.			
2 pipes in wall insulated with neoprene foam*,	10 x 25 mm	With or without	EI 60	Figure 4
hickness 9 mm. Max. opening in wall: Ø 72 mm.	Figure 46	backing		

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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**NSTALLATION INSTRUCTIONS** 

	Flexible and rigid wall ≥	100 mm.		
Copper and steel pipe diameter $\leq$ (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*, thickness: <u>13 mm</u> . Max. opening in wall: Ø 81 mm.	10 x 25 mm	With or without backing	EI 90	Figure 47
Pipe in wall insulated with synthetic rubber *, thickness: <u>25 mm</u> . Max. opening in wall: Ø 105 mm.	10 x 25 mm	With or without backing	EI 90	Figure 47

Pipes can be at any angle between90° 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/ BL-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.

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



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**NSTALLATION INSTRUCTIONS** 

Steel pipe diameter (Ø) 15 - 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 15 – 42.2 mm, pipe wall thickness (t): 1.0 –	- 3.25 mm. U/C + (	c/c.			
Pipe in wall Ø 15 mm insulated with synthetic rubber*, thickness 13 mm. Max. opening in wall: Ø 61 mm.	10 x 25 i	mm	With or without backing	EI 120	Figure 48
Pipe in wall Ø 15 mm insulated with synthetic rubber*, thickness 25 mm. Max. opening in wall: Ø 85 mm.	10 x 25 i	mm	With or without backing	EI 90	Figure 48
Pipe in wall $\emptyset$ 22 mm insulated with synthetic rubber*, thickness <u>13 mm</u> . Max. opening in wall: $\emptyset$ 68 mm.	10 x 25 mm		With or without backing	EI 60	Figure 48
Pipe in wall Ø 35 mm insulated with synthetic rubber*, thickness <u>13 mm</u> . Max. opening in wall: Ø 81 mm.	10 x 25 mm		With or without backing	EI 90	Figure 48
Pipe in wall Ø 35 mm insulated with synthetic rubber*, thickness $25$ mm. Max. opening in wall: Ø 98 mm.	10 x 25 mm		With or without backing	EI 90	Figure 48
Pipe in wall Ø 42.2 mm insulated with synthetic rubber*, thickness <u>13 mm</u> . Max. opening in wall: Ø 89 mm.	10 x 25 mm		With or without backing	EI 120	Figure 48
Pipe in wall Ø 42.2 mm insulated with synthetic rubber*, thickness $25$ mm. Max. opening in wall: Ø 112 mm.	10 x 25 mm		With or without backing	EI 120	Figure 48
Pipe in floor Ø 22 mm insulated with synthetic rubber*, thickness <u>13 mm</u> . Max. opening in floor: Ø 68 mm.	10 x 25 mm		With or without backing	EI 90	Figure 49
Pipe in floor Ø 42.2 mm insulated with synthetic rubber*, thickness <u>13 mm</u> . Max. opening in floor: Ø 98 mm.	15 x 25 mm		With or without backing	EI 180	Figure 49
Pipe in floor Ø 42.2 mm insulated with synthetic rubber*, thickness <u>25 mm</u> . Max. opening in floor: Ø 122 mm.	15 x 25 mm		With or without backing	EI 180	Figure 49
<b>Figure 48</b> 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.		Figure 49 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/ BL-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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**NSTALLATION INSTRUCTIONS** 

Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm							
Steel pipe diameter (Ø) 42.2 – 219.1 mm	9.1 mm Width × depth FT G from two sides (		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*, thickness 10 mm. Max. opening in wall: Ø 83 mm.	10 x 2	5 mm	With or without backing	EI 120	Figure 50		
Pipe in wall Ø 101.6 mm insulated with synthetic rubber*, thickness 13 mm. Max. opening in wall: Ø 148 mm.	10 x 2	5 mm	With or without backing	EI 60	Figure 50		
Pipe in wall $\emptyset$ 219.1 mm insulated with synthetic rubber*, thickness 10 mm. Max. opening in wall: $\emptyset$ 259 mm.	10 x 2	5 mm	With or without backing	EI 60	Figure 50		
Pipe in wall $\emptyset$ 219.1 mm insulated with synthetic rubber*, thickness <u>13 mm</u> . Max. opening in wall: $\emptyset$ 265 mm.	10 x 25 mm		With or without backing	EI 120	Figure 50		
Pipe in wall $\emptyset$ 219.1 mm insulated with synthetic rubber*, thickness 25 mm. Max. opening in wall: $\emptyset$ 289 mm.	10 x 25 mm		With or without backing	EI 90	Figure 50		
Pipe in floor Ø 42.2 mm insulated with synthetic rubber*, thickness 10 mm. Max. opening in floor: Ø 102 mm.	15 x 25 mm		With or without backing	EI 240	Figure 51		
Pipe in floor Ø 42.2 mm insulated with synthetic rubber*, thickness $\underline{13}$ mm. Max. opening in floor: Ø 98 mm.	15 x 25 mm		With or without backing	EI 180	Figure 51		
Pipe in floor Ø 42.2 mm insulated with synthetic rubber*, thickness 25 mm. Max. opening in floor: Ø 122 mm.	15 x 25 mm		With or without backing	EI 180	Figure 51		
Pipe in floor Ø 101.6 insulated with synthetic rubber*, thickness 13 mm. Max. opening in floor: Ø 148 mm.	10 x 25 mm		With or without backing	EI 90	Figure 51		
Pipe in floor Ø 219.1 mm insulated with synthetic rubber <sup>*</sup> , thickness 10 mm. Max. opening in floor: Ø 269 mm.	15 x 25 mm		With or without backing	EI 90	Figure 51		
Pipe in floor Ø 219.1 mm insulated with synthetic rubber*, thickness 13 mm. Max. opening in floor: Ø 276 mm.	15 x 25 mm		With or without backing	EI 60	Figure 51		
Pipe in floor Ø 219.1 mm insulated with synthetic rubber <sup>*</sup> , thickness <u>25 mm</u> . Max. opening in floor: Ø 300 mm.	15 x 25 mm		With or without backing	EI 60	Figure 51		
<b>Figure 50</b> Apply the sealant around the pipe on both sides of the wall. App to a joint width of 10 mm and a depth of 25 mm around insulate	• •		<b>Figure 51</b> ant around the pipe on both si joint width of 15 mm and a dep				
				2			





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/ Bi-s3-d0.

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



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**NSTALLATION INSTRUCTIONS** 

Steel pipe diameter (Ø) 15 – 219.1 mm	e and rigid wall ≥ 100 mm a Width × depth FT Gra from two sides (m		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*,	10 x 25 mm		With or without backing	EI 90	Figure 52
thickness 25 mm. Max. opening in wall: Ø 85 mm.			5		
Pipe in wall $\emptyset$ 15 mm insulated with stone wool*,	6 x 25 m	nm	With or without backing	EI 120	Figure 52
thickness <u>50 mm</u> . Max. opening in wall: Ø 128 mm.			0		
Pipe in wall Ø 35 mm insulated with stone wool*,	10 x 25 r	nm	With or without backing	EI 60	Figure 52
thickness <u>25 mm</u> . Max. opening in wall: Ø 105 mm.			_		-
Pipe in wall $\emptyset$ 35 mm insulated with stone wool*,	10 x 25 r	nm	With or without backing	EI 90	Figure 52
thickness <u>50 mm</u> . Max. opening in wall Ø 155 mm.			_		-
Pipe in wall Ø 42.2 mm insulated with stone wool*,	10 x 25 r	nm	With or without backing	EI 90	Figure 52
thickness <u>25 mm</u> . Max. opening in wall: Ø 112 mm.			_		-
Pipe in wall Ø 42.2 mm insulated with stone wool*,	10 x 25 r	nm	With or without backing	EI 90	Figure 52
thickness <u>50 mm</u> . Max. opening in wall: Ø 162 mm.					
Pipe in wall Ø 219.1 mm insulated with stone wool*,	10 x 25 mm		With or without backing	EI 90	Figure 52
thickness <u>25 mm</u> . Max. opening in wall: Ø 298 mm.					
Pipe in wall $\emptyset$ 219.1 mm insulated with stone wool*,	10 x 25 mm		With or without backing	EI 90	Figure 52
thickness <u>50 mm</u> . Max. opening in wall: Ø 339 mm.					
Pipe in floor Ø 219.1 mm insulated with stone wool*,	15 x 25 r	mm	With or without backing	EI 120	Figure 53
thickness <u>25 mm</u> . Max. opening in floor: Ø 300 mm.					
Figure 52			Figure 53		
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.		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.			

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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**NSTALLATION INSTRUCTIONS** 

Flexible and rigid wall ≥ 100 mm and rigid floor ≥ 150 mm							
Cable bundle, electrical cable conduit bundle diameter (Ø) ≤ 121	Width × depth FT Graphite from two sides (mm)		Backing, type, density, thickness (mm)	Fire resistance class	See detail, figure:		
Cable bundle and electrical cable conduit bundle (d) $\emptyset \le 121$ , Copper cable $\le \emptyset$ 31 mm + fibre optic cable.							
Cable bundle (d) ≤ Ø 121 mm, with cable (d) ≤ Ø31 mm. Max. opening in wall or floor: Ø 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. Max. opening in wall or floor: $\emptyset$ 140 mm.	15 x 25 mm		With or without backing	EI 120	Figure 55		
Figure 54       Figure 55         Apply the sealant around the pipe on both sides of the wall. Apply FT       Apply the sealant around the pipe on both sides of the wall. Apply Graphite to a joint width of 15 mm and a depth of 25 mm around the cable bundle.       Graphite to a joint width of 15 mm and a depth of 25 mm around the cable conduit 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 (o	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		
Apply the sealant around the box on one side of th	<b>Figure 55</b> ne wall. Apply FT Graphite to a joint w	vidth of 10 mm and a depth of 25 n	nm around the box.			

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



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**NSTALLATION INSTRUCTIONS** 

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

PE polyethylene:							
<ul> <li>PE-LD + PE-HD polyethylene.</li> <li>PEX-AL-PEX AluEX heating + water supply, Al composite pipe or multi - layer pipe.</li> <li>PE-Xa high pressure + high temperature pipe</li> </ul>	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.	<b>PE-Xa example type:</b> Uponor Aqua. Geberit Mepla. KE KELIT KELOX KM 110. Rehau Rautitan Flex. Rehau Rautitan Stabil.				

PP polypropylene:				
<ul> <li>- PP-R high pressure + high temperature pipe</li> <li>- PP-MD noise-dampened.</li> <li>- PP-MX noise-dampened.</li> </ul>	PP example type: Dyka PP. Agru PP-H.	<b>PP-R example type:</b> 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 <u>www.firesafe.no</u>.

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

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: <u>firmapost@firesafe.no</u>.

