

INTU FR GRAPHITE

Intumescent graphite sealant

TECHNICAL DATA SHEET



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PRODUCT DESCRIPTION

The graphite fire protection compound **INTU FR GRAPHITE** swells under the influence of fire, closing the opening around the installation and all gaps, creating a barrier that ensures the partition remains tight and insulated up to EI 120.

APPLICATION

INTU FR GRAPHITE compound is designed for fire protection of combustible pipes, cables and air conditioning ducts in flexible and rigid walls and ceilings.

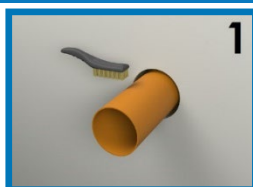
Flexible wall:	The wall should be at least 100 mm thick. It should be made of double-sided cladding consisting of at least two plasterboard panels.
Rigid wall:	The wall should be at least 100 mm thick. It should be made of concrete or masonry elements with a density of not less than 450 kg/m ³ .
Rigid ceiling:	The ceiling should be at least 150 mm thick. It should be made of concrete, reinforced concrete or aerated concrete with a density of at least 550 kg/m ³ .



Product	Capacity	Delivery form	Item number
INTU FR GRAPHITE	Cartridge 310 ml	1 pcs.	27031000000

ASSEMBLY

- Clean the hole and installations of any dirt.
- Place a mineral wool pad in the hole.
- Fill the gap with **INTU FR GRAPHITE**.
- Level the surface using a trowel, for example.



COMPLIANCE

European Technical Assessment:

ETA-24/0152

Declaration of performance:

DoP 3/2024

Certificate of constancy of performance:

1488-CPR-1109/W

TRANSPORT AND STORAGE

Transport and store in a dry and cool place at a temperature between +5°C and +35°C.

Shelf life: 12 months from the date of manufacture indicated on the packaging.

TECHNICAL DATA

Table 1. Technical data for cable transitions

Pipe diameter Ø / hole dimension W x H [mm]	Part of the opening where the cables are located			
	0%	20%	40%	60%
	Cartridge consumption 310 ml INTU FR GRAPHITE			
80	0,80	0,64	0,48	0,32
100	1,30	1,04	0,78	0,52
120	1,80	1,44	1,08	0,72
140	2,50	2,00	1,50	1,00
160	3,20	2,56	1,92	1,28
150 x 150	3,60	2,88	2,16	1,44

Table 2. Technical data for combustible pipe penetrations

Pipe diameter Ø [mm]	Hole diameter Ø [mm]	Cartridge consumption 310 ml INTU FR GRAPHITE
20	40	0,15
32	52	0,21
50	70	0,30
63	83	0,37
75	95	0,43
90	110	0,51
110	130	0,61

FIRE CLASSIFICATION

Pipe type	Outer pipe diameter [mm]	INTU FR GRAPHITE depth x width [mm]	FLEXIBLE / RIGID WALLS		CEILINGS	
			Pipe wall thickness [mm]	Fire resistance class	Pipe wall thickness [mm]	Fire resistance class
PP	Ø ≤ 50	25,0 x 10,0 – 20,0	1,8 – 18,3	EI 120	1,8 – 18,3	EI 120
	50 < Ø ≤ 75		1,9 – 18,3		1,9 – 18,3	
	75 < Ø ≤ 90		2,3 – 18,3		2,7 – 18,3	
	90 < Ø ≤ 110		2,7 – 18,3		2,7 – 18,3	
PE-X/AL/PE-X	Ø ≤ 20	25,0 x 10,0 – 20,0	2,0 – 6,0	EI 120	2,0 – 6,0	EI 120
	20 < Ø ≤ 32		3,1		3,1	
	32 < Ø ≤ 40		3,9		3,9	
	40 < Ø ≤ 50		4,8		4,8	
	50 < Ø ≤ 63		6,0		6,0	
PE-Xα	Ø ≤ 20	25,0 x 10,0 – 20,0	2,0 – 5,8	EI 120	2,0 – 5,8	EI 120
	20 < Ø ≤ 32		3,0		3,1	
	32 < Ø ≤ 40		3,8		3,9	
	40 < Ø ≤ 50		4,6		4,8	
	50 < Ø ≤ 63		5,8		5,8	
PP-R/PP-R-GF/ PP-R	Ø ≤ 20	25,0 x 10,0 – 20,0	2,8 – 10,0	EI 120	2,8 – 10,0	EI 120
	20 < Ø ≤ 32		4,4 – 16,0		4,4 – 16,0	
	32 < Ø ≤ 50		6,9 – 18,3		6,9 – 18,3	
	50 < Ø ≤ 63		8,6 – 18,3		8,6 – 18,3	
	63 < Ø ≤ 75		10,3 – 18,3		10,3 – 18,3	
	75 < Ø ≤ 90		12,3 – 18,3		12,3 – 18,3	
	90 < Ø ≤ 110		15,1 – 18,3		15,1 – 18,3	

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Pipe type	Outer pipe diameter [mm]	INTU FR GRAPHITE depth x width [mm]	FLEXIBLE / RIGID WALLS		CEILINGS	
			Pipe wall thickness [mm]	Fire resistance class	Pipe wall thickness [mm]	Fire resistance class
PE-RT/AL/PE-RT	Ø ≤ 20	25,0 x 10,0 – 20.0	2,0 – 6,0	EI 120	2,0 – 7,5	EI 120
	20 < Ø ≤ 32		6,1 – 7,5	EI 60	3,1	
	32 < Ø ≤ 40		3,1	EI 120	3,9	
	40 < Ø ≤ 50		3,9		3,9	
	50 < Ø ≤ 63		4,8		4,8	
	63 < Ø ≤ 75		6,0		6,0	
	63 < Ø ≤ 75		7,5	EI 60	7,5	
PP-R	Ø ≤ 20	25,0 x 10,0 – 20.0	2,3 – 10,0	EI 120	2,3 – 10,0	EI 120
	20 < Ø ≤ 32		3,3 – 12,5		3,3 – 16,0	
	32 < Ø ≤ 50		12,6 – 16,0	EI 90	4,8 – 18,3	
	50 < Ø ≤ 63		4,8 – 12,5	EI 120	5,8 – 18,3	
	63 < Ø ≤ 75		12,6 – 18,3	EI 90	6,8 – 18,3	
	75 < Ø ≤ 90		5,8 – 12,5	EI 120	8,3 – 18,3	
	90 < Ø ≤ 110		12,6 – 18,3	EI 90	10,0 – 18,3	
	90 < Ø ≤ 110		8,2 – 10,0	EI 120	10,0 – 18,3	
	90 < Ø ≤ 110		10,1 – 18,3	EI 90	10,0 – 18,3	
	90 < Ø ≤ 110		10,0	EI 120	10,0 – 18,3	
PP-R/AL/PP-R	Ø ≤ 20	25,0 x 10,0 – 20.0	2,8 – 10,0	EI 120	2,3 – 10,0	EI 120
	20 < Ø ≤ 32		4,4 – 16,0		4,0 – 16,0	
	32 < Ø ≤ 50		6,9 – 18,3		6,7 – 18,3	
	50 < Ø ≤ 63		8,6 – 18,3		8,6 – 18,3	
	63 < Ø ≤ 75		10,3 – 18,3		10,3 – 18,3	
	75 < Ø ≤ 90		12,3 – 14,9	EI 90	12,3 – 18,3	
	90 < Ø ≤ 110		15,0 – 18,3	EI 120	15,1 – 18,3	
	90 < Ø ≤ 110		15,1 – 18,2	EI 90	15,1 – 18,3	
PVC	Ø ≤ 32	25,0 x 10,0 – 20.0	1,5 – 8,1	EI 120	1,5 – 8,1	EI 120
	32 < Ø ≤ 50		1,6 – 8,1		1,6 – 8,1	
	50 < Ø ≤ 75		1,8 – 8,1		1,8 – 8,1	
	75 < Ø ≤ 110		2,0 – 8,0	EI 90	2,0 – 8,1	
PE-HD PE PE – X ABS SAN+PVC	Ø ≤ 32	25,0 x 10,0 – 20.0	1,8 – 6,8	EI 120	1,8 – 10,0	EI 120
	32 < Ø ≤ 50		6,9 – 10,0	EI 90	2,3 – 10,0	
	50 < Ø ≤ 75		2,3 – 6,8	EI 120	3,0 – 10,0	
	75 < Ø ≤ 90		6,9 – 10,0	EI 90	3,5 – 10,0	
	90 < Ø ≤ 110		3,0 – 6,8	EI 120	4,2 – 10,0	
	90 < Ø ≤ 110		6,9 – 10,0	EI 90	4,2 – 10,0	
	90 < Ø ≤ 110		4,2 – 9,9	EI 60	4,2 – 10,0	
	90 < Ø ≤ 110		10,0	EI 90	4,2 – 10,0	
BlazeMaster CPVC	Ø ≤ 19,0	25,0 x 10,0 – 20.0	2,24 – 3,38	EI 120	-	
	19,0 < Ø ≤ 25,4		2,71 – 3,38			
	25,4 < Ø ≤ 31,8		3,38			
	Ø ≤ 31,8		3,39 – 3,84	EI 90		
	31,8 < Ø ≤ 38,1		3,84			

Cable/pipe type	External diameter [mm]	INTU FR GRAPHITE depth x width [mm]	FLEXIBLE / RIGID WALLS
			Fire resistance class
Single cable	$\varnothing \leq 21$	25,0 x 10,0 – 20,0	EI 120
Cable harness	$\varnothing_{\text{BUNDLES}} \leq 100$ $\varnothing_{\text{CABLE}} \leq 21$		
Steel pipe	$\varnothing \leq 16$		

Plastic conduit / pipe (PVC) with or without cables			
Installations inside the conduit / protective pipe	External diameter [mm]	INTU FR GRAPHITE depth x width [mm]	FLEXIBLE / RIGID WALLS
			Fire resistance class
-	Ø ≤ 37	25,0 x 10,0 – 20.0	EI 120
ØCABLE ≤ 21 mm			
ØBUNDLES ≤ Ø ¹⁾			
AROT pipe with or without cables			
-	Ø ≤ 100	25,0 x 10,0 – 20.0 (unilaterally)	EI 90
ØCABLE ≤ 21 mm			
ØBUNDLES ≤ Ø ¹⁾			

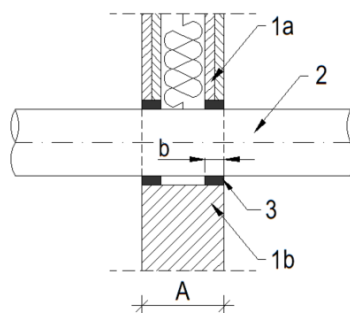
¹⁾ Internal pipe diameter

MIXED BUNDLES					
Components of one BUNDLES	Outer pipe diameter [mm] / Cable cross-section [mm²]	Pipe wall thickness [mm]	Type / insulation thickness [mm]	INTU FR GRAPHITE depth x width [mm]	FLEXIBLE / RIGID WALLS
					Fire resistance class
max. 2 x non-combustible pipe	Ø ≤ 12,7	≥ 0,8	FEF / max. 13	25,0 x 10,0 – 20.0	EI 120
max. 1 x non-combustible pipe	Ø ≤ 28,6	≥ 1,0			
max. 1 x combustible	Ø ≤ 25,0	1,0	-		
max. 1 x cable	4 x 1,5	-			
max. 4 x non-combustible pipe	Ø ≤ 12,7	≥ 0,8	PE / max. 9	25,0 x 10,0 – 20.0	EI 60
max. 2 x non-combustible pipe	Ø ≤ 22,3	≥ 1,0			
max. 2 x non-combustible pipe	Ø ≤ 28,6	≥ 1,0	PE / max. 13		
max. 2 x non-combustible pipe	Ø ≤ 25,0	1,0	-		
max. 2 x cable	4 x 1,5	-			

SOLUTION DETAILS

Fig. 1

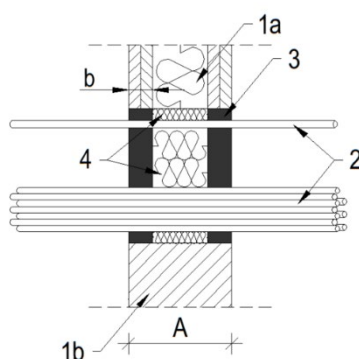
Sealing of combustible pipe penetrations in flexible/rigid walls $A \geq 100$ mm



- 1a – flexible wall, $A \geq 100$ mm
- 1b – rigid wall, $A \geq 100$ mm
- 2 – combustible pipe $\varnothing \leq 110$ mm
- 3 – graphite mass **INTU FR GRAPHITE**, minimum depth $b \geq 25$ mm on both sides of the partition

Fig. 2

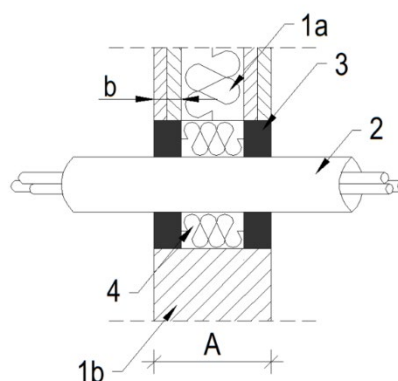
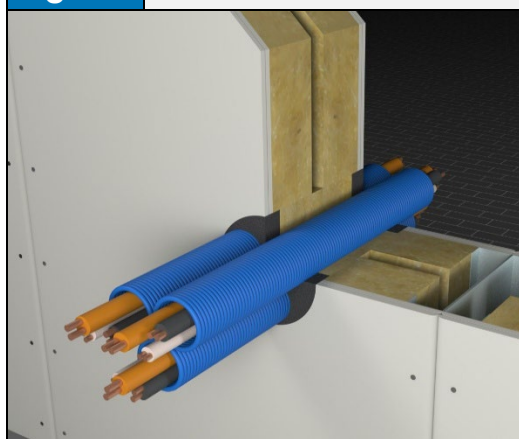
Sealing of electrical/mixed penetrations in flexible/rigid walls $A \geq 100$ mm



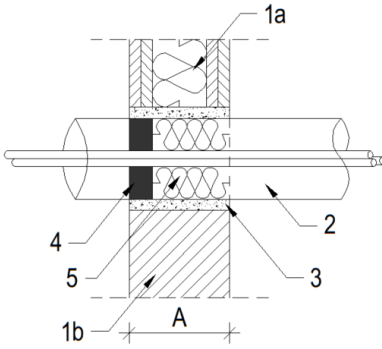
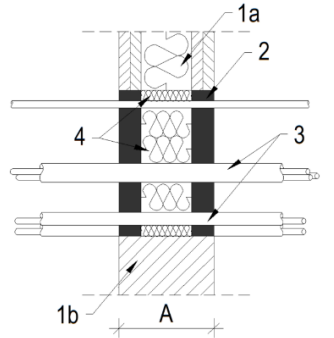
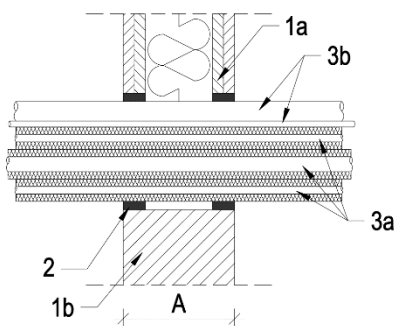
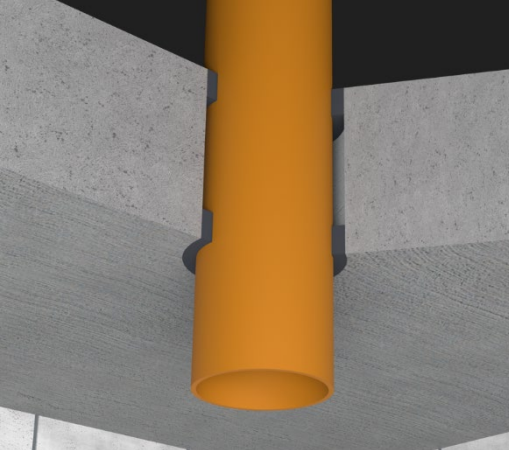
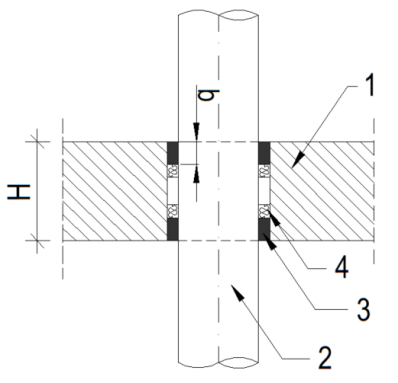
- 1a – flexible wall, $A \geq 100$ mm
- 1b – rigid wall, $A \geq 100$ mm
- 2 – cable with a diameter of $\varnothing \leq 21$ mm or cable bundle $\varnothing \leq 100$ mm
- 3 – **INTU FR GRAPHITE** graphite mass, minimum depth $b \geq 25$ mm on both sides of the partition
- 4 – filling the empty space with mineral wool $\rho \geq 35$ kg/m³

Fig. 3

Sealing of cable penetrations with or without cables in a flexible/rigid wall $A \geq 100$ mm



- 1a – flexible wall, $A \geq 100$ mm
- 1b – rigid wall, $A \geq 100$ mm
- 2 – plastic pipe / conduit with a diameter $\varnothing \leq 37$ mm, empty or with a cable $\varnothing \leq 21$ mm / cable bundle
- 3 – graphite mass **INTU FR GRAPHITE**, minimum depth $b \geq 25$ mm on both sides of the partition
- 4 – filling of the empty space with mineral wool $\rho \geq 35$ kg/m³

Fig.4	Sealing of AROT pipe penetrations with or without cables in a flexible/rigid wall $A \geq 100$ mm	
	1a – flexible wall, $A \geq 100$ mm 1b – rigid wall, $A \geq 100$ mm 2 – protective pipe (e.g. AROT) with a diameter of $\varnothing \leq 100$ mm, empty or with a single cable or cable bundle 3 – cement mortar at the junction of the partition and the protective pipe 4 – INTU FR GRAPHITE graphite mass with a minimum depth of ≥ 25 mm applied on one side of the partition 5 – filling the remaining space with mineral wool with a density of $\rho \geq 35$ kg/m³	
Fig.5	Sealing of electrical/mixed penetrations in flexible/rigid walls $A \geq 100$ mm	Fig.6 Sealing of mixed beam penetrations in a flexible/rigid wall $A \geq 100$ mm
		
1a - flexible wall, $A \geq 100$ mm 1b - rigid wall, $A \geq 100$ mm 2 - INTU FR GRAPHITE graphite mass, min. depth $b \geq 25$ mm on both sides of the partition	3 - cable or cable harness in a protective pipe 4 - remaining space filled with mineral wool with a density of $\rho \geq 35$ kg/m³	3a – non-combustible pipes with PE or FEF insulation 3b – combustible pipe with cable
Fig.7	Sealing of combustible pipe penetrations in rigid ceilings with a thickness of $A \geq 150$ mm and a density of $\rho \geq 550$ kg/m³	
		1 – rigid ceiling with a thickness of $H \geq 150$ mm 2 – combustible pipe 3 – INTU FR GRAPHITE graphite compound, minimum depth $b \geq 25$ mm on both sides of the partition 4 – mineral wool, $\rho \geq 35$ kg/m³, depth ≥ 15 mm