COMPENDIUM

ArmaProtect[™]

Armacell's dedicated firestopping products are designed to provide fire-safe circumstances in the event of a fire emergency.

www.armacell.eu



Enhancing safety levels to protect property and save lives









ArmaProtect CM Firestop mortar

INSTRUCTIONS FOR USE

Before you begin, ensure surfaces are solid and free of any adhesion-reducing substances such as dust. Absorbent surfaces should be pre-wet with water. The mortar consistency needs to be adapted so that all components are filled without cavities.

// Wall installation









// Floor installation



// Consumption guide

Approximate consumption [kg]			
Maximum sealing size [m³]	0% services	30% services	60% services
0.01	1.50	1.05	0.60
0.02	3.00	1.10	1.20
0.03	4.50	3.15	1.80
0.05	7.50	5.25	3.00
0.10	15.00	10.50	6.00
0.20	30.00	21.00	12.00
0.30	45.00	31.50	18.00
0.50	75.00	52.50	30.00
1.00	150.00	105.00	60.00

Take note of potential material loss during application at the job site.

// Repairing cracks





// Repenetration



MAIN APPLICATIONS ACC. ETA-22/0064



In drywalls¹

Base material	Drywall
Base material thickness	≥ 100 mm
Seal thickness	> 100 mm
Maximum seal size (wall)	550 mm x 600 mm
Penetrants	

up to El 1201

- Cable bundles $\leq \emptyset$ 150 mm (with cables $\leq \emptyset$ 21 mm)²
- Cable trays²
- Plastic conduits ≤ Ø 32 mm (with cables ≤ Ø 21 mm)³
- •
- Plastic conduit bundles $\leq \emptyset$ 100 mm (conduits $\leq \emptyset$ 32 mm, with cables $\leq \emptyset$ 21 mm)³ Plastic conduits $\leq \emptyset$ 32 mm (with cables $\leq \emptyset$ 21 mm)³ PE lines "speed pipes" (24 x $\leq \emptyset$ 7.0 mm, 7 x $\leq \emptyset$ 10.0 mm, 5 x $\leq \emptyset$ 12.0 mm)¹

¹ See ETA-22/0064 for further installation details.

- See ETA-22/U04 for Turner Instaltation details.
 For cables > 21 mm and cable bundles use 2 x 2-layer ArmaProtect FW2, 125 mm outside seal.
 Use 2 x 2-layer ArmaProtect FW2, 50 mm inside seal / 75 mm outside seal.

In solid walls and concrete floors¹

Base material	Concrete wall, aerated concrete wall, masonry wall, concrete floor
Base material thickness	> 150 mm (wall) > 150 mm (floor)
Seal thickness	
Maximum seal size (wall)	1200 mm x 1200 mm
Maximum seal size (floor)	1200 mm x 2000 mm

Penetrants

- Cables ≤ Ø 80 mm² Cable bundles $\leqslant \emptyset$ 100 mm (with cables $\leqslant \emptyset$ 21 mm)^3
- .
- Cable trays¹ •
- Plastic conduits < Ø 63 mm (with cables < Ø 21 mm)⁴ Plastic conduit bundles < Ø 100 mm (conduits < Ø 32 mm, with cables < Ø 21 mm)⁵
- ٠ PE lines "speed pipes" [24 x ≤ Ø 7.0 mm, 7 x ≤ Ø 10.0 mm, 5 x ≤ Ø 12.0 mm]1 ٠
- ٠
- up to El 1201 Non-combustible pipe with mineral wool insulation (steel pipes < Ø 323.9 mm, copper pipes < Ø 88.9 mm)¹
- Non-combustible pipe with FEF insulation (steel pipes ≤ Ø 168.3 mm, copper pipes ≤ Ø 108 • mm)1
- Multilayer composite pipes < Ø 63 mm¹ Combustible pipes < Ø 160 mm¹ HVAC split-line-combinations¹ ٠
- ٠

¹ See ETA-22/0064 for further installation details.
² For cables < 50 mm use 2 x 2-layer ArmaProtect FW2, 125 mm outside seal, for cables > 50 mm use 2 x 2-layer ArmaProtect FW2, 125 mm (EI 90) or 150 mm (EI 120) outside seal.

³ Use 2 x 1-layer ArmaProtect FW2, 125 mm outside seal.
⁴ Use 2 x 2-layer ArmaProtect FW2.

Maximum seal size (wall)

In solid walls and concrete floors¹

Maximum seal size (floor)

Base material thickness

Penetrants

Base material

Seal thickness

- Cables ≤ Ø 80 mm¹ Cable bundles $\leq \emptyset$ 100 mm (with cables ≤ 21 mm)¹ Cable trays¹
- ¹ See ETA-22/0064 for further installation details.

// Typical ETA approved systems¹

Wall application



1	ArmaProtect CM	
2.	Rigid wall	
4.	Cable	
5. /	ArmaProtect FW2	
6.	Plastic conduits	



Concrete wall, aerated concrete wall, masonry wall, concrete floor
> 240 mm (wall) ≥ 200 mm (floor)
≥ 240 mm (wall) ≥ 240 mm (floor)
600 mm x 600 mm
600 mm x 600 mm
up to El 2401

Floor application



Legend

- 1. ArmaProtect CM
- 3. Rigid floor
- 4. Non-combustible pipe
- 5. FEF insulation
- 6. Protection insulation made of mineral fibre
 - mats / shells
- 7. ArmaProtect FW2

OTHER APPROVED APPLICATIONS ACC. ETA-22/0064

ArmaProtect CT firestop cable tube (150 mm length) in ArmaProtect CM penetration for retrofitting in walls¹

Penetrants

- Cables $\leq \emptyset$ 50 mm¹
- Cable bundles $\leq \emptyset$ 100 mm (with cables $\leq \emptyset$ 21 mm)¹
- Plastic conduits $\leq \emptyset$ 32 mm (with cables $\leq \emptyset$ 14mm)¹ HVAC split line combinations¹

up to El 901

¹ See ETA-22/0064 for further installation details.

UL APPROVED SYSTEMS

// Typical UL approved systems¹

PenetrantsCables trays

PE-HD conduit bundles

•

≤ 300 mm width < Ø 100 mm (conduits < 32mm)

¹ See relevant UL system for further installation details.

// Selected exemplary UL approved systems

System No. F-A-4025 (cable tray in floor opening)

ANSI/UL 1479 (ASTM E814)

- F rating 3 hours
- Trating 1 hour





ANSI/UL 1479 (ASTM E814)

- F rating 2 hours
- Trating 2 hours



System No. F-A-8061 (PE-HD bundle in floor opening)



- F rating 3 hours
- Trating 2 hours





ARMAPROTECT CM /7

System No. W-J-8090 (PE-HD bundle in floor opening)

ANSI/UL 1479 (ASTM E814) • F rating - 3 hours • Trating - 1 hour

ArmaProtect CB Coated firestop board system

INSTRUCTIONS FOR USE

The recommended application temperature is between 5 °C and 25 °C and relative humidity of less than 85%. Ensure that surfaces to be coated are free of impurities and old coatings.

- ArmaProtect ABLC: Use brush, roller or airless sprayer (nozzle orifice > 0.48mm / 0.019").
- ArmaProtect ABLF: Use spatula.



MAIN APPLICATIONS ACC. ETA-22/0063



Single board system	(1 x miner	al wool board	60 mm. 2	side coated) ¹
Single Board System	(IX IIIIICI)		00 mm, 2	Side couleu)

Base material

Base material thickness

Seal thickness

Maximum seal size (wall)

Maximum seal size (floor)

Penetrants

- Cables ≤ Ø 80 mm²
- Cable bundles $\leq \emptyset$ 100 mm (with cables $\leq \emptyset$ 21 mm)²
- Cable travs²
- Plastic conduits ≤ Ø 32 mm (with cables ≤ Ø 21 mm)²
- Plastic conduit bundles < Ø 100 mm (conduits < Ø 32 mm, with cables < Ø 21 mm)
- PE lines "speed pipes" (24 x ≤ Ø 7.0 mm, 7 x ≤ Ø 10.0 mm, 5 x ≤ Ø 12.0 mm) Non-combustible pipe with mineral wool insulation (steel pipes < Ø 219.1 mm, copper pipes <
 - Ø 88 9 mm¹
- Non-combustible pipe with FEF insulation (steel pipes $\leq \emptyset$ 170 mm, copper pipes $\leq \emptyset$ 108 mm)¹ Multilayer composite pipes $\leq 0.63 \text{ mm}^3$
- Combustible pipes ≤ Ø 110 mm
- HVAC split-line-combinations¹
- ¹ See ETA-22/0063 for further installation details

² Cables / cable bundles / cable trays to be coated with ArmaProtect ABLC or wrapped with ArmaProtect FW2, see further details in the ETA-22/0063

Drywall, concrete wall, aerated concrete wall, masonry wall, concrete floor
> 100 mm (wall) > 125 mm (floor)
> 60 mm (wall) > 60 mm (floor)
1175 mm x 1200 mm
1200 mm x 2400 mm or 800 x ∞

up to El 901

Wall application



Floor application



Legend

- 1. Rigid wall ≥ 100 mm
- 2. Flexible wall ≥ 100 mm
- 3. Mineral wool board
- ArmaProtect ABLC Firestop coating 4.
- 5. Cable

Legend

- 1. Mineral wool board
- 2. ArmaProtect ABLC Firestop coating
- Cable 3.
- Rigid floor ≥ 125 mm 4.

// Typical ETA approved systems¹

Wall application



Legend

- 1. Rigid wall ≥100 mm
- 2. Flexible wall ≥100 mm
- Mineral wool board 3.
- ArmaProtect ABLC Firestop coating 4.
- ArmaProtect FW2 Firestop wrap 5.
- 6. Cable

Double board system (2 x mineral wool board 60mm, 1 side coated)¹

Base material	Drywall, concrete wall, aerated concrete wall, masonry wall, concrete floor	
Base material thickness	> 100 mm (wall) > 150 mm (floor)	
Seal thickness	> 120 mm (wall) > 150 mm (floor)	
Maximum seal size (wall)	1400 mm x 2000 mm	
Maximum seal size (floor)	1400 mm x 2000 mm	

Penetrants

- Cables ≤ Ø 80 mm² ٠
- Cable bundles $\leq \emptyset$ 100 mm (with cables $\leq \emptyset$ 21 mm)²
- Cable trays²
- .
- ٠
- Cable trays²⁻ Plastic conduits $\leq \emptyset$ 32 mm (with cables $\leq \emptyset$ 21 mm)² Plastic conduit bundles $\leq \emptyset$ 100 mm (conduits $\leq \emptyset$ 32 mm, with cables $\leq \emptyset$ 21 mm)² PE lines "speed pipes" (24 x $\leq \emptyset$ 7.0 mm, 7 x $\leq \emptyset$ 10.0 mm, 5 x $\leq \emptyset$ 12.0 mm)² Non-combustible pipe with mineral wool insulation (steel pipes $\leq \emptyset$ 323.9 mm, copper pipes $\leq \emptyset$ 2000 mm, 20000 up to El 1201 ٠
- Ø 108 mm]¹
- Non-combustible pipe with FEF insulation (steel pipes < Ø 170 mm, copper pipes < Ø 108 mm)¹ Multilayer composite pipes < Ø 63 mm¹
- Combustible pipes ≤ Ø 160 mm¹ HVAC split-line-combinations¹

¹ See ETA-22/0063 for further installation details.
² Cables / cable bundles / cable trays to be coated with ArmaProtect ABLC or wrapped with ArmaProtect FW2, see further details in the ETA-22/0063.

Quad	Quadruple board system (4 x mineral wool board 60 mm, 1 side coated)1		
Base	material		
Base	material thickness		
Seal	thickness		
Maxi	mum seal size (wall)		
Maxi	mum seal size (floor)		
Pene • •	trants Cables ≼ Ø 80 mm² Cable bundles ≼ Ø 100 mm (with cables ≼ Ø 21 mm)² Cable trays²		

¹ See ETA-22/0063 for further installation details.
² Cables / cable bundles / cable trays to be wrapped with ArmaProtect FW2, see further details in the ETA-22/0063.

Floor application



Legend

3.

4.

- 1. Mineral wool board
- 2. ArmaProtect ABLC Firestop coating
 - ArmaProtect FW2 Firestop wrap
 - Cable
- 5. Rigid floor ≥150 mm

Concrete wall, aerated concrete wall, masonry wall, concrete floor
≥ 240 mm (wall) ≥ 200 mm (floor)
> 240 mm (wall) > 240 mm (floor)
600 mm x 600 mm
1000 mm x ∞
up to El 2401

Wall application



Floor application



Legend

- 1. Rigid wall ≥ 240 mm
- 2. Mineral wool board
- 3. ArmaProtect ABLC Firestop coating
- ArmaProtect FW2 Firestop wrap 4.
- 5. Cable

Legend

- 1. Mineral wool board
- 2. ArmaProtect ABLC Firestop coating
- ArmaProtect FW2 Firestop wrap 3.
- Cable 4.
- 5. Rigid floor ≥ 200 mm

OTHER APPROVED SYSTEMS ACC. ETA-22/0063



Sealing system made of mineral wool and ArmaProtect ABLF Firestop Filler¹

Base material

Base material thickness

Seal thickness

Maximum seal size (wall)

Maximum seal size (floor)

- Penetrants Cables ≤ Ø 21 mm¹
- Cable bundles $\leq \emptyset$ 100 mm (with cables $\leq \emptyset$ 21 mm)¹

- Cable bundles $\leq \emptyset$ 100 mm (with cables $\leq \emptyset$ 21 mm)¹ Plastic conduits $\leq \emptyset$ 32 mm (with cables $\leq \emptyset$ 21 mm)² Plastic conduit bundles $\leq \emptyset$ 70 mm (conduits $\leq \emptyset$ 16 50 mm, with cables $\leq \emptyset$ 21 mm)² Plastic conduit bundles $\leq \emptyset$ 100 mm (conduits $\leq \emptyset$ 32 mm, with cables $\leq \emptyset$ 21 mm)² Metal conduits $\leq \emptyset$ 16 mm (with cables $\leq \emptyset$ 14 mm) and $\leq \emptyset$ 50 mm (with cables $\leq \emptyset$ 21 mm)² Combustible pipes $\leq \emptyset$ 32 mm¹ Combustible pipes ≤ 219.1 mm (with mineral wool insulation)¹ UVAC explicit lines are provided in the set of the s •
- HVAC split-line-combinations¹

¹ See ETA-22/0063 for further installation details.
 ² Plastic conduits/plastic conduit bundles to be wrapped with ArmaProtect FW2, see further details in the ETA-22/0063.

Concrete wall, aerated concrete wall, masonry wall, concrete floor
> 100 mm (wall) > 150 mm (floor)
> 100 mm (wall) > 150 mm (floor)
500 mm x 200 mm (rectangular) Ø 350 mm (round)
350 mm x 150 mm (rectangular) Ø 160 mm (round)

up to El 901

Wall application



Floor application

Legend

- 1. Rigid wall ≥100 mm
- 2. Flexible wall ≥ 100 mm
- Loose mineral wool 3.
- ArmaProtect ABLF Firestop filler 4.
- 5. Cable
- Rigid floor ≥ 150 mm 6.
- 7. Conduits
- 8. ArmaProtect FW2 Firestop wrap

UL APPROVED SYSTEMS

// Typical UL approved systems¹

Penetrants

- Blank openings
- Cable trays
- Cable bundles
- PE-HD conduit bundles
- Copper tubes
- Waveguides •
- Speed pipe bundles •
- Bus bars •
- Steel pipes ٠
- Copper pipes
- PE/Al/PE composite pipes •
- PVC pipes
- PE pipes ٠
- PP-HT pipes
- PP pipes ٠
- AB/PVC pipes •
- Clima split bundles
- Ducts •

¹See relevant UL system for further installation details.

// Selected exemplary UL approved systems

System No. C-AJ-0181 (blank floor opening) ANSI/UL 1479 (ASTM E814)

• F rating - 3 hours

• T rating - 3 hours







up to 400 mm x 300 mm (rectangular) up to Ø 300 mm (round)

System No. W-J-4106 (cable tray in wall opening)

ANSI/UL 1479 (ASTM E814) • F rating - 3 hours • Trating - 2 hours

System No. C-AJ-1753 (Steel pipe in floor opening)

ANSI/UL 1479 (ASTM E814)

- F rating 3 hours
- Trating 0 hours



ANSI/UL 1479 (ASTM E814)

- F rating 3 hours
- Trating 1-1/2 hour





ArmaProtect CU Firestop cushion

INSTRUCTIONS FOR USE



// Floor installation



// Consumption guide

Size (mm)	C
300 x 200 x 100	Ca
300 x 200 x 40	Ca
200 x 150 x 40	F
	Size (mm) 300 x 200 x 100 300 x 200 x 40 200 x 150 x 40

ARMAPROTECT CU /17





onsumption

a. 50 pieces / m²

a. 120 pieces / m²

For small openings and for filling in between and around cables

ArmaProtect CT Firestop cable tube

UL APPROVED SYSTEMS

// Typical UL approved systems¹

• Cable trays < 300 mm width 'See relevant UL system for further installation details.



// Selected exemplary UL approved systems

System No. F-B-410 (cable tray in floor opening)

ANSI/UL 1479 (ASTM E814)

- F rating 3 hours
- T rating 1½ hours

System No. W-J-4113 (cable tray in wall opening)

ANSI/UL 1479 (ASTM E814)

- F rating 3 hours
- Trating 3 hours





INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.





MAIN APPLICATIONS ACC. ETA-22/0062



Drywall, concrete wall, aerated concrete wall, masonry wall, concrete floor

≥ 100 mm (wall)

≥ 125 mm (floor)

≥ 150 mm

up to El 1201

in drywalls, solid walls and concrete floors¹

Base material thickness

Seal thickness

Base material

Penetrants

Cables ≤ Ø 80 mm¹

- Cable bundles $\leq \emptyset$ 107 mm (with cables $\leq \emptyset$ 21 mm)¹
- Plastic conduits $\leq \emptyset$ 63 mm (with cables $\leq \emptyset$ 21 mm)

Plastic conduit bundles ≤ Ø 107 mm (conduits ≤ Ø 32 mm, with cables ≤ Ø 21 mm)¹

Wave guide cables $\leq \emptyset$ 28.5 mm¹

- PE lines "speed pipes" $[24 \times \emptyset 7.0 \text{ mm}, 7 \times \emptyset 10.0 \text{ mm}, 5 \times \emptyset 12.0 \text{ mm}]^1$ Combustible pipes $\emptyset 32 \text{ mm}^1$ HVAC split-line-combinations

¹ See ETA 22/0062 for further installation details.

// Typical ETA approved systems¹

Wall application





Floor application

UL APPROVED SYSTEMS

// Typical UL approved systems¹

Penetrants

- Cable bundles
- PE-HD conduit bundles •
- Steel pipes ٠
- Clima split bundles ٠

¹See relevant UL system for further installation details.

// Selected exemplary UL approved systems

System No. F-A-3084 (cable bundle in floor opening)

ANSI/UL 1479 (ASTM E814)

- F rating 3 hours
- T rating 1/2 hour



System No. W-J-1335 (steel pipe in wall opening)

≤ Ø 137 mm (cables Ø ≤ 16.2 mm)

< Ø 100 mm (conduits Ø < 32 mm)

ANSI/UL 1479 (ASTM E814)

≼Ø89 mm

- F rating 2 hours
- Trating 2 hours



System No. C-AJ-2931 (PE-HD conduit bundle in floor opening)

ANSI/UL 1479 (ASTM E814)

F rating - 3 hours
T rating - 3 hours

- ANSI/UL 1479 (ASTM E814)



ARMAPROTECT CT /23

System No. W-J-8099 (clima split bundle in wall opening)

F rating - 3 hours
T rating - 1½ hours ĠΑ) Section A-A

ArmaProtect EXPS Firestop sealant

INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.



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MAIN APPLICATIONS ACC. ETA-21/1025



In drywalls, solid walls and concrete floors¹

Base material

Base material thickness

Seal thickness

Maximum seal size (wall)

Maximum seal size (floor)

Penetrants

- Cables ≤ Ø 50 mm¹ Cable bundles $\leq \emptyset$ 180 mm (with cables $\leq \emptyset$ 21 mm)¹
- Plastic conduits < Ø 32 mm (with cables < Ø 21 mm)¹
- Plastic conduit bundles ≤ Ø 90 mm (conduits ≤ Ø 32 mm, with cables ≤ Ø 21 mm)¹
- Non-combustible pipe without insulation (steel pipes < Ø 48.3 mm, copper pipes < Ø 22 mm)¹ Combustible pipes < Ø 110 mm¹

¹ See ETA 21/1025 for further installation details.

// Consumption guide

/2 hrs, at 23°C(73°F) / 50% r.H.

Approximate consumption [ml]¹

Diameter of sealing size {mm]	0% services	30% services	60% services
50	98	69	39
100	393	275	157
150	883	618	353

¹Considering an installation depth of 25 mm on each side of the penetration.

Take note of potential material loss during application at the job site.

Drywall, concrete wall, aerated concrete wall, masonry wall, concrete floor
> 100 mm (wall)
≥ 150 mm (floor)
 Depends on medium, type of gland and closure material¹ Blank opening: ≤ Ø 150 mm
 Depends on medium, type of gland and closure material¹ Blank opening: ≼ Ø 150 mm

up to El 1201

Floor application in rigid floor



Wall application in dry wall



Wall application in rigid wall



WITH ARMACELL YOU'RE ALWAYS ON THE SAFE SIDE.



ArmaProtect FW1 Firestop wrap

INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.















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// Consumption guide

Check consumption of ArmaProtect Firestop Wrap FW1 based on the pipe diameter and number of layers required. The table below provides an estimation for one layer of wrap based on the outside diameter of the pipe, conduit or conduit bundle. To avoid wastage, review the number of layers required and the potential need of overlapping the firestop wrap according to third party published listings or national approvals / assessments before cutting.

Approximate length for one layer of firestop wrap [mm]
110
140
170
215
255
310
370
425
480
550

UL APPROVED SYSTEMS

// Typical UL approved systems¹

Per	netrants	
•	Cable bundles	≼Ø150mm
•	PVC pipes	≼Ø160mm
•	PE pipes	≼Ø160mm
•	PP-HT	≼Ø100mm
¹ See	e relevant UL system for further installation details.	

// Selected exemplary UL approved systems

System No. C-AJ-2929 (PE pipe in floor opening)	Sys
ANSI/UL 1479 (ASTM E814) • F rating - 3 hours • T rating - 3 hours	AN •

System No. W-L-2387 (PVC pipe in wall opening)





stem No. F-A-2386 (PE pipe in floor opening)

ISI/UL 1479 (ASTM E814) F rating - 3 hours T rating - 3 hours



System No. F-A-3083 (cable bundle in floor opening)

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ANSI/UL 1479 (ASTM E814)
• F rating - 3 hours
• Trating - 1-1/2 hours
```



ArmaProtect FW2 Firestop wrap

INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.























// Consumption guide

Check consumption of ArmaProtect Firestop Wrap FW2 based on the pipe diameter and number of layers required. The table below provides an estimation for one layer of wrap based on the outside diameter of the pipe, conduit or conduit bundle. To avoid wastage, review the number of layers required and the potential need of overlapping the firestop wrap according to third party published listings or national approvals / assessments before cutting.

Diameter of pipe / conduit / conduit bundle [mm] Approximate length for one layer of firestop wrap [mm]

32	110
40	140
50	170
63	215
75	255
90	310
110	370
125	425
140	480
160	550

MAIN APPLICATIONS ACC. ETA-21/1026

Base material	Drywall, concrete wall, aerated concrete wall, masonry wall, shaft wall, concrete floor
Base material thickness	≥ 100 mm (wall) ≥ 150 mm (floor)
Seal thickness	≥ 100 mm (wall) ≥ 150 mm (floor)
Penetrants Non-combustible pipe with insulation • Steel pipes ≤ 323.9 mm • Copper pipes ≤ 108.0 mm	up to El 120-C/U1
1 See FTA 21/1026 for further installation details	

// Typical ETA approved systems¹

Wall application (drywall)



Floor application



¹ See ETA 21/1025 for further installation details.



Wall application (solid wall)



UL APPROVED SYSTEMS

// Typical UL approved systems¹

PE-HD conduit bundles	≤ Ø 100 mm (conduits Ø ≤ 32 mm)
PE-HD conduits with speed pipe bundles	< Ø 50 mm
PE/AL/PE composite pipe	≼ Ø 63 mm
Copper pipes	≤ Ø 159 mm
Clima split bundles	
Mixed penetration seals	

// Selected exemplary UL approved systems

System No. C-AJ-2927 (composite pipe in floor opening)

ANSI/UL 1479 (ASTM E814)

- F rating 3 hours
 T rating 3 hours



System No. F-A-8061 (PE-HD bundle pipe bundle in floor opening)

ANSI/UL 1479 (ASTM E814)

- F rating 3 hours
 T rating 2 hours



System No. W-J-5210 (copper pipes in floor opening)

- ANSI/UL 1479 (ASTM E814) • F rating - 3 hours
- Trating 0 hours



System No. W-J-8093 (mixed penetration seal in wall opening)

ANSI/UL 1479 (ASTM E814)

- F rating 3 hours
 T rating 1 hour



ARMAPROTECT FW2/33

System No. W-J-8092 (clima split bundle in floor opening)

ANSI/UL 1479 (ASTM E814) F rating - 3 hours
T rating - 1/2 hours



ArmaProtect FW3 Firestop wrap

INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.



// Consumption guide

Check consumption of ArmaProtect Firestop Wrap FW3 based on the pipe diameter and number of layers required. Standard application for pipes:

- for wall penetration: installation of firestop wrap from both sides
- for floor penetration: installation of firestop wrap on the bottom side of the floor.

MAIN APPLICATIONS ACC. ETA-21/1099



In drywalls, solid walls and concrete floors

Base material	Drywall, concrete wall, aerated concrete wall, masonry wall, shaft wall, concrete floor
Base material thickness	> 100 mm (wall) > 40 mm (shaft wall) > 150 mm (floor)
Seal thickness	> 100 mm (wall) > 80 mm (shaft wall) > 150 mm (floor)
Penetrants	insulation

Combustible pipes $\emptyset \le 160 \text{ mm}$ (without combustible insulation) Combustible pipes $\emptyset \le 110 \text{ mm}$ (with combustible insulation)¹ Multi-layer composite pipes $\emptyset \le 110 \text{ mm}^1$

¹ See ETA 21/1099 for further installation details

// Typical ETA approved systems¹

Wall application with PE-sound insulation



up to El 120-U/U1





Floor application with PE-sound insulation



Floor application with synthetic insulation





ArmaProtect FC1 Firestop collar

INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.











// Consumption guide

Choose ArmaProtect FC1 Firestop collar based on the pipe diameter.

Standard pipe application:

- 2 firestop collars for wall penetration (installation of firestop collar from both sides)
- 1 firestop collars for floor penetration (installation of firestop collar on the bottom side of the floor)

MAIN APPLICATIONS ACC. ETA-21/1024

In drywalls and solid walls¹

Base material	Drywall, concrete wall, aerated concrete wall, masonry wall
Base material thickness	> 100 mm
Maximum pipe diameter	up to 160 mm pipe diameter
Penetrants • Combustible pipe without insulation (≼ 160 mm)¹	up to El 120-U/C1
See ETA 21/1024 for further installation of	details.

Concrete floors¹

Base material	Concrete floors
Base material thickness	≥ 150 mm (wall)
Maximum pipe diameter	up to 160 mm pipe diameter
Penetrants • Combustible pipe without insulation (≤ 160 mm) ¹	up to EI 240-U/C ¹

¹ See ETA 21/1024 for further installation details.

// Typical ETA approved systems¹

Wall application









Floor application



ArmaProtect FC2 Firestop collar

INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.









Collar size (Ø) [mm]	D2 (Internal Ø) [mm]	D1 (External Ø) [mm]	H1 (Installation height) [mm]	Number of hooks
32	36	50	26.0	2
40	44	58	26.0	2
50	54	68	26.0	2
63	67	94	26.0	4
75	79	106	26.0	4
90	94	132	26.0	4
110	114	155	26.0	4







// Consumption guide

Choose ArmaProtect FC2 Firestop collar based on the pipe diameter.

Standard pipe application:

- 2 firestop collars for wall penetration (installation of firestop collar from both sides)
- 1 firestop collar for floor penetration (installation of firestop collar on the bottom side of the floor)

Collar size (Ø) [mm]	D2 (Internal Ø) [mm]	D1 (External Ø) [mm]	H1 (Installation height) [mm]	Number of hooks
125	129	172	26.0	4
140	144	200	40.0	6
160	164	220	40.0	6
180	184	264	40.0	8
200	204	284	40.0	8
225	239	328	51.5	10
250	264	353	51.5	10
280	289	378	51.5	12
300	314	403	51.5	12
315	328	417	51.5	12
355	370	459	51.5	12
400	415	504	51.5	12

MAIN APPLICATIONS ACC. ETA-22/0060

In drywalls and solid walls ¹			
Base material	Drywall, concrete wall, aerated concrete wall, masonry wall		
Base material thickness	≥ 100 mm		
Maximum pipe diameter	up to 400 mm pipe diameter		
Penetrants Combustible pipe without insula- tion (< 400 mm) ¹	up to EI 120-U/U1		
¹ See ETA 22/0060 for further installation detail	s.		
Concrete floors ¹			
Base material	Concrete floors		
Base material thickness	≥ 150 mm (wall)		
Maximum pipe diameter	up to 400 mm pipe diameter		
Penetrants Combustible pipe without insula-	up to EI 120-U/U ¹		

tion (≤ 400 mm) ¹ See ETA 22/0060 for further installation details

// Typical ETA approved systems¹

Wall application





Floor application



ArmaProtect EFC1 and EFC2 Endless firestop collar

INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.



Pipe Ø [mm]	32	32	40	40
Insulation thickness [mm]	-	4	-	4
Number of layers	2	2	2	2
Required length for inlay	250	320	320	360
Number of steel strap elements	12	14	14	15
Number of hooks	2	2	2	2

ibe b fuilit	02	02	40	40	00	00	00	00	70	70	
nsulation thickness [mm]	-	4	-	4	-	4	-	4	-	4	
lumber of layers	2	2	2	2	2	2	3	3	3	3	
Required length for inlay	250	320	320	360	375	440	685	780	800	895	
lumber of steel strap lements	12	14	14	15	16	17	18	20	21	23	
lumber of hooks	2	2	2	2	2	2	3	3	3	3	
Pipe Ø [mm]	90	90	110	110	125	125	140	140	160	160	
Insulation thickness [mm]		4		4		4		4		4	
Number of layers	4	4	4	4	5	5	6	6	6	6	
Required length for inlay	1290	1400	1545	1660	2190	2425	2860	3050	3365	3530	
Number of steel strap elements	25	27	29	31	32	34	36	38	40	42	
Number of hooks	3	3	3	3	4	4	4	4	4	4	
											_

Take note of potential material loss during application at the job site.

ARMAPROTECT EFC1 / EFC2 /43

MAIN APPLICATIONS



In drywalls, solid walls and concrete floors¹

Base material	Drywall, concrete wall, aerated concrete wall, masonry wall, shaft wall, concrete floor			
Base material thickness	 > 100 mm (wall) > 40 mm (shaft wall) > 150 mm (floor) 			
Seal thickness	> 100 mm (wall) > 40 mm (shaft wall) > 150 mm (floor)			
Penetrants Combustible pipes Ø ≤ 160 mm (with & without sound insulation) ¹ Combustible pipes Ø ≤ 110 mm (with combustible insulation) ¹ Non-combustible pipes Ø ≤ 108 mm (with combustible insulation) ¹	up to El 120 U/C resp. El 120 U/U ¹			

Application in flexible and rigid wall with angle between 45° and 90°



Application with multiple pipe penetration in flexible and rigid wall (also possible for concrete floor application)





¹ See ETA 22/0061 for further installation details.

// Typical ETA approved systems¹

Application in flexible and rigid wall

Multi-layer composite pipes $\emptyset \le 110 \text{ mm}^1$

¹ Further applications tested also tested up to EI-240-U/C. See ETA 22/0061 for further installation details.



Application in concrete floor







Application with pipe positioned directly in the corner of the wall



ArmaProtect ABLF Firestop filler mastic

INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.











// Consumption guide

Joint dimensioning of 5 mm x 5 mm Joint dimensioning of 10 mm x 10 mm

- approx. 12 linear meters with one 310 ml cartridge
- approx. 3 linear meters with one 310 ml cartridge

Take note of potential material loss during application at the job site.

UL APPROVED SYSTEMS

// Typical UL approved systems¹

Joints

- Wall joints for concrete walls
- Floor joints for concrete walls
- Head-of-wall joints for concrete wall
- Head-of-wall joints for fire-rated gypsum board/ stud wall assembly
- Bottom-of-wall joints for fire-rated gypsum board/ stud wall assembly

¹See relevant UL system for further installation details.

// Selected exemplary UL approved systems

System No. FF-S-0052 (floor joint)	S
 ANSI/UL 2079 F rating - 3 hours Joint width - maximum 1" (25 mm) 	A1 •



ystem No. HW-S-0156 (head-of-wall joint)

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NSI/UL 2079
F rating - 3 hours
Joint width - maximum 1" (25 mm)
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ArmaProtect ACRS Firestop sealant

INSTRUCTIONS FOR USE

Ensure that surfaces are dry and free of dust and grease.

System No. HW-S-0157 (head-of-wall joint)

ANSI/UL 2079

- F rating 2 hours
- Joint width maximum 1" (25 mm)

System No. BW-S-0062 (bottom-of-wall joint)

ANSI/UL 2079

- Frating 1 and 2 hours
- Joint width maximum 1" (25 mm)









// Consumption guide

Joint dimensioning of 5 mm x 5 mm

Joint dimensioning of 10 mm x 10 mm

- approx. 3 linear meters with one 310 ml cartridge

Take note of potential material loss during application at the job site.

ARMAPROTECT ACRS /49



• approx. 12 linear meters with one 310 ml cartridge approx. 24 linear meters with one 600 ml cartridge

approx. 6 linear meters with one 600 ml cartridge

UL APPROVED SYSTEMS

// Typical UL approved systems¹

Joints

- Wall joints for fire-rated gypsum board/ stud wall assembly •
- Floor joints for fire-rated gypsum board/ stud wall assembly
- Head-of-wall joints for fire-rated gypsum board/ stud wall assembly
- Head-of-wall joints for fire-rated gypsum board/ stud wall assembly •
- Bottom-of-wall joints for fire-rated gypsum board/ stud wall assembly ٠

¹See relevant UL system for further installation details.

// Selected exemplary UL approved systems

System No. FF-S-0053 (floor joint)

ANSI/UL 2079

- F rating 3 hours
- Joint width maximum 1" (25 mm)

System No. HW-S-0152 (head-of-wall joint)

ANSI/UL 2079

- F rating 2 hours
- Joint width maximum 1-1/5" (30 mm)





System No. HW-S-0153 (head-of-wall joint)

ANSI/UL 2079

- F rating 2 hours • Joint width - maximum 1" (25 mm)





System No. BW-S-0061 (bottom-of-wall joint)

ANSI/UL 2079

- F rating 1 and 2 hours
- Joint width maximum 1" (25 mm)



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ABOUT ARMACELL

As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With more than 3,000 employees and 26 production plants in 18 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology.

