



Konstruktionsnachweis 719

Abschottung mit dem
PROMAFOAM[®]-2C-Brandschutzschaum

Bautechnischer Brandschutz

Stand 15.10.2024



Inhaltsverzeichnis zum Promat-Konstruktionsnachweis 719

- **Leistungserklärung Nr. 0761-CPR-22/0026-2022/3** vom 21.06.2022

- **ETA-22/0026** (OIB Wien) vom 22.04.2022

LEISTUNGSERKLÄRUNG

Datum der Ausstellung: 3/22/2022
Ersetzt: Nr. --- - CPR --/--- - JJJJ/# of: TT/MM/JJJJ

Nr. 0761-CPR-22/0026-2022/3

1	Eindeutiger Kenncode des Produkttyps: PROMAFOAM®-2C																																							
2	Typen- oder Chargennummer: wie auf der Verpackung des Produkts angegeben																																							
3	Vorgesehene Verwendungszwecke wie angegeben in der ETA-22/0026: 3.1 - PROMAFOAM®-2C ist ein zweikomponentiger dauerelastischer Brandschutzschaum welcher als Abschottung von brennbaren und nichtbrennbaren Rohrleitungen (mit brennbarer und nicht brennbarer Isolierung) sowie von Kabeln, Kabelbündeln und Elektroinstallationsschläuchen in feuerwiderstandsfähigen Decken und Wänden verwendet wird. 3.2 – Das Produkt ist bestimmt für: - Verwendung in Innenbereichen mit Luftfeuchte < 85 % RH, ohne Temperaturen unter 0°C und keine Exposition zu regen oder UV (TR 024:2009, Typ Z ₂); - Verwendung in Innenbereichen mit Luftfeuchte ≥85 % RH, ohne Temperaturen unter 0°C und keine Exposition zu regen oder UV (TR 024:2009, Typ Z ₁).																																							
4	Name und Kontaktanschrift des Herstellers: <div style="text-align: center;"> Etex Building Performance NV Bormstraat 24 B-2830 Tisselt Belgium Plant: 134 www.etexgroup.com </div>																																							
5	Bevollmächtigte: nicht anwendbar.																																							
6	System oder Systeme zur Bewertung und Überprüfung der Leistungsbeständigkeit (BÜLB): siehe Tabelle unter Abschnitt 9.																																							
7	Das Bauprodukt ist nicht durch eine harmonisierte Produktnorm abgedeckt.																																							
8	Die Leistungserklärung betrifft ein Bauprodukt, für das eine Europäische Technische Bewertung (ETA) ausgestellt worden ist. Das Österreichische Institut für Bautechnik (OIB) (OIB, Österreich) hat eine Europäische Technische Bewertung mit der Nummer ETA-22/0026 für dieses Produkt auf Basis des EAD 350454-00-1104 ausgestellt. Notifizierte Zertifizierungsstelle: Nr. 0761 (MPA Braunschweig) Zertifikat / Bescheinigung der Leistungsbeständigkeit 0761 - CPR - 1061																																							
9	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Wesentliche Merkmale</th> <th style="width: 15%;">Wesentliche Merkmale</th> <th style="width: 35%;">Wesentliche Merkmale</th> <th style="width: 15%;">Wesentliche Merkmale</th> </tr> </thead> <tbody> <tr> <td colspan="4">GA1: Mechanische Festigkeit und Standsicherheit.</td> </tr> <tr> <td colspan="4">GA2: Brandschutz:</td> </tr> <tr> <td>Brandverhalten:</td> <td style="text-align: center;">1</td> <td>E</td> <td rowspan="2" style="text-align: center; vertical-align: middle;">ETA-22/0026 EAD 350454-00-1104</td> </tr> <tr> <td>Feuerwiderstand:</td> <td style="text-align: center;">1</td> <td>Diese Eigenschaft hängt vom geprüften System ab. Die Leistung des Produkts in jeder einzelnen geprüften Bauart wird vom Hersteller in Abhängigkeit von der geplanten Verwendung nach Abschnitt 3.1 dieser Leistungserklärung nachgewiesen und als Nachweis zur Verfügung gestellt. Die Leistungsklassen sind in einem Klassifizierungsbericht nach dem entsprechend anwendbaren Teil der EN 13501 angegeben und erklärt.</td> </tr> <tr> <td colspan="4">GA3: Hygiene, Gesundheit und Umweltschutz:</td> </tr> <tr> <td>Luftundurchlässigkeit:</td> <td style="text-align: center;">-</td> <td>KLB (Keine Leistung bewertet)</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">ETA-22/0026 EAD 350454-00-1104</td> </tr> <tr> <td>Wasserundurchlässigkeit:</td> <td style="text-align: center;">-</td> <td>KLB (Keine Leistung bewertet)</td> </tr> <tr> <td>Freisetzung gefährlicher Stoffe:</td> <td style="text-align: center;">-</td> <td>Deklaration / Erklärung (eingereicht bei der Technischen Bewertungsstelle)</td> </tr> <tr> <td colspan="4">GA4: Sicherheit und Barrierefreiheit bei der Nutzung:</td> </tr> </tbody> </table>			Wesentliche Merkmale	Wesentliche Merkmale	Wesentliche Merkmale	Wesentliche Merkmale	GA1: Mechanische Festigkeit und Standsicherheit.				GA2: Brandschutz:				Brandverhalten:	1	E	ETA-22/0026 EAD 350454-00-1104	Feuerwiderstand:	1	Diese Eigenschaft hängt vom geprüften System ab. Die Leistung des Produkts in jeder einzelnen geprüften Bauart wird vom Hersteller in Abhängigkeit von der geplanten Verwendung nach Abschnitt 3.1 dieser Leistungserklärung nachgewiesen und als Nachweis zur Verfügung gestellt. Die Leistungsklassen sind in einem Klassifizierungsbericht nach dem entsprechend anwendbaren Teil der EN 13501 angegeben und erklärt.	GA3: Hygiene, Gesundheit und Umweltschutz:				Luftundurchlässigkeit:	-	KLB (Keine Leistung bewertet)	ETA-22/0026 EAD 350454-00-1104	Wasserundurchlässigkeit:	-	KLB (Keine Leistung bewertet)	Freisetzung gefährlicher Stoffe:	-	Deklaration / Erklärung (eingereicht bei der Technischen Bewertungsstelle)	GA4: Sicherheit und Barrierefreiheit bei der Nutzung:			
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Stoßfestigkeit und Bewegungswiderstand:	-	KLB (Keine Leistung bewertet)	ETA-22/0026 EAD 350454-00-1104
Adhäsion:		KLB (Keine Leistung bewertet)	
GA5: Schallschutz:			
Luftschalldämmung:		KLB (Keine Leistung bewertet)	ETA-22/0026 EAD 350454-00-1104
GA6: Energieeinsparung und Wärmeschutz:			
Wärmeleitfähigkeit:	-	KLB (Keine Leistung bewertet)	ETA-22/0026
Wasserdampfdurchlässigkeit (Transmissionskoeffizient):	-	KLB (Keine Leistung bewertet)	EAD 350454-00-1104
Dauerhaftigkeit:			
Grundlegender Nachweis der Dauerhaftigkeit:		Bei der vorgesehenen Anwendung, Klasse Z ₁ , Z ₂ nach EOTA TR024 und in Übereinstimmung mit EAD 350454-00-1104.	ETA-22/0026 EAD 350454-00-1104

Die Leistung des Produkts gemäß den Nummern 1 und 2 entspricht der erklärten Leistung nach Nummer 9.

Verantwortlich für die Erstellung dieser Leistungserklärung ist allein der Hersteller gemäß Nummer 4.

Die jeweils aktuellste Version dieser Leistungserklärung finden Sie unter "www.promat-ce.eu".

Das Sicherheitsdatenblatt gem. VO (EG) 1907/2006 von PROMAFOAM®-2C ist auf Anfrage erhältlich.

Unterzeichnet für den Hersteller und im Namen des Herstellers von:

Name: Ing. Matthias Wagner
 Funktion: Approval Manager Fire Stopping

Linz, 6/21/2022

Unterschrift: 



Austrian Institute of Construction Engineering
Schenkenstrasse 4 | T+43 1 533 65 50
1010 Vienna | Austria | F+43 1 533 64 23
www.oib.or.at | mail@oib.or.at



European Technical Assessment

ETA-22/0026
of 22.04.2022

General part

Technical Assessment Body issuing the European Technical Assessment

Österreichisches Institut für Bautechnik (OIB)
Austrian Institute of Construction Engineering

Trade name of the construction product

PROMAFOAM®-2C

Product family to which the construction product belongs

Fire Stopping and Fire Sealing Products:
Penetration Seals

Manufacturer

Etex Building Performance NV
Bormstraat 24
2830 Tiselt
Belgium

Manufacturing plant

Production plant 134

This European Technical Assessment contains

39 pages including Annexes 1 to 4 which form an integral part of this assessment

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of

European Assessment Document
EAD 350454-00-1104 „Fire stopping and fire sealing products – Penetration seals”

Specific parts

1 Technical description of the product

“PROMAFOAM®-2C” is a 2-component firestop foam to be used as a mixed penetration seal or cable penetration seal to reinstate the fire resistance performance of floor and wall constructions, where they have been provided with apertures. After application “PROMAFOAM®-2C” reacts and increases its volume.

“PROMAFOAM®-2C” – type of penetration seal (acc. to EAD 350454-00-1104, cl. 1.1, table 1-1): Foams.

Additional components of “PROMAFOAM®-2C”	Characteristics
PROMASTOP®-TDW	Intumescent firestop wrap on the basis of butyl rubber and glass fabric reinforcement with a nominal width of 150 mm and a nominal thickness of 3 mm
PROMASTOP®-FB	Intumescent firestop block (can be vacuum-packed) on the basis of polyurethane

A detailed specification of the product “PROMAFOAM®-2C” is a non-public part of this European Technical Assessment, and deposited at the Österreichisches Institut für Bautechnik.

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

2.1 Intended use

“PROMAFOAM®-2C” is intended to be used as a mixed penetration seal or cable penetration seal to reinstate the fire resistance performance of flexible wall constructions, rigid wall constructions and rigid floor constructions where they have been provided with apertures which are penetrated by various cables, conduits/tubes, metal pipes, plastic pipes and cable support constructions (perforated or non-perforated steel cable trays and steel ladders).

The thickness of the penetration seal has to be minimum 144 mm or 200 mm (mixed penetration seal; depending on the fire resistance classification; see Annex 3 of the ETA) and minimum 100 mm, 144 mm, 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see 3 of the ETA).

The maximum opening size of the penetration seal has to comply with the dimensions as specified in the following table.

Blank penetration seals with maximum opening sizes as specified have been tested, for details see Annex 3.

“PROMAFOAM®-2C” can be installed only in the types of separating elements as specified in the following compartmentations.

- A) Flexible walls: The wall must have a minimum thickness of 94 mm and comprise timber or steel studs lined on both faces with minimum 2 layers of minimum 12,5 mm thick boards or minimum one layer of boards (minimum thickness 25 mm) (with classification A2-s1,d0 or A1 according to EN 13501-1). For timber stud walls there must be a minimum distance of 100 mm of the seal to any stud and the cavity between stud and seal must be closed and minimum 100 mm insulation of class A1 or A2 (in accordance with EN 13501-1) in the cavity between stud and seal.
- B) Rigid walls: The wall must have a minimum thickness of 100 mm and consist of concrete, aerated concrete or masonry, with a minimum density of 450 kg/m³.
- C) Rigid floors: The floor must have a minimum thickness of 150 mm and consist of aerated concrete or concrete with a minimum density of 450 kg/m³.

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This ETA does not cover the use of this product as a penetration seal in sandwich panel constructions and flexible walls where the lining does not cover studs on both sides

“PROMAFOAM®-2C” may be used as a penetration seal with the following specific installations or as blank seal:

Cables	For further details see Annex 3, clause 3.5
Cable bundles	For further details see Annex 3, clause 3.5
Conduits/Tubes	For further details see Annex 3, clause 3.5
Plastic pipes	For further details see Annex 3, clause 3.6
Metal pipes	For further details see Annex 3, clause 3.7
Cable support constructions	For further details see Annex 3, clause 3.5

The maximum seal sizes in the different compartments (see clause 2.1.) are given in Annex 3 of the ETA.

Other parts or service support constructions shall not penetrate the penetration seal.

Distances:

Specimen, penetrating element	Minimum distance (mm)
See Annex 3, clause 3.8	
Supporting distance on both sides of wall constructions	See Annex 3, clause 3.1
Supporting distance on the top side of floor constructions	See Annex 3, clause 3.1

2.2 Use condition

“PROMAFOAM®-2C” is intended for internal use with humidity equal to or higher than 85 % RH, excluding temperatures below 0 °C¹, without exposure to rain or UV, and can therefore – according to EAD 350454-00-1104 clause 2.2.9.3.1 – be categorized as Type Z₁. Since the requirements for Type Z₁ are met, also the requirements for Type Z₂ are fulfilled².

Although a penetration seal is intended for indoor applications only, the construction process may result in it being subjected to more exposed conditions for a period before the building envelope is closed. For this case provisions shall be made to protect temporarily exposed penetration seals according to the ETA-holder’s installation instructions.

2.3 Working life

The provisions made in this European Technical Assessment are based on an assumed working life of “PROMAFOAM®-2C” of 10 years, provided the conditions laid down in the technical literature of the manufacturer relating to packaging, transport, storage, installation, use and repair are met.

The indications given on the intended working life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body, but are to be regarded only as a means for selecting the appropriate product in relation to the expected economically reasonable working life of the works.

The real working life might be, in normal use conditions, considerably longer without major degradation affecting the Basic requirements for construction works.

¹ These uses apply for internal humidity class 5 in accordance with EN ISO 13788
² Type Z₂: intended for use in internal conditions with humidity lower than 85% RH excluding temperatures below 0°C, without exposure to rain or UV

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2.4 General assumptions

2.4.1 It is assumed that

- a) damages to the penetration seal are repaired accordingly,
- b) the installation of the penetration seal does not affect the stability of the adjacent building element – even in case of fire,
- c) the lintel or floor above the penetration seal is designed structurally and in terms of fire protection such that no additional mechanical load (other than its own weight) is imposed on the penetration seal,
- d) the thermal movement in the pipe work will be accommodated in such way that it does not impose a load on the penetration seal,
- e) the installations are fixed to the adjacent building element (not to the penetration seal) in accordance with the relevant regulations in such a way that, in case of fire, no additional mechanical load is imposed to the penetration seal,
- f) the support of the installations is maintained for the required period of fire resistance
- g) pneumatic dispatch systems, compressed air systems, etc. are switched off by additional means in case of fire

This European Technical Assessment does not address any risks associated with the emission of dangerous liquids or gases caused by failure of the pipe(s) in case of fire nor does it prove the prevention of the transmission of fire through heat transfer via the medium in the pipes.

This European Technical Assessment does not verify the prevention of destruction of adjacent building elements with fire separating function or of the pipes themselves due to distortion forces caused by extreme temperatures. These risks shall be accounted for by taking appropriate measures when designing or installing the pipe work.

The mounting or hanging of the pipes or the layout of the pipe work shall be implemented in such a way that the pipes and the fire resistant building elements shall remain functional within a period of time which corresponds to the fire resistance period required.

The risk of downward spread of fire caused by burning material which drips through a pipe to floors below, is not considered in this European Technical Assessment.

The durability assessment does not take account of the possible effect on the penetration seal of substances permeating through the pipe walls.

The assessment does not cover the avoidance of destruction of the penetration seal or of the adjacent building element(s) by forces caused by temperature changes in case of fire. This has to be considered when designing the piping system.

2.5 Manufacturing

The European Technical Assessment is issued for the product on the basis of agreed data / information, deposited with the Österreichisches Institut für Bautechnik, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data / information being incorrect, should be notified to the Österreichisches Institut für Bautechnik before the changes are introduced.

The Österreichisches Institut für Bautechnik will decide whether or not such changes affect the European Technical Assessment and consequently the validity of the CE marking on the basis of the European Technical Assessment and if so whether further assessment or alterations to the European Technical Assessment, shall be necessary.

3 Performance of the product and references to the methods used for its assessment

Basic requirements for construction works	Essential characteristic	Method of verification	Performance
BWR 2	Reaction to fire	EN 13501-1:2007+A1:2009	See 3.1.1
	Resistance to fire	EN 13501-2:2007+A1:2009 and EN 13501-2:2016	See 3.1.2 of the ETA And Annex 3
BWR 3	Air permeability	EN 1026:2016	See 3.2.1
	Water permeability	No performance assessed	
	Content, emission and/or release of dangerous substances	EAD 350454-00-1104 clause 2.2.5	See 3.2.3
BWR 4	Mechanical resistance and stability	No performance assessed	
	Resistance to impact / movement	No performance assessed	
	Adhesion	No performance assessed	
	Durability	EAD 350454-00-1104 clause 2.2.9	See 3.6.4
BWR 5	Airborne sound insulation	EN ISO 10140-2:2010	See 3.4.1
BWR 6	Thermal properties	EN 12667:2001 and EN 12664:2001	See 3.5.1
	Water vapour permeability	No performance assessed	

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

The components of “PROMAFOAM®-2C” were assessed according to EAD 350454-00-1104 clause 2.2.1 and classified according to EN 13501-1:2007+A1:2009.

Component	Class according to EN 13501-1:2007+A1:2009
PROMAFOAM®-2C	E
PROMASTOP®-TDW (additional component)	E
PROMASTOP®-FB (additional component)	E

3.1.2 Resistance to fire

“PROMAFOAM®-2C” was tested according to EAD 350454-00-1104 clause 2.2.2, prEN 1366-3.2:N185:2007-07 and EN 1366-3:2009 in conjunction with EN 1363-1:1999 and EN 1363-1:2012.

Based upon the gained test results and the field of application specified within prEN 1366-3.2:N185:2007-07 and EN 1366-3:2009 “PROMAFOAM®-2C” has been classified according to EN 13501-2:2007+A1:2009 and EN 13501-2:2016. The individual fire resistance classes are listed in Annex 3 of the ETA.

The maximum fire resistance class of the penetration seal in vertical or horizontal separating element depends on the fire resistance class of the penetrating elements. The fire resistance class of the penetration seal is reduced to the fire resistance class of the penetrating element with the lowest fire resistance classification.

Appropriate wall and floor constructions for penetration seals see clause 2.1.

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Information on ancillary products, which were tested within the framework of this European Technical Assessment for evaluating resistance to fire is given in Annex 2

The resistance to fire classification listed in Annex 3 of the ETA is only valid if “PROMAFOAM®-2C” is installed according to Annex 3 of the ETA.

3.2 Hygiene, health and the environment (BWR 3)

3.2.1 Air permeability

The air permeability of “PROMAFOAM®-2C” with a thickness of 144 mm was tested according to EN 1026:2016 in a flexible wall with a thickness of 100 mm. The aperture was lined with 1 layer of ≥ 20 mm thick calcium silicate boards (classification A1 according to EN 13501-1) with a width of 144 mm. The opening size was 360 mm x 360 mm (width x height), resp. 0,130 m².

“PROMAFOAM®-2C” was tested as blank penetration seal according to EAD 350454-00-1104 clause 2.2.3.

The components “PROMASTOP®-TDW” and “PROMASTOP®-FB” were not included in these tests. The measurement accuracy was 0,01 m³/h.

The values given in the following table are the mean values from the pressure- and suction tests.

Δp in Pa	50	100	150	200	250	300	450	600
q/A in m ³ /(h*m ²)	0,39	0,73	1,18	1,58	1,89	2,12	3,24	4,09

The air permeability of “PROMAFOAM®-2C” with a thickness of 200 mm was tested according to EN 1026:2016 in a flexible wall with a thickness of 100 mm. The aperture was lined with 1 layer of ≥ 20 mm thick calcium silicate boards (classification A1 according to EN 13501-1) with a width of 200 mm. The opening size was 350 mm x 350 mm (width x height), resp. 0,123 m².

“PROMAFOAM®-2C” was tested as blank penetration seal according to EAD 350454-00-1104 clause 2.2.3.

The components “PROMASTOP®-TDW” and “PROMASTOP®-FB” were not included in these tests.

Up to a pressure difference of 600 Pa no air permeability was measured. The measurement accuracy of the test facility was 0,01 m³/h, so that the air permeability at $\Delta p = 600$ Pa is less than 0,08 m³/(h*m²).

The air permeability of “PROMASTOP®-FB” with a thickness of 144 mm was tested according to EN 1026:2016 in a flexible wall with a thickness of 100 mm. The aperture was lined with 1 layer of ≥ 20 mm thick calcium silicate boards (classification A1 according to EN 13501-1) with a width of 144 mm. The opening size was 560 mm x 360 mm (width x height), resp. 0,202 m².

“PROMASTOP®-FB” was tested as blank penetration seal according to EAD 350454-00-1104 clause 2.2.3.

The components “PROMASTOP®-TDW” and “PROMAFOAM®-2C” were not included in these tests. The measurement accuracy was 0,01 m³/h.

The values given in the following table are the mean values from the pressure- and suction tests.

Δp in Pa	50	100	150	200	250	300	450	600
q/A in m ³ /(h*m ²)	1,12	1,79	2,38	2,92	3,79	4,42	5,98	7,65

The air permeability of “PROMASTOP®-FB” with a thickness of 200 mm was tested according to EN 1026:2016 in a flexible wall with a thickness of 100 mm. The aperture was lined with 1 layer of ≥ 20 mm thick calcium silicate boards (classification A1 according to EN 13501-1) with a width of 200 mm. The opening size was 355 mm x 550 mm (width x height), resp. 0,195 m².

“PROMASTOP®-FB” was tested as blank penetration seal according to EAD 350454-00-1104 clause 2.2.3.

The components “PROMASTOP®-TDW” and “PROMAFOAM®-2C” were not included in these tests. The measurement accuracy was 0,01 m³/h.

The values given in the following table are the mean values from the pressure- and suction tests.

Δp in Pa	50	100	150	200	250	300	450	600
q/A in m³/(h*m²)	0,82	1,43	1,74	2,28	3,07	3,74	4,97	6,61

3.2.2 Water permeability

No performance assessed.

3.2.3 Content, emission and/or release of dangerous substances

The release of semi-volatile organic compounds (SVOC) and volatile organic compounds (VOC) has been determined for “PROMAFOAM®-2C”, “PROMASTOP®-TDW” and “PROMASTOP®-FB” according to EAD 350454-00-1104 clause 2.2.5.1 and prEN 16516:2015. The loading factor used for emission testing was 0,007 m²/m³.

Component	Total emission of SVOC after 3 days in mg/m³	Total emission of SVOC after 28 days in mg/m³
PROMAFOAM®-2C	0,024	0,011
PROMASTOP®-TDW	0,060	0,020
PROMASTOP®-FB	< 0,005	< 0,005

Component	Total emission of VOC after 3 days in mg/m³	Total emission of VOC after 28 days in mg/m³
PROMAFOAM®-2C	0,027	< 0,005
PROMASTOP®-TDW	< 0,005	< 0,005
PROMASTOP®-FB	0,008	0,006

3.3 Safety and accessibility in use (BWR 4)

3.3.1 Mechanical resistance and stability

No performance assessed.

3.3.2 Resistance to impact / movement

No performance assessed.

Provisions shall be taken to prevent a person from stepping onto a horizontal penetration seal or falling against a vertical penetration seal (e.g. by covering with a wire mesh).

3.3.3 Adhesion

No performance assessed.

3.4 Protection against noise (BWR 5)

3.4.1 Airborne sound insulation

The airborne sound insulation of “PROMAFOAM®-2C” with a thickness of 144 mm was tested according to EN ISO 10140-2:2010 in a flexible wall with a thickness of 200 mm. The aperture was lined with 1 layers of ≥ 25 mm thick calcium silicate boards (classification A1 according to EN 13501-1) with a width of 144 mm. The opening size was 350 mm x 350 mm (width x height), resp. 0,123 m².

“PROMAFOAM®-2C” was tested as blank penetration seal according to EAD 350454-00-1104 clause 2.2.10. The components “PROMASTOP®-TDW” and “PROMASTOP®-FB” were not included in these tests.

The reached values for the airborne sound insulation in accordance with EN ISO 717-1:2013 are given in the following table.

D_{n,e,w} in dB	C in dB	C_{tr} in dB	R_w in dB	C in dB	C_{tr} in dB
62	-1	-5	42	-1	-5

The airborne sound insulation of “PROMAFOAM®-2C” with a thickness of 200 mm was tested according to EN ISO 10140-2:2010 in a flexible wall with a thickness of 200 mm. The aperture was lined with 1 layers of ≥ 20 mm thick calcium silicate boards (classification A1 according to EN 13501-1) with a width of 200 mm. The opening size was 360 mm x 360 mm (width x height), resp. 0,130 m².

“PROMAFOAM®-2C” was tested as blank penetration seal according to EAD 350454-00-1104 clause 2.2.10. The components “PROMASTOP®-TDW” and “PROMASTOP®-FB” were not included in these tests.

The reached values for the airborne sound insulation in accordance with EN ISO 717-1:2013 are given in the following table.

D_{n,e,w} in dB	C in dB	C_{tr} in dB	R_w in dB	C in dB	C_{tr} in dB
66	-1	-6	47	-1	-6

The airborne sound insulation of “PROMASTOP®-FB” with a thickness of 144 mm was tested according to EN ISO 10140-2:2010 in a flexible wall with a thickness of 200 mm. The aperture was lined with 1 layers of ≥ 25 mm thick calcium silicate boards (classification A1 according to EN 13501-1) with a width of 144 mm. The opening size was 350 mm x 350 mm (width x height), resp. 0,123 m².

“PROMASTOP®-FB” was tested as blank penetration seal according to EAD 350454-00-1104 clause 2.2.10. The components “PROMASTOP®-TDW” and “PROMAFOAM®-2C” were not included in these tests.

The reached values for the airborne sound insulation in accordance with EN ISO 717-1:2013 are given in the following table.

D_{n,e,w} in dB	C in dB	C_{tr} in dB	R_w in dB	C in dB	C_{tr} in dB
64	-1	-6	44	-1	-6

The airborne sound insulation of “PROMASTOP®-FB” with a thickness of 200 mm was tested according to EN ISO 10140-2:2010 in a flexible wall with a thickness of 200 mm. The aperture was lined with 1 layers of ≥ 20 mm thick calcium silicate boards (classification A1 according to EN 13501-1) with a width of 200 mm. The opening size was 360 mm x 360 mm (width x height), resp. 0,130 m².

“PROMASTOP®-FB” was tested as blank penetration seal according to EAD 350454-00-1104 clause 2.2.10. The components “PROMASTOP®-TDW” and “PROMAFOAM®-2C” were not included in these tests.

The reached values for the airborne sound insulation in accordance with EN ISO 717-1:2013 are given in the following table.

$D_{n,e,w}$ in dB	C in dB	C_{tr} in dB	R_w in dB	C in dB	C_{tr} in dB
68	-4	-11	49	-4	-11

3.5 Energy economy and heat retention (BWR 6)

3.5.1 Thermal properties

The thermal properties of “PROMAFOAM®-2C” and “PROMASTOP®-FB” were tested according to EN 12667:2001.

Component	$\lambda_{10,23/50}$ in W/(m*K)
PROMAFOAM®-2C	0,088
PROMASTOP®-FB	0,103

The thermal properties of “PROMASTOP®-TDW” were tested according to EN 12664:2001.

Component	λ_{10} in W/(m*K)
PROMASTOP®-TDW	0,396

3.5.2 Water vapour permeability

No performance assessed.

3.6 General aspects relating to fitness for use

3.6.1 Durability

The construction product “PROMAFOAM®-2C” and the additional components fulfil the requirements for the intended use category.

“PROMAFOAM®-2C” is therefore appropriate for internal use with humidity equal to or higher than 85 % RH, excluding temperatures below 0 °C, without exposure to rain or UV, and can – according to EAD 350454-00-1104 clause 2.2.9.3.1 – be categorized as Type Z₁. Since the requirements for Type Z₁ are met, also the requirements for Type Z₂ are fulfilled

3.6.2 Serviceability

No performance assessed.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

4.1 AVCP system

According to the Decision 1999/454/EC³, amended by Decision 2001/596/EC⁴ of the European Commission the system of assessment and verification of constancy of performance (see Annex V of Regulation (EU) No 305/2011) is given in the following table.

Product(s)	Intended use(s)	Level(s) or class(es) (resistance to fire)	System of assessment and verification of constancy of performance
Fire Stopping and Fire Sealing Products	for fire compartmentation and/or fire protection or fire performance	any	1

In addition, according to the Decision 1999/454/EC, amended by Decision 2001/596/EC of the European Commission the system(s) of assessment and verification of constancy of performance, with regard to reaction to fire, is given in the following table.

Product(s)	Intended use(s)	Level(s) or class(es) (reaction to fire)	System of assessment and verification of constancy of performance
Fire Stopping and Fire Sealing Products	for uses subject to regulations on reaction to fire	A1*, A2*, B*, C*	1
		A1**, A2**, B**, C**, D, E	3
		(A1 to E)***, F	4
<p>* Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)</p> <p>** Products/materials not covered by footnote (*)</p> <p>*** Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of class A1 according to Commission Decision 96/603/EC, as amended)</p>			

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with the Technical Assessment Body Österreichisches Institut für Bautechnik.

The notified product certification body shall visit the factory at least twice a year for surveillance of the manufacturer.

Issued in Vienna on 22.04.2022
by Österreichisches Institut für Bautechnik

The original document is signed by:

Rainer Mikulits
Managing Director

³ Official Journal of the European Communities no. L 178, 14.7.1999, p. 52

⁴ Official Journal of the European Communities no. L 209, 2.8.2001, p. 33

ANNEX 1

Reference documents and list of abbreviations

1.1 Reference to standards mentioned in this ETA:

prEN 1366-3.2:N185:2007-07	Fire resistance tests for service installations – Part 3: Penetration seals
EN 1366-3:2009	Fire resistance tests for service installations – Part 3: Penetration seals
EN 1363-1:1999	Fire resistance tests – Part 1: General requirements
EN 1363-1:2012	Fire resistance tests – Part 1: General requirements
EN 1026:2016	Windows and doors - Air permeability - Test method
EN 16516:2018	Construction products: Assessment of release of dangerous substances - Determination of emissions into indoor air
EN ISO 10140-2:2010	Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation
EN ISO 717-1:2013	Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation
EN 12667:2001	Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Products of high and medium thermal resistance
EN 12664:2001	
EN 13501-1:2007+A1:2009	Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests
EN 13501-2:2007+A1:2009	Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation
EN 13501-2:2016	Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation

1.2 Other reference documents:

EAD 350454-00-1104	European Assessment Document for “Fire stopping and fire sealing products - Penetration Seals”
EOTA TR 024 (2009)	Characterization, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products
Technical documentation	Technical data sheet and manual of PROMAFOAM®-2C

ANNEX 2

DESCRIPTION OF PRODUCT(S) & PRODUCT LITERATURE

2.1 Product:

Product name	Description
PROMAFOAM®-2C	Firestop foam
PROMASTOP®-FB (additional component)	Firestop block
PROMASTOP®-TDW (additional component)	Intumescent firestop wrap

Insulations (additional components)	Characteristics
Prefabricated pipe shells, non-combustible insulation	Prefabricated pipe shells according to EN 14303 made from stone wool with classification A _{2L} -s1,d0 or A _{1L} according to EN 13501-1, a minimum density of 90 kg/m ³ and a melting point > 1000 °C according to DIN 4102-17 (e.g. „Rockwool 800” from manufacturer “Deutsche Rockwool Mineralwoll GmbH & Co. OHG”)
AF/Armaflex	Closed cell, flexible elastomeric foam (FEF) insulation in form of (slotted) tubes (can be provided with a self-adhesive device) with classification B _L -s3,d0 – including “Armaflex 520” – according to EN 13501-1 from manufacturer “Armacell GmbH”
AF/Armaflex Band selbstklebend (AF/Armaflex self-adhesive tape)	Closed cell, flexible elastomeric foam (FEF) insulation in form of tapes with a self-adhesive device with classification B-s3,d0 according to EN 13501-1 from manufacturer “Armacell GmbH”
Armaflex 520	Polychlorene-based adhesive, free from aromatic compounds (special adhesive for processing of all flexible Armaflex insulating material – except “HT/Armaflex”) from manufacturer “Armacell GmbH”

2.2 Fixing details:

PROMAFOAM®-2C is fixed by mean of bonding in the compartmentation.
 PROMASTOP®-FB is fixed by mean of friction in the compartmentation.

2.3 Technical product literature:

- Product data sheet of PROMAFOAM®-2C
- Installation manual of PROMAFOAM®-2C
- Detailed sketches of PROMAFOAM®-2C

2.4 Transport and storage:

The indications of the manufacturer regarding transport and storage (minimum and maximum storing temperature, maximum duration of storage) have to be followed.

2.5 Use maintenance and repair:

The fire resistance of the penetration seal shall not be negatively affected by future changes to buildings or building elements.

The assessment of the fitness for use is based on the assumption that necessary maintenance and repair if required is carried out in accordance with the manufacturer’s instructions during the assumed intended working life.

ANNEX 3

RESISTANCE TO FIRE CLASSIFICATION OF PROMAFOAM®-2C

3.1 General and classification acc. to EN 13501-2 for PROMAFOAM®-2C firestop foam

Classification of the PROMAFOAM®-2C firestop foam used as blank seal in dependence with the supporting construction (see ETA clause 2.1):

Supporting construction	Seal size (Mixed penetration seal, in mm)	Seal depth (Mixed penetration seal, in mm)	Seal size (Cable penetration seal, in mm)	Seal depth (Cable penetration seal, in mm)	Classification
Flexible walls	450 x 500	144 / 200	270 x 270 / Ø 300	100 / 144 / 200 / 250	EI 120
Rigid walls	450 x 500	144 / 200	270 x 270 / Ø 300	100 / 144 / 200 / 250	EI 120
Rigid floors	450 x 450	144 / 200	270 x 270 / Ø 300	100 / 144 / 200 / 250	EI 120

The total cross section of the installations (including cable support constructions) must not be more than 60 % of the opening size of the penetration seal.

Pipe end configuration:

Tested and classified for plastic pipes/conduits/tubes	Applicable
U/U	U/U, C/U, U/C, C/C
Tested and classified for plastic pipes/conduits/tubes	Applicable
U/C	U/C, C/C
Tested and classified for metal pipes	Applicable
C/U	C/U, C/C
Tested and classified for steel conduits/tubes	Applicable
U/U	U/U, C/U, U/C, C/C
Tested and classified for steel conduits/tubes	Applicable
U/C	C/U, U/C, C/C

Orientation of the penetrating elements:

- Conduits / tubes, metal pipes and plastic pipes have to be installed perpendicular to the surface of the penetration seal
- Metal pipes with non-combustible pipe insulation can be installed in all angles between 45° and 90°
- Cables have to be installed perpendicular to the surface of the penetration seal

Service supports constructions may penetrate the penetration seal:

- All types of cables and conduits / tubes – in flexible walls and rigid walls – have to be supported on both sides of the separating element by steel cable trays (perforated or non-perforated), steel ladders or alternative service support constructions (e.g. pipe hangers) made of metal with a melting or decomposition point greater or equal than 902 °C for EI 45, or 945 °C for EI 60, or 1006 °C for EI 90, or 1049 °C for EI 120 (e.g. stainless steel or galvanized steel) according to the ETA-holder's installation instructions.
- All types of cables, conduits / tubes, metal pipes and plastic pipes – in rigid floors – have to be supported at least on the top side of the separating element by steel cable trays (perforated or non-perforated), steel ladders or alternative service support constructions (e.g. pipe hangers) made of metal with a melting or decomposition point greater or equal than 842 °C for EI 30, or 945 °C for EI 60, or 1006 °C for EI 90, or 1049 °C for EI 120 (e.g. stainless steel or galvanized steel) according to the ETA-holder's installation instructions.
- Steel cable trays (perforated or non-perforated) or steel ladders can pass through or end at the surface of the penetration seal.
- Lidded cable trays / trunkings must not pass through the penetration seal.

Supporting distances:

Supporting construction	Services	Maximum distance (mm)
Flexible walls	Cables, conduits/tubes	200
Rigid walls		
Rigid floors		
Flexible walls	Plastic pipes, metal pipes	750
Rigid walls		
Rigid floors		
Flexible walls	Conduit bundles	200
Rigid walls		
Rigid floors		

Note: (The maximum distance for the first service support is measured from the surface of the separating element resp. the board frame).

General installation of PROMAFOAM®-2C:

- “PROMAFOAM®-2C” has to be installed according to the ETA-holder’s installation instructions.
- “PROMAFOAM®-2C” will be formed by filling “PROMAFOAM®-2C” in the opening of the separating element so that all interstices and voids are carefully sealed. Alternatively, the remaining space around penetrating elements can be closed with “PROMASTOP®-FB”.
- It is possible to use formwork for the installation of “PROMAFOAM®-2C” in walls and floors. If the formwork consists of cardboard (max. thickness 3 mm) or adhesive tape, it may remain on the mixed penetration seal / cable penetration seal.
- For tied cable bundles (see clause 2.1 of the ETA) the space between the cables needs not be filled with “PROMAFOAM®-2C”
- Copper pipes with an outer diameter > 28 mm have to be insulated with prefabricated pipe shells (e.g. “Rockwool 800”) according to Annex 2 of the ETA or “AF/Armaflex”.
- Steel pipes with an outer diameter > 35 mm have to be insulated with prefabricated pipe shells (e.g. “Rockwool 800”) according to Annex 2 of the ETA or “AF/Armaflex”.
- Copper pipes with an outer diameter ≤ 28 mm can be insulated with prefabricated pipe shells (e.g. “Rockwool 800”) according to Annex 2 of the ETA or “AF/Armaflex”.
- Steel pipes with an outer diameter ≤ 35 mm can be insulated with prefabricated pipe shells (e.g. “Rockwool 800”) according to Annex 2 of the ETA or “AF/Armaflex”.
- Metal pipes insulated with prefabricated pipe shells (e.g. “Rockwool 800”) according to Annex 2 of the ETA can be clad with sheet steel with a thickness of 0,4 mm to 1,0 mm or plastic with a thickness of 0,35 mm to 1,0 mm.
- In some cases (see Annex 3 of the ETA) – for fire resistance class EI 120 of cable penetration seals – “PROMASTOP®-TDW” has to be wrapped on both sides of the penetration seal.
- “WICU® Eco” pipes have to be wrapped with “PROMASTOP®-TDW” on both sides of the penetration seal according to the ETA-holder’s installation instructions (see Annex 3 of the ETA).
- “WICU® Flex”, “WICU® Frio” and “WICU® Clim” pipes in vertical separating elements have to be wrapped with “PROMASTOP®-TDW” on both sides of the penetration seal according to the ETA-holder’s installation instructions (see Annex 3 of the ETA).
- “WICU® Flex”, “WICU® Frio” and “WICU® Clim” pipes in horizontal separating elements have to be wrapped with “PROMASTOP®-TDW” on the top side of the penetration seal according to the ETA-holder’s installation instructions (see Annex 3 of the ETA).

Subsequent addition (retrofitting) and removal:

- Subsequent addition (retrofitting) and removal of cables, conduits / tubes, pipes and cable support constructions according to the ETA holder's installation manual is allowed.
- Retrofitting and removal without addition of cables, conduits / tubes, pipes and cable support constructions shall be done according to the ETA holder's installation manual and the regulations above.
- After removal without addition of cables, conduits / tubes, pipes and cable support constructions the remaining opening (hole) has to be closed with "PROMAFOAM®-2C" according to the ETA-holder's installation manual.

3.2 Details for installation of PROMAFOAM®-2C firestop foam in flexible wall constructions

- For walls thinner than the minimum thickness of the penetration seal (144 mm or 200 mm (mixed penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA) and 144 mm, 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA)) the aperture within the wall shall be lined with minimum 2 layers of $\geq 12,5$ mm thick type F gypsum boards according to EN 520 (classification A2-s1,d0 according to EN 13501-1) or silicate- or calcium silicate boards (classification A1 according to EN 13501-1) with a minimum density of 450 kg/m^3 and a minimum thickness of 25 mm. The boards shall be at least 144 mm or 200 mm (mixed penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA) and 144 mm, 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA) wide. The boards have to be installed and fixed according to the ETA-holder's installation manual.
- Alternatively, the thickness of the wall can be increased to at least 144 mm or 200 mm (mixed penetration seal; depending on the fire resistance classification; see below and Annex 3.5 to 3.7 of the ETA) and 144 mm, 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see below and Annex 3.5 to 3.7 of the ETA) by fitting a board frame, minimum 50 mm wide, around the opening (see below and Annex 3.5 to 3.7 of the ETA). Minimum 1 layer of $\geq 12,5$ mm thick type F gypsum boards according to EN 520 (classification A2-s1,d0 according to EN 13501-1) or silicate- or calcium silicate boards (classification A1 according to EN 13501-1) with a minimum density of 450 kg/m^3 can be used. The board frame has to be installed and fixed according to the ETA-holder's installation instructions.
- When no aperture lining is necessary (in case the thickness of the wall is equal to the thickness of penetration seal) or a board frame is used, the whole cavity within the wall has to be filled with material wool (stone wool with classification A1 according to EN 13501-1, a minimum apparent density of 40 kg/m^3 and a melting point $\geq 1000 \text{ }^\circ\text{C}$ according to DIN 4102-17) minimum 100 mm around the aperture.
- If the aperture is greater than 320 mm x 320 mm it has to be lined additionally with two horizontal steel studs with a thickness of minimum 0,6 mm (construction and installation according to the ETA-holder's installation instructions).
- Joints between the aperture lining and the aperture have to be filled with "PROMAFOAM®-2C" or gypsum joint filler (non-combustible material with classification A2-s1, d0 or A1 according to EN 13501-1 which is dimensionally stable) on both sides of the penetration seal according to the ETA-holder's installation instructions.
- Details are shown in Annex 4, drawings 719.01, 719.04, 719.07 and 719.10.

3.3 Details for installation of PROMAFOAM®-2C firestop foam in rigid wall constructions

- For walls thinner than the minimum thickness of the penetration seal (144 mm or 200 mm; mixed penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA) and 144 mm, 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA) the aperture within the wall shall be lined with minimum 2 layers of $\geq 12,5$ mm thick type F gypsum boards according to EN 520 (classification A2-s1,d0 according to EN 13501-1) or silicate- or calcium silicate boards (classification A1 according to EN 13501-1) with a minimum density of 450 kg/m^3 and a minimum thickness of 25 mm. The boards shall be at least 144 mm or 200 mm (mixed penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA) and 144 mm, 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA) wide. The boards have to be installed and fixed according to the ETA-holder's installation instructions
- Alternatively the thickness of the wall can be increased to at least 144 mm or 200 mm (mixed penetration seal; depending on the fire resistance classification; see below and Annex 3.5 to 3.7 of the ETA) and 144 mm, 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see below and Annex 3.5 to 3.7 of the ETA) by fitting a board frame, minimum 50 mm wide, around the opening (see below and Annex 3.5 to 3.7 of the ETA). Minimum 1 layer of $\geq 12,5$ mm thick type F gypsum boards according to EN 520 (classification A2-s1,d0 according to EN 13501-1) or silicate- or calcium silicate boards (classification A1 according to EN 13501-1) with a minimum density of 450 kg/m^3 can be used. The board frame has to be installed and fixed according to the ETA-holder's installation instructions.
- Joints between the aperture lining and the aperture have to be filled with "PROMAFOAM®-2C", or gypsum joint filler or mineral mortar (non-combustible material with classification A2-s1,d0 or A1 according to EN 13501-1 which is dimensionally stable) on both sides of the penetration seal according to the ETA-holder's installation instructions.
- Details are shown in Annex 4, drawings 719.02, 719.05, 719.08 and 719.11.

3.4 Details for installation of PROMAFOAM®-2C firestop foam in rigid floor constructions

- For floors thinner than the minimum thickness of the penetration seal (200 mm; mixed penetration seal) and 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA) the aperture within the floor shall be lined with minimum 2 layers of $\geq 12,5$ mm thick type F gypsum boards according to EN 520 (classification A2-s1,d0 according to EN 13501-1) or silicate- or calcium silicate boards (classification A1 according to EN 13501-1) with a minimum density of 450 kg/m^3 and a minimum thickness of 25 mm. The boards shall be at least 200 mm (mixed penetration seal; see Annex 3.5 to 3.7 of the ETA) and 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see Annex 3.5 to 3.7 of the ETA) wide. The boards have to be installed and fixed according to the ETA-holder's installation instructions.
- Alternatively the thickness of the floor can be increased to at least 200 mm (mixed penetration seal) and 200 mm or 250 mm (cable penetration seal; depending on the fire resistance classification; see below and Annex 3.5 to 3.7 of the ETA) by fitting a board frame, minimum 50 mm wide, around the opening (see below and Annex 3.5 to 3.7 of the ETA). Minimum 1 layer of $\geq 12,5$ mm thick type F gypsum boards according to EN 520 (classification A2-s1,d0 according to EN 13501-1) or silicate- or calcium silicate boards (classification A1 according to EN 13501-1) with a minimum density of 450 kg/m^3 can be used. The board frame has to be installed and fixed according to the ETA-holder's installation instructions.
- Joints between the aperture lining and the aperture have to be filled with "PROMAFOAM®-2C", or gypsum joint filler or mineral mortar (non-combustible material with classification A2-s1,d0 or A1 according to EN 13501-1 which is dimensionally stable) on both sides of the penetration seal according to the ETA-holder's installation instructions.
- Details are shown in Annex 4, drawings 719.03, 719.06, 719.09 and 719.12.

3.5 Classification acc. to EN 13501-2 for PROMAFOAM®-2C firestop foam for cables, cable bundles and tubes and as mixed penetration seal

All sheathed cables:

All types of sheathed cables⁵ (except waveguides) currently and commonly used in building practice in Europe (e.g. electrical / telecommunication / data / optical fibre cables) with a diameter ≤ 80 mm.

Tied bundles⁶ up to 100 mm overall diameter containing sheathed cables (except waveguides) currently and commonly used in building practice in Europe (e.g. electrical / telecommunication / data / optical fibre cables) with a diameter ≤ 21 mm.

All non-sheathed cables:

Non-sheathed electrical cables with a diameter ≤ 24 mm.

Cable supporting systems may penetrate the PROMAFOAM®-2C seal:

- Steel cable trays (perforated or non-perforated)
- Steel ladders
- Steel cable trays (perforated or non-perforated) and steel ladders with organic coatings shall at least be classified A2-s1, d0 according to EN 13501-1

Conduits and tubes:

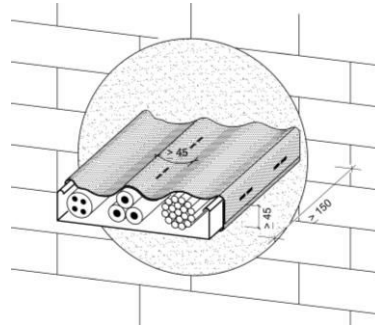
- Steel conduits / tubes up to $\varnothing \leq 16$ mm, wall thickness minimum 1,5 mm (with / without cables): steel conduits according to EN 61386-21
- Plastic conduits, $\varnothing \leq 16$ mm, wall thickness 1,0 mm to 3,0 mm (with / without cables) according to EN 61386-21 or EN 61386-22
- Plastic conduits, $\varnothing \leq 40$ mm, wall thickness 1,0 mm to 3,0 mm (with / without cables) according to EN 61386-21 or EN 61386-22
- Plastic conduits, $\varnothing \leq 63$ mm, wall thickness 1,0 mm to 3,0 mm (with / without cables) according to EN 61386-21 or EN 61386-22
- Bundles with a maximum \varnothing of 80 mm consisting of plastic conduits, $\varnothing \leq 40$ mm, wall thickness 1,0 mm to 3,0 mm (with / without cables) according to EN 61386-21 or EN 61386-22
- Bundles with a maximum \varnothing of 100 mm consisting of plastic conduits, $\varnothing \leq 63$ mm, wall thickness 1,0 mm to 3,0 mm (with / without cables) according to EN 61386-21 or EN 61386-22
- “speed-pipe®” from manufacturer “gabo Systemtechnik GmbH” of dimension (diameter x wall thickness) 7 mm x 0,75 mm, 10 mm x 1,0 mm, 12 mm x 1,1 mm, 7 mm x 1,5 mm, 10 mm x 2,0 mm and 12 mm x 2,0 mm (with / without optical fibre cables)
- Bundles with a maximum \varnothing of 80 mm consisting of “speed-pipe®” from manufacturer “gabo Systemtechnik GmbH” of dimension (diameter x wall thickness) 7 mm x 0,75 mm, 10 mm x 1,0 mm, 12 mm x 1,1 mm, 7 mm x 1,5 mm, 10 mm x 2,0 mm and 12 mm x 2,0 mm (with / without optical fibre cables)

Arrangement of PROMASTOP®-TDW firestop wrap:

PROMASTOP®-TDW is needed for some fire resistance classification period. Applied around cables or cable with a minimum length of 150 mm. The glass fabric reinforcement fixed to one side of the wrap has to be on the outside. The ends of the wrap have to be fixed with two steel clips or steel wire acc. to the ETA-holder’s installation manual. Overlapping of the strips shall be minimum 45 mm.

⁵ Single or multicore cable with individual insulation of the cores and an additional protective covering of the assembly

⁶ Several cables running in the same direction, densely packed and bound tightly together by mechanical means



For details see the following tables.

Classification of PROMAFOAM®-2C (as cable penetration seal) (max. opening size 270 x 270 mm or Ø 300 mm)								
Penetrating element	Minimum thickness of the cable penetration seal							
	b ≥ 100 mm		b ≥ 144 mm		b ≥ 200 mm		b ≥ 250 mm	
	Wall	Floor	Wall	Floor	Wall	Floor	Wall	Floor
All sheathed cables Ø ≤ 21 mm	E 120 EI 60	E 120 EI 60	EI 120	E 120 EI 90	EI 120	EI 120	EI 120	EI 120
All sheathed cables 21 mm ≤ Ø ≤ 50 mm	E 120 / EI 45 / EI 60 ¹	-	E 120 EI 60	E 120 EI 60	E 120 EI 90 / EI 120 ²	E 120 EI 90 / EI 120 ²	EI 120	EI 120
All sheathed cables 50 mm ≤ Ø ≤ 80 mm	-	-	E 120 EI 60	E 120 EI 60	E 120 EI 90 / EI 120 ²	E 120 EI 90 / EI 120 ²	E 120 EI 90	E 120 EI 90
Tied cable bundles Ø ≤ 100 mm (max. Ø of cables up to 21 mm)	-	-	E 120 EI 60	E 120 EI 60	E 120 EI 90	E 120 EI 90 / EI 120 ²	E 120 EI 90	EI 120
Non-sheathed cables Ø ≤ 24 mm	-	-	E 120 EI 45	E 120 EI 30	E 120 EI 90	E 120 EI 60	E 120 EI 90	E 120 EI 60
Steel conduits/tubes, with or without cables Ø ≤ 16 mm	-	-	E 120- U/C EI 60-U/C	E 120- U/C EI 60-U/C	EI 120- U/U	E 120- U/U EI 90-U/U	EI 120- U/U	EI 120- U/U
Plastic conduits/tubes, with or without cables Ø ≤ 16 mm	-	-	EI 120- U/C	EI 120- U/C	EI 120- U/U	EI 120- U/U	EI 120- U/U	EI 120- U/U
Plastic conduits up to Ø 40 mm and bundles up to Ø 80 consisting of plastic conduits (Ø ≤ 40 mm) with or without cables	-	-	EI 120- U/C	EI 120- U/C	EI 120- U/C	EI 120- U/U	EI 120- U/C	EI 120- U/U
Plastic conduits up to Ø 63 mm and bundles up to Ø 100 consisting of plastic conduits (Ø ≤ 63 mm) with or without cables	-	-	EI 120- U/C	EI 90- U/C	EI 120- U/C	EI 90- U/C	EI 120- U/C	EI 90- U/C
Speed pipe® up to Ø 12 mm and bundles up to Ø 80 consisting of speed pipe® (Ø ≤ 12 mm) with or without optical fibre cable	-	-	EI 120- U/C	EI 90- U/C	EI 120- U/C	EI 90- U/C	EI 120- U/C	EI 90- U/C

Note 1: Add a bead of PROMAFOAM®-2C with min. dimension of 30 mm x 20 mm (length x thickness) has to be applied around the penetrating element on both sides of the penetration seal.

Note 2: PROMASTOP®-TDW has to be wrapped around the penetrating element

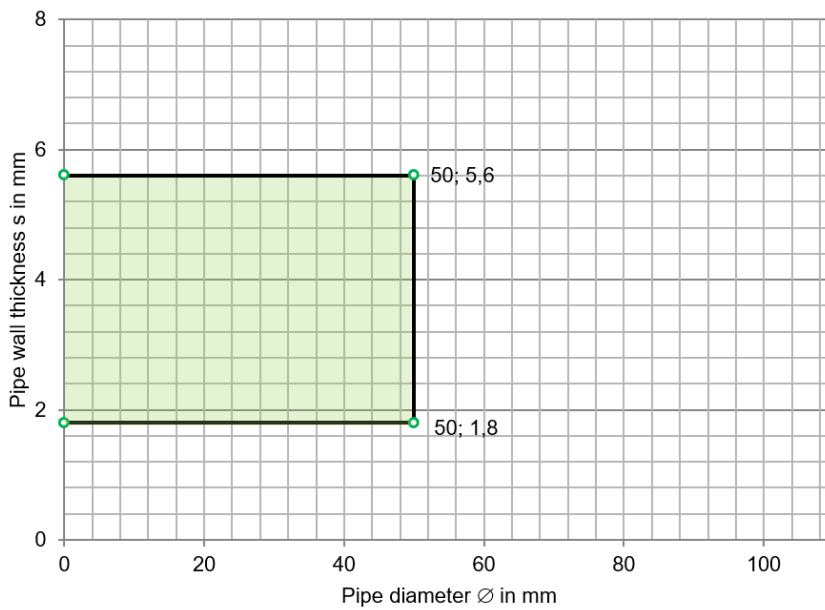
Classification of PROMAFOAM [®] -2C (as mixed penetration seal) (max. opening size 270 x 270 mm or Ø 300 mm)					
Penetrating element		Minimum thickness of the penetration seal			
		b ≥ 144 mm		b ≥ 200 mm	
		Wall	Floor	Wall	Floor
Cables	All sheathed electrical/telecommunication/optical fibre cables up to max. outer diameter of 80 mm	E 120 EI 60	E 60 EI 60	E 120 EI 90	E 120 EI 90
	Tied bundles up to 100 mm overall diameter containing sheathed electrical/telecommunication/optical fibre cables up to max. outer diameter of 21 mm	E 120 EI 60	E 60 EI 60	E 120 EI 90	E 120 EI 90
	Non-sheathed cables up to a max. outer diameter of 24 mm	E 120 EI 45	E 60 EI 30	E 120 EI 60	E 120 EI 60
Conduits tubes	Steel conduits/tubes, with or without cables Ø ≤ 16 mm	E 120-U/C EI 60-U/C	EI 60-U/C	E 120-U/U EI 90-U/U	E 120-U/U EI 90-U/U
	Plastic conduits/tubes, with or without cables Ø ≤ 16 mm	E 120-U/C EI 90-U/C	EI 60-U/C	EI 120-U/U	EI 120-U/U
	Plastic conduits up to Ø 40 mm and bundles up to Ø 80 consisting of plastic conduits (Ø ≤ 40 mm) with or without cables	E 120-U/C EI 90-U/C	EI 60-U/C	EI 120-U/C	EI 120-U/U
	Plastic conduits up to Ø 63 mm and bundles up to Ø 100 consisting of plastic conduits (Ø ≤ 63 mm) with or without cables	EI 120-U/C	EI 60-U/C	EI 120-U/C	EI 90-U/C
	Speed pipe [®] up to Ø 12 mm and bundles up to Ø 80 consisting of speed pipe [®] (Ø ≤ 12 mm) with or without optical fibre cable	EI 120-U/C	EI 60-U/C	EI 120-U/C	EI 90-U/C
Non-insulated metal pipes	Copper pipes up to a max. outer diameter of 28 mm (see also Annex 3, 3.7)	E 120-C/U EI 60-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	E 120-C/U EI 90-C/U
	Steel pipes up to a max. outer diameter of 35 mm (see also Annex 3, 3.7)	E 120-C/U EI 90-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	EI 90-C/U
Pre-insulated metal pipes	WICU [®] Frio pipes up to a max. outer diameter of 22 mm (see also Annex 3, 3.7)	E 120-C/U ¹ EI 90-C/U ¹	EI 60-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹
	WICU [®] Clim pipes up to a max. outer diameter of 22,2 mm (see also Annex 3, 3.7)	E 120-C/U ¹ EI 90-C/U ¹	EI 60-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹
	WICU [®] Flex pipes up to a max. outer diameter of 22 mm (see also Annex 3, 3.7)	E 120-C/U ¹ EI 90-C/U ¹	EI 60-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹
	WICU [®] Eco pipes up to a max. outer diameter of 35 mm (see also Annex 3, 3.7)	E 120-C/U ² EI 60-C/U ²	EI 60-C/U ²	E 120-C/U ² EI 60-C/U ²	EI 90-C/U ²
	Tubolit [®] Split / Duosplit pipes up to a max. outer diameter of 12,7 mm (see also Annex 3, 3.7)	E 120-C/U EI 60-C/U	EI 60-C/U	EI 120-C/U	EI 120-C/U
	Tubolit [®] Split / Duosplit pipes up to a max. outer diameter of 22,2 mm (see also Annex 3, 3.7)	E 120-C/U EI 60-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	E 120-C/U EI 90-C/U
Insulated metal pipes	Mineral wool insulated metal pipes up to a max. outer diameter of 54 mm (see also Annex 3, 3.7)	E 120-C/U EI 90-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	E 120-C/U EI 90-C/U
	Mineral wool insulated metal pipes up to a max. outer diameter of 88,9 mm (see also Annex 3, 3.7)	E 120-C/U EI 90-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	EI 120-C/U
	Mineral wool insulated metal pipes up to a max. outer diameter of 168,3 mm (see also Annex 3, 3.7)	EI 120-C/U	EI 60-C/U	EI 120-C/U	EI 90-C/U
	AF/Armaflex (thick. 9 mm) insulated metal pipes up to a max. outer diameter of 54 mm (see also Annex 3, 3.7)	E 120-C/U EI 90-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	E 120-C/U EI 90-C/U
	AF/Armaflex (thick. > 9 mm) insulated metal pipes up to a max. outer diameter of 88,9 mm (see also Annex 3, 3.7)	E 120-C/U EI 90-C/U	EI 60-C/U	EI 120-C/U	EI 120-C/U
Plastic pipes/tubes	SC-SH-16/E30, SC-SH-18/E30 and SC-SH-20/E30 (drain hose) up to a max. outer diameter of 28 mm	E 120-U/U EI 60-U/U	EI 60-U/U	E 120-U/U EI 60-U/U	EI 90-U/U
	Plastic pipes up to a max. outer diameter of 50 mm (see also Annex 3, 3.6)	EI 120-U/C	EI 60-U/C	EI 120-U/U	EI 120-U/U

Note 1: PROMASTOP[®]-TDW has to be wrapped around the penetrating element on both sides of wall or top surface of floor
 Note 2: PROMASTOP[®]-TDW has to be wrapped around the penetrating element on both sides of wall or floor

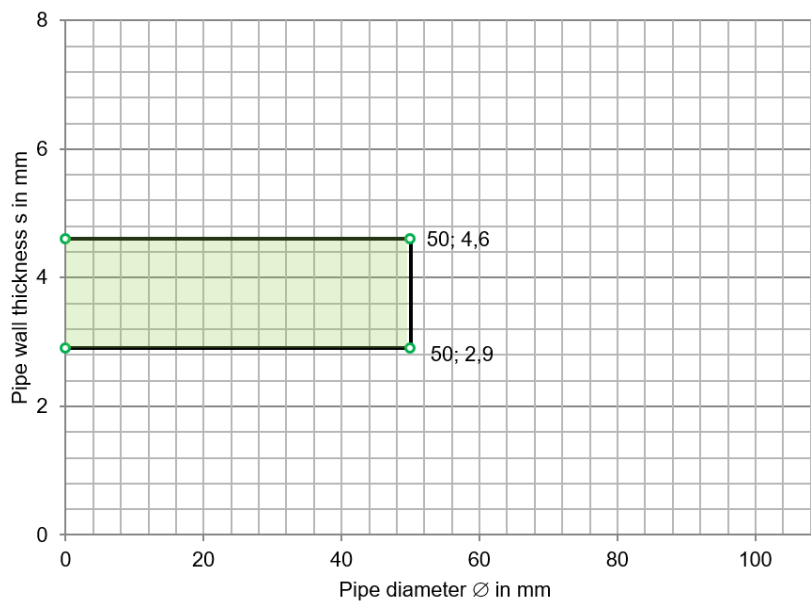
3.6 Classification acc. to EN 13501-2 for PROMAFOAM®-2C firestop foam for plastic pipes

Penetrating element		Minimum thickness of the penetration seal			
		b ≥ 144 mm		b ≥ 200 mm	
		Wall	Floor	Wall	Floor
Plastic pipes/tubes	SC-SH-16/E30, SC-SH-18/E30 and SC-SH-20/E30 (drain hose) up to a max. outer diameter of 28 mm	E 120-U/U EI 60-U/U	EI 60-U/U	E 120-U/U EI 60-U/U	EI 90-U/U
	Plastic pipes up to a max. outer diameter of 50 mm (see also Annex 3, 3.6)	EI 120-U/C	EI 60-U/C	EI 120-U/U	EI 120-U/U

- PVC-U pipes according to EN ISO 1452-1 and DIN 8061 / DIN 8062 with diameters and wall thicknesses as defined above. For interpolation between pipe diameters and wall thicknesses see diagram below.



- PE-HD pipes according to EN 1519-1 and DIN 8074 / DIN 8075 with diameters and wall thicknesses as defined above. For interpolation between pipe diameters and wall thicknesses see diagram below.

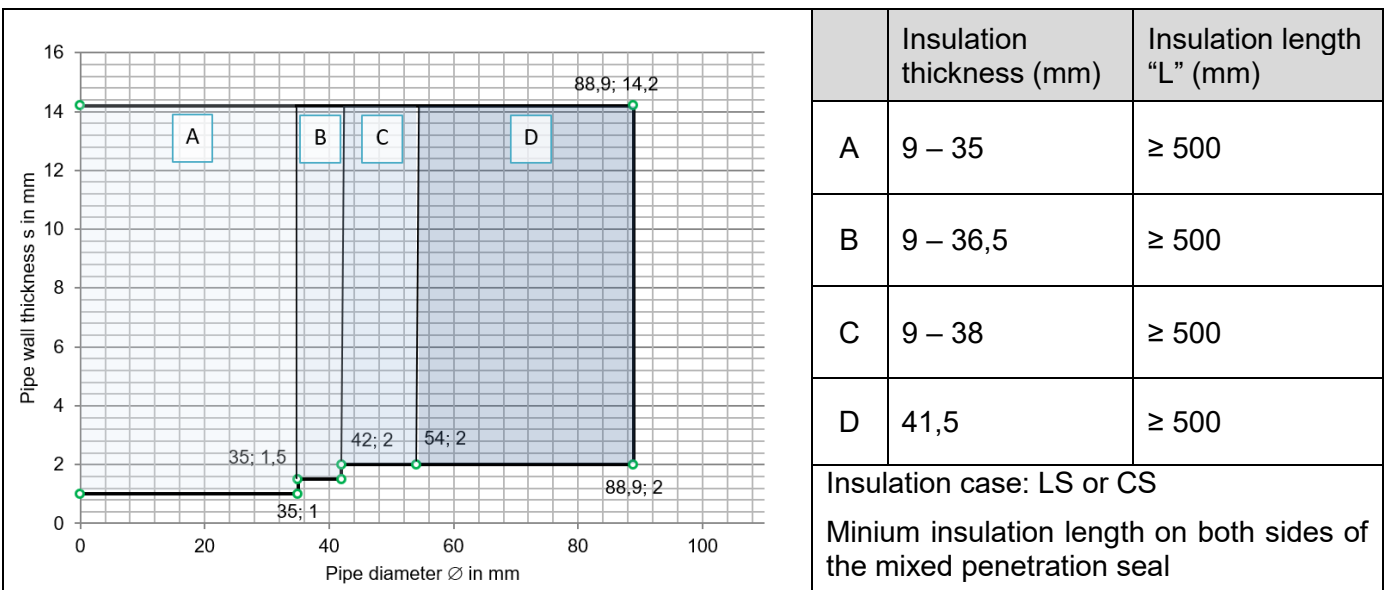


- “SC-SH-16/E30”, “SC-SH-18/E30” and “SC-SH-20/E30” from manufacturer “Armacell GmbH” with a maximum diameter of 28 mm and a maximum wall thickness of 4 mm.

3.7 Classification acc. to EN 13501-2 for PROMAFOAM®-2C firestop foam for metal pipes

- Metal pipes of reaction to fire class A1 according to EN 13501-1 with a melting or decomposition point greater or equal than copper (945 °C for EI 60; 1006 °C for EI 90; 1049 °C for EI 120) and a thermal conductivity smaller or equal than copper with diameters and wall thicknesses as defined below. For interpolation between pipe diameters and wall thicknesses see below.
- Metal pipes of reaction to fire class A1 according to EN 13501-1 with a melting or decomposition point greater or equal than steel (945 °C for EI 60; 1006 °C for EI 90; 1049 °C for EI 120) and a thermal conductivity smaller or equal than steel with diameters and wall thicknesses as defined in below. For interpolation between pipe diameters and wall thicknesses see below.
- “Tubolit® Split” from manufacturer “Armacell GmbH” with diameters and wall thicknesses as defined below.
- “Tubolit® DuoSplit” from manufacturer “Armacell GmbH” with diameters and wall thicknesses as defined below.
- “WICU® Flex” from manufacturer “KME Germany GmbH & Co. KG” or “Wieland-Werke AG” with diameters and wall thicknesses as defined below.
- “WICU® Frio” from manufacturer “KME Germany GmbH & Co. KG” with diameters and wall thicknesses as defined below.
- “WICU® Clim” from manufacturer “KME Germany GmbH & Co. KG” with diameters and wall thicknesses as defined below.
- “WICU® Eco” from manufacturer “KME Germany GmbH & Co. KG” with diameters and wall thicknesses as defined below.

AF/Armaflex insulated metal pipes (steel, stainless steel, cast iron) (C/U and C/C):



Penetrating element		Minimum thickness of the penetration seal			
		b ≥ 144 mm		b ≥ 200 mm	
		Wall	Floor	Wall	Floor
Insulated metal pipes	AF/Armaflex (thick. 9 mm) insulated metal pipes up to a max. outer diameter of 54 mm (see also Annex 3, 3.7)	E 120-C/U EI 90-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	E 120-C/U EI 90-C/U
	AF/Armaflex (thick. > 9 mm) insulated metal pipes up to a max. outer diameter of 88,9 mm (see also Annex 3, 3.7)	E 120-C/U EI 90-C/U	EI 60-C/U	E 120-C/U	EI 120-C/U

Pre-insulated copper pipes used for air conditioning, heating and sanitary systems (C/U) and (C/C)

Penetrating element	Outer diameter of the pipe (mm)	Pipe wall thickness (mm)	Insulation type	Insulation thickness (mm)	Additional protection PROMASTOP®-TDW
WICU® Eco	12,0	1,0	PUR	11,0	one layer on both sides of the penetration seal (length ³ ≥ 150 mm)
	15,0	1,0		11,5	
	18,0	1,0		12,0	
	22,0	1,0		12,5	
	28,0	1,5		17,5	
	35,0	1,5		18,0	
	42,0	1,5		24,0	
	54,0	2,0		27,5	
WICU® Flex	12,0	1,0	PE	6	wall: one layer on both sides of the penetration seal (length ³ ≥ 150 mm) floor: one layer on the top side of the penetration seal (length ³ ≥ 150 mm)
	15,0	1,0		6	
	18,0	1,0		6	
	22,0	1,0		6	
WICU® Frio	6,0	1,0	PE	8	
	10,0	1,0		10	
	12,0	1,0		10	
	14,0	1,0		10	
	15,0	1,0		10	
	16,0	1,0		10	
	18,0	1,0		10	
	22,0	1,0		10	
WICU® Clim	6,35	0,762	PE	6	
	9,52	0,813		8	
	12,70	0,813		10	
	15,87	0,889		10	
	19,05	0,889		10	
	22,22	0,889		10	
Tubolit® Split / Tubolit® DuoSplit	6,35	0,8	PE	9	-
	9,52	0,8		9	
	12,70	0,8		9	
	15,88	1,0		9	
	19,05	1,0		9	
	22,22	1,0		9	

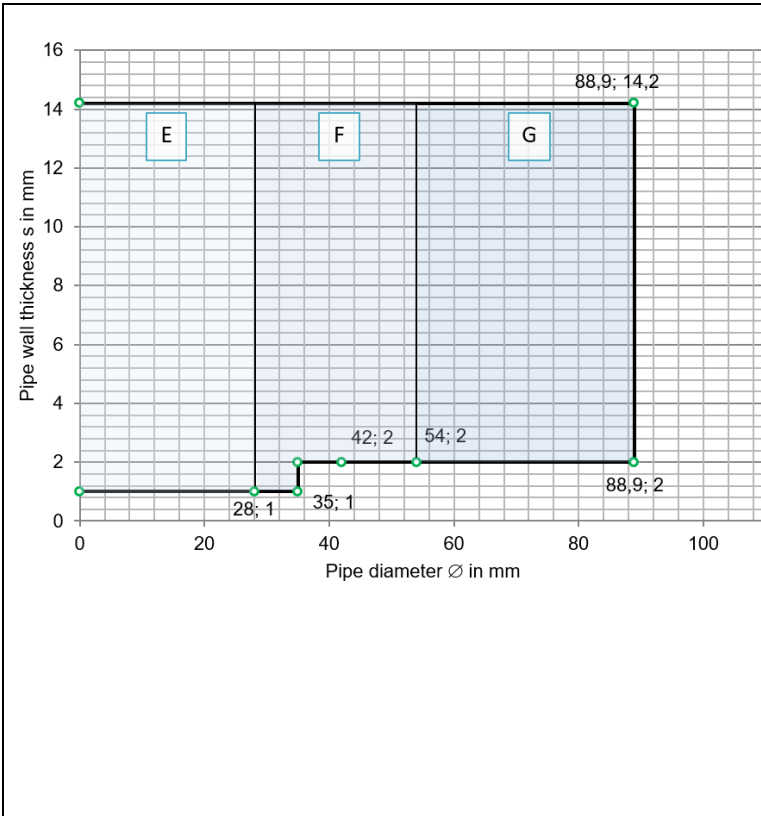
Note 3: Length of PROMASTOP®-TDW measured from the surface of the penetration seal

Penetrating element		Minimum thickness of the penetration seal			
		b ≥ 144 mm		b ≥ 200 mm	
		Wall	Floor	Wall	Floor
Pre-insulated metal pipes	WICU® Frio pipes up to a max. outer diameter of 22 mm	E 120-C/U ¹ EI 90-C/U ¹	EI 60-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹
	WICU® Clim pipes up to a max. outer diameter of 22,2 mm	E 120-C/U ¹ EI 90-C/U ¹	EI 60-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹
	WICU® Flex pipes up to a max. outer diameter of 22 mm	E 120-C/U ¹ EI 90-C/U ¹	EI 60-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹	E 120-C/U ¹ EI 90-C/U ¹
	WICU® Eco pipes up to a max. outer diameter of 35 mm	E 120-C/U ² EI 60-C/U ²	EI 60-C/U ²	E 120-C/U ² EI 60-C/U ²	EI 90-C/U ²
	Tubolit® Split / Duosplit pipes up to a max. outer diameter of 12,7 mm	E 120-C/U EI 60-C/U	EI 60-C/U	EI 120-C/U	EI 120-C/U
	Tubolit® Split / Duosplit pipes up to a max. outer diameter of 22,2 mm	E 120-C/U EI 60-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	E 120-C/U EI 90-C/U

Note 1: PROMASTOP®-TDW has to be wrapped around the penetrating element on both sides of wall or top surface of floor

Note 2: PROMASTOP®-TDW has to be wrapped around the penetrating element on both sides of wall or floor

Mineral wool insulated metal pipes (steel, stainless steel, cast iron) (C/U and C/C):



	Penetration seal thickness (mm)	Insulation length "L" (mm)
E	Optionally without insulation	
F	≥ 144	≥ 428
	≥ 200	≥ 650
G	≥ 144	≥ 528
	≥ 200	≥ 800

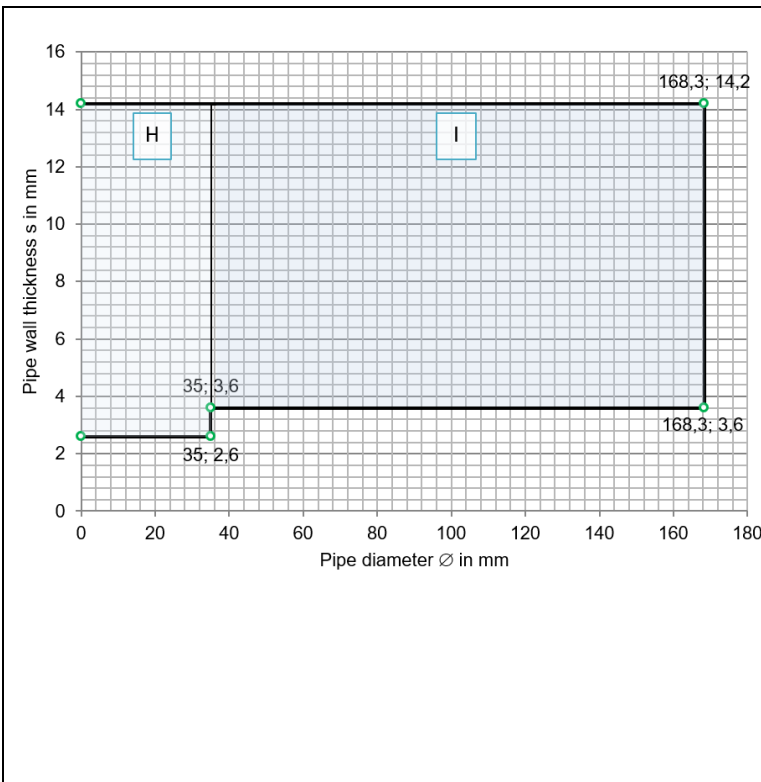
Insulation case: LS,CS, or LI, CI

Minimum insulation length on both sides of the mixed penetration seal

Minimum density of mineral wool: 90 kg/m³

Optional cladding of stone wool with sheet steel (0,4-1,0 mm) or plastic (0,35-1,0 mm)

Insulation case	Thickness of mineral wool (mm)
LI	30
LS	30
CI	≥ 30
CS	≥ 30



	Penetration seal thickness (mm)	Insulation length "L" (mm)
H	Optionally without insulation	
I	≥ 144	≥ 596

Insulation case: LS,CS, or LI, CI

Minimum insulation length on both sides of the mixed penetration seal

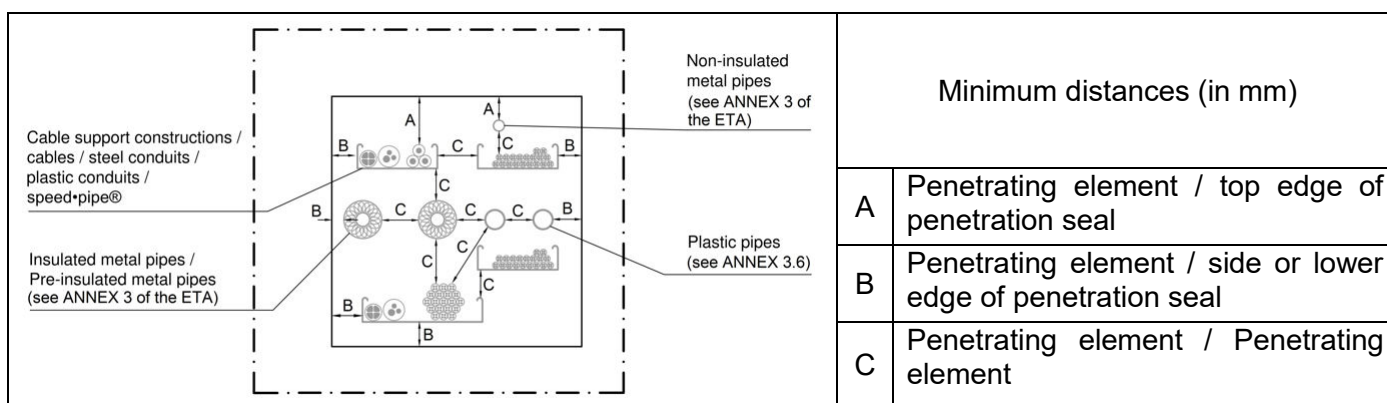
Minimum density of mineral wool: 90 kg/m³

Optional cladding of stone wool with sheet steel (0,4-1,0 mm) or plastic (0,35-1,0 mm)

Insulation case	Thickness of mineral wool (mm)
LI	50
LS	50
CI	≥ 50
CS	≥ 50

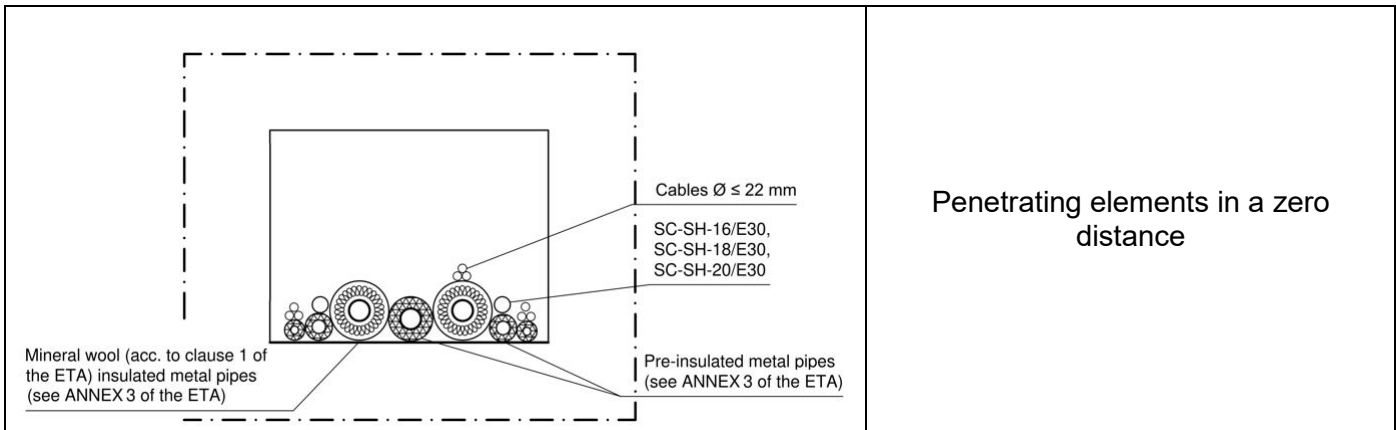
Penetrating element		Minimum thickness of the penetration seal			
		b ≥ 144 mm		b ≥ 200 mm	
		Wall	Floor	Wall	Floor
Non-insulated metal pipes	Copper pipes up to a max. outer diameter of 28 mm	E 120-C/U EI 60-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	E 120-C/U EI 90-C/U
	Steel pipes up to a max. outer diameter of 35 mm	E 120-C/U EI 90-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	EI 90-C/U
Insulated metal pipes	Mineral wool insulated metal pipes up to a max. outer diameter of 54 mm	E 120-C/U EI 90-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	E 120-C/U EI 90-C/U
	Mineral wool insulated metal pipes up to a max. outer diameter of 88,9 mm	E 120-C/U EI 90-C/U	EI 60-C/U	E 120-C/U EI 90-C/U	EI 120-C/U
	Mineral wool insulated metal pipes up to a max. outer diameter of 168,3 mm	EI 120-C/U	EI 60-C/U	EI 120-C/U	EI 90-C/U

3.8 Distances

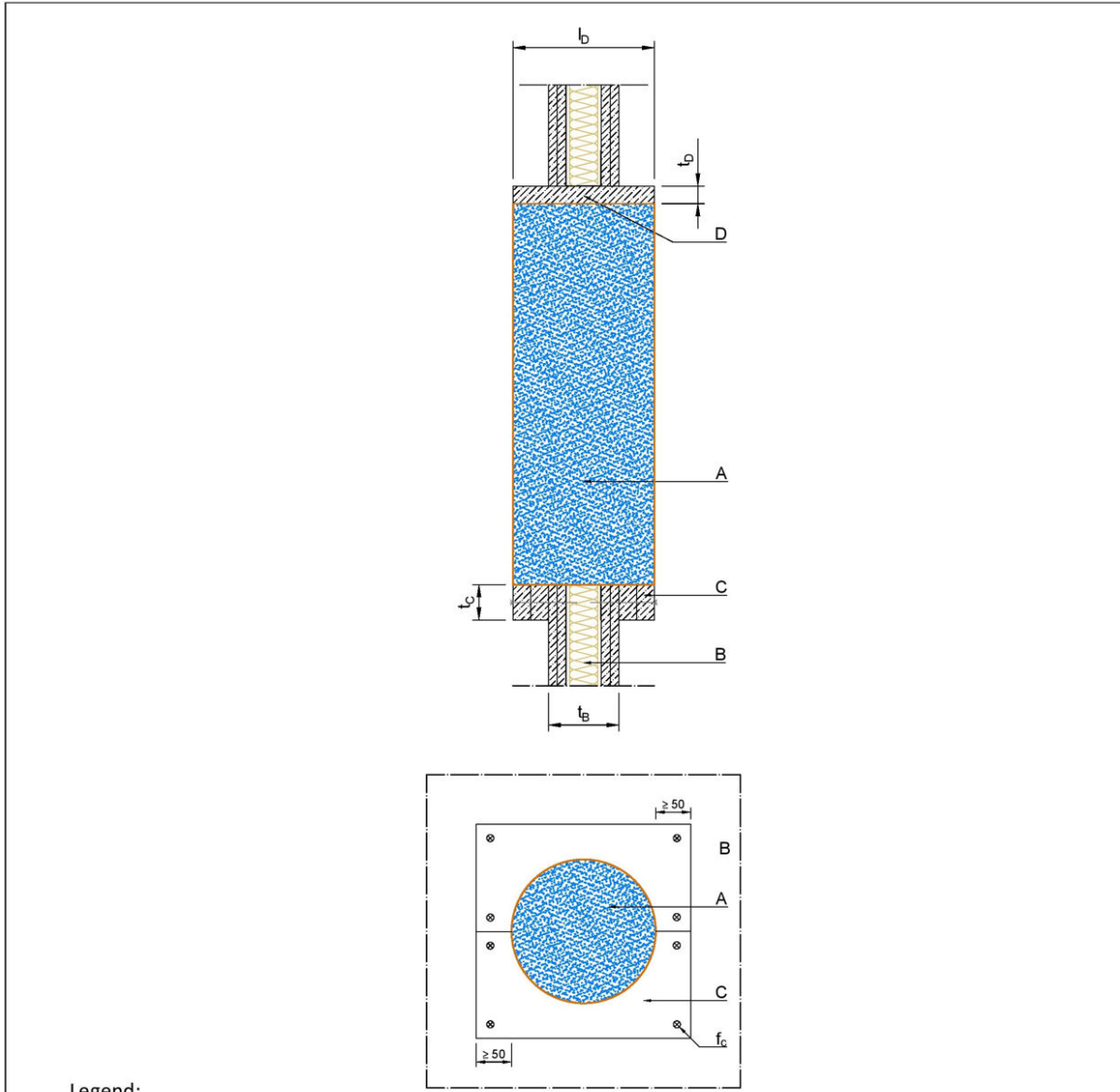


Penetrating element	A	B	C	
Cables/ Cable trays/ Conduits (incl. speed pipe®)	50 (speed pipe® = 0)	0	Cables/Cable trays/Conduits	0
			Cable trays (vertical)	50
			Non-insulated metal pipes	60
			Other penetrating elements	50
Mineral wool (see Annex 2) insulated metal pipes	0	0	Mineral wool insulated metal pipes	0
			Non-insulated metal pipes	60
			Other penetrating elements	50
AF/Armaflex insulated metal pipes	35	35	AF/Armaflex (thickness > 9 mm) insulated metal pipes	35
			AF/Armaflex (thickness 9 mm) insulated metal pipes	50
			Non-insulated metal pipes	60
			Other penetrating elements	50
Non-insulated metal pipes	35	35	Non-insulated metal pipes	60
			Other penetrating elements	60
Pre-insulated metal pipes	0	0	Pre-insulated metal pipes	0
			Non-insulated metal pipes	60
			Other penetrating elements	50
Plastic pipes	50	50	Plastic pipes	50
			Non-insulated metal pipes	60
			Other penetrating elements	50

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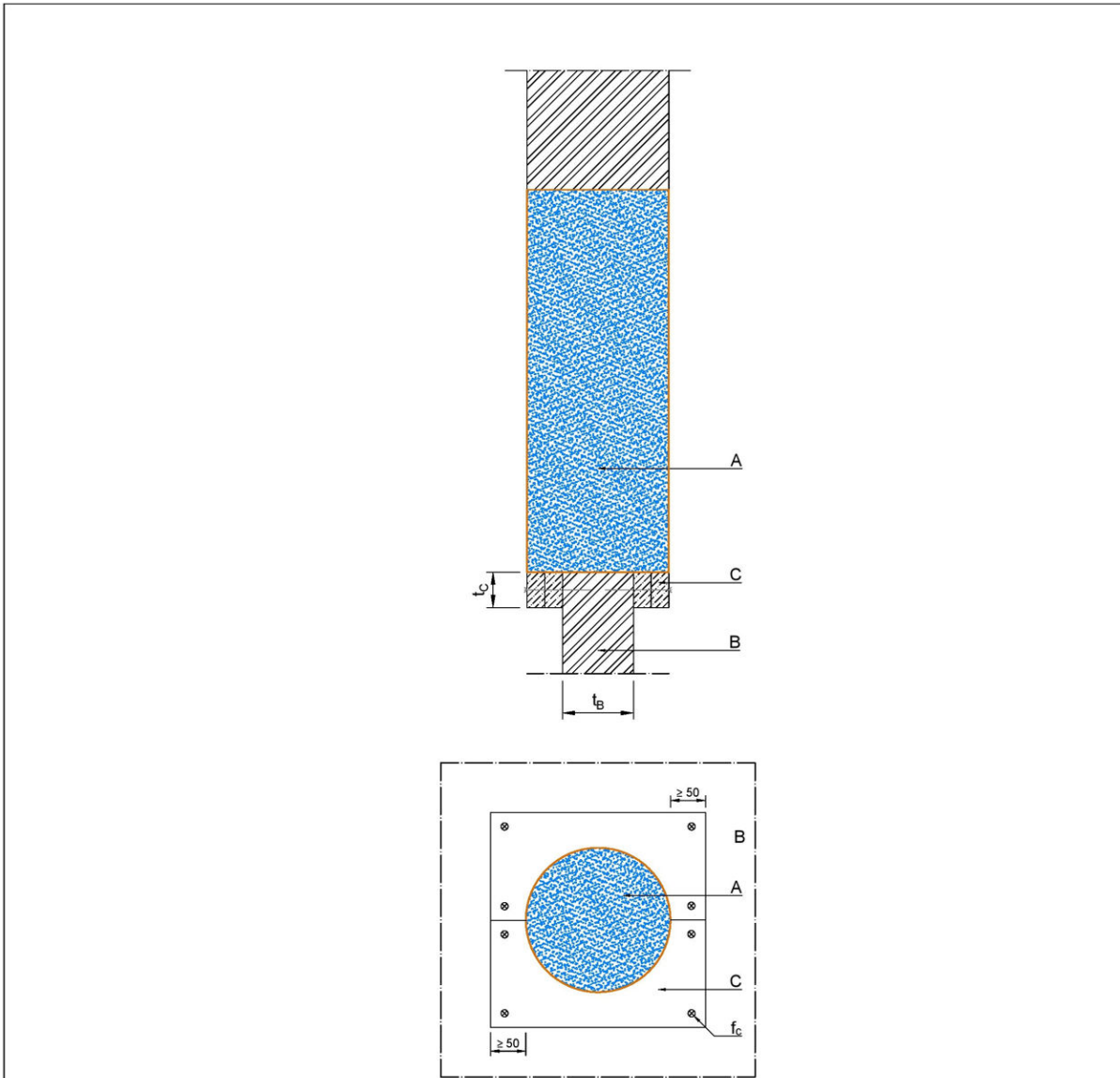
Penetrating element	A	B	C	
Cables $\varnothing \leq 22\text{ mm}$	50	0	Cables $\varnothing \leq 22\text{ mm}$	0
			Mineral wool insulated metal pipes	0
			Pre-insulated metal pipes	0
			SC-SH-16/E30, SC-SH-18/E30, SC-SH-20/E30	0
			Other penetrating elements	50
Mineral wool (see Annex 2) insulated metal pipes	0	0	Cables $\varnothing \leq 22\text{ mm}$	0
			Mineral wool insulated metal pipes	0
			Pre-insulated metal pipes	0
			SC-SH-16/E30, SC-SH-18/E30, SC-SH-20/E30	0
			Other penetrating elements	50
SC-SH-16/E30, SC-SH-18/E30, SC-SH-20/E30 (Drain hose)	50	0	Cables $\varnothing \leq 22\text{ mm}$	0
			Mineral wool insulated metal pipes	0
			Pre-insulated metal pipes	0
			SC-SH-16/E30, SC-SH-18/E30, SC-SH-20/E30	0
			Other penetrating elements	50
Pre-insulated metal pipes	0	0	Cables $\varnothing \leq 22\text{ mm}$	0
			Mineral wool insulated metal pipes	0
			Pre-insulated metal pipes	0
			SC-SH-16/E30, SC-SH-18/E30, SC-SH-20/E30	0
			Other penetrating elements	50



- Legend:
- A... PROMAFOAM®-2C firestop foam
 - B... Flexible wall, thickness $t_B \geq 94$ mm
 - C... Beading/lining on the wall, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm (Lining on the wall must overlap min. 25 mm over the opening in the flexible wall)
 - D... Aperture framing/lining in the wall, thickness $t_D \geq 25$ mm, length $l_D \geq$ depth of the PROMAFOAM®-2C firestop foam

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
Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Blank seal in flexible wall constructions	1:8
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.01			

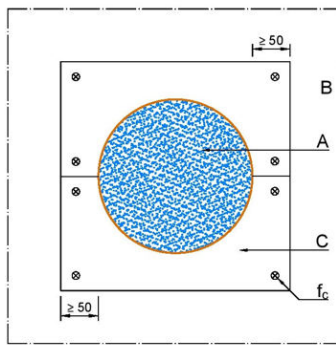
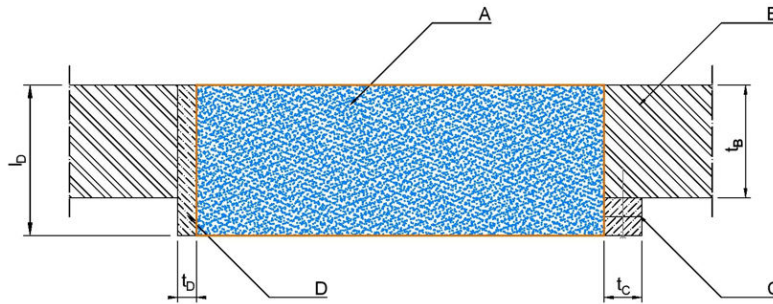


Legend:

- A... PROMAFOAM®-2C firestop foam
- B... Rigid wall, thickness $t_B \geq 100$ mm
- C... Beading/lining on the wall, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm

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
Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Blank seal in rigid wall constructions	1:8
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.02			

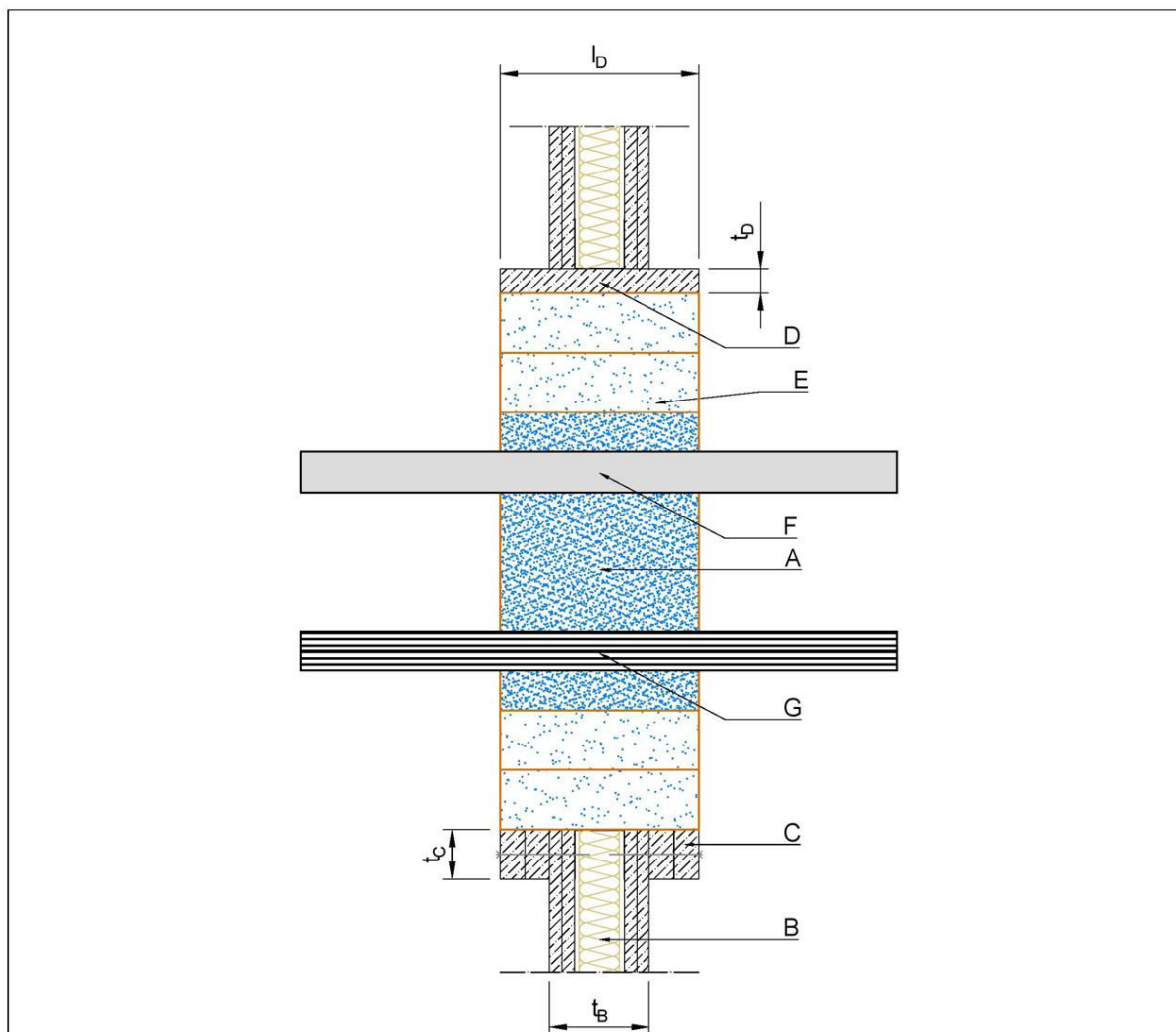


Legend:

- A... PROMAFOAM®-2C firestop foam
- B... Rigid floor, thickness $t_b \geq 150$ mm
- C... Beading/lining on the floor, thickness $t_c \geq 50$ mm, fixing distance ≤ 250 mm
- D... Aperture framing/lining in the floor, thickness $t_D \geq 25$ mm, length $l_D \geq$ depth of the PROMAFOAM®-2C firestop foam

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Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Blank seal in rigid floor constructions	1:8
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.03			

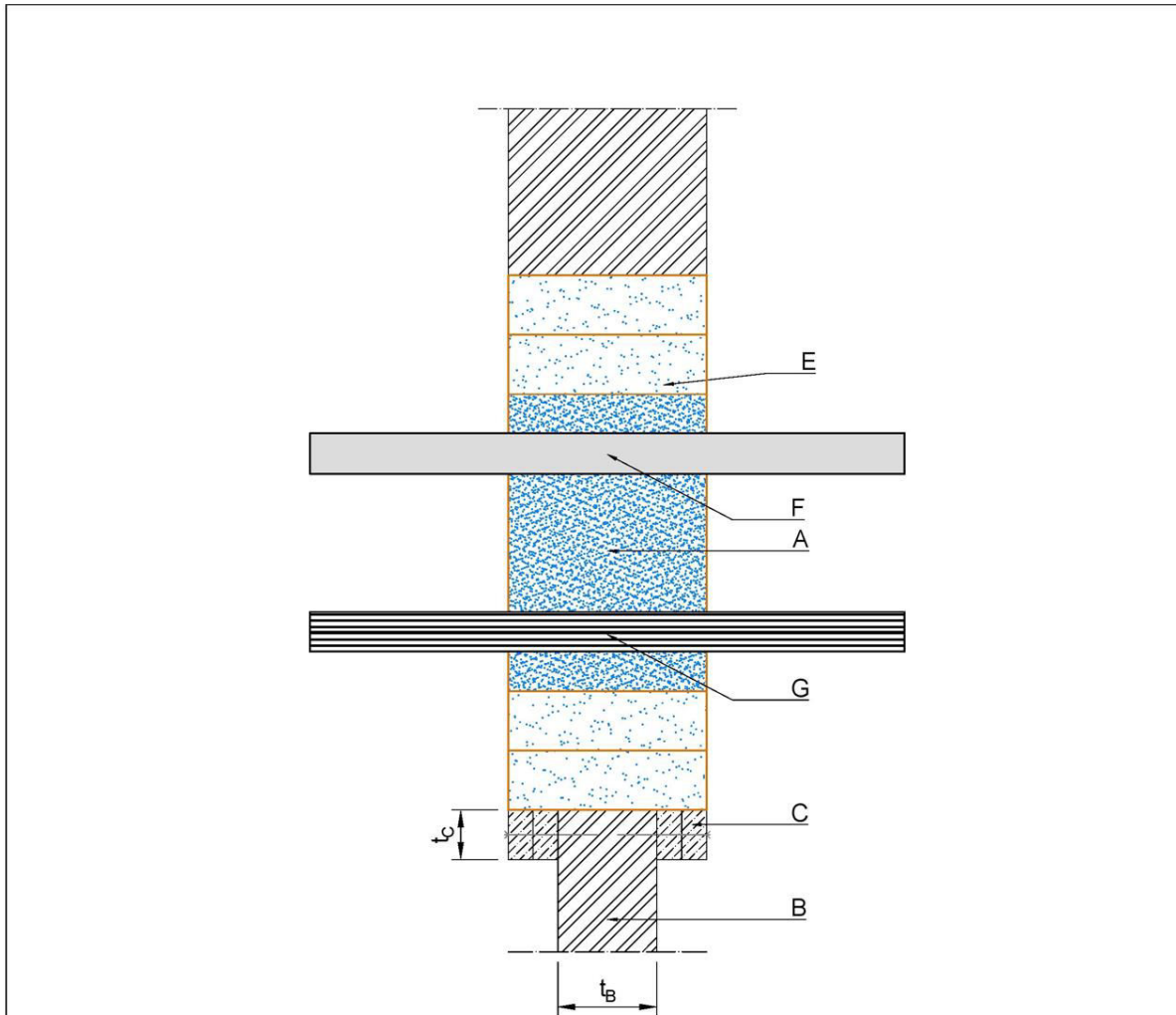


Legend:

- A... PROMAFOAM®-2C firestop foam
- B... Flexible wall, thickness $t_B \geq 94$ mm
- C... Beading/lining on the wall, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm
- D... Aperture framing/lining in the wall, thickness $t_D \geq 25$ mm, length $l_D \geq$ depth of the PROMAFOAM®-2C firestop foam
- E... PROMASTOP®-FB firestop block
- F... Cable trays and ladders with or without cables, conduits
- G... Cables, conduits

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Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Penetrated by cables / cable bundles / conduits or cable trays in flexible wall constructions	Custom
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.04			

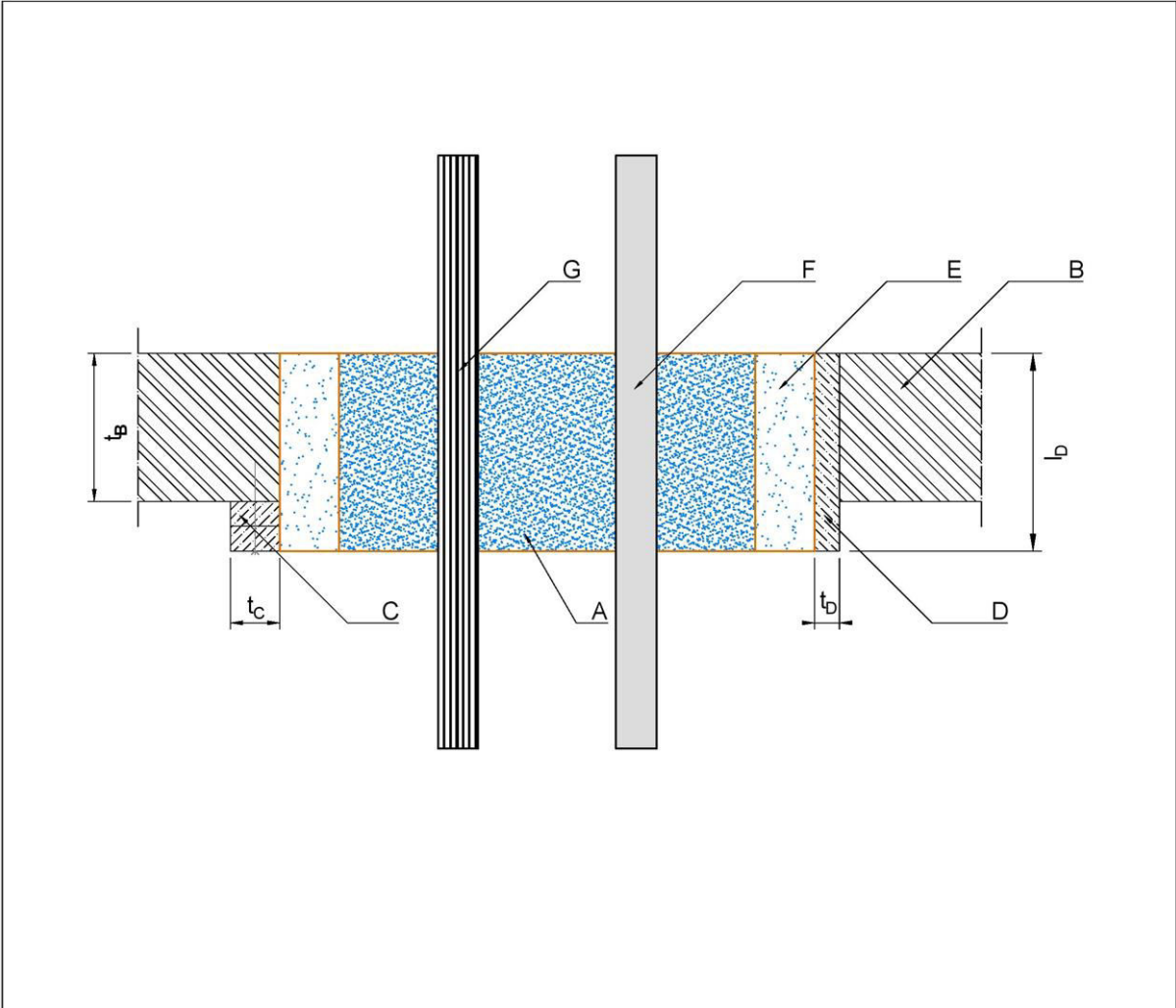


- Legend:
- A... PROMAFOAM®-2C firestop foam
 - B... Rigid wall, thickness $t_B \geq 100$ mm
 - C... Beading/lining on the wall, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm
 - E... PROMASTOP®-FB firestop block
 - F... Cable trays and ladders with or without cables, conduits
 - G... Cables, conduits

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Promat Research and Technology Centre		PROMAFOAM®-2C FIRESTOP FOAM	
As built	Date 26.04.2022	Name Liesbeth Jacobs	Custom
Drawing nr.	719.05	Penetrated by cables / cable bundles / conduits or cable trays in rigid wall constructions	
			A4


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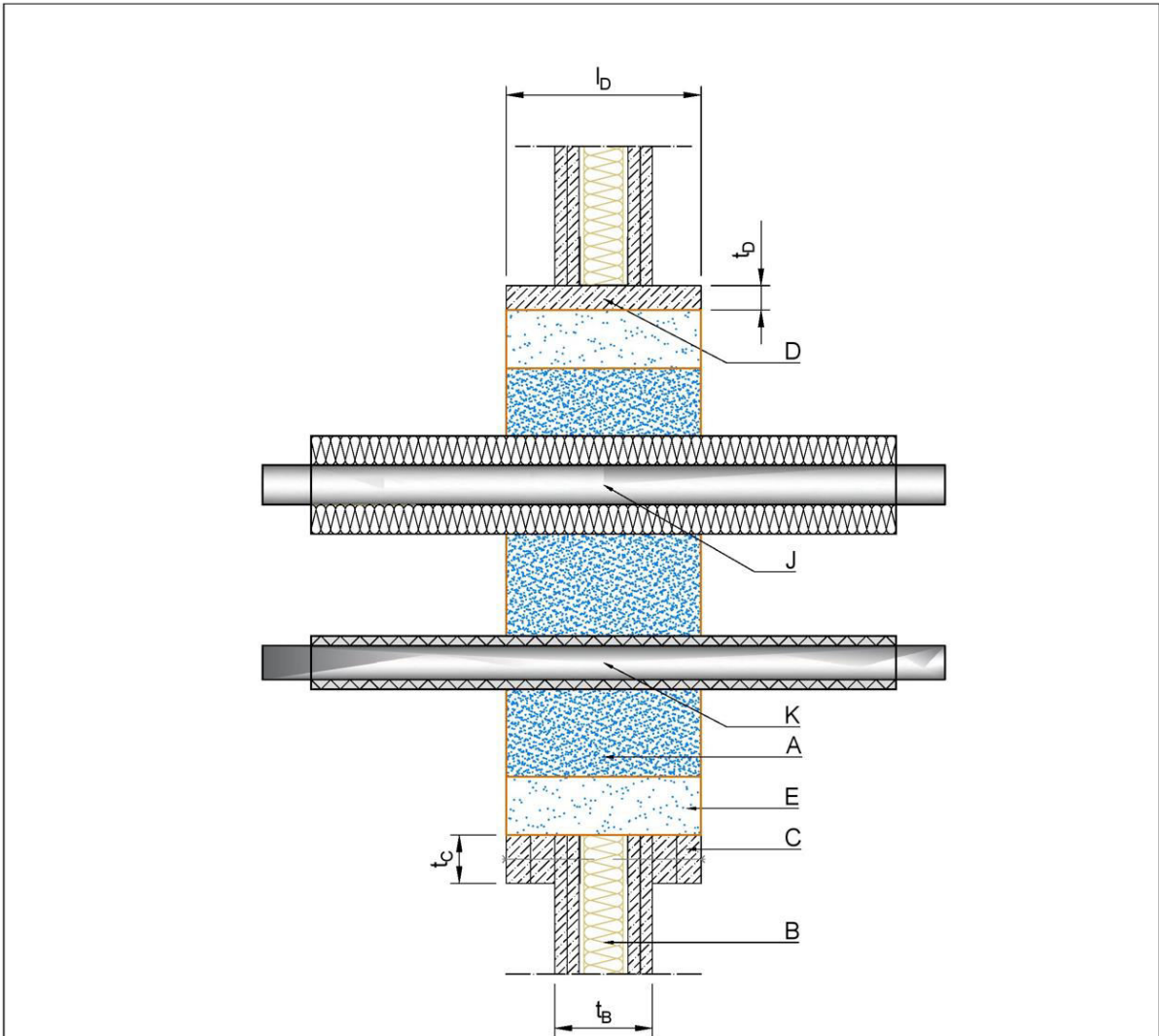


Legend:

- A... PROMAFOAM®-2C firestop foam
- B... Rigid floor, thickness $t_B \geq 150$ mm
- C... Beading/lining on the floor, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm
- D... Aperture framing/lining in the floor, thickness $t_D \geq 25$ mm, length $l_D \geq$ depth of the PROMAFOAM®-2C firestop foam
- E... PROMASTOP®-FB firestop block
- F... Cable trays and ladders with or without cables, conduits
- G... Cables, conduits

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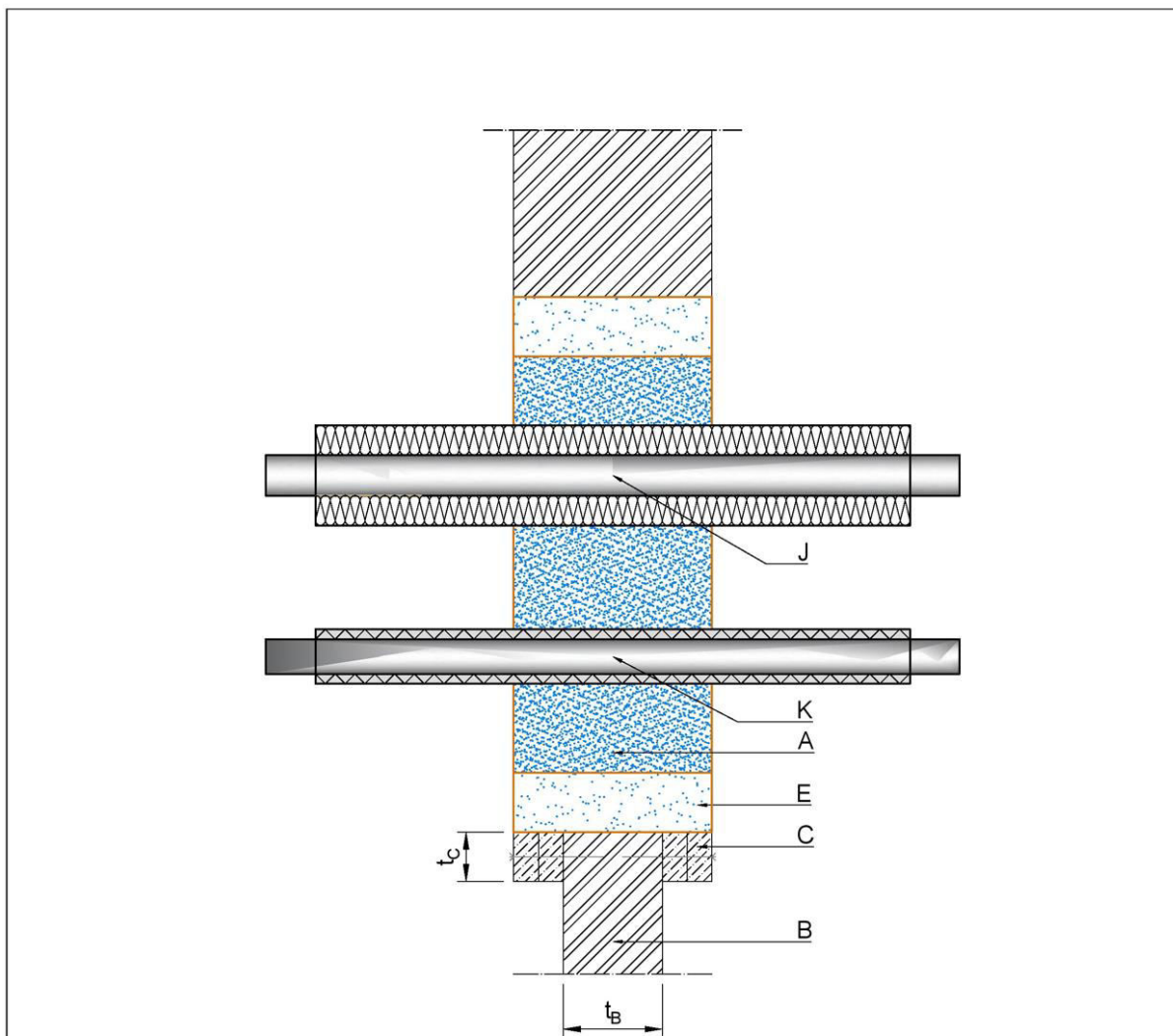
Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Penetrated by cables / cable bundles / conduits or cable trays in rigid floor constructions	Custom
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.06			



- Legend:
- A... PROMAFOAM®-2C firestop foam
 - B... Flexible wall, thickness $t_B \geq 94$ mm
 - C... Beading/lining on the wall, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm
 - D... Aperture framing/lining in the wall, thickness $t_D \geq 25$ mm, length $l_D \geq$ depth of the PROMAFOAM®-2C firestop foam
 - E... PROMASTOP®-FB firestop block
 - J... Metal pipes with/without non-combustible insulation
 - K... Metal pipes with/without combustible insulation

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
Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Penetrated by metal pipes with non-combustible and combustible insulation in flexible wall constructions	Custom
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.07			

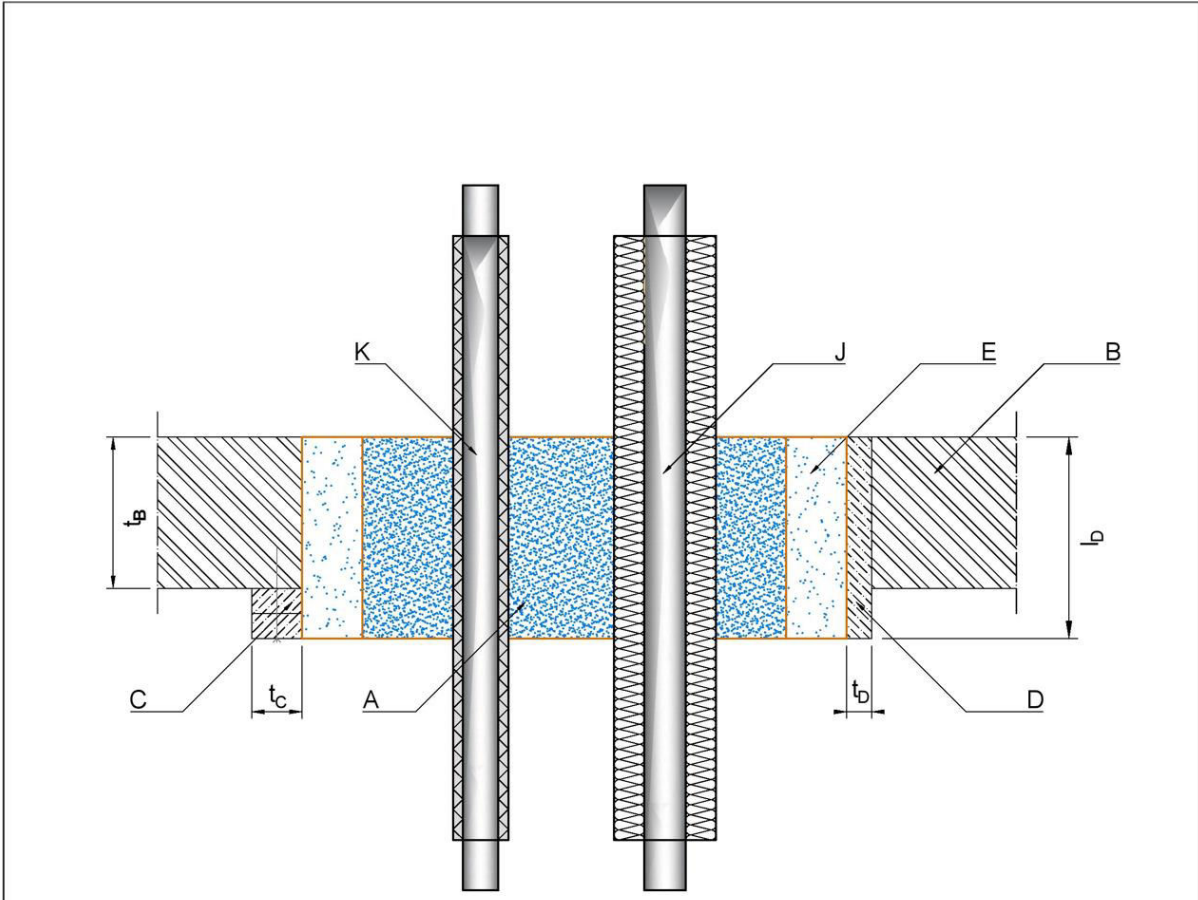


Legend:

- A... PROMAFOAM®-2C firestop foam
- B... Rigid wall, thickness $t_B \geq 100$ mm
- C... Beading/lining on the wall, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm
- E... PROMASTOP®-FB firestop block
- J... Metal pipes with/without non-combustible insulation
- K... Metal pipes with/without combustible insulation

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
Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Penetrated by metal pipes with non-combustible and combustible insulation in rigid wall constructions	Custom
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.08			

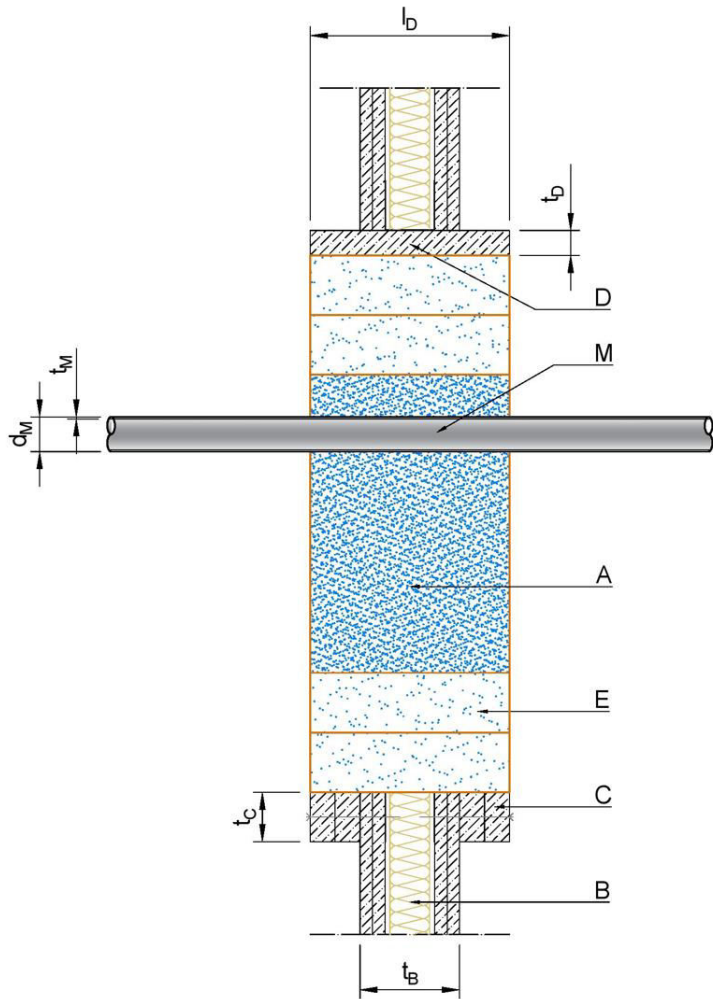


Legend:

- A... PROMAFOAM®-2C firestop foam
- B... Rigid floor, thickness $t_B \geq 150$ mm
- C... Beading/lining on the floor, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm
- D... Aperture framing/lining in the floor, thickness $t_D \geq 25$ mm, length $l_D \geq$ depth of the PROMAFOAM®-2C firestop foam
- E... PROMASTOP®-FB firestop block
- J... Metal pipes with/without non-combustible insulation
- K... Metal pipes with/without combustible insulation

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Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Penetrated by metal pipes with non-combustible and combustible insulation in rigid floor constructions	Custom
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.09			

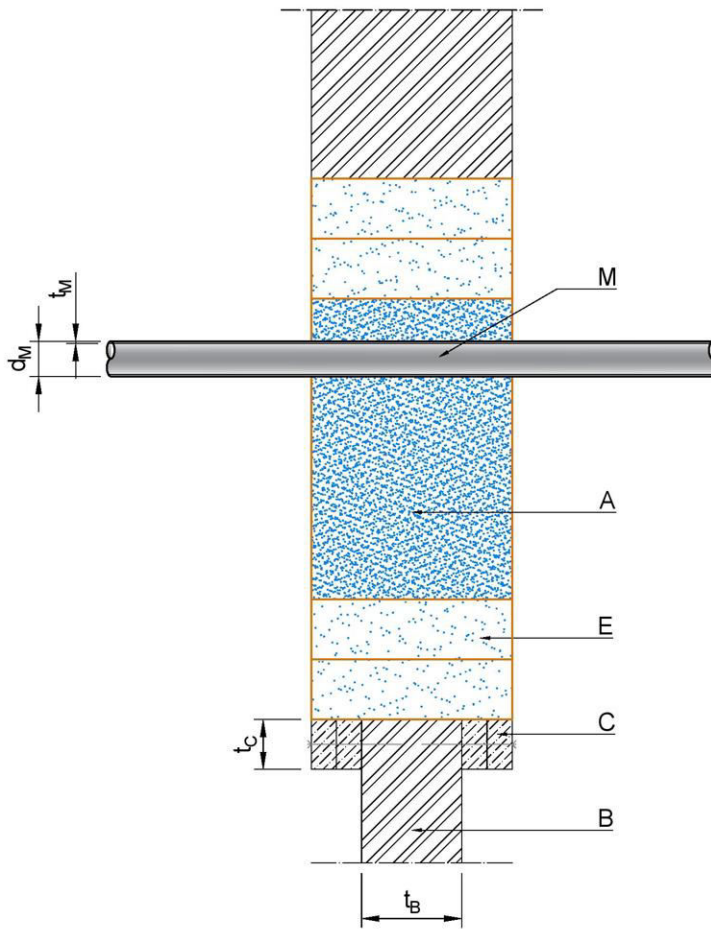


Legend:

- A... PROMAFOAM®-2C firestop foam
- B... Flexible wall, thickness $t_B \geq 94$ mm
- C... Beading/lining on the wall, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm
- D... Aperture framing/lining in the wall, thickness $t_D \geq 25$ mm, length $l_D \geq$ depth of the PROMAFOAM®-2C firestop foam
- E... PROMASTOP®-FB firestop block
- M... Plastic pipe, pipe diameter d_M and pipe wall thickness t_M

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Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Penetrated by plastic pipes in flexible wall constructions	Custom A4
As built	26.04.2022	Liesbeth Jacobs		
Drawing nr.	719.10			



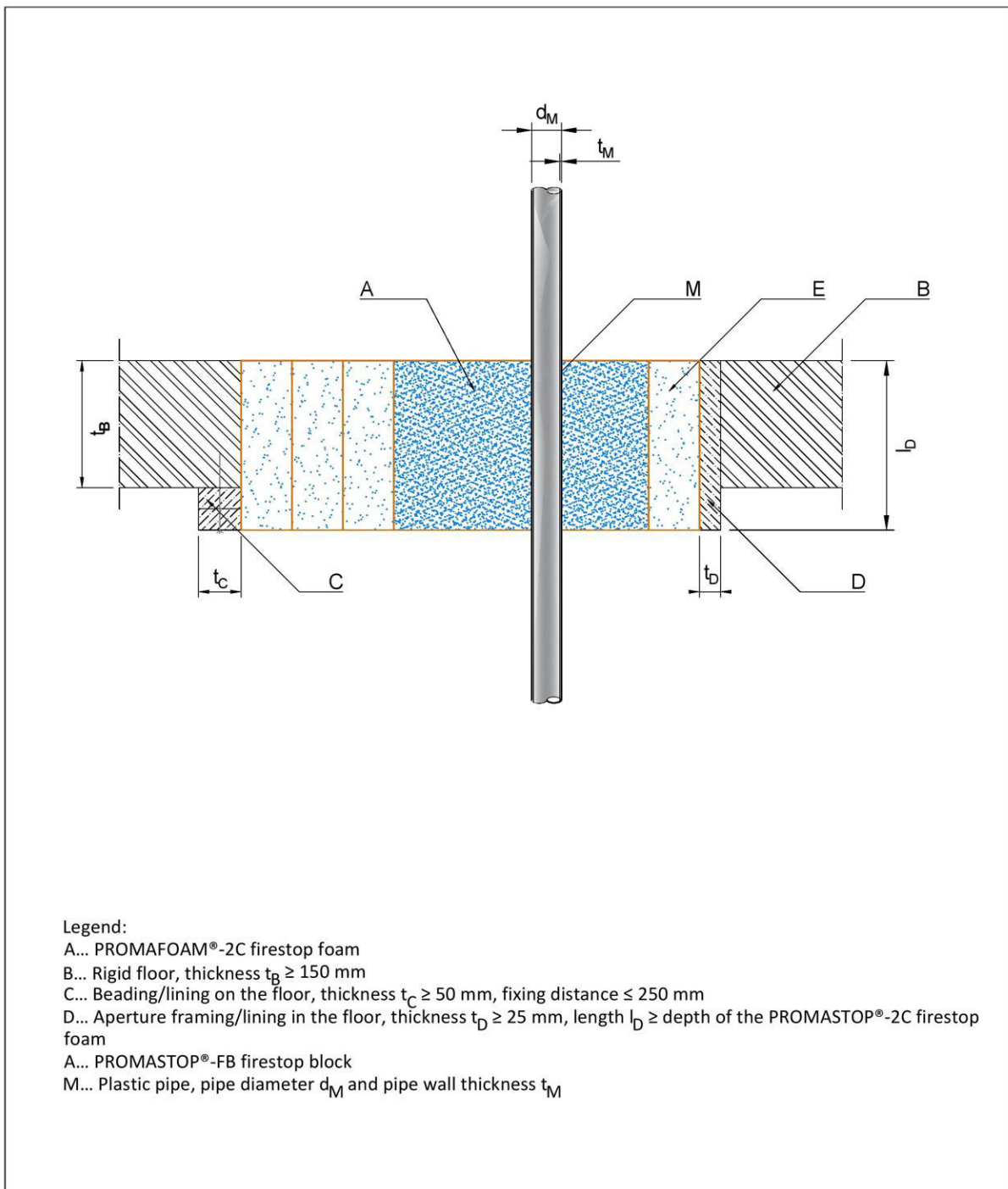
Legend:

- A... PROMAFOAM®-2C firestop foam
- B... Rigid wall, thickness $t_B \geq 100$ mm
- C... Beading/lining on the wall, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm
- E... PROMASTOP®-FB firestop block
- M... Plastic pipe, pipe diameter d_M and pipe wall thickness t_M

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Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Penetrated by plastic pipes in rigid wall constructions	Custom
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.11			

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Legend:

- A... PROMAFOAM®-2C firestop foam
- B... Rigid floor, thickness $t_B \geq 150$ mm
- C... Beading/lining on the floor, thickness $t_C \geq 50$ mm, fixing distance ≤ 250 mm
- D... Aperture framing/lining in the floor, thickness $t_D \geq 25$ mm, length $l_D \geq$ depth of the PROMASTOP®-2C firestop foam
- A... PROMASTOP®-FB firestop block
- M... Plastic pipe, pipe diameter d_M and pipe wall thickness t_M

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Promat Research and Technology Centre			PROMAFOAM®-2C FIRESTOP FOAM	
	Date	Name	Penetrated by plastic pipes in rigid floor constructions	Custom
As built	26.04.2022	Liesbeth Jacobs		A4
Drawing nr.	719.12			

Austria
Etex Building Performance GmbH

St.-Peter-Straße 25
4021 Linz
T +43 732 69 12-0
F +43 732 69 12-37 40
E info.at@etexgroup.com
www.promat.at

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