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European Technical Assessment

ETA-14/0456 of 11.11.2015

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	PROMASTOP®-W
Product family to which the construction product belongs	Fire Stopping and Fire Sealing Product: Penetration seal
Manufacturer	Promat GmbH St.-Peter-Straße 25 4021 Linz Austria
Manufacturing plant	Production plant 11
This European Technical Assessment contains	33 pages including 3 Annexes 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	Guideline for European technical approval (ETAG) No. 026-2 Fire Stopping and Fire Sealing Products – Part 2: Penetration Seals, edition August 2011, used as European Assessment Document (EAD)

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General part

This European Technical Assessment is not to be transferred to manufacturers or agents of manufacturer other than those indicated on page 1, or manufacturing plants other than those laid down in the context of this European Technical Assessment.

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

This European Technical Assessment may be withdrawn by the Österreichisches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 25 (3) of Regulation (EU) No 305/2011.

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Specific parts

1. Technical description of the product

1.1 Definition of the construction product

PROMASTOP®-W (on market also sold as Intumex®-Wrap) is a pipe closure device based on a special intumescent strip to form a penetration seal to reinstate the fire resistance performance of floor and wall constructions, where they have been provided with apertures for the penetration of different installations.

PROMASTOP®-W – type of penetration seal (in acc. to ETAG 026-2, clause 1.1, table 1-1): Pipe closure device – wrap.

The wrap with only one thickness (2,5 mm) is ready for use supplied as an endless wrap on a roll.

A detailed specification of the product PROMASTOP®-W 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

The intended use of PROMASTOP®-W firestop wrap is to reinstate the fire resistance performance of flexible wall constructions, rigid wall and rigid floor constructions where they are penetrated by different installations.

Depending on the application and pipe diameter, several layers of PROMASTOP®-W may be necessary. For further details see Annex 3.

In the following specified constructions PROMASTOP®-W is also used in conjunction with the firestop coating PROMASTOP®-I or PROMASTOP®-CC, the firestop acrylate PROMASEAL®-A, and the intumescent firestop sealant PROMASEAL®-AG, if applicable. For further details see Annex 2 and 3.

(1) The specific elements of construction that PROMASTOP®-W may be used to provide a penetration seal in, are as follows (details see Annex 3):

A) Flexible walls: The wall must have a minimum thickness of 100 mm and comprise timber or steel studs lined on both faces with minimum 2 layers of boards with minimum thickness of 12,5 mm. 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. An aperture framing must be installed, made of metal studs or boards that have been used for the lining of the wall (1 layer with minimum thickness of 12,5 mm). Classification acc. to EN 13501-2: ≥ E90 / EI90

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.

(2) PROMASTOP®-W may be used as a penetration seal with the following specific installations:

Metal pipes:	For further details see Annex 3 of the ETA.
PP-H and PP-R pipes:	For further details see Annex 3 of the ETA.
PE pipes:	For further details see Annex 3 of the ETA.
PVC pipes:	For further details see Annex 3 of the ETA.

Multilayer pipes, e.g. Poloplast, Geberit, Pipelife pipes: For further details see Annex 3 of the ETA.

The maximum seal sizes in the different compartments are given in Annex 3 of the ETA.

(3) Distances:
For further details see Annex 3.

(4) Supporting distance on both faces of wall constructions: 250 mm
Supporting distance on the upper face of floor constructions: 250 mm

2.2 Use category

The use category of PROMASTOP®-W is Type X. Since the requirements for type X are met, also the requirements for type Z_1, Z_2, Y_2 and Y_1 are fulfilled.

Type X:	Products intended for use in conditions exposed to weathering.
Type Y_1:	Products intended for use at temperatures between -20°C and +70°C, with exposure to UV but no exposure to rain.
Type Y_2:	Products intended for use at temperatures between -20°C and +70°C, but with no exposure to rain nor UV.
Type Z_1:	Products intended for use at internal conditions with high humidity, excluding temperatures below 0°C[1], , without exposure to rain or UV.
Type Z_2:	Products intended for uses at internal conditions with humidity classes other than Z_1, excluding temperatures below 0°C, without exposure to rain or UV.

2.3 General assumptions

It is assumed that

a) damages to the penetration seal are repaired accordingly,
b) the installation of the penetration seal does not effect 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 aperture lining within a flexible wall is supported by the studs (transoms and mullions) in such a way that the mechanical load imposed to the aperture lining by the penetration seal does not affect the stability of the aperture lining and the flexible wall,
e) the thermal movement in the pipe work will be accommodated in such way that it does not impose a load on the penetration seal,
f) the installations are fixed to the adjacent building element 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,
g) the support of the installations is maintained for the required period of fire resistance and
h) pneumatic dispatch systems, compressed air systems, etc. are switched off by additional means in case of fire (for sealing off plastic composite pipes).

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

[1] These uses apply for internal humidity class 5 in acc. with EN ISO 13788

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 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.

2.4 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.

2.5 Installation

The product shall be installed and used as described in this European Technical Assessment and in accordance to the technical literature of the manufacturer. Additional marking of the penetration seal shall be done in case of national requirements.

The arrangement and installation of the PROMASTOP®-W shall be done in accordance with the details given here and in Annex 2 and 3 for the penetration seal(s).

The installation of PROMASTOP®-W should be conducted according to the installation manuals as follows:

- Compare the installations with the installations manual if the type is sealable
- The PROMASTOP®-W is installed the annular gap between pipe (or combustible insulation) and aperture edge (or the mineral wool board penetration seal PROMASTOP®-I or PROMASTOP®-CC)
- In case of rigid walls, the annular gap between PROMASTOP®-W and aperture opening can be filled with mortar, firestop mortar PROMASTOP®-VEN or use mineral wool for backfilling and a covering with PROMASEAL®-A (thickness 5 mm).
- In mineral wool penetration seals covered with PROMASTOP®-I firestop coating or PROMASTOP®-CC firestop coating use also PROMASEAL®-A (thickness 5 mm) with mineral wool backfilling material to fill gaps around the wrap and the opening.
- Depending on the installations, several layers of PROMASTOP®-W firestop wrap may be necessary. See Annex 3.

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

Basic requirements for construction works	Essential characteristics	Method of verification	Performance
BWR 1	None	Not relevant	
BWR 2	Reaction to fire	EN 13501-1:2007 +A1:2009	See 3.2.1
	Resistance to fire	EN 13501-2:2007 +A1:2009	See 3.2.2 and Annex 3
BWR 3	Air permeability (material property)	No Performance Determined (NPD)	
	Water permeability (material property)	No Performance Determined (NPD)	
	Content and/or release of dangerous substances	European Council Directive 67/548/EEC-Dangerous Substances Directive and Regulation (EC) No 1272/2008	Declaration of conformity by the manufacturer
BWR 4	Mechanical resistance and stability	No Performance Determined (NPD)	
	Resistance to impact / movement	No Performance Determined (NPD)	
	Adhesion	No Performance Determined (NPD)	
BWR 5	Airborne sound insulation	No Performance Determined (NPD)	
BWR 6	Thermal properties	No Performance Determined (NPD)	
	Water vapour permeability	No Performance Determined (NPD)	
BWR 7	No Performance Determined (NPD)		

3.1 Mechanical resistance and stability (BWR 1)

Not relevant.

3.2 Safety in case of fire (BWR 2)

3.2.1 Reaction to fire

The construction product PROMASTOP®-W is assessed according to ETAG 026-Part 2 used as EAD clause 2.4.1 and classified according to EN 13501-1:2007+A1:2009.

Component	Class according to EN 13501-1
PROMASTOP®-W	E

3.2.2 Resistance to fire

PROMASTOP®-W has been tested acc. to EN 1366-3:2009 installed within apertures in flexible walls, rigid walls and floors, in conjunction with PROMASTOP®-I firestop coating, PROMASTOP®-CC firestop coating, PROMASEAL®-A firestop acrylic and PROMASEAL®-AG intumescent firestop sealant. For more details of installations see clause 2.1 and Annex 3 of the ETA.
The apertures were penetrated by different installations listed in Annex 3 of the ETA.
As shown in Annex 3, the test results and the direct field of application (in acc. to EN 1366-3:2009) PROMASTOP®-W has been classified in accordance with EN 13501-2:2007+A1.
The seals may only be penetrated by the services described in Annex 3. Other parts must not penetrate the seal.

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

The service support construction must be fixed to the building element containing the penetration seal or a suitable adjacent building element, on both sides of the penetration in such a manner that in the case of fire, no additional load is imposed on the seal. Furthermore it is assumed that this support is maintained on the unexposed side, for the required period of fire resistance.

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.
Specific considerations:

- Plastic pipes with pipe closure devices must be perpendicular to the seal surface.
- It is assumed that compressed air systems are switched off by other means in the case of fire.
- The function of the pipe seal in case of pneumatic dispatch systems, pressurised air systems etc. is guaranteed only when the systems are shut off in case of fire.
- The assessment does not address any risks associated with leakage of dangerous liquids or gases caused by failure of the pipe(s) in case of fire.
- The durability assessment does not take account of the possible effect of substances permeating through the pipe on the penetration seal.
- The classifications relate to U/U (uncapped on both sides) and U/C (uncapped inside the furnace/capped outside).
- The risk of spread of fire downwards caused by burning material, which drips through a pipe downwards to floors below, cannot be assessed with tests according to EN 1366-3 and is therefore not part of the assessment of this ETA.

3.3 Hygiene, health and environment (BWR 3)

3.3.1 Air permeability

No performance determined.

3.3.2 Water permeability

No performance determined.

3.3.3 Release of dangerous substances

According to the manufacturer's declaration PROMASTOP®-W does not contain dangerous substances detailed in Council Directive 67/548/EEC and Regulation (EC) no 1272/2008.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Product Directive, these requirements need also to be complied with, when and where they apply.

3.4 Safety and accessibility in use (BWR 4)

3.4.1 Mechanical resistance and stability

No performance determined.

3.4.2 Resistance to impact / movement

No performance determined.

3.4.3 Adhesion

No performance determined.

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3.5 Protection against noise (BWR 5)

3.5.1 Airborne sound insulation

No performance determined.

3.6 Energy economy and heat retention (BWR 6)

3.6.1 Thermal properties

No performance determined.

3.6.2 Water vapour permeability

No performance determined.

3.7 Sustainable use of natural resources (BWR 7)

No performance determined.

3.8 General aspects relating to fitness for use

3.8.1 Durability

PROMASTOP®-W has been tested in acc. to EOTA TR 024, Table 4.2.4 for the X use category specified in EOTA ETAG 026-2 and the results of the test have demonstrated suitability for penetration seals intended for use in conditions exposed to weathering.

3.8.2 Serviceability

No performance determined.

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/EC[2], amended by Decision 2001/596/EC[3] of the European Commission, as amended, the system(s) of assessment and verification of constancy of performance (see Annex V of Regulation (EU) No 305/2011) is 1.

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

5.1 Tasks of the manufacturer

5.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall insure that the product is in conformity with this European Technical Assessment.

The manufacturer may only use initial/raw/constituent materials stated in the Technical documentation[4] of this European Technical Assessment

For the components, which the ETA-holder does not manufacture by himself, he shall make sure that factory production control carried out by the other manufacturers gives the guarantee of the components compliance with the European Technical Assessment.

The factory production control and the provisions taken by the ETA-holder for components not produced by himself shall be in accordance with the control plan[5] relating to this European Technical Assessment, which is a confidential part of the Technical documentation of this European Technical Assessment.

The results and details of the extent, nature and frequency of controls be performed within the factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

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2 Official Journal of the European Communities no. L 178, 14.7.1999, p. 52
3 Official Journal of the European Communities no. L 209, 2.8.2001, p. 33
4 The technical documentation of this European Technical Assessment has been deposited at the Österreichisches Institut für Bautechnik and, as far as relevant for the tasks of the notified product certification body involved in the assessment and verification of constancy of performance, is handed over to the notified product certification body.
5 The control plan has been deposited at Österreichisches Institut für Bautechnik and is handed over only to the notified product certification body involved in the assessment and verification of constancy of performance.

5.1.2 Other tasks of the manufacturer

The manufacturer shall provide a Technical data sheet and an installation instruction with the following minimum information:

Technical data sheet:

a) Field of application:
   1) Building elements for which the penetration seal is suitable, type and properties of the building elements like minimum thickness, density, and – in case of lightweight constructions – the construction requirements
   2) Services which may pass through the penetration seal, type and properties of the services like material, diameter, thickness etc. in case of pipes including insulation materials; necessary/allowed supports/fixings
   3) Limits in size, minimum thickness etc. of the penetration seal
   4) Environmental conditions covered by this European Technical Assessment
b) Construction of the penetration seal including the necessary components and additional products (e.g. backfilling material) with clear indication whether they are generic or specific.

Installation instruction:

a) Steps to be followed
b) Stipulations on maintenance, repair and replacement

The manufacturer shall, based on a contract, involve a notified product certification body, which is notified for the tasks referred to in clause 4.1 of the ETA in the field of Assessment product. For this purpose, the control plan referred to in clause 5.1 and 5.2 of the ETA shall be handed over by the manufacturer to the notified product certification body involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of this European Technical Assessment.

5.1.3 Further testing of samples taken at the factory

Testing of samples taken at the factory by the manufacturer is not required.

5.2 Tasks of notified product certification body

The notified product certification body shall retain the essential points of its actions referred to clause 5.2.1 to 5.2.3, state the results obtained and conclusions drawn in written report.

These tasks shall be performed in accordance with the provisions laid down in the control plan of this European Technical Assessment.

5.2.1 Determination of the product type

Notified product certification bodies undertaking tasks under Systems 1 shall consider the European Technical Assessment issued for the construction product in question as the assessment of the performance of that product. Notified bodies shall therefore not undertake the tasks referred to in point 1.2 (b)(i), in Annex V of Regulation (EU) No 305/2011, unless there are changes in the manufacture or manufacturing plant. In such cases, the necessary initial type testing has to be agreed between the Österreichisches Institut für Bautechnik and notified product certification body involved.

5.2.2 Initial inspection of the manufacturing plant and of factory production control

The notified product certification body shall ascertain that, in accordance with the control plan, the manufacturing plant, in particular personnel and equipment, and the factory production control are suitable to ensure a continuous and orderly manufacturing of the kit according to the specifications given in clause 2 and in the Annexes of the European Technical Assessment.

5.2.3 Continuous surveillance, assessment and evaluation of factory production control

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

It has to be verified that the system of factory production control and the specified manufacturing process are maintained taking into account the control plan.

Continuous surveillance and assessment of factory production control have to be performed according to the control plan.

The results of continuous surveillance shall be made available on demand by the notified product certification body or the Österreichisches Institut für Bautechnik. In cases where the provisions of the European Technical Assessment and the control plan are no longer fulfilled, the certificate of constancy of performance shall be withdrawn.

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ANNEX 1

Reference documents and list of abbreviations

1.1 Reference to standards mentioned in this ETA:

ETAG 026-2 (2011)	Fire stopping and fire sealing products - Part 2: Penetration Seals
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 1363-1:1999	Fire resistance tests - Part 1: General requirements
EN 1366-3:2009	Fire resistance tests for service installations - Part 3: Penetration seals

1.2 Other reference documents:

EOTA TR 024 (2009)	Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products

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ANNEX 2

DESCRIPTION OF PRODUCT(S) & PRODUCT LITERATURE

2.1 Product:

Product name	Description
PROMASTOP®-W	firestop wrap
PROMASTOP®-I (additional component)	firestop coating
PROMASTOP®-CC (additional component)	firestop coating
PROMASTOP®-VEN (additional component)	firestop mortar
PROMASEAL®-A (additional component)	firestop acrylic sealant
PROMASEAL®-AG (additional component)	Intumescent firestop sealant

Suitable mineral wool products used for mineral wool slab penetration seal	
Manufacturer	**Product designation**
Rockwool	RP-XV, Hardrock II, Rockwool 360, Taurox D-C, Taurox Duo NP, Rockwool Paneel 755
Knauf Insulations	Knauf Insulations DP-15, Knauf Insulations FDB D150
Paroc OY AB	Pyrotech slab 140 – 180, Paroc Pro Roof Slab
Isover	Orsil T-N

Suitable insulation products – reaction to fire	
Combustible insulation (elastomeric foam, e.g. Neopren)	minimum B-s3, d0 (in acc. to EN 13501-1)
Combustible insulation (foam, e.g. PE)	minimum E (in acc. to EN 13501-1)

For backfilling (annular gaps) if necessary, mineral wool with a melting point ≥ 1000 °C and a classification to A1 in accordance to EN 13501-1, or mortar.

2.2 Fixing details:

Fastening of the PROMASTOP®-W in the PROMASTOP®-I / PROMASTOP®-CC mineral wool penetration seal with PROMASTOP®-I, PROMASTOP®-CC, PROMASEAL®-A or PROMASEAL®-AG. In core drills in rigid wall constructions, fastening shall be made through PROMASEAL®-A, PROMASEAL®-AG or PROMASTOP®-VEN firestop mortar.

The insulation shall be placed in the center of the PROMASTOP®-I or PROMASTOP®-CC penetration seal and fixed with steel wire (minimum thickness 0,6 mm).

2.3 Technical product literature:

Product data sheets for PROMASTOP®-W, PROMASTOP®-I, PROMASTOP®-CC, PROMASEAL®-A, PROMASEAL®-AG and PROMASTOP®-VEN.

Detailed sketches for the firestop coating PROMASTOP®-W in conjunction with the other firestop products PROMASTOP®-I, PROMASTOP®-CC, PROMASEAL®-A, PROMASEAL®-AG and PROMASTOP®-VEN.

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ANNEX 3

RESISTANCE TO FIRE CLASSIFICATION OF PROMASTOP®-W

3.1 Classification in acc. to EN 13501-2 for the PROMASTOP®-W in the mineral wool penetration seal with PROMASTOP®-I or PROMASTOP®-CC firestop coating

PROMASTOP®-W firestop wrap is used as a pipe closure device in mineral wool penetration seal PROMASTOP®-I or PROMASTOP®-CC.
The amount of layers of the PROMASTOP®-W depends on the installation, the pipe end configuration and the diameter of the pipe or insulation.

Application of the PROMASTOP®-W in the PROMASTOP®-I or PROMASTOP®-CC penetration seal:

Orientation	Application
Wall	Two-sided: On both sides in the penetration seal
Floor	One-sided: Below of the floor in the penetration seal

PROMASTOP®-W shall be installed flush with the penetration seal or wall/floor surface, maximum ≤ 5 mm in front of the penetration seal.
For fastening PROMASTOP®-W in the mineral wool penetration seals use PROMASTOP®-I, PROMASTOP®-CC, PROMASEAL®-A or PROMASEAL®-AG between the cutting edge and the firestop wrap. Annular gap dimensions with filling of PROMASEAL®-A or PROMASEAL®-AG, width ≤ 10 mm, depth ≥ 10 mm.

Thickness of the mineral wool slab penetration seals with PROMASTOP®-I or PROMASTOP®-CC firestop coating:

Mineral wool slabs (minimum thickness) with **PROMASTOP®-I**	2 x 50 mm
Mineral wool slabs (minimum thickness) with **PROMASTOP®-CC**	2 x 50 mm

Seal sizes in dependence with the supporting construction (see ETA 2.1):

Supporting construction	Mineral wool slabs minimum 2 x 50 mm **PROMASTOP®-I**	Mineral wool slabs minimum 2 x 50 mm **PROMASTOP®-CC**
Flexible walls	≤ 1,44 m²	≤ 3,75 m²
Rigid walls	≤ 1,44 m²	≤ 3,75 m²
Rigid floors	≤ 1,44 m²	≤ 3,75 m²

Mineral wool boards/slabs thickness see table above, minimum density 140 kg/m³, melting point ≥ 1000°C and class A1 in acc. to EN 13501-1 (possible products see Annex 2, 2.1).

Classification of the PROMASTOP®-I and PROMASTOP®-CC blank seals in dependence with the supporting construction (see ETA 2.1):

Supporting construction	Classification **PROMASTOP®-I**	Classification **PROMASTOP®-CC**
Flexible walls	EI 120	EI 120
Rigid walls	EI 120	EI 120
Rigid floors	EI 90	EI 120

Distances between the mineral wool boards:

Specimen	Minimum distance [mm]
Coated mineral wool board – coated mineral wool board	0

Thickness of PROMASTOP®-I and PROMASTOP®-CC firestop coating:

Specimen	Minimum thickness [mm] **PROMASTOP®-I**	Minimum thickness [mm] **PROMASTOP®-CC**
On the surface of the penetration seal (mineral wool slabs)	1,0	0,7

Length of PROMASTOP®-I and PROMASTOP®-CC firestop coating (measured from the surface of the penetration seal):

Specimen	Minimum length [mm]
On the surface of the adjacent compartment (wall, floor)	0

In flexible wall constructions the mineral wool board penetration seal with PROMASTOP®-I or PROMASTOP®-CC can be built in without additional framing the opening with gypsum boards if there is a metal stud.

PROMASTOP®-I or PROMASTOP®-CC firestop coating has to be applied on the outer surface of the penetration seal, cutting edges and the opening frame should be also painted with PROMASTOP®-I or PROMASTOP®-CC firestop coating.

Installations may penetrate the penetration seal (details are given in the specific parts in Annex 3):

Specimen
Plastic pipes made of PVC, PE, PP-H, PP-R
Plastic pipes with metal core (Aluminium), type Pipelife Radopress or equal products
Metal pipes (with insulations) made of steel, copper, cast iron, Ni-alloys
Multilayer pipes e.g. Poloplast, Geberit, Pipelife or equal products

Supporting distances:

Orientation	Maximum distance [mm]
Distance on both faces of wall constructions	250
Distance on the upper face of floor constructions	250

Pipe end configurations:

Tested and classified for plastic pipes, small conduits and tubes made of plastic	Applicable
U/U	U/U, C/U, U/C, C/C
Tested and classified for metal pipes	Applicable
U/C	C/U, U/C, C/C

Distance between PROMASTOP®-W and seal edge in PROMASTOP®-I or PROMASTOP®-CC penetration seals:

Orientation	Maximum width of the annular gap [mm]
Wall	10
Floor	10

Specification of the plastic pipes:

Name of pipe	Dimension scope Ø…Diameter [mm] t_D…pipe wall thickness [mm]	Mineral wool slab seal [mm]	Orien-tation Wall…W Floor…F	No. of Layers Ø [mm] → Layers	Classification
PVC	Ø 32 / t_D 1,8 - Ø 160 / t_D 11,8	2 x 50	W	32 – 63 → 1 75 – 110 → 2 125 → 3 140 – 160 → 4	**EI120-U/C**
PE	Ø 32 / t_D 2,0 - Ø 160 / t_D 14,6	2 x 50	W	32 – 63 → 1 75 – 110 → 2 125 → 3 140 – 160 → 4	**EI120-U/C**
PP-H / PP-R	Ø 32 / t_D 1,8 - Ø 160 / t_D 14,6	2 x 50	W	32 – 63 → 1 75 – 110 → 2 125 → 3 140 – 160 → 4	**EI120-U/C**
Poloplast PoloKal NG	Ø 32 / t_D 1,8 - Ø 160 / t_D 4,9	2 x 50	W	32 → 2 40 – 63 → 3 75 – 90 → 4 110 – 125 → 5 140 – 160 → 6	**EI90-U/U**
Poloplast PoloKal 3S	Ø 75 / t_D 3,8 - Ø 160 / t_D 7,5	2 x 50	W	75 – 90 → 4 110 – 125 → 5 140 – 160 → 6	**EI90-U/U**
Poloplast PoloKal XS	Ø 32 / t_D 1,8 - Ø 160 / t_D 4,9	2 x 50	W	32 → 2 40 – 63 → 3 75 – 90 → 4 110 – 125 → 5 140 – 160 → 6	**EI90-U/U**
Geberit Silent db20	Ø 63 / t_D 1,8 - Ø 160 / t_D 6,4	2 x 50	W	63 → 3 75 – 90 → 4 110 – 125 → 5 140 – 160 → 6	**EI90-U/U**
PVC	Ø 32 / t_D 1,8 - Ø 160 / t_D 11,8	2 x 50	F	32 – 63 → 1 75 – 110 → 2 125 → 3 140 – 160 → 4	**EI120-U/C**
PE	Ø 32 / t_D 2,0 - Ø 160 / t_D 14,6	2 x 50	F	32 – 63 → 1 75 – 110 → 2 125 → 3 140 – 160 → 4	**EI120-U/C**
PP-H / PP-R	Ø 32 / t_D 1,8 - Ø 160 / t_D 14,6	2 x 50	F	32 – 63 → 1 75 – 110 → 2 125 → 3 140 – 160 → 4	**EI120-U/C**
PP-H / PP-R	Ø 32 / t_D 1,8 - Ø 40 / t_D 6,7 + combustible insulation (B-s3, d0; thickness 6-32 mm; Configuration CS)	2 x 50	F	32 – 40 → 1	**EI120-U/C**
Poloplast PoloKal NG	Ø 32 / t_D 1,8 - Ø 125 / t_D 3,9	2 x 50	F	32 → 2 40 – 63 → 3 75 – 90 → 4 110 – 125 → 5	**EI90-U/U**
Poloplast PoloKal XS	Ø 32 / t_D 1,8 - Ø 125 / t_D 3,9	2 x 50	F	32 → 2 40 – 63 → 3 75 – 90 → 4 110 – 125 → 5	**EI90-U/U**
Geberit Silent db20	Ø 63 / t_D 1,8 - Ø 125 / t_D 6,4	2 x 50	F	63 → 3 75 – 90 → 4 110 – 125 → 5	**EI90-U/U**

The classifications for PVC-U pipes are applicable for pipes in acc. to EN 1452-1, DIN 8061, DIN 8062, EN 1329-1, EN 1453-1 and PVC-C pipes in acc. to EN 1566-1.

The classifications for PE pipes are applicable for pipes on acc. to EN 12201-2, EN 1519-1, EN 12666-1, DIN 8074, DIN 8075 and ABS-pipes in acc. to EN 1455-1 and SAN+PVC-pipes in acc. to EN 1565-1.

The classifications for PP-H and PP-R pipes are applicable for pipes in acc. to DIN 8077 and DIN 8087 or equal products.

The classifications for all stated multilayer pipes are applicable on equal products.

Distances:

Specimen	Minimum distance [mm]
Wrap – Firestop cable jacket PROMASTOP®-IM-CJ21	0
Wrap – Firestop collar PROMASTOP®-FC	0
Wrap – Firestop wrap PROMASTOP®-W	0
Wrap – combustible insulations	0
Wrap – non-combustible insulations	0
Wrap – Cable tray, cable ladders	0
Wrap – Cable bundles	≥ 100
Wrap – Aperture opening	≥ 37
Wrap – Ducts made of PROMATECT®-AD firestop boards	≥ 20
Wrap – All other installations	≥ 100

3.2 Classification in acc. to EN 13501-2 for the PROMASTOP®-W in rigid walls

PROMASTOP®-W firestop wrap is used as a pipe closure device in openings in rigid walls with a minimum thickness of 150 mm.
The amount of layers of the PROMASTOP®-W depends on the pipe material, the pipe end configuration and the diameter of the pipe. Annular gap dimensions with filling of PROMASEAL®-A or PROMASEAL®-AG, width ≤ 10 mm, depth ≥ 10 mm. For backfilling (annular gaps) if necessary, mineral wool with a melting point ≥ 1000 °C and a classification to A1 in accordance to EN 13501-1, mortar or PROMASTOP®-VEN firestop mortar.

Application of the PROMASTOP®-W:

Orientation	Application
Wall	Two-sided: On both sides in the wall

PROMASTOP®-W shall be installed flush with the penetration seal or wall surface, maximum ≤ 5 mm in front of the wall.
For fastening PROMASTOP®-W in the wall use PROMASEAL®-A or PROMASEAL®-AG between the aperture opening and the firestop wrap.

Distance between PROMASTOP®-W and aperture opening:

Orientation	Maximum width of the annular gap [mm]
Wall	10

Specification of the plastic pipes:

Name of pipe	Dimension scope Ø…Diameter [mm] t_D…pipe wall thickness [mm]	Orientation Wall…W	No. of Layers Ø [mm] → Layers	Classification
PVC	Ø 32 / t_D 3,0 - Ø 160 / t_D 7,7	W	32 → 2 40 – 63 → 3 75 – 90 → 4 110 – 125 → 5 140 – 160 → 6	**EI120-U/U**
PE	Ø 32 / t_D 1,8 - Ø 160 / t_D 14,6	W	32 → 2 40 – 63 → 3 75 – 90 → 4 110 – 125 → 5 140 – 160 → 6	**EI120-U/U**
PP-H / PP-R	Ø 32 / t_D 1,8 - Ø 160 / t_D 9,1	W	32 → 2 40 – 63 → 3 75 – 90 → 4 110 – 125 → 5 140 – 160 → 6	**EI120-U/U**

The classifications for PVC-U pipes are applicable for pipes in acc. to EN 1452-1, DIN 8061, DIN 8062, EN 1329-1, EN 1453-1 and PVC-C pipes in acc. to EN 1566-1.

The classifications for PE pipes are applicable for pipes on acc. to EN 12201-2, EN 1519-1, EN 12666-1, DIN 8074, DIN 8075 and ABS-pipes in acc. to EN 1455-1 and SAN+PVC-pipes in acc. to EN 1565-1.

The classifications for PP-H and PP-R pipes are applicable for pipes in acc. to DIN 8077 and DIN 8087 or equal products.

Distances:

Specimen	Minimum distance [mm]
Wrap – Firestop wrap PROMASTOP®-W	100

3.3 Classification in acc. to EN 13501-2 for the PROMASTOP®-W and PROMASTOP®-I / PROMASTOP®-CC mineral wool slab penetration seal in combination with metal pipes and combustible insulation:

Steel and copper pipes with combustible insulation may penetrate the PROMASTOP®-I or PROMASTOP®-CC penetration seal. The firestop wrap PROMASTOP®-W is used to form the penetration seal. Fixing of the wrap shall be made through using the firestop coating PROMASTOP®-I or PROMASTOP®-CC, the firestop acrylic sealant PROMASEAL®-A or the intumescent firestop sealant PROMASEAL®-AG, annular gap width ≤ 10 mm, depth ≥ 10 mm.
For backfilling gaps between the mineral wool boards and the PROMASTOP®-W use mineral wool (melting point ≥ 1000 °C and a classification to A1 in accordance to EN 13501-1).

Application of the PROMASTOP®-W in the PROMASTOP®-I or PROMASTOP®-CC penetration seal:

Orientation	Application
Wall	Two-sided: On both sides in the penetration seal
Floor	One-sided: Below of the floor in the penetration seal

Specification of the combustible insulation:

Steel pipes

Specification	Thresholds
Reaction to fire of the combustible insulation	Minimum B-s3, d0 accordance to EN 13501-1
Insulation thickness	≥ 6 mm to ≤ 32 mm
Case of insulation	LS, CS
Minimum one layer of the firestop wrap PROMASTOP®-W	

Steel pipes with combustible insulation	Classification depending on the orientation	
	Wall	Floor
Pipe diameter [mm]	50 ≤ 220	50 ≤ 220
Pipe wall thickness [mm]	2,0 ≤ 14,2	1,0 ≤ 14,2
Classification	**EI 90-U/C**	**EI 90-U/C**

The field of application given for metal pipes with lower heat conductivity (λ ≤ 58 W/mK) and a melting point of minimum 1100°C (e.g. stainless steel, cast iron, Ni alloys (NiCr, NiMo and NiCu alloys) and Ni.

Copper pipes

Specification	Thresholds
Reaction to fire of the combustible insulation	Minimum B-s3, d0 accordance to EN 13501-1
Insulation thickness	≥ 6 mm to ≤ 32 mm
Case of insulation	LS, CS
Minimum one layer of the firestop wrap PROMASTOP®-W	

Copper pipes with combustible insulation	Classification depending on the orientation	
	Wall	Floor
Pipe diameter [mm]	20 ≤ 88,9	20 ≤ 88,9
Pipe wall thickness [mm]	2,0 ≤ 14,2	1,0 ≤ 14,2
Classification	**EI 90-U/C**	**EI 90-U/C**

The field of application given for copper pipes is also valid for other metal pipes with lower heat conductivity (λ ≤ 380 W/mK) and a melting point of minimum 1083°C (e.g. stainless steel, cast iron, Ni alloys (NiCr, NiMo and NiCu alloys) and Ni.

3.4 Classification in acc. to EN 13501-2 for the PROMASTOP®-W in the PROMASTOP®-I / PROMASTOP®-CC mineral wool slab penetration seal in combination with composite pipes Pipelife Radopress (or equal products) and combustible insulation (B-s3, d0 and E):

Plastic-Aluminium-Plastic (PE-Xb/Al/PE-HD) composite pipes with combustible insulation may penetrate the PROMASTOP®-I or PROMASTOP®-CC penetration seal. The firestop wrap PROMASTOP®-W is used to form the penetration seal. Fixing of the wrap shall be made through using the firestop coating PROMASTOP®-I or PROMASTOP®-CC, the firestop acrylic sealant PROMASEAL®-A or the intumescent firestop sealant PROMASEAL®-AG, annular gap width ≤ 10 mm, depth ≥ 10 mm.

For backfilling gaps between the mineral wool boards and the PROMASTOP®-W use mineral wool (melting point ≥ 1000 °C and a classification to A1 in accordance to EN 13501-1).

Application of the PROMASTOP®-W in the PROMASTOP®-I or PROMASTOP®-CC penetration seal:

Orientation	Application
Wall	Two-sided: On both sides in the penetration seal
Floor	One-sided: Below of the floor in the penetration seal

Specification of the combustible insulation:

Pipelife Radopress pipes with class B-s3, d0 insulation

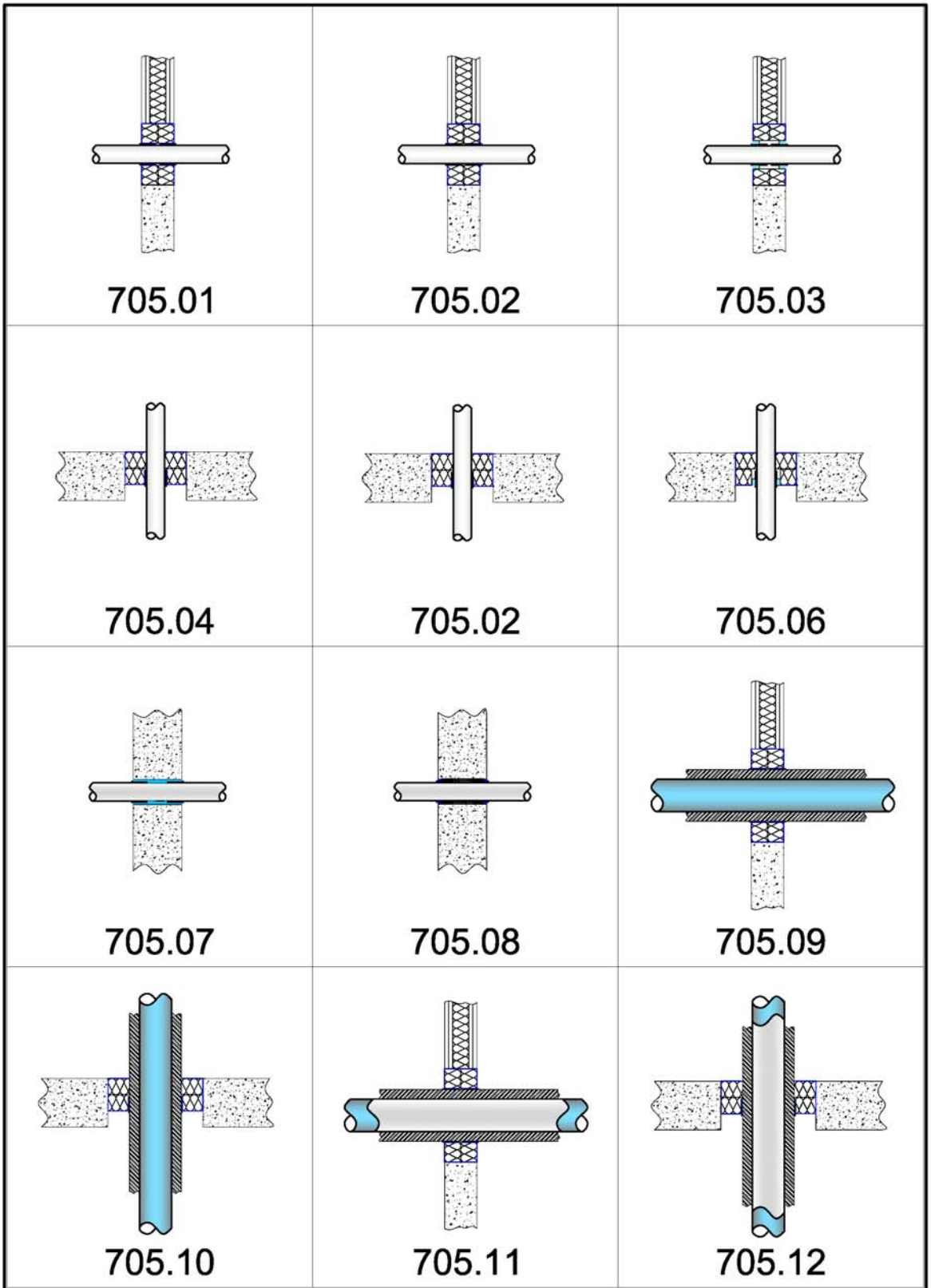
Specification	Thresholds
Reaction to fire of the combustible insulation	Minimum B-s3, d0 accordance to EN 13501-1
Insulation thickness	≥ 6 mm to ≤ 32 mm
Case of insulation	LS, CS
Minimum one layer of the firestop wrap PROMASTOP®-W	

Pipe Specification	Classification depending on the orientation	
	Wall	Floor
Pipelife Radopress Ø 16 – 63 mm *63 mm	**EI 120-U/C**	**EI 120-U/C** **E 120, EI 60-U/C***

Pipelife Radopress pipes with class E insulation

Specification	Thresholds
Reaction to fire of the combustible insulation	Minimum E accordance to EN 13501-1
Insulation thickness	≥ 4 mm to ≤ 9 mm
Case of insulation	LS, CS
Minimum one layer of the firestop wrap PROMASTOP®-W	

Pipe Specification	Classification depending on the orientation	
	Wall	Floor
Pipelife Radopress Ø 16 – 63 mm	**EI 120-U/C**	**EI 120-U/C**


705.01
705.02
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705.11
705.12
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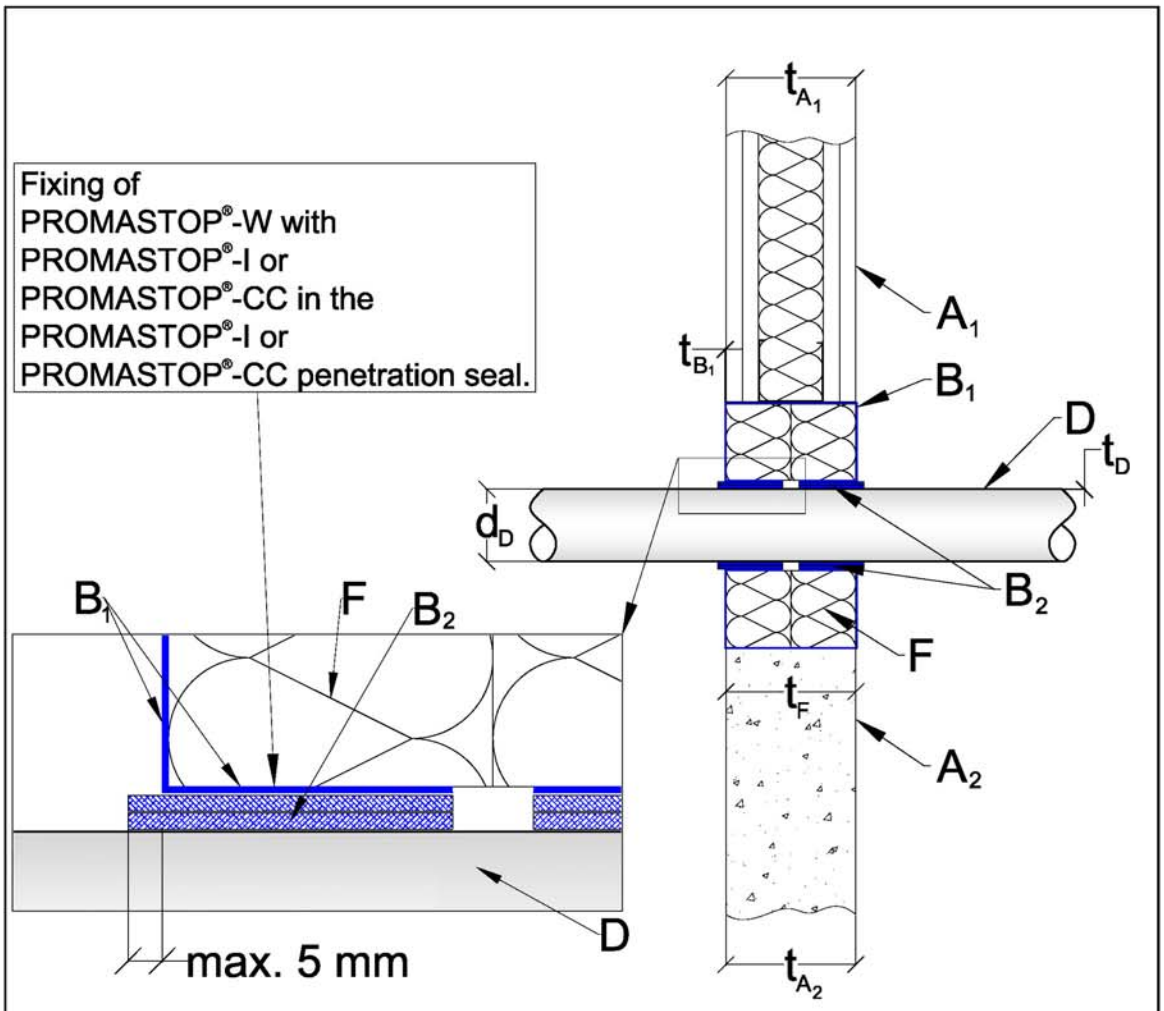
Overview of PROMASTOP®-W penetration seal constructions
modified by/on:
drawn by:
Wöber E.
drawing number:
705.00
scale:
without
drawing format:
A4
date:
2014/10/17
division:
Technical appl.



legend:

A_1	... flexible wall
A_2	... rigid wall
B_1	... PROMASTOP®-I or PROMASTOP®-CC
B_2	... PROMASTOP®-W
D	... plastic pipe
d_D	... pipe diameter
F	... mineral wool slabs
$t_{A_1 \& A_2}$	... wall thickness
t_{B_1}	... coating thickness
t_D	... pipe wall thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

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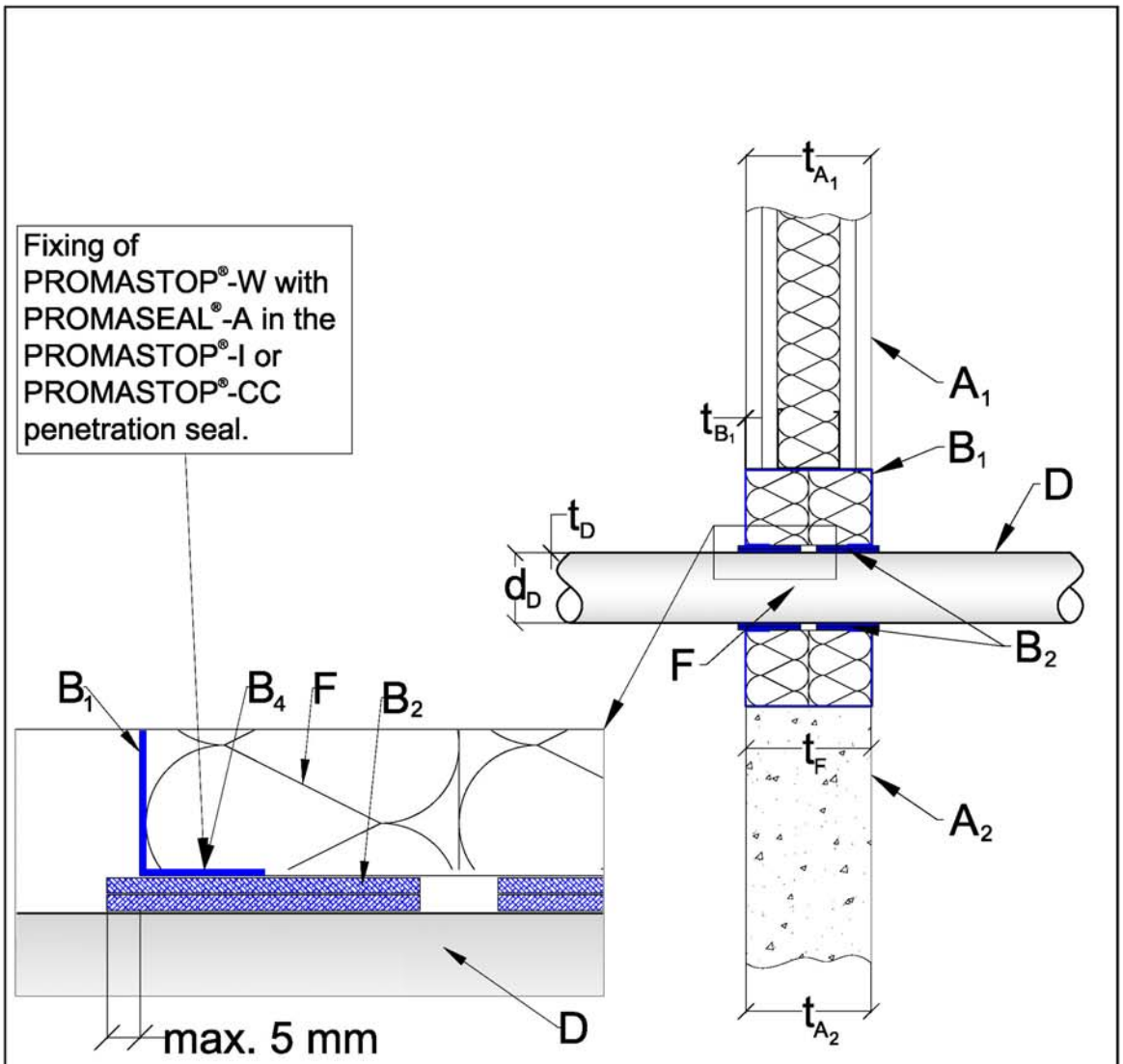
installation of PROMASTOP®-W fire stopping wrap in PROMASTOP®-I or PROMASTOP®-CC penetration seal in wall constructions

scale:	drawing format:	date:	division:
without	A4	2014/10/16	Technical appl.

modified by/on:

drawn by: Wöber E.

drawing number: 705.01



legend:

A_1	... flexible wall
A_2	... rigid wall
B_1	... PROMASTOP®-I or PROMASTOP®-CC
B_2	... PROMASTOP®-W
B_4	... PROMASEAL®-A
D	... plastic pipe
d_D	... pipe diameter
F	... mineral wool slabs
$t_{A_1 \& A_2}$	... wall thickness
t_{B_1}	... coating thickness
t_D	... pipe wall thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

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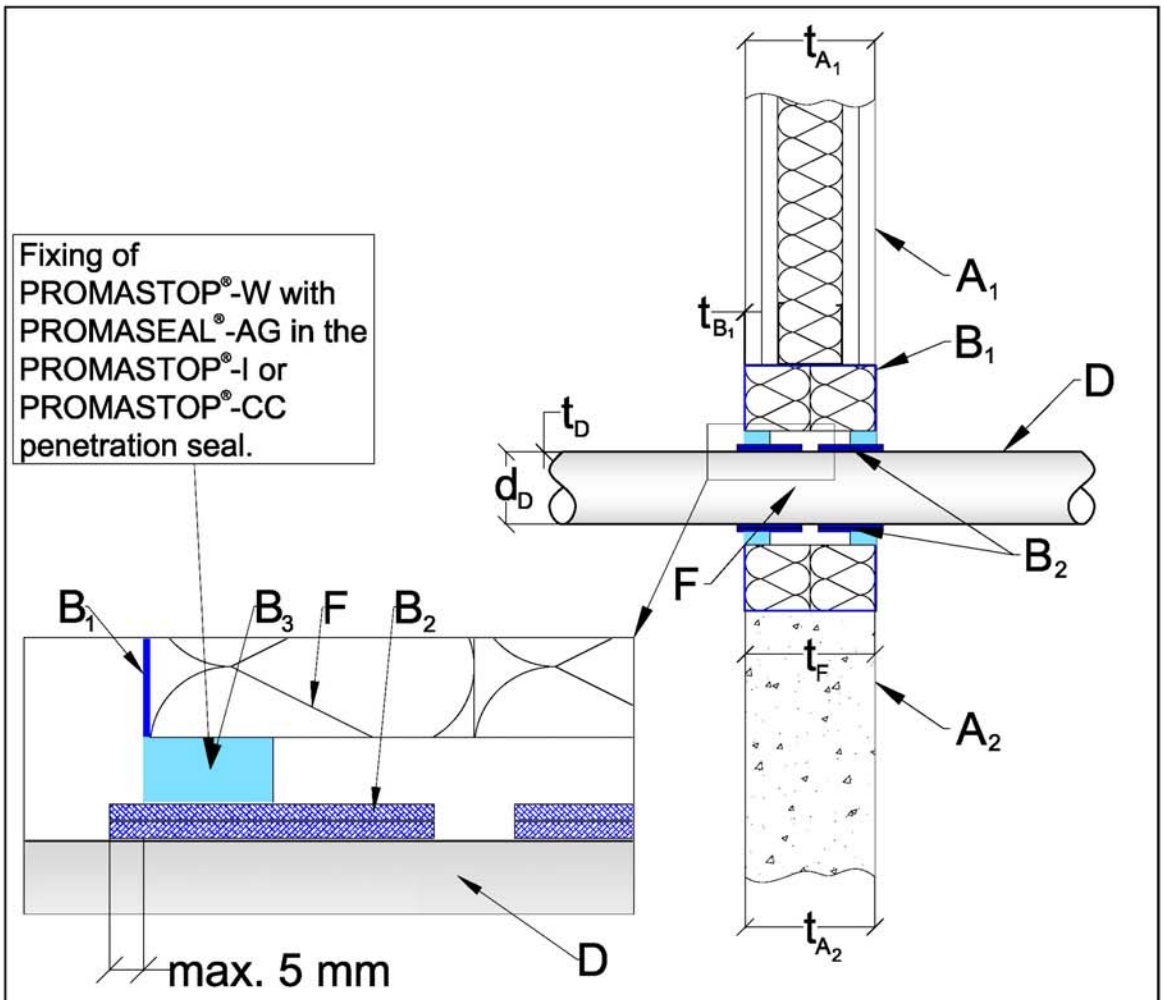
installation of PROMASTOP®-W fire stopping wrap in PROMASTOP®-I or PROMASTOP®-CC penetration seal in wall constructions

scale: without	drawing format: A4	date: 2014/10/16	division: Technical appl.	modified by/on:
				drawn by: Wöber E.
				drawing number: 705.02



legend:

A_1	... flexible wall
A_2	... rigid wall
B_1	... PROMASTOP®-I PROMASTOP®-CC
B_2	... PROMASTOP®-W
B_3	... PROMASEAL® -AG
D	... plastic pipe
d_D	... pipe diameter
F	... mineral wool slabs
$t_{A_1 \& A_2}$	... wall thickness
t_{B_1}	... coating thickness
t_D	... pipe wall thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

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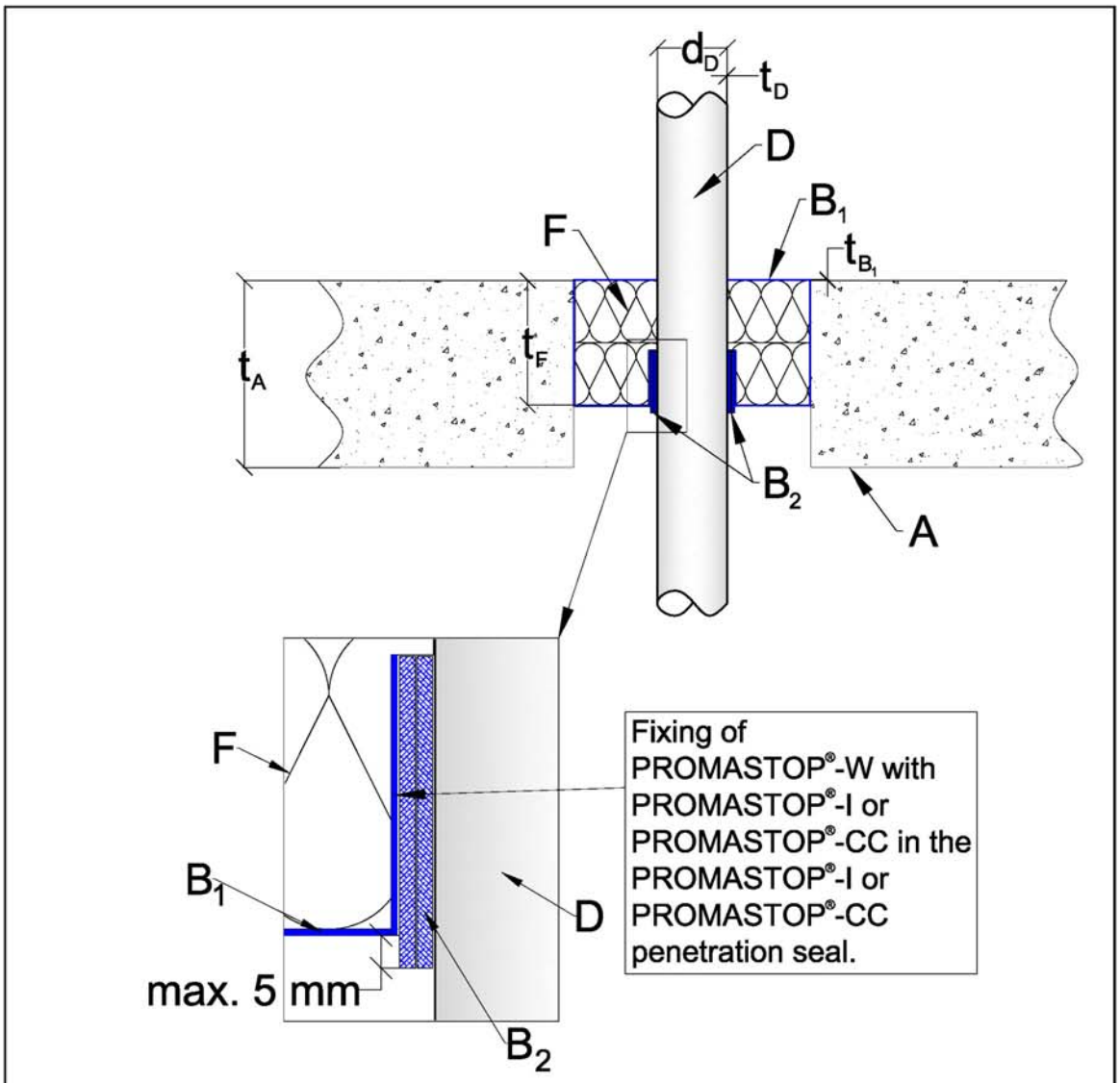
installation of PROMASTOP®-W fire stopping wrap in PROMASTOP®-I or PROMASTOP®-CC penetration seal in wall constructions

scale: without	drawing format: A4	date: 2014/10/15	division: Technical appl.	modified by/on:
				drawn by: Wöber E.
				drawing number: 705.03



legend:

A	... rigid floor
B_1	... PROMASTOP®-I or PROMASTOP®-CC
B_2	... PROMASTOP®-W
D	... plastic pipe
d_D	... pipe diameter
F	... mineral wool slabs
t_A	... floor thickness
t_{B_1}	... coating thickness
t_D	... pipe wall thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

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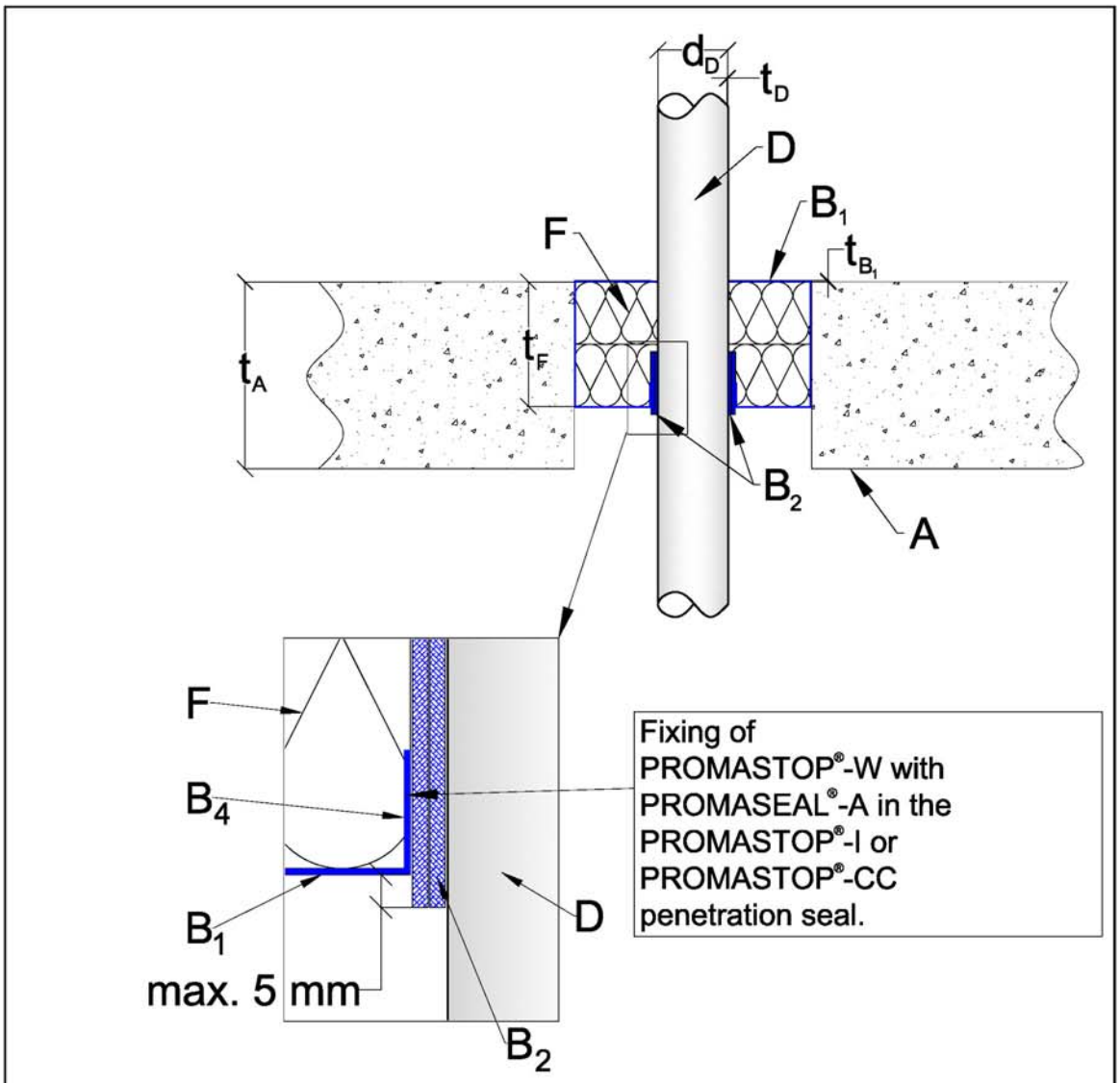
installation of PROMASTOP®-W fire stopping wrap in PROMASTOP®-I or PROMASTOP®-CC penetration seal in floor constructions

scale:	drawing format:	date:	division:
without	A4	2014/10/15	Technical appl.

modified by/on:

drawn by: Wöber E.

drawing number: 705.04

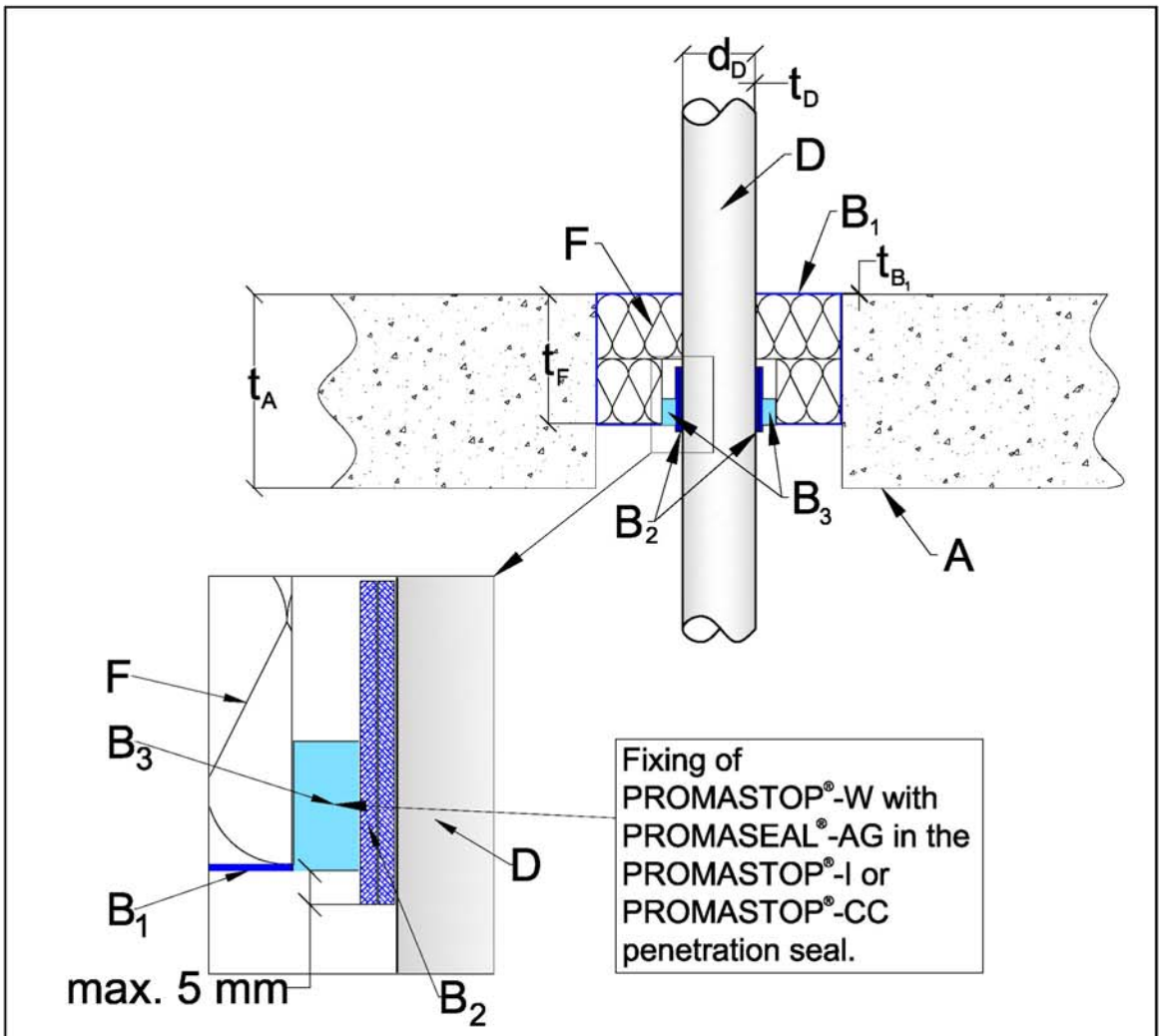


legend:

A	... rigid floor
B_1	... PROMASTOP®-I or PROMASTOP®-CC
B_2	... PROMASTOP®-W
B_4	... PROMASEAL®-A
D	... plastic pipe
d_D	... pipe diameter
F	... mineral wool slabs
t_A	... floor thickness
t_{B1}	... coating thickness
t_D	... pipe wall thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

Promat PROMAT GmbH St.-Peter-Straße 25 4021 Linz / Austria Phone: +43 732 6912 - 3621 Fax: +43 732 6912 - 3740 www.promat.at technik@promat.at	installation of PROMASTOP®-W fire stopping wrap in PROMASTOP®-I or PROMASTOP®-CC penetration seal in floor constructions			modified by/on:
				drawn by: Wöber E.
	scale: without	drawing format: A4	date: 2014/10/15	division: Technical appl. / drawing number: 705.05



legend:

A	... rigid floor
B_1	... PROMASTOP®-I or PROMASTOP®-CC
B_2	... PROMASTOP®-W
B_3	... PROMASEAL®-AG
D	... plastic pipe
d_D	... pipe diameter
F	... mineral wool slabs
t_A	... floor thickness
t_{B_1}	... coating thickness
t_D	... pipe wall thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

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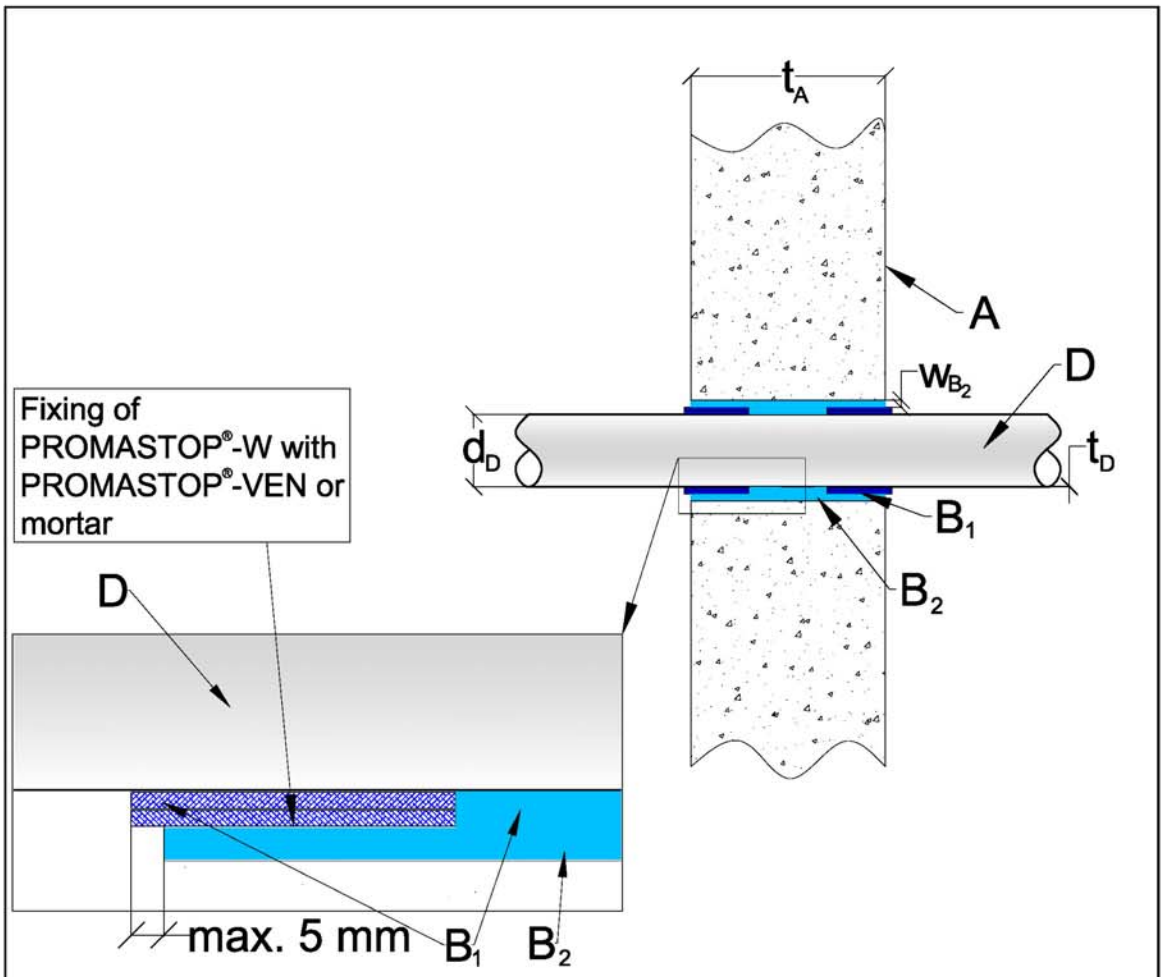
installation of PROMASTOP®-W fire stopping wrap in PROMASTOP®-I or PROMASTOP®-CC penetration seal in floor constructions

scale:	drawing format:	date:	division:
without	A4	2014/10/15	Technical appl.

modified by/on:

drawn by: Wöber E.

drawing number: 705.06



legend:

A	... rigid wall
B_1	... PROMASTOP®-W
B_2	... PROMASTOP®-VEN or mortar
D	... plastic pipe
d_D	... pipe diameter
t_A	... wall thickness
t_D	... pipe wall thickness
w_{B_2}	... width of the annular gap

Number of layers PROMASTOP®-W:
see classification report or ETA

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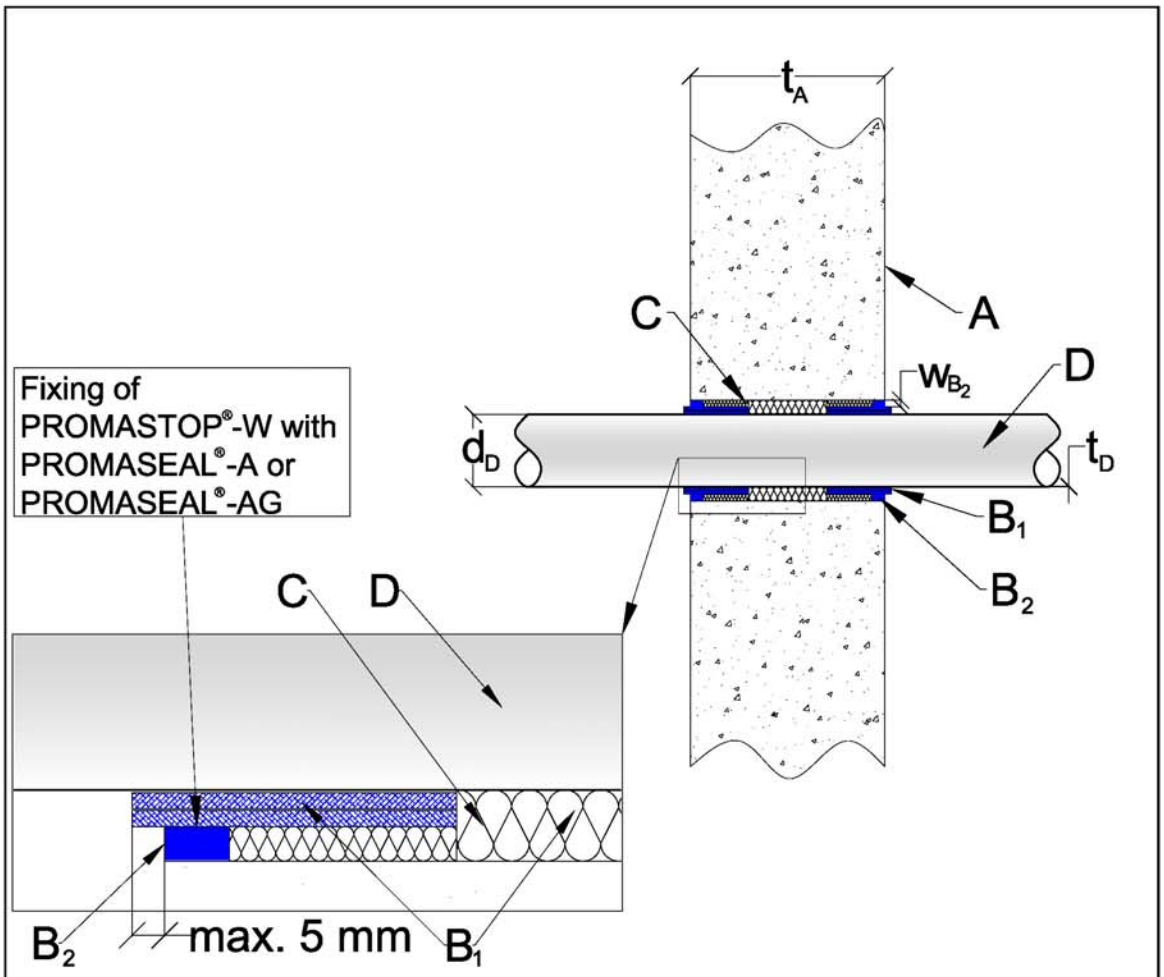
installation of PROMASTOP®-W fire stopping wrap with PROMASTOP®-VEN or mortar as backfilling and fixing material in rigid wall construction ≥ 150 mm

scale:	drawing format:	date:	division:
without	A4	2014/10/17	Technical appl.

modified by/on:

drawn by: Wöber E.

drawing number: 705.07

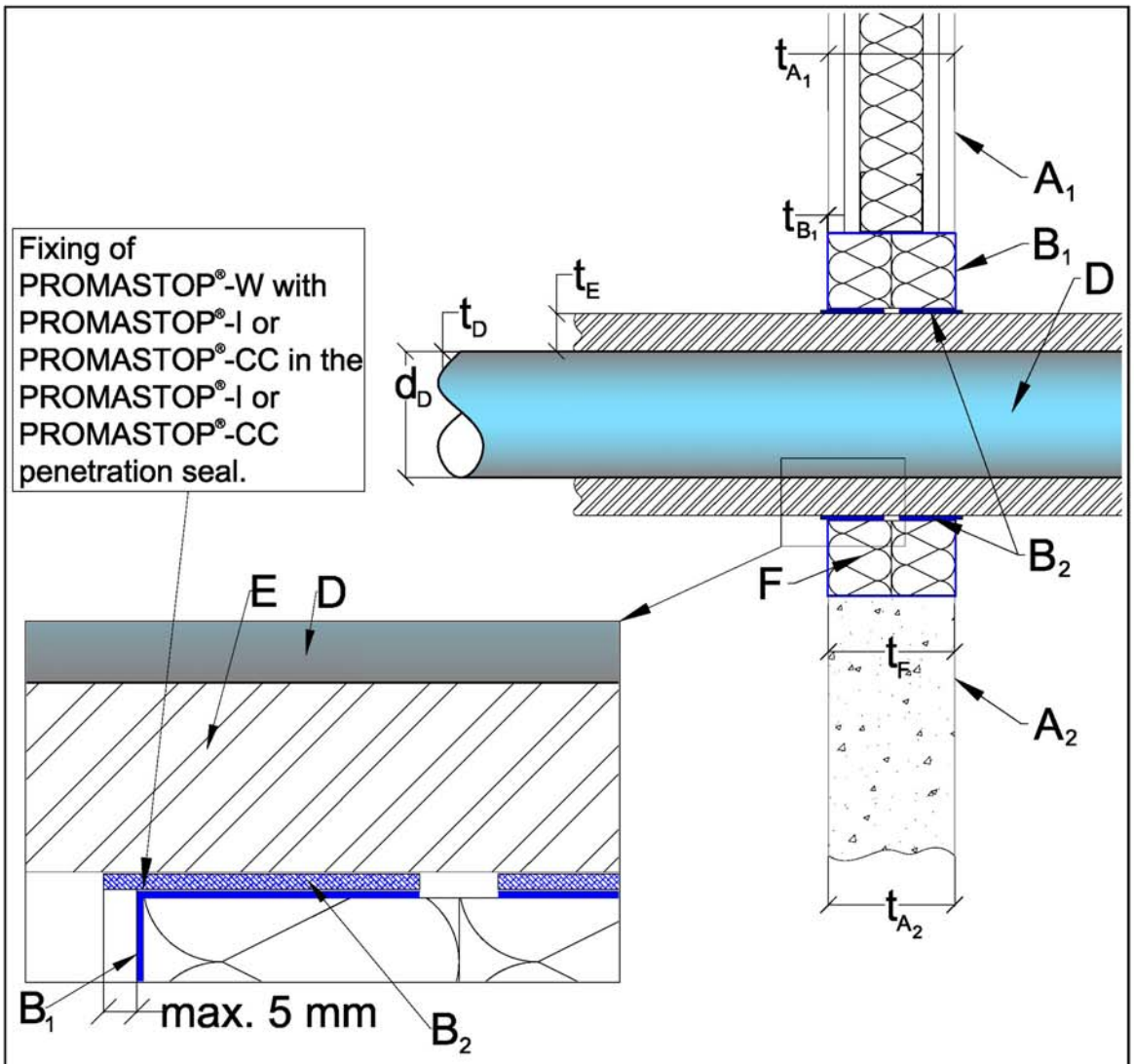


legend:

A	... rigid wall
B_1	... PROMASTOP®-W
B_2	... PROMASEAL®-A or PROMASEAL®-AG
C	... backfilling material
D	... plastic pipe
d_D	... pipe diameter
t_A	... wall thickness
t_D	... pipe wall thickness
w_{B_2}	... width of the annular gap

Number of layers PROMASTOP®-W:
see classification report or ETA

Promat PROMAT GmbH St.-Peter-Straße 25 4021 Linz / Austria Phone: +43 732 6912 - 3621 Fax: +43 732 6912 - 3740 www.promat.at technik@promat.at	installation of PROMASTOP®-W fire stopping wrap with PROMASEAL®-A or PROMASEAL®-AG used as fixing material and mineralwool backfilling material				modified by/on:
					drawn by: Wöber E.
	scale: without	drawing format: A4	date: 2014/10/17	division: Technical appl.	drawing number: 705.08



legend:

A_1	... flexible wall
A_2	... rigid wall
B_1	... PROMASTOP®-I or PROMASTOP®-CC
B_2	... PROMASTOP®-W
D	... metal pipe
d_D	... pipe diameter
E	... pipe insulation
F	... mineral wool slabs
$t_{A_1 \& A_2}$	... wall thickness
t_{B_1}	... coating thickness
t_D	... pipe wall thickness
t_E	... insulation thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

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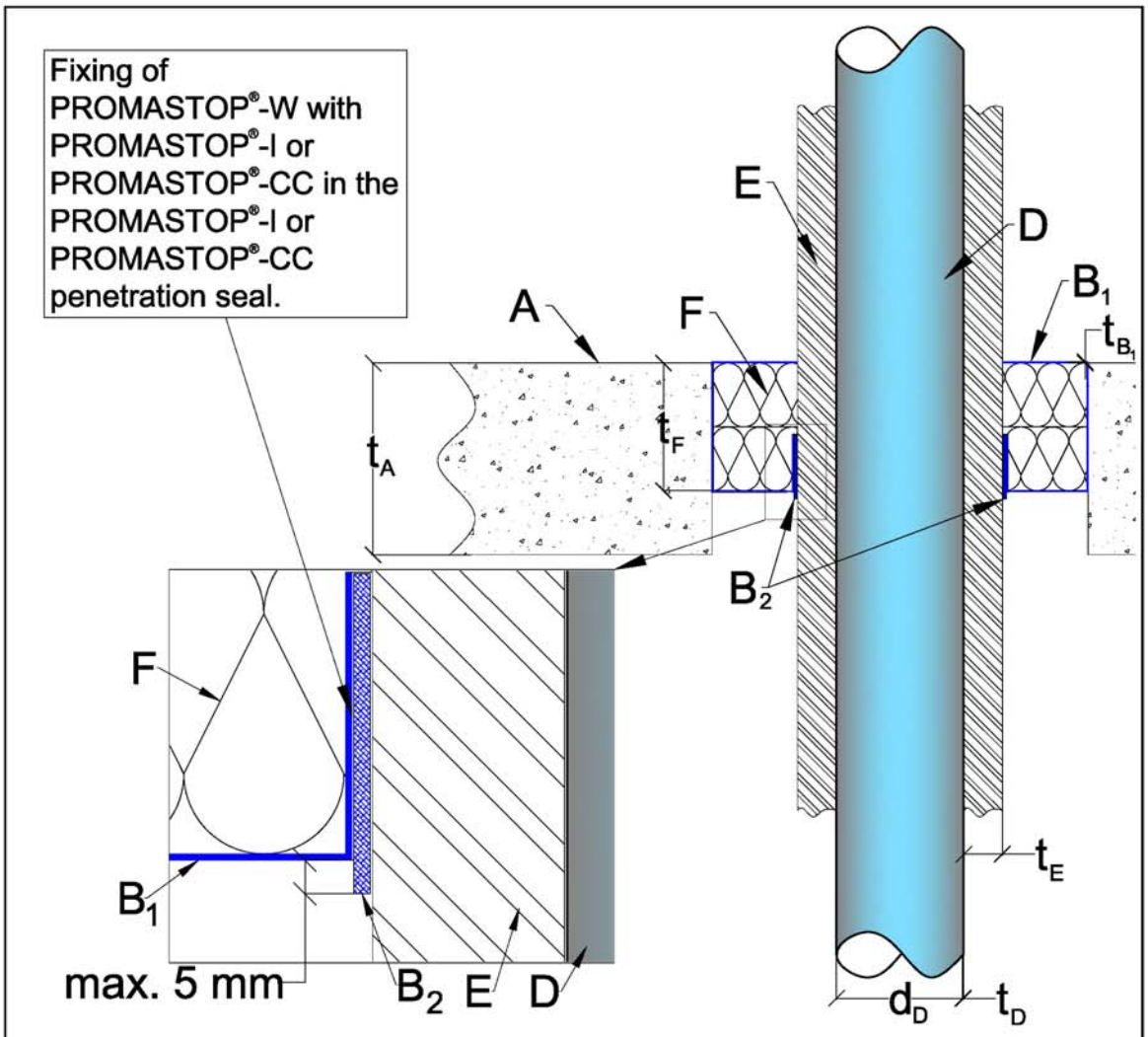
installation of PROMASTOP®-W fire stopping wrap around metal pipe with combustible insulation in PROMASTOP®-I or PROMASTOP®-CC penetration seal in wall constructions

scale:	drawing format:	date:	division:
without	A4	2014/10/15	Technical appl.

modified by/on:

drawn by: Wöber E.

drawing number: 705.09

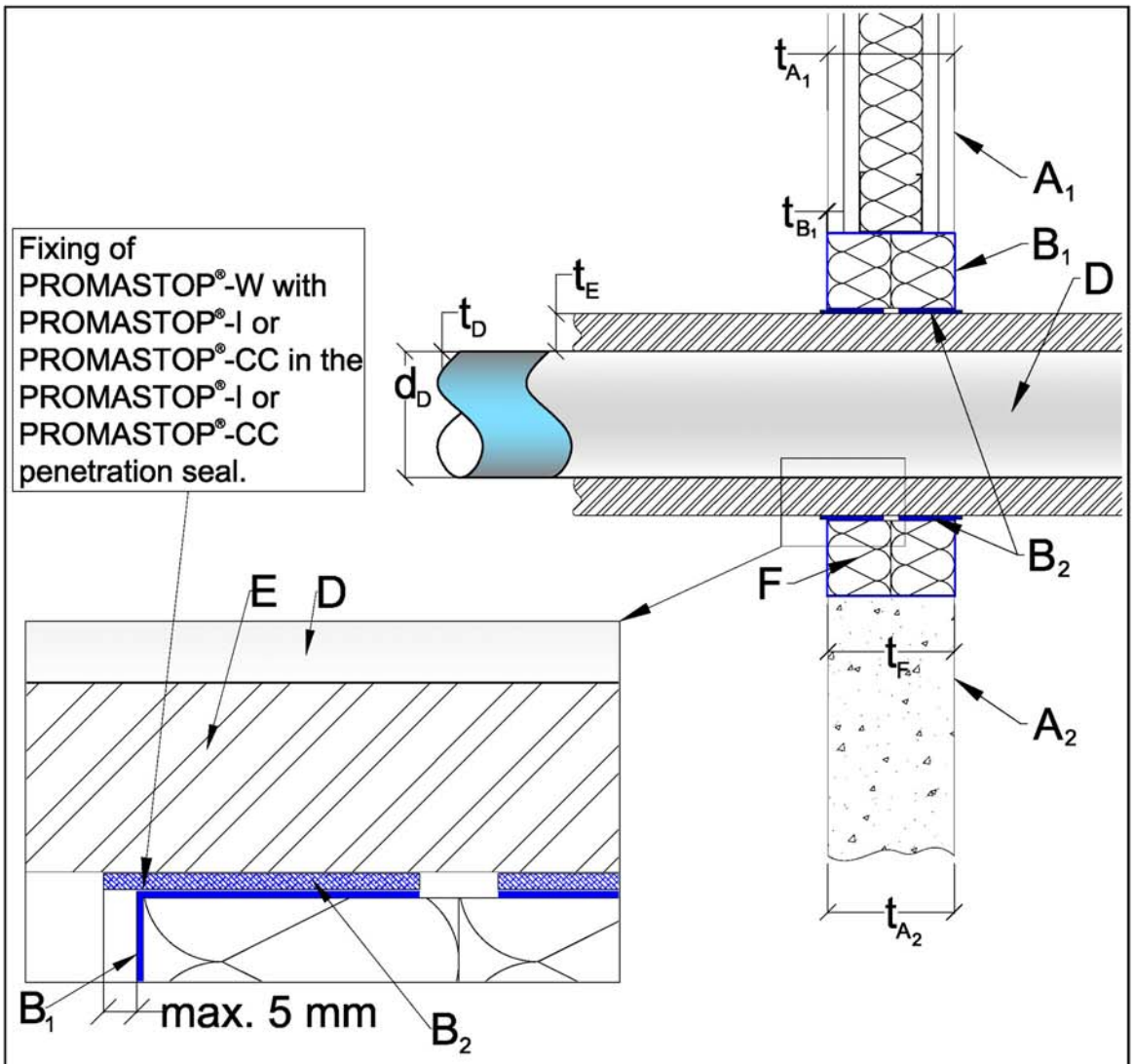


legend:

A	... rigid floor
B_1	... PROMASTOP®-I or PROMASTOP®-CC
B_2	... PROMASTOP®-W
D	... metal pipe
E	... combustible pipe insulation
d_D	... pipe diameter
F	... mineral wool slabs
t_A	... floor thickness
t_{B1}	... coating thickness
t_D	... pipe wall thickness
t_E	... insulation thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

Promat PROMAT GmbH St.-Peter-Straße 25 4021 Linz / Austria Phone: +43 732 6912 - 3621 Fax: +43 732 6912 - 3740 www.promat.at technik@promat.at	installation of PROMASTOP®-W fire stopping wrap around metal pipe with combustible insulation in PROMASTOP®-I or PROMASTOP®-CC penetration seal in floor constructions			modified by/on:
				drawn by: Wöber E.
	scale: without	drawing format: A4	date: 2014/10/15	division: Technical appl.
				drawing number: 705.10



legend:

A_1	... flexible wall
A_2	... rigid wall
B_1	... PROMASTOP®-I or PROMASTOP®-CC
B_2	... PROMASTOP®-W
D	... aluminium composite pipe
d_D	... pipe diameter
E	... pipe insulation
F	... mineral wool slabs
$t_{A_1 \& A_2}$	... wall thickness
t_{B_1}	... coating thickness
t_D	... pipe wall thickness
t_E	... insulation thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

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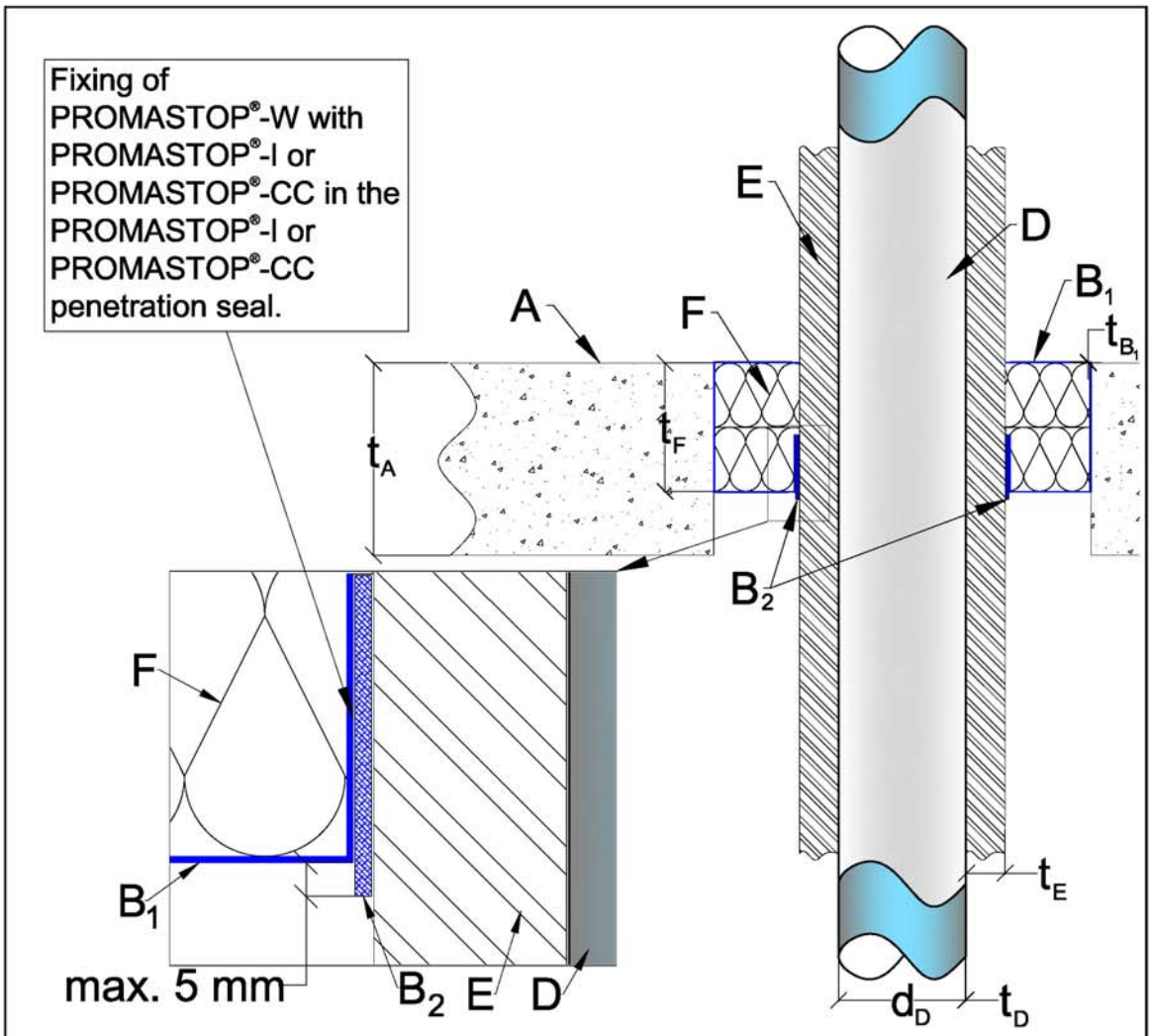
installation of PROMASTOP®-W fire stopping wrap around aluminium composite pipe with combustible insulation in PROMASTOP®-I or PROMASTOP®-CC penetration seal in wall constructions

scale:	drawing format:	date:	division:
without	A4	2014/10/15	Technical appl.

modified by/on:
drawn by: Wöber E.
drawing number: 705.11



legend:

A	... rigid floor
B_1	... PROMASTOP®-I or PROMASTOP®-CC
B_2	... PROMASTOP®-W
D	... aluminium composite pipe
E	... combustible pipe insulation
d_D	... pipe diameter
F	... mineral wool slabs
t_A	... floor thickness
t_{B1}	... coating thickness
t_D	... pipe wall thickness
t_E	... insulation thickness
t_F	... thickness of the penetration seal

Number of layers PROMASTOP®-W:
see classification report or ETA

Promat PROMAT GmbH St.-Peter-Straße 25 4021 Linz / Austria Phone: +43 732 6912 - 3621 Fax: +43 732 6912 - 3740 www.promat.at technik@promat.at	installation of PROMASTOP®-W fire stopping wrap around aluminium composite pipe in PROMASTOP®-I or PROMASTOP®-CC penetration seal in floor constructions			modified by/on:
				drawn by: Wöber E.
	scale: without	drawing format: A4	date: 2014/10/15	division: Technical appl.
				drawing number: 705.12