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European Technical Assessment

ETA-15/0243
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®-B

Product family to which the construction product belongs

Fire Stopping and Fire Sealing Product:
Penetration seal

Manufacturer

Promat International NV
Bormstraat 24
2830 Tiselt
Belgium

Manufacturing plant

Production plant 13

This European Technical Assessment contains

29 pages including Annexes 1 to 3 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)

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.

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Specific parts

1. Technical description of the product

1.1 Definition of the construction product

The firestop product PROMASTOP®-B (on market also sold as Intumex®-FB) is a permanently elastic intumescent block formed product 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.

The colour of firestop block PROMASTOP®-B is grey.

PROMASTOP®-B – type of penetration seal (acc. to ETAG 026-2, cl. 1.1, table 1-1): Block.

A detailed specification of the product PROMASTOP®-B 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®-B firestop blocks is to reinstate the fire resistance performance of flexible wall, rigid wall and rigid floor constructions where they are penetrated by different installations.

In the following specified constructions PROMASTOP®-B is also used in conjunction with the firestop mortar PROMASTOP®-VEN and the intumescent firestop sealant PROMASEAL®-AG, if applicable.

- (1) The specific elements of construction that PROMASTOP®-B 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 minimum 12,5 mm thick boards. 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 lining of the wall (1 layer minimum 12,5 mm thickness).
- 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.

This ETA does not cover the use of this product as a penetration seal in sandwich panel constructions.

- (2) PROMASTOP®-B may be used as a penetration seal with the following specific installations or as blank seal:
 - Cables: For further details see Annex 3.
 - Cable bundles: For further details see Annex 3.
 - Plastic pipes: For further details see Annex 3.
 - Metal pipes: For further details see Annex 3.
 The maximum seal sizes in the different compartments (see 2.1.) are given in Annex 3 of the ETA.

- (3) Distances:

Specimen	Minimum distance (mm)
Cable, cable bundle – Aperture opening	10
Cable, cable bundle – Cable tray	10
Cable, cable bundle – Cable, cable bundle	0
Cable tray – Aperture opening	10
Cable tray – Cable tray	20
Combustible insulations – Aperture opening	80
Combustible insulations – Combustible insulations	100

Between all other installations: minimum 100 mm - 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®-B is Type Y₁. Since the requirements for Y₁ are met, also the requirements for type Z₁, Z₂ and Y₂ are fulfilled.

- Type Y₁: Products intended for use at temperatures between -20°C and + 70°C, with exposure to UV but no exposure to rain.
- Type Y₂: Products intended for use at temperatures between -20°C and + 70°C, with no exposure to UV nor rain.
- Type Z₁: Products intended for use at internal conditions with high humidity, excluding temperatures below 0°C¹, without exposure to rain or UV.
- Type Z₂: Products intended for use at internal conditions with humidity classes other than Z₁, excluding temperatures below 0°C, without exposure to rain or UV.

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

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).

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 cables/pipes or the layout of the pipe work shall be implemented in such a way that the cables/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.

2.4 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. Additional marking of the penetration seal shall be done in case of national requirements.

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

- Compare the installations with the installations manual if the type is sealable
- For building blank seals or penetration seals in floors, include reinforcement with a standard steel mesh (maximum mesh-wide; 100 x 100 mm, or equal products), below of the penetration seal (also to avoid risk of injury to people)
- If necessary, cut the block with a small overmeasure and gently squeeze it into the opening
- For joints and gaps use additional the intumescent sealant PROMASEAL®-AG on the surface
- Apply the PROMASTOP®-B blocks such as masonry
- For the final row, use about 5 - 7 mm overmeasure of the blocks, squeeze them and push them into the remaining opening

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 2	Reaction to fire	EN 13501-1:2007+A1:2009	See 3.1.1
	Resistance to fire	EN 13501-2:2007+A1:2009	See 3.1.2 and Annex 3
BWR 3	Air permeability (material property)	No Performance Assessed	
	Water permeability (material property)	No Performance Assessed	
	Content and/or release of dangerous substances	European Council Directive 7/548/EEC-Dangerous Substances Directive and Regulation (EC) No 1272/2008	Declaration of conformity by the manufacturer
BWR 4	Mechanical resistance and stability	No Performance Assessed	
	Resistance to impact / movement	No Performance Assessed	
	Adhesion	No Performance Assessed	
BWR 5	Airborne sound insulation	No Performance Assessed	
BWR 6	Thermal properties	No Performance Assessed	
	Water vapour permeability	No Performance Assessed	
BWR 7	No Performance Assessed		

3.1 Safety in case of fire (BWR 2)

3.1.1 Reaction to fire

The components of construction product PROMASTOP®-B were 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®-B firestop block	E
PROMASTOP®-VEN firestop mortar (additional component)	A1
PROMASEAL®-AG intumescent firestop sealant (additional component)	E

3.1.2 Resistance to fire

PROMASTOP®-B has been tested in accordance with EN 1366-3:2009 installed within apertures in flexible walls, rigid walls, rigid floors and the PROMASTOP®-VEN firestop mortar seal. 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 (acc. to EN 1366-3:2009) PROMASTOP®-B 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 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.

3.2 Hygiene, health and environment (BWR 3)

3.2.1 Air permeability

No performance assessed.

3.2.2 Water permeability

No performance assessed.

3.2.3 Release of dangerous substances

According to the manufacturer's declaration "PROMASTOP®-B" does not contain dangerous substances detailed in Council Directive 67/548/EEC and Regulation (EC) no 1272/2008 as well as EOTA TR 034 (General ER 3 Checklist for ETAGs/CUAPs/ETAs- Content and/or release of dangerous substances in products/kits), edition March 2012.

A written declaration in this respect was submitted by the ETA-holder.

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 Products Regulation, these requirements need also to be complied with, when and where they apply.

3.3 Safety and accessibility in use (BWR 4)

3.3.1 Mechanical resistance and stability

Large floor or wall (blank) penetration seals have to be protected by installation of a metal wire mesh to avoid risk of injury to people.

3.3.2 Resistance to impact / movement

See part 3.3.1 of the ETA.

3.3.3 Adhesion

See part 3.3.1 of the ETA.

3.4 Protection against noise (BWR 5)

3.4.1 Airborne sound insulation

No performance assessed.

3.5 Energy economy and heat retention (BWR 6)

3.5.1 Thermal properties

No performance assessed.

3.5.2 Water vapour permeability

No performance assessed.

3.6 Sustainable use of natural resources (BWR 7)

No performance assessed.

3.7 General aspects relating to fitness for use

3.7.1 Durability

PROMASTOP®-B has been tested in accordance to EOTA TR 024, Table 4.2.4 for the Y₁ use category specified in EOTA ETAG 026-2 and the results of the test have demonstrated suitability for penetration seals intended for use at temperatures between -20°C und +70°C with exposure to UV but without exposure to rain.

3.7.2 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/EC², amended by Decision 2001/596/EC³ 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 documentation⁴ 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 plan⁵ 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.

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.

Issued in Vienna on 11.11.2015
by Österreichisches Institut für Bautechnik

Rainer Mikulits
Managing Director

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®-B	Firestop block
PROMASTOP®-VEN (additional component)	Firestop mortar
PROMASEAL®-AG (additional component)	Intumescent firestop sealant

Suitable insulation products – reaction to fire	
Combustible insulation (closed cell, flexible elastomeric foam, e.g. AF/Armaflex)	minimum B-s3, d0 (in acc. to EN 13501-1)

2.2 Fixing details:

For building blank seals or penetration seals in floors, include reinforcement with a standard steel mesh (maximum mesh-wide; 50 x 50 mm, or equal products), below of the penetration seal (also to avoid risk of injury to people).

2.3 Technical product literature:

Product data sheets for PROMASTOP®-B, PROMASTOP®-VEN and PROMASEAL®-AG.

Detailed sketches for the firestop block PROMASTOP®-B in conjunction with PROMASTOP®-VEN, and PROMASEAL®-AG.

ANNEX 3

RESISTANCE TO FIRE CLASSIFICATION OF PROMASTOP®-B

3.1 Classification acc. to EN 13501-2 for the PROMASTOP®-B firestop blocks

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

Supporting construction	PROMASTOP®-B
Flexible walls	≤ 1,44 m ²
Rigid walls	≤ 1,44 m ²
Rigid floors	≤ 1,44 m ²

Seal sizes of PROMASTOP®-B firestop blocks in the PROMASTOP®-VEN mortar seal:

PROMASTOP®-B in PROMASTOP®-VEN in	PROMASTOP®-B
Rigid walls	≤ 0,03 m ²
Rigid floors	≤ 0,03 m ²

Classification of the PROMASTOP®-B firestop blocks used as blank seal in dependence with the supporting construction (see ETA 2.1):

Supporting construction	Classification
Flexible walls	EI 90
Rigid walls	EI 90
Rigid floors	EI 120

Classification of the PROMASTOP®-B firestop blocks used as blank seal in the PROMASTOP®-VEN mortar seal:

PROMASTOP®-B in PROMASTOP®-VEN in	Classification
Rigid walls	EI 120
Rigid floors	EI 120

Installations supports may penetrate the penetration seal:

Specimen
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 13501-1:2007

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

Specimen
Plastic pipes made of PVC
Metal pipes (with insulations) made of steel, copper, cast iron, Ni-alloys
Cables and cable bundles (sheathed and non-sheathed)

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:

<i>Tested and classified for plastic pipes</i>	Applicable
U/U	U/U, C/U, U/C, C/C
<i>Tested and classified for metal pipes</i>	Applicable
U/C	C/U, U/C, C/C

Aperture framing:

The PROMASTOP®-B firestop block penetration seal depth is always minimum 200 mm, independent of the thickness of the supporting construction. If the thickness of the supporting construction is less than 200 mm, an additional aperture framing shall be used. In case of flexible wall constructions the aperture framing made from boards (gypsum or calcium silicate) shall be used (length \geq 200 mm, thickness \geq 12,5 mm). Otherwise boards (gypsum or calcium silicate) are installed around the opening (width \geq 50 mm), on the top side of a floor or on both sides of a flexible or rigid wall. For more details see the sketches. For the PROMASTOP®-B firestop blocks

3.2 Classification acc. to EN 13501-2 for the PROMASTOP®-B firestop blocks for cables and cable bundles

All sheathed cable:

All sheathed cable types currently and commonly used in building practice in Europe (e.g. control, power, data, optical fibre cables, signal, telecommunication, with or without cable supports).

All non-sheathed cable:

All non-sheathed cables (wires) currently and commonly used in building practice in Europe (with or without cable supports).

Tied cable bundle:

Tied cable bundle (maximum diameter 100 mm), maximum diameter of single cable 21 mm (with or without cable supports).

PROMASEAL®-AG in the PROMASTOP®-B firestop block seal:

The intumescent firestop sealant PROMASEAL®-AG shall be used on the surface for gaps and cable gussets.

Classification in conjunction of the compartment:

Installation	PROMASTOP®-B firestop block seal and orientation	
	Wall	Floor
All sheathed cable types: $\varnothing \leq 21$ mm $\leq 4 \times 185$ mm ² (H07RN-F or equal products)	E 120 EI 90	E 120 EI 90
Tied cable bundle: $\varnothing \leq 100$ mm	E 120 EI 90	E 120 EI 90
All non-sheathed cable types: $\varnothing \leq 26,3$ mm $\leq 1 \times 185$ mm ² (H07V-K, H07Z-K, H07G-K or equal products)	E 120 EI 90	E 120 EI 90

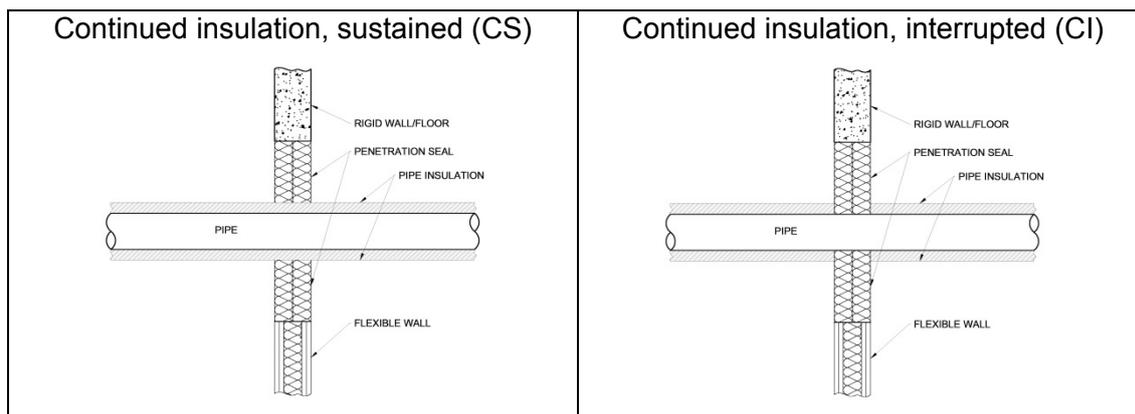
Cable trays and cable ladders may penetrate the seal.

3.3 Classification acc. to EN 13501-2 for the PROMASTOP®-B firestop blocks for metal pipes with combustible insulation

Steel and copper pipes with combustible insulation may penetrate the PROMASTOP®-B penetration seal.

Specification of the combustible insulation:
See sections steel and copper below.

Metal pipes with combustible insulation according to following possibilities:



CS covers CS and CI.

Steel pipes

Specification	Thresholds
Combustible insulation (closed cell, flexible elastomeric foam, e.g. AF/Armaflex)	Reaction to fire minimum B-s3, d0 in accordance to EN 13501-1
Insulation thickness	≤ 32 mm
Case of insulation	CS, CI

Steel pipes with combustible insulation	Classification depending on the orientation	
	Wall	Floor
Pipe diameter (mm)	∅ ≤ 220	∅ ≤ 220
Pipe wall thickness (mm)	s ≤ 18	s ≤ 18
Classification	EI 120-U/C	EI 120-U/C

The field of application given for metal pipes with lower heat conductivity ($\lambda \leq 58$ 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
Combustible insulation (closed cell, flexible elastomeric foam, e.g. AF/Armaflex)	Reaction to fire minimum B-s3, d0 in accordance to EN 13501-1
Insulation thickness	≤ 32 mm
Case of insulation	CS, CI

Copper pipes with combustible insulation	Classification depending on the orientation	
	Wall	Floor
Pipe diameter (mm)	$\varnothing \leq 88,9$	$\varnothing \leq 88,9$
Pipe wall thickness (mm)	$s \leq 14,2$	$s \leq 14,2$
Classification	E 120-U/C EI 90-U/C	E 120-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 ($\lambda \leq 380$ 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 acc. to EN 13501-2 for the PROMASTOP®-B firestop blocks for plastic pipes

Plastic pipes may penetrate the PROMASTOP®-B penetration seal.

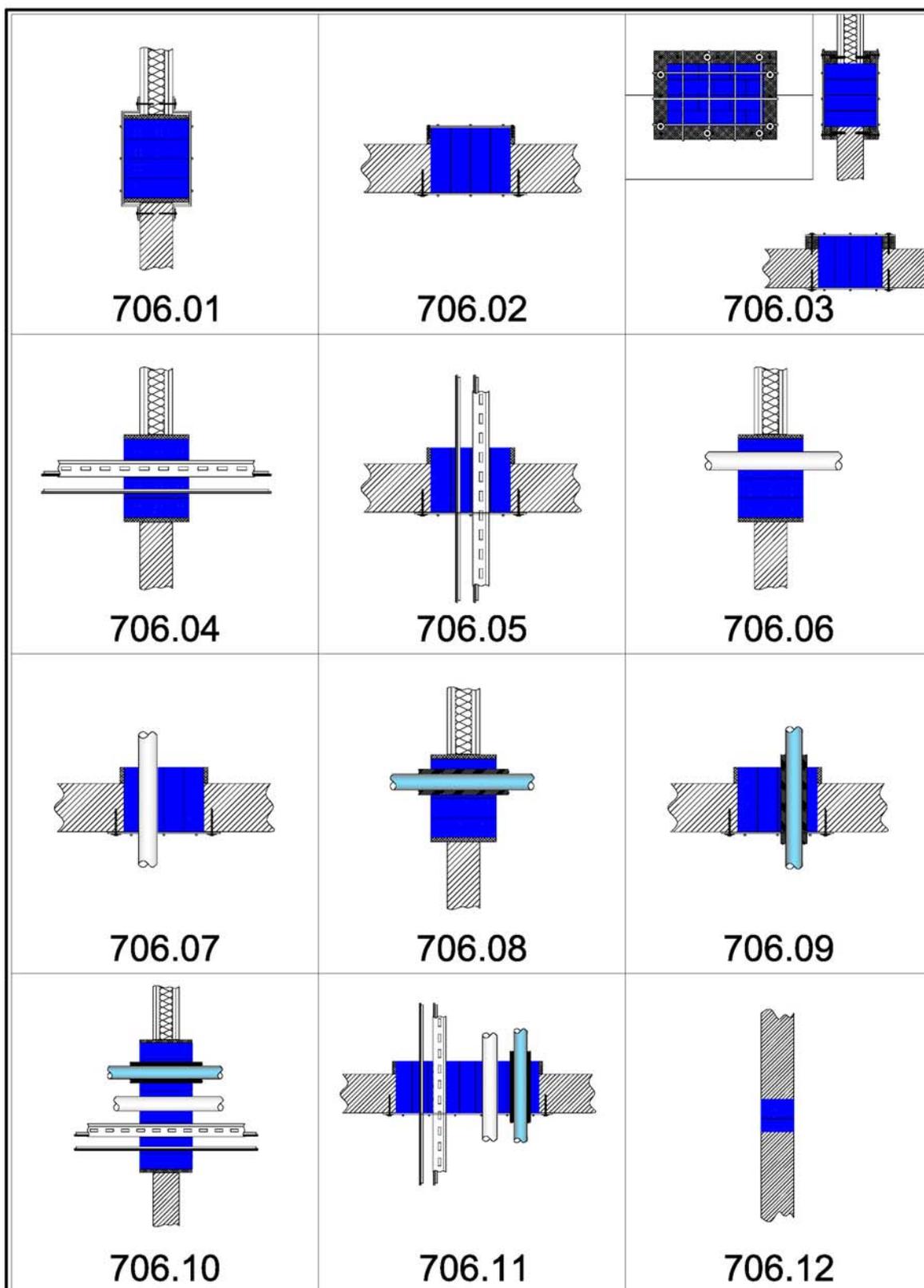
Specification of the plastic pipes: See section below.

Name	Dimension scope \varnothing ...Diameter (mm) t_D ...pipe wall thickness (mm)	Orientation Wall...W Floor...F	Classification
PVC	$\varnothing \leq 50 / t_D 1,9$	F	EI 120-U/U
PVC	$\varnothing 50 \leq 140 / t_D 10,3$	F	EI 60-U/U
PVC	$\varnothing \leq 50 / t_D 1,9$	W	EI 120-U/U
PVC	$\varnothing 50 \leq 140 / t_D 10,3$	W	EI 120-U/U

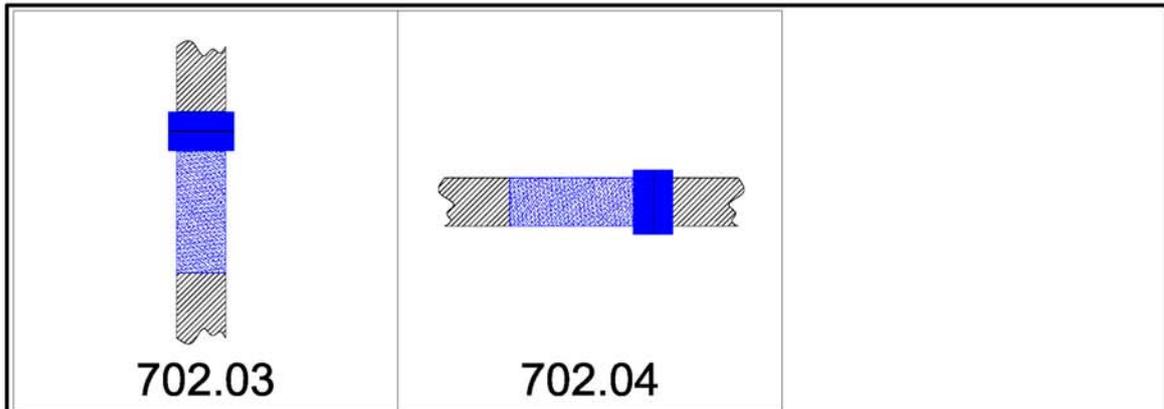
The classifications for PVC pipes are applicable for pipes in acc. to EN 1452-2, DIN 8061 and DIN 8062.

3.5 Distances for the PROMASTOP®-B firestop block penetration seal

Specimen	Minimum distance (mm)
Cable, cable bundle – Aperture opening	10
Cable, cable bundle – Cable tray	10
Cable, cable bundle – Cable, cable bundle	0
Cable tray – Aperture opening	10
Cable tray – Cable tray	20
Combustible insulations – Aperture opening	80
Combustible insulations – Combustible insulations	100
Between all other installations	100
Supporting distance on both faces of wall constructions	250
Supporting distance on the upper face of floor constructions	250

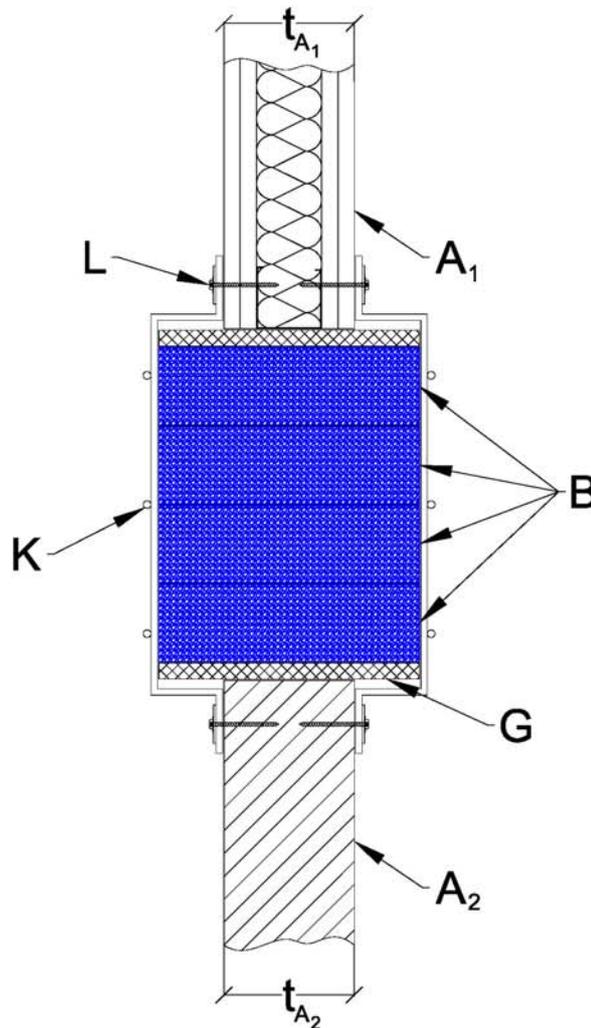


 Promat PROMAT GmbH St.-Peter-Strasse 25 4021 Linz / Austria Phone: +43 732 6912 - 3621 Fax: +43 732 6912 - 3740 www.promat.at technik@promat.at	Overview of PROMASTOP®-B penetration seal constructions 1 of 2				modified by/on:
					drawn by: Wöber E.
	scale: without	drawing format: A4	date: 2014/12/11	division: Technical appl.	drawing number: 706.000



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					<p>drawn by: Wöber E.</p>
	<p>scale: without</p>	<p>drawing format: A4</p>	<p>date: 2015/01/09</p>	<p>division: Technical appl.</p>	<p>drawing number: 706.001</p>

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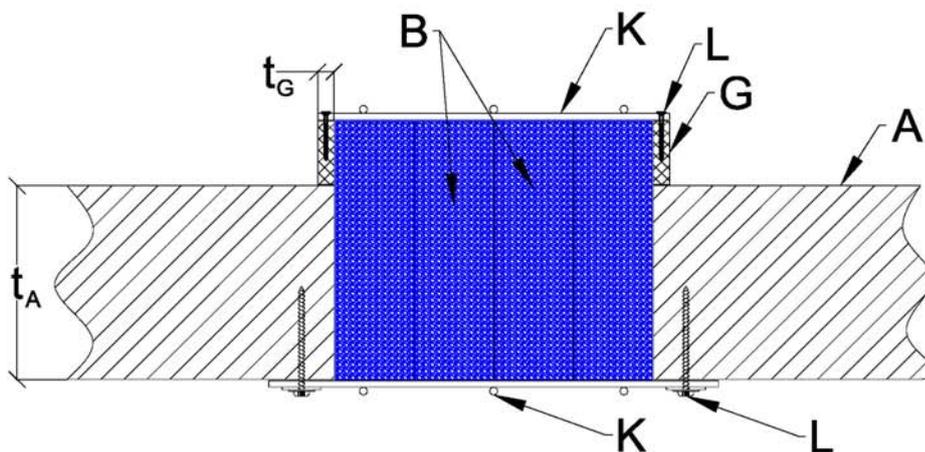


legend:

- A₁ ... flexible wall
- A₂ ... rigid wall
- B ... PROMASTOP®-B
- G ... aperture framing
- K ... steel mesh
- L ... suitable mounting material
- t_{A₁} & A₂ ... wall thickness
- t_G ... aperture framing thickness

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					<p>drawn by:</p> <p>Wöber E.</p>
	<p>scale: without</p>	<p>drawing format: A4</p>	<p>date: 2014/12/10</p>	<p>division: Technical appl.</p>	<p>drawing number: 706.01</p>

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legend:

- A ... rigid floor
- B ... PROMASTOP®-B
- G ... framing
- K ... steel mesh
- L ... suitable mounting material
- t_A ... floor thickness
- t_G ... framing thickness

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PROMASTOP®-B blank seal in floor constructions

modified by/on:

drawn by:

Wöber E.

drawing number:

706.02

scale:

without

drawing format:

A4

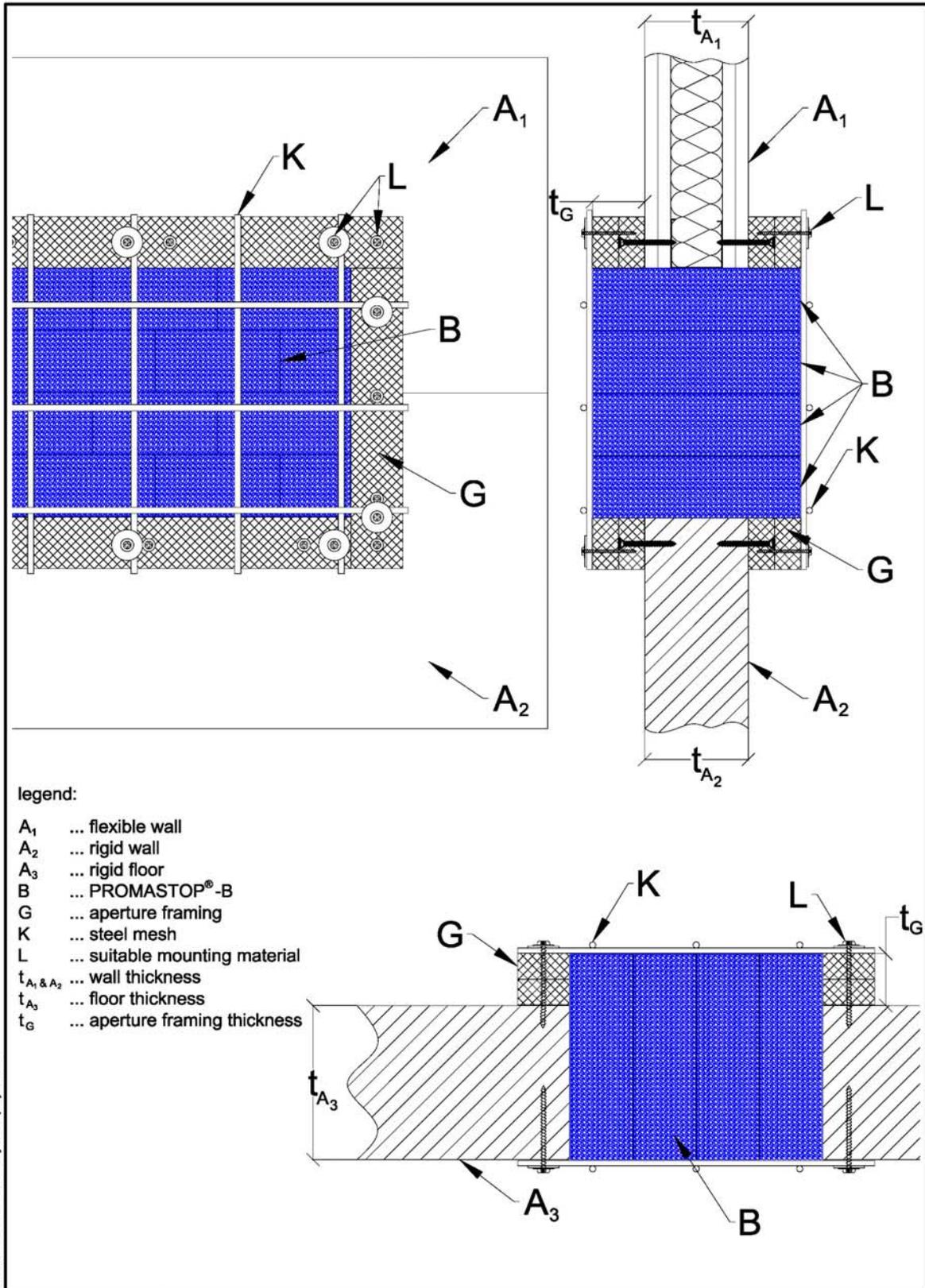
date:

2014/12/10

division:

Technical appl.

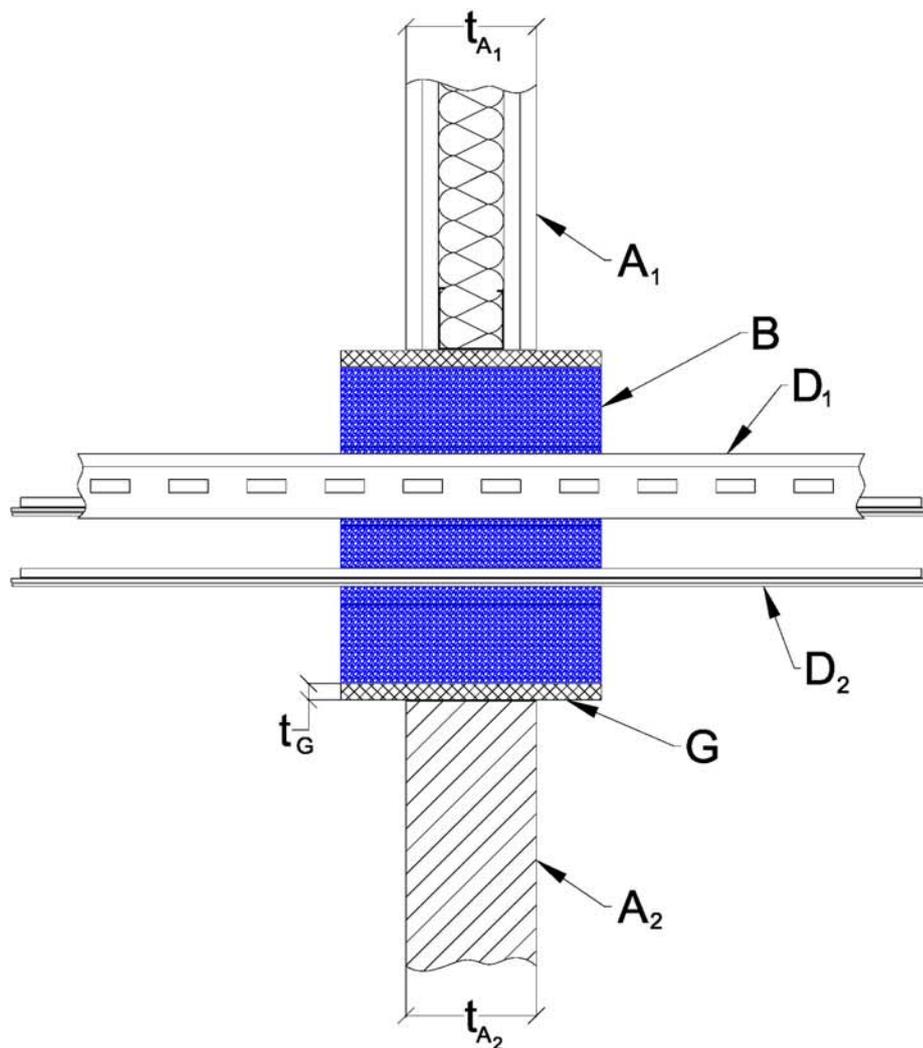
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- legend:
- A₁ ... flexible wall
 - A₂ ... rigid wall
 - A₃ ... rigid floor
 - B ... PROMASTOP®-B
 - G ... aperture framing
 - K ... steel mesh
 - L ... suitable mounting material
 - t_{A₁ & A₂} ... wall thickness
 - t_{A₃} ... floor thickness
 - t_G ... aperture framing thickness

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	scale:	without	drawing format:	A4	date:	2015/01/15	division:	Technical appl.	drawing number:	706.03
	drawn by: Wöber E.									

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legend:

- A₁ ... flexible wall
- A₂ ... rigid wall
- B ... PROMASTOP®-B
- D₁ ... cable tray
- D₂ ... cable / cable bundle
- G ... aperture framing
- t_{A₁ & A₂} ... wall thickness
- t_G ... aperture framing thickness

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PROMASTOP®-B seal penetrated by cables / cable bundle or cable trays in flexible and rigid wall constructions

modified by/on:

drawn by:

Wöber E.

drawing number:

706.04

scale:

without

drawing format:

A4

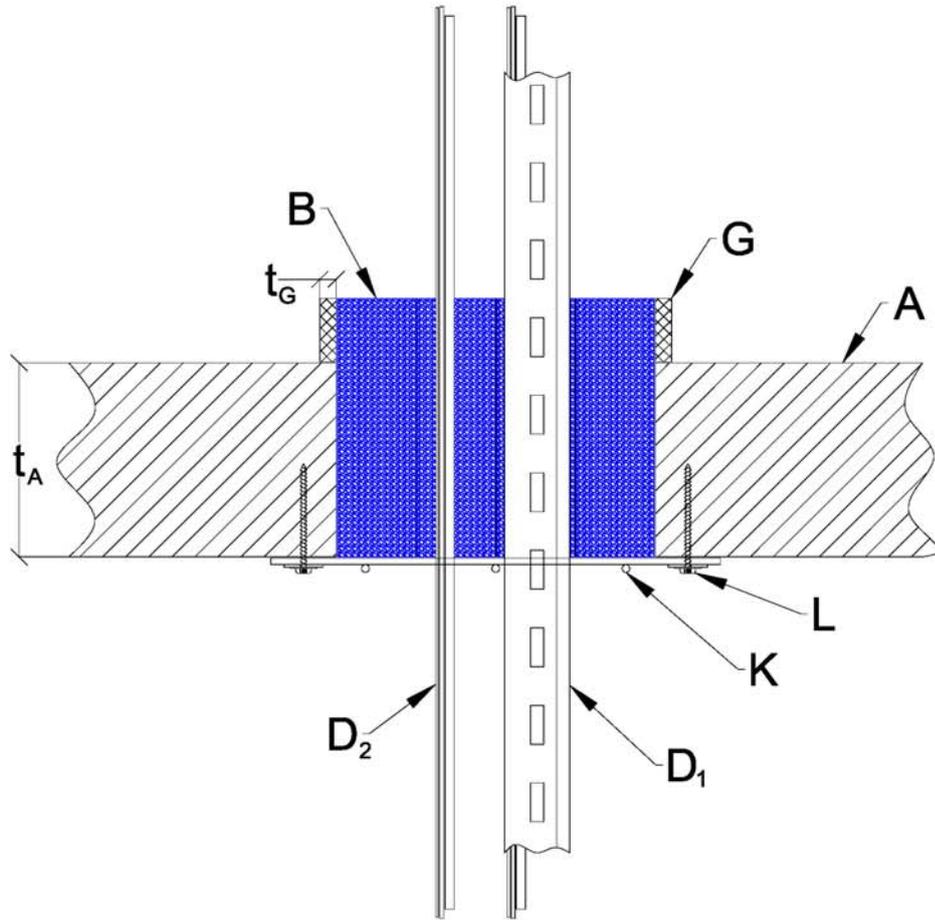
date:

2014/12/10

division:

Technical appl.

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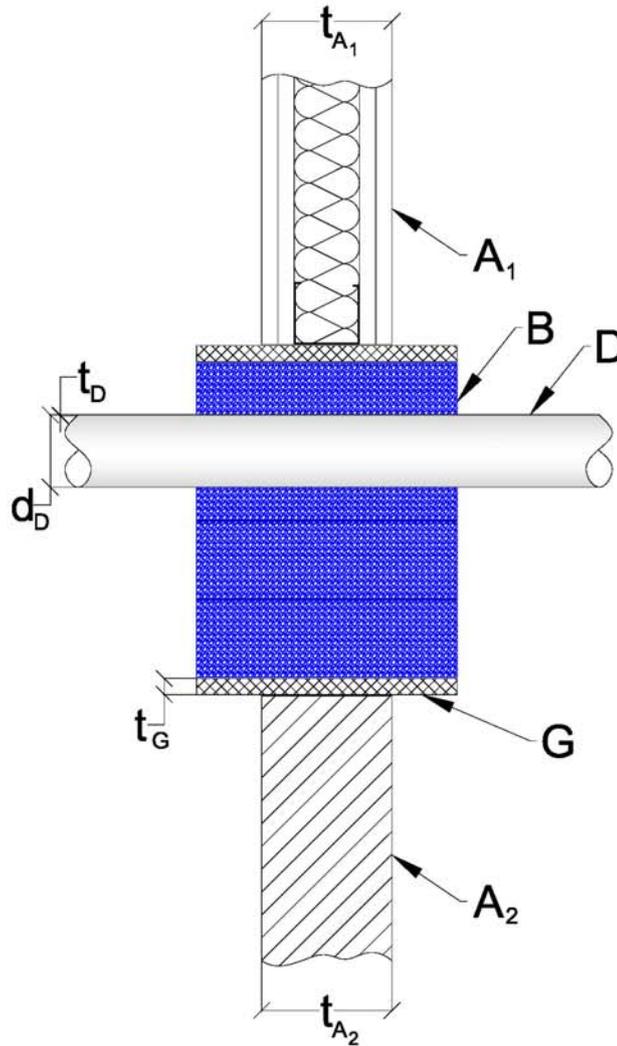


legend:

- A ... rigid floor
- B ... PROMASTOP®-B
- D₁ ... cable tray
- D₂ ... cable / cable bundle
- G ... framing
- K ... steel mesh
- L ... suitable mounting material
- t_A ... floor thickness
- t_G ... framing thickness

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	scale:	drawing format:	date:	division:	
	without	A4	2014/12/10	Technical appl.	

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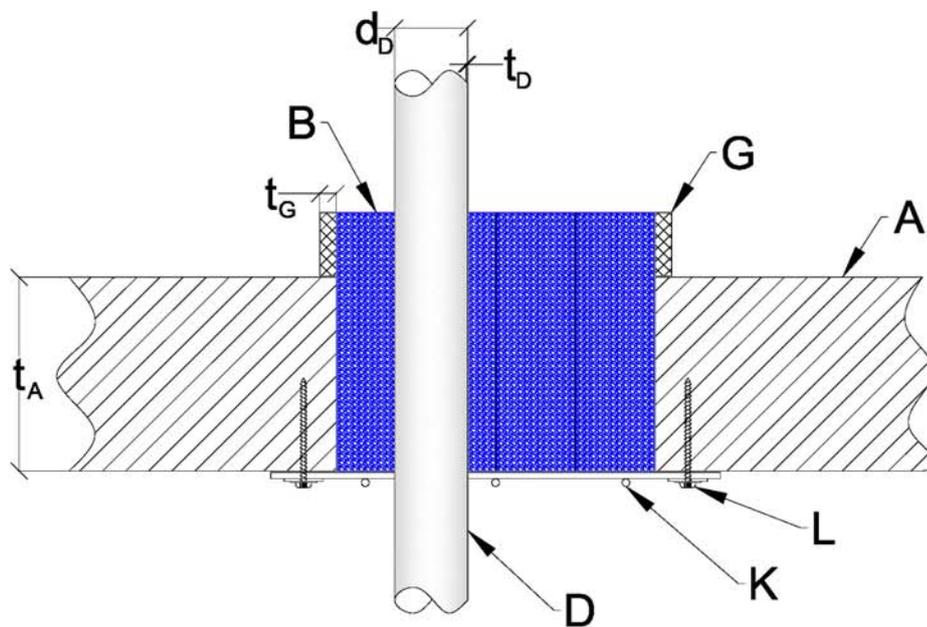
legend:

- A₁ ... flexible wall
- A₂ ... rigid wall
- B ... PROMASTOP®-B
- D ... plastic pipe
- G ... aperture framing
- d_D ... pipe diameter
- t_{A₁ & A₂} ... wall thickness
- t_D ... pipe wall thickness
- t_G ... aperture framing thickness

maximum diameter of the plastic pipe: 50 mm
 maximum pipe wall thickness: 1,9 mm

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	scale:	drawing format:	date:	division:
	without	A4	2014/12/10	Technical appl.

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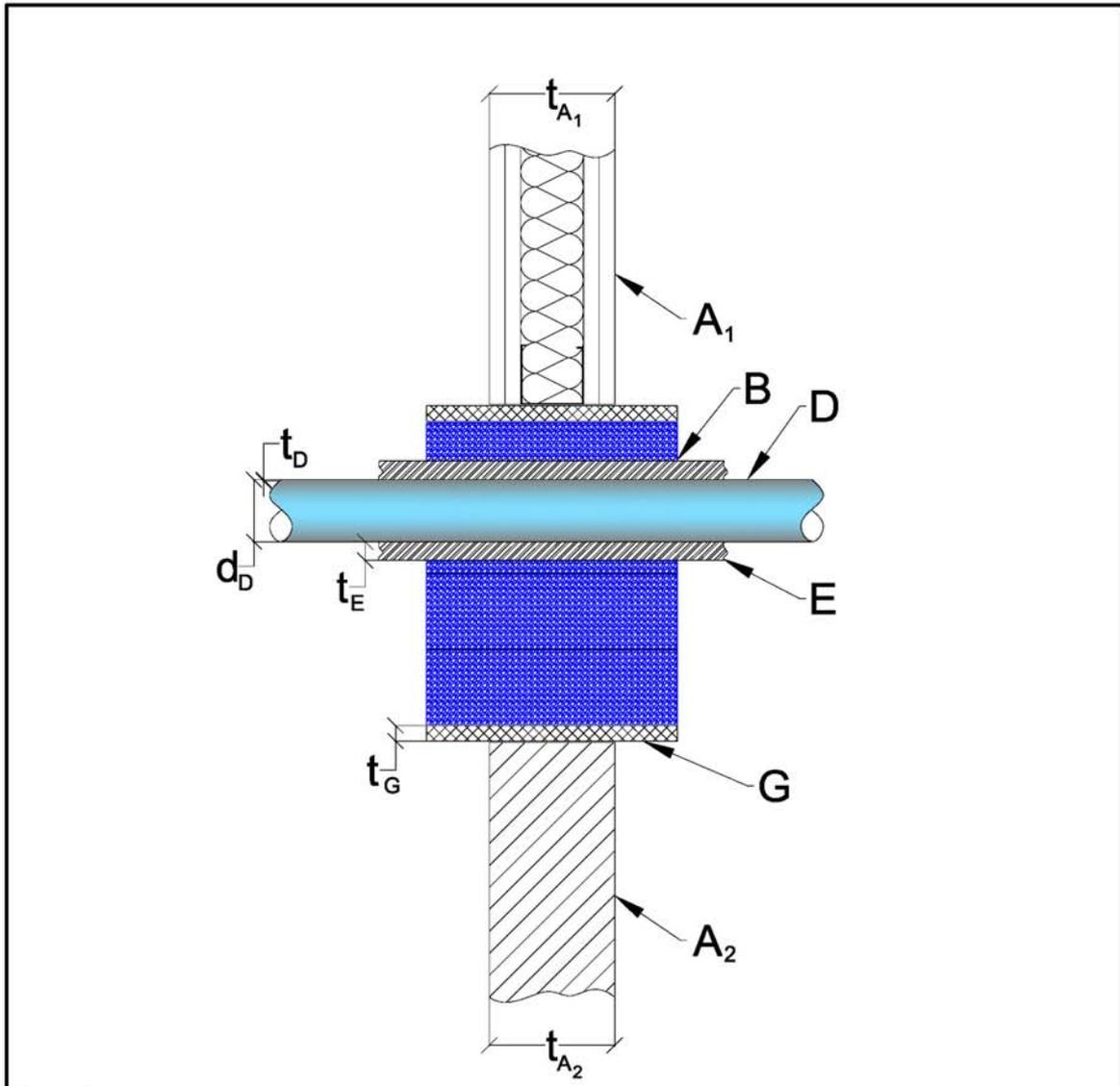
maximum diameter of the plastic pipe: 50 mm
maximum pipe wall thickness: 1,9 mm

legend:

- A ... rigid floor
- B ... PROMASTOP®-B
- D ... plastic pipe
- G ... framing
- K ... steel mesh
- L ... suitable mounting material
- d_D ... pipe diameter
- t_A ... floor thickness
- t_D ... pipe wall thickness
- t_G ... framing thickness

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					<p>drawn by: Wöber E.</p>
	<p>scale: without</p>	<p>drawing format: A4</p>	<p>date: 2014/12/10</p>	<p>division: Technical appl.</p>	<p>drawing number: 706.07</p>

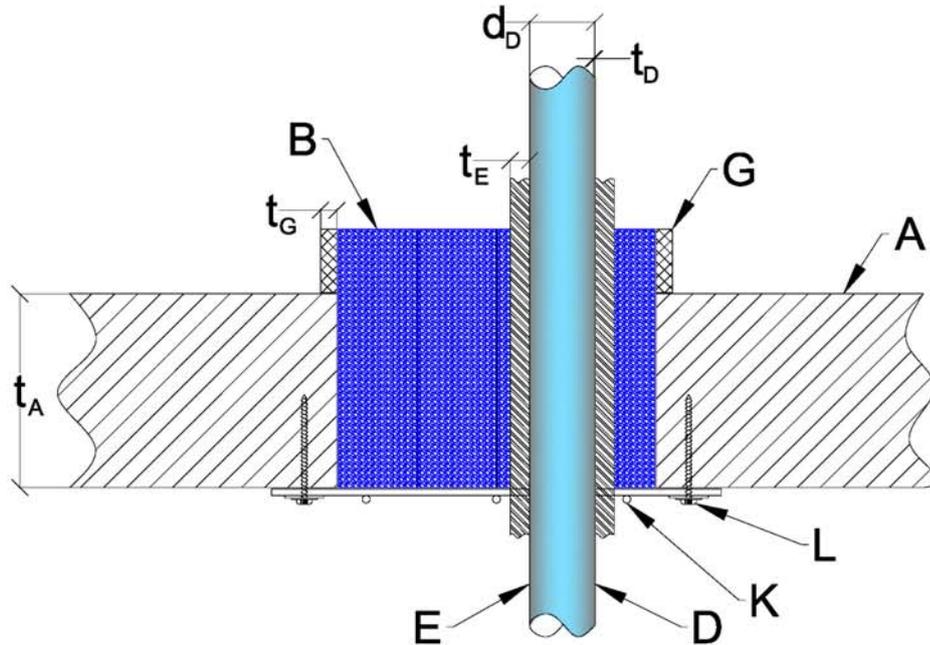
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- legend:
- A₁ ... flexible wall
 - A₂ ... rigid wall
 - B ... PROMASTOP®-B
 - D ... metal pipe
 - E ... combustible insulation
 - G ... aperture framing
 - d_D ... pipe diameter
 - t_{A₁ & A₂} ... wall thickness
 - t_D ... pipe wall thickness
 - t_E ... insulation thickness
 - t_G ... aperture framing thickness

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					drawn by: Wöber E.
	scale: without	drawing format: A4	date: 2014/12/10	division: Technical appl.	drawing number: 706.08

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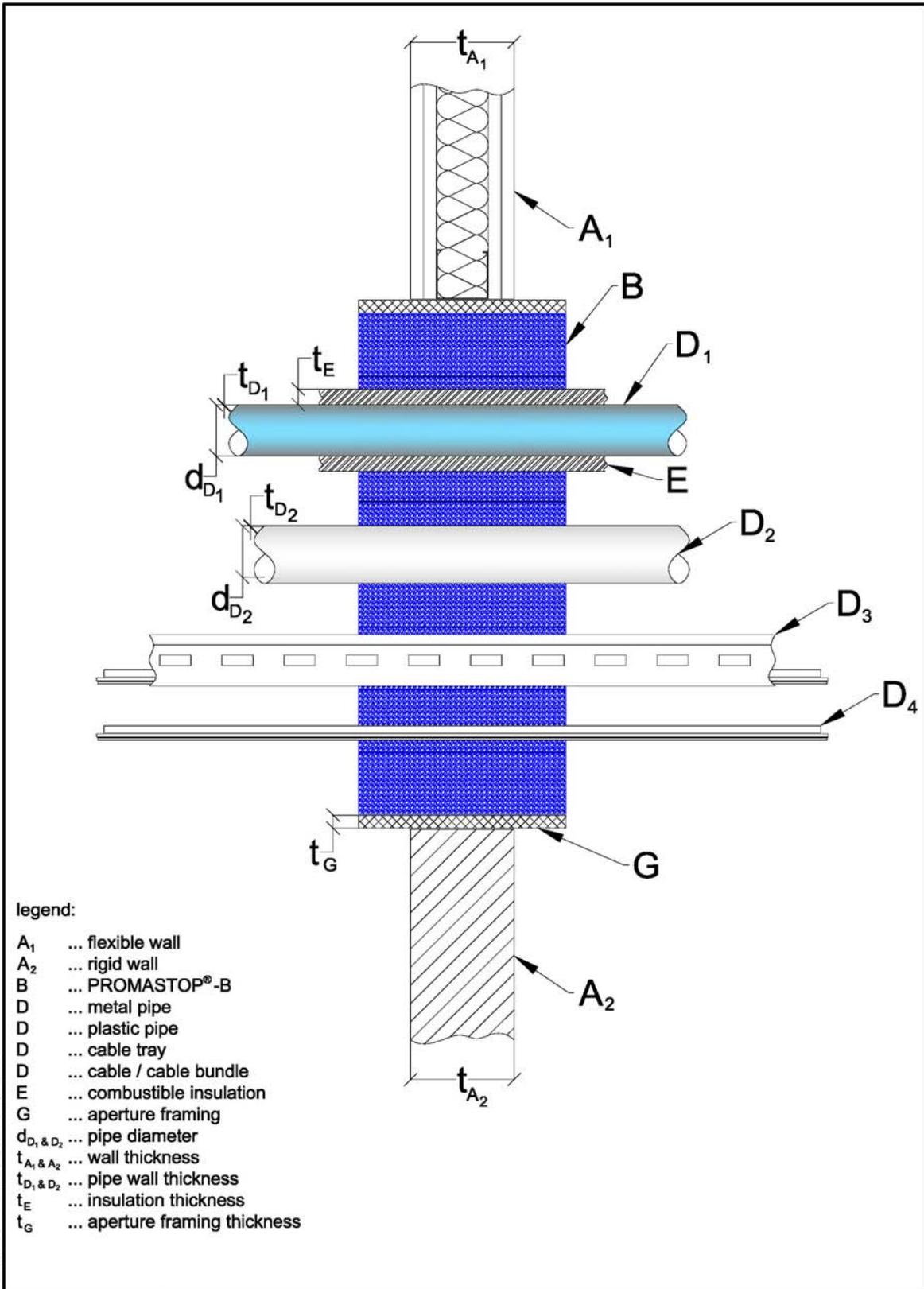


legend:

- A ... rigid floor
- B ... PROMASTOP®-B
- D ... metal pipe
- E ... combustible insulation
- G ... framing
- K ... steel mesh
- L ... suitable mounting material
- d_D ... pipe diameter
- t_A ... floor thickness
- t_D ... pipe wall thickness
- t_E ... insulation thickness
- t_G ... framing thickness

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		<small>drawn by:</small> Wöber E.
	<small>scale:</small> without <small>drawing format:</small> A4 <small>date:</small> 2014/12/10 <small>division:</small> Technical appl.	<small>drawing number:</small> 706.09

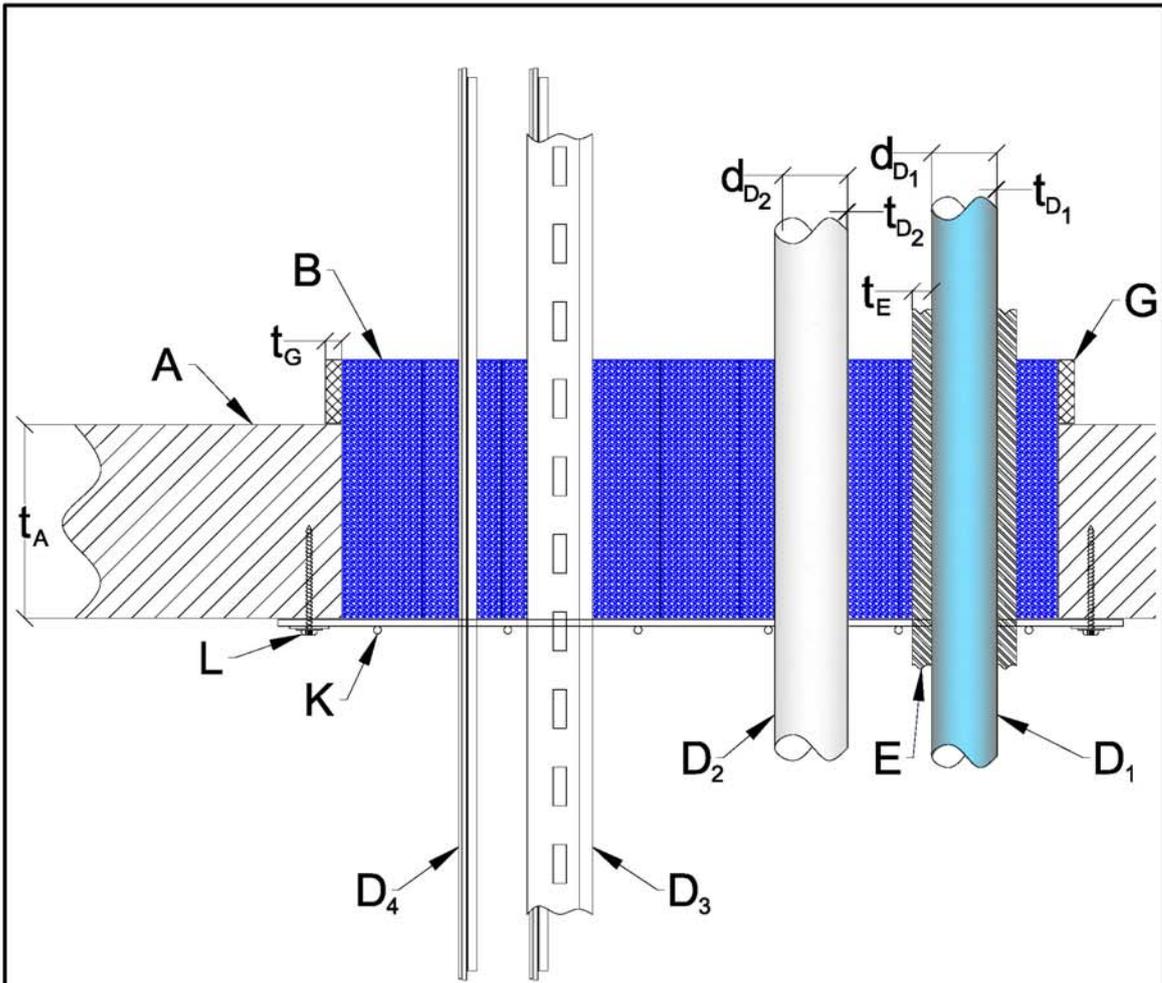
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- legend:
- A₁ ... flexible wall
 - A₂ ... rigid wall
 - B ... PROMASTOP®-B
 - D ... metal pipe
 - D ... plastic pipe
 - D ... cable tray
 - D ... cable / cable bundle
 - E ... combustible insulation
 - G ... aperture framing
 - d_{D1} & d_{D2} ... pipe diameter
 - t_{A1} & t_{A2} ... wall thickness
 - t_{D1} & t_{D2} ... pipe wall thickness
 - t_E ... insulation thickness
 - t_G ... aperture framing thickness

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				drawn by: Wöber E.
	scale: without	drawing format: A4	date: 2014/12/11	division: Technical appl.

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legend:

- A ... rigid floor
- B ... PROMASTOP®-B
- D ... metal pipe
- D ... plastic pipe
- D ... cable tray
- D ... cable / cable bundle
- E ... combustible insulation
- G ... framing
- K ... steel mesh
- L ... suitable mounting material
- d_{D1&D2} ... pipe diameter
- t_A ... floor thickness
- t_{D1&D2} ... pipe wall thickness
- t_E ... insulation thickness
- t_G ... framing thickness

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		<small>drawn by:</small> Wöber E.
	<small>scale:</small> without <small>drawing format:</small> A4 <small>date:</small> 2014/12/11 <small>division:</small> Technical appl.	<small>drawing number:</small> 706.11

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