Deutsches Institut für Bautechnik

Anstalt des öffentlichen Rechts

Kolonnenstr. 30 L
10829 Berlin
Germany

Tel.: +49(0)30 787 30 0
Fax: +49(0)30 787 30 320
E-mail: dibt@dibt.de
Internet: www.dibt.de

Authorised and notified according to Article 10 of the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products (89/106/EEC)

DIBt

Mitglied der EOTA
Member of EOTA

European Technical Approval ETA-10/0013

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung *Trade name*	PYROSTAT-UNI RM; PYROSTAT-UNI RMB; PYROSTAT-UNI RM/LT
Zulassungsinhaber *Holder of approval*	G+H Isolierung GmbH Bürgermeister-Grünzweig-Straße 1 67059 Ludwigshafen
Zulassungsgegenstand und Verwendungszweck *Generic type and use of construction product*	Rohrabschottungen, die unter Verwendung einer intumeszierenden Matte hergestellt werden *Pipe Penetration Seal Using an Intumescent Mat*
Geltungsdauer: vom *Validity: from*	12 April 2010
bis *to*	12 April 2015
Herstellwerk *Manufacturing plant*	G + H ISOLIERUNG GmbH Leuschner Straße 2 97084 Würzburg

Diese Zulassung umfasst *This Approval contains*	21 Seiten einschließlich 9 Anhänge *21 pages including 9 annexes*

I LEGAL BASES AND GENERAL CONDITIONS

1 This European technical approval is issued by Deutsches Institut für Bautechnik in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products[1], modified by Council Directive 93/68/EEC[2] and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council[3];
- Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998[4], as amended by law of 31 October 2006[5];
- Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC[6].

2 Deutsches Institut für Bautechnik is authorized to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.

3 This European technical approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval.

4 This European technical approval may be withdrawn by Deutsches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.

5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of Deutsches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.

6 The European technical approval is issued by the approval body in its official language. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

1 Official Journal of the European Communities L 40, 11 February 1989, p. 12
2 Official Journal of the European Communities L 220, 30 August 1993, p. 1
3 Official Journal of the European Union L 284, 31 October 2003, p. 25
4 *Bundesgesetzblatt Teil I 1998*, p. 812
5 *Bundesgesetzblatt Teil I 2006*, p.2407, 2416
6 Official Journal of the European Communities L 17, 20 January 1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of products and intended use

1.1 Definition of the construction product

This European technical approval applies to pipe penetration seals with the designations "PYROSTAT-UNI RM", "PYROSTAT-UNI RMB" and "PYROSTAT-UNI RM-LT" classified as EI 90-C/U according to EN 13501-2[7].

The pipe penetration seals consist of suitably cut intumescent mats (so-called wraps), which are wrapped around insulated pipes where these pass through a fire-separating wall or floor in order to close the remaining gaps between the insulated pipes and the wall or floor and, if present, two metal housings or external insulation.

The intumescent mat is a reactive product consisting of a fibreglass fabric coated on one side with an intumescent material. The intumescent material consists of intumescent components that are held together by an organic adhesive.

A distinction is made between the following pipe penetration seal variants (see Annex 1):

For use in rigid walls or rigid floors:

- "PYROSTAT-UNI RM": one wrap passing completely through the wall or floor (variant A) or two wraps partially penetrate into the wall or floor on both sides (variant B)
- "PYROSTAT-UNI RMB": two wraps close to the wall or floor on both sides (with a metal housing on both sides)

For use in flexible walls:

- "PYROSTAT-UNI RM-LT": one wrap passing completely through the wall (with external insulation on both sides)

1.2 Intended use

The pipe penetration seals maintain the fire resistance characteristics of a fire resistant wall or floor in the area where it is penetrated by insulated metal pipes.[8]

In the case of a fire, the wrap seals the circular gap that can occur between a non-combustible pipe and a wall or floor when the combustible insulation has burnt away. The intumescent material foams when subjected to fire or high temperatures, thus sealing the cavities and seams resulting from the burning of pipe insulation.

The "PYROSTAT-UNI RM" and "PYROSTAT-UNI RMB" pipe penetration seals shall be used in rigid walls or floors as specified in section 2.7.1.1 with a fire resistance class of EI 90 according to EN 13501-2[7]and with a minimum thickness of 15 cm.

The "PYROSTAT-UNI RM-LT" pipe penetration seal shall be used in flexible separating walls with a steel substructure and lining on both sides as specified in section 2.7.1.1 with a fire resistance class of EI 90 according to EN 13501-2[7] and with a minimum thickness of 10 cm.

The pipe penetration seals shall be used on straight steel or copper pipes that are mounted perpendicular to the wall or floor surface with synthetic rubber insulation of up to 50 mm thick. The pipes may have an external diameter of up to 323.9 mm and pipe wall thicknesses ranging from 1.0 mm to 14.2 mm depending on their external diameter (see section 2.7.1.2.1).

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7 DIN EN 13501-2:2003-12 Fire classification of construction products and building elements, Part 2: Classification using test data from fire resistance tests, with the exception of air ducts.

8 The technical provisions of the member states for the design of piping systems and the reliability of pipe penetrations are not affected by this.

The piping field of application where the seals shall be used (e. g. drinking water piping, heating piping, waste water piping) depend on the regulations of the individual member states, and this applies especially to the pipe end configuration relevant for fire testing. The suitability of the pipe penetration seals according to this European technical approval was proven under the C/U test condition according to EN 13501-2[7].

The pipe penetration seals shall only be used in dry indoor applications; use category Z_2 according to the EOTA Technical Report N° 024 (see section 2.9).

The prevention of destruction of neighbouring separating elements or of the pipes themselves due to temperature dependent distortion forces is not proven by this European technical approval. These risks must be accounted for by the use of suitable measures in the conception and/or installation of the piping. The mounting or hanging of the pipes or the layout of the piping must be done in such a manner that the piping and the fire resistant elements must remain functional for at least 90 minutes in the case of fire.

This European technical approval does not prove the prevention of the emission of dangerous fluids or gases if the pipes are destroyed as a result of fire and also does not prove the prevention of the transmission of fire through heat transfer via the medium in the pipes.

It must be ensured that the installation of the penetration seal does not affect the stability of the neighbouring elements - also in the case of fire.

The provisions made in this European technical approval are based on an assumed working life of 10 years of the "PYROSTAT-UNI RM", "PYROSTAT-UNI RMB" and "PYROSTAT-UNI RM-LT" pipe penetration seals, with the precondition that the requirements for manufacture, installation, use, maintenance and repair defined in sections 4 and 5 are satisfied. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the construction.

2 Characteristics of products and methods of verification

2.1 General

The usability for the intended purpose was assessed according to the following sections.

2.2 Intumescent mat

2.2.1 Reaction to fire

The intumescent mat used in the "PYROSTAT-UNI RM", "PYROSTAT-UNI RMB" and "PYROSTAT-UNI RM-LT" pipe penetration seals satisfy the reaction to fire requirements of building materials for Class E according to EN 13501-1[9].

Further properties and technical fire prevention performance criteria

9 EN 13501-1:2007: Fire classification of construction products and building elements, part 1: Classification using test data from reaction to fire tests

The properties and performance criteria regarding reaction to fire of the intumescent mat used in the "PYROSTAT-UNI RM", "PYROSTAT-UNI RMB" and "PYROSTAT-UNI RM-LT" pipe penetration seals was determined as follows:

- Nominal thickness 1.1 mm ± 0.2 mm
- Weight per unit area: 1.2 kg/m^2 ± 10%
- Mass loss through heating[10]: 45. % ± 5 %
- Expansion ratio [11] > 10-fold
- Expansion pressure[12]: 0.4 N/mm^2 to 0.65N/mm^2

2.3 Wrap

The wrap consists of a rectangular piece of intumescent mat, as specified in section 2.2, with a minimum width of 250 mm. For the "PYROSTAT-UNI RM" pipe penetration seal the wrap may be divided into two pieces, with a minimum width of 125 mm each (see section 2.7.2). Under particular conditions, a width of 150 mm is adequate for use with the "PYROSTAT-UNI RMB" pipe penetration seal (see section 2.7.2). The length of the wrap strip must be trimmed according to the outer diameter of the pipe to be sealed (at least 2 full layers; see section 2.7.2).

2.4 Metal housing

The metal housing used for the "PYROSTAT-UNI RMB" pipe penetration seal must be of corrosion resistant steel (type 1.4301 or type 1.4571 stainless steel according to EN 10029 or type S235JRG2 (1.0038) galvanized steel according to EN 10025) with a minimum plate thickness of 0.8 mm. The requirements for the dimensions of the housing are specified in Annex A. The housing must be closed using self-tapping screws of sizes 4.2 x 13 mm or 4.2 x 9 mm, or tubular rivets of sizes 3.2 x 9 mm or 3.2 x 6 mm, with a 30 mm sheet overlap (see Annex A).

The fire resistance of the material used for the housing is classified as Class A1 according to Commission Decision 96/603/EC as amended.

2.5 External insulation

The external insulation (so-called protective insulation) used for the "PYROSTAT-UNI RM-LT" pipe penetration seal consists of synthetic rubber with the designation "AF-Armaflex" from Armacell GmbH, 48153 Münster, Germany (production level 2003). The thickness of the insulation is ≥ 19 mm and ≤ 32 mm.

2.6 Sealing material

Dimensionally stable non-combustible materials such as (e.g.) concrete, cement mortar or gypsum mortar are to be used for sealing any remaining cavities in rigid walls and floors (class A1 or A2-s1, d0 according to EN 13501-1[9]).

Non-combustible mineral wool is to be used for sealing any remaining cavities in flexible walls (class A1 or A2-s1, d0 according to EN 13501-1[9]). The cavities in the area of the wall lining may be optionally filled with an outer layer of gypsum or bonding compound.

2.7 Penetration seal

2.7.1 Field of application for the seals

2.7.1.1 Separating elements

"PYROSTAT-UNI RM"

The seal shall be used in walls composed of brick, concrete, reinforced concrete or aerated concrete slabs and floors composed of concrete, reinforced concrete or aerated concrete slabs with a minimum thickness of 150 mm, a fire resistance class of EI 90 according to EN 13501-2[7] and a density of minimum 0.63 kg/dm³.

10 Tested according to "Beurteilungsgrundlagen oder –kriterien" Annex A

11 Probes (approx. 1.2 mm thick) tested according to "Beurteilungsgrundlagen oder –kriterien", Annex B

12 Tested at 300°C according to "Beurteilungsgrundlagen oder –kriterien", Annex C

"PYROSTAT-UNI RMB"

The seal shall be used in walls composed of brick, concrete, reinforced concrete or aerated concrete slabs and floors composed of concrete, reinforced concrete or aerated concrete slabs with a minimum thickness of 150 mm, a fire resistance class of EI 90 according to EN 13501-27 and a density of minimum 0.63 kg/dm³.

"PYROSTAT-UNI RM-LT"

The seal shall be used in the following flexible walls of fire resistance class EI 90 according to EN 13501-2[7].

The penetration seal shall be installed in flexible walls of post and beam construction with a steel substructure and lining on both sides composed of non-combustible (class A1 or A2-s1,d0 according to EN 13501-1[7]) cement- or gypsum-bonded boards at least 12.5 mm thick (e.g. ´Type DF´ Gypsum board according to EN 520) and also with internal stone wool insulating sheets at least 40 mm thick (class A1 or A2-s1,d0 according to EN 13501-1[9], raw density ≥ 100 kg/m³). The wall thickness must be at least 100 mm. The width of the cavity between the internal wall insulation and the wall lining must be no greater than 15 mm.

The penetration seal may also be installed in other flexible walls with a steel substructure and lining on both sides composed of non-combustible (class A1 or A2-s1,d0 according to EN 13501-1[9]) cement or GBP sheets and with internal stone wool insulation (e.g. raw density of inner insulation < 100 kg/m³, other insulation than mineral wool, cavity between the wall insulation and wall lining > 15 mm) of fire resistance class EI 90 according to EN 13501-2[7] when the opening has a reveal made of non-combustible (class A1 or A2 s1,d0 according to EN 13501-1[9]) cement- or gypsum-bonded boards (pipe shells) which are at least 12.5 mm thick.

2.7.1.2 Installations

2.7.1.2.1 Pipes

Depending on the particular version used, the pipe penetration seal shall be used with the following pipes, which must have insulation as specified in section 2.7.1.2.2. When installed in walls, the first pipe support must be ≤ 650 mm from the wall surface on both sides.

"PYROSTAT-UNI RM" pipe penetration seal

The pipe penetration seal shall be used for

- Copper pipes with external diameters and wall thicknesses as specified in Annex 2.
- Steel pipes with external diameters and wall thicknesses as specified in Annex 2.

"PYROSTAT-UNI RMB" pipe penetration seal

- The pipe penetration seal shall be used for

Steel pipes with external diameters and wall thicknesses as specified in Annex 2.

"PYROSTAT-UNI RM-LT" pipe penetration seal

The pipe penetration seal shall be used for

- Copper pipes with external diameters and wall thicknesses as specified in Annex 2.
- Steel pipes with external diameters and wall thicknesses as specified in Annex 2.

2.7.1.2.2 Pipe insulation

Depending on the particular version used, the pipe penetration seals shall be used with pipes as specified in section 2.7.1.2.1, which must have synthetic rubber insulation as specified in Table 1. The joints between the individual sections of the pipe insulation must be connected in accordance with the manufacturer's specifications. Depending on the particular version, the pipe material and the pipe dimensions, the insulation thickness must conform to the specifications in Annex 2.

Table 1

Product name	Manufacturer	Density [kg/m³]	Production level
"Armaflex AF"	Armacell GmbH, 48153 Münster, Germany	62-66	2003
"KAIFLEX KK"	Wilhelm Kaimann GmbH & Co. KG, 33161 Hövelhof, Germany	65-77	2003

When installed in floors and when using the "PYROSTAT-UNI RM" variant, the pipe penetration seal may also be used with steel pipes with an external diameter of 108 mm and pipe wall thicknesses from 2.0 mm to 14.2 mm, which must have a 20 mm thick insulation of "ISOVER-Lamellenmatte ML 3", manufacturer: Saint-Gobain Isover G+H AG, Ludwigshafen, Germany, density 23-30 kg/m³, production level: 2006. The junctions between the individual sections of the pipe insulation must be joined in accordance with the manufacturer's specifications.

2.7.1.3 Separations

The pipe penetration seals shall be used for pipes as specified in section 2.7.1.2 that have a minimum of 50 mm clearance between each other (measured between the pipe insulations). The clearance to pipes fitted with other types of penetration seals, or to other openings, installations or penetrations, must be at least 100 mm.

2.7.2 Layout of the penetration seal

2.7.2.1 "PYROSTAT-UNI RM" pipe penetration seal

Variant A (installation in 150 mm thick walls or floors as specified in section 2.7.1.1):

A wrap as specified in section 2.3 with a minimum width of at least 250 mm must be wrapped in two layers around the insulated pipe as specified in section 2.7.1 and fastened with at least 3 steel wires or straps at clearances ≤ 125 mm, whereby at least one wire or strap must lie 30 mm from the wall or floor surface on both sides. The wrap must be installed symmetric to the wall or floor so that it passes through the wall or floor uninterruptedly projecting at least 50 mm on both sides. The remaining cavities in the wall or floor must be completely filled with suitable material as specified in section 2.6.

Variant B (installation in ≥ 150 mm thick walls or floors as specified in section 2.7.1.1):

Two wraps as specified in section 2.3 with a minimum width of at least 125 mm must be wrapped in two layers around the insulated pipe as specified in section 2.7.1 and fastened with at least 2 steel wires or straps at clearances ≤ 60 mm, whereby at least one wire or strap must lie 30 mm from the wall or floor surface on both sides The wraps must be installed so that they penetrate at least 75 mm into the wall or floor on both sides (see Annex 1). The remaining cavities in the wall or floor must be completely filled with suitable material as specified in section 2.6.

2.7.2.2 "PYROSTAT-UNI RMB" pipe penetration seal

Two wraps as specified in section 2.3 widths of at least 250 mm must be wrapped in two layers around the insulated pipe as specified in section 2.7.1. The width may be reduced to 150 mm provided that the pipe dimensions and pipe insulation thicknesses comply with Table 2. The wraps must be installed flush to the wall or floor (see Annex 1). The remaining

cavities in the wall or floor must be completely filled with suitable material as specified in section 2.6. In addition, a metal housing as specified in section 2.4 is to be fastened to the wall or floor on both sides using appropriate fasteners.

Table 2

Pipe material	External diameter [mm]	Pipe wall thickness [mm]	Wrap width [mm]	Insulation thickness [mm]
Steel	≤ 159	≥ 4,0 ≤ 14,2	≥ 150	25

2.7.2.3 "PYROSTAT-UNI RM-LT" pipe penetration seal

One wrap as specified in section 2.3 with a width suitable for the wall thickness plus 150 mm - but at least 250 mm – must be wrapped in two layers around the pipe as specified in section 2.7.1 and fastened with steel wires or straps on both sides at a clearance of 60 mm to the wall surface. The wrap must pass through the wall projecting 75 mm on both sides (see Annex 1). Any remaining cavities in the wall must be completely filled with mineral wool as specified in section 2.6, with an apparent density ≥ 100 kg/m³. The wall lining area may be optionally filled with a 25 mm thick outer layer of gypsum or bonding compound. In addition to this a piece of insulation (so-called "protective insulation") as specified in section 2.5 must be wrapped around the pipe and wrap, flush to the wall on both sides. This protective insulation must be 300 mm long (for pipes of external diameters up to 160 mm) or 400 mm (for pipes of external diameters between 160 mm and 219.1 mm). The longitudinal seams of the protective insulation must be covered over their entire length with self-adhesive synthetic rubber tape, approx. 3 mm thick. The protective insulation must also be fixed to the pipe insulation at the free end using this type of tape.

2.7.3 Resistance to fire

The pipe penetration seals were tested according to EN 1366-3:2004. When installed as specified in section s 2.7.2 and 4.2 the pipe penetration seals are classified according to EN 13501-2[7]: EI 90-C/U.

2.8 Release of dangerous substances

The intumescent mat used in the "PYROSTAT-UNI RM", "PYROSTAT-UNI RMB" and "PYROSTAT-UNI RM-LT" pipe penetration seals does not release any dangerous substances as defined in the list of the European Commission.

NOTE: In addition to the specific clauses relating to dangerous substances contained in this European technical approval, 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 Directive, these requirements need also to be complied with, when and where they apply.

For assessment purposes, the chemical composition of the intumescent mat was made available to Deutsches Institut für Bautechnik.

2.9 Durability

The intumescent mat satisfies the requirements for usage category Z_2 according to EOTA TR 024 "Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products".

2.10 Description

All components are listed and described in Annex 1. The Deutsche Institut für Bautechnik must be immediately notified of any changes to the materials, composition, dimensions or properties of these components. The Deutsche Institut für Bautechnik will then decide if a new evaluation is required.

3 Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to the decision 1999/454/EG, amended by decision 2001/596/EC of the European Commission[13], system 1 of the attestation of conformity applies.

This system of attestation of conformity is defined as follows:

System 1: Certification of the conformity of the product by an approved certification body on the basis of:

(a) Tasks for the manufacturer:
  (1) factory production control;
  (2) further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan;

(b) Tasks for the approved body:
  (3) initial type-testing of the product;
  (4) initial inspection of the factory and of factory production control;
  (5) continuous surveillance, assessment and approval of factory production control.

Note: Approved bodies are also referred to as "notified bodies".

3.2 Responsibilities

3.2.1 Tasks for the manufacturer

3.2.1.1 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 approval.

The manufacturer may only use the initial / raw / constituent materials stated in the technical documentation of this European technical approval.

The factory production control shall be in accordance with the "Control plan of 12 April 2010 relating to the European technical approval ETA-10/0013 issued on 12 April 2010, which is part of the technical documentation of this European technical approval. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with Deutsches Institut für Bautechnik.[14]

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

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13 Official Journal of the European Communities 178/52, 14.07.1999

14 The control plan is a confidential part of the European technical approval and only handed over to the approved body involved in the procedure of attestation of conformity. See section 3.2.2.

3.2.1.2 Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks referred to in section 3.1 for the areas of pipe penetration seals and intumescent materials, to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the approved body.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of the European technical approval ETA-10/0013 issued on 12 April 2010.

Additional information

The manufacturer sall provide a technical datasheet and an installation guide containing at least the following information:

Technical data sheet:

1. Field of application:

- Building elements into which the penetration seals shall be installed, the type and properties of the elements, such as minimum thickness, density and – in the case of flexible walls – the structure of these walls.
- Installations that may pass through the penetration seals, type and properties of the pipes, such as materials, diameter, thickness - including insulation; necessary/ permitted supports / fastenings; separations.
- Dimensions, minimum thickness etc. of the penetration seal
- Environmental conditions covered by the ETA (e.g. dry indoor applications).

2. Layout of the penetration seal, including information on the necessary components and additional products required (e.g. backfill material) with clear indications as to whether or not these are manufacturer-independent.

Installation guide

1. Installation method (e.g. preparation of the supporting construction before installation of the pipe penetration seal)
2. The sequence of working steps to be followed

3.2.2 Tasks for the approved bodies

The approved bodies shall perform the following tasks in accordance with the provisions laid down in the control plan:

- initial type-testing of the product,
- initial inspection of factory and factory production control,
- continuous surveillance, assessment and approval of factory production control,

The approved bodies shall retain the essential points of their actions referred to above and state the results obtained and conclusions drawn in a written report.

The approved certification body involved by the manufacturer shall issue an EC certificate of conformity of the product stating the conformity with the provisions of this European technical approval.

In cases where the provisions of the European technical approval and its control plan are no longer fulfilled the certification body shall withdraw the certificate of conformity and inform Deutsches Institut für Bautechnik without delay.

3.3 CE marking

The CE marking shall be affixed on the intumescent mat and/or the wrap, the steel sheet mantle and the accompanying commercial documentation. The letters "CE" shall be followed by the identification number of the approved certification body and be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate of conformity for the product,
- the number of the European technical approval,
- the use category,
- the trade name (with size identification),
- *declaration of any dangerous substances or "no dangerous substances"*

4 Assumptions under which the fitness of the products for the intended use was favourably assessed

4.1 Manufacturing

The European technical approval is issued for the products on the basis of agreed data/information, deposited with Deutsches 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 Deutsches Institut für Bautechnik before the changes are introduced. Deutsches Institut für Bautechnik will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

4.2 Installation

Before installation of the pipe penetration seal it must be checked that all the conditions (e. g. type and thickness of the wall or floor, type and dimensions of the pipes and insulation) comply with the provisions of section 2.7 and the environmental conditions specified in section 1.2.

In cases where the longitudinal edges of the pipe insulation are not completely covered over their entire length with a self-adhesive synthetic rubber tape approx. 3 mm thick as specified in section 2.7.1.2.2, steel wires or steel bands must be applied in the vicinity of the penetration seals to prevent these from opening in the case of fire. The wires or bands must have a minimum thickness of 1 mm. The wires or bands must be applied within 500 mm ("PYROSTAT-UNI RM" and "PYROSTAT-UNI RM-LT" pipe penetration seals) or 1000 mm ("PYROSTAT-UNI RMB" pipe penetration seals) on both sides of the wall or floor with a maximum clearance of 150 mm to each other. It is not necessary to apply these fastenings in the wrap area.

The wrap must be trimmed according to the external diameter of the insulated pipe – and must have a width depending on the variant used (see section 2.7.2). This must then be wrapped around the insulated pipe in two layers – positioned as specified in section 2.7.2 for the variant used. The wrap must be fastened with steel wire or straps (for "PYROSTAT-UNI RM" and "PYROSTAT-UNI RM-LT" pipe penetration seals) as specified in section 2.7.2. Any remaining cavities in the wall or floor must be completely filled as described in section 2.7 for the particular variant used. Finally, depending on the variant used, the metal housing/ the "protective insulation" must be fastened to the wall or floor/ the insulated pipe. The specified edge clearances must be maintained when fastening the steel sheet housing using suitable anchors.

Apart from that, the manufacturer's installation guide shall be observed.

5 Indications to the manufacturer

5.1 Installation guide

The manufacturer must provide a technical datasheet and an installation guide for the pipe penetration seals as specified in section 3.2.1.2, to ensure that the products are used correctly on-site.

5.2 Packaging, transport and storage

The manufacturer's specifications for packaging, transport and storage must be observed.

The packaging of the intumescent mat or wrap must contain the following information:

Trade name or trademark or other symbol allowing product recognition

The date of manufacture (day, month, year or coded information)

The dimensions

The packaging of the steel sheet housing must contain the following information:

a) Trade name or trademark or other symbol allowing product recognition

b) The date of manufacture (day, month, year or coded information)

c) The dimensions

The intumescent mat or wrap and the steel sheet housing must be suitably packaged for delivery so that the normal delivery terms are complied with and that it is adequately protected from damage under normal handling conditions.

5.3 Use, maintenance, repair

In general, no maintenance work is necessary Repairs can be performed by replacing a damaged wrap or damaged metal housing with a new one.

Dipl.-Ing. Breitschaft
President, Deutsches Institut für Bautechnik
Berlin, 12 April 2010

beglaubigt:
Meske-Dallal

ANNEX 1 – DESCRIPTION OF PRODUCT

Intumescent mat

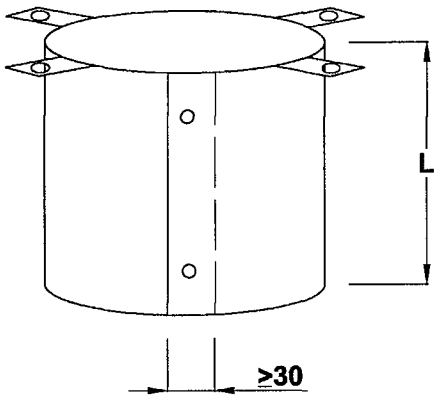
The intumescent mat is a flexible anthracite-coloured material sheet with shimmering sparkles.
A "Fingerprint", created in accordance with EOTA TR 024 "Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products", Annex C, has been lodged with the DIBt for identification purposes.

Wrap

The wrap consists of a rectangular piece of the intumescent mat with a minimum width as specified in section 2.3.

Metal housing

The metal housing used for the "PYROSTAT-UNI RMB" pipe penetration seal shall be of corrosion resistant steel (type 1.4301 or type 1.4571 stainless steel according to EN 10029 or type S235JRG2 (1.0038) galvanized steel according to EN 10025) with a minimum plate thickness of 0.8 mm. The housing must be closed using self-tapping screws of sizes 4.2 x 13 mm or 4.2 x 9 mm, or tubular rivets of sizes 3.2 x 9 mm or 3.2 x 6 mm, with a 30 mm sheet overlap.



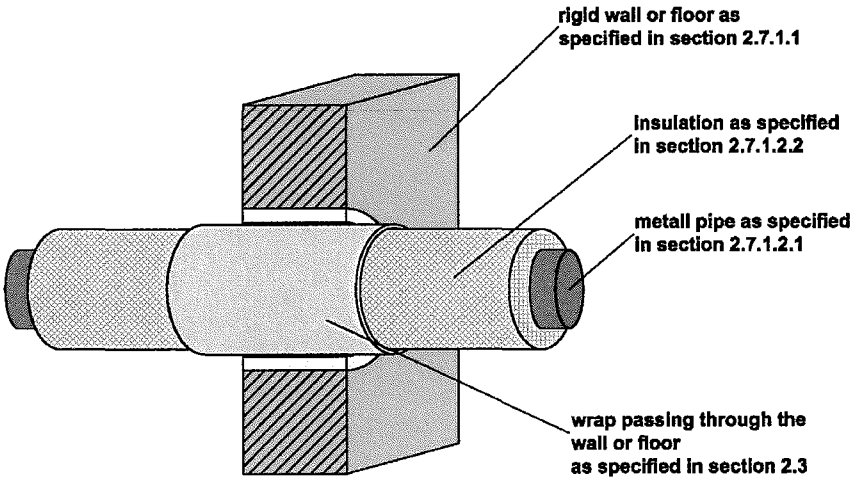
250 mm or 150 mm according to the length of the wrap (see appendix 2)

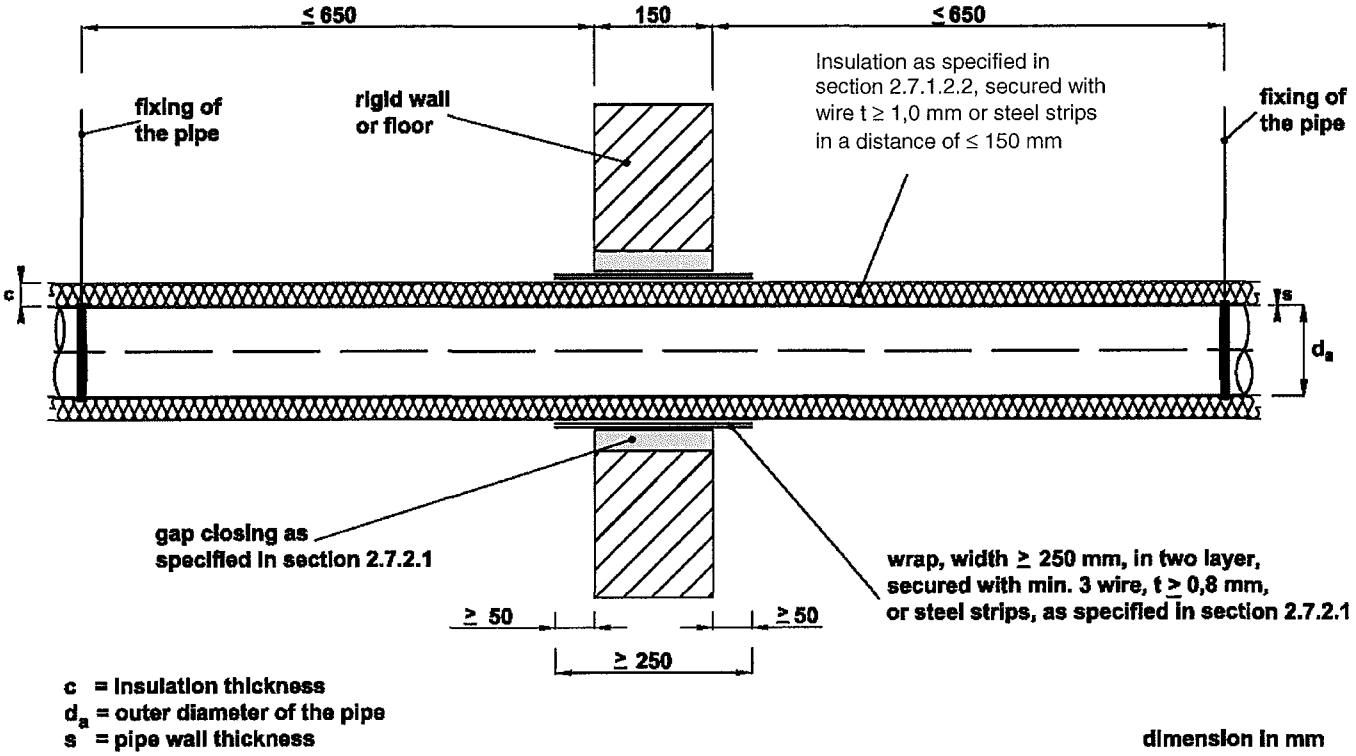
Protective insulation

The external insulation (so-called protective insulation) used for the "PYROSTAT-UNI RM-LT" pipe penetration seal consists of synthetic rubber with the designation "AF-Armaflex" from Armacell GmbH, 48153 Münster, Germany (production level 2003). The thickness of the insulation is ≥ 19 mm and ≤ 32 mm.

"PYROSTAT-UNI RM", Variant A

The pipe penetration seal consists of a wrap passing completely through the wall or floor. The wrap shall be installed in rigid walls or floors as specified in section 2.7.1.1.



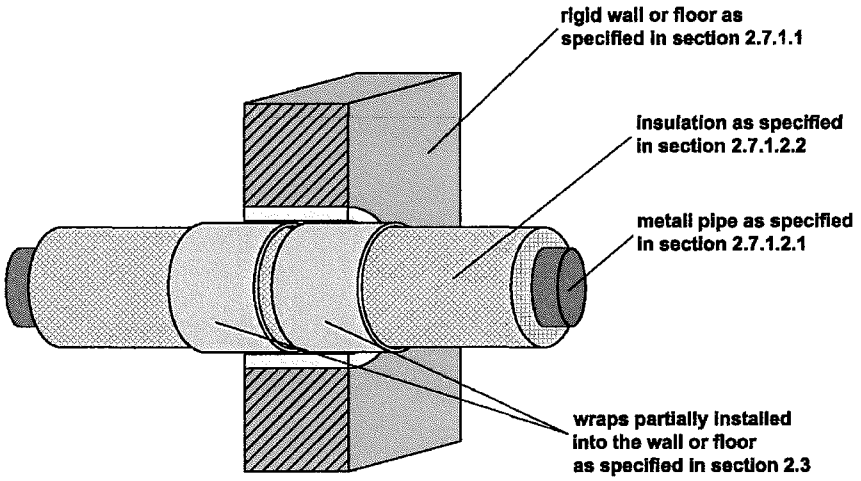


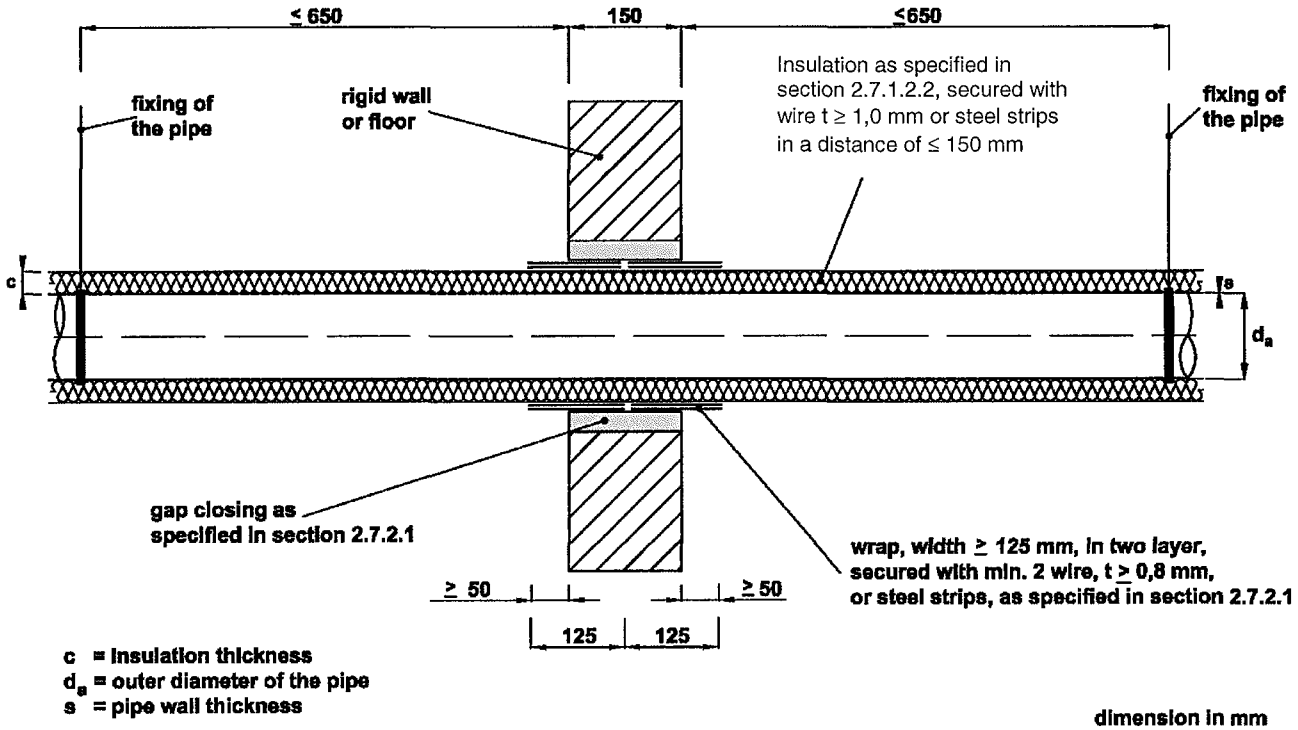
c = insulation thickness
d_a = outer diameter of the pipe
s = pipe wall thickness

dimension in mm

"PYROSTAT-UNI RM", Variant B

The pipe penetration seal consists of two wraps fixed in the wall or floor on both sides. The wraps shall be installed in rigid walls or floors as specified in section 2.7.1.1.



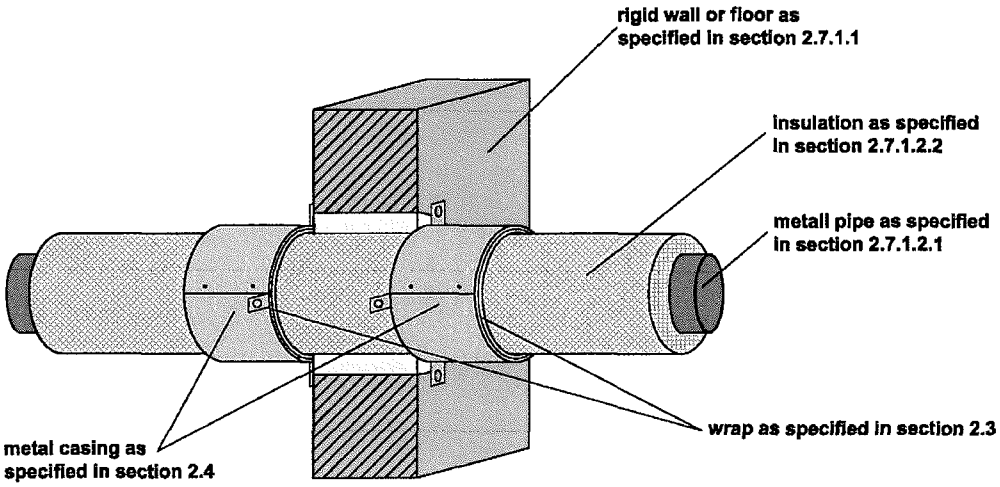


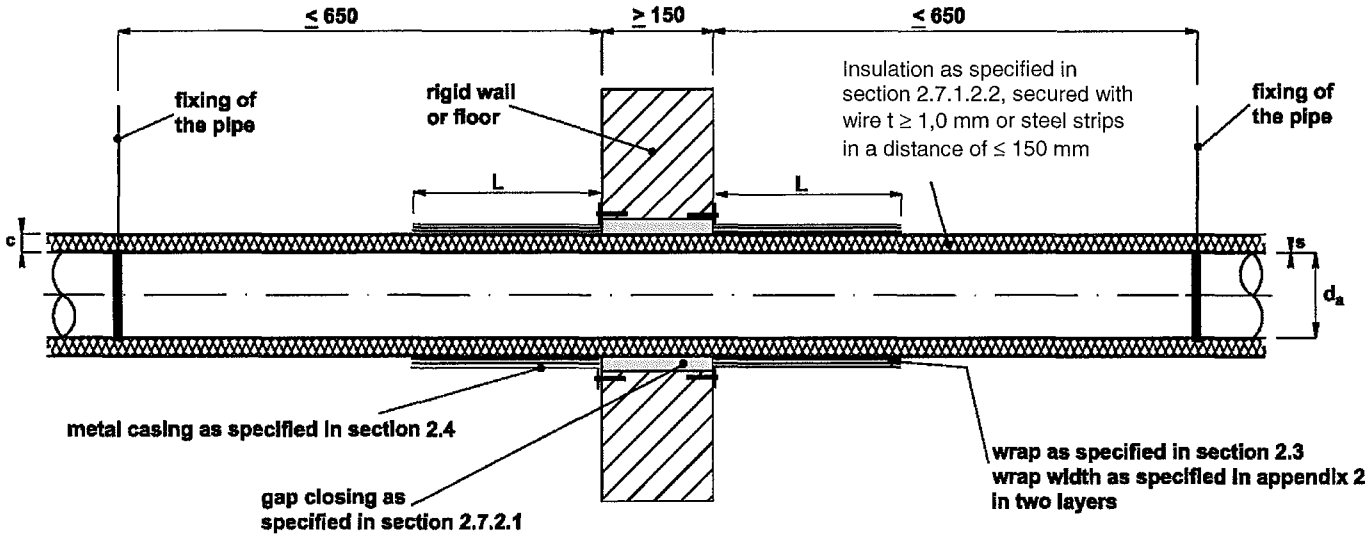
c = insulation thickness
d_a = outer diameter of the pipe
s = pipe wall thickness

dimension in mm

"PYROSTAT-UNI RMB"

The pipe penetration seal consists of two wraps installed flush with the wall or floor on both sides and two metal housings over the wraps fastened to the wall or floor on both sides. The wraps and metal housings shall be installed in rigid walls or floors as specified in section 2.7.1.1.



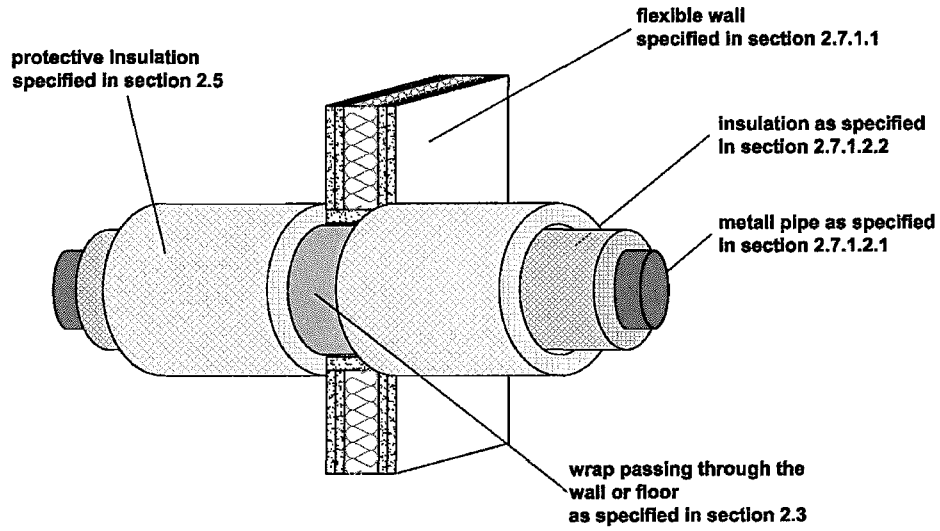


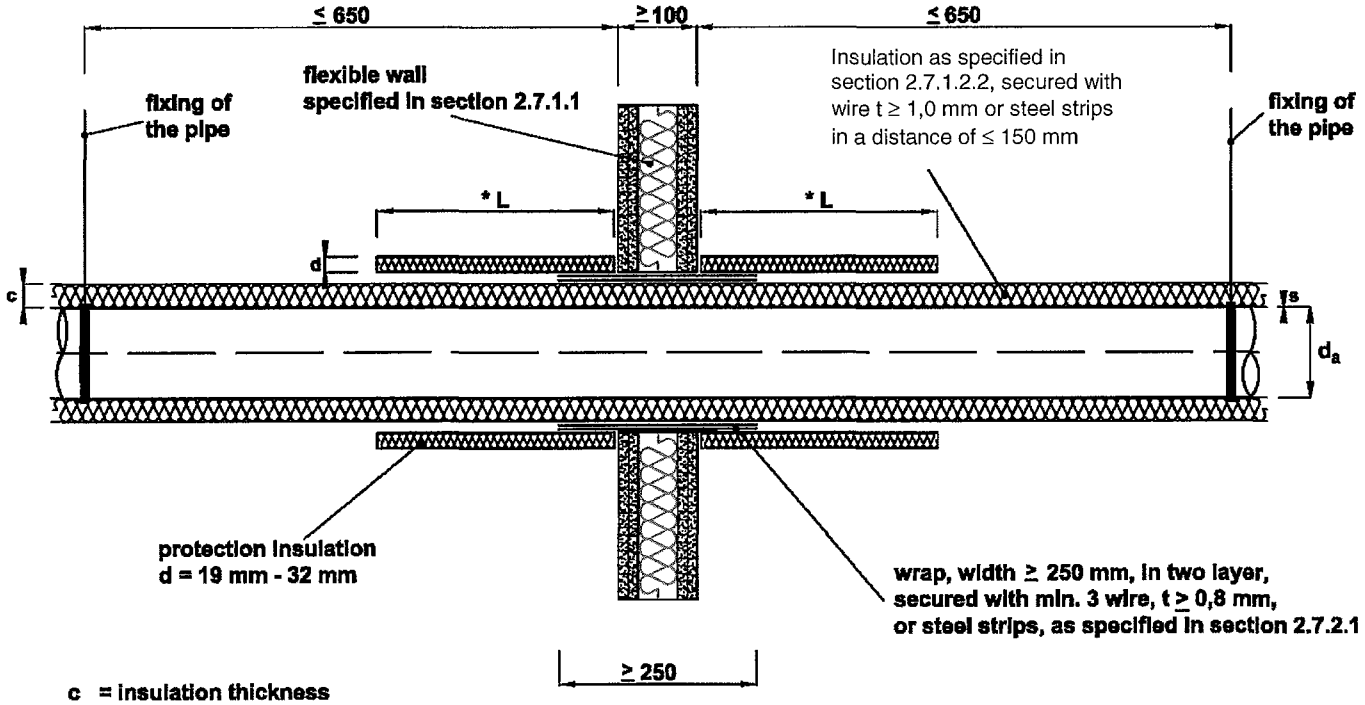
c = insulation thickness
d_a = outer diameter of the pipe
s = pipe wall thickness
L = width of the wrap as specified in section 2.7.2.2, and high of the metal casing (according of the pipe dimensions, 250 or 150 mm; see appendix 2)

dimension in mm

"PYROSTAT-UNI RM-LT"

The pipe penetration seal consists of a wrap passing completely through the wall and two protective insulations laid around the wrap on both sides of the wall and fastened to the pipe. The wraps and protective insulation are installed in flexible walls as specified in section 2.7.1.1.





c = insulation thickness
d_a = outer diameter of the pipe
s = pipe wall thickness

* L = length of the protection insulation (300 mm if $d_a \leq 160$ mm)
(400 mm if $d_a \geq 160$ mm bis ≤ 219,1 mm)

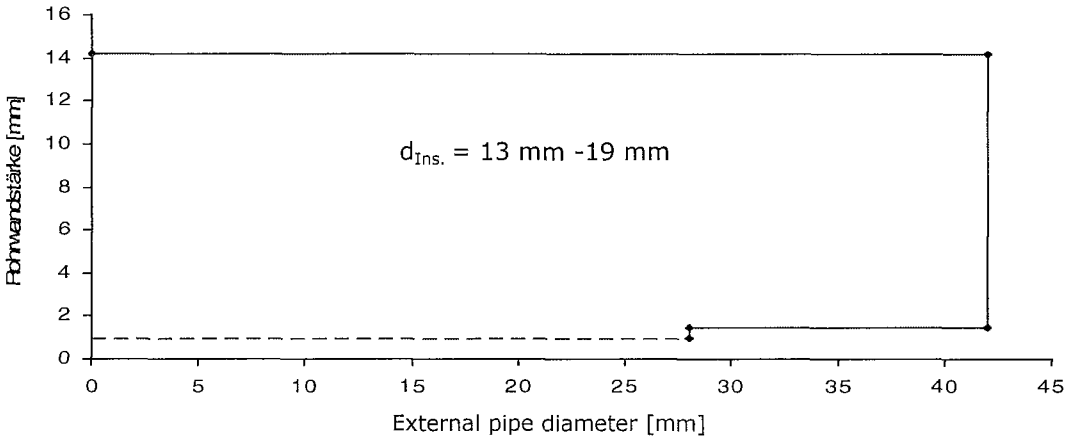
dimension in mm

ANNEX 2 – FIELD OF APPLICATION

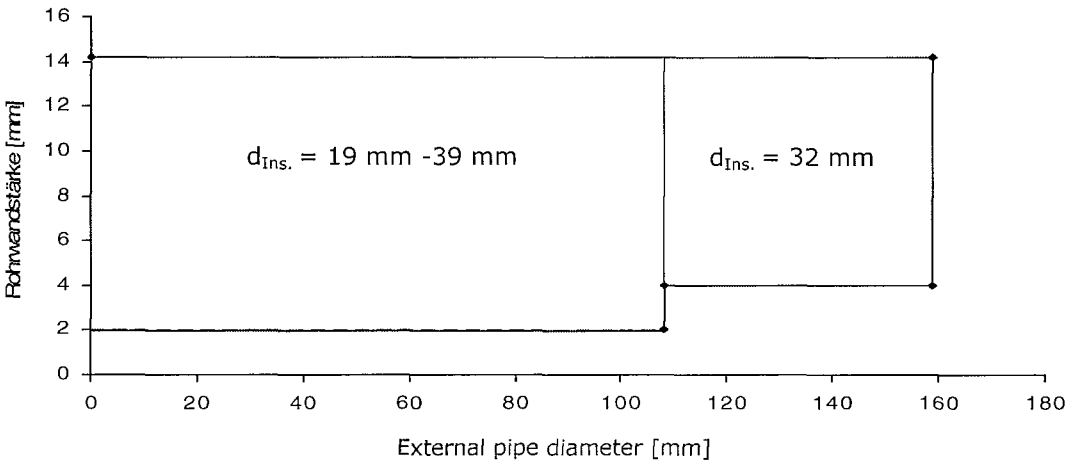
"PYROSTAT-UNI RM", installation in walls, variants A and B

The pipe penetration seals shall be used with copper and steel pipes having insulation as specified in section 2.7.1.2.2, Table 1. The pipe wall thickness, external diameter and insulation thickness must conform to the following specifications:

Copper or steel pipes:



Steel pipes:



"PYROSTAT-UNI RM", installation in floors, variants A and B

The pipe penetration seals shall be used with copper pipes having an external diameter of 89 mm and pipe wall thicknesses from 2 mm to 14.2 mm, and which have a 13 mm thick insulation as specified in section 2.7.1.2.2, Table 1.

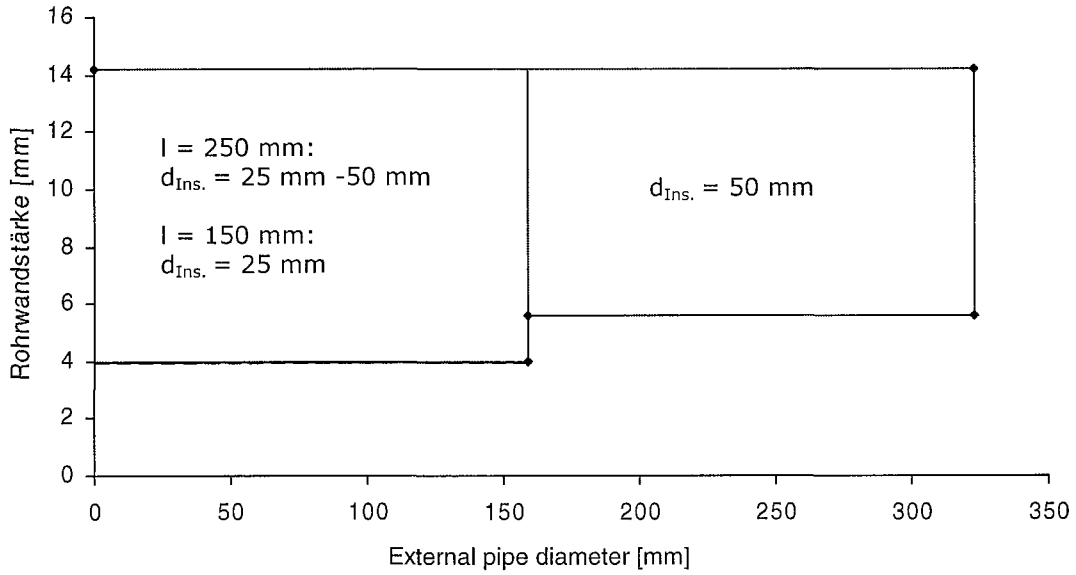
The pipe penetration seals shall be used with steel pipes having external diameters from 89 mm to 108 mm and pipe wall thicknesses from 2 mm to 14.2 mm, and which have a 13 mm to 100 mm thick insulation as specified in Section 2.7.1.2.2, Table 1.

The pipe penetration seals shall be used with steel pipes having an external diameter of 108 mm and pipe wall thicknesses from 2 mm section to 14.2 mm, and which have a 20 mm thick "ISOVER-Lamellenmatte ML 3" insulation as specified in section 2.7.1.2.2.

"PYROSTAT-UNI RMB", installation in walls

The pipe penetration seals shall be used with steel pipes having insulation as specified in section 2.7.1.2.2, Table 1. The pipe wall thickness, external diameter and insulation thickness must conform to the following specifications:

Steel pipes:



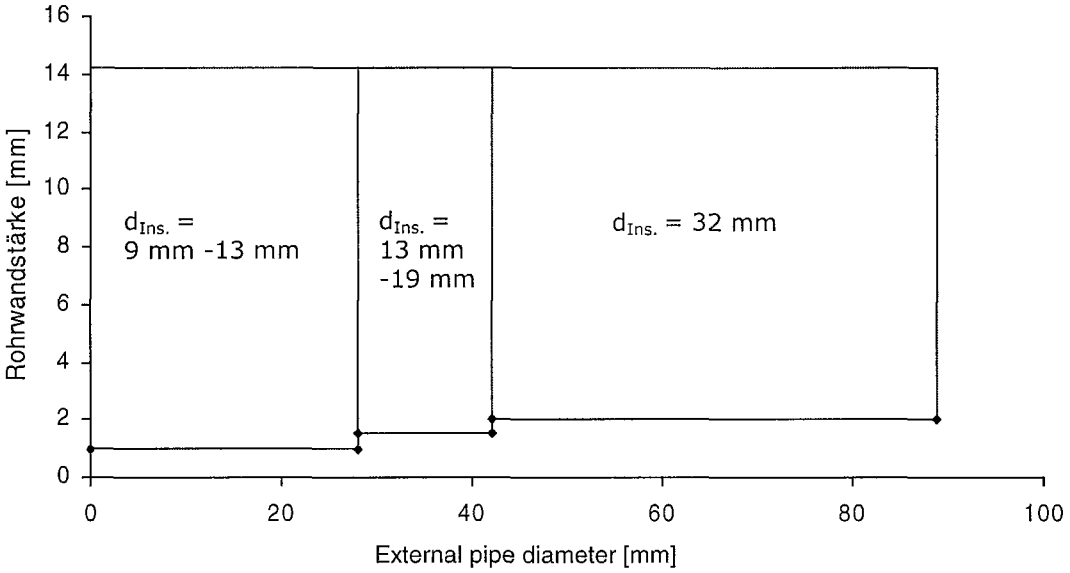
"PYROSTAT-UNI RMB", installation in floors

The pipe penetration seals shall be used with steel pipes having an external diameter of 108 mm and pipe wall thicknesses from 2.0 mm to 14.2 mm, and which have a 19 mm thick insulation as specified in section 2.7.1.2.2, Table 1.

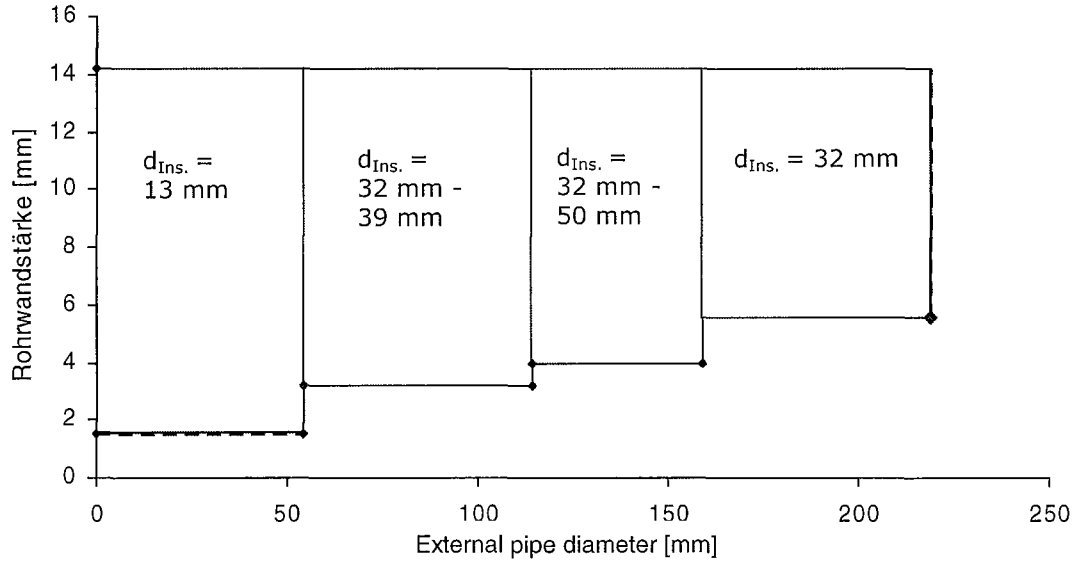
"PYROSTAT-UNI RM-LT", installation in flexible walls

The pipe penetration seals shall be used with copper and steel pipes having insulation as specified in section 2.7.1.2.2, Table 1. The pipe wall thickness, external diameter and insulation thickness must conform to the following specifications:

Copper or steel pipes:



Steel pipes:



Field of application for "PYROSTAT-UNI RM","PYROSTAT-UNI RMB" and "PYROSTAT-UNI RM-LT"

- Represented in tabular form -

Wall installation

PYROSTAT-UNI ...	Pipe material	External pipe diameter [mm]	Pipe wall thickness [mm]	Insulation thickness[15], [mm]
RM	Steel and copper	≤ 28	≥ 1,0 ≤ 14,2	13-19
		> 28 ≤ 42	≥ 1,5 ≤ 14,2	13-19
	Steel	≤ 108	≥ 2,0 ≤ 14,2	19-39
		> 108 ≤ 159	≥ 4,0 ≤ 14,2	32
RMB	Steel	≤ 159	≥ 4 ≤ 14,2	25-50
		> 159 ≤ 323,9	≥ 5,6 ≤ 14,2	50
RM-LT	Steel and copper	≤ 28	≥ 1,0 ≤ 14,2	9-32
		> 28 ≤ 42	≥ 1,5 ≤ 14,2	13-32
		> 42 ≤ 89	≥ 2,0 ≤ 14,2	32
	Steel	≤ 54	≥ 1,5 ≤ 14,2	13
		> 54 ≤ 114,3	≥ 3,2 ≤ 14,2	32-50
		> 114,3 ≤ 159	≥ 4,0 ≤ 14,2	32-50
		> 159 ≤ 219	≥ 5,6 ≤ 14,2	32

Floor installation

PYROSTAT-UNI ...	Pipe material	External pipe diameter [mm]	Pipe wall thickness [mm]	Insulation thickness[15] [mm]
RM	Copper	89	≥ 2,0 ≤ 14,2	13
	Steel	≥ 89 ≤ 108	≥ 2,0 ≤ 14,2	13-100
RMB	Steel	108	≥ 2,0 ≤ 14,2	19

15 Insulation as specified in Section 2.7.1.2.2, Table 1

INTERNAL ANNEX

Factory Production Control (FPC) for products covered by ETA 10/0013

Control plan for the production of the intumescent mat

Nr	Subject	Test or control method	Criterion if any	Minimum number of samples	Minimum frequency of control*
1	thickness	TR 024; clause 3.1.2.1	1,1 mm ± 0,2 mm	1	1/b*
2	Weight per unit area	TR 024; clause 3.1.5	1,2 kg/m^2 ± 10%	1	1/b*
3	"Ash content"	TR 024; clause 3.1.8	45,0 % ± 5 %	1	1/b*
4	Expansion ratio	TR 024 Annex A1, test method 1	> 10-fach	1-3**	1/b*
5	Expansion pressure	TR 024 Annex A2; test method 4	0,4 N/mm^2 bis 0,65N/mm^2	1-3**	1/b*

1/b:once per batch – batch is the unit or quantity of production in a single complete production operation*

*1-3**: Take one sample per batch sufficient to cut 3 specimen to test the expansion ratio and 3 specimen to test the expansion pressure*