

EUROPEAN TECHNICAL ASSESSMENT

ETA 17/0163
Version 1
Date of issue: 2017-04-12



UBAtc Assessment Operator:
Belgian Construction Certification Association
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Technical Assessment Body issuing the European Technical Assessment: UBAtc.
UBAtc has been designated according to Article 29 of Regulation (EU) No 305/2011
and is member of EOTA (European Organisation for Technical Assessment)

Trade name of the construction product:

Pacifyre® MKII Firesleeve

Product family to which the construction product belongs:

35 - Fire Protective collar

Manufacturer:

J. van Walraven Holding B.V.
Industrieweg 5
3641 RK Mijdrecht, The Netherlands
P.O. Box 15, 3640, The Netherlands

Manufacturing plant(s):

Walraven Factory W4

Website:

www.walraven.com

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

Guideline for European technical approval (ETAG), used as European Assessment Document (EAD): 026-2

This European Technical Assessment contains:

36 pages, including 2 annexes which form an integral part of the document.



**European Organisation
for Technical Assessment**

Legal bases and general conditions

- 1 This European Technical Assessment is issued by UBAtc (Union belge pour l'Agrément technique de la construction, i.e. Belgian Union for technical Approval in construction), in accordance with:
 - Regulation (EU) No 305/2011¹ of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
 - Commission Implementing Regulation (EU) No 1062/2013² of 30 October 2013 on the format of the European Technical Assessment for construction products
 - Guideline for European technical approval (ETAG), used as European Assessment Document (EAD): ETAG 026-2
- 2 Under the provisions of Regulation (EU) No 305/2011, UBAtc is not authorized to check whether the provisions of this European Technical Assessment are met once the ETA has been issued.
- 3 The responsibility for the conformity of the performances of the products with this European Technical Assessment and the suitability of the products for the intended use remains with the holder of the European Technical Assessment.
- 4 Depending on the applicable Assessment and verification of constancy of performance (AVCP) system, (a) notified body(ies) may carry out third-party tasks in the process of assessment and verification of constancy of performance under this Regulation once the European Technical Assessment has been issued.
- 5 This European Technical Assessment allows the manufacturer of the construction product covered by this ETA to draw up a declaration of performance for the construction product.
- 6 CE marking should be affixed to all construction products for which the manufacturer has drawn up a declaration of performance.
- 7 This European Technical Assessment is not to be transferred to other manufacturers, agents of manufacturers, or manufacturing plants other than those indicated on page 1 of this European Technical Assessment.
- 8 The European Technical Assessment holder confirms to guarantee that the product(-s) to which this assessment relates, is/are produced and marketed in accordance with and comply with all applicable legal and regulatory provisions, including, without limitation, national and European legislation on the safety of products and services. The ETA-holder shall notify the UBAtc immediately in writing of any circumstance affecting the aforementioned guarantee. This assessment is issued under the condition that the aforementioned guarantee by the ETA-holder will be continuously observed.
- 9 According to Article 11(6) of Regulation (EU) No 305/2011, when making a construction product available on the market, the manufacturer shall ensure that the product is accompanied by instructions and safety information in a language determined by the Member State concerned which can be easily understood by users. These instructions and safety information should fully correspond with the technical information about the product and its intended use which the manufacturer has submitted to the responsible Technical Assessment Body for the issuing of the European Technical Assessment.
- 10 Pursuant to Article 11(3) of Regulation (EU) No 305/2011, manufacturers shall adequately take into account changes in the product-type and in the applicable harmonised technical specifications. Therefore, when the contents of the issued European Technical Assessment do not any longer correspond to the product-type, the manufacturer should refrain from using this European Technical Assessment as the basis for their declaration of performance.
- 11 All rights of exploitation in any form and by any means of this European Technical Assessment is reserved for UBAtc and the ETA-holder, subject to the provisions of the applicable UBAtc regulations.
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- 13 Subject to the application introduced, this European Technical Assessment is issued in English and may be issued by the UBAtc in its official languages. The translations correspond fully to the English reference version circulated in EOTA.
- 14 This European Technical Assessment was first issued by UBAtc on 12 April 2017.

¹ OJEU, L 88 of 2011/04/04

² OJEU, L 289 of 2013/10/31

Technical Provisions

1 Technical description of the product

1.1 General

Pacifyre® MKII Firesleeve is a fire stopping and fire sealing penetration seal in the form of a fire stopping collar.

The Pacifyre® MKII Firesleeve is intended for uses in environmental conditions type Z₁ according to ETAG 026-2 i.e. for uses in internal conditions with high humidity, excluding temperatures below 0°C.

The Pacifyre® MKII Firesleeve fire resistant pipe closure device is affixed around PVC, PE, PP and aluminium multi pipes to prevent propagation of fire. It expands through heat thus closing off the openings and making them fire resistant and thereby prevents the spread of smoke and fire.

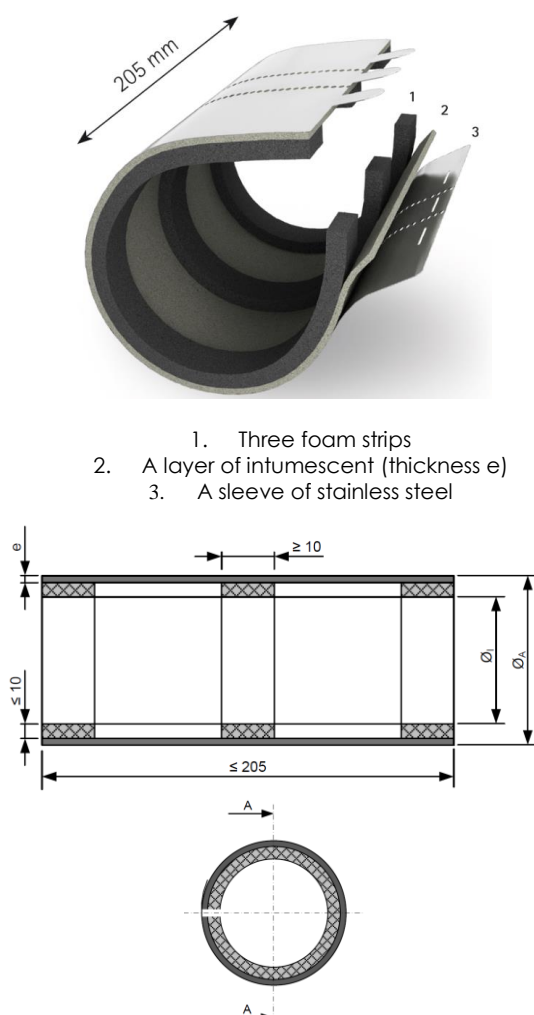


Figure 1 : Pacifyre® MKII Firesleeve

It is composed of a stainless steel casing of 205 mm width and reactive inlay of 1 mm to 8 mm thickness depending on the diameter of the collar (see Figure 1 and Table 1).

The assumed working life of the Pacifyre® MKII Firesleeve is minimum 25 years, provided that the fire stopping pipe closure device is subject to appropriate use and maintenance, in accordance with the manufacturer recommendations.

Pacifyre® MKII Firesleeve are manufactured at the Walraven Factory W4.

1.2 Dimensions

Pacifyre® MKII Firesleeve is available in diameters \varnothing_A between 40 mm and 245 mm as shown in Table 1.

Table 1 : Dimensions of Pacifyre® MKII Firesleeve (mm)

DN	code	\varnothing_A (mm)	\varnothing_1 (mm)	e (mm)
16	215 1 015017	40	15-17	1
20	215 1 018020	45	18-20	1
25	215 4 024026	50	23-28	4
32	215 4 030032	55	29-36	4
40	215 4 038041	65	38-44	4
50	215 4 048050	75	46-52	4
52	215 4 051053	75	48-55	4
56	215 4 054056	80	52-58	4
58	215 4 057059	85	55-61	4
63	215 4 063065	90	61-67	4
75	215 4 075077	100	70-79	4
80	215 4 078080	105	78-80	4
90	215 4 090092	115	86-94	4
100	215 4 099101	125	95-103	4
110	215 4 108110	135	104-113	4
120	215 8 123125	160	120-128	8
135	215 8 135137	170	131-139	8
140	215 8 138140	175	136-144	8
160	215 8 159161	195	155-164	8
180	215 8 180182	215	175-184	8
200	215 2 198200	245	195-204	12

Installation of Pacifyre® MKII Firesleeve: see clause 2.3

2 Specification of the intended use(s) in accordance with the applicable EAD (ETAG026-2)

2.1 Intended uses

Pacifyre® MKII Firesleeve is a penetration seal for services penetrating walls and floors. Pacifyre® MKII Firesleeve is designed for mounting in walls and floors around PVC, PE, PP and aluminium multi pipes to seal pipe penetrations against the spread of smoke and fire.

The through-elements are installed in drilled holes or in reservations made through concrete or masonry floors, 150 mm thick with a density equal or greater than 550 kg/m³, through rigid wall constructions made of masonry or concrete, 150 mm thick, with a density equal or greater than 550 kg/m³ or through 100 mm thick flexible wall constructions. The detailed descriptions of these construction elements are given in Annex 1 of this ETA.

This ETA covers assemblies installed in accordance with the provisions given in Annex 1. Other intended uses may be supported by other means at national level but are not covered by this ETA.

2.2 Use Categories

The Pacifyre® MKII Firesleeve is intended for uses environmental conditions type Z₁ according to ETAG 026-2 i.e. for uses in internal conditions with high humidity, excluding temperatures below 0°C.

The provisions made in this European Technical Assessment are based on an assumed intended working life of 25 years.

Indications given regarding the working life cannot be interpreted as a guarantee given by the producer or the UBAtc, but are to be regarded only as a means for choosing the appropriate product(s) in relation to the expected economically reasonable working life of the construction works.

2.3 Assumptions under which the product was favourably assessed

2.3.1 Manufacturing directives

This European Technical Assessment is being issued for Pacifyre® MKII Firesleeve on the basis of agreed data/information, deposited with the UBAtc, which characterises the product that has been assessed. Changes to the product/production process, which could result in the deposited data/information being incorrect, should be notified to the UBAtc before the changes are introduced. The UBAtc will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment/alterations to the ETA, shall be necessary.

2.3.2 Installation

2.3.2.1 General information for creating a pipe penetration

The area to be sealed requires the same fire resistance as the complete wall construction. In order to ensure that the stability of the services is maintained under fire conditions, all services should be adequately supported at maximum 500 mm and from the non-exposed surface of the floor or at 500 mm to either side of the supporting structures for walls. More precise instructions for the installation of Pacifyre® MKII Firesleeve can be found in Annex 1 of this ETA and the technical instructions of the manufacturer.

2.3.2.2 General information about Pacifyre® MKII Firesleeve

- Pacifyre® MKII Firesleeve collar is suitable for built in conditions;
- Pacifyre® MKII Firesleeve shall be installed in the wall or in a floor;
- Pacifyre® MKII Firesleeve is suitable for all types PVC, PE, PP and aluminium multi pipes (see annex 1);
- The Pacifyre® MKII Firesleeve should be fixed in a wall or floor with a fire resistance at least equal to that of the fire stopping pipe closure device;
- The Pacifyre® MKII Firesleeve collar is suitable for pipe diameters between 15 mm and 204 mm according to the field of application, given in the annex of this ETA;

2.3.2.3 Conditions for the application

The product is classified as to type Z₁.

2.4 Recommendations

2.4.1 Recommendations on packaging, transport and storage

Pacifyre® MKII Firesleeve should be stored in dry conditions.

2.4.2 Recommendations on use, maintenance and repair

The addition of new services is permissible if distances between the pipes are respected.

Any default of the collar should be immediately repaired by replacement.

2.4.3 Regarding safety instructions:

Pacifyre® MKII Firesleeve should be handled and fixed with protective gloves to avoid hand damage by the steel housing

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

3.1 Mechanical resistance and stability

Not relevant.

3.2 Safety in case of Fire

3.2.1 Reaction to fire

The Pacifyre® MKII Firesleeve has a reaction to fire classification class E according to EN 13501-1.

3.2.2 Fire resistance

The fire resistance classification of the Pacifyre® MKII Firesleeve according to EN 13501-2 and according to the field of direct application of test results described in EN 1366-3:2009 is given in Annex 1. The mentioned fire resistance classes however can never be higher than the fire resistance class of the penetrated structure.

This ETA includes:

- Pipes penetrating floors, see annex 1.1;
- Pipes penetrating rigid walls, see annex 1.2.
- Pipes penetration flexible walls, see annex 1.3.

3.3 Hygiene, Health and the environment

3.3.1 Air permeability

No performance assessed.

3.3.2 Water permeability

No performance assessed.

3.3.3 Release of dangerous substances

The holder of the assessment has submitted a written declaration stating that the Pacifyre® MKII Firesleeve contains no dangerous substances according to EC-database, known at the date of issuing.

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

3.4 Safety in Use

3.4.1 Mechanical resistance and stability

No performance assessed.

3.4.2 Resistance to impact / movement

No performance assessed.

3.4.3 Adhesion

No performance assessed.

3.5 Protection against noise

3.5.1 Airborne sound insulation

Airborne sound insulation has been tested in some installations. These assessments are no part of this assessment. No performance assessed.

3.6 Energy economy and heat retention

3.6.1 Thermal resistance

No performance assessed.

3.6.2 Water vapour permeability

No performance assessed.

3.7 Aspects of durability and serviceability

The Pacifyre® MKII Firesleeve fulfils the environmental conditions type Z₁ requirements.

3.8 Characterisation of the product

3.8.1 General

A general description of Pacifyre® MKII Firesleeve is given in clause 1.1 of the ETA. The formulation of the inlay of Pacifyre® MKII Firesleeve has been disclosed to the approval operator BCCA.

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

In accordance with Regulation (EU) N° 305/2011, Article 65, Directive 89/106/EEC is repealed, but references to the repealed Directive shall be construed as references to the Regulation.

The system of assessment and verification of constancy of performance, specified in the Decision of the Commission 1999/454/EC³, as amended, is specified in Table 2.

Table 2– System of assessment and verification of constancy of performance applicable to Pacifyre® MKII Firesleeve

Product(s)	Intended use(s)	Level(s) or class(es)	Assessment and verification of constancy of performance system(s)*
Fire Stopping and Fire Sealing Products	For fire compartmentation and/or fire protection or fire performance	Any	1

* See Annex V to Regulation (EU) N° 305/2011

In addition, according to the decision 1999/454/EC of the European Commission, as amended, and Commission Delegated Regulation (EU) 2016/364⁴, the systems of assessment and verification of constancy of performance specified in Table 3 apply to fire stopping and fire sealing products with regard to reaction to fire.

Table 3– Systems of assessment and verification of constancy of performance with respect to the reaction to fire

Product(s)	Intended use(s)	Level(s) or class(es) (reaction to fire)	Assessment and verification of constancy of performance system(s) ^a
Fire Stopping and Fire Sealing Products	For uses subject to regulations on reaction to fire	(A1, A2, B, C) ^b	1
		(A1, A2, B, C) ^c , D, E, F	3
		(A1 to F) ^d , NPD ^e	4

^a Systems 1, 3 and 4 : See Regulation (EU) N° 305/2011, Annex V
^b Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)
^c Products/materials not covered by footnote (b)
^d Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of class A1 according to Commission Decision 96/603/EC⁵, as amended)
^e 'No Performance Declared' in accordance with Regulation (EU) N° 305/2011, Article 6(f)

³ see OJEU L178/52 of 1999/07/14

⁴ see OJEU L68/4 of 2016/03/15

⁵ see OJEU L267 of 1996/10/19

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

5.1 Tasks for the ETA-holder

5.1.1 General

The manufacturer exercises permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer are documented in a systematic manner in the form of written policies and procedures, including records of results performed in accordance with the test plan. This production control system ensures that the product is in conformity with this ETA.

5.1.2 Personnel and equipment

The personnel involved in the production process is identified, sufficiently qualified and trained to operate and maintain the production equipment. Machinery and equipment are regularly maintained and this is documented. All processes and procedures of production are recorded at regular intervals.

5.1.3 Traceability of processes

The manufacturer maintains a traceable documentation of the production process from purchasing or delivery of raw or basic raw materials up to the storage and delivery of finished products.

5.1.4 Non-conforming products

Products that do not comply with requirements as specified in this ETA are separated from the conforming products and marked as such. The manufacturer registers non-compliant production and action(s) taken to prevent further non-conformities. External complaints are also documented, as well as actions taken.

5.1.5 Control of monitoring and measuring devices

Where necessary, measuring equipment is:

- Calibrated or verified at specific intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no standards exists the basis used for calibration is recorded;
- Adjusted or re-adjusted as necessary;
- Identified to enable calibration to be determined.

When the equipment is found not to conform to requirements the validity of previous measuring results are assessed and recorded. Appropriate actions are taken on the equipment and any product affected.

5.1.6 Control plan for the manufacturer

The manufacturer exercises permanent internal control of production according to the prescribed plan.

5.2 Tasks of notified bodies

5.2.1 For fire compartmentation and/or fire protection or fire performance uses

For the initial type testing of the product (see Annex V of Regulation (EU) N° 305/2011) the tasks for the notified body are limited to the following characteristics, where relevant:

- Resistance to fire;
- Mechanical resistance and stability;
- Adhesion;
- Resistance to impact/movement;
- Release of dangerous substances.

Assessment tests are conducted by the assessment body or under its responsibility (which may include a proportion conducted by an indicated laboratory or by the manufacturer, witnessed by the assessment body) in accordance with section 2.4 of ETAG 026-2, unless the ETA-holder has opted to make use of the possibility not to have the product's performance assessed. The assessment body assessed the results of these tests in accordance with section 2.4 of ETAG 026-2, as part of the ETA issuing procedure.

Initial inspection of the factory and of the factory production control and continuing surveillance, judgment and assessment of factory production control

For the initial inspection of the factory and of the factory production control (see Annex V of Regulation (EU) N° 305/2011), and for the continuing surveillance, judgement and assessment of the factory production control (see Annex V of Regulation (EU) N° 305/2011), parameters related to the following characteristics are of interest to the notified body, where relevant:

- Resistance to fire;
- Mechanical resistance and stability;
- Adhesion;
- Resistance to impact/movement.

Surveillance inspections are conducted at least twice per year.

5.2.2 For uses subject to reaction to fire regulations

For fire stopping and fire sealing products under systems 1 and 3, regarding the initial type testing of the product (see Annex V of Regulation (EU) N° 305/2011), the task of the notified laboratory is limited to the assessment of the reaction to fire class, as indicated in the Commission Decision 94/611/EC.

Initial inspection of the factory and of the factory production control and continuing surveillance, judgment and assessment of factory production control

For fire stopping and fire sealing products under system 1, for the initial inspection of the factory and of the factory production control (see Annex V of Regulation (EU) N° 305/2011), and for the continuing surveillance, judgement and assessment of the factory production control (see Annex V of Regulation (EU) N° 305/2011), parameters related to the reaction to fire class, as indicated in the Commission Decision 94/611/EC are of interest of the notified body.

Surveillance inspections shall be conducted at least twice per year.

UBAtc asbl is a non-profit organization according to Belgian law. It is a Technical Assessment Body notified by the Belgian notifying authority, the Federal Public Services Economy, SMEs, Self-Employed and Energy, on 17 July 2013 in the framework of Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC and is member of the European Organisation for Technical Assessment, EOTA (www.eota.eu).


This European Technical Assessment has been issued by UBAtc asbl on the basis of the technical work carried out by the Assessment Operator, BCCA.

On behalf of UBAtc asbl,



Peter Wouters,
director

On behalf of the Assessment Operator, BCCA,
responsible for the technical content of the ETA,



Benny De Blaere,
director general

The most recent version of this European Technical Assessment may be consulted on the UBAtc website (www.ubatc.be).

Annexes

ANNEX 1 : Pacifyre® MKII Firesleeve - General considerations

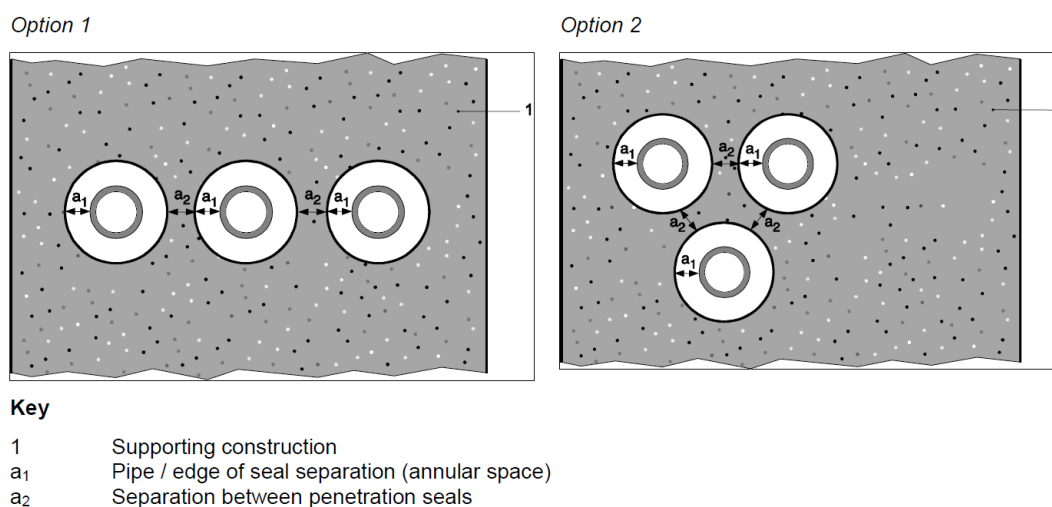
This annex reports fire resistance classification of Pacifyre® MKII Firesleeve used as a single pipe penetration seal and its field of application.

The classification may not be extended to a multiple penetration seal.

The classification U/C covers pipe end configurations U/C and C/C.

Unless specially mentioned otherwise, the classification is only applicable for pipes installed perpendicular to the penetration seal.

The annular space between the pipe and the supporting construction (a_1) are based on fig E.2 of EN 1366-3:2009. The classification is also valid for clustered pipes, provided that the separations a_2 are respected. The values of a_1 and a_2 are given in the annexes

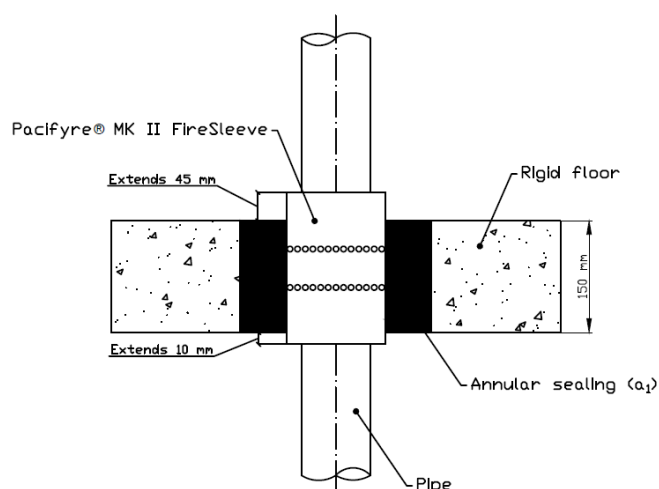


The given classification does not cover insulated pipes.

ANNEX 1.1: Pacifyre® MKII Firesleeve used in a rigid floor construction

This annex reports fire resistance classification of Pacifyre® MKII Firesleeve used in a rigid floor construction. It can be applied to a concrete or masonry floor of a thickness equal to 150 mm and a density equal or greater than 550 kg/m³.

The distance from the floor surface to the nearest support position is equal or smaller than 400 mm.



A.1.1.1 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PP, with a mortar annular sealing in rigid floor constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a mortar annular sealing (Walraven BIS Pacifyre® FPM mortar).

Characteristics of the services

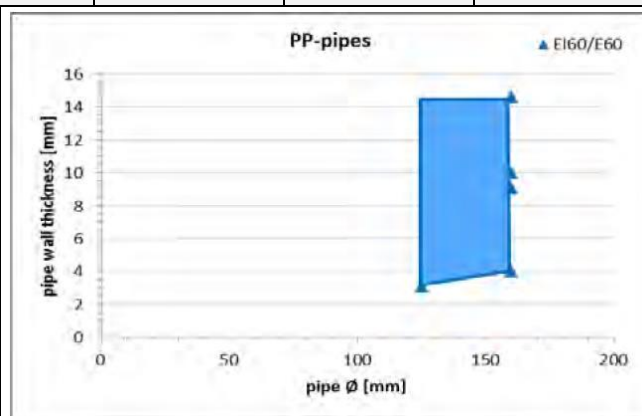
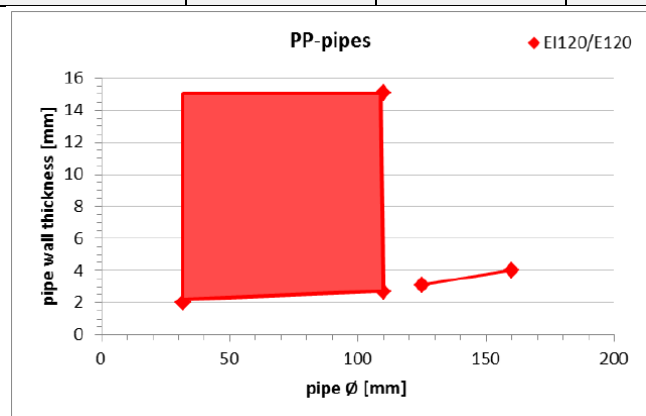
Plastic type	PP (like AGRU according to EN ISO 1873-1, ÖNORM B 5174 and DIN 8077/8087)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	2.0	0 - 110	A	≥ 0	EI120 / E120
215 4108110	110	2.7	0 - 125	A	≥ 0	EI120 / E120
215 4108110	110	15.1	0 - 110	A	≥ 0	EI120 / E120
⁽⁶⁾	32 to 110	2.0/2.7⁽⁷⁾ to 15.1	0 - 110	A	≥ 0	EI120 / E120
215 8 123125	125	3.1	0 - 120	B	≥ 200	EI120 / E120
215 8 159161	160	4.0	0 - 110	B	≥ 200	EI120 / E120
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾	0 - 110	B	≥ 200	EI120 / E120
215 8 123125	125	3.1	0 - 120	B	≥ 200	EI60 / E60
215 8 159161	160	4.0	0 - 110	B	≥ 200	EI60 / E60
215 8 159161	160	9.1	0 - 110	B	≥ 200	EI60 / E60
215 8 159161	160	10.0	0 - 110	B	≥ 200	EI60 / E60
215 8 159161	160	14.6	0 - 120	B	≥ 200	EI60 / E60
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾ to 14.6	0 - 110	B	≥ 200	EI60 / E60



⁶ Pipe sealing identification number according to pipe diameter, within the required design group

⁷ Interpolation of minimum pipe wall thickness within pipe diameter range

A.1.1.2 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PE 100, with a mortar annular sealing in rigid floor constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a mortar annular sealing (Walraven BIS Pacifyre® FPM mortar).

Characteristics of the services

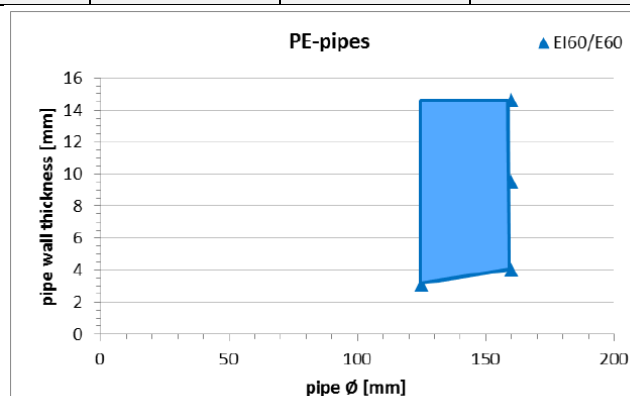
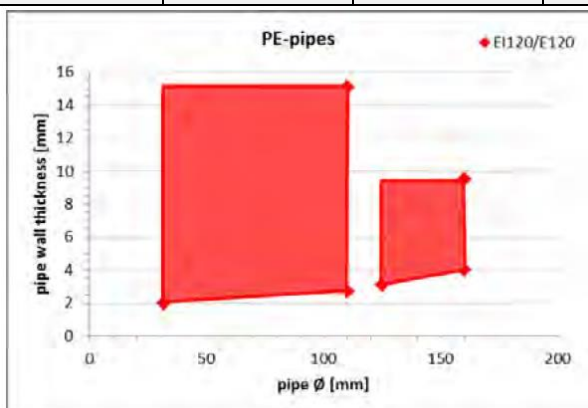
Plastic type	PE 100 (like AGRU according to EN ISO 1872-1, EN 13244 and DIN 8074/8075, EUROTTANTA according to EN 12201-2, EN 1622 and EN ISO 15494 or DYKA according to EN 12201)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	2.0	0 – 130	A	≥ 200	EI120 / E120
215 4108110	110	2.7	0 - 70	A	≥ 0	EI120 / E120
215 4108110	110	15.1	0 - 125	A	≥ 0	EI120 / E120
⁽⁶⁾	32 to 110	2.7 to 15.1	0 – 70	A	≥ 0	EI120 / E120
⁽⁶⁾	32 to 110	2.0/2.7⁽⁷⁾ to 15.1	0 – 70	A	≥ 200	EI120 / E120
215 8 123125	125	3.1	0 - 115	B	≥ 200	EI120 / E120
215 8 159161	160	4.0	0 - 110	B	≥ 200	EI120 / E120
215 8 159161	160	9.5	0 - 110	B	≥ 200	EI120 / E120
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾ to 9.5	0 – 110	B	≥ 200	EI120 / E120
215 8 123125	125	3.1	0 - 115	B	≥ 200	EI60 / E60
215 8 159161	160	4.0	0 - 110	B	≥ 200	EI60 / E60
215 8 159161	160	9.5	0 - 110	B	≥ 200	EI60 / E60
215 8 159161	160	14.6	0 - 110	B	≥ 200	EI60 / E60
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾ to 14.6	0 – 110	B	≥ 200	EI60 / E60



A.1.1.3 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PVC-U or PVC-C, with a mortar annular sealing in rigid floor constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a mortar annular sealing (Walraven BIS Pacifyre® FPM mortar).

Characteristics of the services

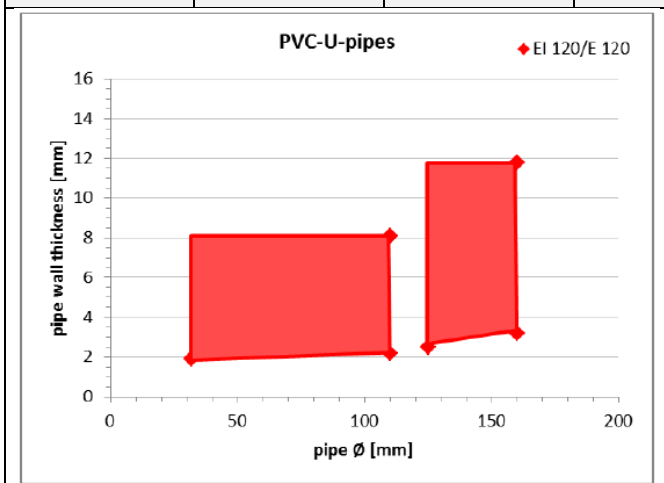
Plastic type	PVC-U (like WKT according to EN ISO 1452, EN ISO 15493 and DIN 8061/8062 or WAVIN according to EN ISO 1453 and KOMO-BRL 2023) These classifications are also valid for PVC-U pipes according to EN 1329-1, EN 1453-2 and EN 1452-1 and PVC-C pipes according to EN 1566-1
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	1.9	0 - 120	A	≥ 200	EI120 / E120
215 4108110	110	2.2	0 – 120	A	≥ 200	EI120 / E120
215 4108110	110	8.1	0 – 125	A	≥ 0	EI120 / E120
(6)	32 to 110	1.9/2.2⁽⁷⁾ to 8.1	0 – 120	A	≥ 200	EI120 / E120
215 8 123125	125	2.5	0 - 115	B	≥ 200	EI120 / E120
215 8 159161	160	3.2	0 - 100	B	≥ 200	EI120 / E120
215 8 159161	160	11.8	0 - 115	B	≥ 200	EI120 / E120
(6)	125 to 160	2.5/3.2⁽⁷⁾ to 11.8	0 – 100	B	≥ 0	EI120 / E120



A.1.1.4 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PP, with an acrylic or silicone annular sealing in rigid floor constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a Pacifyre® A (acrylic), Pacifyre® S (Silicone), Pacifyre® H (Hybrid) or Tangit Fire Protection FP 430 Acrylic annular sealing kit provided with a stone wool backfilling.

Characteristics of the services

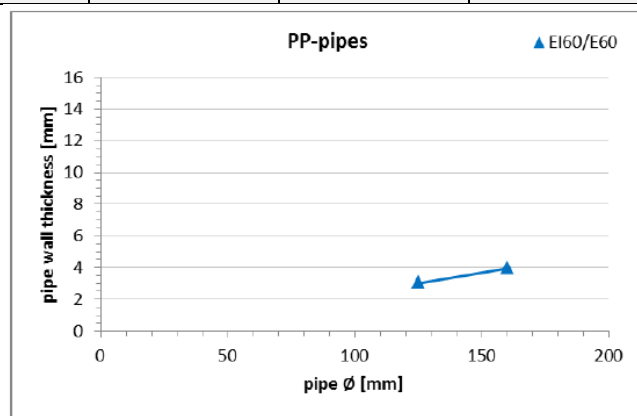
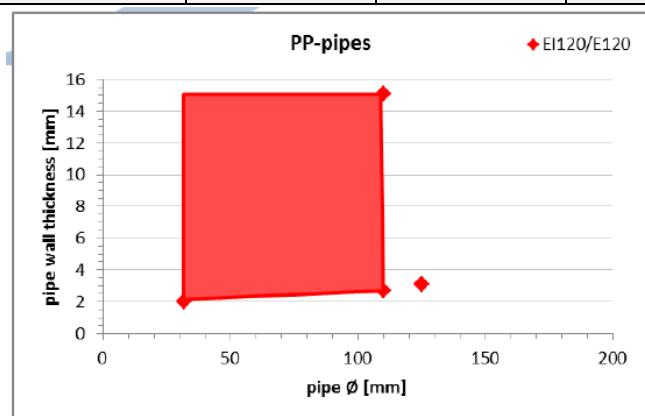
Plastic type	PP (like AGRU according to EN ISO 1873-1, ÖNORM B 5174 and DIN 8077/8087)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

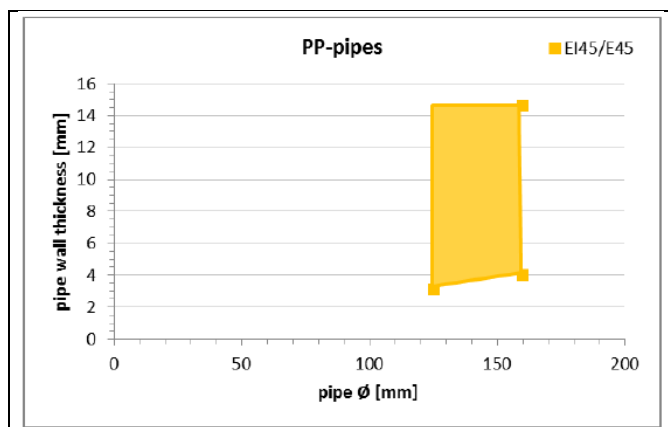
Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	2.0	0 - 30	A	≥ 200	EI120 / E120
215 4108110	110	2.7	0 - 30	A	≥ 200	EI120 / E120
215 4108110	110	15.1	0 - 35	A	≥ 200	EI120 / E120
⁽⁶⁾	32 to 110	2.0/2.7⁽⁷⁾ to 15.1	0 – 30	A	≥ 200	EI120 / E120
215 8 123125	125	3.1	0 - 30	B	≥ 200	EI120 / E120
215 8 123125	125	3.1	0 – 30	B	≥ 200	EI60 / E60
215 8 159161	160	4.0	5 - 30	B	≥ 200	EI60 / E60
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾	5 – 30	B	≥ 200	EI60 / E60
215 8 123125	125	3.1	0 - 30	B	≥ 200	EI45 / E45
215 8 159161	160	4.0	5 - 30	B	≥ 200	EI45 / E45
215 8 159161	160	14.6	0 - 30	B	≥ 200	EI45 / E45
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾ to 14.6	5 – 30	B	≥ 200	EI45 / E45





A.1.1.5 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PE 100, with an acrylic or silicone annular sealing in rigid floor constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a Pacifyre® A (acrylic), Pacifyre® S (Silicone), Pacifyre® H (Hybrid) or Tangit Fire Protection FP 430 Acrylic annular sealing kit provided with a stone wool backfilling.

Characteristics of the services

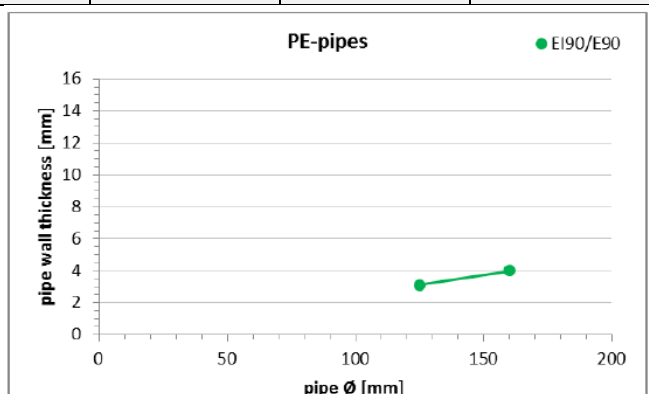
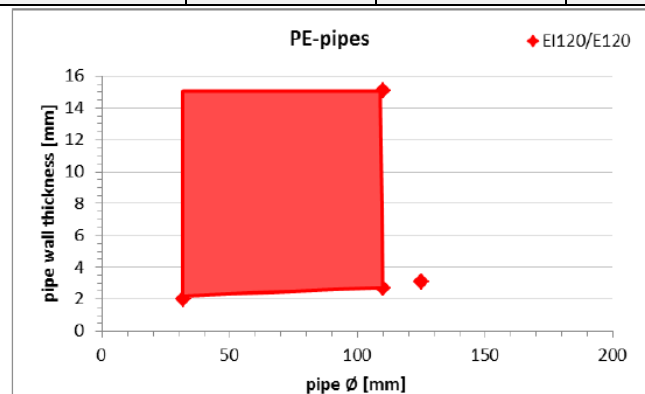
Plastic type	(1) PE 100 (like AGRU according to EN ISO 1872-1, EN 13244 and DIN 8074/8075, EUROTTANTA according to EN 12201-2, EN 1622 an EN ISO 15494 or DYKA according to EN 12201 (2) PE 80 (like AGRU according to EN ISO 1872-1, EN 13244 and DIN 8074/8075, EUROTTANTA according to EN 12201-2, EN 1622 an EN ISO 15494 or DYKA according to EN 12201
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

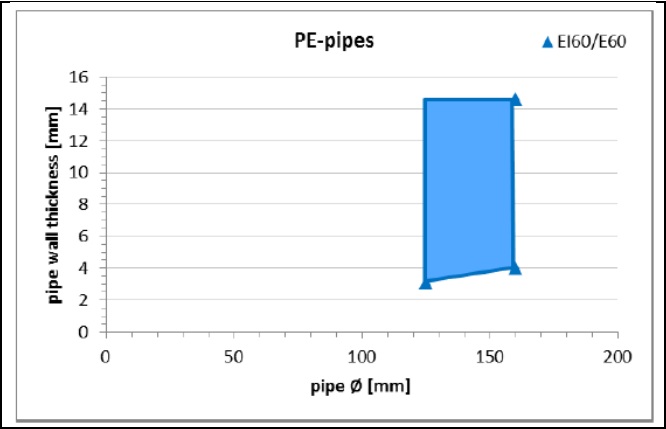
Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm] (Plastic Type)	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32 (1) (2)	2.0	0 - 30	A	≥ 200	EI120 / E120
215 4108110	110 (1) (2)	2.7	0 - 30	A	≥ 200	EI120 / E120
215 4108110	110 (1) (2)	15.1	0 - 35	A	≥ 200	EI120 / E120
(6)	32 to 110	2.0/2.7⁽⁷⁾ to 15.1	0 – 30	A	≥ 200	EI120 / E120
215 8 123125	125(1) (2)	3.1	0 - 30	B	≥ 200	EI120 / E120
215 8 123125	125 (1)	3.1	0 - 20	B	≥ 200	EI90 / E90
215 8 159161	160 (1)	4.0	10 - 30	B	≥ 200	EI90 / E90
(6)	125 to 160	3.1/4.0⁽⁷⁾	10 – 20	B	≥ 200	EI90 / E90
215 8 123125	125 (1)	3.1	0 - 20	B	≥ 200	EI60 / E60
215 8 159161	160 (1)	4.0	10 - 30	B	≥ 200	EI60 / E60
215 8 159161	160 (1)	14.6	0 - 20	B	≥ 200	EI60 / E60
(6)	125 to 160	3.1/4.0⁽⁷⁾ to 14.6	10 – 20	B	≥ 200	EI60 / E60





A.1.1.6 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PVC-U or PVC-C, with an acrylic or silicone annular sealing in rigid floor constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a Pacifyre® A (acrylic), Pacifyre® S (Silicone), Pacifyre® H (Hybrid) or Tangit Fire Protection FP 430 Acrylic annular sealing kit provided with a stone wool backfilling.

Characteristics of the services

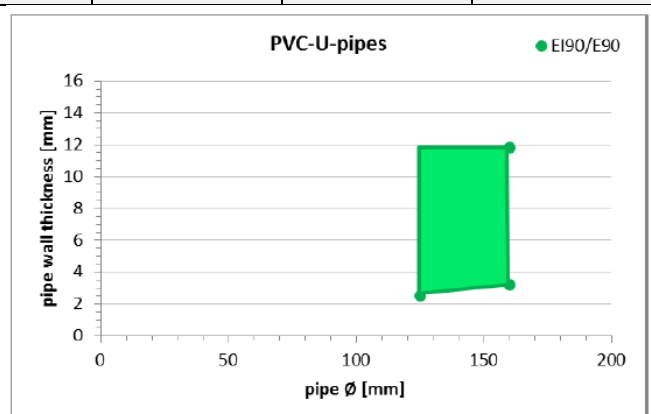
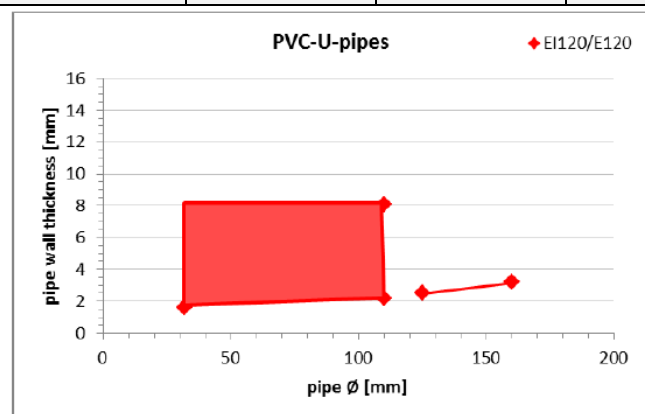
Plastic type	(1) PVC-U (like WKT according to EN ISO 1452, EN ISO 15493 and DIN 8061/8062 or WAVIN according to EN ISO 1453 and KOMO-BRL 2023) (2) PVC-U (like DYKA according to EN ISO 1452-2) These classifications are also valid for PVC-U pipes according to EN 1329-1, EN 1453-2 and EN 1452-1 and PVC-C pipes according to EN 1566-1
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32 (1) (2)	1.6	0 - 35	A	≥ 200	EI120 / E120
215 4108110	110 (1) (2)	2.2	0 - 35	A	≥ 200	EI120 / E120
215 4108110	110 (1) (2)	8.1	0 - 35	A	≥ 200	EI120 / E120
⁽⁶⁾	32 to 110	1.6/2.2⁽⁷⁾ to 8.1	0 – 35	A	≥ 200	EI120 / E120
215 8 123125	125 (1) (2)	2.5	0 - 30	B	≥ 200	EI120 / E120
215 8 159161	160 (1) (2)	3.2	10 - 40	B	≥ 200	EI120 / E120
⁽⁶⁾	125 to 160	2.5/3.2⁽⁷⁾	10 – 30	B	≥ 200	EI120 / E120
215 8 123125	125 (1)	2.5	0 - 30	B	≥ 200	EI90 / E90
215 8 159161	160 (1)	3.2	10 - 40	B	≥ 200	EI90 / E90
215 8 159161	160 (1)	11.8	0 - 30	B	≥ 200	EI90 / E90
⁽⁶⁾	125 to 160	2.5/3.2⁽⁷⁾ to 11.8	10 – 30	B	≥ 200	EI90 / E90



A.1.1.7 - Pacifyre® MKII Firesleeve collar used with aluminium composite pipes, with a mortar annular sealing in rigid floor constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a mortar annular sealing (Walraven BIS Pacifyre® FPM mortar).

Characteristics of the services

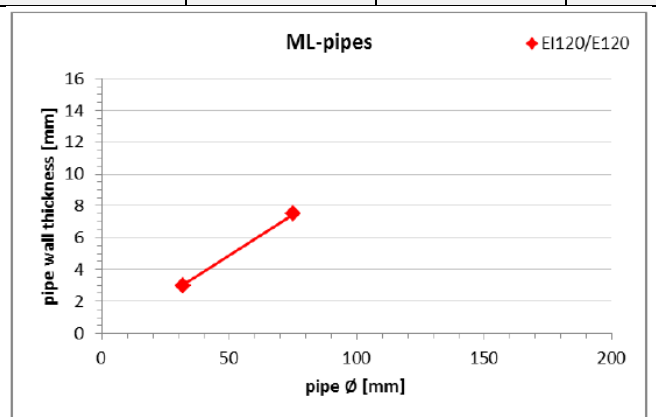
Plastic type	PE-RT Type II / AI / PE-RT Type II-pipes (like UPONOR MLCP according to EN ISO 21003 and DIN 16836)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	3.0	0-110	A	≥ 200	EI120 / E120
215 4 075077	75	7.5	0-100	A	≥ 200	EI120 / E120
(6)	32 to 75	3.0 to 7.5	0 – 100	A	≥ 200	EI120 / E120



A.1.1.8 - Pacifyre® MKII Firesleeve collar used with aluminium composite pipes, with an acrylic or silicone annular sealing in rigid floor constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a Pacifyre® A (acrylic), Pacifyre® S (Silicone), Pacifyre® H (Hybrid) or Tangit Fire Protection FP 430 Acrylic annular sealing kit provided with a stone wool backfilling.

Characteristics of the services

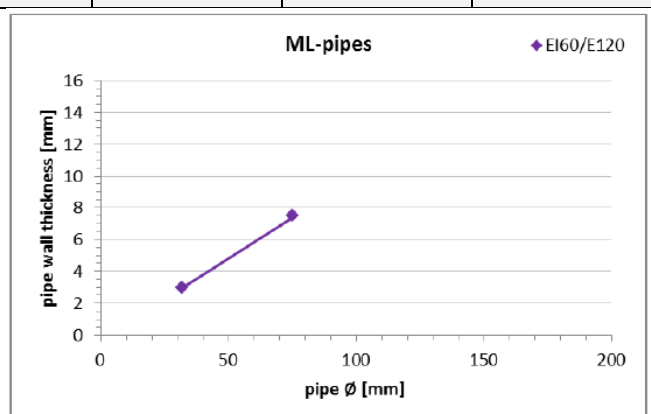
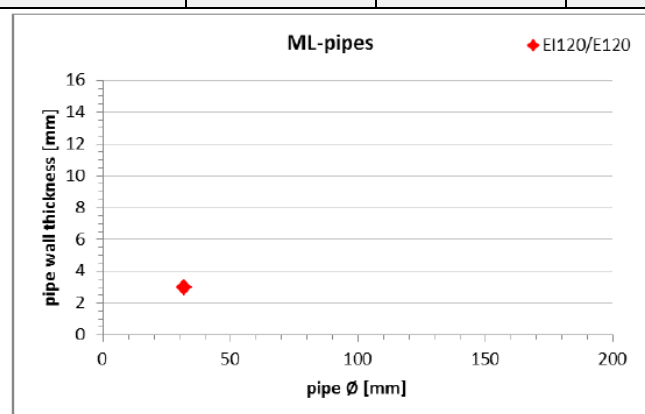
Plastic type	PE-RT Type II / AI / PE-RT Type II-pipes (like UPONOR MLCP according to EN ISO 21003 and DIN 16836)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

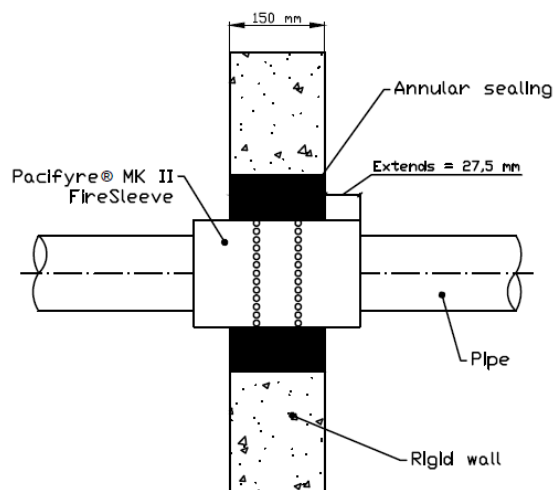
Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	3.0	0 - 30	A	≥ 200	EI120 / E120
215 4 030032	32	3.0	0 - 30	A	≥ 200	E160 / E120
215 4 075077	75	7.5	0 - 30	A	≥ 200	E160 / E120
(6)	32 to 75	3.0 to 7.5	0 - 30	A	≥ 200	E160 / E120



ANNEX 1.2: Pacifyre® MKII Firesleeve used in a rigid wall construction

This annex reports fire resistance classification of Pacifyre® MKII Firesleeve used in a rigid wall construction. It can be applied to a concrete or masonry wall of a thickness equal to 150 mm and a density equal or greater than 550 kg/m³.

The distance from the wall surface to the nearest support position is equal or smaller than 380 mm.



A.1.2.1 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PP, with a mortar annular sealing in rigid wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a mortar annular sealing (Walraven BIS Pacifyre® FPM mortar).

Characteristics of the services

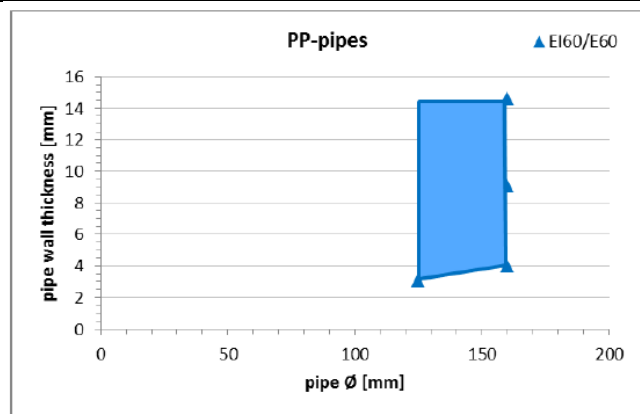
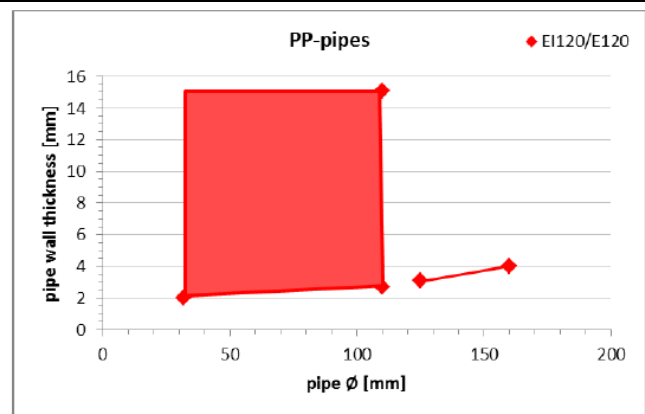
Plastic type	PP (like AGRU according to EN ISO 1873-1, ÖNORM B 5174 and DIN 8077/8087)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	2.0	0 - 100	A	≥ 0	EI120 / E120
215 4108110	110	2.7	0 - 100	A	≥ 0	EI120 / E120
215 4108110	110	15.1	0 - 100	A	≥ 0	EI120 / E120
⁽⁶⁾	32 to 110	2.0/2.7⁽⁷⁾ to 15.1	0 - 100	B	≥ 0	EI120 / E120
215 8 123125	125	3.1	0 - 95	B	≥ 200	EI120 / E120
215 8 159161	160	4.0	0 - 90	B	≥ 200	EI120 / E120
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾	0 - 90	B	≥ 200	EI120 / E120
215 8 123125	125	3.1	0 - 95	B	≥ 200	EI60 / E60
215 8 159161	160	4.0	0 - 90	B	≥ 200	EI60 / E60
215 8 159161	160	9.1	0 - 90	B	≥ 200	EI60 / E60
215 8 159161	160	14.6	0 - 90	B	≥ 200	EI60 / E60
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾ to 14.6	0 - 90	B	≥ 200	EI60 / E60



A.1.2.2 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PE 80 or PE 100, with a mortar annular sealing in rigid wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a mortar annular sealing (Walraven BIS Pacifyre® FPM mortar).

Characteristics of the services

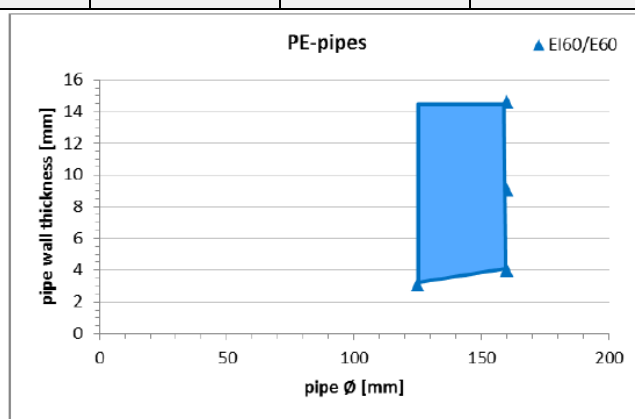
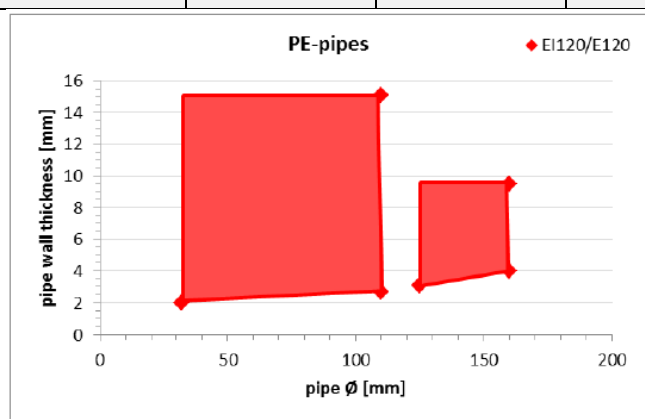
Plastic type	PE 100 (like AGRU according to EN ISO 1872-1, EN 13244 and DIN 8074/8075, EUROTTANTA according to EN 12201-2, EN 1622 and EN ISO 15494 or DYKA according to EN 12201-2)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	2.0	5 – 95	A	≥ 0	EI120 / E120
215 4108110	110	2.7	0 – 120	A	≥ 0	EI120 / E120
215 4108110	110	15.1	0 – 105	A	≥ 0	EI120 / E120
⁽⁶⁾	32 to 110	2.0/2.7⁽⁷⁾ to 15.1	5 – 95	A	≥ 200	EI120 / E120
215 8 123125	125	3.10	0 – 95	B	≥ 200	EI120 / E120
215 8 159161	160	4.0	0 – 90	B	≥ 200	EI120 / E120
215 8 159161	160	9.5	5 – 85	B	≥ 200	EI120 / E120
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾ to 9.5	5 – 85	B	≥ 200	EI120 / E120
215 8 123125	125	3.1	0 – 95	B	≥ 200	EI60 / E60
215 8 159161	160	4.0	0 – 90	B	≥ 200	EI60 / E60
215 8 159161	160	9.5	5 – 85	B	≥ 200	EI60 / E60
215 8 159161	160	14.6	0 – 90	B	≥ 200	EI60 / E60
⁽⁶⁾	125 to 160	3.1/4.0⁽⁷⁾ to 14.6	5 – 85	B	≥ 200	EI60 / E60



A.1.2.3 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PVC-U or PVC-C, with a mortar annular sealing in rigid wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a mortar annular sealing (Walraven BIS Pacifyre® FPM mortar).

Characteristics of the services

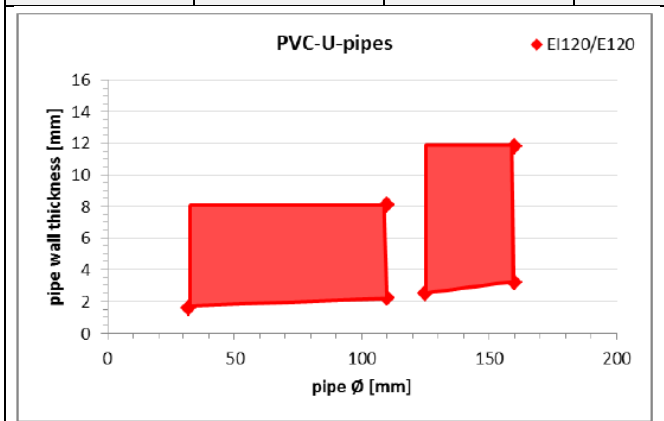
Plastic type	PVC-U (like WKT according to EN ISO 1452, EN ISO 15493 and DIN 8061/8062, WAVIN according to EN ISO 1453 and KOMO-BRL 2023 or DYKA according to EN ISO 1452-2) These classifications are also valid for PVC-U pipes according to EN 1329-1, EN 1453-2 and EN 1452-1 and PVC-C pipes according to EN 1566-1
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	1.6	0 - 100	A	≥ 200	EI120 / E120
215 4108110	110	2.2	0 - 100	A	≥ 0	EI120 / E120
215 4108110	110	8.1	0 - 100	A	≥ 0	EI120 / E120
(6)	32 to 110	1.6/2.2 ⁽⁷⁾ to 8.1	0 - 100	A	≥ 200	EI120 / E120
215 8 123125	125	2.5	0 - 95	B	≥ 200	EI120 / E120
215 8 159161	160	3.2	0 - 90	B	≥ 200	EI120 / E120
215 8 159161	160	11.8	0 - 90	B	≥ 200	EI120 / E120
(6)	125 to 160	2.5/3.2 ⁽⁷⁾ to 11.8	0 - 90	B	≥ 200	EI120 / E120



A.1.2.4 - Pacifyre® MKII Firesleeve collar used with aluminium composite pipes, with a mortar annular sealing in rigid wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a mortar annular sealing (Walraven BIS Pacifyre® FPM mortar).

Characteristics of the services

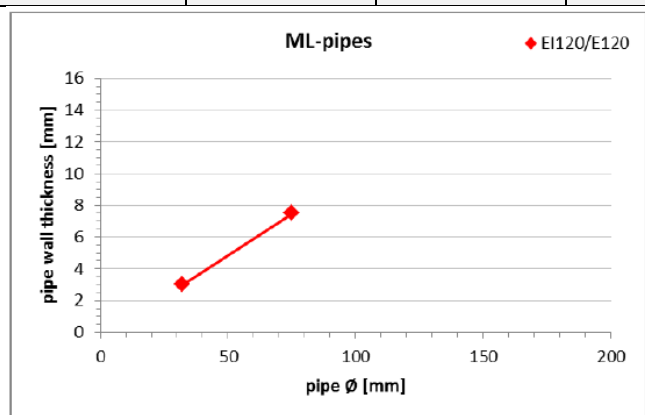
Plastic type	PE-RT Type II / AI / PE-RT Type II-pipes (like UPONOR MLCP according to EN ISO 21003 and DIN 16836)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	3.0	0 - 100	A	≥ 200	EI120 / E120
215 4 075077	75	7.5	0 - 35	A	≥ 200	EI120 / E120
(6)	32 to 75	3.0/7.5⁽⁷⁾	0 – 35	A	≥ 200	EI120 / E120



A.1.2.5 - Pacifyre® MKII Firesleeve collar used with aluminium composite pipes, with an acrylic or silicone annular sealing in rigid wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a Pacifyre® A (acrylic), Pacifyre® S (Silicone), Pacifyre® H (Hybrid) or Tangit Fire Protection FP 430 Acrylic annular sealing kit provided with a stone wool backfilling.

Characteristics of the services

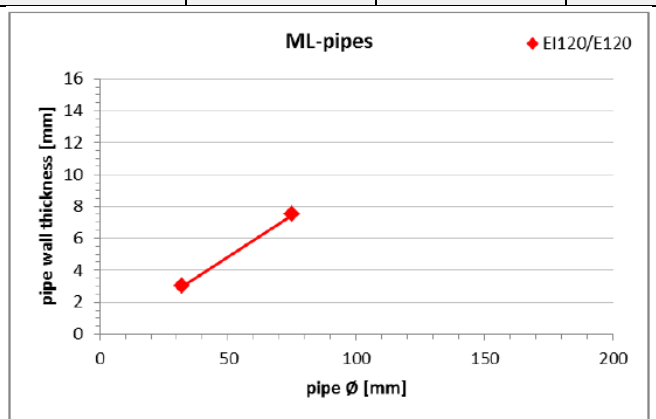
Plastic type	PE-RT Type II / AI / PE-RT Type II-pipes (like UPONOR MLCP according to EN ISO 21003 and DIN 16836)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	3.0	0 - 35	A	≥ 200	EI120 / E120
215 4 075077	75	7.5	8 - 35	A	≥ 200	EI120 / E120
(6)	32 to 75	3.0/7.5⁽⁷⁾	8 – 35	A	≥ 200	EI120 / E120



ANNEX 1.3: Pacifyre® MKII Firesleeve used in a flexible wall construction

This annex reports fire resistance classification of Pacifyre® MKII Firesleeve used in a flexible wall construction. It can be applied to all flexible wall constructions with a 90 minutes fire resistance classification provided

- The construction is classified in accordance with EN 135010-2
- The construction has an overall thickness of 100 mm
- Two layers of gypsum boards, overall board layer thickness of 12.5 mm, are applied on both sides of the construction.
- Flexible walls with timber studs are constructed with two layers of gypsum boards on both sides, no part of the penetration seal is closer than 100 mm to the stud, the cavity is closed between the penetration seal and the stud, and minimum 100 mm of insulation of class A1 or A2 according to EN 13501-1 is provided within the cavity between the penetration seal and the stud.

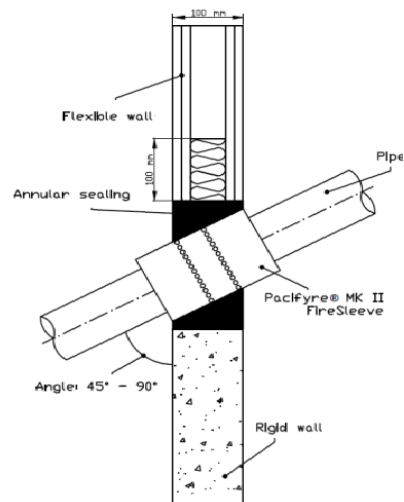
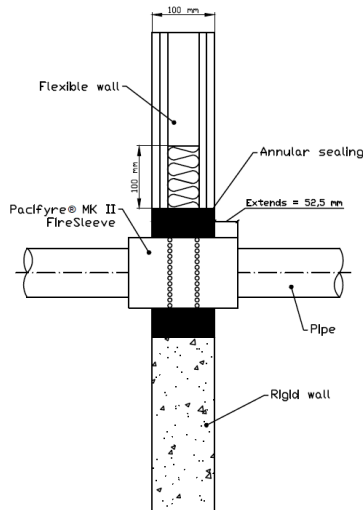
This annex covers applications with or without aperture framing

This annex does not cover sandwich panel constructions and flexible walls where the lining does not cover the studs on both sides

This annex may be applied to concrete or masonry elements of an overall thickness equal to 100.

The classification is applicable for pipes installed perpendicular to the penetration seal, when indicated in the tables, for pipes installed between 45° and 90° to the penetration seal in horizontal way.

The distance from the wall surface to the nearest support position is equal or smaller than 350 mm.



A.1.3.1 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PP, with an acrylic or silicone annular sealing in flexible wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a Pacifyre® A (acrylic), Pacifyre® S (Silicone), Pacifyre® H (Hybrid) or Tangit Fire Protection FP 430 Acrylic annular sealing kit provided with a stone wool backfilling and a mineral wool insulation inside the flexible wall as described before.

Characteristics of the services

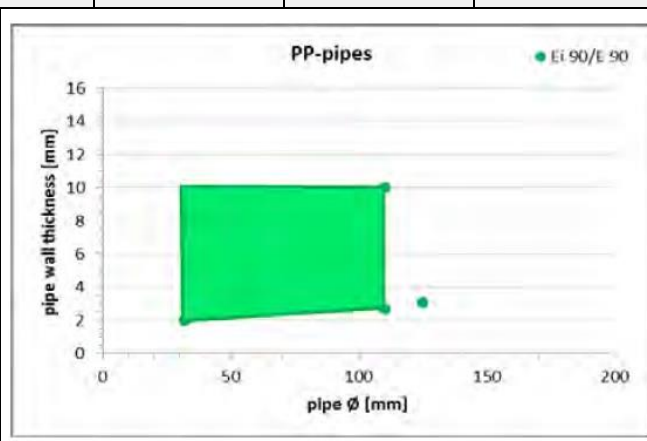
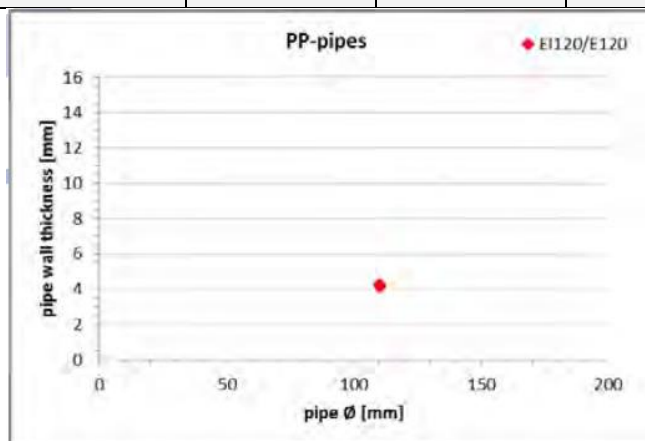
Plastic type	PP (like AGRU according to EN ISO 1873-1, ÖNORM B 5174 and DIN 8077/8087)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

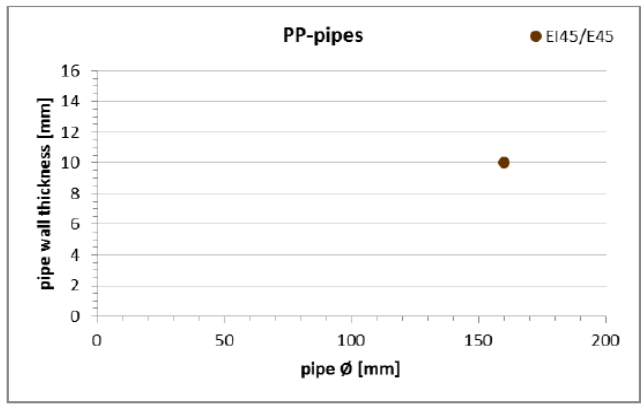
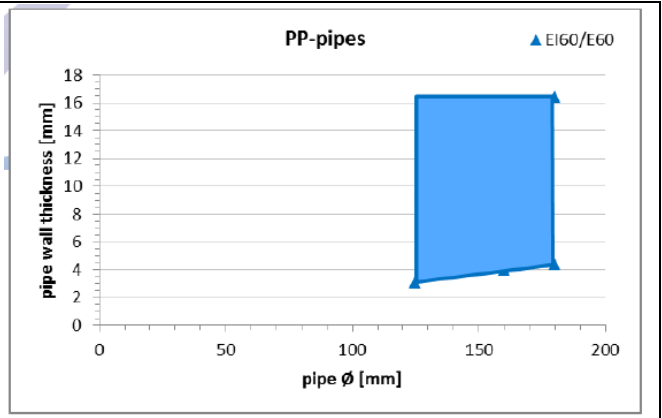
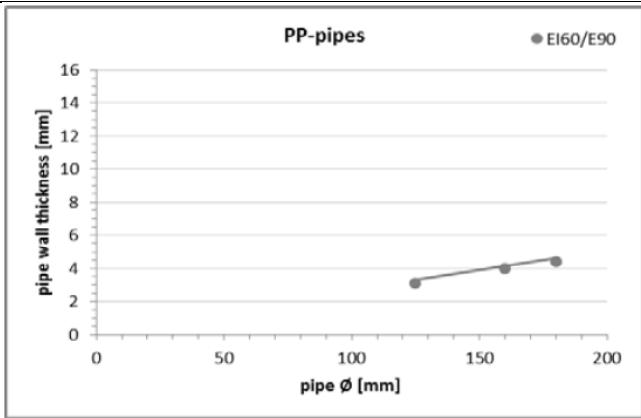
Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4108110	110	10.0	0 - 20	A	≥ 200	EI120 / E120
				A		
215 4 030032	32	2.0	17 - 28	A	≥ 0	EI90 / E90
215 4108110	110	2.7	20 - 21	A	≥ 0	EI90 / E90
⁽⁶⁾	32 to 110	2.0 to 2.7	20 - 21	A	≥ 0	EI90 / E90
215 4108110	110	10.0	0 - 20	A	≥ 200	EI90 / E90
⁽⁶⁾	32 to 110	2.0/2.7⁽⁷⁾ to 10.0	20	A	≥ 200	EI90 / E90
215 8 123125	125	3.1	17 - 25	B	≥ 200	EI90 / E90
215 8 123125	125	3.1	17 - 25	B	≥ 200	EI60 / E90
215 8 159161	160	4.0	0 - 30	B	≥ 200	EI60 / E90
215 8 180182	180	4.4	16 - 21	B	≥ 200	EI60 / E90
⁽⁶⁾	125 to 180	3.1 to 4.4	16 - 21	B	≥ 200	EI60 / E90
215 8 123125	125	3.1	20 - 22	B	≥ 200	EI60 / E60
215 8 159161	160	4.0	19 - 20	B	≥ 200	EI60 / E60
215 8 180182	180	4.4	16 - 21	B	≥ 200	EI60 / E60
215 8 180182	180	16.4	15 - 21	B	≥ 200	EI60 / E60
⁽⁶⁾	125 to 180	3.1/4.4⁽⁷⁾ to 16.4	20 - 20	B	≥ 200	EI60 / E60
215 8 159161	160	10.0	0 - 35	B	≥ 200	EI45 / E45





A.1.3.2 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PE 80 or PE 100, with an acrylic or silicone annular sealing in flexible wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a Pacifyre® A (acrylic), Pacifyre® S (Silicone), Pacifyre® H (Hybrid) or Tangit Fire Protection FP 430 Acrylic annular sealing kit provided with a stone wool backfilling and a mineral wool insulation inside the flexible wall as described before.

Characteristics of the services

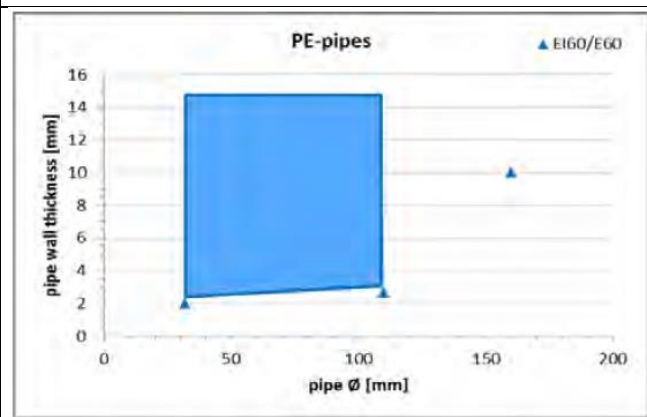
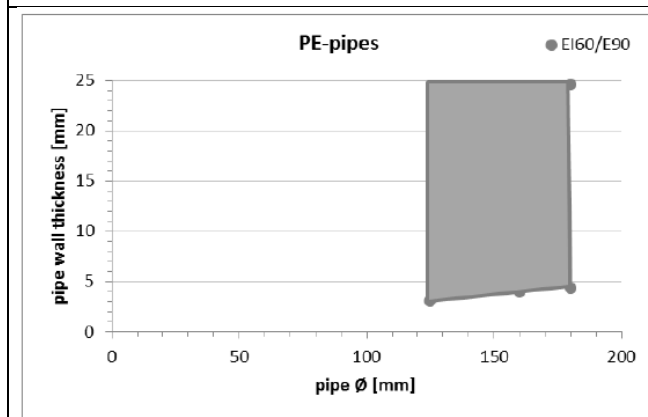
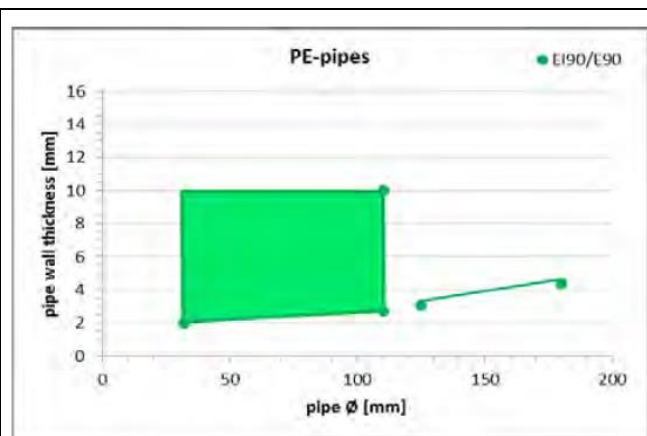
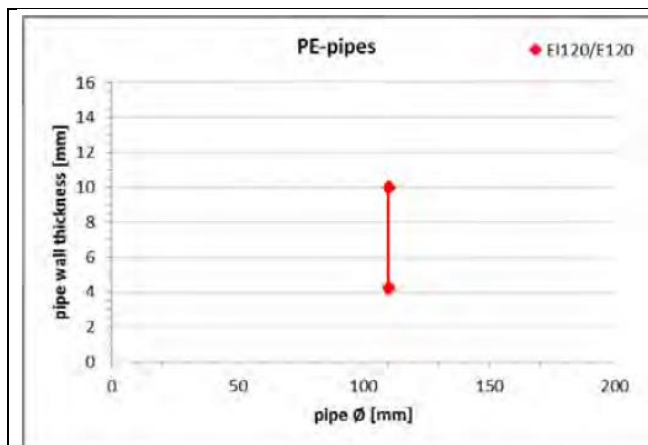
Plastic type	(1) PE 100 (Like AGRU according to EN ISO 1872-1, EN 12201, EN 13244 and DIN 8074/8075) (2) PE 80 and PE 100 (Like AGRU according to EN ISO 1872-1, EN 12201, EN 13244 and DIN 8074/8075 or DYKA according to EN 12201-2) (3) PE 100 (Like AGRU according to EN ISO 1872-1, EN 12201, EN 13244 and DIN 8074/8075 or EUROTTANTA according to EN 12201-2, EN 1622 and EN ISO 15494) (4) PE 80 and PE 100 (Like AGRU according to EN ISO 1872-1, EN 12201, EN 13244, EUROTTANTA according to EN 12201-2, EN 1622 and EN ISO 15494 and DIN 8074/8075 or DYKA according to EN 12201-2)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4108110	110 (1)	4.2	0 - 20	A	≥ 200	EI120 / E120
215 4108110	110 (1)	10.0	0 - 20	A	≥ 200	EI120 / E120
⁽⁶⁾	110	4.2 to 10	0 – 20	A	≥ 200	EI120 / E120
215 4 030032	32 (2)	2.0	14 - 30	A	≥ 0	EI90 / E90
215 4108110	110 (2)	2.7	12 - 26	A	≥ 0	EI90 / E90
⁽⁶⁾	32 to 110	2.0 to 2.7	12 – 26	A	≥ 0	EI90 / E90
215 4108110	110 (2)	10.0	0 - 20	A	≥ 200	EI90 / E90
⁽⁶⁾	32 to 110	2.5/2.7⁽⁷⁾ to 10.0	12 – 20	A	≥ 200	EI90 / E90
215 8 123125	125 (2)	3.1	20 - 22	B	≥ 200	EI90 / E90
215 8 180182	180 (2)	4.4	16 - 24	B	≥ 200	EI90 / E90
⁽⁶⁾	125 to 180	3.1/4.4⁽⁷⁾	20 – 22	B	≥ 200	EI90 / E90
215 8 123125	125 (3)	3.1	20 - 22	B	≥ 200	EI60 / E90
215 8 159161	160 (3)	4.0	18 - 21	B	≥ 200	EI60 / E90
215 8 180182	180 (3)	4.1	16 - 24	B	≥ 200	EI60 / E90
215 8 180182	180 (3)	24.6	20	B	≥ 200	EI60 / E90
⁽⁶⁾	125 to 180	3.1/4.4⁽⁷⁾ to 24.6	20	B	≥ 200	EI60 / E90
215 4 030032	32 (4)	2.0	14 – 30	A	≥ 0	EI60 / E60
215 4108110	110 (4)	2.7	12 – 26	A	≥ 0	EI60 / E60
⁽⁶⁾	32 to 110	2.0/2.7⁽⁷⁾	14 – 26	A	≥ 0	EI60 / E60
215 4108110	110 (4)	15.1	20		≥ 200	EI60 / E60
215 8 159161	160 (4)	10.0	0 - 20		≥ 200	EI60 / E60



A.1.3.3 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PVC-U, with an acrylic or silicone annular sealing in flexible wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a Pacifyre® A (acrylic), Pacifyre® S (Silicone), Pacifyre® H (Hybrid) or Tangit Fire Protection FP 430 Acrylic annular sealing kit provided with a stone wool backfilling and a mineral wool insulation inside the flexible wall as described before.

Characteristics of the services

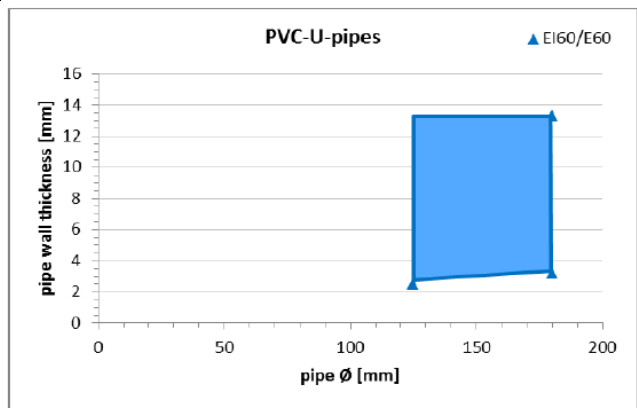
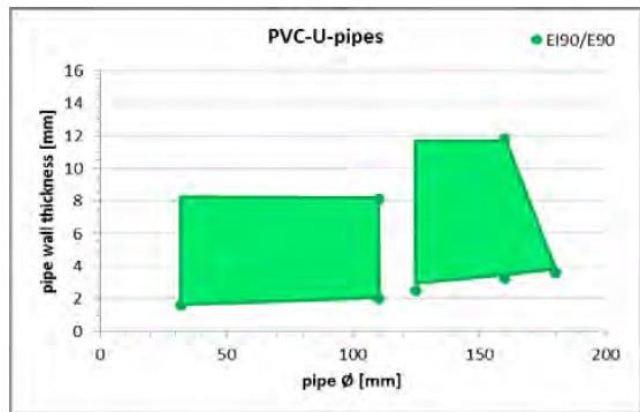
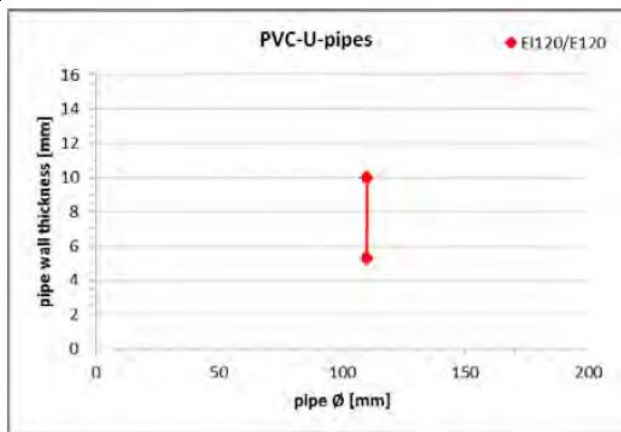
Plastic type	(1) PVC-U (Like WKT according to EN ISO 1452, EN ISO 15493 and DIN 8061/8062) (2) PVC-U (Like WKT according to EN ISO 1452, EN ISO 15493 and DIN 8061/8062, WAVIN according to EN ISO 1453 and KOMO-BRL 2023 or DYKA according to EN ISO 1452-2 and EN 1329) (3) PVC-U (Like DYKA according to EN 1401) (4) PVC-U (Like WKT according to EN ISO 1452, EN ISO 15493 and DIN 8061/8062 or WAVIN according to EN ISO 1453 and KOMO-BRL 2023) These classifications are also valid for PVC-U pipes according to EN 1329-1, EN 1453-2 and EN 1452-1 and PVC-C pipes according to EN 1566-1
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4108110	110 (1)	5.3	0 - 20	A	≥ 200	EI120 / E120
215 4108110	110 (1)	10.0	0 - 20	A	≥ 200	EI120 / E120
⁽⁶⁾	110	5.3/10.0⁽⁷⁾	0 – 20	A	≥ 200	EI90 / E90
215 4 030032	32 (2)	1.6	19-20	A	≥ 0	EI90 / E90
215 4108110	110 (2)	2.0	0 – 20	A	≥ 200	EI90 / E90
215 4108110	110 (2)	8.1	0 – 34	A	≥ 0	EI90 / E90
⁽⁶⁾	32 to 110	1.6/2.0⁽⁷⁾ to 8.1	19 – 20	A	≥ 200	EI90 / E90
215 8 123125	125 (2)	2.5	20 – 24	B	≥ 200	EI90 / E90
215 8 159161	160 (2)	3.2	20 – 21	B	≥ 200	EI90 / E90
215 8 159161	160 (2)	11.8	20 – 25	B	≥ 200	EI90 / E90
⁽⁶⁾	125 to 160	2.5/3.2⁽⁷⁾ to 11.8	20 – 21	B	≥ 200	EI90 / E90
215 8 180182	180 (2)	3.6	18 - 25		≥ 200	EI90 / E90
⁽⁶⁾	160 to 180	3.2/3.6⁽⁷⁾	20 – 21	B	≥ 200	EI90 / E90
⁽⁶⁾	160 to 180	11.8/3.6⁽⁷⁾	20 – 21	B	≥ 200	EI90 / E90
215 4108110	110 (3)	2	17 – 23	A	≥ 200	EI90 / E90
215 8 123125	125 (4)	2.5	20 – 24	B	≥ 200	EI60 / E60
215 8 159161	160 (4)	3.2	20 – 21	B	≥ 200	EI60 / E60
215 8 159161	160 (4)	11.8	20 – 25	B	≥ 200	EI60 / E60
215 8 180182	180 (4)	3.6	18 – 25	B	≥ 200	EI60 / E60
215 8 180182	180 (4)	13.3	17 – 23	B	≥ 200	EI60 / E60
⁽⁶⁾	125 to 180	2.5/3.6⁽⁷⁾ to 13.3	20 – 21	B	≥ 200	EI60 / E60



A.1.3.4 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PP, with a gypsum annular sealing in flexible wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a gypsum annular sealing with a mineral wool backfilling.

Characteristics of the services

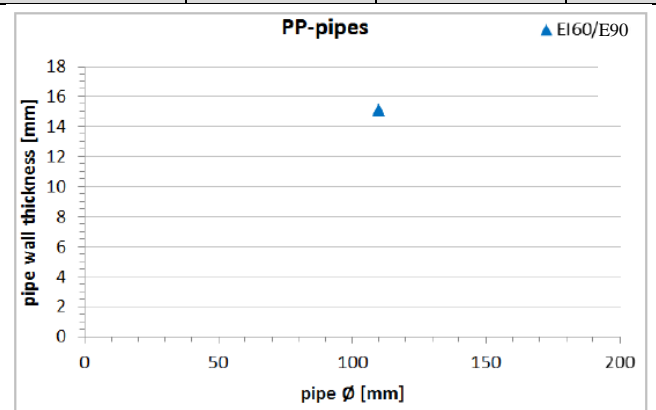
Plastic type	PP (like Aquatherm – SDR 7.4 according to ISO 21003)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4108110	110	15.1	10 – 35		≥ 200	EI60 / E90



A.1.3.5 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PE 100, with a gypsum annular sealing in flexible wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a gypsum annular sealing with a mineral wool backfilling.

Characteristics of the services

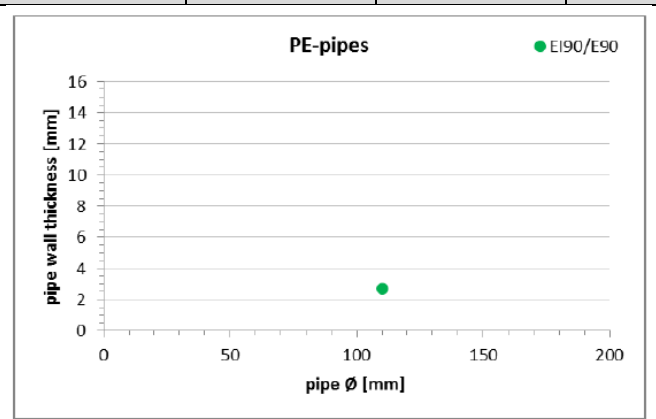
Plastic type	PE 100 (Like AGRU according to EN ISO 1872-1, EN 12201, EN 13244 and DIN 8074/8075)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C
Pipe orientation	The classification is also applicable for pipes installed between 45° and 90° to the penetration seal in horizontal way.

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm] (Plastic Type)	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4108110	110	2.7	10 - 30		≥ 200	EI90 / E90



A.1.3.6 - Pacifyre® MKII Firesleeve collar used with plastic pipes, made of PVC-U, with a gypsum annular sealing in flexible wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a gypsum annular sealing with a mineral wool backfilling.

Characteristics of the services

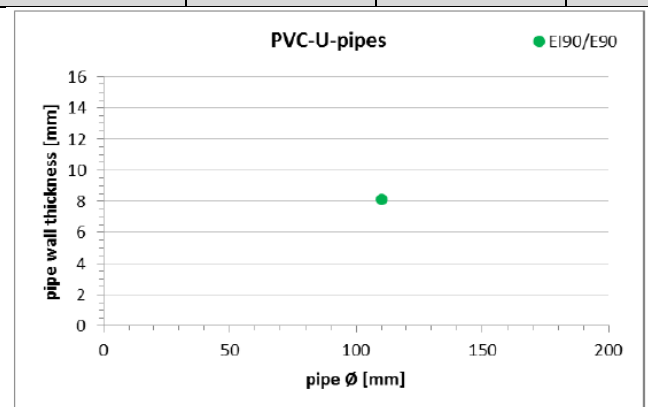
Plastic type	PVC-U (Like WKT according to EN ISO 1452, EN ISO 15493 and DIN 8061/8062) These classifications are also valid for PVC-U pipes according to EN 1329-1, EN 1453-2 and EN 1452-1 and PVC-C pipes according to EN 1566-1
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C
Pipe orientation	The classification is also applicable for pipes installed between 45° and 90° to the penetration seal in horizontal way.

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4108110	110	8.1	18 - 20		≥ 200	EI90 / E90



A.1.3.7 - Pacifyre® MKII Firesleeve collar used with aluminium composite pipes, with an acrylic or silicone sealing in flexible wall constructions

Sealing system: The Pacifyre® MKII Firesleeve is used in combination with a Pacifyre® A (acrylic), Pacifyre® S (Silicone), Pacifyre® H (Hybrid) or Tangit Fire Protection FP 430 Acrylic annular sealing kit provided with a stone wool backfilling and a mineral wool insulation inside the flexible wall as described before.

Characteristics of the services

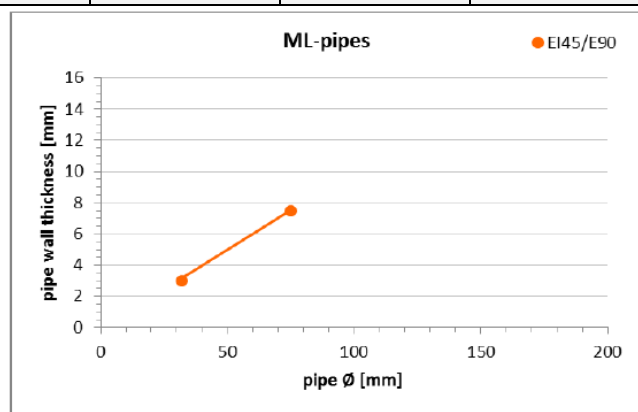
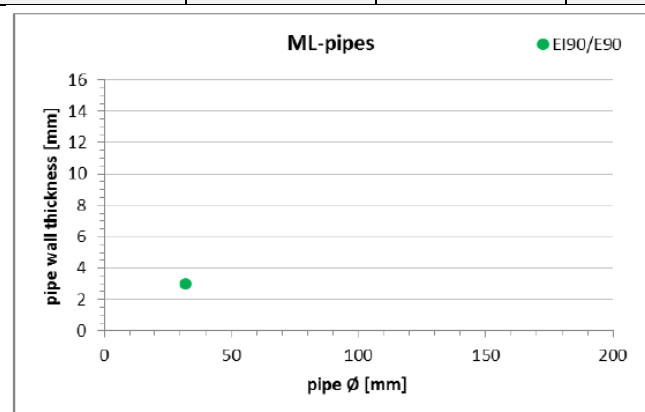
Plastic type	PE-RT Type II / AI / PE-RT Type II-pipes (like UPONOR MLCP according to EN ISO 21003 and DIN 16836)
Pipe diameter (Ø)	See fire resistance class hereafter
Pipe wall thickness (e)	See fire resistance class hereafter

Installation specifications

Number of pipes	1 pipe per collar
Pipe end configuration	Pipe end configurations U/C and C/C

Fire resistance class

Pacifyre® MKII Firesleeve Collar Code	Pipe diameter [mm]	Pipe thickness [mm]	Annular space a ₁ (mm)	Design group	Separation a ₂ (mm)	Fire resistance
215 4 030032	32	3.0	19 – 23	A	≥ 200	EI90 / E90
215 4 030032	32	3.0	19 – 23	A	≥ 200	EI45 / E90
215 4 075077	75	7.5	18 – 23	A	≥ 200	EI45 / E90
(6)	32 to 75	3.0/7.5⁽⁷⁾	19 – 23	A	≥ 200	EI45 / E90



ANNEX 2: REFERENCE DOCUMENTS

EN 1366-3:2009	Fire resistance tests for service installations – Part 3: Penetration seals
EN 13501-1+A1:2010	Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests
EN 13501-2+A1:2010	Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services
EOTA TR 024 amended (July 2009)	Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products
ETAG 026-1 (January 2008)	Fire Stopping and Fire Sealing Products Part 1: General
ETAG 026-2 amended (October 2011)	Fire Stopping and Fire Sealing Products Part 2: Penetration Seals