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Authorised and notified according
to Article 29 of the Regulation (EU)
No 305/2011 of the European
Parliament and of the Council of 9
March 2011

MEMBER OF EOTA



European Technical Assessment ETA-17/0285 of 2021/03/22

General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the
construction product:

Pacifyre® BFC by Walraven

Product family to which the
above construction product
belongs:

Fire Stopping and Sealing Product -
Pipe penetration seal.

Manufacturer:

J. van Walraven Holding B.V.
Industrieweg 5
NL-3641 RK Mijdrecht
Tel. + 31 297 23 30 00
Internet www.walraven.com

Manufacturing plant:

Walraven Factory W4

This European Technical
Assessment contains:

20 pages including 7 annexes which form an integral
part of the document

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

EAD 350454-00-1104 Fire Stopping and Fire Sealing
Products, Penetration Seals

This version replaces:

The previous ETA with the same number, issued on
2017-05-09

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

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product

This European Technical Assessment refers to the Pacifyre® BFC for use in Penetration Seals.

Type of penetration seal system: Pipe closure device – collar (EAD 350454-00-1104 Fire Stopping and Fire Sealing Products, Part 2 Penetration Seals, clause 1.1). Pacifyre® BFC consists of a metal casing with feet for fixations to the wall or floor partition. The metal has a minimum thickness of 0,5 mm and is sufficiently protected against corrosion. The metal casing holds multiple layers “Pacifyre® IM3” intumescent of 2 mm thick, 40mm wide and a density of approximately $1210 \pm 10 \text{ kg/m}^3$. The layers of Pacifyre® IM 3 intumescent are held in place by a rubber band on one side and by a metal strip (0,5 mm thick, 8 mm wide) protruding the intumescent layers and metal casing, locking the intumescent and metal casing together by bending the metal lip. The metal strip also functions as a closing mechanism for connecting both ends of the Pacifyre® BFC.

The collars have an outer diameter of 61 mm up to 200 mm (excluding the 25mm long fixing feet) that easily fit pipes from 50mm diameter till 160mm diameter. The Pacifyre® BFC is permitted on flexible and rigid walls with a thickness of at least 100 mm and in rigid floors with a thickness of at least 150 mm. The radial clearance between the penetrating plastic pipes – including insulation – and the vertical or horizontal building part closing off the room has to be filled completely with mineral building materials.

Detailed specifications for identification and performance criteria relevant for fire safety with regard to the construction products are given in annexes 1-7.

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

The construction product Pacifyre® BFC is intended to form a penetration seal or to form part of a penetration seal, which is used to maintain the fire resistance of a separating element (flexible wall, rigid wall or rigid floor).

for use as components with a fire protection effect in walls or floors made from concrete, aerated concrete, masonry or walls made from light weight partition structures that are subject to requirements related to fire

protection. Their fire-resistant capability prevents heat transmission and fire spreading in the event of fire.

Within the scope of this ETA, the fire resistance was demonstrated for pipes in penetration seals which consisted of the components listed in Table 1

Product type	Trade name
Collar	Pacifyre® BFC
Intumescent	Pacifyre® IM 3

Table 1 – components of the verified penetration seals

Pipe penetration seals are used to seal off openings in fire resistant walls, which are penetrated by cables, and serves to preserve the walls' fire resistance in the area of the penetrations. Detailed information and data on the verified penetration seals are given in Annexes 1-7.

The performances given in Section 3 exclusively relate to this penetration seals (e.g., with respect to the design and arrangement of the components of the penetration seals and the type and position of the services, see annexes 1-7.

The verification and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of at least 10 years for Pacifyre® BFC.

The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer but are to be regarded only as a means for choosing the right product in relation to the expected economically reasonable working life of the works.

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

Characteristic	Assessment of characteristic
3.2 Safety in case of fire (BWR 2)	
Reaction to fire	<p>The collar housing “<i>Pacifyre</i>[®] BFC” made of steel is classified as Euroclass A1 in accordance with EN 13501-1.</p> <p>The intumescent material “<i>Pacifyre</i>[®] IM 3” is classified as Euroclass E in accordance with EN 13501-1</p>
Resistance to fire	The Pacifyre [®] BFC for pipe penetrations is permitted in lightweight partition walls and solid walls with a thickness of at least 100 mm and in solid ceilings with a thickness of at least 150 mm. The system is classified as described in annex 1 in accordance with EN 13501-2
3.3 Hygiene, health and the environment (BWR 3)	
Air permeability	No performance assessed
Water permeability	No performance assessed
Content, emission and/or release of dangerous substances	<p>The manufacturer of the intumescent material “<i>Pacifyre</i>[®] IM 3” declares the product does not contain dangerous substances detailed in Council Directive 67/548/EEC and Regulation (EC) no 1272/2008 above the acceptable limits, with reference to submitted ETA-13/0793.</p> <p>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 Product Directive, these requirements need also to be complied with, when and where they apply.</p>
3.4 Safety and accessibility in use (BWR 4)	
Mechanical resistance and stability	No performance assessed
Resistance to impact/movement	No performance assessed
Adhesion	No performance assessed
Durability	No performance assessed
3.5 Protection against noise (BWR 5)	
Airborne sound insulation	No performance assessed
3.6 Energy Economy and heat retention (BWR 6)	
Thermal properties	No performance assessed
Water vapour permeability	No performance assessed

*) See additional information in section 3.9 – 3.12.

3.9 General aspects

Durability and serviceability:

The assessment of durability and serviceability is part of testing the essential characteristics. “*Pacifyre® IM 3*” pipe penetration seal fulfils the requirements according to EAD 350454-00-1104 clause 2.4.12.1.3.3 – for use **Category type: Y₁**. Since the requirements for Type Y₁ are met, also the requirements for Type Y₂, Z₁ and Z₂ are fulfilled, without expecting significant changes of the characteristics relevant for fire sealing and fire stopping properties and the result performance, with reference to submitted ETA-13/0793.

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

The proof and its assessment concerning applicability under climate conditions were carried out in accordance with EOTA TR 024 clause 4.2. thermal conditions (23±3) [°C] and r. F (50±5) [%]

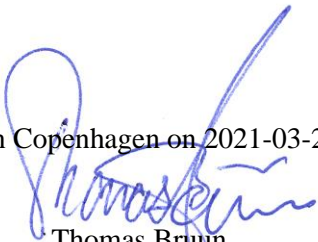
4 Assessment and verification of constancy of performance (AVCP)

4.1 AVCP system

According to the decision 1999/454/EC of the European Commission, as amended by 2001/596/EC, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is 1.

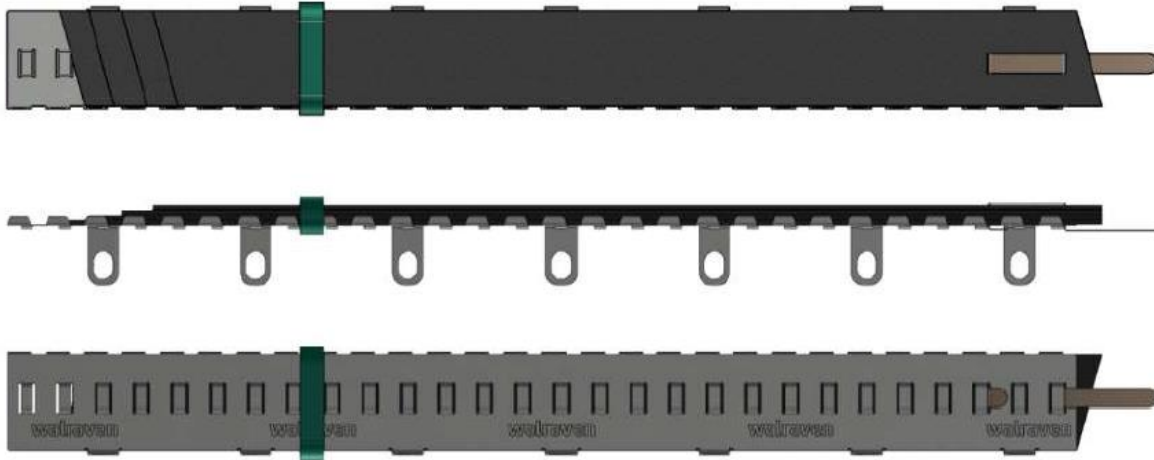
5 Technical details necessary for the implementation of the AVCP system, as foreseen in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking

Issued in Copenhagen on 2021-03-22 by

Thomas Bruun
Managing Director, ETA-Danmark

1.1 Technical description of the products

“Pacifyre® BFC system” is a product to be used as pipe penetration seal based on the Fire Collar “Pacifyre® BFC” in combination with gap fillers , fixing material and insulations (additional components).s



1.1.1 Pacifyre BFC

Components of the Fire collar “Pacifyre® BFC”	Characteristics
Pacifyre® IM 3	Flexible intumescent sheet with a nominal thickness of 2 mm and a width of 40 mm and varying lengths acc. specification.
Pacifyre® BFC metal	Metal housing and locking strip made of pre-galvanized steel with a width of 42,5 mm and a thickness of 0,25 mm for housing the “Pacifyre® IM 3” intumescent.
Pacifyre® BFC Elastic	Elastic band holding the loose ends of the “Pacifyre® IM 3” intumescent strips. Colour can vary.

1.1.2 Pacifyre BFC Gap fillers

Gap fillers (additional components)	Characteristics
Pacifyre® A	One component fire retardant sealant based on a water based acrylic dispersion with plasto-elastic properties. See ETA 16-1008 for further details and standalone applications for linear joints.
Pacifyre® S	Neutral one component fire retardant sealant based on silicone. See ETA 16-1007 for further details and standalone applications for linear joints
Pacifyre® H	One component fire retardant sealant based on a silyl modified polymer (MS-Polymer). See ETA 16-1009 for further details and standalone applications for linear joints.
Gap Filler	Non-combustible material with classification A1 or A2-s1,d0 according to EN 13501-1 which is dimensionally stable as e.g., mortar, cement or gypsum joint filler. For example, Pacifyre® FPM
Mineral wool boards	Non-combustible mineral wool material with classification A1 or A2-s1,d0 according to EN 13501-1 with a minimal density of 140 kg/m ³ , a thickness ≥50 mm and a melting point ≥1000 °C according to DIN 4102-17. For example: Pacifyre MP Board

1.1.3 Pacifyre BFC Fixing

Fixing options of the fire collar "Pacifyre® BFC"	Characteristics
Pacifyre® Fixing Set 1	Set containing <ul style="list-style-type: none"> • steel plugs: Ø6 x 32 mm • torx screws: Ø5 x 42 mm • penny washers: Ø15 x 1 mm thick Used for rigid walls and floor assemblies
Pacifyre® Fixing Set 2	Set containing hollow wall plugs/cavity plugs of 6 x 63mm. suitable for double gypsum boards fixing
Pacifyre® Fixing Set 3	Set containing Spiral plugs Ø9 x 40 mm long made from steel wire Ø1,6mm. Used for Mineral wool board assemblies.
Threaded rods and nuts	Size M8 threaded rod and nuts can be used for all types of wall and floor assemblies

Amount of fixpoints per collar size according installation instruction.

Sealants Pacifyre® A, Pacifyre® S and Pacifyre® H do not provide structural support for any of the fixing materials and should be avoided when fixing the Pacifyre® BFC.

1.2 Specification of the intended use(s)

“Pacifyre® BFC” is intended to be used as a pipe penetration seal to reinstate the fire resistance performance of flexible wall constructions temporarily or permanently, rigid wall constructions and rigid floor constructions where they have been provided with apertures which are penetrated by various pipes.

“Pacifyre® BFC” can be installed in the types of separating elements as specified in the following table.

Separating element	Construction
Flexible walls	<ul style="list-style-type: none"> • Steel studs or timber studs lined on both faces with minimum 2 layer of boards (minimum thickness 12,5 mm) with classification A2-s1,d0 or A1 according to EN 13501-1 • For timber stud walls the cavity between the penetration seal and the timber stud has to be closed with minimum 100 mm of insulation with classification A1 or A2 according to EN 13501-1 • Minimum total wall thickness 100 mm • Classification according to EN 13501-2: \geq EI 90 • This European Technical Assessment does not cover sandwich panel constructions and flexible walls where the lining does not cover studs on both sides. Penetrations in such constructions shall be tested on a case-by-case basis
Rigid walls	<ul style="list-style-type: none"> • Aerated concrete, concrete, masonry • Minimum thickness 100 mm • The rigid wall shall be classified in accordance with EN 13501-2 for the required fire resistance period
Rigid floors	<ul style="list-style-type: none"> • Aerated concrete, concrete • Minimum density 550 kg/m³ • Minimum thickness 150 mm • The rigid floor shall be classified in accordance with EN 13501-2 for the required fire resistance period

1.3 General assumptions

It is assumed that:

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

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

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

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

The risk of downward spread of fire caused by burning material which drips through a pipe to floors below, is not considered in this European Technical Assessment (see EN 1366-3:2009, clause 1).

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

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

1.4 Pipe end configuration

- For pipes classified with pipe end configuration U/U the pipe end configuration can be U/U, C/U, U/C and C/C.
- For pipes classified with pipe end configuration U/C the pipe end configuration can be U/C and C/C.

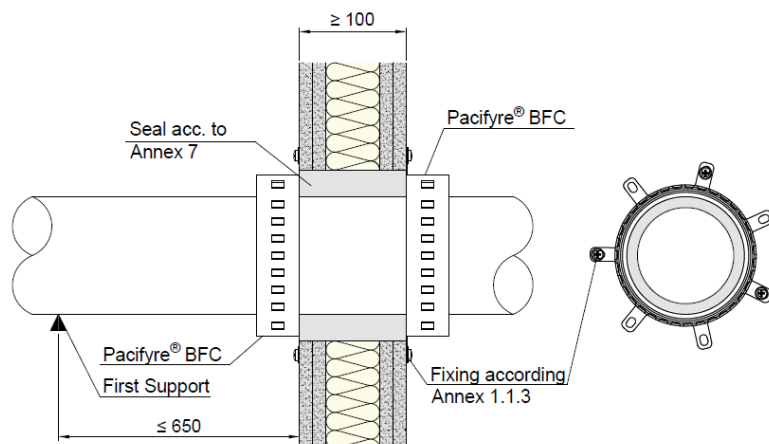
All pipes in this ETA have been classified as U/C unless otherwise mentioned.

1.5 Service support constructions

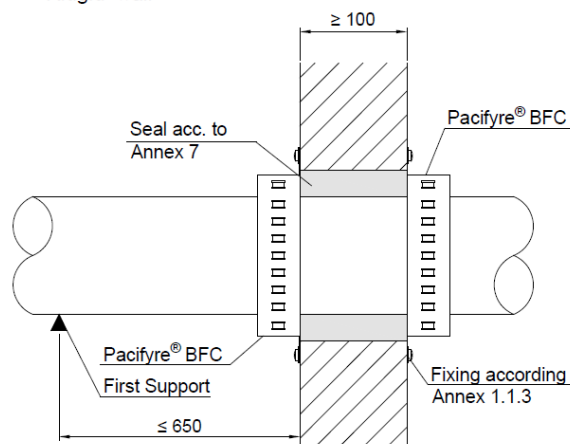
All pipes— in flexible/rigid walls and rigid floors – have to be supported on both sides of the separating element by service support constructions (e.g., pipe hangers) made of metal with a melting or decomposition point greater or equal than 945 °C for EI 60, 1006 °C for EI 90 or 1049 °C for EI 120 (e.g., stainless steel or galvanized steel) according to the ETA-holder's installation instructions.

The first support (service support construction) has to be at maximum 650 mm (measured from the surface of the separating element).

Flexible wall



Ridgid wall

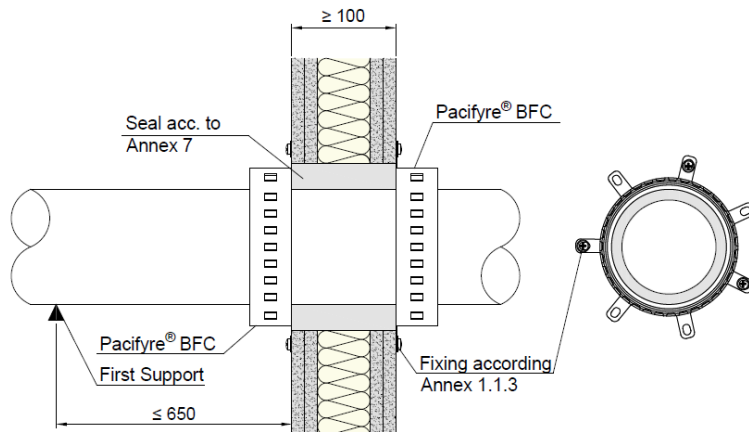


Material (-)	According to (-)	Diameter (mm)	Thickness (mm)	Classification		Condition
PVC	ISO 15493, EN 1329, EN 1452-1, DIN 8061/62, DIN 8062/63	≤50	1,8 - 5,6	120	120	U/C
		>50 - ≤75	1,8 - 8,4	120	120	U/C
		>75 - ≤110	1,8 - 12,3	120	120	U/C
		>110 - ≤125	2,2 - 12,2	120	120	U/C
		≤160	3,2 - 11,9	120	120	U/C
PE (HD/MD/LD)	ISO 15494, EN 1519-1, EN 1873-1, EN 15874, DIN 8074/75, DIN 8077/78	≤50	1,8 - 4,6	120	120	U/C
		>50 - ≤75	1,8 - 8,4	120	120	U/C
		>75 - ≤110	2,7 - 10,0	120	120	U/C
PP	ISO 15494, EN 1451-1, EN 1873-1, EN 15874, DIN 8077/78	≤50	1,8 - 4,6	120	120	U/C
		>50 - ≤75	1,8 - 8,4	120	120	U/C
		>75 - ≤110	2,7 - 10,0	120	120	U/C
		≤125	3,9 - 12,2	90	90	U/C
		≤160	4,,0 - 14,6	90	90	U/C

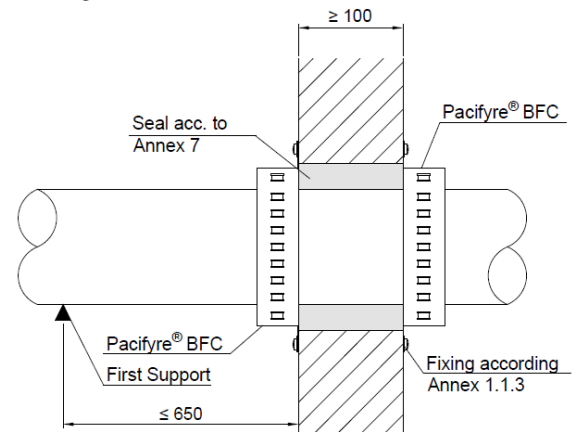
Single pipe seal Pacifyre® BFC, installed around the pipe at both sides of the wall construction

Annex 2.1

Flexible wall



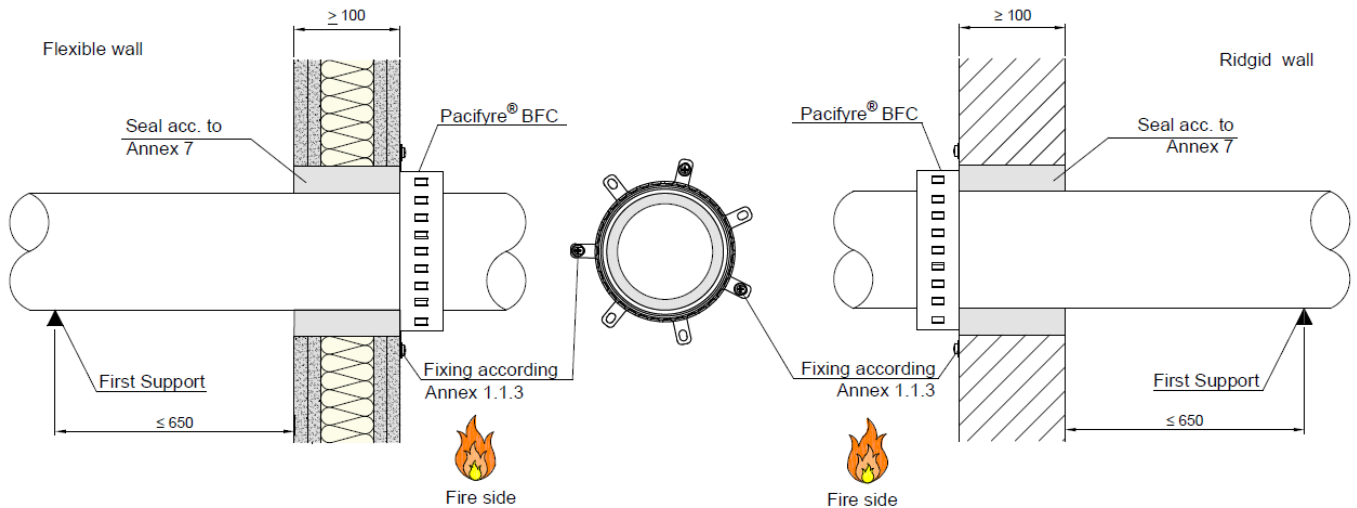
Ridgid wall



Material (-)	According to (-)	Diameter (mm)	Thickness (mm)	Classification		Condition
				E	I	
Blue Power (PP-C)	Z-42.1-411	≤50	1,8	120	120	U/C
		≤75	2,5	120	120	U/C
		≤110	3,4	120	120	U/C
Aquatherm green MS SDR 11 (PP-R)	ISO 15874	≤16	2,2	120	120	U/C
		≤50	6,9	120	120	U/C
		≤75	10,4	120	120	U/C
		≤110	15,2	120	120	U/C
Geberit Silent PP (PP-C)	Z-42.1-432	≤50	2	120	120	U/C
		≤75	2,6	120	90	U/C
		≤110	3,6	120	90	U/C
POLO-KAL NG (PP-MV)	Z-42.1-241	≤50	2	120	120	U/C
		≤75	2,6	120	90	U/C
		≤110	3,4	120	90	U/C
		≤125	3,9	120	120	U/C
		≤160	4,9	120	120	U/C
Rehau Raupiano Plus (PP-MD)	Z-42.1-223	≤50	1,8	120	120	U/C
		≤75	1,9	120	120	U/C
		≤110	2,7	120	120	U/C
		≤125	3,1	120	120	U/C
		≤160	3,6	120	120	U/C
Triplus 3	Z-42.1-426	≤40	1,8	120	120	U/C
		≤75	2,5	120	120	U/C
		≤90	3,1	120	120	U/C
Wavin SiTech (PP-MD)	Z-42.1-432	≤50	2	120	120	U/C
		≤75	2,6	120	120	U/C
		≤110	3,6	120	120	U/C

Single pipe seal Pacifyre® BFC, installed around the pipe at both sides of the wall construction

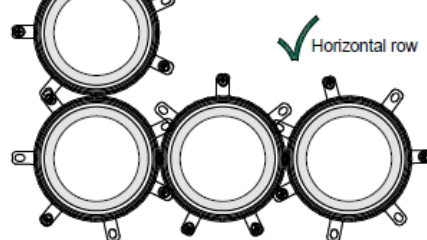
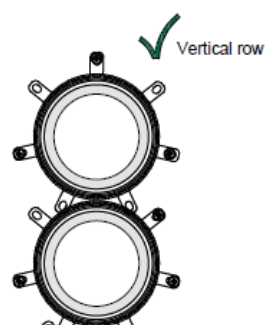
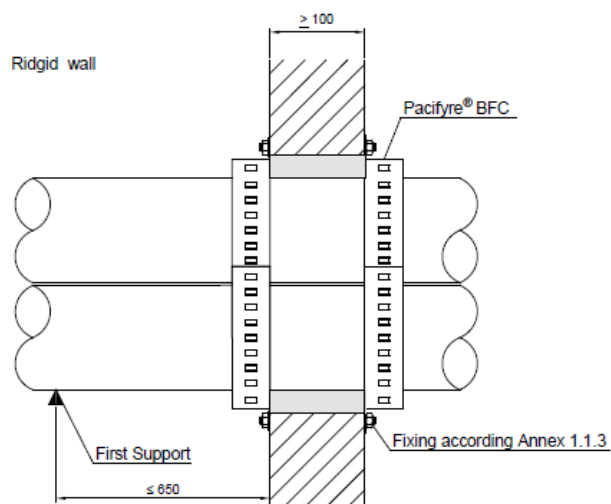
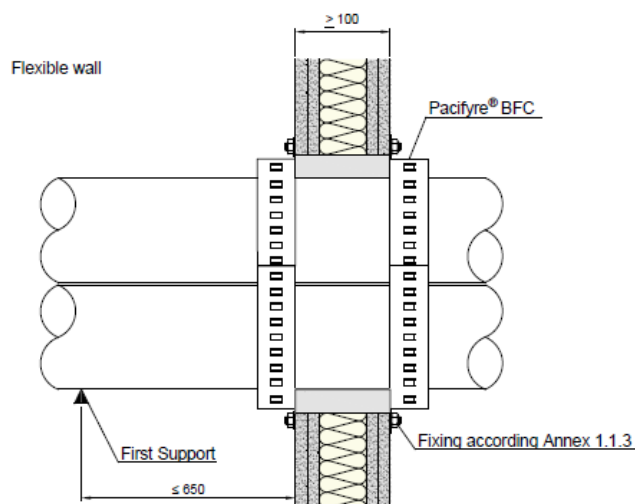
Annex 2.2



Material (-)	According to (-)	Diameter (mm)	Thickness (mm)	Classification		Condition
				E	I	
PVC	ISO 15493, EN 1329, EN 1452-1, DIN 8061/62, DIN 8062/63	≤ 50	1,8 - 5,6	60	60	U/C
		≤ 75	2,2 - 9,7	60	60	U/C
		≤ 110	2,2 - 12,3	60	60	U/C
PE (HD/MD/LD)	ISO 15494, EN 1519-1, EN 1873- 1, EN 15874, DIN 8074/75, DIN 8077/78	≤ 50	1,8 - 4,6	60	60	U/C
		≤ 75	2,7 - 6,9	60	60	U/C
		≤ 110	2,7 - 10,0	60	60	U/C
PP	ISO 15494, EN 1451-1, EN 1873-1, EN 15874, DIN 8077/78	≤ 50	1,8 - 4,6	60	60	U/C
		≤ 75	2,7 - 6,9	60	60	U/C
		≤ 110	2,7 - 10,0	60	60	U/C

Single pipe seal Pacifyre® BFC, installed around the pipe at the exposed side only of the wall construction

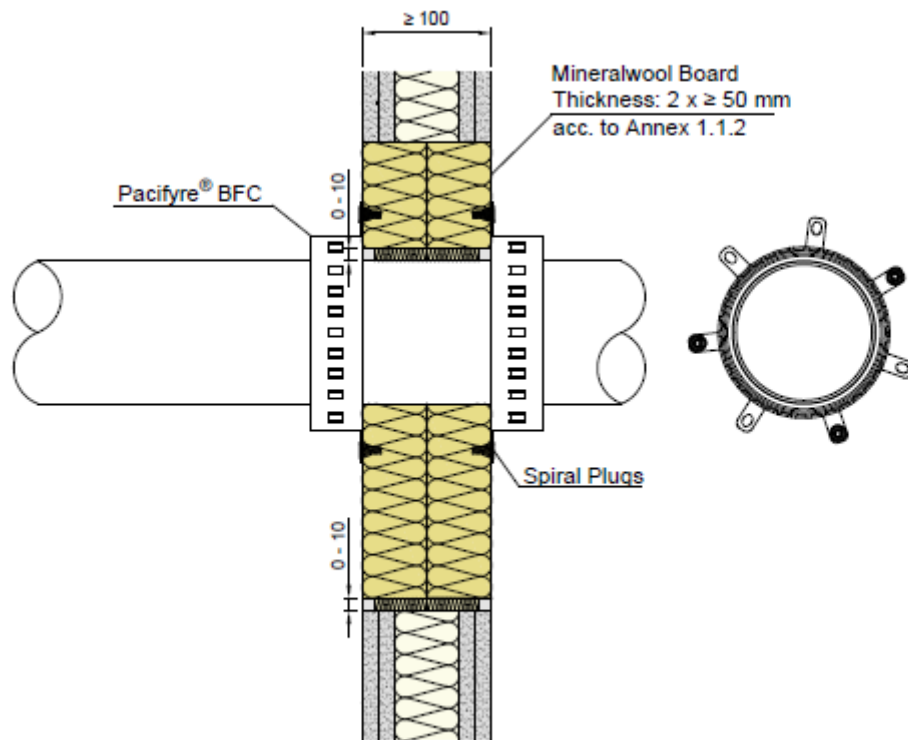
Annex 3



Material (-)	According to (-)	Diameter (mm)	Thickness (mm)	Classification		Condition
				E	I	
PVC	ISO 15493, EN 1329, EN 1452-1, DIN 8061/62, DIN 8062/63	110	2,2	120	90	U/C
PE (HD/MD/LD)	ISO 15494, EN 1519-1, EN 1873- 1, EN 15874, DIN 8074/75, DIN 8077/78	110	10	120	120	U/C
PP	ISO 15494, EN 1451-1, EN 1873-1, EN 15874, DIN 8077/78	110	2,7	120	90	U/C

Multiple pipe seal Pacifyre® BFC, installed around the pipe
at both sides of the wall

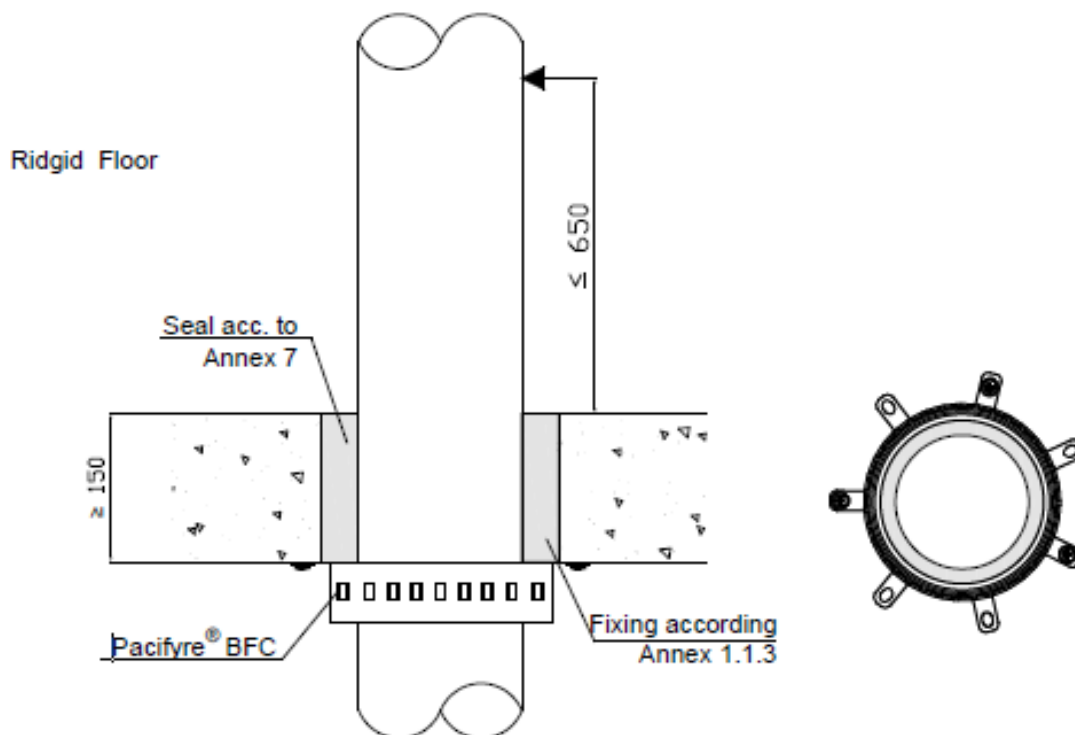
Annex 4



Material (-)	According to (-)	Diameter (mm)	Thickness (mm)	Classification		Condition
				E	I	
PVC	ISO 15493, EN 1329, EN 1452-1, DIN 8061/62, DIN 8062/63	50	5,6	120	120	U/C
PE (HD/MD/LD)	ISO 15494, EN 1519-1, EN 1873- 1, EN 15874, DIN 8074/75, DIN 8077/78	110	10	90	90	U/C
PP	ISO 15494, EN 1451-1, EN 1873-1, EN 15874, DIN 8077/78	110	2,7	90	90	U/C

Pacifyre® BFC installed around the pipe at both sides of a double board
seal Pacifyre® MP Board 2x 50 mm

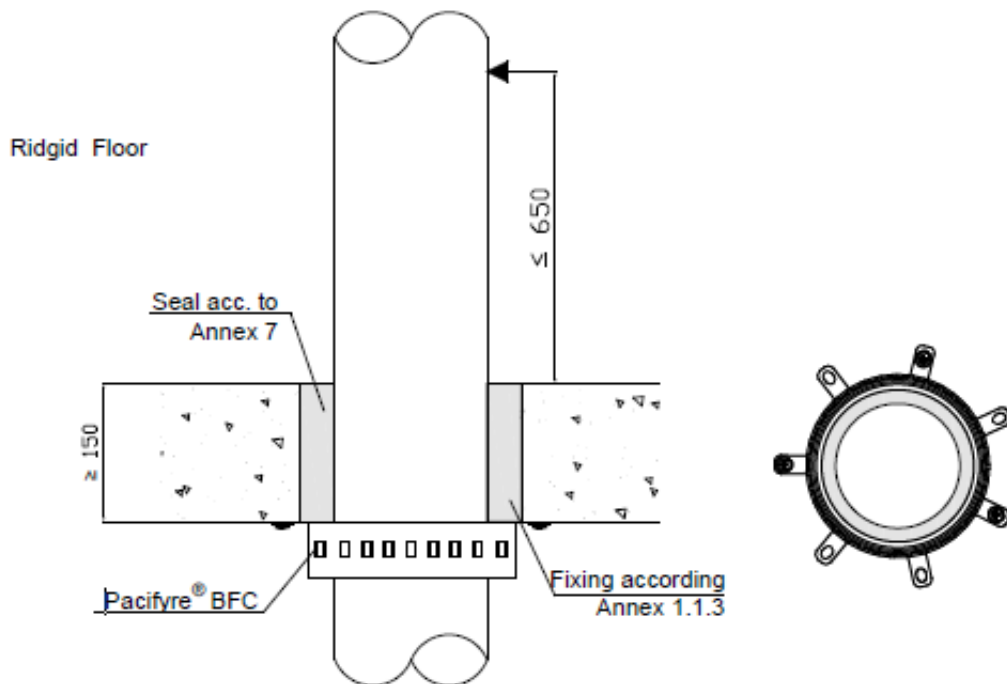
Annex 5



Material (-)	According to (-)	Diameter (mm)	Thickness (mm)	Classification		Condition
				E	I	
PVC	ISO 15493, EN 1329, EN 1452-1, DIN 8061/62, DIN 8062/63	≤50	1,8 - 5,6	180	180	U/C
		>50 - ≤75	1,8 - 8,4	180	180	U/C
		>75 - ≤110	1,8 - 12,3	180	180	U/C
		>110 - ≤125	2,2 - 12,2	120	120	U/C
		≤160	3,2 - 11,9	120	120	U/C
PE (HD/MD/LD)	ISO 15494, EN 1519-1, EN 1873- 1, EN 15874, DIN 8074/75, DIN 8077/78	≤50	1,8 - 4,6	180	180	U/C
		>50 - ≤75	1,8 - 8,4	180	180	U/C
		>75 - ≤110	2,7 - 10,0	180	180	U/C
		>110 - ≤125	3,1-11,4	180	120	U/C
		≤160	4,0 - 14,6	180	120	U/C
PP	ISO 15494, EN 1451-1, EN 1873-1, EN 15874, DIN 8077/78	≤50	1,8 - 4,6	180	180	U/C
		>50 - ≤75	1,8 - 8,4	180	180	U/C
		>75 - ≤110	2,7 - 10,0	180	180	U/C

Pacifyre® BFC installed around the pipe at the bottom side of the floor construction.

Annex 6.1



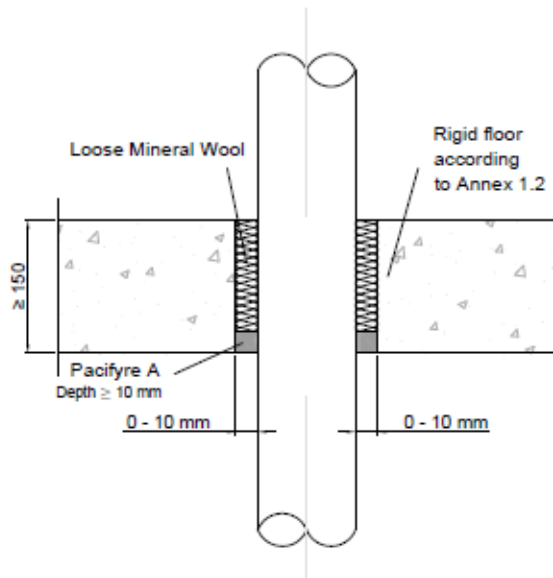
Material (-)	According to (-)	Diameter (mm)	Thickness (mm)	Classification		Condition
				E	I	
Uponor MLC		≤50	4,5	120	120	U/C
		≤75	7,5	90	90	U/C
		≤110	10	90	90	U/C
Aquatherm green MS SDR 11 (PP-R)	ISO 15874	≤16	2,2	120	120	U/C
		≤50	2,8 - 6,9	120	120	U/C
		≤75	8,7 - 10,4	120	120	U/C
		≤110	12,5 - 15,2	120	120	U/C
Geberit Silent PP (PP-C)	Z-42.1-432	≤50	2	120	120	U/C
		≤75	2,6	120	120	U/C
		≤110	3,6	120	120	U/C
POLO-KAL NG (PP-MV)	Z-42.1-241	≤50	2	120	90	U/C
		≤75	2,6	120	90	U/C
		≤110	3,4	120	120	U/C
Wavin SiTech (PP-MD)	Z-42.1-432	≤50	2	120	120	U/C
		≤75	2,6	120	120	U/C
		≤110	3,6	120	120	U/C
		≤125	4,2	60	60	U/C
		≤160	5,3	60	60	U/C

Pacifyre® BFC installed around the pipe at the bottom side of the floor construction.

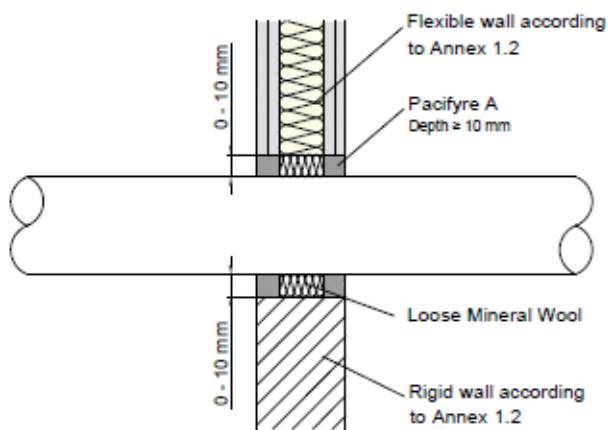
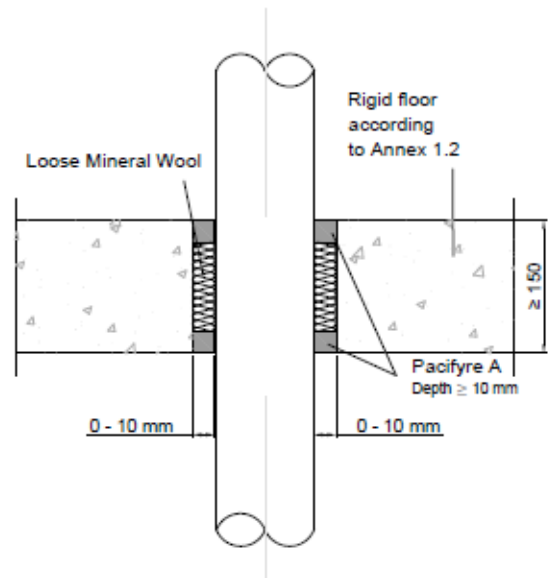
Annex 6.2

Annular gap sealing options with Pacifyre A, S or H before fixing Pacifyre BFC

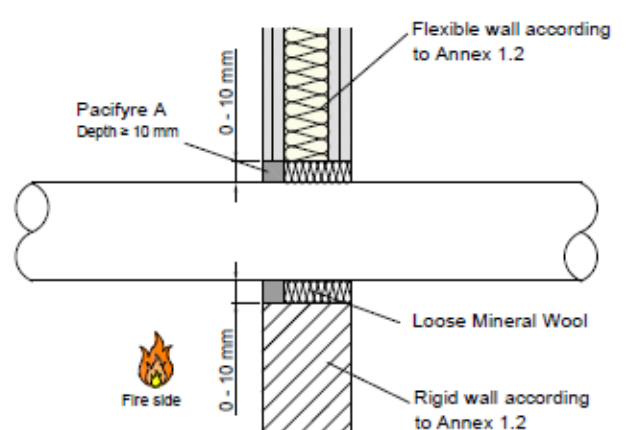
Application of Pacifyre BFC on bottom side of the floor



Application of Pacifyre BFC on bottom side of the floor with clean finish on topside



Apply Pacifyre BFC on both sides of the Rigid or Flexible wall



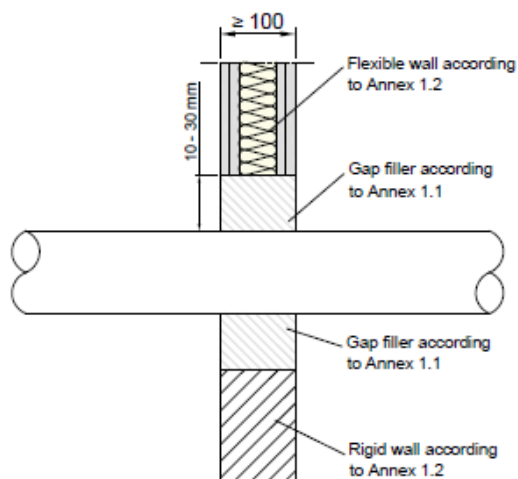
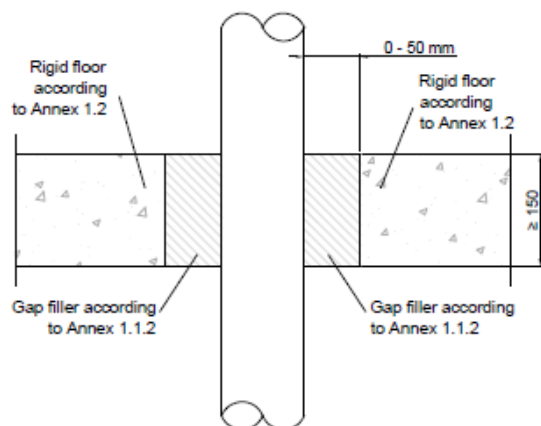
Apply Pacifyre BFC on fire side of the Rigid or Flexible wall (Acc. Annex 3)

Pacifyre® BFC Annular gap sealing with Pacifyre A, S or H

Annex 7.1

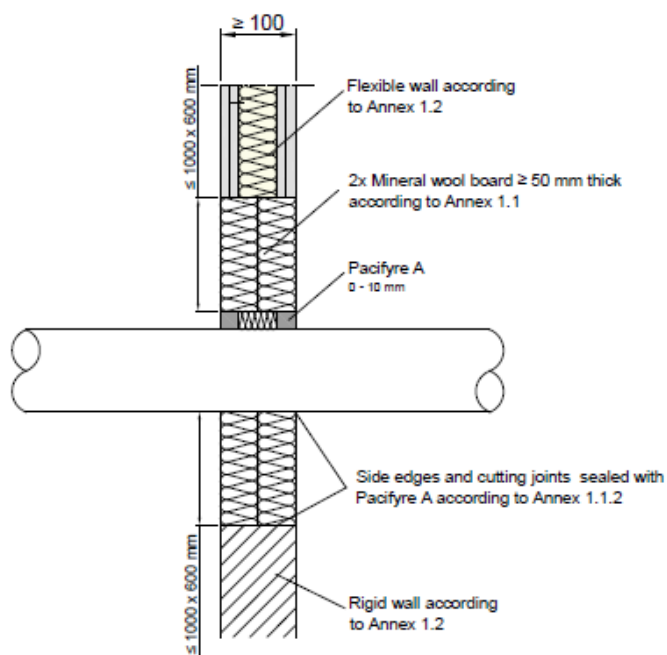
Annular gap sealing options with Pacifyre FPM before fixing Pacifyre BFC

Application of Pacifyre BFC on bottom side of the floor



Apply Pacifyre BFC on both sides of the Rigid or Flexible wall

Annular gap sealing options with Pacifyre MP Board and Pacifyre A before fixing Pacifyre BFC (acc. Annex 5)



Apply Pacifyre BFC on both sides of the mineral wool board