



ETA-Danmark A/S  
Göteborg Plads 1  
DK-2150 Nordhavn  
Tel. +45 72 24 59 00  
Internet [www.etadanmark.dk](http://www.etadanmark.dk)

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-22/0022 of 2022/02/17

### 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® FPW – Fire Protection Wrap

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](http://www.walraven.com)

Manufacturing plant:

Walraven Factory S6

This European Technical  
Assessment contains:

23 pages including 16 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:

-

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

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es) referred to above). However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such

## II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

### 1 Technical description of product

Pacifyre® FPW – Fire Protection Wrap is an intumescent strip, provided with a self-adhesive layer, with a nominal thickness of 2,0 mm and a width of 50 mm which is wrapped in one or more layers around the pipe or the pipe insulation.

The distance between adjacent penetration seals need to be  $\geq 200$  mm.

Pacifyre® FPW – Fire Protection Wrap fire resistant pipe closure device is affixed around burnable pipes according to Annex A-3 to B-2, B-6 and C-1 preventing propagation of fire. The Pacifyre® FPW – Fire Protection Wrap starts expanding at temperatures above 180° C. When the intumescent starts expanding into the pipe, it delays the heat and flames from passing through the fire barrier. Keeping the barrier intact and preventing the rapid spread of fire.

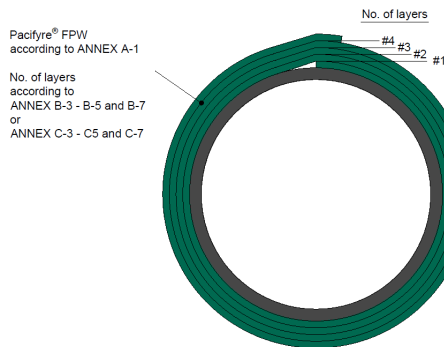


Figure 1 : Pacifyre® FPW

Component name	Characteristics
<b>Pacifyre® FPW – Fire Protection Wrap</b>	
Pacifyre® IM Pro	Flexible intumescent strip (provided with a self-adhesive layer) with a nominal thickness of 2,0 mm and a width of 50 mm.
<b>Gap Fillers</b>	
Pacifyre® A	One component fire retardant sealant based on a water based acrylic dispersion with plasto-elastic properties - filled in cartridges.
Pacifyre® FPM	Cement based fire protection mortar according to EN 998-2, containing Portland cement, with a nominal dry bulk density of 1.620 kg/m³.
Loose mineral wool	Loose stone wool with a classification A1 according to EN 13501-1 with a melting point > 1.000 °C (e.g., Rockwool Loose Wool)
<b>Insulations</b>	
AF/Armaflex	Closed cell, flexible elastomeric foam (FEF) insulation in form of (slotted) tubes which can be provided with a self-adhesive layer. Manufactured by "Armaceff GmbH".

Table 1 : Components of Pacifyre® FPW – Fire Protection Wrap

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

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

The Pacifyre® FPW Fire Protection Wrap is intended to be used as a pipe penetration seal to reinstate the fire resistance performance of flexible wall constructions, rigid wall constructions and rigid floor constructions, where they have been provided with apertures which penetrated by various pipes.

The Pacifyre® FPW Fire Protection Wrap can be installed in the types of separating elements as specified in the table of annex A-2.

The construction product Pacifyre® FPW – Fire Protection Wrap is used to provide a fire resistant and smoke tight seal around Plastic- and multi-layer pipe penetrations.

The through-elements are installed in drilled holes or in reservations made through concrete or masonry floors,  $\geq 150$  mm thick with a density equal or greater than 550 kg/m³, through rigid wall constructions made of masonry or concrete,  $\geq 100$  mm thick, with a density equal or greater than 550 kg/m³ or through  $\geq 100$  mm thick flexible wall constructions, more information in annex A-2.

The detailed descriptions of these construction elements are given in Annex A-2; B-2; B-6 and C-1 of this ETA. This ETA covers assemblies installed in accordance with the provisions given in the Annexes. Other intended uses may be supported by other means at national level but are not covered by this ETA.

The area to be sealed requires the same fire resistance as the complete wall or floor 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 instructions for the installation of Pacifyre® FPW – Fire Protection Wrap can be found the technical instructions of the manufacturer.

Pacifyre® FPW – Fire Protection Wrap is suitable for the following built-in conditions:

- Pacifyre® FPW – Fire Protection Wrap shall be installed around the pipe penetrations in the wall or in a floor.
- Pacifyre® FPW – Fire Protection Wrap is suitable for pipes according to the Annexes.

The verification and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of at least 25 years for the Pacifyre® FPW – Fire Protection Wrap, when installed in the works, provided that the fire stopping pipe closure device is subject to appropriate installations, in accordance with the manufacturer's recommendations.

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
<b>3.2 Safety in case of fire (BWR 2)</b>	
Reaction to fire	The intumescent material of Pacifyre® FPW – Fire Protection Wrap is classified as <b>Euroclass E</b> in accordance with EN 13501-1 and Delegated Regulation 2016/364
Resistance to fire	The Pacifyre® FPW – Fire Protection Wrap for pipe penetration seals as described in Annex A-3 to B-2, B-6 and C-1 The system is classified as described in the Annexes B-3 to B-5; B-7 and C-2 to C-5 in accordance with EN 13501-2
<b>3.3 Hygiene, health, and the environment (BWR 3)</b>	
Air permeability	No performance assessed
Water permeability	
Content, emission and/or release of dangerous substances*	No performance assessed
<b>3.4 Safety and accessibility in use (BWR 4)</b>	
Mechanical resistance and stability	No performance assessed
Resistance to impact/movement	No performance assessed
Adhesion	No performance assessed
Durability	Use Category: Type <b>Y<sub>2</sub></b>
<b>3.5 Protection against noise (BWR 5)</b>	
Airborne sound insulation	No performance assessed
<b>3.6 Energy Economy and heat retention (BWR 6)</b>	
Thermal properties	No performance assessed
Water vapour permeability	No performance assessed

See additional information in section 3.7

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

### 3.7 General aspects

#### Durability and serviceability:

The verification of durability and serviceability is part of testing the essential characteristics. Pacifyre® FPW – Fire Protection Wrap fulfils the requirements according to EAD 350454-00-1104 – for use **Category type: Y<sub>2</sub>**.

Although a fire protection wrap 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 fire protection wraps according to the ETA-holder's installation instructions.

The proof and its assessment concerning applicability under climate conditions were carried out in accordance with EAD 350454-00-1104; intended for use at temperatures below 0° C, but with no exposure to rain or UV.

The European Technical Assessment is issued for the product based on agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide if such changes affect the ETA and consequently the validity of the CE marking based on the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

Pacifyre® FPW – Fire Protection Wrap are manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

## **4 Assessment and verification of constancy of performance (AVCP)**

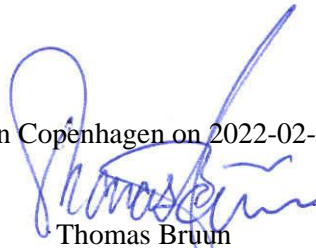
### **4.1 AVCP system**

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 2022-02-17 by



Thomas Bruun  
Managing Director, ETA-Danmark

<b>Pacifyre® FPW – Fire Protection Wrap</b>	
<b>Component name</b>	<b>Characteristics</b>
Pacifyre® IM Pro	Flexible intumescent strip (provided with a self-adhesive layer) with a nominal thickness of 2,0 mm and a width of 50 mm.

<b>Gap Fillers</b>	
<b>Component name</b>	<b>Characteristics</b>
Pacifyre® A	One component fire retardant sealant based on a water based acrylic dispersion with plasto-elastic properties - filled in cartridges.
Pacifyre® FPM	Cement based fire protection mortar, according to EN 998-2, containing Portland cement, with a nominal dry bulk density of 1.620 kg/m³.
Loose mineral wool	Loose stone wool with a classification A1 according to EN 13501-1 with a melting point $\geq 1.000$ °C (e.g., Rockwool Loose Wool)

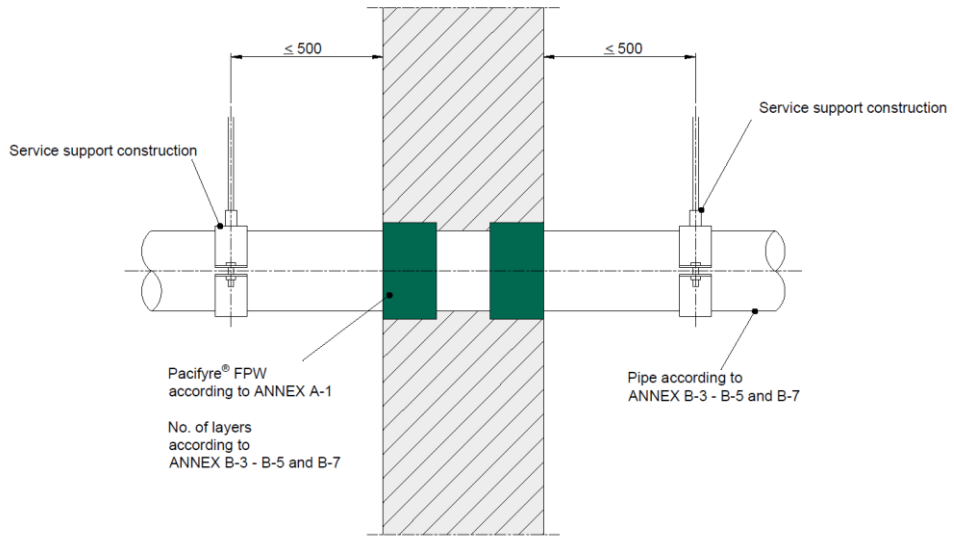
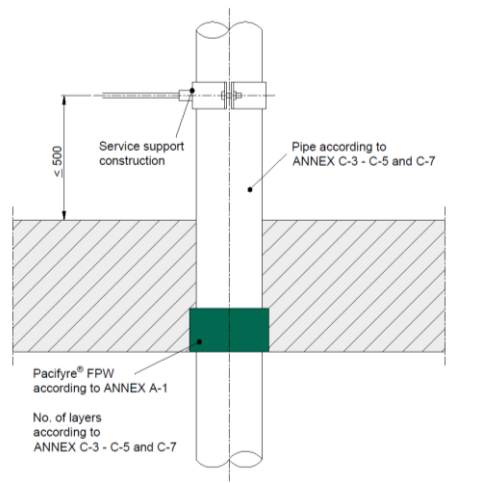
<b>Insulations</b>	
<b>Component name</b>	<b>Characteristics</b>
AF/Armaflex	Closed cell, flexible elastomeric foam (FEF) insulation in form of (slotted) tubes which can be provided with a self-adhesive layer. Manufactured by "Armacell GmbH".



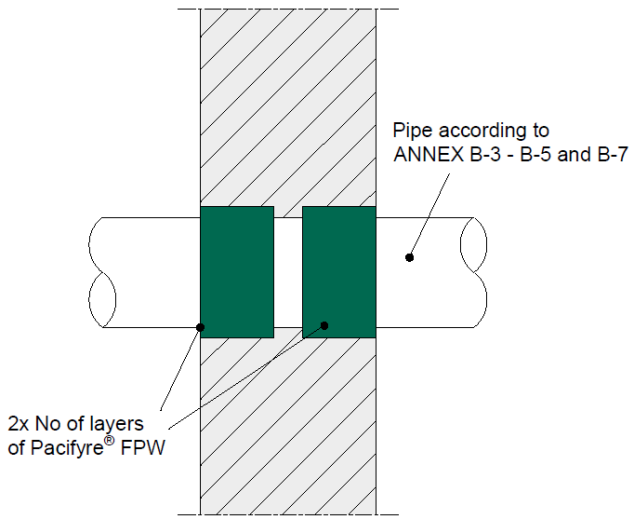
The Pacifyre® FPW Fire Protection Wrap is intended to be used as a pipe penetration seal to reinstate the fire resistance performance of flexible wall constructions temporarily or permanently, rigid wall constructions and rigid floor constructions, where they have been provided with apertures which penetrated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

The Pacifyre® FPW Fire Protection Wrap can be installed in the forms of separating elements as specified in the following table:

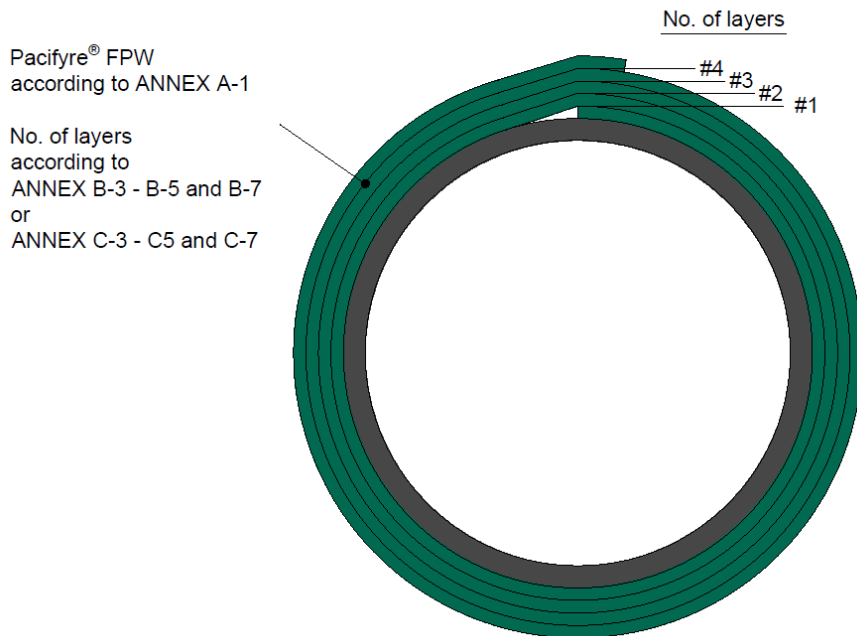
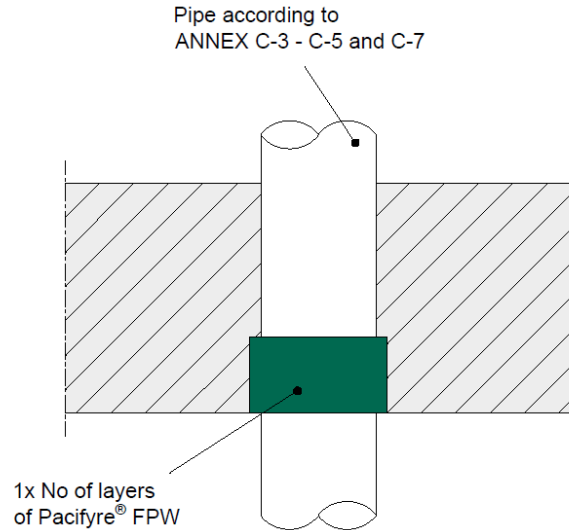
Wall or floor constructions	
Separating element	Construction
Flexible walls	<p>Steel studs or timber studs lined on both faces with minimum 2 layers of boards (minimum thickness of 12,5 mm each) or 1 layer of minimum 25 mm thickness with a classification A2-s1, d0 or A1 according to EN 13501-1.</p> <ul style="list-style-type: none"> <li>For timber stud walls, there shall be a minimum distance of 100 mm of the penetration seal to any timber stud has to be closed with min.100 mm of insulation with classification A1 or A2 according to EN 13501 -1</li> <li>Minimum thickness of 100 mm</li> <li>Classification according to EN 13501-2: <math>\geq</math> EI90</li> </ul>
Rigid walls	<ul style="list-style-type: none"> <li>Aerated concrete or concrete</li> <li>Minimum thickness of 100 mm</li> <li>Classification according to EN 13501-2: for the required fire resistance period</li> </ul>
Rigid floors	<ul style="list-style-type: none"> <li>Aerated concrete or concrete</li> <li>Minimum density of 550 kg/m<sup>3</sup></li> <li>Minimum thickness of 150 mm</li> <li>Classification according to EN 13501-2: for the required fire resistance period</li> </ul>

Service support construction in walls	WALL Application
<p>All plastic and multi-layer pipes – in both flexible and rigid walls – have to be supported on both sides of the separating element by service support constructions. This construction can be made by pipe clamps, profiles, studs, bolts etc. made of metal with a melting or decomposition point greater than 1049°C (for instance stainless steel or zinc-plated steel.)</p>  <p>The first support for all types of pipes has to be at a maximum distance of 500 mm (measured from the surface of the wall).</p>	
Service support construction in floors	FLOOR Application
<p>All plastic and multi-layer pipes – in rigid floors – have to be supported on the unexposed (top) side of the separating element by service support constructions. This construction can be made by pipe clamps, profiles, studs, bolts etc. made of metal with a melting or decomposition point greater than 1049°C (for instance stainless steel or zinc-plated steel.)</p>  <p>The first support for all types of pipes has to be at a maximum distance of 500 mm (measured from the surface of the floor).</p>	
<p style="text-align: center;"><b>Pacifyre® FPW</b> - service support constructions -</p> <p style="text-align: right;"><b>ANNEX A-3</b></p>	

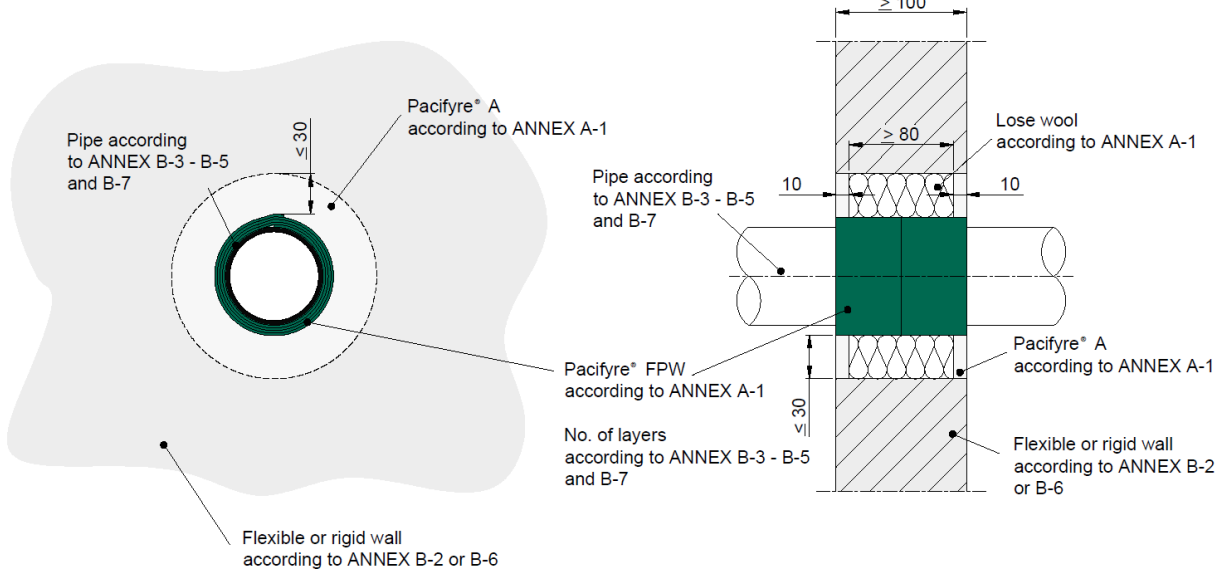
For plastic pipes and multi-layer pipes in vertical separating elements (walls), the Pacifyre® FPW has to be installed on both sides and flush with the surfaces of the element.



For plastic pipes and multi-layer pipes in horizontal separating elements (floors), the Pacifyre® FPW has to be installed on the bottom side and flush with the surface of the element.

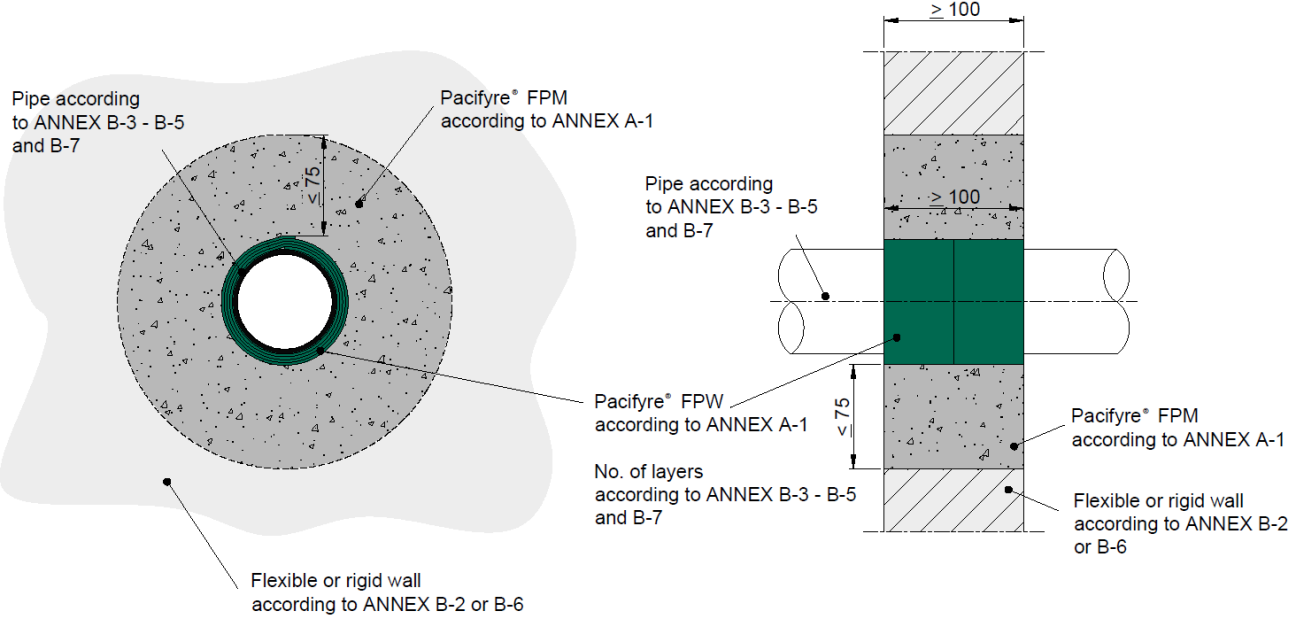


<b>Sealant type A   Pacifyre® A Acrylic sealant with a backfilling of firmly compressed loose wool</b>	<b>WALL Application</b>
--	-------------------------



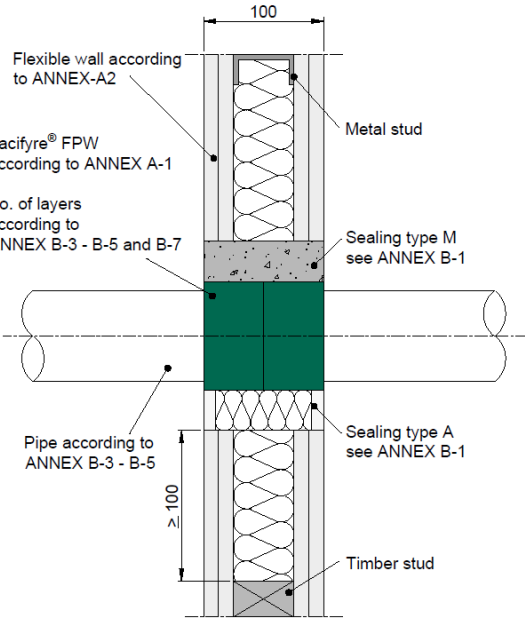
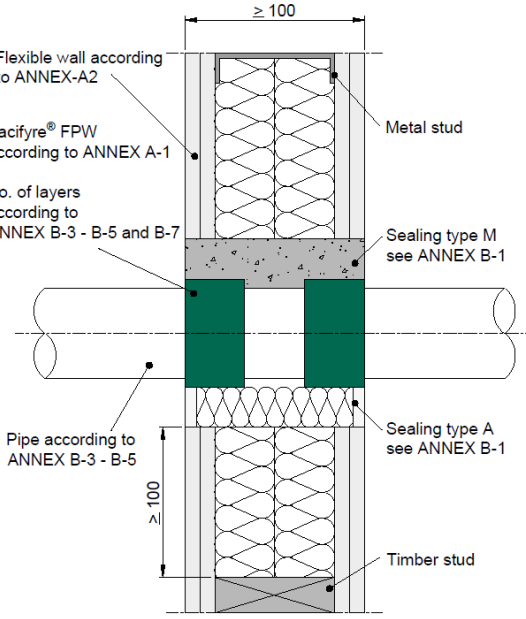
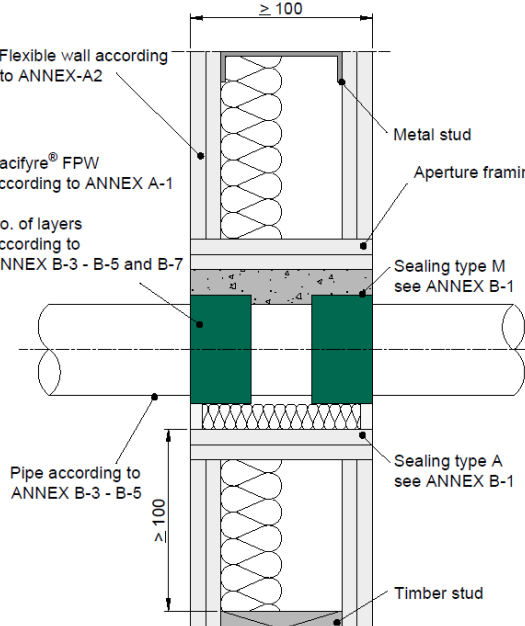
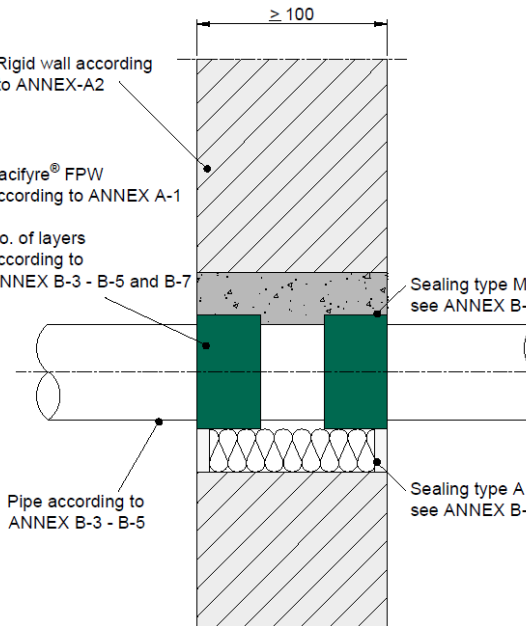
1. The backfilling is made by firmly compressed loose stone wool and fills the entire space between both layers of Pacifyre® A.
  2. Filling the entire aperture with Pacifyre® A between the wrap seal and the aperture edge flush with both sides of the supporting construction (wall).
- To apply the Acrylic properly the backfilling needs to be 10 mm from the surface inside the wall.

<b>Sealant type M   Pacifyre® FPM Mortar sealant</b>	<b>WALL Application</b>
--	-------------------------



Filling the entire aperture between the wrap seal and the aperture edge flush with both sides of the supporting construction (wall).

<p align="center"> <b>Pacifyre® FPW</b>  <b>- Installation of sealants in flexible and rigid walls -</b> </p>	<p align="center"> <b>ANNEX B-1</b> </p>
---	--

Double-sided flexible wall construction type a)	Double-sided flexible wall construction type b)
 <p>Flexible wall according to ANNEX-A2</p> <p>Pacifyre® FPW according to ANNEX A-1</p> <p>No. of layers according to ANNEX B-3 - B-5 and B-7</p> <p>Metal stud</p> <p>Sealing type M see ANNEX B-1</p> <p>Pipe according to ANNEX B-3 - B-5</p> <p>Sealing type A see ANNEX B-1</p> <p>Timber stud</p> <p>100</p> <p>100</p> <p>Flexible wall constructions with <math>\geq 2</math> board layers with an overall lining thickness of <math>\geq 25</math> mm (2x12,5 mm) on each side of the wall and an stone wool insulation of 50 mm with a density of <math>\geq 100</math> kg/m<sup>3</sup>.</p>	 <p>Flexible wall according to ANNEX-A2</p> <p>Pacifyre® FPW according to ANNEX A-1</p> <p>No. of layers according to ANNEX B-3 - B-5 and B-7</p> <p>Metal stud</p> <p>Sealing type M see ANNEX B-1</p> <p>Pipe according to ANNEX B-3 - B-5</p> <p>Sealing type A see ANNEX B-1</p> <p>Timber stud</p> <p><math>\geq 100</math></p> <p>100</p> <p>Flexible wall constructions with <math>\geq 2</math> board layers with an overall lining thickness of <math>\geq 25</math> mm (2x12,5 mm) on each side of the wall and an stone wool insulation of 2x 50 mm with a density of <math>\geq 100</math> kg/m<sup>3</sup>.</p>
Double-sided flexible wall construction type c)	Rigid wall construction type d)
 <p>Flexible wall according to ANNEX-A2</p> <p>Pacifyre® FPW according to ANNEX A-1</p> <p>No. of layers according to ANNEX B-3 - B-5 and B-7</p> <p>Metal stud</p> <p>Aperture framing</p> <p>Sealing type M see ANNEX B-1</p> <p>Pipe according to ANNEX B-3 - B-5</p> <p>Sealing type A see ANNEX B-1</p> <p>Timber stud</p> <p><math>\geq 100</math></p> <p>100</p> <p>Flexible wall constructions with <math>\geq 2</math> board layers with an overall lining thickness of <math>\geq 25</math> mm (2x12,5 mm) on each side of the wall and any type of insulation.</p> <p>With an aperture framing with at least 1 layer with an overall thickness of <math>\geq 25</math> mm or in case of circular apertures a dimensionally stable sleeve of materials of class A1 or A2.</p>	 <p>Rigid wall according to ANNEX-A2</p> <p>Pacifyre® FPW according to ANNEX A-1</p> <p>No. of layers according to ANNEX B-3 - B-5 and B-7</p> <p>Sealing type M see ANNEX B-1</p> <p>Pipe according to ANNEX B-3 - B-5</p> <p>Sealing type A see ANNEX B-1</p> <p><math>\geq 100</math></p> <p>Rigid wall construction with a density of <math>\geq 350</math> kg/m<sup>3</sup>.</p>
<p><b>Pacifyre® FPW</b></p> <p><b>- Installation of plastic pipes in different types of flexible and rigid walls -</b></p>	

**Plastic pipes with intended use as rainwater pipe, sewage pipe (ventilated = U/U and unventilated = U/C) and gas, drinking water and heating pipe made out of the below material and dimension:**

**WALL Application**

Pipes made from **PVC-U** in accordance with EN-1329-1, EN 1453-1, EN ISO 15493 and EN ISO 1452-2 and **PVC-C** pipes in accordance with EN 1566-1, EN ISO 15493 and EN ISO 15877-2.

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	1,8 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 50 mm	5,6 mm	A + M	2	EI 120 U/U	E 120 U/U
	<b>Ø 50 mm</b>	<b>1,8 - 5,6 mm</b>	<b>A + M</b>	<b>2</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 75 mm	1,8 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 75 mm	8,4 mm	A + M	3	EI 120 U/U	E 120 U/U
	<b>Ø 75 mm</b>	<b>1,8 - 8,4 mm</b>	<b>A + M</b>	<b>3</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 110 mm	2,2 mm	A + M	4	EI 120 U/U	E 120 U/U
	Ø 110 mm	12,3 mm	A + M	4	EI 90 U/U	E 120 U/U
	<b>Ø 110 mm</b>	<b>2,2 - 12,3 mm</b>	<b>A + M</b>	<b>4</b>	<b>EI 90 U/U</b>	<b>E 120 U/U</b>
	Ø 160 mm	3,2 mm	A + M	7	EI 120 U/U	E 120 U/U
	Ø 160 mm	11,8 mm	A + M	7	EI 60 U/U	E 120 U/U
<b>Ø 160 mm</b>	<b>3,2 - 11,8 mm</b>	<b>A + M</b>	<b>7</b>	<b>EI 60 U/U</b>	<b>E 120 U/U</b>	

Pipes made from **PE** in accordance with EN-1519-1, EN 12666-1, EN 12201-2 and EN ISO 15494 and **PE-X** pipes in accordance with EN ISO 15785-2, **ABS** pipes in accordance with EN 1455-1 and EN ISO 15493 as well as **SAN+PVC** pipes in accordance with ISO 19220.

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	1,8 mm	A + M	2	EI 90 U/U	E 120 U/U
	Ø 50 mm	5,6 mm	A + M	2	EI 120 U/U	E 120 U/U
	<b>Ø 50 mm</b>	<b>1,8 - 5,6 mm</b>	<b>A + M</b>	<b>2</b>	<b>EI 90 U/U</b>	<b>E 120 U/U</b>
	Ø 75 mm	1,8 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 75 mm	8,4 mm	A + M	3	EI 120 U/U	E 120 U/U
	<b>Ø 75 mm</b>	<b>1,8 - 8,4 mm</b>	<b>A + M</b>	<b>3</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 110 mm	2,2 mm	A + M	4	EI 120 U/U	E 120 U/U
	Ø 110 mm	12,3 mm	A + M	4	EI 120 U/U	E 120 U/U
	<b>Ø 110 mm</b>	<b>2,2 - 12,3 mm</b>	<b>A + M</b>	<b>4</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 160 mm	3,2 mm	A + M	7	EI 120 U/U	E 120 U/U
	Ø 160 mm	11,8 mm	A + M	7	EI 60 U/U	E 60 U/U
<b>Ø 160 mm</b>	<b>3,2 - 11,8 mm</b>	<b>A + M</b>	<b>7</b>	<b>EI 60 U/U</b>	<b>E 60 U/U</b>	

\*explanation of sealent types see ANNEX B-1

**Pacifyre® FPW**  
- Installation of plastic pipes in different types of flexible and rigid walls -

**ANNEX B-3**

Plastic pipes with an intended use as rainwater pipe, sewage pipe (ventilated = U/U and unventilated = U/C) and gas, drinking water and heating pipe made out of the below material and dimension:

**WALL  
Application**

Pipes made from <b>PP-H</b> in accordance with DIN 8077/78						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	2,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 50 mm	4,6 mm	A + M	2	EI 120 U/U	E 120 U/U
	<b>Ø 50 mm</b>	<b>2,0 - 4,6 mm</b>	<b>A + M</b>	<b>2</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 75 mm	1,9 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 75 mm	6,9 mm	A + M	3	EI 120 U/U	E 120 U/U
	<b>Ø 75 mm</b>	<b>1,9 - 6,9 mm</b>	<b>A + M</b>	<b>3</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 110 mm	2,7 mm	A	4	EI 120 U/C	E 120 U/C
	Ø 110 mm	10,0 mm	A	4	EI 120 U/C	E 120 U/C
	<b>Ø 110 mm</b>	<b>2,7 - 10,0 mm</b>	<b>A</b>	<b>4</b>	<b>EI 120 U/C</b>	<b>E 120 U/C</b>

Geberit Silent PP pipes in accordance with Z-42.1-432						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	2,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	2,4 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	3,4 mm	A	4	EI 120 U/C	E 120 U/C

Geberit Silent Pro pipes in accordance with Z-42.1-542						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	2,7 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	3,5 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	4,2 mm	A	4	EI 120 U/C	E 120 U/C

Georg Fischer Silenta Premium pipes in accordance with Z-42.1-537						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	4,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	4,5 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	4,3 mm	A	4	EI 120 U/C	E 120 U/C

Conel Drainpipes in accordance with Z-42.1-510						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	1,8 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	1,9 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	2,7 mm	A + M	4	EI 90 U/U	E 90 U/U

\*explanation of sealant types see ANNEX B-1

**Pacifyre® FPW**  
- Installation of plastic pipes in different types of flexible and rigid walls -

**ANNEX B-4**

Plastic pipes with intended use as rainwater pipe, sewage pipe (ventilated = U/U and unventilated = U/C) and gas, drinking water and heating pipe made out of the below material and dimension:

**WALL  
Application**

**Wavin AS+ pipes in accordance with Z-42.1-569**

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	3,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	3,5 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	5,3 mm	A	4	EI 120 U/U	E 120 U/U

**Wavin SiTech+ pipes in accordance with Z-42.1-539**

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	1,3 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	2,6 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	3,4 mm	A	4	EI 120 U/U	E 120 U/U

**Poloplast POLO-KAL NG pipes in accordance with Z-42.1-241**

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	2,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	2,6 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	3,4 mm	A	4	EI 120 U/U	E 120 U/U

**Poloplast POLO-KAL 3S pipes in accordance with Z-42.1-341**

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 75 mm	2,6 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	3,4 mm	A	4	EI 120 U/U	E 120 U/U

**REHAU RAUPIANO plus pipes in accordance with Z-42.1-223**

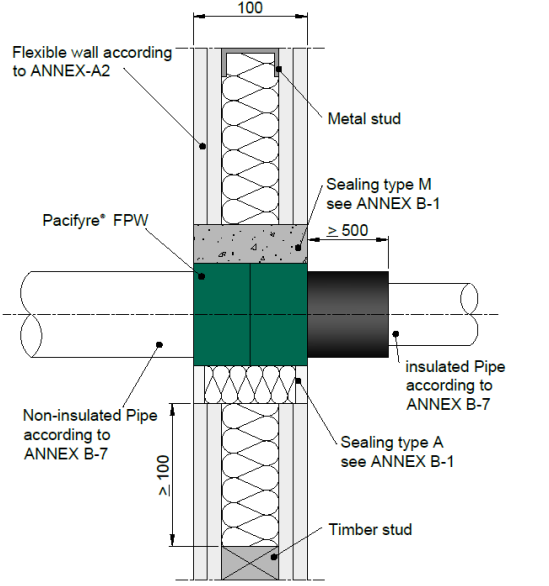
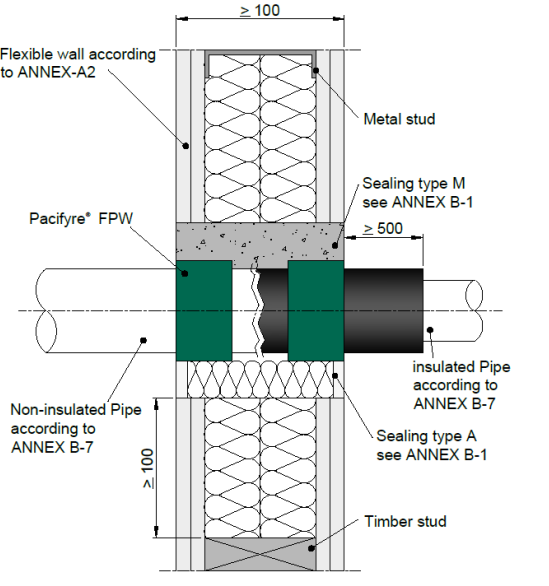
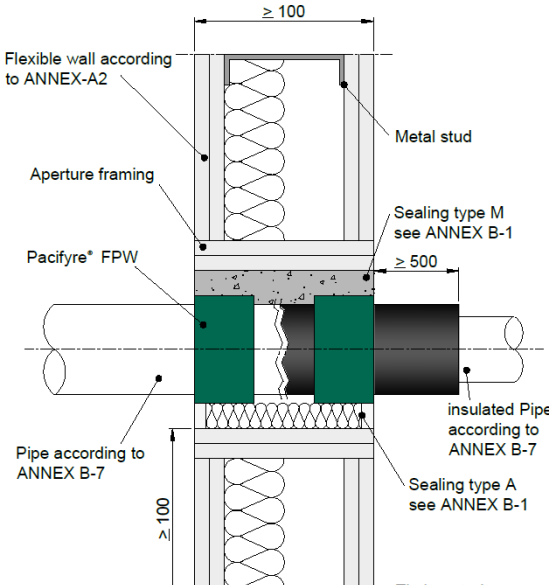
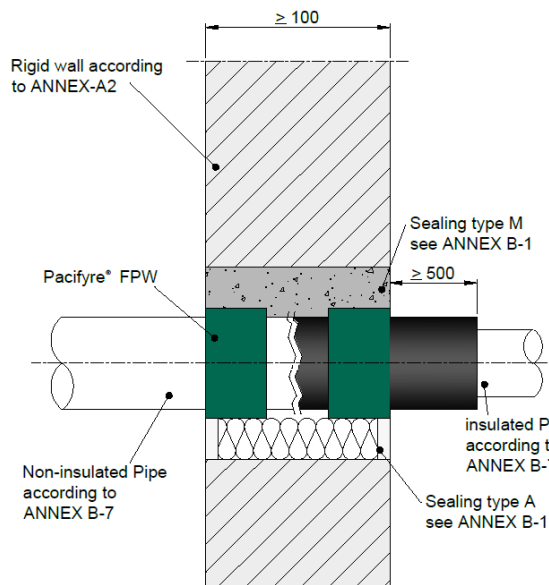
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-2	Ø 50 mm	1,8 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	1,9 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	2,7 mm	A	4	EI 120 U/U	E 120 U/U

\*explanation of sealant types see ANNEX B-1

**Pacifyre® FPW**  
- Installation of plastic pipes in different types of flexible and rigid walls -

**ANNEX B-5**



Double-sided flexible wall construction type a)	Double-sided flexible wall construction type b)
 <p>Flexible wall constructions with <math>\geq 2</math> board layers with an overall lining thickness of <math>\geq 25</math> mm (2x12,5 mm) on each side of the wall and an stone wool insulation of 50 mm and a density of <math>\geq 100</math> kg/m<sup>3</sup>.</p>	 <p>Flexible wall constructions with <math>\geq 2</math> board layers with an overall lining thickness of <math>\geq 25</math> mm (2x12,5 mm) on each side of the wall and an stone wool insulation of 2x 50 mm and a density of <math>\geq 100</math> kg/m<sup>3</sup>.</p>
Double-sided flexible wall construction type c)	Rigid wall construction d)
 <p>Flexible wall constructions with <math>\geq 2</math> board layers with an overall lining thickness of <math>\geq 25</math> mm (2x12,5 mm) on each side of the wall and any type of insulation.</p> <p>With an aperture framing with at least 1 layer with an overall thickness of <math>\geq 25</math> mm or in case of circular apertures a dimensionally stable sleeve of materials of class A1 or A2.</p>	 <p>Rigid wall construction with a density of <math>\geq 350</math> kg/m<sup>3</sup>.</p>
<p><b>Pacifyre® FPW</b>  <b>- Installation of insulated and non-insulated Multilayer plastic pipes in different types of flexible and rigid walls -</b></p> <p><b>ANNEX B-6</b></p>	

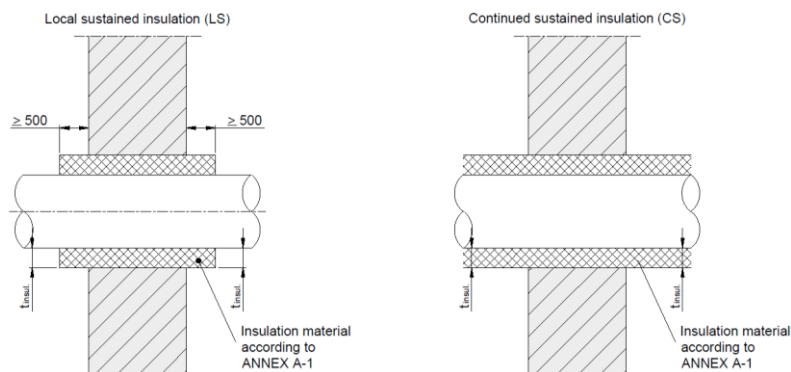
<b>Multi-Layer pipes with intended use as gas, drinking water and heating pipe (insulated and non-insulated) made out of the below material and dimension:</b>	<b>WALL Application</b>
--	-------------------------

Aquatherm green pipe SDR 9 MF RP						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Flexible and rigid walls according to ANNEX B-6	≤ Ø 32 mm	3,6 mm	A + M	2	EI 120 U/C	E 120 U/C
	≤ Ø 63 mm	7,1 mm	A + M	3	EI 120 U/C	E 120 U/C

Fränkische AlpeX F50 PROFI or L Pipes (PE-Xb / AL / PE-HD)							
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	t <sub>insul</sub>	Classifications	
Flexible and rigid walls according to ANNEX B-6	≤ Ø 32 mm	3,0 mm	A + M	3	-	EI 120 U/C	E 120 U/C
	≤ Ø 32 mm	3,0 mm	A + M	3	27 mm	EI 120 U/C	E 120 U/C
	≤ Ø 63 mm	4,5 mm	A + M	4	-	EI 120 U/C	E 120 U/C
	≤ Ø 63 mm	4,5 mm	A + M	4	9 - 39 mm	EI 120 U/C	E 120 U/C

Uponor Unipipe MLCP pipes (PE-Xb / AL / PE-HD)							
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	t <sub>insul</sub>	Classifications	
Flexible and rigid walls according to ANNEX B-6	≤ Ø 32 mm	3,0 mm	A + M	3	-	EI 120 U/C	E 120 U/C
	≤ Ø 32 mm	3,0 mm	A + M	3	9 - 19 mm	EI 120 U/C	E 120 U/C
	≤ Ø 50 mm	4,5 mm	A + M	3	-	EI 120 U/C	E 120 U/C
	≤ Ø 50 mm	4,5 mm	A + M	3	37,5 mm	EI 120 U/C	E 120 U/C
	≤ Ø 63 mm	6,0 mm	A + M	4	-	EI 120 U/C	E 120 U/C
	≤ Ø 63 mm	6,0 mm	A + M	4	39 mm	EI 120 U/C	E 120 U/C
	≤ Ø 110 mm	10,0 mm	A	4	-	EI 120 U/C	E 120 U/C

Definition of possible pipe insulation installation types:



\*explanation of sealant types see ANNEX B-1

<p><b>Pacifyre® FPW</b></p> <p><b>- Installation of insulated and non-insulated Multilayer plastic pipes in different types of flexible and rigid walls -</b></p>	<p><b>ANNEX B-7</b></p>
---	-------------------------

<b>Sealant type A   Pacifyre® A Acrylic sealant with a backfilling of firmly compressed loose wool</b>	<b>FLOOR Application</b>
<p>1. The backfilling is made by firmly compressed loose stone wool and fills the entire space between both layers of Pacifyre® A.</p> <p>To apply the Acrylic properly the backfilling needs to be 10 mm from the surface inside the floor.</p> <p>2. Filling the entire aperture with Pacifyre® A between the wrap seal and the aperture edge flush with both sides of the supporting construction (floor).</p>	

<b>Sealant type M   Pacifyre® FPM Mortar sealant</b>	<b>FLOOR Application</b>
<p>Filling the entire aperture between the wrap seal and the aperture edge flush with both sides of the supporting construction (full depth of floor).</p>	

<p><b>Pacifyre® FPW</b> - Installation of sealants in rigid floors -</p>	<p><b>ANNEX C-1</b></p>
--	-------------------------

Plastic pipes with intended use as rainwater pipe, sewage pipe (ventilated = U/U and unventilated = U/C) and gas, drinking water and heating pipe made out of the below material and dimension:

FLOOR  
Application

Pipes made from **PVC-U** in accordance with EN-1329-1, EN 1453-1, EN ISO 15493 and EN ISO 1452-2 and **PVC-C** pipes in accordance with EN 1566-1, EN ISO 15493 and EN ISO 15877-2.

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	1,8 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 50 mm	5,6 mm	A + M	2	EI 120 U/U	E 120 U/U
	<b>Ø 50 mm</b>	<b>1,8 - 5,6 mm</b>	<b>A + M</b>	<b>2</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 75 mm	1,8 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 75 mm	5,6 mm	A + M	3	EI 90 U/U	E 90 U/U
	<b>Ø 75 mm</b>	<b>1,8 - 5,6 mm</b>	<b>A + M</b>	<b>3</b>	<b>EI 90 U/U</b>	<b>E 90 U/U</b>
	Ø 110 mm	2,2 mm	A + M	4	EI 120 U/U	E 120 U/U
	Ø 110 mm	8,2 mm	A + M	4	EI 120 U/C	E 120 U/C
	<b>Ø 110 mm</b>	<b>2,2 - 8,2 mm</b>	<b>A + M</b>	<b>4</b>	<b>EI 120 U/C</b>	<b>E 120 U/C</b>
	Ø 160 mm	3,2 mm	A + M	7	EI 90 U/C	E 90 U/C
	Ø 160 mm	11,8 mm	A + M	7	EI 90 U/C	E 120 U/C
<b>Ø 160 mm</b>	<b>3,2 - 11,8 mm</b>	<b>A + M</b>	<b>7</b>	<b>EI 90 U/C</b>	<b>E 90 U/C</b>	

Pipes made from **PE** in accordance with EN-1519-1, EN 12666-1, EN 12201-2 and EN ISO 15494 and **PE-X** pipes in accordance with EN ISO 15785-2, **ABS** pipes in accordance with EN 1455-1 and EN ISO 15493 as well as **SAN+PVC** pipes in accordance with ISO 19220.

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	1,8 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 50 mm	5,6 mm	A + M	2	EI 120 U/U	E 120 U/U
	<b>Ø 50 mm</b>	<b>1,8 - 5,6 mm</b>	<b>A + M</b>	<b>2</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 75 mm	1,8 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 75 mm	8,4 mm	A + M	3	EI 120 U/U	E 120 U/U
	<b>Ø 75 mm</b>	<b>1,8 - 8,4 mm</b>	<b>A + M</b>	<b>3</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 110 mm	2,2 mm	A + M	4	EI 120 U/U	E 120 U/U
	Ø 110 mm	12,3 mm	A + M	4	EI 120 U/U	E 120 U/U
	<b>Ø 110 mm</b>	<b>2,2 - 12,3 mm</b>	<b>A + M</b>	<b>4</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 160 mm	3,2 mm	A + M	7	EI 60 U/C	E 60 U/C
	Ø 160 mm	11,8 mm	A + M	7	EI 30 U/U	E 30 U/U
<b>Ø 160 mm</b>	<b>3,2 - 11,8 mm</b>	<b>A + M</b>	<b>7</b>	<b>EI 30 U/C</b>	<b>E 30 U/U</b>	

\*explanation of sealant types see ANNEX C-1

**Pacifyre® FPW**  
- Installation of plastic pipes in rigid floors -

**ANNEX C-2**

Plastic pipes with intended use as rainwater pipe, sewage pipe (ventilated = U/U and unventilated = U/C) and gas, drinking water and heating pipe made out of the below material and dimension:

FLOOR  
Application

Pipes made from <b>PP-H</b> in accordance with DIN 8077/78						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	2,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 50 mm	4,6 mm	A + M	2	EI 120 U/U	E 120 U/U
	<b>Ø 50 mm</b>	<b>2,0 - 4,6 mm</b>	<b>A + M</b>	<b>2</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 75 mm	1,9 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 75 mm	6,9 mm	A + M	3	EI 120 U/U	E 120 U/U
	<b>Ø 75 mm</b>	<b>1,9 - 6,9 mm</b>	<b>A + M</b>	<b>3</b>	<b>EI 120 U/U</b>	<b>E 120 U/U</b>
	Ø 110 mm	2,7 mm	A	4	EI 120 U/C	E 120 U/C
	Ø 110 mm	10,0 mm	A	4	EI 120 U/C	E 120 U/C
	<b>Ø 110 mm</b>	<b>2,7 - 10,0 mm</b>	<b>A</b>	<b>4</b>	<b>EI 120 U/C</b>	<b>E 120 U/C</b>

Geberit Silent PP pipes in accordance with Z-42.1-432						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	2,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	2,4 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	3,4 mm	A	4	EI 120 U/U	E 120 U/U

Geberit Silent Pro pipes in accordance with Z-42.1-542						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	2,7 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	3,5 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	4,2 mm	A + M	4	EI 120 U/U	E 120 U/U

Georg Fischer Silenta Premium pipes in accordance with Z-42.1-537						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	4,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	4,5 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	4,3 mm	A + M	4	EI 120 U/U	E 120 U/U

Conel Drainpipes in accordance with Z-42.1-510						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	1,8 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	1,9 mm	A + M	3	EI 120 U/U	E 120 U/U

\*explanation of sealant types see ANNEX C-1

**Pacifyre® FPW**  
- Installation of plastic pipes in rigid floors -

**ANNEX C-3**

Plastic pipes with intended use as rainwater pipe, sewage pipe (ventilated = U/U and unventilated = U/C) and gas, drinking water and heating pipe made out of the below material and dimension:

FLOOR Application

**Wavin AS+ pipes in accordance with Z-42.1-569**

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	3,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	3,5 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	5,3 mm	A	4	EI 120 U/U	E 120 U/U

**Wavin SiTech+ pipes in accordance with Z-42.1-539**

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	1,3 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	2,6 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm**	3,4 mm	A	4	EI 60 U/U	E 60 U/U

\*\*Floor thickness ≥ 200 mm

**Poloplast POLO-KAL NG pipes in accordance with Z-42.1-241**

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	2,0 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	2,6 mm	A + M	3	EI 120 U/U	E 120 U/U

**Poloplast POLO-KAL 3S pipes in accordance with Z-42.1-341**

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 75 mm	2,6 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	3,4 mm	A	4	EI 120 U/U	E 120 U/U

**REHAU RAUPIANO plus pipes in accordance with Z-42.1-223**

Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	Ø 50 mm	1,8 mm	A + M	2	EI 120 U/U	E 120 U/U
	Ø 75 mm	1,9 mm	A + M	3	EI 120 U/U	E 120 U/U
	Ø 110 mm	2,7 mm	A	4	EI 120 U/U	E 120 U/U

\*explanation of sealent types see ANNEX C-1

**Pacifyre® FPW**  
- Installation of plastic pipes in rigid floors -

**ANNEX C-4**

Multi-Layer pipes with intended use as gas, drinking water and heating pipe (insulated and non-insulated) made out of the below material and dimension:

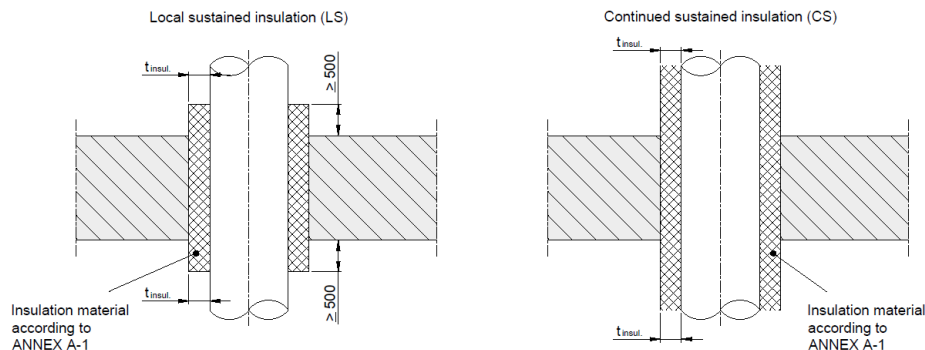
FLOOR  
Application

Aquatherm green pipe SDR 9 MF RP						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	Classifications	
Rigid floors according to ANNEX C-1	≤ Ø 32 mm	3,6 mm	A + M	2	EI 120 U/C	E 120 U/C
	≤ Ø 63 mm	7,1 mm	A + M	3	EI 120 U/C	E 120 U/C
	≤ Ø 110 mm	12,3 mm	A + M	4	EI 120 U/C	E 120 U/C

Fränkische Alpex F50 PROFI or L Pipes (PE-Xb / AL / PE-HD)						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	t <sub>insul</sub>	Classifications
Rigid floors according to ANNEX C-1	≤ Ø 32 mm	3,0 mm	A + M	3	-	EI 120 U/C   E 120 U/C
	≤ Ø 32 mm	3,0 mm	A + M	3	9 - 27 mm	EI 120 U/C   E 120 U/C
	≤ Ø 63 mm	4,5 mm	A + M	4	-	EI 120 U/C   E 120 U/C
	≤ Ø 63 mm	4,5 mm	A + M	4	9 - 39 mm	EI 120 U/C   E 120 U/C

Uponor Unipipe MLCP pipes (PE-Xb / AL / PE-HD)						
Supporting construction	Outer-Ø	t <sub>pipe</sub>	Sealant*	No. of layers	t <sub>insul</sub>	Classifications
Rigid floors according to ANNEX C-1	≤ Ø 32 mm	3,0 mm	A + M	3	-	EI 120 U/C   E 120 U/C
	≤ Ø 32 mm	3,0 mm	A + M	3	9 - 19 mm	EI 120 U/C   E 120 U/C
	≤ Ø 50 mm	4,5 mm	A + M	3	-	EI 120 U/C   E 120 U/C
	≤ Ø 50 mm	4,5 mm	A + M	3	9 - 37,5 mm	EI 120 U/C   E 120 U/C
	≤ Ø 63 mm	6,0 mm	A + M	4	-	EI 120 U/C   E 120 U/C
	≤ Ø 63 mm	6,0 mm	A + M	4	9 - 39 mm	EI 120 U/C   E 120 U/C
	≤ Ø 110 mm	10,0 mm	A	4	-	EI 120 U/C   E 120 U/C

Definition of possible pipe insulation installation types:



\*explanation of sealant types see ANNEX C-1

**Pacifyre® FPW**  
- Installation of insulated and non-insulated Multilayer plastic pipes  
in rigid floors -

**ANNEX C-5**