

# Declaration of Performance

According to Annex III of the Regulation (EU) Nr. 305/2011 (Construction Products Regulation).

## Pacifyre® EFC

Nr. 0761-CPR-13-0793.

### 1. Unique identification code of the product-type:

- Pacifyre® EFC.

### 2. Batch identification of the products:

- See Batch number displayed on the product.

### 3. Intended use or uses of the construction product:

- Fire Stopping and Sealing Products for Penetration Seals, see ETA-13/0793 of 22-08-2019.

Pipe Penetrations	Combustible pipes & Non-Combustible pipes	The field of application has to comply with the content of the ETA-13/0793 (2019)
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### 4. Name and contact address:

- J. van Walraven Holding B.V. - Industrieweg 5 - 3641 RK Mijdrecht - The Netherlands.

### 5. System of assessment and verification of constancy of performance (AVCP) of the construction product:

- System 1.

### 6. European Assessment Document, European Technical Assessment, Technical Assessment Body & Notified Body:

EAD	ETA	TAB	NB
ETAG 026-2	ETA-13/0793	OIB	MPA Braunschweig, No. 0761

### 7. Declared Performance

Essential characteristics	ETA
Reaction to fire - Intumescent & Sealants	Class E according EN 13501-1
Reaction to fire - Metal components & Mortar	Class A1 according EN 13501-1
Resistance to fire	In accordance with EN 13501-2. See annex
Dangerous substances	None
Durability and serviceability	Use category Type Z <sub>2</sub>
Other	Not applicable / No performance determined

### 8. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 8.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:



Frank Nijdam

Group Director Product Marketing and Innovation

Mijdrecht, 28-11-2019

J. van Walraven Holding B.V.

# Annex 1

## Pacifyre® EFC general aspects

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Pacifyre® EFC System can be used for metal pipes and plastic pipes according to clause 2.1 of the ETA in apertures in walls (vertical separating element) and floors (horizontal separating element) according to clause 2.1 of the ETA. Each metal pipe or plastic pipe which is to be sealed off has to be equipped separately with Pacifyre® EFC System; except for multiple penetrations of maximum three plastic pipes (clearance between pipes maximum 15 mm; linear arrangement, no clusters) according to clause 2.1 of the ETA made from PVC-U, PE-HD or PP with diameters and wall thicknesses as defined in Annex D-15 and Annex F-13 of the ETA – these pipes can be equipped with one concerted pipe collar Pacifyre® EFC. For details see Annex C-6 and Annex E-8 of the ETA. In some cases it is allowed to install Pacifyre® EFC System on plastic pipes with bows on the bottom side of the floor and a connection sleeve within the floor. For details see Annex E-7, Annex F-8 and Annex F-10 to Annex F-12 of the ETA.

In some cases it is allowed for floor penetrations to install Pacifyre® EFC System on vertical plastic pipes which are positioned directly in the corner of the wall (clearance between pipe and wall maximum 10 mm). The pipe collar Pacifyre® EFC covers the pipe only from wall to wall. For details see Annex E-4, Annex E-5, Annex F-3, Annex F-4, Annex F-8 and Annex F-10 to Annex F-12 of the ETA.

In all cases, the details of the application range are stated in the ETA 13-0793. In case of questions, always contact the local dealer or Walraven company.

### Pipe end configuration

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

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

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

### Orientation of the penetrating elements

Metal pipes and plastic pipes (except for some plastic pipes according to Annex D-1, Annex D-3, Annex D-5, Annex F-1, Annex F-2 and Annex F-4 of the ETA) have to be installed perpendicular to the surface of the separating element.

Some plastic pipes according to Annex D-1, Annex D-3, Annex D-5, Annex F-1, Annex F-2 and Annex F-4 of the ETA can be installed in all angles between 90° and 45°.

In case of multiple penetrations of maximum three plastic pipes (linear arrangement, no clusters) according to clause 2.1 of the ETA made from PVC-U, PE-HD or PP with diameters and wall thicknesses as defined in Annex D-15 and Annex F-13 of the ETA equipped with one concerted pipe collar Pacifyre® EFC which are installed in vertical separating elements the plastic pipes shall only be positioned in horizontal direction. For details see Annex C-6 and Annex E-8 of the ETA.

The first support (service support construction) for:

- metal pipes and plastic pipes in flexible walls and rigid walls has to be at maximum 650 mm
- metal pipes in rigid floors has to be at maximum 550 mm
- plastic pipes in rigid floors has to be at maximum 400 mm

All metal pipes and plastic pipes have to be fixed according to the installation instructions.

### Transport and storage

The indications of the manufacturer regarding transport and storage (minimum and maximum storing temperature, maximum duration of storage) have to be followed.

### Use, maintenance and repair

The fire resistance of the penetration seal shall not be negatively affected by future changes to buildings or building elements.

The assessment of the fitness for use is based on the assumption that necessary maintenance and repair if required is carried out in accordance with the instructions during the assumed intended working life.

# Annex 2

## Pacifyre® EFC System has to be installed according to the installation instructions

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### Plastic pipes and metal pipes in vertical separating elements

For plastic pipes in vertical separating elements the pipe collar Pacifyre® EFC has to be installed on both sides of the separating element (see Annex C-1 to Annex C-4 and Annex C-6 of the ETA) or in some cases on both sides flushed within the separating element (without Pacifyre® EFC Hook; see Annex C-5 and Annex C-7 of the ETA).

For metal pipes in vertical separating elements Pacifyre® IM 2 or Pacifyre® IM 3 has to be installed on both sides flushed within the separating element (without Pacifyre® EFC Band) (see Annex C-9, Annex C-10 and Annex D-17 of the ETA). In some cases the pipe collar Pacifyre® EFC has to be installed on both sides of the separating element (see Annex C-8 of the ETA).

### Plastic pipes and metal pipes in horizontal separating elements

For plastic pipes in horizontal separating elements the pipe collar Pacifyre® EFC has to be installed at the bottom side of the separating element (see Annex E-1 to Annex E-8 of the ETA).

For metal pipes in horizontal separating elements two Pacifyre® IM 2 or Pacifyre® IM 3 which have to be arranged one behind the other have to be installed at the bottom side flushed within the separating element (without Pacifyre® EFC Band) (see Annex E-9, Annex F-13 and Annex F-14 of the ETA).

For steel pipes and stainless steel pipes a pipe collar Pacifyre® EFC can alternatively be installed at the bottom side of the separating element (see Annex E-10 and Annex F-14 of the ETA).

## Installation of Pacifyre® IM 2 and Pacifyre® IM 3

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The metal pipes and plastic pipes to be sealed off have to be wrapped with Pacifyre® IM 2 or Pacifyre® IM 3 with the corresponding number of layers as specified in Annex D-1 to Annex D-17 and Annex F-1 to Annex F-14 of the ETA.

It is not allowed to combine Pacifyre® IM 2 and Pacifyre® IM 3 in one penetration seal.

If metal pipes or plastic pipes are insulated with AF/Armaflex, SH/Armaflex or Polyethylene sound insulation (e.g. THERMACOMPACT TF™) according to clause 1 of the ETA Pacifyre® IM 2 or Pacifyre® IM 3 has to be wrapped around the insulation.

## Installation of Pacifyre® EFC Band

If metal pipes or plastic pipes have to be equipped with pipe collar Pacifyre® EFC, the intumescent inlay Pacifyre® IM 2 or Pacifyre® IM 3 has to be fixed by one layer of Pacifyre® EFC Band (see Annex C-1 to Annex C-4, Annex C-7, Annex C-9, Annex E-1 to Annex E-8, Annex E-10 of the ETA). The Pacifyre® EFC Band has to be fixed with at least the corresponding number of Pacifyre® EFC Hook and the corresponding means of fixation (e.g. threaded steel bolts) to the separating element as specified below (except Pacifyre® EFC Hook is not required; see Annex C-5, Annex C-8 and Annex C-11 of the ETA).

Minimum number of Pacifyre® EFC Hooks:

Pipe outer diameter (mm)	Perpendicular pipe (90°)	Angled pipe between 90° and 45°
≤ 50	2	3
> 50 to ≤ 110	3	4
> 110 to ≤ 160	4	6

In case of metal pipes where the Pacifyre® EFC is installed on both sides to the surface of the separating element (see Annex C-9 and Annex D-18) the minimum number of Pacifyre® EFC Hooks shall be taken from the following table.

Pipe outer diameter (mm)	Perpendicular pipe (90°)
≤ 54	3
> 54 to ≤ 108	4

## Installation of Pacifyre® EFC Band in case of flexible walls

The Pacifyre® EFC have to be installed on both sides of the flexible wall.

The minimum number of Pacifyre® EFC Hooks has to be taken from the table above.

The Pacifyre® EFC Hooks shall be distributed equally around the pipe to be sealed off.

In case of multiple penetrations of maximum three plastic pipes (clearance between pipes maximum 15 mm; linear arrangement, no clusters) according to clause 2.1 of the ETA made from PVC-U, PE-HD or PP through one concerted pipe collar Pacifyre® EFC between each pipe one Pacifyre® EFC Hook on the top side and the bottom side of the Pacifyre® EFC Band has to be installed.

The Pacifyre® EFC have to be fixed by threaded steel bolts (outer diameter 6 mm to 8 mm – for pipes with outer diameter ≤ 50 mm or 8 mm – for pipes with outer diameter > 50 mm; length ≥ thickness of the separating element) and on both sides of the separating element with washers and nuts (corresponding to the outer diameter of the threaded steel bolts).

## Installation of Pacifyre® EFC Band in case of rigid walls and rigid floors

- The Pacifyre® EFC Band have to be installed on both sides of the rigid wall.
- The Pacifyre® EFC Band has to be installed on the bottom side of the rigid floor.
- The minimum number of Pacifyre® EFC Hooks has to be taken from tables above.
- The Pacifyre® EFC Hook shall be distributed equally around the pipe to be sealed off.

In case the Pacifyre® EFC Band is installed on a vertical plastic pipe which is positioned directly in the corner of the wall (clearance between pipe and wall maximum 10 mm) three Pacifyre® EFC Hook have to be used (one Pacifyre® EFC Hook in each corner and one in the middle of the Pacifyre® EFC Band).

In case of multiple penetrations of maximum three plastic pipes (clearance between pipes maximum 15 mm; linear arrangement, no clusters) according to clause 2.1 of the ETA made from PVC-U, PE-HD or PP through one concerted pipe collar Pacifyre® EFC between each pipe one Pacifyre® EFC Hook on the top side and the bottom side of the Pacifyre® EFC Band has to be installed.

The Pacifyre® EFC Band has to be fixed by appropriate steel dowels resp. steel screw anchors (outer diameter  $\geq 6$  mm) and washers (corresponding to the outer diameter of the steel dowels resp. steel screw anchors). In case of aerated concrete the Pacifyre® EFC Band can alternatively be fixed by steel dry-wall screws (outer diameter  $\geq 5$  mm; length  $\geq 50$  mm) and washers (corresponding to the outer diameter of the steel dry-wall screws).

## Annular gap

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The annular gap (maximum width 30 mm) between the penetrating elements (metal pipes and plastic pipes – including insulation) and the vertical separating element has to be completely filled with "Gap Filler" on both sides of the separating element. In some cases the annular gap between the metal pipes (including insulation) and the vertical separating element shall be 0 mm and therefore no sealing of the annular gap is needed (see Annex C-9 and Annex D-18 of the ETA).

In case where Pacifyre® EFC is installed flushed on both sides within the separating element (without Pacifyre® EFC Hook), the annular gap (maximum width 30 mm) between metal pipes (including insulation) and the vertical separating element has to be filled to a depth of minimum 25mm with Pacifyre® FPM, according to clause 1 of the ETA on both sides of the separating element and backfilled with mineral wool (for details see Annex C-11, Annex and Annex D-19 of the ETA).

In case of plastic pipes where Pacifyre® EFC is installed flushed on both sides within the separating element (without Pacifyre® EFC Hook), the annular gap (maximum width 15 mm) between plastic pipes (without insulation) and the horizontal separating element has to be filled to a depth of minimum 25 mm with Pacifyre® A, Pacifyre® S or Pacifyre® H according to clause 1 of the ETA on both sides of the separating element and backfilled with mineral wool (for details see Annex C-5, Annex C-8, Annex D-15, Annex D-16 and Annex D-17 of the ETA).

In case of PE-HD pipes, PP pipes and PVC-U pipes with a diameter  $\leq 40$  mm where Pacifyre® IM 3 has to be installed on both sides flushed within the separating element (without Pacifyre® EFC Band), the annular gap (maximum width 15 mm) between plastic pipes (without insulation) and the vertical separating element has to be filled to depth of minimum 25 mm with Pacifyre® A, Pacifyre® S or Pacifyre® H according to clause 1 of the ETA on both sides of the separating element and backfilled with mineral wool (for details see Annex C-6, Annex D-15, Annex D-16 and Annex D-17 of the ETA).

In case of non-insulated flexible walls it has to be ensured that the cavity of the flexible wall around the annular gap is filled to a depth of  $\geq 100$  mm with stone wool with classification A2-s1,d0 or A1 according to EN 13501-1.

The annular gap (maximum width 50 mm) between the penetrating elements (metal pipes and plastic pipes – including insulation) and the horizontal separating element has to be completely filled with "Gap Filler" according to clause 1 of the ETA on both sides of the separating element.

The annular gap (maximum width 50 mm) between plastic pipes (including insulation) "Wavin SiTech+", "Geberit Silent-PP", "POLO-KAL NG" or "RAUPIANO PLUS" and the horizontal separating element can alternatively be completely filled with Pacifyre® FPF according to clause 1 of the ETA on both sides of the separating element.

# Annex 2

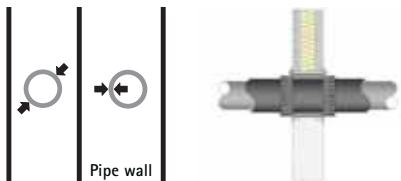
## Application Details for installation with Pacifyre® IM 3 material

Wall applications, standard pipes

Pipe Ø	Pipe wall thickness (t)	E		I		Insulation		E		I		Insulation		E		I	
		Layers	U/C	Layers	U/C	Layers	U/C	Layers	U/C	Layers	U/C	Layers	U/C	Layers	U/C	Layers	U/C
≤ 40	1.8 - 3.0	2	120	2	120	2	120	2	120	2	120	2	120	2	120	2	120
≤ 50	1.8 - 5.6	2	120	2	120	≤ 4	≤ 4	4	120	4	120	≤ 4	≤ 4	4	120	4	120
≤ 75	1.8 - 8.4	3	120	3	120	≤ 4	≤ 4	5	120	5	120	≤ 4	≤ 4	4	120	4	120
≤ 110	1.8 - 12.3	4	120	4	120	≤ 4	≤ 4	4	120	4	120	≤ 4	≤ 4	4	120	4	120
≤ 125	2.2 - 12.2	5	120	5	120	≤ 4	≤ 4	6	120	6	120	≤ 4	≤ 4	8	120	8	120
≤ 160	3.2 - 11.9	6	120	6	120	≤ 4	≤ 4	8	90	8	90	≤ 4	≤ 4	8	120	8	120
≤ 40	3 - 5.5	2	120	2	120	≤ 4	≤ 4	2	120	2	120	≤ 4	≤ 4	2	120	2	120
≤ 50	1.8 - 4.6	2	120	2	120	≤ 4	≤ 4	2	120	2	120	≤ 4	≤ 4	2	120	2	120
≤ 75	1.8 - 8.4	3	120	3	120	≤ 4	≤ 4	3	120	3	120	≤ 4	≤ 4	4	120	4	120
≤ 110	2.7 - 10	4	120	4	120	≤ 4	≤ 4	4	120	4	120	≤ 4	≤ 4	4	120	4	120
≤ 125	4	8	120	7	90	≤ 4	≤ 4	6	120	6	120	≤ 4	≤ 4	8	120	8	120
≤ 160	4 - 14.6	8	60	8	60	≤ 4	≤ 4	6	120	6	120	≤ 4	≤ 4	8	120	8	120
≤ 40	1.8 - 5.5	2	120	2	120	≤ 4	≤ 4	2	120	2	120	≤ 4	≤ 4	2	120	2	120
≤ 50	1.8 - 4.6	2	120	2	120	≤ 4	≤ 4	2	120	2	120	≤ 4	≤ 4	2	120	2	120
≤ 75	1.8 - 8.4	3	120	3	120	≤ 4	≤ 4	3	120	3	120	≤ 4	≤ 4	4	120	4	120
≤ 110	2.7 - 10	4	120	4	120	≤ 4	≤ 4	4	120	4	120	≤ 4	≤ 4	4	120	4	120
≤ 160	4 - 14.6	6	90	6	90	≤ 4	≤ 4	4	120	4	120	≤ 4	≤ 4	4	120	4	120
28	1.2 - 14.2					12.5 - 42.5	12.5 - 42.5	2	120	2	120	60	60	2	120	2	120
≤ 28	1.2 - 14.2					42.5	42.5	2	120	2	120	60	60	2	120	2	120
≤ 54	1.5 - 14.2					42.5	42.5	2	120	2	120	60	60	2	120	2	120
≤ 54	1.5 - 14.2					42.5	42.5	2	120	2	120	60	60	2	120	2	120
≤ 108	1.5 - 14.2					42.5	42.5	2	120	2	120	60	60	2	120	2	120

(1): Pipe wall thicknesses mentioned for single pipes with Pacifyre® EFC build up on the wall. Verify the pipe wall thicknesses range in the ETA-13/0793 for the application types.

## Wall applications, branded pipes



	Pipe Ø	Pipe wall thickness (1)	Insulation	Layers	E U/C	I U/C
Alpex	≤ 16	2	0 / 9	2	120	120
	≤ 50	4	10	3	120	60
	≤ 75	5	9	4	120	90
	≤ 75	5	9 - 20	5	90	90
	≤ 75	5	20 - 44	6	120	90
BluePower	≤ 50	1.8	≤ 4	2	120	120
	≤ 75	2.5	≤ 4	3	120	120
	≤ 110	3.4	≤ 4	4	120	120
Uponor Unipipe	≤ 16	2	0 / 9	2	120	120
	≤ 50	4.5	10	3	120	60
	≤ 50	4.5	27.5	4	120	120
	≤ 110	10	9	6	120	120
	≤ 110	10	9 - 20	6	120	90
Wavin SiTech+	≤ 50	2	≤ 4	2	120	120
	≤ 110	3.6	≤ 4	4	120	90
	≤ 110	3.6	≤ 4	5	120	120
	≤ 160	5.3	≤ 4	8	120	120
Fusiotherm	≤ 50	6.9	-	2	120	120
	≤ 50	6.9	10	3	120	120
	≤ 75	6.9	-	3	120	120
	≤ 75	6.9	31	6	120	120
	≤ 110	15.2	-	4	120	120
Geberit Silent PP	≤ 110	15.2	31	6	120	120
	≤ 50	2	≤ 4	2	120	120
	≤ 75	2.6	≤ 4	3	120	90
	≤ 75	2.6	≤ 4	4	120	120
	≤ 110	3.6	≤ 4	4	120	90
	≤ 110	3.6	≤ 4	5	120	120
	≤ 125	4.2	≤ 4	6	120	120
POLO-KAL NG	≤ 160	5.2	≤ 4	8	120	120
	≤ 50	2	≤ 4	2	120	120
	≤ 75	2.6	≤ 4	3	120	90
	≤ 110	3.4	≤ 4	4	120	90
RAUPIANO PLUS	≤ 110	3.4	≤ 4	5	120	120
	≤ 125	3.9	≤ 4	5	120	120
	≤ 160	4.9	≤ 4	6	120	120
	≤ 50	1.8	≤ 4	2	120	120
Triplus	≤ 75	1.9	≤ 4	3	120	120
	≤ 110	2.7	≤ 4	4	120	120
	≤ 125	3.1	≤ 4	5	120	120
	≤ 160	3.6	≤ 4	6	120	120
	≤ 40	1.8	≤ 4	2	120	120
Triplus	≤ 75	2.5	≤ 4	3	120	120
	≤ 90	3.1	≤ 4	4	120	120
	≤ 110	3.4	≤ 4	5	120	120
	≤ 125	3	≤ 4	6	120	120
	≤ 160	4.9	≤ 4	8	120	120


Floor applications, standard pipes

Pipe Ø	Pipe wall thickness (t)	E		Insulation	E		I	E		I	E		I
		Layers	U/C		Layers	U/C		Layers	U/C		Layers	U/C	
≤ 50	1.8 - 5.6	2	240		2	120	120		4	120	120		120
≤ 75	1.8 - 8.4	3	240		4	120	120		4	120	120		120
≤ 110	1.8 - 12.3	4	240		4	120	120		4	120	120		120
≤ 125	2.2 - 12.1	5	120		5	120	120						
≤ 160	3.2 - 11.9	6	120		8	120	120						
≤ 50	1.8 - 4.6	2	240	≤ 4	2	120	120	2	4	120	120	4	120
≤ 75	1.8 - 8.4	3	240	≤ 4	4	120	120	3	4	120	120	4	120
≤ 110	2.7 - 10	4	240	≤ 4	4	120	120	4	4	120	120	4	120
≤ 160	4 - 14.6	6	240	≤ 4	6	120	120		4	120	120	4	120
≤ 50	1.8 - 4.6	2	240		4	120	120		4	120	120	4	120
≤ 75	1.8 - 8.4	3	240		4	120	120		4	120	120	4	120
≤ 110	2.7 - 10	4	180		4	120	120		4	120	120	4	120
≤ 125	3.1 - 11.4	6	120		6	120	120						
≤ 160	4 - 14.6	8	120		8	120	120						
≤ 28	1 - 14.2			6	2	120	120						
≤ 28	1 - 14.2			6 - 20	3	120	120						
≤ 28	1 - 14.2			20 - 35	4	120	120						
≤ 54	1.5 - 14.2			9	2	120	120						
≤ 54	1.5 - 14.2			9 - 22	3	120	120						
≤ 54	1.5 - 14.2			22 - 35	4	120	120						
≤ 89	2 - 14.2			13	2	120	120						
≤ 108	2.5 - 14.2			13	2	120	120						
≤ 108	2 - 14.2			13 - 30	2	120	120						

\* Also applicable by 2 x 2 layers of Pacifyre IM3 in a tuck-in assembly.



## Floor applications, branded pipes



	Pipe Ø	Pipe wall thickness (1)	Layers	E U/C	I U/C	Insulation	Layers	E U/C	I U/C
Alpex	≤ 16	2	2	120	120	9	2	120	120
	≤ 50	4	2	120	120	9	4	120	120
	≤ 75	5	4	120	120	9	4	120	120
	≤ 75	5				9 - 20	5	120	120
	≤ 75	5				20 - 30	6	120	120
BluePower	≤ 50	1.8				≤ 4	2	120	120
	≤ 75	2.5				≤ 4	4	90	90
	≤ 110	3.4				≤ 4	5	90	90
Uponor Unipipe	≤ 50	4.5				10	3	120	120
	≤ 50	4.5	2	120	120	27.5	4	120	120
	≤ 63	6	3	90	90	9	4	120	120
	≤ 75	7.5	3	90	90	30	5	120	120
	≤ 90	8.5	4	90	90	9	5	120	120
Wavin SiTech+	≤ 110	10	4	90	90	9 - 31	6	120	120
	≤ 50	2				≤ 4	2	120	120
	≤ 75	2.6				≤ 4	3	120	120
	≤ 110	3.6				≤ 4	4	120	120
	≤ 125	4.2				≤ 4	5	60	60
Fusiotherm	≤ 160	5.3				≤ 4	6	60	60
	≤ 50	6.9	2	120	120	10	3	120	120
	≤ 75	11.8	3	120	120	31	6	120	120
Fusiotherm	≤ 110	17.2	4	120	120	31	6	120	120
	≤ 50	2				≤ 4	2	120	120
	≤ 75	2.6				≤ 4	3	120	120
POLO-KAL NG	≤ 110	3.6				≤ 4	4	120	120
	≤ 50	2				≤ 4	2	120	90
	≤ 75	2.6				≤ 4	3	120	90
	≤ 110	3.4				≤ 4	4	120	120

# Annex 3

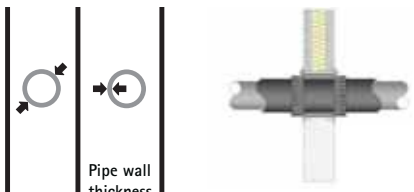
## Application Details for installation with Pacifyre® IM 2 material

Wall applications, standard pipes

Pipe Ø	Pipe wall thickness (t)	Layers		Insulation	Layers		Insulation	Layers		Insulation	Layers			
		E	I		E	I		E	I		E	I		
≤ 40	1.8 - 3.0	2	120 U/C	120 U/C	2	120 U/C	120 U/C	2	120 U/C	120 U/C	4	120 U/C	120 U/C	
≤ 50	1.8 - 5.6	2	120 U/C	120 U/C	2	120 U/C	120 U/C	2	120 U/C	120 U/C	4	120 U/C	120 U/C	
≤ 75	1.8 - 8.4	3	120 U/C	120 U/C	3	120 U/C	120 U/C	3	120 U/C	120 U/C	4	120 U/C	120 U/C	
≤ 110	1.8 - 12.3	4	120 U/C	120 U/C	4	120 U/C	120 U/C	4	120 U/C	120 U/C	4	120 U/C	120 U/C	
≤ 125	2.2 - 12.2	5	120 U/C	120 U/C	6	120 U/C	120 U/C	5	120 U/C	90 U/U	5	120 U/C	120 U/C	
≤ 160	3.2 - 11.9	6	120 U/C	120 U/C	8	90 U/C	90 U/C	6	120 U/C	120 U/U	6	120 U/C	120 U/C	
≤ 40	3 - 5.5	2	120 U/C	120 U/C	2	120 U/C	120 U/C	2	120 U/C	120 U/U	2	120 U/C	120 U/C	
≤ 50	1.8 - 4.6	2	120 U/C	120 U/C	2	120 U/C	120 U/C	2	120 U/C	120 U/U	2	120 U/C	120 U/C	
≤ 75	1.8 - 8.4	3	120 U/C	120 U/C	4	90 U/C	90 U/C	3	120 U/C	120 U/U	3	120 U/C	120 U/C	
≤ 110	2.7 - 10	4	120 U/C	120 U/C	5	90 U/C	90 U/C	4	120 U/C	120 U/U	4	120 U/C	120 U/C	
≤ 125	4	8	120 U/C	120 U/C	7	90 U/C	90 U/C	6	120 U/C	90 U/C	6	120 U/C	120 U/C	
≤ 160	4 - 14.6	8	60 U/C	60 U/C	8	90 U/C	90 U/C	6	120 U/C	90 U/C	6	120 U/C	120 U/C	
≤ 40	1.8 - 5.5	2	120 U/C	120 U/C	2	120 U/C	120 U/C	2	120 U/C	120 U/U	2	120 U/C	120 U/C	
≤ 50	1.8 - 4.6	2	120 U/C	120 U/C	2	120 U/C	120 U/C	2	120 U/C	120 U/U	2	120 U/C	120 U/C	
≤ 75	1.8 - 8.4	3	120 U/C	120 U/C	3	120 U/C	120 U/C	3	120 U/C	120 U/U	3	120 U/C	120 U/C	
≤ 110	2.7 - 10	4	120 U/C	120 U/C	4	120 U/C	120 U/C	4	120 U/C	120 U/U	4	120 U/C	120 U/C	
≤ 160	4 - 14.6	6	90 U/C	90 U/C	6	90 U/C	90 U/C	4	120 U/C	120 U/U	4	120 U/C	120 U/C	
28	1.2 - 14.2										6 - 35	2	120 C/U	120 C/U
≤ 28	1.2 - 14.2										6 - 35	2	120 C/U	120 C/U
≤ 54	1.5 - 14.2										9 - 35	2	120 C/U	60 C/U
≤ 54	1.5 - 14.2										35	2	120 C/U	120 C/U

(1): Pipe wall thicknesses mentioned for single pipes with Pacifyre® EFC build up on the wall. Verify the pipe wall thicknesses range in the ETA-13/0793 corresponding with the application.

## Wall applications, branded pipes



	Pipe Ø	Pipe wall thickness (1)	Insulation	Layers	E	I
Alpex	≤ 16	2	0 / 9	2	120 U/C	120 U/C
	≤ 50	4	10	3	120 U/C	60 U/C
	≤ 75	5	9	4	120 U/C	90 U/C
	≤ 75	5	9 - 20	5	90 U/C	90 U/C
	≤ 75	5	20 - 44	6	120 U/C	90 U/C
BluePower	≤ 50	1.8	≤ 4	2	120 U/C	120 U/C
	≤ 75	2.5	≤ 4	3	120 U/C	120 U/C
	≤ 110	3.4	≤ 4	4	120 U/C	120 U/C
Uponor Unipipe	≤ 16	2	0 / 9	2	120 U/C	120 U/C
	≤ 50	4.5	10	3	120 U/C	60 U/C
	≤ 50	4.5	27.5	4	120 U/C	120 U/C
	≤ 110	10	9	6	120 U/C	120 U/C
	≤ 110	10	9 - 20	6	120 U/C	90 U/C
Wavin SiTech+	≤ 50	2	≤ 4	2	120 U/U	120 U/U
	≤ 110	3.6	≤ 4	3	120 U/U	120 U/U
	≤ 110	3.6	≤ 4	4	120 U/U	120 U/U
	≤ 160	5.3	≤ 4	8	120 U/C	120 U/C
Fusiotherm	≤ 50	6.9	-	2	120 U/C	120 U/C
	≤ 50	6.9	10	3	120 U/C	120 U/C
	≤ 75	6.9	-	3	120 U/C	120 U/C
	≤ 75	6.9	31	6	120 U/C	120 U/C
	≤ 110	15.2	-	4	120 U/C	120 U/C
Geberit Silent PP	≤ 110	15.2	31	6	120 U/C	120 U/C
	≤ 50	2	≤ 4	2	120 U/U	120 U/U
	≤ 75	2.6	≤ 4	3	120 U/U	120 U/U
	≤ 110	3.6	≤ 4	4	120 U/U	120 U/U
	≤ 125	4.2	≤ 4	5	120 U/U	120 U/U
POLO-KAL NG	≤ 160	5.2	≤ 4	6	120 U/U	120 U/U
	≤ 50	2	≤ 4	2	120 U/U	120 U/U
	≤ 75	2.6	≤ 4	3	120 U/U	120 U/U
	≤ 110	3.4	≤ 4	4	120 U/U	120 U/U
RAUPIANO PLUS	≤ 125	3.9	≤ 4	5	120 U/U	120 U/U
	≤ 160	4.9	≤ 4	6	120 U/U	120 U/U
	≤ 50	1.8	≤ 4	2	120 U/U	120 U/U
	≤ 75	1.9	≤ 4	3	120 U/U	120 U/U
	≤ 110	2.7	≤ 4	4	120 U/U	120 U/U
Triplus	≤ 125	3.1	≤ 4	5	120 U/C	120 U/C
	≤ 160	3.6	≤ 4	6	120 U/C	120 U/C
	≤ 40	1.8	≤ 4	2	120 U/C	120 U/C
	≤ 75	2.5	≤ 4	3	120 U/C	120 U/C
	≤ 90	3.1	≤ 4	4	120 U/C	120 U/C
Triplus	≤ 110	3.4	≤ 4	5	120 U/C	120 U/C
	≤ 125	3	≤ 4	6	120 U/C	120 U/C
	≤ 160	4.9	≤ 4	8	120 U/C	120 U/C

Floor applications, standard pipes

Pipe Ø	Pipe wall thickness (t)	Layers		Insulation	Layers		Layers		I	
		E	I		E	I	E	I		
≤ 50	1.8 - 5.6	2	240 UJC	240 UJC	2	120 UJC	120 UJC	4	120 UJC	120 UJC
≤ 75	1.8 - 8.4	3	240 UJC	240 UJC	4	120 UJC	120 UJC	4	120 UJC	120 UJC
≤ 110	1.8 - 12.3	4	240 UJC	240 UJC	4	120 UJC	120 UJC	4	120 UJC	120 UJC
≤ 125	2.2 - 12.1	5	120 UJC	120 UJC	5	120 UJC	120 UJC			
≤ 160	3.2 - 11.9	6	120 UJC	120 UJC	8	120 UJC	120 UJC			
≤ 50	1.8 - 4.6	2	240 UJC	240 UJC	2	120 UJC	120 UJC	≤ 4	2	120 UJC
≤ 75	1.8 - 8.4	3	240 UJC	240 UJC	4	120 UJC	120 UJC	≤ 4	3	120 UJC
≤ 110	2.7 - 10	4	240 UJC	180 UJC	4	120 UJC	120 UJC	≤ 4	4	120 UJC
≤ 160	4 - 14.6	6	240 UJC	120 UJC						
≤ 50	1.8 - 4.6	2	240 UJC	240 UJC	4	120 UJC	120 UJC		4	120 UJC
≤ 75	1.8 - 8.4	3	240 UJC	240 UJC	4	120 UJC	120 UJC		4	120 UJC
≤ 110	2.7 - 10	4	180 UJC	180 UJC	4	120 UJC	120 UJC		4	120 UJC
≤ 125	3.1 - 11.4	6	120 UJC	120 UJC	6	120 UJC	120 UJC			
≤ 160	4 - 14.6	8	120 UJC	120 UJC	8	120 UJC	120 UJC			
≤ 28	1 - 14.2							6	2	120 C/U
≤ 28	1 - 14.2							6 - 20	3	120 C/U
≤ 28	1 - 14.2							20 - 35	4	120 C/U
≤ 54	1.5 - 14.2							9	2	120 C/U
≤ 54	1.5 - 14.2							9 - 22	3	120 C/U
≤ 54	1.5 - 14.2							22 - 35	4	120 C/U
≤ 89	2 - 14.2							13	2	120 C/U
≤ 108	2.5 - 14.2							13	2	120 C/U
≤ 108	2 - 14.2							13 - 30	2	120 C/U

\* Also as tuck-in application by 2 x 2 layers of Pacifyre IM2 above each other inside the floor, bottom layer flush with the ceiling.

Floor applications, standard pipes

Pipe Ø	Pipe wall thickness (1)	E		I		Insulation		Layers		E		I		Insulation		Layers		E		I	
		U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C	U/C
Alpex	≤ 16	2	2	120 U/C	120 U/C	9	2	120 U/C	120 U/C	9	2	120 U/C	120 U/C	9	2	120 U/C	120 U/C	9	2	120 U/C	120 U/C
	≤ 50	4	2	120 U/C	120 U/C	9	4	120 U/C	120 U/C	9	4	120 U/C	120 U/C	9	4	120 U/C	120 U/C	9	4	120 U/C	120 U/C
	≤ 75	5	4	120 U/C	120 U/C	9	5	120 U/C	120 U/C	9	5	120 U/C	120 U/C	9	5	120 U/C	120 U/C	9	5	120 U/C	120 U/C
	≤ 75	5	5			9 - 20	5	120 U/C	120 U/C	9 - 20	5	120 U/C	120 U/C	9 - 20	5	120 U/C	120 U/C	9 - 20	5	120 U/C	120 U/C
	≤ 75	5	5			20 - 30	6	120 U/C	120 U/C	20 - 30	6	120 U/C	120 U/C	20 - 30	6	120 U/C	120 U/C	20 - 30	6	120 U/C	120 U/C
BluePower	≤ 50	1.8				≤ 4	2	120 U/C	120 U/C	≤ 4	2	120 U/C	120 U/C	≤ 4	2	120 U/C	120 U/C	≤ 4	2	120 U/C	120 U/C
	≤ 75	2.5				≤ 4	4	90 U/C	90 U/C	≤ 4	4	90 U/C	90 U/C	≤ 4	4	90 U/C	90 U/C	≤ 4	4	90 U/C	90 U/C
	≤ 110	3.4				≤ 4	5	90 U/C	90 U/C	≤ 4	5	90 U/C	90 U/C	≤ 4	5	90 U/C	90 U/C	≤ 4	5	90 U/C	90 U/C
	≤ 50	4.5				10	3	120 U/C	120 U/C	10	3	120 U/C	120 U/C	10	3	120 U/C	120 U/C	10	3	120 U/C	120 U/C
	≤ 50	4.5	2	120 U/C	120 U/C	27.5	4	120 U/C	120 U/C	27.5	4	120 U/C	120 U/C	27.5	4	120 U/C	120 U/C	27.5	4	120 U/C	120 U/C
Uponor Unipipe	≤ 63	6	3	90 U/C	90 U/C	9	4	120 U/C	120 U/C	9	4	120 U/C	120 U/C	9	4	120 U/C	120 U/C	9	4	120 U/C	120 U/C
	≤ 75	7.5	3	90 U/C	90 U/C	30	5	120 U/C	120 U/C	30	5	120 U/C	120 U/C	30	5	120 U/C	120 U/C	30	5	120 U/C	120 U/C
	≤ 90	8.5	4	90 U/C	90 U/C	9	5	120 U/C	120 U/C	9	5	120 U/C	120 U/C	9	5	120 U/C	120 U/C	9	5	120 U/C	120 U/C
	≤ 110	10	4	90 U/C	90 U/C	9 - 31	6	120 U/C	120 U/C	9 - 31	6	120 U/C	120 U/C	9 - 31	6	120 U/C	120 U/C	9 - 31	6	120 U/C	120 U/C
	≤ 50	2				≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U
Wavin SiTech+	≤ 75	2.6				≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U
	≤ 110	3.6				≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U
	≤ 125	4.2				≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U
	≤ 160	5.3				≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U
	≤ 50	6.9	2	120 U/C	120 U/C	10	3	120 U/C	120 U/C	10	3	120 U/C	120 U/C	10	3	120 U/C	120 U/C	10	3	120 U/C	120 U/C
Fusiotherm	≤ 75	11.8	3	120 U/C	120 U/C	31	6	120 U/C	120 U/C	31	6	120 U/C	120 U/C	31	6	120 U/C	120 U/C	31	6	120 U/C	120 U/C
	≤ 110	17.2	4	120 U/C	120 U/C	31	6	120 U/C	120 U/C	31	6	120 U/C	120 U/C	31	6	120 U/C	120 U/C	31	6	120 U/C	120 U/C
	≤ 50	2				≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U
	≤ 75	2.6				≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U
	≤ 110	3.6				≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U
Geberit Silent PP	≤ 125	4.2				≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U
	≤ 160	5.2				≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U
	≤ 50	2				≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U
	≤ 75	2.6				≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U
	≤ 110	3.6				≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U
POLO-KAL NG	≤ 125	4.2				≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U
	≤ 160	5.2				≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U
	≤ 50	2				≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U	≤ 4	2	120 U/U	120 U/U
	≤ 75	2.6				≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U	≤ 4	3	120 U/U	120 U/U
	≤ 110	3.4				≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U	≤ 4	4	120 U/U	120 U/U
RAUPIANO PLUS	≤ 125	3.1				≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U	≤ 4	5	120 U/U	120 U/U
	≤ 160	3.6				≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U	≤ 4	6	120 U/U	120 U/U