

Technical manual

## Walraven Pacifyre® MWB System 1 x 80 mm

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### Ablative mineral fibre board seal

Mixed penetration sealing system made of a single mineral fibre board (80 mm) with an ablative coating for electrical installations of all types as well as for electrical installation conduits, speedpipes and HVAC split line combinations.

Fire resistance class EI 90 (max. EI 120) in accordance with EN 13501-2 as per ETA-24/1116.



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## 1. Preliminary remarks / overview

### 1.1 Target group

The installation instructions are intended solely for personnel trained in fire protection.

### 1.2 Use of the instructions

Before starting work, read through these installation instructions completely once. Pay particular attention to the following safety instructions.

The authorisation holder assumes no liability for damage caused by failure to comply with these instructions.

Pictorial representations serve as examples only. Installation results may differ in appearance.

Unless stated otherwise, all lengths are specified in mm.

All information in this document represents the state of the art at the time of writing or the current version of the standard.

Upon request, Walraven will be pleased to provide the relevant legal and technical framework and manufacturer specifications for each individual case.

#### 1.2.1 Safety instructions

Consult the respective safety information for the individual penetration seal components.

Personal protective equipment:



Wear protective clothing and non-slip shoes.



Use safety goggles, safety glasses.



P2 particle filter in case of short-term or low level exposure.  
Use breathing protection in compliance with international/national standards.



Use chemically resistant gloves.  
Recommended materials: butyl rubber, nitrile rubber, fluorinated rubber, PVC.

Safety instructions for the installation of floor penetration seals:



The area below the floor penetration seal must be cordoned off against entry during penetration seal work (barrier tape and warning sign: warning of possible falling objects, do not enter the area, penetration seal work in floor openings).



The contractor for the production of floor penetration seals must inform the client in writing (for forwarding to the client or appointed representative) that after the production of the fire penetration seals in floors, these must be secured on site against loads, in particular against being stepped on, by suitable measures (e.g. by fencing or by covering with grating).

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### 1.3 Building elements

#### Plasterboard walls with steel substructure

In stud design and double-sided cladding with at least 2 layers of 12.5 mm cement or gypsum-bound building boards with a reaction to fire of class A1 or A2 according to EN 13501-1.

The stud construction must be complemented by additional wall struts and transoms to form the aperture edge.

The walls must be classified with the required fire resistance rating according to EN 13501-2.

#### Plasterboard walls with wood substructure

In stud design and double-sided cladding with at least 2 layers of 12.5 mm cement or gypsum-bound building boards with a reaction to fire of class A1 or A2 according to EN 13501-1.

The distance between the opening and the studs and transoms must be  $\geq 100$  mm and the cavities between the cladding of the wall, studs and transoms and the aperture must be tightly sealed to a depth of  $\geq 100$  mm with mineral wool, reaction to fire class A1 or A2 according to EN 13501-1.

The walls must be classified for the required fire resistance rating in accordance with EN 13501-2.

#### Cladding of the aperture edge in plasterboard walls

Alongside the aperture edge, corresponding to the wall cladding, with at least one layer of 12.5 mm cement or gypsum-bound building boards with a reaction to fire of class A1 or A2 in accordance with EN 13501-1.

#### Solid walls

Made of concrete or masonry with a density of  $\geq 350$  kg/m<sup>3</sup>.

The walls must be classified for the required fire resistance rating in accordance with EN 13501-2.

#### Solid floors

Made of concrete or masonry with a density of  $\geq 550$  kg/m<sup>3</sup>.

The floors must be classified for the required fire resistance rating in accordance with EN 13501-2.







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### 2. Allowed services

For specific fire resistance classes and pipe end configurations depending on measurements and fire protection measures see the respective chapters on design variants starting on page 11.

#### 2.1 Cables / electrical installation conduits / speedpipes

Service		max. diameter [mm]	
	Cables	≤ 80	
	Cable bundles	≤ 100, Kabel-Ø ≤ 21	
	Cable trays	✓	
	Single conduits	made of plastic	≤ 16
		made of steel	≤ 16
	Electrical installation conduits made of plastic	single	≤ 63 with or without cables
		bundled	≤ 100, conduit Ø ≤ 25, with or without cables
	speedpipes	≤ 50, single Ø ≤ 14	

#### 2.2 Other services

Service		Dimensions
	HVAC split line combinations	Copper pipe ≤ 2 × Ø 18 mm, + 9 mm PE foam, + 1 pipe made of PVC-U Ø ≤ 25.0 × 1.5 mm, + ≤ 3 × cables Ø ≤ 14.0 mm

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### 3. Thicknesses and spacing requirements

Dimensions		
	Wall [mm]	Floor [mm]
Thickness of building element	≥ 100	≥ 150
Thickness of penetration seal	≥ 80	≥ 80
Maximum dimensions of the aperture (width × height)	2000 × 600 / 600 × 2000	2000 × 600 / 10 000 × 490
Distance to other penetration seals	≥ 100	≥ 100
Distance to other apertures or installations	≥ 200	≥ 200

The total allowable cross section of the installations (outer dimensions) is ≤ 60% of the construction aperture.

#### 3.1 Initial supports

Penetrating services must be supported at the distances specified in the table below. In wall constructions support is necessary on both sides. In floor constructions support is necessary on the upper side of the floor. Essential parts of the supports must be non-combustible.













Initial supports	Wall	Floor
Cables, cable bundles, cable support systems	≤ 250	≤ 250
Electrical installation conduits		
speedpipes for glass fibre cables and micro cables		
HVAC split line combinations		
All specifications in mm		

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### 4. Spacing requirements for services

All specifications refer to distances between the respective insulations and additional measures if applicable.

Walraven Pacifyre® MWB System 1 x 80 mm, spacing distances in plasterboard walls, solid walls and solid floors										
								Aperture edge		
		Single cables	Cable bundles	Cable support systems	speedpipes	Electrical installation conduits made of plastic, single/bundled	HVAC split line combinations	Upper	Lower	Side
	Single cables	≥ 0	≥ 0	≥ 0	≥ 100	≥ 100	≥ 100	≥ 0		
	Cable bundles	≥ 0	≥ 0	≥ 0	≥ 100	≥ 100	≥ 100	≥ 0		
	Cable support systems	≥ 0	≥ 0	≥ 0 (horizontally) ≥ 50 (vertically)	≥ 100	≥ 100	≥ 100	≥ 0		
	speedpipes	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 20		
	Electrical installation conduits made of plastic, single/bundled	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 25		
	HVAC split line combinations	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 100	≥ 25		

All specifications in mm

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## 5. Included products

**Walraven Pacifyre® MWB-A Coating**

5 kg pail – Art. no. 2139400005  
12.5 kg pail – Art. no. 2139400001

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**Walraven Pacifyre® MWB 80 2-S**

pre-coated on both sides with  
Walraven Pacifyre® MWB-A  
Dimensions 1000 x 600 x 80 mm  
Box with 3 pcs. – Art. no. 2139400080

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**Walraven Pacifyre® MWB-A Filler**

310 ml cartridge – Art. no. 2139400003

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**Mineral wool A1**

Reaction to fire class in acc. with  
EN 13501-1: A1  
Melting point  $\geq 1000$  °C

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**Walraven Pacifyre® NCP Wrap**

Roll, 5 m x 125 mm  
(separable into 2 x 62.5 mm)  
– Art. no. 2136300050  
Roll, 10 m x 125 mm  
(separable into 2 x 62.5 mm)  
– Art. no. 2136300100

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**Mineral fibre board  
in acc. with EN 13162**

Criteria: density  $\geq 150$  kg/m<sup>3</sup>  
Reaction to fire class A1 in acc. with  
EN 13501:1  
Melting point  $\geq 1000$  °C.  
(TR10) tensile strength vertical to board  
surface  $\geq 10$  kPa according to EN 1607  
Thickness  $\geq 80$  mm

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**Walraven Pacifyre® ID-card**

1 piece – Art. no. 2149999xxx

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## 5.1 Declarations of Performance

The Declarations of Performance for the featured products are available for download on our website:  
[www.walraven.com/pacifyre](http://www.walraven.com/pacifyre)



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### 6. Design

#### 6.1 Fire resistance classes

Walraven Pacifyre® MWB System 1 x 80 mm meets the requirements of max. class EI 120 in acc. with EN 13501-2.

The fire resistance class of the sealing system is reduced to the fire resistance class of the installed service with the lowest fire resistance rating.

The fire resistance class of the sealing system is reduced to the maximum fire resistance class of the surrounding building element.

Building element	Fire resistance class
Plasterboard wall	max. EI 120
Solid wall	max. EI 120
Solid floor	max. EI 120

#### 6.2 Pipe end configurations

Combustible pipes				
tested	included configurations			
	U/U	U/C	C/U	C/C
U/U	✓	✓	✓	✓
U/C	-	✓	-	✓
C/U	-	✓	✓	✓
C/C	-	-	-	✓

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7. Design variants

The sealing system may be used to close apertures without installations (reserve penetration for subsequent configurations).

Pieces of the mineral fibre boards must be coated with Walraven Pacifyre® MWB-A so that they are glued together. The edges of the mineral fibre board and/or the aperture edge must be coated with Walraven Pacifyre® MWB-A so that the board is glued to the building element.

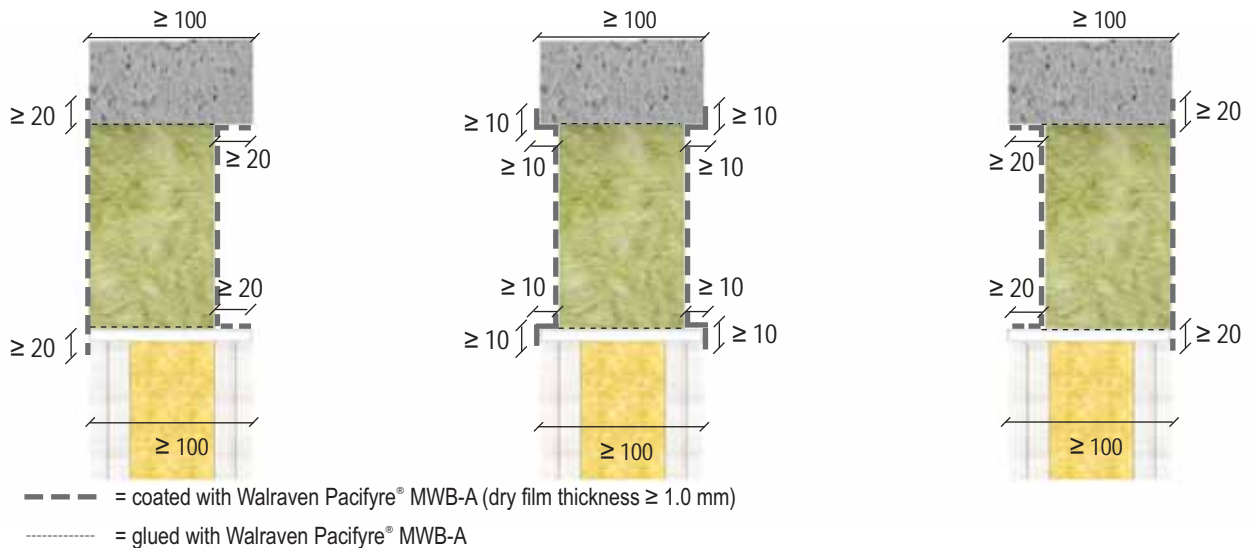
Final coating of the outer board surface and a surrounding area of  $\geq 20$  mm with Walraven Pacifyre® MWB-A (dry film thickness 1.0 mm).

Sealing of annular gap:

$\leq 5$  mm by filling the entire depth with Walraven Pacifyre® MWB-A ,

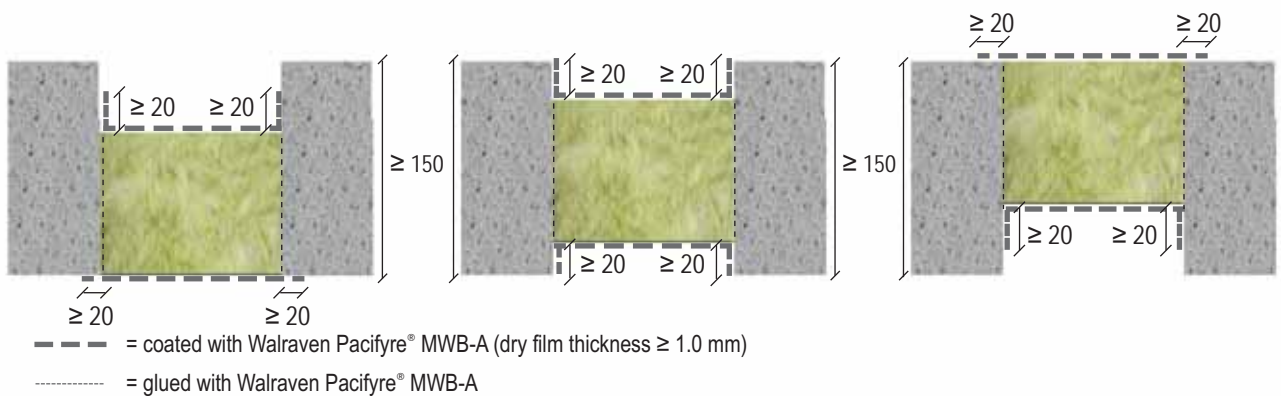
$> 5$  mm by filling with loose mineral wool and coating with Walraven Pacifyre® MWB-A (dry film thickness  $\geq 1$  mm).

**Design variants for plasterboard walls and solid walls**



All specifications in mm

**Design variants for solid floors**



All specifications in mm

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## 8. Fire protection measures

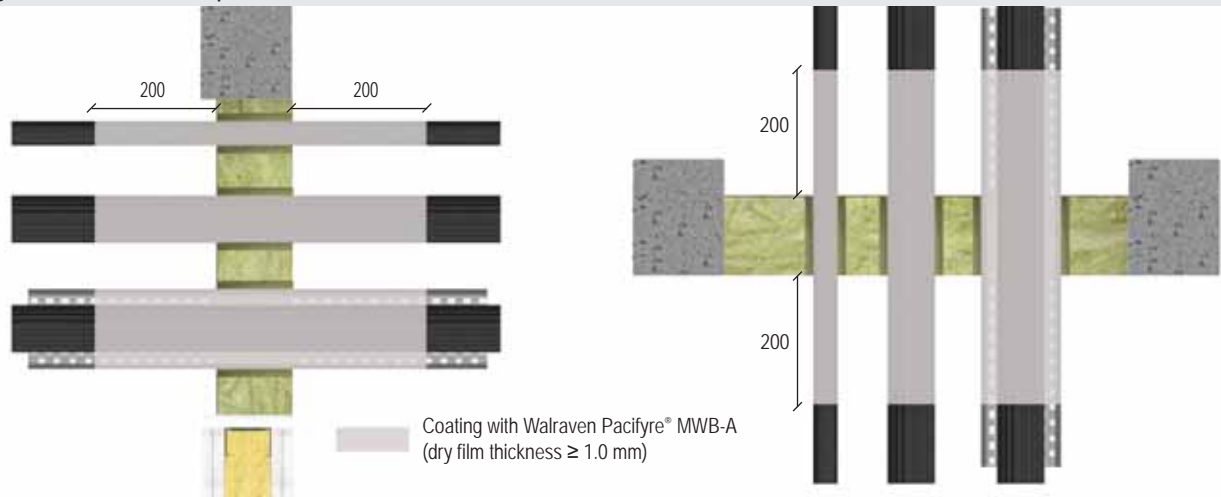
## 8.1 Cables / cable bundles / cable support systems

Cables and cable bundles may be installed with or without cable trays.

It is not necessary to fill the interstices between cables if the bundle consists of parallel-running cables that are tightly packed, tied, stitched or welded together.

The supporting structures for cable trays must be designed in such a way that the penetration seal will not be subjected to additional mechanical stress in case of fire.

## Design for wall and floor penetration seals



For building element and seal thicknesses see page 6. For design variants see page 10.

All specifications in mm

Services	Dimensions [mm]	Coating with Walraven Pacifyre® MWB-A		Fire resistance class		
		Inside seal [mm]	from service seal [mm]	Wall	Floor	
Cables	$\varnothing \leq 21$	80	$\geq 200$	EI 90 / E 120	EI 90 / E 120	
	$\varnothing > 21$ to $\leq 50$			EI 90 / E 120	EI 90 / E 120	
	$\varnothing > 50$ to $\leq 80$			EI 90 / E 120	EI 90 / E 120	
Cable bundles	$\varnothing \leq 100$ with cables $\varnothing \leq 21$			EI 90 / E 120	EI 90 / E 120	
Single conduits	steel			$\varnothing \leq 16$	EI 90 U/C / E 120 U/C	-
	plastic			$\varnothing \leq 16$	EI 120 U/U	EI 120 U/U

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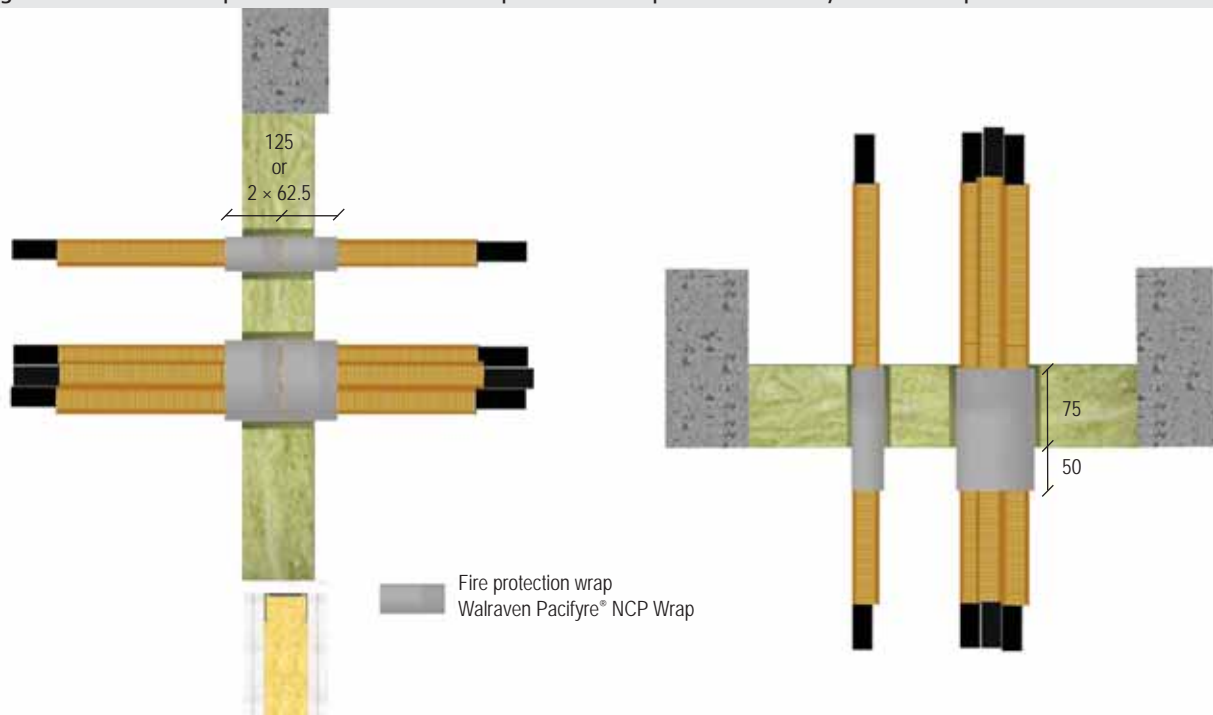
## Walraven Pacifyre® MWB System 1 x 80 mm

## 8.2 Electrical installation conduits

It is possible to install both single and bundled electrical installation conduits with or without cables.

Electrical installation conduits must be wrapped with the fire protection wrap Walraven Pacifyre® NCP Wrap. The wrap must protrude 22.5 mm ( $\pm 5.0$  mm) on both sides in walls and 50 mm ( $\pm 5.0$  mm) on the lower side in floors. A wrap with a width of 125 mm or two wraps with a width of 62.5 mm each may be used. For easier installation the wrap can optionally be secured against falling out with duct tape or winding wire. In floors the wrap must be secured against falling out with winding wire.

## Design for wall and floor penetration seals with fire protection wrap Walraven Pacifyre® NCP Wrap



For building element and seal thicknesses see page 6. For design variants see page 10.

All specifications in mm

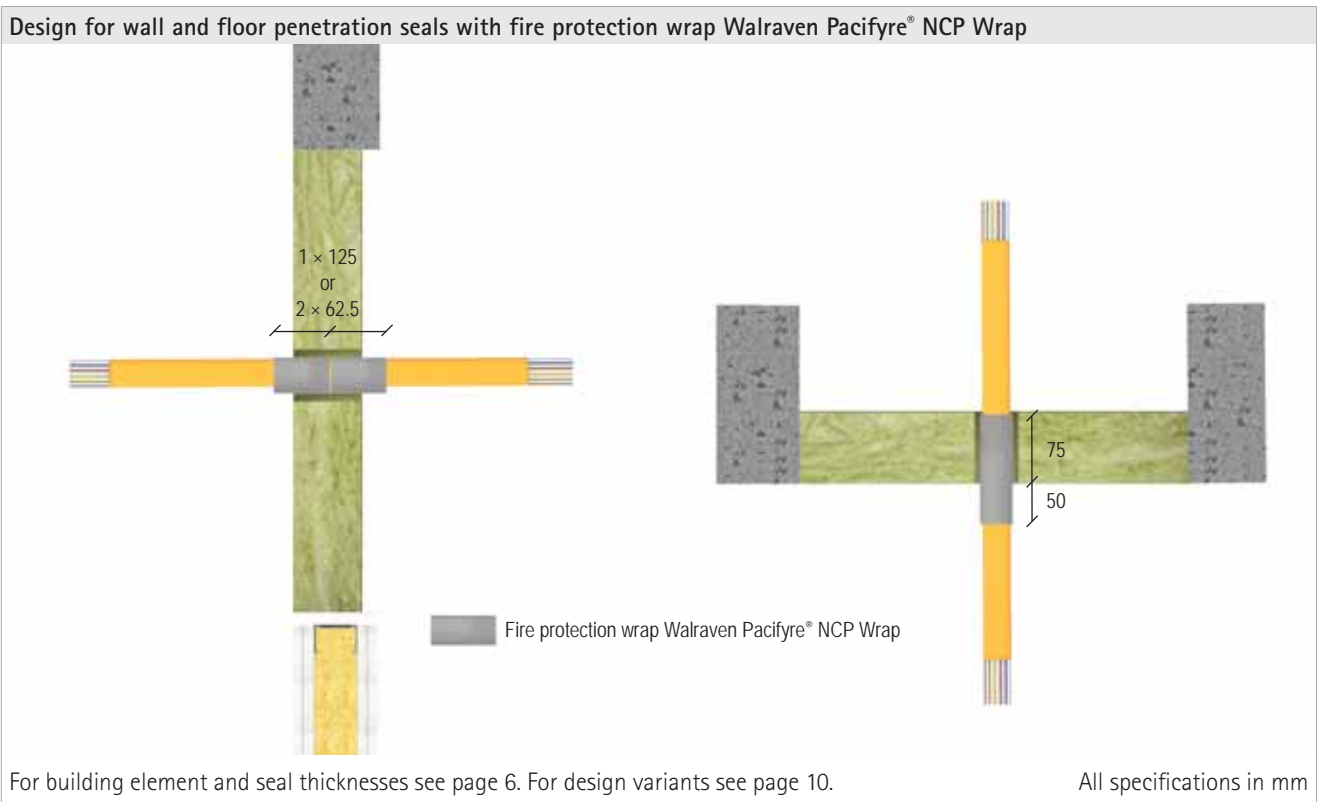
Services	Dimensions	Fire protection wrap Walraven Pacifyre® NCP Wrap		Fire resistance class	
		Number of wraps × width [mm]	Number of layers [n]	Wall	Floor
Conduits made of plastic, single	$\varnothing \leq 63$ (with/without cables $\varnothing \leq 21$ )	1 × 125 or 2 × 62.5	2	EI 120 U/U	EI 90 U/U / E 120 U/U
Conduits made of plastic, bundled	$\varnothing \leq 100$ (single conduits $\varnothing \leq 25$ , with/without cables $\varnothing \leq 14$ )			EI 90 U/U / E 120 U/U	EI 90 U/U / E 120 U/U

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## 8.3 Speedpipes

Speedpipes must be wrapped with the fire protection wrap Walraven Pacifyre® NCP Wrap. The wrap must protrude 22.5 mm ( $\pm 5.0$  mm) on both sides in walls and 50 mm ( $\pm 5.0$  mm) on the the lower side in floors. A wrap with a width of 125 mm or two wraps with a width of 62.5 mm each may be used. For easier installation the wrap can optionally be secured against falling out with duct tape or winding wire. In floors the wrap must be secured against falling out with winding wire.



Configuration	Fire protection wrap Walraven Pacifyre® NCP Wrap		Fire resistance class	
	Number of wraps x width [mm]	Number of layers [n]	Wall	Floor
Bundle $\varnothing \leq 50$ mm Single $\varnothing \leq 14$ mm	1 x 125 or 2 x 62.5	1	EI 120 U/U	EI 120 U/U

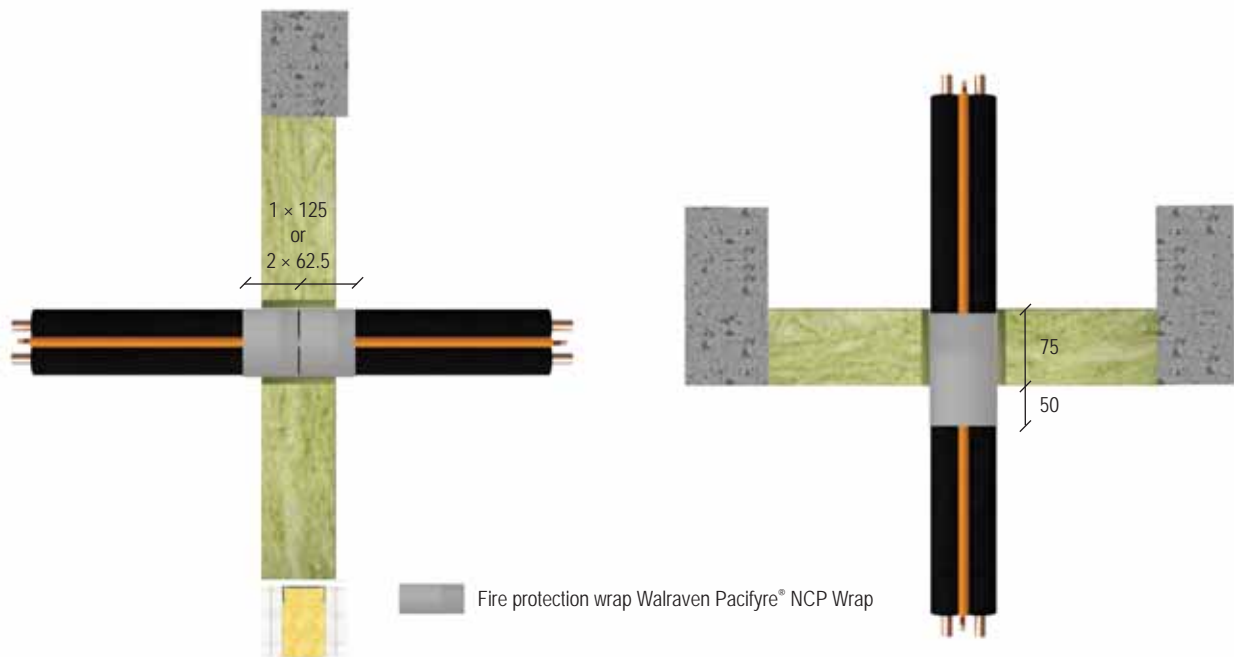
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## 8.4 HVAC split line combinations

HVAC split line combinations must be wrapped with the fire protection wrap Walraven Pacifyre® NCP Wrap. The wrap must protrude 22.5 mm ( $\pm 5.0$  mm) on both sides in walls and 50 mm ( $\pm 5.0$  mm) on the lower side in floors. A wrap with a width of 125 mm or two wraps with a width of 62.5 mm each may be used. For easier installation the wrap can optionally be secured against falling out with duct tape or winding wire. In floors the wrap must be secured against falling out with winding wire.

## Design for wall and floor penetration seals with fire protection wrap Walraven Pacifyre® NCP Wrap



For building element and seal thicknesses see page 6. For design variants see page 10.

All specifications in mm

Configuration	Fire protection wrap Walraven Pacifyre® NCP Wrap		Fire resistance class	
	Number of wraps × width [mm]	Number of layers [n]	Wall	Floor
Copper pipe $\leq 2 \times \varnothing 18$ mm, + 9 mm PE foam, + 1 pipe PVC-U $\varnothing \leq 25.0 \times 1.5$ mm, + $\leq 3 \times$ cables $\varnothing \leq 14.0$ mm	1 × 125 or 2 × 62.5	2	EI 90 / E 120	EI 90 / E 120

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### 9. Installation steps

1. Clean the aperture edge. (The aperture edge must be cladded.)



2. Mask the opening with crepe tape on all sides, keeping 20 mm distance to the edge. Coat the cables with Walraven Pacifyre® MWB-A.



3. Wrap electrical installation conduits, speedpipes and HVAC split line combinations with Walraven Pacifyre® NCP Wrap.



4. Cut the mineral fibre board to size (make cut-outs for the installations).



5. Coat the edges of the mineral fibre boards with Walraven Pacifyre® MWB-A and firmly place boards in position.



6. Seal the remaining aperture / joints with mineral fibre or fill them with Walraven Pacifyre® MWB-A.



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7. Coat cables along the required length with Walraven Pacifyre® MWB-A.



8. Final coating with Walraven Pacifyre® MWB-A (dry film thickness  $\geq 1.0$  mm).



9. If required, label the penetration seal. Fill out the label neatly and attach it firmly next to/above (not on) the penetration seal.





## Find out how we can support you

Would you like to find out more about any of the solutions described in this technical manual?  
Or would you like to discuss how we could help you find the best possible solution for your project?  
Get in touch today!

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### Walraven Group

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\* The technical data are non-binding and do not reflect the warranty characteristics of the products. They are subject to change. Please consult our General Terms and Conditions. Additional information is available upon request. It is the designer's responsibility to select products suitable for the intended purpose and to ensure that performance data are not exceeded. The installation instructions should always be read and followed.