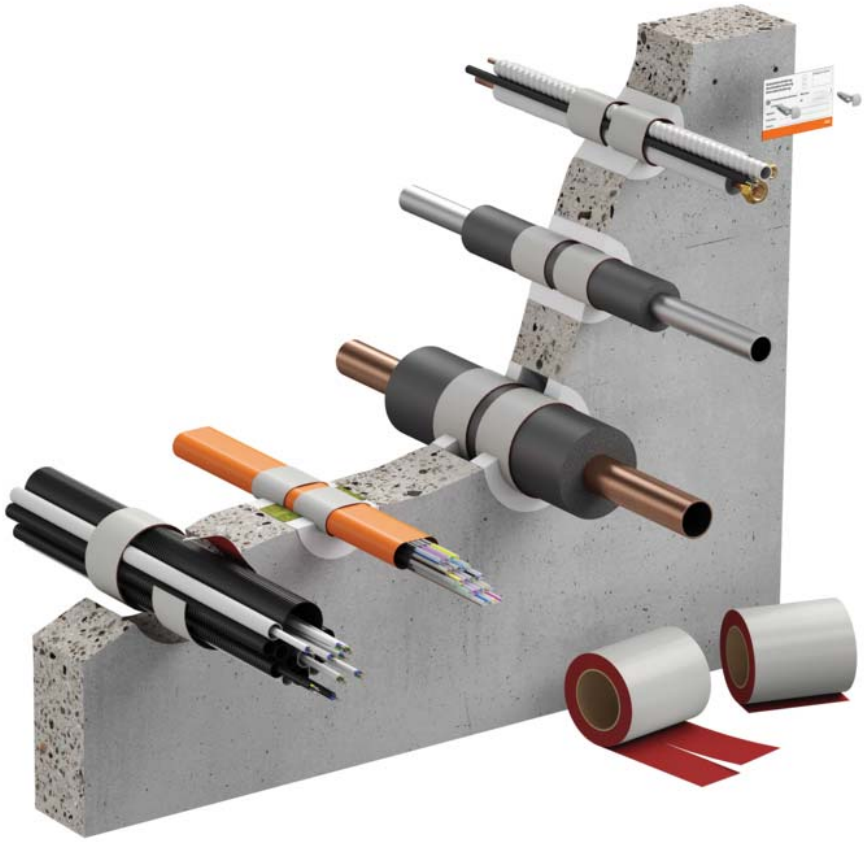


# Certificates

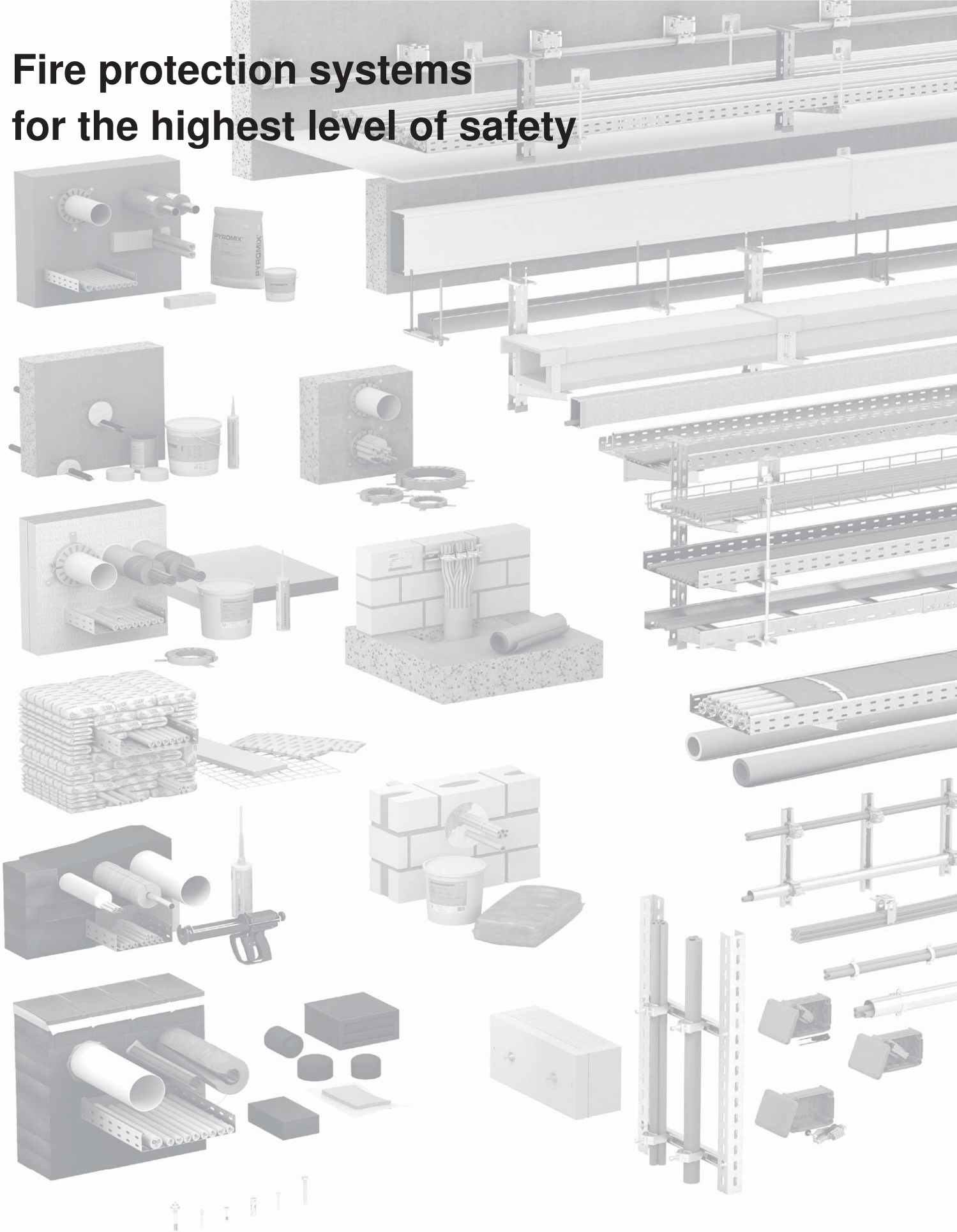
## Insulation

## PYROWRAP® CWR NT

European Technical Assessment No. ETA-25/0578 issued 2025/06/11

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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-25/0578 of 2025/06/11

I General Part

**Technical Assessment Body issuing the ETA and designated according to Article 66 of the Regulation (EU) No 305/2011:** ETA-Danmark A/S

| | |
|---|---|
| **Trade name of the construction product:** | PYROWRAP® CWR NT |
| **Product family to which the above construction product belongs:** | Fire stopping product – penetration seals. |
| **Manufacturer:** | OBO Bettermann Produktion Deutschland GmbH & Co. KG<br>Hüingser Ring 52<br>DE-58710 Menden<br>Tel +49 2373 89-0<br>Internet www.obo-bettermann.com |
| **Manufacturing plant:** | Plant L |
| **This European Technical Assessment contains:** | 21 pages including 11 annexes which form an integral part of the document |
| **This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, based on:** | 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.

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# II SPECIFIC PARTS

## 1 Technical description of the product

The PYROWRAP® CWR NT Fire Protection Wrap is an intumescent material with a width of 2 x 62,5 mm or 125 mm and a thickness of approx. 1,5 mm, which is wrapped in one or more layers around the pipe or the pipe insulation. The PYROWRAP® CWR NT Fire Protection Wrap is installed in openings in fire classified walls or floors around pipes through walls made from concrete, aerated concrete, masonry, light weight partition structures, CLT (cross laminated timber) and shaft wall constructions, concrete floors or CLT floors.

The construction product PYROWRAP® CWR NT is produced in rolls, cut at factory. It may also be delivered as intumescent strips, mats, cuts, and stamps (bands, blocks, pads) of dimension of request.

The intumescent product may be equipped on one side with a self-adhesive tape and/or on the other side with a lamination. A glass filament fabric serves as the carrier material.

Detailed specifications for identification and performance criteria for fire safety regarding the construction product are given in the annexes of this ETA.

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

The construction product PYROWRAP® CWR NT is intended for use as a component with a fire protection effect in building elements, assembled systems or constructions that are subject to requirements related to fire protection. Their reactive effect prevents heat transmission and fire spreading in the event of fire.

Within the scope of this ETA, the fire resistance was demonstrated for pipes made of non-combustible Materials with combustible insulation made of e.g. FEF. Pipe penetrations seals are used to seal off openings in fire resistant walls or floors, which are penetrated by pipes, and serves to preserve the walls or floors fire resistance in the area of the penetrations.

PYROWRAP® CWR NT Fire Protection Wrap is assessed as a wrap described in clause 1.1 of EAD 350454-00-1104.

More information in table 3: “Performance of the product and references to the methods used for its assessment”.

The intumescent fire sealing products are to be installed according to the manufacturer’s installation manual.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the PYROWRAP® CWR NT of 10 years, provided the manufacturers conditions for the packaging, transport, storage, installation, use, maintenance and repair are met.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body but are to be regarded only as a means for choosing the right products 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 |
|---|---|
| **3.1 Safety in case of fire (BWR2)** | |
| Reaction to fire | The product is classified as **class E** in accordance with EN13501-1, and the EC Delegated regulation 2016/364/EU. |
| Resistance to fire | Classified in accordance with EN 13501-2<br>See annex 1 to 11 |
| **3.2 Hygiene, health, and the environment (BWR3)** | |
| Content, emission and/or release of dangerous substances | **No performance assessed** |
| Air permeability | **No performance assessed** |
| Water Permeability | **No performance assessed** |
| **3.3 Safety and accessibility in use (BWR4)** | |
| Mechanical resistance and stability | **No performance assessed** |
| Resistance to impact/movement | **No performance assessed** |
| Adhesion | **No performance assessed** |
| Durability | Use category: **Type X** |
| **3.4 Protection against noise (BWR5)** | |
| Airborne sound insulation | **No performance assessed** |
| **3.5 Energy Economy and heat retention (BWR6)** | |
| Thermal properties | **No performance assessed** |
| Water vapour permeability | **No performance assessed** |

### 3.6 Methods of verification

The product is fully covered by EAD 350454-00-1104 Firestopping and fire sealing products, Penetration Seals as a penetration seal, and fulfils the requirement for use category: X - Intended for use in conditions exposed to weathering. Products that meet requirements for type X, meet the requirements for all other types.

### 3.7 General aspects related to the fitness for use of the product

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.

Additionally, the product was tested under specific application conditions according to EOTA TR 024, section 4.3:

- Exposure to a constant temperature of 80 °C for 40 days,
- Exposure to permanent wetness (water-immersion and permanent condensation) 4 weeks
- Exposure to solvents such as Butylacetat, Butanol, solvent naphtha and fuel oil
- Subsequent overpainting (tested with coatings based on acryl dispersion, alkyd resin, polyurethane acryl and epoxide resin)
- Exposure to intimate contact with plastics (PVC, PE)
- Exposure to intimate contact with metals (steel, copper aluminium)

After the exposure according to EOTA TR 024 no essential changes of the intumescent properties, expansion rate and expansion pressure could be detected.

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 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 the 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 pipes in case of fire nor does it prove the prevention of the transmission of fire through heat transfer via the medium in the pipes.

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 make account of the possible effect on the penetration seal of substances permeating through the pipe walls.

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

PYROWRAP® CWR NT is 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 Attestation and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

## 4.1 AVCP system

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

# 5 Technical details necessary for the implementation of the AVCP system, as provided for 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 2025-06-11 by

Thomas Bruun
Managing Director, ETA-Danmark

**Annex 1**

**Product details, definitions, and specification of intended use**

Product and performance of the PYROWRAP® CWR NT Fire Protection Wrap:

| Property | Parameter | Method |
|---|---|---|
| Density | 1,10 g/cm³ - 1,68 g/cm³ | 3.1.5 of EOTA TR No 024 |
| Content of non-volatile components | No performance assessed | |
| Weight loss due to heating | No performance assessed | |
| Dimensions | 0,8 mm to 3,6 | 3.1.2.1 of EOTA TR No 024 |
| Expansion ratio | 21,8 nominal thickness 1,0 mm<br>max +/- 20[%] interval 17,4 – 26,2.<br>19,4 nominal thickness 3,0 mm<br>max +/- 20[%] interval 15,5 – 23,3 | 3.1.12 of EOTA TR No 024 |

## Annex 2

## General information and construction details

### A.2 General information:

### A.2.1 Wall/floor constructions

1) **Flexible wall**
   i) The wall must have a minimum thickness of 100 mm, and a metal profile frame lined on both faces with minimum 2 layers of 12,5mm thick gypsum boards according to EN 250 / gypsum plaster boards according to EN 18180.

   ii) The wall must have a minimum thickness of 100 mm, with a timber frame lined on both faces with at least 2 layers of 12.5 mm thick cement- or gypsum-based boards (reaction to fire class A1 or A2 according to EN 13501-1). The cavities within the wall, studs, rails, and around openings must be tightly filled with mineral wool (A1 or A2) to a depth of at least 100mm. The wall must be classified according to EN 13501-2 for the required fire resistance duration.

2) **Aerated concrete wall**
   The wall must have a minimum thickness of 100 mm and comprise aerated concrete with a minimum density of 600-650 kg/m$^3$

3) **Aerated concrete floor**
   The floor must have a minimum thickness of 150 mm and comprise aerated concrete with a minimum density of 500-550 kg/m$^3$

4) **CLT constructions**
   i) The wall must be made of cross-laminated timber (CLT) with a minimum strength class according to EN 338 and a charring rate compliant with EN 1995-2. The wall must have the following minimum layer thicknesses:
      EI 90 ≥ 100mm (3 layers: 30/40/30mm)
      EI 60 ≥ 100mm (5 layers: 20/20/20/20/20mm).

   ii) The floor must be made of cross-laminated timber (CLT) with a minimum strength class according to EN 338 and a charring rate compliant with EN 1995-2. The ceiling must have the following minimum layer thicknesses:
      EI 90 ≥ 140mm (5 layers: 40/20/20/20/40mm)
      EI 60 ≥ 100mm (5 layers: 20/20/20/20/20mm).

**A.3 Construction details**

- **Penetration seal:**
  - PYROWRAP® CWR NT intumescent fire protection wraps
  - Numbers/width: 1 x 125 mm or 2 x ≥ 62,5 mm
  - Thickness: ~ 1,5 mm
  - Layers: According to table

- **Protective insulation:**
  - With or without protective insulation made of Rockwool “Klimarock” or FEF-Insulation.
  - Length and width: According to table.

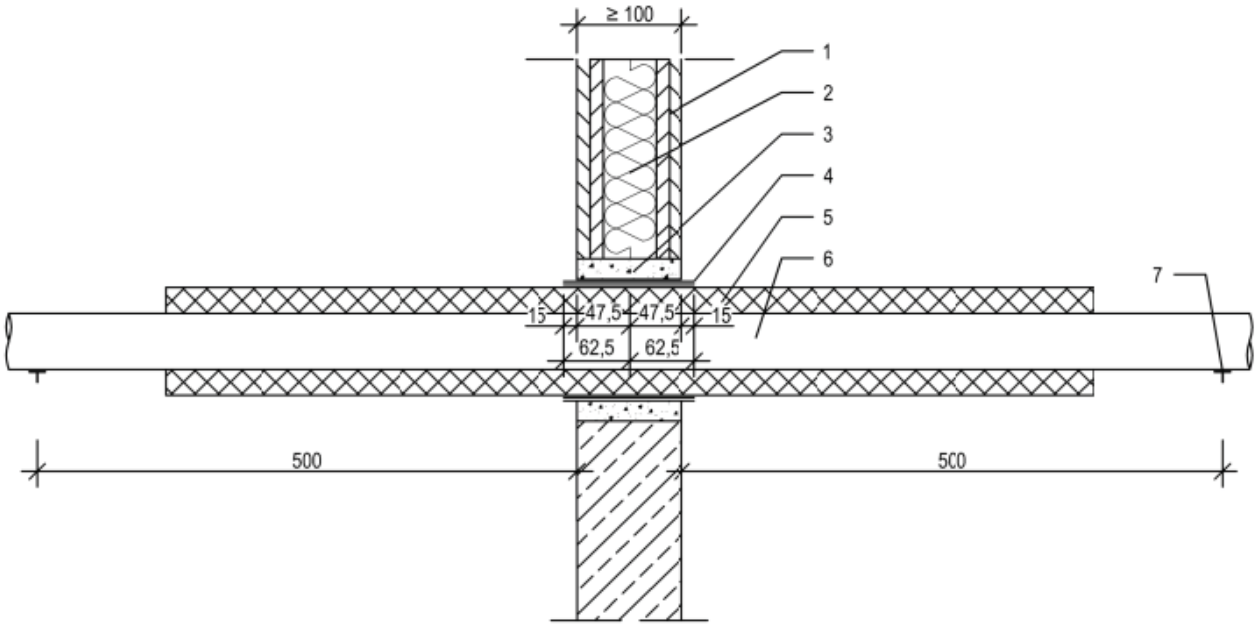
- **Annular gap filling material:**
  Ablative or intumescent filler or non-combustible material (class A1 or A2-sl, d0 according to EN 13501-1) as e.g. concrete, cementitious or gypsum mortar.

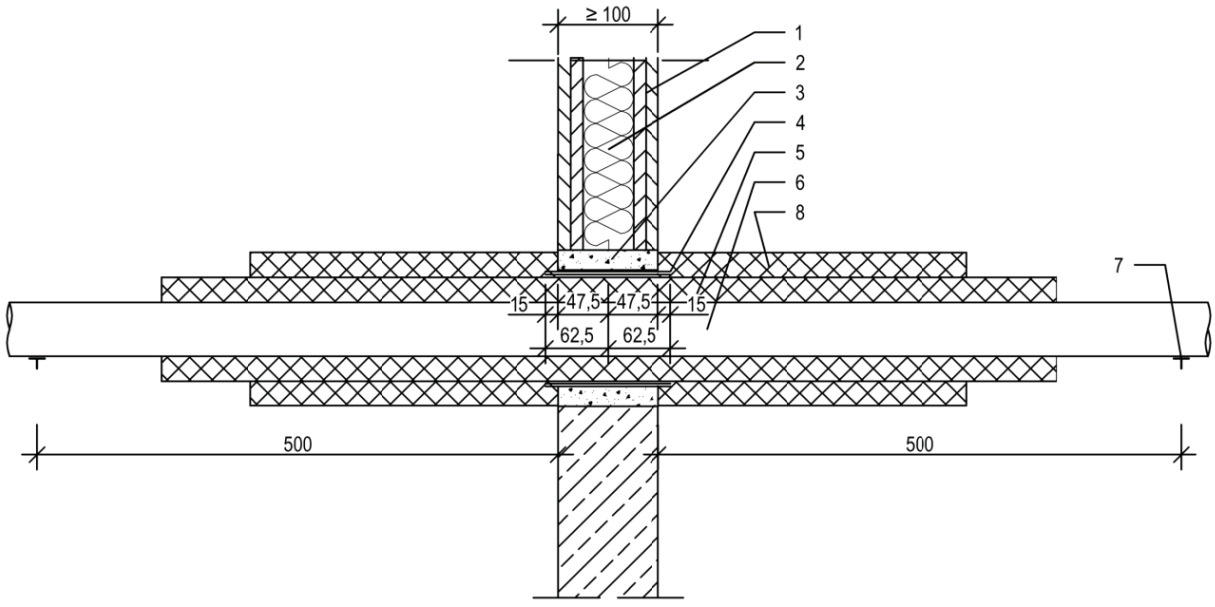
- **Back-up filling material:**
  Loose stone wool.

- **Working Space:**
  Working space between services ≥ 100 mm, gap – except for services marked “zero distance”.

## Annex 3

## Wall installation ≥ 100 mm - Construction details




1. Wall ≥ 100 mm thickness
2. Mineral fibre board
3. Closure of annular gap
4. Intumescent wrap
5. Pipe insulation
6. Non-combustible pipe
7. First support
8. Protective Insulation

Dimensions in mm

| **PYROWRAP® CWR NT** | Annex 3 |
|---|---|
| Wall installation ≥ 100 mm - Construction details | |

## Annex 3.1

## Wall installation ≥ 100 mm - Fire resistance classes

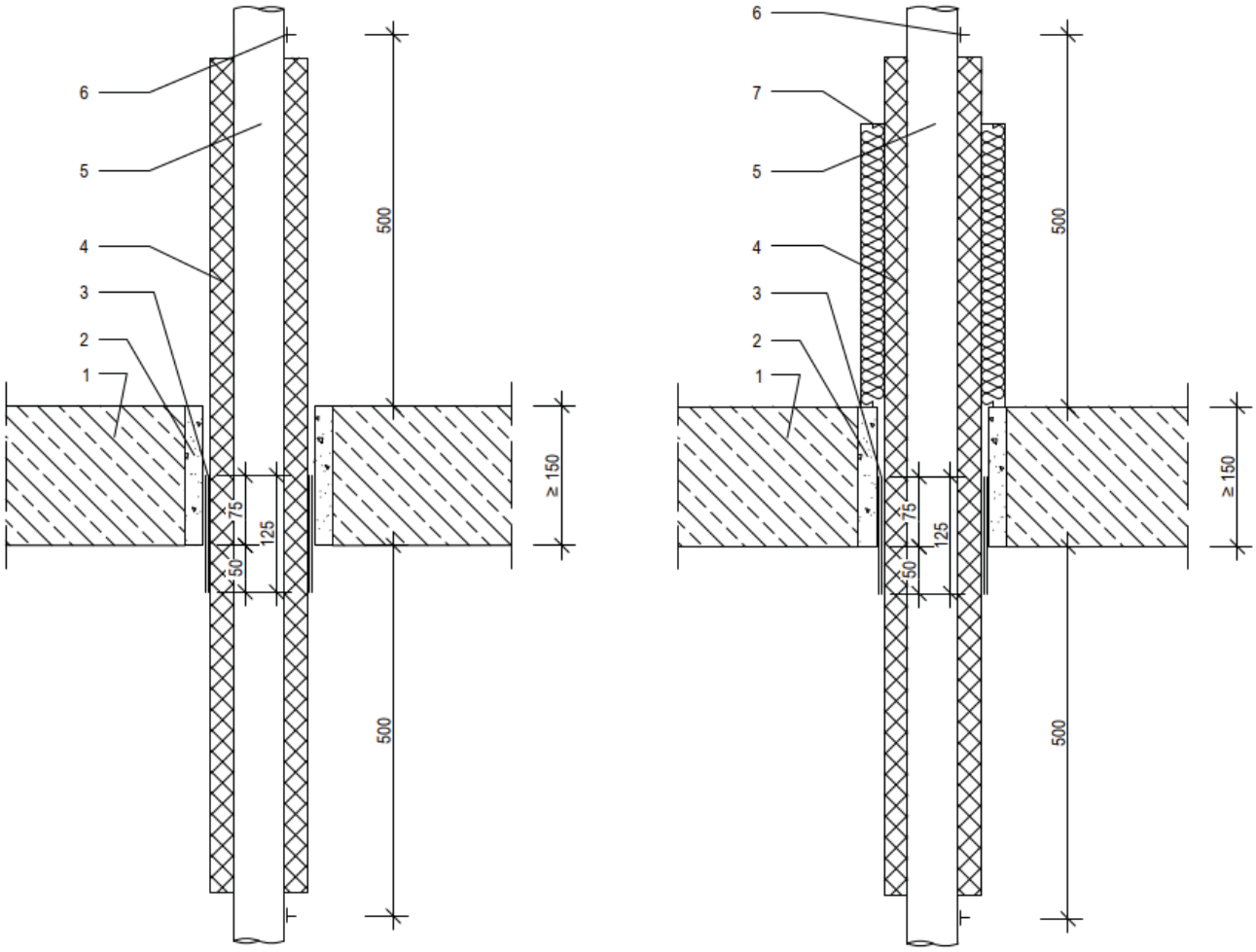
### Non-combustible pipes of copper, steel, stainless steel or cast iron with insulation made of FEF

| Fire resistance classes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pipe | | | Insulation | | Intumescent wrap | Protective insulation | | Classification |
| Type of pipe | Ø [mm] | Wall thickness [mm] | Type | Thickness [mm] | Layers | Type | Thickness [mm] | |
| Copper, Steel, Stainless steel, Cast iron | ≤ 15,0 | 0,8 - 14,2 | FEF | 10,0 | 1 | - | - | EI 120-C/U |
| | | | | 10,0 - 38,0 | 2 | | | |
| | > 15,0 - ≤ 54,0 | | | 19,0 - 38,0 | | | | |
| | > 54,0 - ≤ 88,9 | 1,5 - 14,2 | | 25,0 | | | | |
| Steel, Stainless steel, Cast iron | > 15,0 - ≤ 88,9 | 0,8 - 14,2 | | 19,0 - 38,0 | | | | |
| | > 88,9 - ≤ 114,3 | 2,0 - 14,2 | | | | FEF | 19 x 250 | |
| | > 114,3 - ≤ 159,0 | 3,2 - 14,2 | | 25,0 - 38,0 | | | | |
| | > 159,0 - ≤ 219,1 | 4,0 - 14,2 | | | | | 38 x 250 | |
| | | | | | | | | |
| Copper, Steel, Stainless steel, Cast iron | ≤ 42,0 | 0,8 - 14,2 | FEF | 10,0 | 1 | - | - | EI 90-C/U |
| | > 42,0 - 88,9 | 1,2 - 14,2 | | 19,0 – 38,0 | 2 | | | |
| | | | | | | | | |
| Steel, Stainless steel, Cast iron | > 219,1 - ≤ 323,9 | 4,0 - 14,2 | FEF | 39,0 – 48,0 | 2 | Lamella mat | 30 x 500 | EI 60-C/U |

Dimensions in mm

## Annex 4

## Aerated concrete floor installation ≥ 150 mm - Construction details




1. Aerated concrete floor ≥ 150 mm thickness
2. Closure of annular gap
3. Intumescent wrap
4. Pipe insulation
5. Non-combustible pipe
6. First support
7. Protective insulation

Dimensions in mm

| PYROWRAP® CWR NT | Annex 4 |
|---|---|
| Aerated concrete floor installation ≥ 150 mm - Construction details | |

## Annex 4.1

## Aerated concrete floor installation ≥ 150 mm - Fire resistance classes

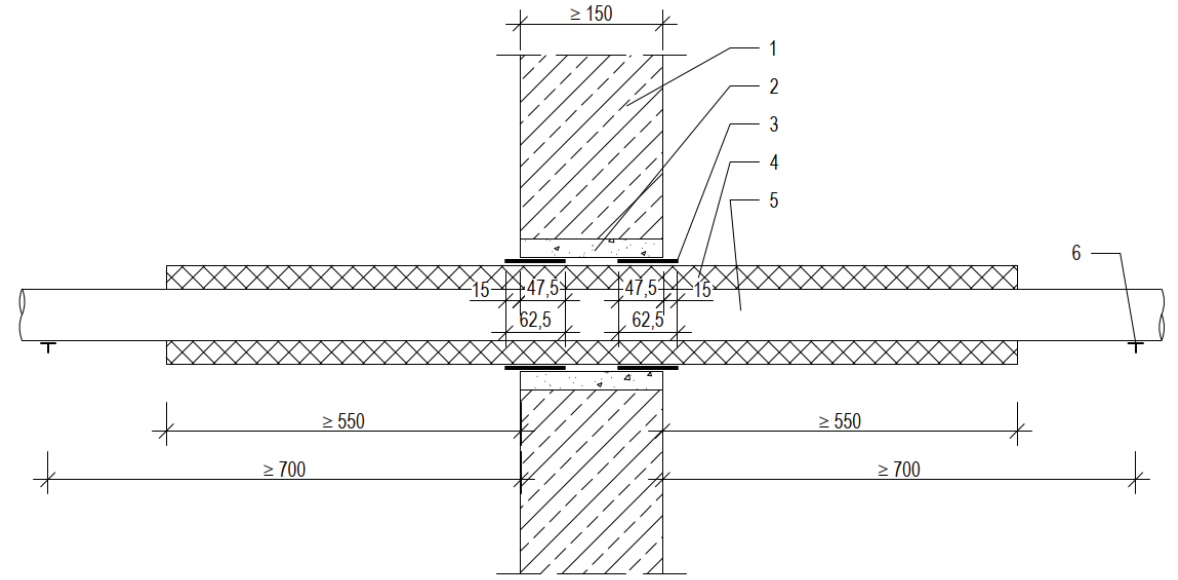
### Non-combustible pipes of copper, steel, stainless steel or cast iron with insulation made of FEF or glass wool

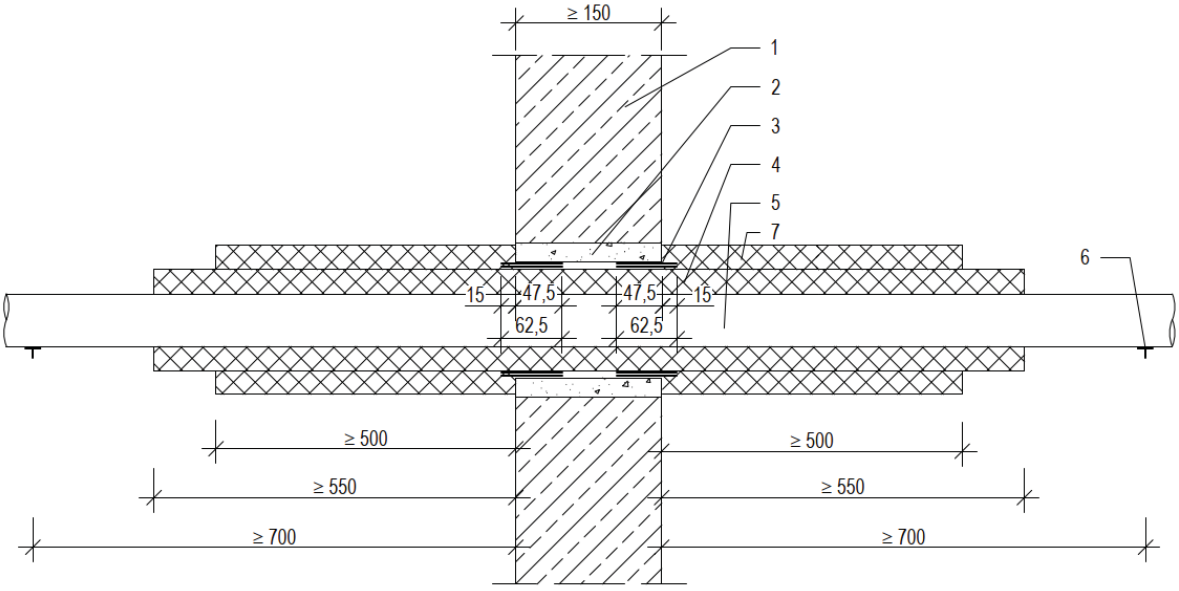
| Fire resistance classes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pipe | | | Insulation | | Intumescent wrap | Protective insulation | | Classification |
| Type of pipe | Ø [mm] | Wall thickness [mm] | Type | Thickness [mm] | Layers | Type | Thickness [mm] | |
| Copper, Steel, Stainless steel, Cast iron | ≤ 60,0 | 0,6 - 14,2 | FEF | 13,0 - 40,0 | 2 | - | - | EI 120-C/U |
| | > 60,0 - ≤ 88,9 | 1,5 - 14,2 | | 25,0 | | | | |
| | ≤ 54,0 | | Glass wool | 20,0 - 50,0 | | | | |
| | ≤ 88,9 | 2,0 - 14,2 | | 40,0 | | | | |
| | | | | 80,0 | 3 | | | |
| | | | | 100,0 | 4 | | | |
| Steel, Stainless steel, Cast iron | ≤ 108,0 | 2,0 - 14,2 | FEF | 19,0 - 39,0 | 2 | - | - | |
| | ≤ 219,1 | 4,5 - 14,2 | | 19,0 - 26,0 | 2 | Lamella mat | 60 x 500 | |
| | ≤ 273,0 | 5,0 - 14,2 | | 25,0 - 26,0 | | | 60 x 750 | |
| | ≤ 323,9 | 5,6 - 14,2 | | 25,0 | | FEF | | |
| | | | | 25,0 - 50,0 | 3 | | | |
| | | | | | | | | |
| Copper, Steel, Stainless steel, Cast iron | ≤ 42,0 | 0,6 - 14,2 | FEF | 10,0 | 1 | - | - | EI 90-C/U |
| | | | | 9,0 – 40,0 | 2 | | | |
| | > 42,0 - ≤ 60,0 | 1,2 - 14,2 | | 13,0 – 40,0 | | | | |
| | > 60,0 - ≤ 88,9 | 1,5 - 14,2 | | 19,0 – 38,0 | | | | |
| Steel, Stainless steel, Cast iron | ≤ 114,3 | 3,2 - 14,2 | | 13,0 – 40,0 | | | | |
| | ≤ 159,0 | 0,6 - 14,2 | | 25,0 – 38,0 | | FEF | 25 x 250 | |
| | > 159,0 - ≤ 219,1 | 4,0 - 14,2 | | 25,0 – 38,0 | | | 38 x 250 | |
| | ≤ 219,1 | 4,5 - 14,2 | Glass wool | 60,0 | 3 | - | - | |
| | ≤ 323,9 | 5,6 - 14,2 | | 100,0 | 4 | | | |

Dimensions in mm

## Annex 5

## Aerated concrete wall installation ≥ 150 mm - Construction details




1. Concrete wall ≥ 150 mm thickness
2. Closure of annular gap
3. Intumescent wrap
4. Pipe insulation
5. Non-combustible pipe
6. First support
7. Protective insulation

Dimensions in mm

| **PYROWRAP® CWR NT** | Annex 5 |
|---|---|
| Aerated concrete wall installation ≥ 150 mm - Construction details | |

## Annex 5.1
## Aerated concrete wall installation ≥ 150 mm - Fire resistance classes

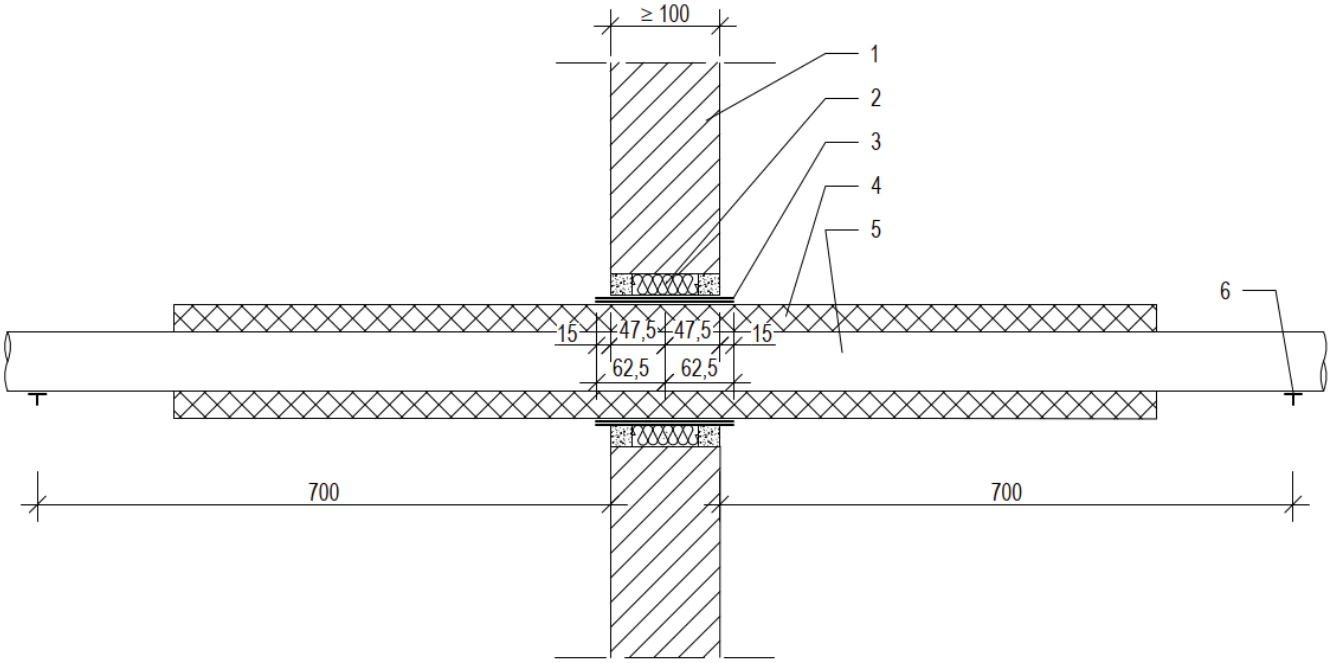
### Non-combustible pipes of copper, steel, stainless steel or cast iron with insulation made of FEF or glass wool

| Fire resistance classes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pipe | | | Insulation | | Intumescent wrap | Protective insulation | | Classification |
| Type of pipe | Ø [mm] | Wall thickness [mm] | Type | Thickness [mm] | Layers | Type | Thickness [mm] | |
| Steel, Stainless steel, Cast iron | ≤ 323,9 | 5,6 - 14,2 | FEF | 50,0 | 3 | Lamella mat | 60 x 750 | **EI 120-C/U** |
| | | | | 25,0 | 2 | FEF | | |
| | | | | 50,0 | 3 | | | |
| | | | | 25,0 – 50,0 | | | | |
| Steel, Stainless steel, Cast iron | ≤ 114,3 | 3,2 - 14,2 | FEF | 19,0 | 2 | - | - | **EI 90-C/U** |
| Steel, Stainless steel, Cast iron | ≤ 114,3 | 3,2 - 14,2 | FEF | 19,0 – 25,0 | 2 | - | - | **EI 60-C/U** |
| | ≤ 168,3 | 4,0 - 14,2 | | 25,0 | | | | |
| | | | | 50,0 | 3 | | | |

Dimensions in mm

## Annex 6

## CLT wall installation ≥ 100 mm - Construction details and fire resistance classes




### Fire resistances classes

### Non-combustible pipes of copper, steel, stainless steel or cast iron with insulation made of FEF

| Fire resistance classes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pipe | | | Insulation | | Intumescent wrap | Protective insulation | | Classification |
| Type of pipe | Ø [mm] | Wall thickness [mm] | Type | Thickness [mm] | Layers | Type | Thickness [mm] | |
| Copper, Steel, Stainless steel, Cast iron | ≤ 28,0 | 1,0 - 14,2 | FEF | 9,0 – 19,0 | 2 | - | - | **EI 90-C/U** |
| | ≤ 60,0 | 0,6 - 14,2 | | 9,0 – 21,0 | | | | **EI 60-C/U** |
| Steel, Stainless steel, Cast iron | ≤ 110,0 | 1,0 - 14,2 | | 9,0 – 23,0 | | | | |

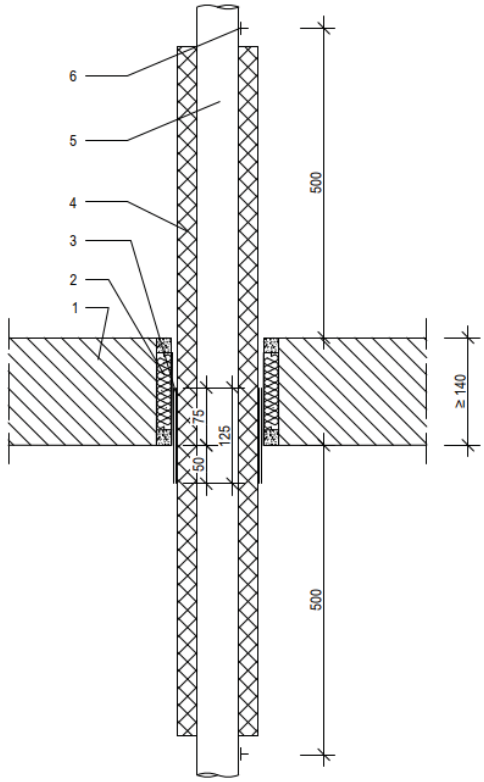
1. Application CLTwall ≥ 100 mm thickness
2. Closure of annular gap
3. Intumescent wrap
4. Pipe insulation
5. Non-combustible pipe
6. First support

Dimensions in mm

## Annex 7

## CLT floor installation ≥ 140 mm - Construction details and fire resistance classes

### Construction details




### Fire resistance classes

### Non-combustible pipes of copper, steel, stainless steel or cast iron with insulation made of FEF

| Fire resistance classes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pipe | | | Insulation | | Intumescent wrap | Protective insulation | | Classification |
| Type of pipe | Ø [mm] | Wall thickness [mm] | Type | Thickness [mm] | Layers | Type | Thickness [mm] | |
| Copper, Steel, Stainless steel, Cast iron | ≤ 54,0 | 1,0 - 14,2 | FEF | 9,0 – 21,0 | 2 | - | - | **EI 90-C/U** |
| | | | | | | | | |
| Steel, Stainless steel, Cast iron | > 54,0 - ≤ 110,0 | 1,0 - 14,2 | FEF | 23,0 | 2 | - | - | **EI 90-C/U** |
| | ≤ 110,0 | | | 9,0 – 23,0 | | | | **EI 60-C/U** |

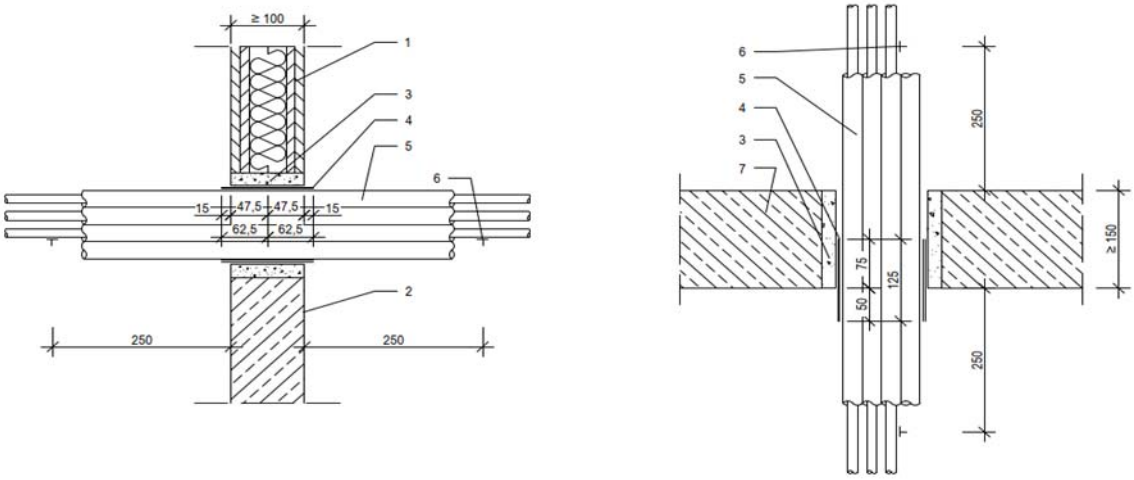
1. Application CLT floor ≥ 140 mm thickness
2. Closure of annular gap
3. Intumescent wrap
4. Pipe insulation
5. Non-combustible pipe
6. First support

Dimensions in mm

## Annex 8

## Electrical installation conduits (EIC) - Construction details and fire resistance classes

### Construction details




### Fire resistance classes

| Fire resistance classes | | | | | |
|---|---|---|---|---|---|
| Service | | Cable | Intumescent wrap | Fire resistance class | |
| | | | Layers | Wall | Floor |
| EIC made of plastic | Ø ≤ 32 mm | With/without | 1 | EI 120 U/U | EI 120 U/U |
| | Ø ≤ 63 mm | | 2 | | |
| EIC made of plastic (bundle) (single EIC ≤ Ø 32 mm) | Ø ≤ 100 mm | | 2 | | |
| Linear arrangement of plastic EIC (single EIC ≤ Ø 32 mm) | ≤ 3 pcs. | | 1 | | |

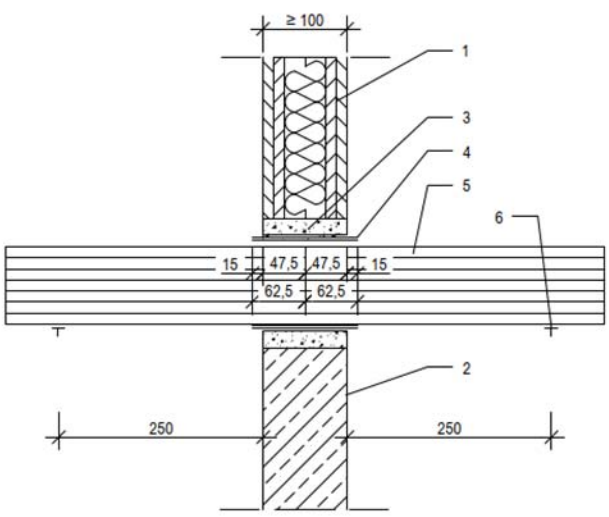
1. Flexible wall ≥ 100 mm thickness
2. Rigid wall ≥ 100 mm thickness
3. Closure of annular gap
4. Intumescent wrap
5. Electrical installation conduit
6. First support
7. Concrete floor ≥ 150 mm thickness

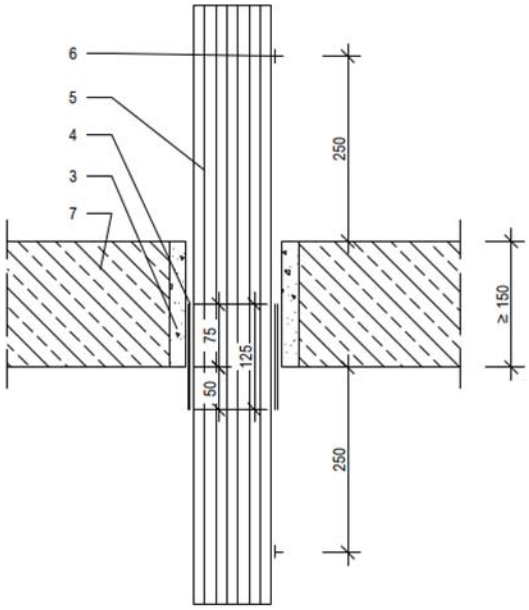
Dimensions in mm

## Annex 9

## Speedpipes - Construction details and fire resistance classes

### Construction details




### Fire resistance classes

| Fire resistance classes | | | | |
|---|---|---|---|---|
| Service | | Intumescent wrap | Fire resistance class | |
| | | Layer | Wall | Floor |
| Speedpipes | Bundle-Ø ≤ 50,0 | 1 | EI 120 U/U | EI 120 U/U |
| | Single- Ø ≤ 14,0 | | | |

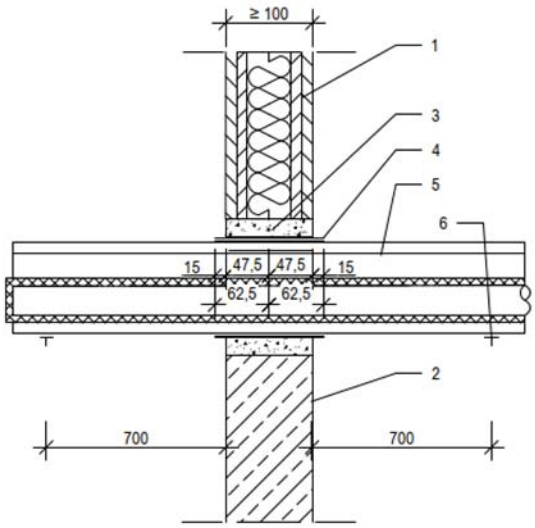
1. Flexible wall ≥ 100 mm thickness
2. Rigid wall ≥ 100 mm thickness
3. Closure of annular gap
4. Intumescent wrap
5. Speedpipes
6. First support
7. Concrete floor ≥ 150 mm thickness

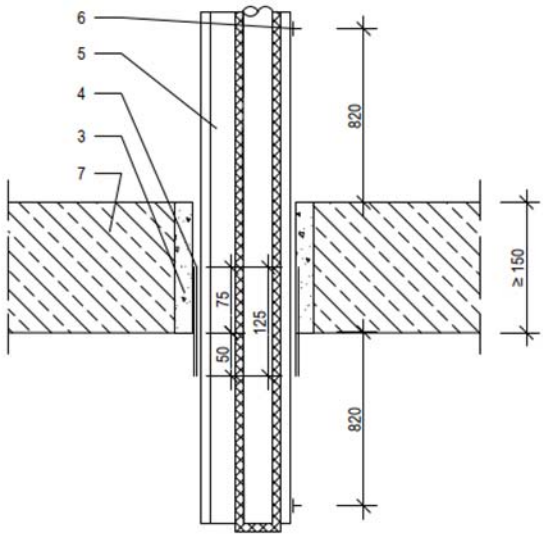
Dimensions in mm

## Annex 10

## HVAC-split line combinations - Construction details and fire resistance classes

### Construction details




### Fire resistance classes

| Fire resistance classes | | | |
|---|---|---|---|
| **Service** | **Intumescent wrap** | **Fire resistance class** | |
| | **Layer** | **Wall** | **Floor** |
| Copper pipe ≤ 2x Ø ≤18<br>+ PE-Foam 9 mm<br>+ 1x PVC-U/PVC-C pipe Ø ≤ 25x 1,5 mm<br>+ ≤ 3x cables Ø ≤ 14 mm | 2 | **EI 120** | **EI 120** |
| | | | |
| Copper pipe ≤ 2x Ø ≤22<br>+ PE-Foam 9 mm<br>+ 1x PVC-U pipe Ø ≤ 25 mm<br>+ ≤ 2x cables Ø ≤ 21 mm | 2<br>+ lamella mat<br>≥ 250x30 mm | **-** | **EI 90** |

1. Flexible wall ≥ 100 mm thickness
2. Rigid wall ≥ 100 mm thickness
3. Closure of annular gap
4. Intumescent wrap
5. HVAC-split line combinations
6. First support
7. Concrete floor ≥ 150 mm thickness

Dimensions in mm

**Annex 11**

**Description of possible additional components of the penetration seal**

| Description | Performance | Sample Product |
|---|---|---|
| Insulation made of flexible elastomeric foam (FEF) in accordance with EN 14304 | Reaction to fire class acc. to EN 13501-1: B-s3, d0 resp. D-s1, do | Armalok 50<br>Armalok 100<br>ArmaFlex SE<br>ArmaFlex XG<br>AF/ArmaFlex<br>AF/ArmaFlex Evo<br>SH/ArmaFlex<br>NH/ArmaFlex<br>NH/ArmaFlex Smart<br>HT/ArmaFlex<br>ArmaFlex Ultima<br>Kaiflex HT s2<br>Kaiflex KK<br>Kaiflex KKplus s2<br>Kaiflex KKplus s3<br>FLEXEN Heizungskautschuk s2<br>FLEXEN Kältekautschuk Plus s2<br>isopren Plus<br>isopren Polar Plus<br>K-FLEX ST<br>K-FLEX ST PLUS<br>K-FLEX ECO<br>K-FLEX H<br>Eurobatex<br>Eurobatex SC<br>Eurobatex High Technology<br>Eurobatex H<br>Eurobatex H Super<br>Eurobatex Glastec |
| Insulation made of polyethylene foam (PEF) in accordance with EN 14313 | Reaction to fire class acc. to EN 13501-1: E | KeKelit Lexel<br>Würth FLEXEN PE<br>Würth FLEXEN Schallschutz<br>Steinbacher Steinoflex 440 (Geberit) |
| Loose mineral wool in accordance with EN 14303 | Reaction to fire class acc. to EN 13501-1: A1<br>Melting point: ≥ 1000 °C | Knauf Insulation LW;<br>Rockwool "ProRox LF 970" |
| Mineral fibre board in accordance with DIN EN 13162 | Reaction to fire class acc. to EN 13501-1: A1<br>Nominal Density: ≥ 150 kg/m³<br>Melting point: ≥ 1000 °C | Rockwool “Hardrock 040”<br>Paroc Pyrotech Slab 160<br>Rockwool "RP-GF 70" |

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