



# European Technical Assessment **ETA 15/0411** of 30/5/2018

## I General Part

<b>Technical Assessment Body issuing the ETA</b>	<b>VTT Expert Services LTD</b>
<b>Trade name of the construction product</b>	<b>Sewatek penetration seal</b>
<b>Product family to which the construction product belongs</b>	<b>Fire stopping and Fire Sealing Products</b>
<b>Manufacturer</b>	<b>Sewatek Oy Sepäntie 4 FI-07230 Monninkylä Finland</b>
<b>Manufacturing plant</b>	<b>Sewatek Oy Sepäntie 4 FI-07230 Monninkylä Finland</b>
<b>This European Technical Assessment contains</b>	<b>14 pages including 1 Annex which form an integral part of this assessment</b>
<b>This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of</b>	<b>European Assessment Document EAD 350454-00-1104, edition September 2017</b>
<b>This ETA replaces</b>	<b>ETA 15/0411 issued on 8/1/2016</b>

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## II Specific Part

### 1 Technical description of the product

The penetration seal D-series includes two types of pipe closure products; the smaller pipe closure devices are manufactured in sizes D42, D62 and D92. The smaller seal consists of NBR cellular rubber pipe surrounded by PVC plastic pipe and have an aluminium end caps on both ends with a fire expansible materials inside of the cap. PVC pipe diameters can vary from 40 mm to 90 mm and wall thickness is 1,5 or 2,0mm. The wall thicknesses of the NBR cellular rubber is 9, 13 or 19 mm.

The larger pipe closure devices, penetration seals D105 and D140, consist of expansible fire band and rubber (EPDM) gaskets surrounded by plastic (PE) capsule. On both sides there are steel plates in order to attach them to the support structure. The penetration seals D105 and D140 are designed for plastic and metallic sewage tubes sized 75 and 110 mm.

The Sewatek pipe closure devices are installed into drilled holes.

Table 1. Products, drill hole sizes and outer diameter of pipe, cable or bundle

Penetration type	Drill hole size	Outer diameter of pipe, cable or bundle
D42	42 mm	10-23 mm
D62	62 mm	24-43 mm
D92	92 mm	44-64 mm
D105	105 mm	75 mm
D140	140 mm	110 mm

Minimum distance between penetration seals is presented in Annex 1. Distances are measured from the outer edge of the penetration seal device.

### 2 Specification of the intended uses in accordance with the applicable EAD

#### Intended uses

The Penetration seal is intended to be used to temporarily or permanent reinstate the fire resistance performance in massive-wood wall and roof/floor constructions made of cross laminated timber or laminated veneer lumber which are provided with apertures which are penetrated by various cables or metallic or plastic pipes.

The minimum thickness of the massive-wood wall constructions is 80 mm and floor slab 60 mm.

The provisions made in this European Technical Assessment are based on assumed intended working life of the product for the intended use of 25 years when installed in the works, provided that the product is subjected to appropriate use and maintenance.

#### Use category

The penetration seal is intended for internal use also at temperatures below 0 °C, and can therefore according to EAD 350454-00-1104 clause 1.2 be categorize as Type Y<sub>2</sub>. The product meets also requirements of types Z<sub>1</sub> and Z<sub>2</sub>.

## Design

This European technical assessment is based on the assumption that all plans needed have been made correctly according to the regulations valid on the building site.

## Execution of construction works

It is the responsibility of the manufacturer to ensure that proper information for the use of the Sewatek penetration seal is enclosed to each delivery, including general guidance on the basis of this ETA and the specific installation instructions and construction details. With regard to the assumed working life regular maintenance is necessary. The manufacturer shall provide with written documents which contain descriptions about type and frequency of the maintenance.

The completed building (the works) shall comply with the building regulations (regulations on the works) applicable in the Member States in which the building is to be constructed. The procedures foreseen in the Member State for demonstrating compliance with the building regulations shall also be followed by the entity held responsible for this act. An ETA for Sewatek penetration seal does not amend this process in any way.

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

Table 2. Basic requirements for construction works and essential characteristics

Basic requirement and essential characteristics	Performance
BWR 1. Mechanical resistance and stability	
Not relevant	
BWR 2. Safety in case of fire	
Reaction to fire of materials and components, EN 13501-1	Euroclass F ( not assessed)
Resistance to fire, EN 13501-2	EI 15 – EI 60 (in end uses and with the provisions presented in the Annex 1)
BWR 3. Hygiene, health and the environment	
Vapour permeability and moisture resistance	No performance assessed
Watertightness	No performance assessed
Content, emission and/or release of dangerous substances	Declaration of the manufacturer
BWR 4. Safety and accessibility in use	No performance assessed
BWR 5. Protection against noise	
Air sound insulation, EN ISO 717-1	No performance assessed
BWR 6. Energy economy and heat retention	No performance assessed
BWR 7. Sustainable use of natural resources	No performance assessed
General aspects	
Aspects of durability, ISO 188 and ISO 2440	Clause 3.3

#### 3.1 Safety in case of fire, BWR 2

##### Reaction to fire

The classification of the main materials with regard to reaction to fire is not assessed.

##### Resistance to fire

For floors and walls, classification with regard to resistance to fire is based on full scale testing as specified in EN 13501-2.

#### 3.2 Hygiene, health and environment, BWR 3

##### Dangerous substances

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 EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

### 3.3 General aspects

#### Aspects of durability

Test results of exposed specimens show no big changes in properties compared to unexposed ones

#### Identification

The components and materials are identified as being of a generic type or giving a brand name, as described in Annex 1 and specified in the manufacturer's Contents of delivery list. The component under a given brand name may be changed by the manufacturer to another with corresponding performance.

### **4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base**

EC Decision for AVCP is System 1. 1999/0454/EC.

### **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 VTT Expert Services Ltd.

Issued in Espoo on May 30, 2018  
by VTT Expert Services Ltd

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**TABLE 3. FIRE RESISTANCES OF PENETRATION SEALS INSTALLED IN 80 MM THICK WALL STRUCTURE, D-PENETRATIONS (D42, D62, D92, D105, D140)**

Type of the penetrating product	Group/s ingle	Dimensions $e_n$ =wall thickness of pipe	Insulation*	single/ $a_2$ ***	Fire resistance
Copper pipes	group	$\varnothing \leq 35$ mm, $e_n \leq 1,5$ mm	LI	8 mm	EI 45 - U/C
	group	$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	LI	58 mm	EI 60 - U/C
	group	$\varnothing \leq 64$ mm, $e_n \leq 2,0$ mm	CI	68 mm	EI 60 - U/C
Zinc-plated carbon steel pipes	group	$\varnothing \leq 35$ mm, $e_n \leq 1,5$ mm	LI	8 mm	EI 45 - U/C
	group	$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	LI	58 mm	EI 60 - U/C
	group	$\varnothing \leq 64$ mm, $e_n \leq 2,0$ mm	CI	68 mm	EI 60 - U/C
Steel pipes	group	$\varnothing < 43$ mm, $e_n \leq 2,6$ mm	not required	8 mm	EI 45 - U/C
	group	$\varnothing < 61$ mm, $e_n \leq 2,9$ mm	LI	28 mm	EI 60 - U/C
	single	$\varnothing < 110$ mm, $e_n \leq 4,5$ mm	CI	200 mm	EI 60 - U/C
Composite pipes	group	$\varnothing \leq 25$ mm, $e_n \leq 2,5$ mm	not required	8 mm	EI 45 - U/C
	group	$\varnothing \leq 25$ mm, $e_n \leq 2,5$ mm	not required	78 mm	EI 60 - U/C
	group	$\varnothing \leq 40$ mm, $e_n \leq 4,0$ mm	LI	8 mm	EI 60 - U/C
	single	$\varnothing \leq 50$ mm, $e_n \leq 4,5$ mm	LI	200 mm	EI 60 - U/C
Other plastic pipes	group	Pex-pipe in covering pipe $\varnothing \leq 22/34$ , $e_n \leq 2,5/2,5$ mm	CI	58 mm	EI 60 - U/C
	group	Pex-pipe in covering pipe 15/25 - 28/54 mm, $e_n \leq 4,0 / 3,0$ mm	not allowed	8 mm	EI 60 - U/C
	single	Pex-pipe in covering pipe 15/25 (4 pcs in a D92-device), $e_n \leq 2,5/2,5$ mm	not allowed	200 mm	EI 60 - U/C
	single	Polypropylene $\varnothing \leq 110$ mm, $e_n \leq 3,5$ mm	not required	200 mm	EI 60 - U/C
Cables	single	Single cable $\varnothing \leq 21,5$ mm	none	200 mm	EI 60 - U/C
	single	Single cable $\varnothing \leq 24$ mm	LI **	200 mm	EI 60 - U/C
	group	Single cable in a bundle $\varnothing \leq 17$ mm, Cable bundle total $\varnothing \leq 35$ mm	not required	58 mm	EI 60 - U/C
	single	Single cable in a bundle $\varnothing \leq 12,5$ mm, Cable bundle total $\varnothing \leq 64$ mm	none	200 mm	EI 60 - U/C
Cable tubes (PVC)	single	2 cable tubes $\varnothing \leq 25$ mm + 2 cable tubes $\varnothing \leq 32$ mm	not required	200 mm	EI 60 - U/C
	single	2 cable tubes $\varnothing \leq 25$ mm (cable $\varnothing 17$ ) + 2 cable tubes $\varnothing \leq 32$ mm (cables 3x $\varnothing 13 + \varnothing 11$ )	not required	200 mm	EI 60 - U/C
Blank (no pipe or cable)	single	Blank D42/62/92, device sealed with TPE- or cellular rubber plug	none	200 mm	EI 60 - C/C

\* Insulation (stone wool 60 kg/m<sup>3</sup>)

The length of local insulation has been 350 on the both sides of the wall/floor structure.

## ANNEX 1

The thickness of stone wool insulation has been 20 mm (pipes  $\varnothing \leq 54$  mm), 30 mm (pipes  $\varnothing > 54$  mm) and 40 mm (Polypropylene sewer pipes  $\varnothing \leq 110$  mm).

LI=Local and interrupted insulation

CI=Continued and interrupted insulation

\*\* Local insulation length 50 mm, thickness 20 mm (stone wool)

\*\*\* Minimum distance between penetration seals in clusters. In case a single penetration, minimum distance to another single penetration is 200 mm according to the test standard EN 1366. Distances are measured from the outer edge of the penetration seal device.

The result of as a group mounted penetration seal is allowed to extend to an equivalent single penetration seal but not vice versa.

**TABLE 4. FIRE RESISTANCES OF PENETRATION SEALS INSTALLED IN 60 MM THICK FLOOR STRUCTURE, D-PENETRATIONS (D42, D62, D92)**

Type of the penetrating product	Group/s ingle	Dimensions $e_n$ =wall thickness of the pipe	Insulation*	single/ $a_2$ ***	Fire resistance
Copper pipes	single	$\varnothing \leq 12$ mm, $e_n \leq 1,0$ mm	LI	200 mm	EI 45 - U/C
	single	$\varnothing \leq 28$ mm, $e_n \leq 1,2$ mm	LI	200 mm	EI30 - U/C
Zinc-plated carbon steel pipes	single	$\varnothing \leq 12$ mm, $e_n \leq 1,2$ mm	LI	200 mm	EI 45 - U/C
	single	$\varnothing \leq 28$ mm, $e_n \leq 1,5$ mm	LI	200 mm	EI 30 - U/C
Steel pipes	single	$\varnothing < 43$ mm, $e_n \leq 2,6$ mm	LI	200 mm	EI 60 - U/C
Composite pipes	single	$\varnothing \leq 16$ mm, $e_n \leq 2,0$ mm	not required	200 mm	EI 60 - U/C
	single	$\varnothing \leq 32$ mm, $e_n \leq 3,0$ mm	LI	200 mm	EI 60 - U/C
Other plastic pipes	single	Pex-pipe in covering pipe $\varnothing \leq 15/25$ , $e_n \leq 2,5/2,5$ mm	not allowed	200 mm	EI 60 - U/C
	single	Pex-pipe in covering pipe 15/25 (4 pcs in a D92- device), $e_n \leq 2,5/2,5$ mm	not allowed	200 mm	EI 60 - U/C
Cables	single	Single cable $\varnothing \leq 21,5$ mm	none	200 mm	EI 45 -U/C

\* Insulation (stone wool 60 kg/m<sup>3</sup>)

The length of local insulation has been 350 on the both sides of the wall/floor structure.

The thickness of stone wool insulation has been 20 mm (pipes  $\varnothing \leq 54$  mm) and 30 mm (pipes  $\varnothing > 54$  mm).

LI=Local and interrupted insulation

CI=Continued and interrupted insulation

\*\*\* Minimum distance between penetration seals in clusters. In case a single penetration, minimum distance to another single penetration is 200 mm according to the test standard EN 1366. Distances are measured from the outer edge of the penetration seal device.

The result of as a group mounted penetration seal is allowed to extend to an equivalent single penetration seal but not vice versa.

**TABLE 5. FIRE RESISTANCES OF PENETRATION SEALS INSTALLED IN 80 MM THICK FLOOR STRUCTURE, D-PENETRATIONS (D42, D62, D92, D105, D140)**

Type of the penetrating product	Group/s ingle	Dimensions $e_n$ =wall thickness of the pipe	Insulation*	single/ $a_2$ ***	Fire resistance
Copper pipes	group	$\varnothing \leq 35$ mm, $e_n \leq 1,5$ mm	LI	8 mm	EI 45 - U/C
	group	$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	LI	58 mm	EI 60 - U/C
	single	$\varnothing \leq 64$ mm, $e_n \leq 2,0$ mm D92 mono	LI	200 mm	EI 45 - U/C E 60 - U/C
	group	$\varnothing \leq 64$ mm, $e_n \leq 2,0$ mm D92 mono	CI	68 mm	EI 60 - U/C
Zinc-plated carbon steel pipes	group	$\varnothing \leq 28$ mm, $e_n \leq 1,5$ mm	not required	8 mm	EI 60 - U/C
	group	$\varnothing \leq 35$ mm, $e_n \leq 1,5$ mm	LI	8 mm	EI 45 - U/C
	group	$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	LI	58 mm	EI 60 - U/C
	group	$\varnothing \leq 64$ mm, $e_n \leq 2,0$ mm	CI	68 mm	EI 60 - U/C
Steel pipes	group	$\varnothing < 42$ mm, $e_n \leq 1,5$ mm	LI	58 mm	EI 60 - U/C
	group	$\varnothing < 43$ mm, $e_n \leq 2,6$ mm	not required	8 mm	EI 45 - U/C
	group	$\varnothing < 61$ mm, $e_n \leq 2,9$ mm	LI	28 mm	EI 60 - U/C
	single	$\varnothing \leq 110$ mm, $e_n \leq 4,5$ mm	CI	200 mm	EI 60 - U/C
Composite pipes	group	$\varnothing \leq 25$ mm, $e_n \leq 2,5$ mm	not required	8 mm	EI 60 - U/C
	group	$\varnothing \leq 40$ mm, $e_n \leq 4,0$ mm	LI	8 mm	EI 60 - U/C
Other plastic pipes	group	Pex-pipe in covering pipe 15/25 - 28/54 mm, $e_n \leq 4,0/3,0$	not allowed	8 mm	EI 60 - U/C
	single	Pex-pipe in covering pipe 15/25 (4 pcs in a D92-device), $e_n \leq 2,5/2,5$ mm	not allowed	200 mm	EI 60 - U/C
	single	Polypropylene $\varnothing \leq 110$ mm, $e_n \leq 3,5$ mm	not required	200 mm	EI 60 - U/C
Cables	single	Singular cable $\varnothing \leq 21,5$ mm	not required	200 mm	EI 60 - U/C
	single	Singular cable $\varnothing \leq 24,0$ mm	LI **	200 mm	EI 60 - U/C
	single	Single cable in a bundle $\varnothing \leq 12,5$ mm, Cable bundle total $\varnothing \leq 64$ mm	not required	200 mm	EI 60 - U/C
	group	Single cable in a bundle $\varnothing \leq 17,0$ mm, Cable bundle total $\varnothing \leq 35$ mm	not required	58 mm	EI 60 - U/C
Blank (no pipe or cable)	single	Blank D42/62/92, device sealed with TPE- or cellular rubber plug	none	200 mm	EI 60 - C/C
Other plastic pipes	single	Floor drain pipe Vieser One DN75 3x32/40 Sewatek fire band	not required	single	EI 60 - U/C

\* Insulation (stone wool 60 kg/m<sup>3</sup>)

The length of local insulation has been 350 on the both sides of the wall/floor structure.

The thickness of stone wool insulation has been 20 mm (pipes  $\varnothing \leq 54$  mm), 30 mm (pipes  $\varnothing > 54$  mm) and 40 mm (Polypropylene sewer pipes  $\varnothing \leq 110$  mm).

LI=Local and interrupted insulation

CI=Continued and interrupted insulation

\*\* Local insulation length 50 mm, thickness 20 mm (stone wool)



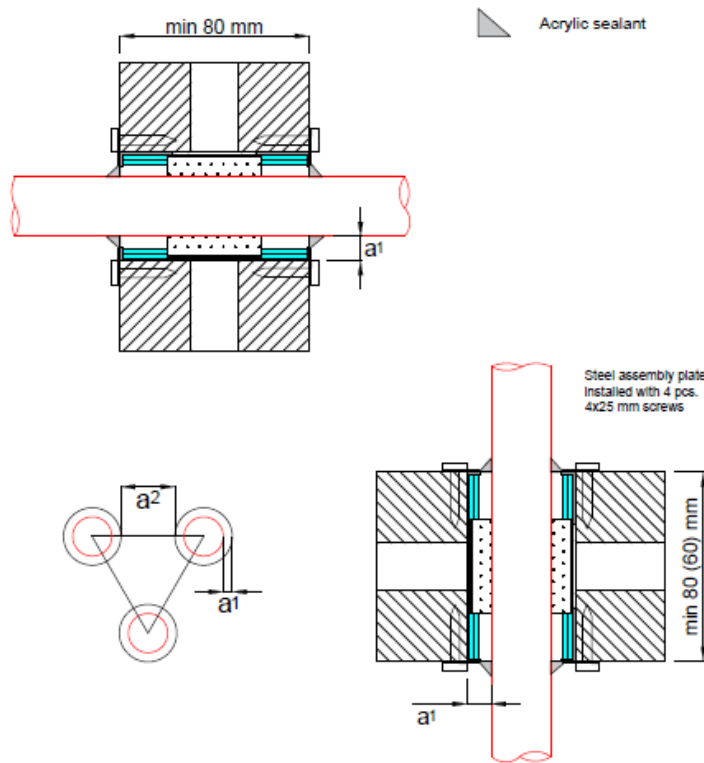
## ANNEX 1

\*\*\* Minimum distance between penetration seals in clusters. In case a single penetration, minimum distance to another single penetration is 200 mm according to the test standard EN 1366. Distances are measured from the outer edge of the penetration seal device.

The result of as a group mounted penetration seal is allowed to extend to an equivalent single penetration seal but not vice versa.

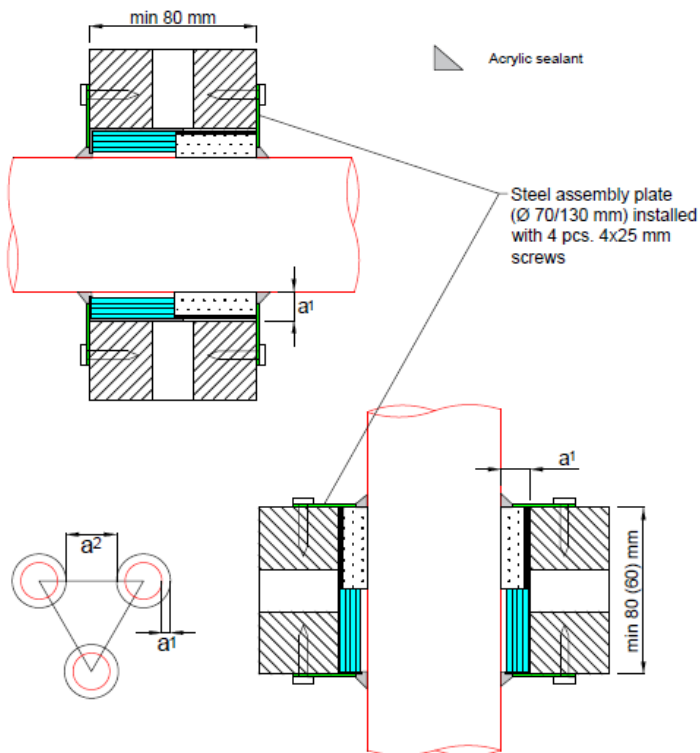
ANNEX 1

Picture 1. Sewatek D42 / D62 pipe closure device



- Supporting and insulation according to the table and detail drawings 5/6 and 6/6

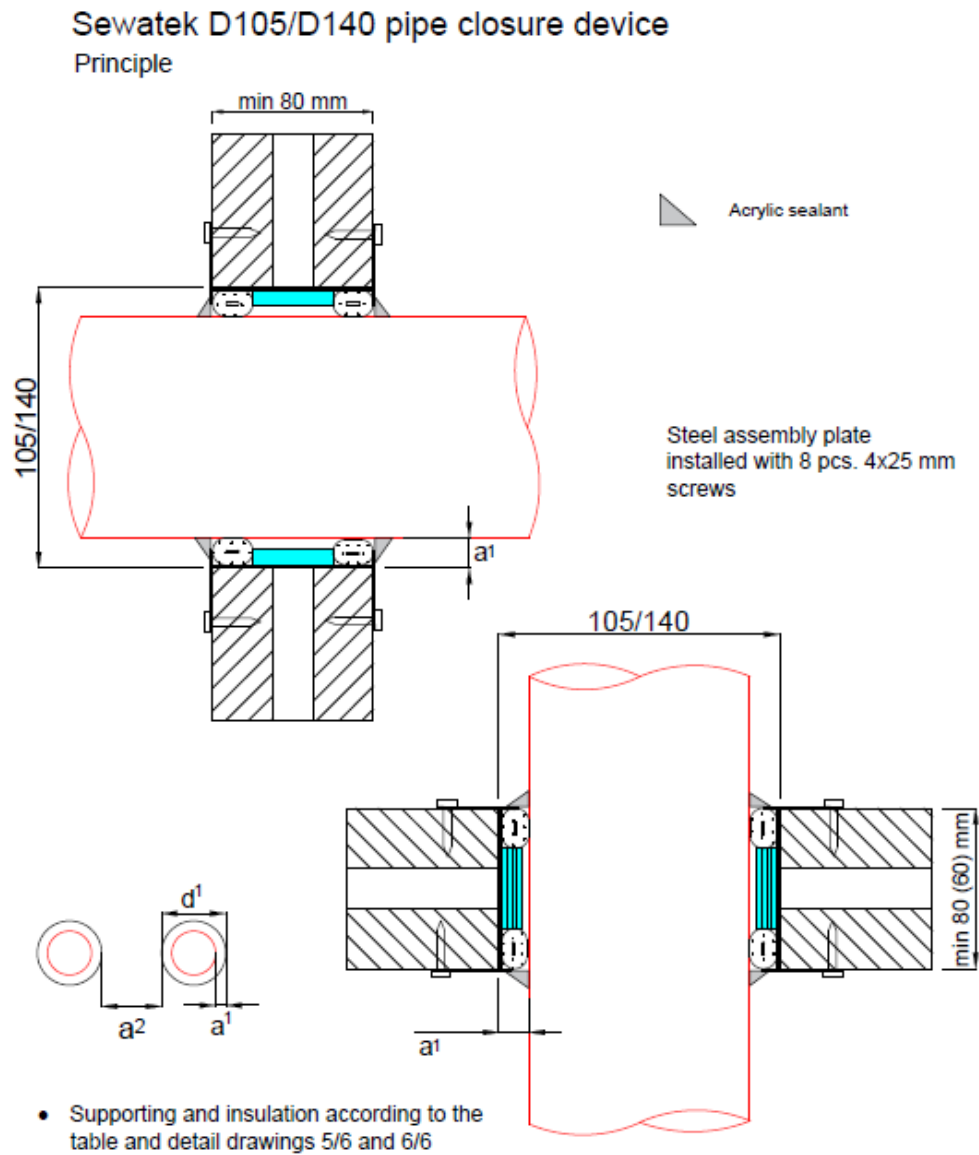
Picture 2. Sewatek 'D92 mono' pipe closure device



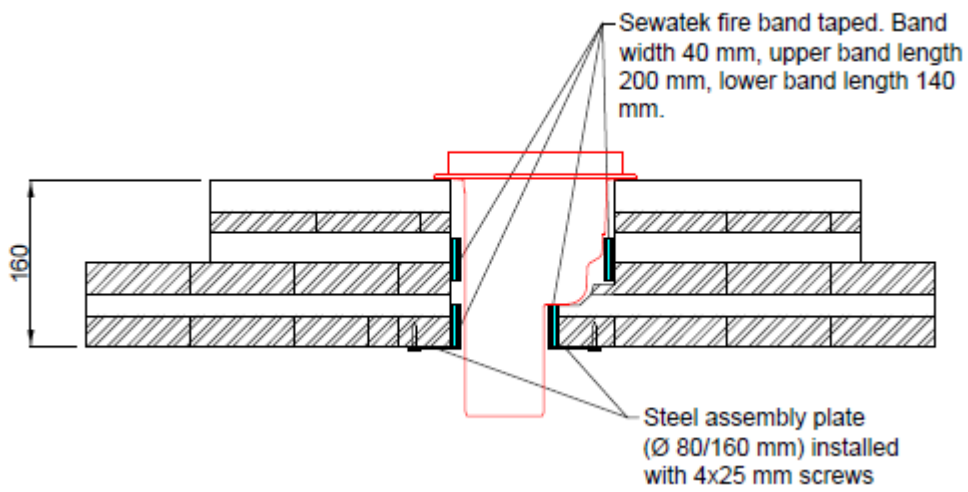
- Can be installed on both ways
- Supporting and insulation according to the table and detail drawings 5/6 and 6/6

ANNEX 1

Picture 3. Sewatek D105/D140 pipe closure device

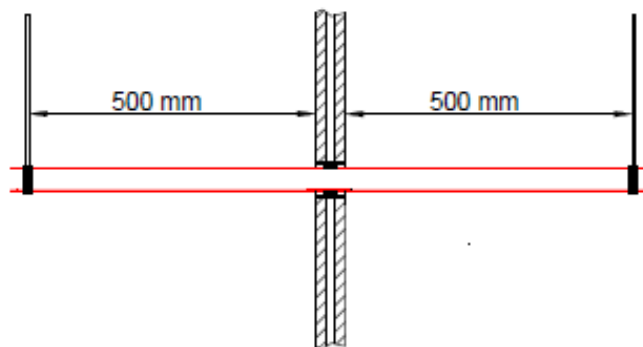


Picture 4. Floor drain, Type of the vertical floor drain: Vieser One DN75, 3 x 32/40

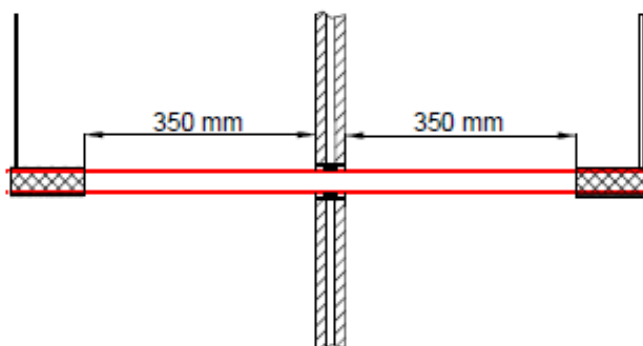


Picture 5. Supporting of penetrations

Supporting of wall penetrations

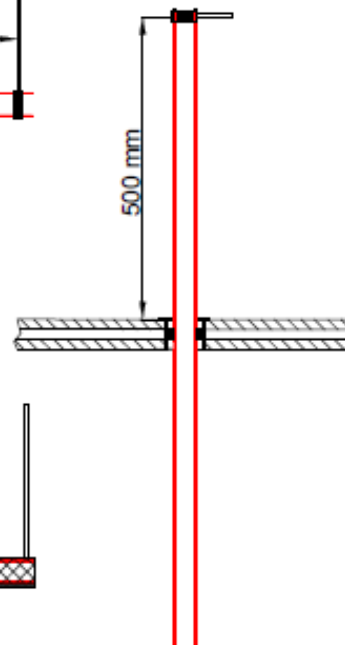


Supporting of pipes and cover pipes 500 mm from construction on both sides.



Supporting of cables. Steel ladder 350-500 mm from construction on both sides. Cables not tied to ladder.

Supporting of floor penetrations



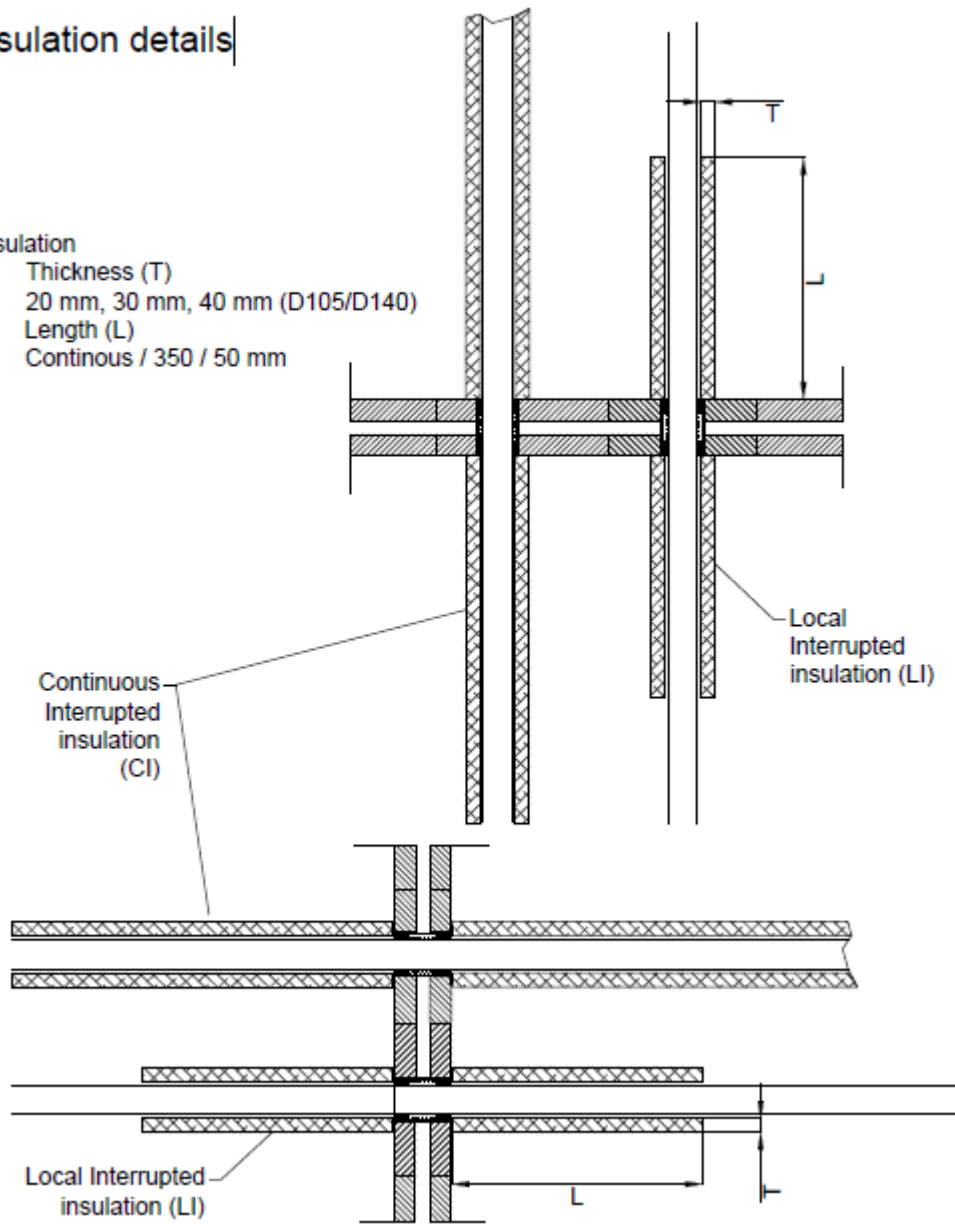
Supporting of pipes and cables. All supported only on upper end, 500 mm from construction.

Picture 6. Insulation details

### Insulation details

**Insulation**

- Thickness (T)  
20 mm, 30 mm, 40 mm (D105/D140)
- Length (L)  
Continuous / 350 / 50 mm

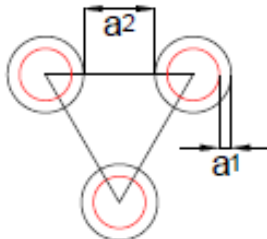


### The principle of measurement of the seals in clusters and the area of the pipes diameter and wall thickness covered

The method of defining the presented  $a^2$  measurements in cluster formation

$a^1$  - Separation between service pipe and supporting construction

$a^2$  - Separation between penetration seals



A diagram for the pipe outside diameter and wall thickness shows the measurements for which Sewatek seals are manufactured.

