

CLASSIFICATION REPORT

Penetration seal in floors

Alupex – 5 types

Name of sponsor: Intumescent Systems Ltd and Envirograf Europe

Product name: Alupex pipes - Wavin Tigris, Geberit Mepla A, Uponor Uni Pipe, Altech Golan Uni and, Neotherm Alpex-duo XS. IWS/T, P58 AM mastic.

File no.: PCA10782A **Revision No:** 0

Date: 17-06-2022

Pages: 8 **Encl.:** 1

Ref: CHB / NOL

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The results relate only to the items tested. The classification report should only be reproduced in extenso – in extracts only with a written agreement with this institute.

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1. Introduction

This classification report defines the classification assigned to the product in accordance with the procedures given in EN 13501-2:2016.

This classification report includes the direct field of application of the test results.

2. Details of classified product

General

Producer of product: Envirograf Europe ApS

The products were designated: Alupex pipe:

Wavin Tigris, Geberit Mepla A, Uponor Uni Pipe, Altech Golan Uni and, Neotherm Alpex-duo XS.

Closure device: IWS/T-EW/T in different sizes mentioned in table A.

Sealant: P58 AM mastic.

The classification is valid for the following end use application: Penetration seals

The classification is valid for the following end use application: Sealing of pipe penetrations in fire compartmentation for decks using the penetrations described in table A.

For the specific information of the construction of all single pipes, see the fire test reports stated below in section 3.

In fire test report PGA12058A Alupex pipes from five different producers were tested due to the critical pipe approach. The five pipe types were tested for 197 minutes, and no significant differences were found on the pipes during the test. They all successfully passed the integrity and insulation requirements during the test. The pipe types and close devices are described in table A.

Note:

The letters C/C in the classification refers to how the ends of the pipes were closed during the fire test. C/C means the pipes were capped inside the furnace and capped outside the furnace. Section H.4.2 in EN 1366-3:2009, comes with suggestions to how different pipes should be tested regarding the pipe end configuration.

Product description

The product is a penetration seal system for pipe services installed in vertical direction, penetrating rigid floors.

The pipe closure device is a sleeve/wrap with build in insulation in the outer layer and an active intumescent component inside and wrapped in fibre reinforced tinfoil on all sides. The pipe closure device is placed around the pipe, and always has the same length as the thickness of the deck it penetrates (150 mm). The thickness of the insulation is always the same in the tested pipes. The size of the active component is the same all the time. This is described in section 4.1.

The details of the product are described in the DBI test reports listed below:

3. Reports in support of the classification

Test report

The product was successfully tested in accordance with EN 1366-3:2009. The evidence for this is given in the test report listed below:

Reference test:				
Name of Laboratory	Name of sponsor	Test report file no.	Test method	Date of test
Danish Institute of Fire and Security Technology	Envirograf Europe ApS Intumescent Systems Ltd	PGA12058A dated 04-25-2022.	EN 1366-3:2009	30-11-2021
Danish Institute of Fire and Security Technology	Envirograf Europe ApS Intumescent Systems Ltd	PGA12059A dated 25-04-2022.	EN 1366-3:2009	14-12-2021

Table A below shows the different pipes this classification concerns:

System no./	Section:	Pipe type	Seal product type	Pipe close device
System 1	Section 4.1	Alupex Ø16	P58 AM mastic	IWS/T20-EW/T20
System 1	Section 4.1	Alupex Ø40	P58 AM mastic	IWS/T40-EW/T40
System 1	Section 4.1	Alupex Ø63	P58 AM mastic	IWS/T75-EW/T75
System 1	Section 4.1	Alupex Ø16	P58 AM mastic	IWS/T18-EW/T18
System 1	Section 4.1	Alupex Ø25	P58 AM mastic	IWS/T25-EW/T25
System 1	Section 4.1	Alupex Ø40	P58 AM mastic	IWS/T40-EW/T40
System 1	Section 4.1	Alupex Ø16	P58 AM mastic	IWS/T18-EW/T18
System 1	Section 4.1	Alupex Ø25	P58 AM mastic	IWS/T25-EW/T25
System 1	Section 4.1	Alupex Ø63	P58 AM mastic	IWS/T75-EW/T75

Test results

DBI test report PGA12058A and PGA12059A concerns five different pipe types. For this classification, we look at the systems described in table A. One layout drawing of the tested system is stamped and attached to the end of this report.

4. Classification and field of application

Reference

This classification has been carried out in accordance with clause 7.5.8 of EN 13501-2:2016.

Classification

The product is classified according to the following combinations of performance and classes as appropriate.

For floor constructions:

Fire resistance classification: EI 120 - C/C - for pipe diameter up to Ø40.
EI 90 - C/C | E 120 - C/C

The classification is only valid with fire from below.

The field of applications can be seen in the following subsections: 4.1.

Section 4.2 contains the individual classifications of all pipes.

4.1 Field of application - System 1 - Alu-PEX pipes.

The product is classified according to the following combinations of performance and classes as appropriate.

Five pipes were tested in total. All seal had P58 AM Mastic sealant around the pipes to prevent smoke to pass through. They are all named as in the test report and are shown in section 4.2 at the end of this report.

Summary of the tested systems:

- Seal 4: Pipe Ø16mm / 2 mm, active component 2,0 mm, sleeve insulation thickness 10 mm, IWS/T20-EW/T20.
- Seal 5: Pipe Ø40mm / 4 mm, active component 2,0 mm, sleeve insulation thickness 10 mm, IWS/T40-EW/T40.
- Seal 6: Pipe Ø63mm / 6 mm, active component 2,0 mm, sleeve insulation thickness 15 mm, IWS/T75-EW/T75.
- Seal 10.1: Pipe Ø16mm / 2 mm, active component 2,0 mm, sleeve insulation thickness 10 mm, IWS/T18-EW/T18.
- Seal 10.2: Pipe Ø25mm / 2.5 mm, active component 2,0 mm, sleeve insulation thickness 10 mm, IWS/T25-EW/T25.
- Seal 10.3: Pipe Ø40mm / 4 mm, active component 2,0 mm, sleeve insulation thickness 10 mm, IWS/T40-EW/T40.
- Seal 11.1: Pipe Ø16mm / 2 mm, active component 2,0 mm, sleeve insulation thickness 10 mm, IWS/T18-EW/T18.
- Seal 11.2: Pipe Ø25mm / 2.5 mm, active component 2,0 mm, sleeve insulation thickness 10 mm, IWS/T25-EW/T25.
- Seal 11.3: Pipe Ø63mm / 6 mm, active component 2,0 mm, sleeve insulation thickness 15 mm, IWS/T75-EW/T75.

The test results are directly applicable to similar constructions where one or more changes in this field of application are made, and the construction continues to comply with the appropriate design code for its stiffness and stability. Other changes are not permitted.

The classification is valid for the following end use conditions:

Orientation of penetration:

For protection of vertical pipe penetrations.

Supporting construction:

For penetration through rigid floors (concrete, masonry or aerated concrete)

Minimum density 550 kg/m³ (§13.2.1)

Minimum thickness of 150 mm (§13.2.1)

Position of support for the service:

The distance between the surface of the supporting construction and the first support for the service shall not exceed 415 mm for floor penetrations. (§13.4.3)

The aperture around the pipe shall be filled with:

The protection placed around the pipes shall be Firoblok Fire Sleeves with thermal protection Envirograf product 110, mounted flush with the deck on both sides.

AM Mastic white sealant was placed sloped from the pipe on both sides of the Firoblok to prevent smoke from penetrating the penetration.

Pipes:

Diameter range and wall thickness range is determined as described in the following text:

Pipe: Ø16 – Ø63.

Wall thickness: 2 – 6mm.

Pipe end configuration for plastic pipes (§E.2.7.3)

The classification is only valid for the Pipe end configuration: C/C.

C/C = (Capped inside the furnace, capped outside the furnace)

Orientation of the pipe (§E.2.7.6.)

The plastic pipe can only be installed in 90-degree angle from the supporting construction.

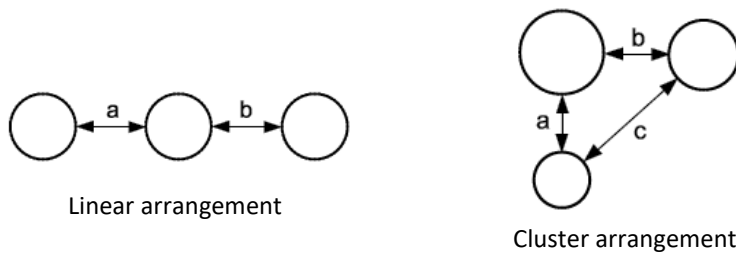
Distance between the services (§6.1)

The minimum distance between the outer sides of a single penetration or a cluster of Alupex pipes to another type of penetration must be 200 mm.

The Alupex pipes can be installed linear or in a cluster with other Alupex pipes, see sketch below.

The minimum distance between the aperture for the pipe penetration seals in a cluster can be 0 mm.

The fire resistance classification for clusters is EI90-C/C and E120-C/C for all pipes and EI120-C/C for pipes up to a diameter of maximum Ø40 mm.



Minimum distance between the aperture (drilled hole) for each pipe penetration is:

$a \geq 0$ mm

$b \geq 0$ mm

$c \geq 0$ mm

Insulation in the pipe closure device:

The thickness range of the build in insulation according to pipe diameter is as follows:

Pipe $\varnothing 16 - \varnothing 40$ the insulation must be 10 mm.

Pipe $\varnothing 63$ the insulation must be 15 mm.

The pipes must not be insulated except for the build in insulation in the sleeve.

Active component in the pipe closure device:

The thickness range of the active component according to pipe diameter is as follows:

Pipe $\varnothing 16 - \varnothing 63$ the active component must be 2 mm in thickness.

4.2 Individual classifications for each single penetration.

This classification is valid for the following end use applications in floors:

Test specimen	Diameter and Size:	Test report:	Integrity (E)	Integrity & Insulation (EI)
	[mm]	[no.]	[min]	[min]
Seal 4	$\varnothing 16$	PGA12059A	120	120
Seal 5	$\varnothing 40$	PGA12059A	120	120
Seal 6	$\varnothing 63$	PGA12059A	120	90
Seal 10.1	$\varnothing 16$	PGA12059A	120	120
Seal 10.2	$\varnothing 25$	PGA12059A	120	120
Seal 10.3	$\varnothing 40$	PGA12059A	120	120
Seal 11.1	$\varnothing 16$	PGA12059A	120	120
Seal 11.2	$\varnothing 25$	PGA12059A	120	120
Seal 11.3	$\varnothing 63$	PGA12059A	120	90

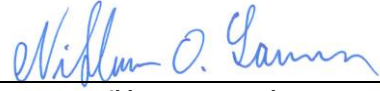
5. Limitations

This document does not represent type approval or certification of the element.

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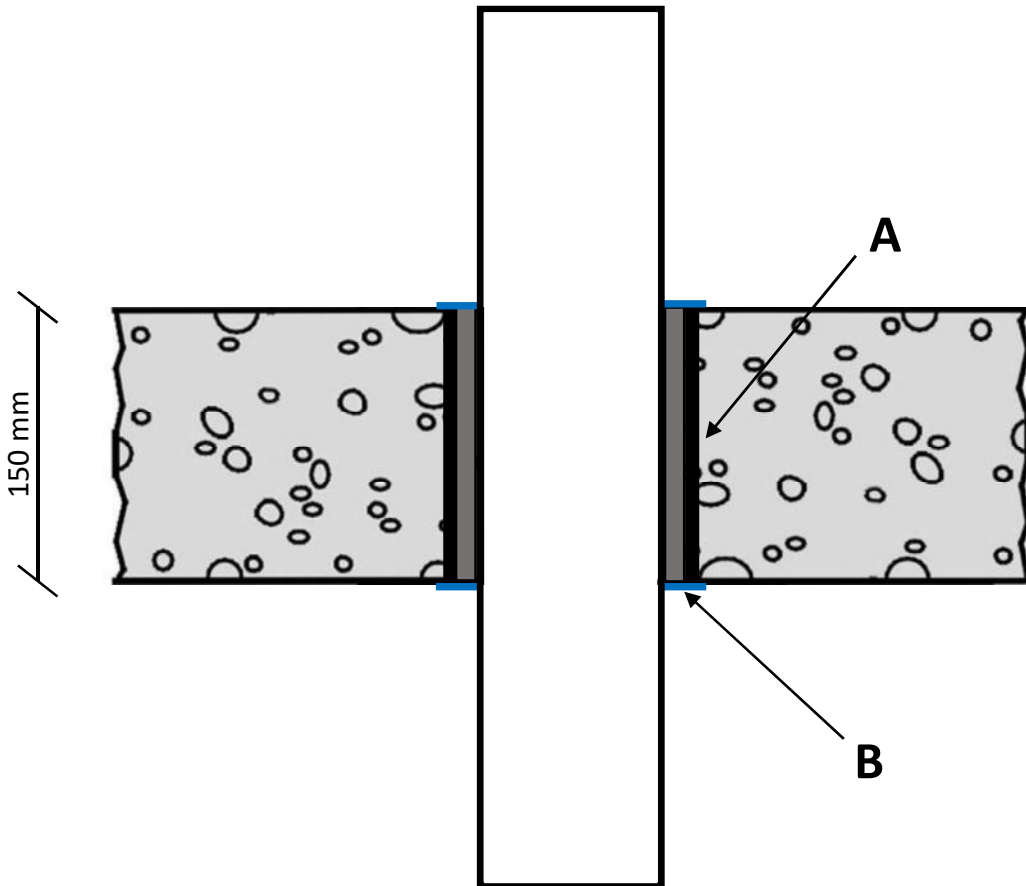
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Firoblok IWS/T



Note:
All AM Mastic seal widths and depths are shown in the test report in Table 2.



A: Envirograf Product 110/T Firoblok

B: Envirograf Product 58 AM Mastic

Firoblok IWS/T applies to all the pipes.