Fire Testing Laboratory

Regulatory Information Report

PF24145

Fire resistance test for penetrations through a vertical separating element

Client:	**Agnitek Pty Ltd**
Test method:	AS1530.4-2014
Report Date:	10/03/2025
Test number:	PF24145

Passive Fire Inspection and Test Services Limited
1/113 Pavilion Drive, Mangere, Auckland 2022, New Zealand
w: firelab.co.nz
e: tests@firelab.co.nz

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1.1 Document revision schedule

Revision #	Date	Description
1	26/02/2025	Issued to Client
2	10/03/2025	Specimen 4 typographical error corrected

1.2 Signatories

Report	Name	Signature	Date
Prepared by:	Alexey Kokorin		10/03/2025
Authorised by:	Andrew Bain (Authorized signatory)		10/03/2025

ACCREDITED
TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

2. Report Summary

Service penetration was tested passing through a 75mm thick vertical Hebel separating element.

Specimen #	Service	Actual Integrity (min)	Actual Insulation (min)	FRL
1	AGNI-Box (empty)	123NF	123NF	-/120/120
2	32mm Copper Pipe	123NF	123NF	-/120/120
3	20mm Copper Cable	123NF	80	-/120/60
4	25mm Aluminium Cable	123NF	123NF	-/120/120
5	100mm Copper Pipe	123NF	123	-/120/120
6	50mm Steel Pipe	123NF	123NF	-/120/120
7	TPS Cables (bundle of 8)	123NF	66	-/120/60
8	100mm PVC Pipe	123NF	123NF	-/120/120
9	PE Pair Coil + TPS Cable + 20mm Condensate Pipe	123NF	72	-/120/60
10	FR Pair Coil + TPS Cable + 20mm Condensate Pipe	123NF	123NF	-/120/120
11	25mm PEX Pipe	123NF	123NF	-/120/120

NF – No Failure

3. General Information

3.1 Testing Scope

Applicable Standards:

AS 1530.4-2014 Section 10: Service penetrations and control joints

AS 4072.1-2005 (r. 2016) Components for the protection of openings in fire-resistant separating elements. Part 1: Service penetrations and control joints

Departures from Testing Method:

No departures from the testing method

Test conditions:

Conditions complied with the Standard

3.2 Contact Details

Accredited Testing Laboratory

Fire TS Lab - Passive Fire Inspection and Test Services Ltd

Accreditation Number - 1335

1/113 Pavilion Drive, Mangere, Auckland, 2022

New Zealand

Contact e-mail: tests@firelab.co.nz

Client/Applicant:

Agnitek Pty Ltd

8 Clare St, Bayswater, VIC, 3153

Australia

Contact e-mail: info@agnitek.com.au

Manufacturer:

Same as Client/Applicant

3.3 Specimen Preparation, Conditioning and Timeline

Specimens conditioning and delivery to Laboratory:

Separating element was built by the Laboratory in line with Client instructions. Installation of fire stopping system was performed by the Laboratory in line with Client instructions. The Laboratory was not involved in sampling of the materials. The Laboratory checked materials during construction of the specimen. Services were capped from the fire side only.

Testing date:

12/02/2025

Installation completion date:

18/01/2025

Termination of The Test:

The test was discontinued at 123 minutes.

3.4 Use of the Report

This report shall not be reproduced, except in full.

A regulatory information report was issued in addition to the full test report PF24145. This provides the minimum information required for regulatory compliance.

This report details the methods of construction, test conditions and the results obtained when the specific element of construction described herein was tested following the procedure outlined in AS 1530.4. Any significant variation with respect to size, constructional details, loads, stresses, edge or end conditions, other than that allowed under the field of direct application in the relevant test method, is not covered by this report.

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

The test results relate to the specimens of the product in the form in which they were tested. Differences in the composition or thickness of the product may significantly affect the performance during the test and may therefore invalidate the test results. Care should be taken to ensure that any product, which is supplied or used, is fully represented by the specimens, which were tested.

The specimens were supplied by the sponsor and the Laboratory was not involved in any of selection or sampling procedures.

The results of these fire tests may be used to directly assess fire hazard, but it should be recognised that a single test method will not provide a full assessment of fire hazard under all fire conditions.

4. Specimen Description

4.1 Supporting Construction

Separating element		
1.1	Item	Hebel Wall
	Dimensions	Width / Height (W/H): 600mm x 1200mm Thickness: 75mm

Materials		
1.2	Item	Hebel Power Panel
	Dimensions	Width / Height (W/H): 600mm x 1200mm Thickness: 75mm
	Installation	2 panels installed vertically
1.3	Item	90° Steel Angle 1.35bmt
	Dimensions	Size: 75mm x 75mm Length: 1200mm
	Installation	Installed at the top and bottom of the refractory frame on the unexposed side only
1.4	Item	Screw
	Dimensions	6mm x 75mm
	Installation	Used to secure steel angle to refractory frame and Hebel wall
1.5	Item	AGNI-Seal
	Dimensions	600mL Sausage
	Installation	Seal butt join in Hebel panels and between wall and refractory frame

4.2 Specimens

Services		
2.1	Item	AGNI-Box
	Dimensions	Width x Height: 300mm x 151mm (OD)
	Construction	The AGNI-Box is constructed using 0.9bmt steel measuring 300mm (width) x 151mm (height) x 200mm (depth). A 50mm recessed steel lip surrounds all four side of both faces of the AGNI-Box and holds two layers of 3.5mm intumescent material that are cut to size. The recessed space was fitted with 50mm thick foam to the both faces of the AGNI-Box.
2.2	Item	32x1.22 B 32mm Copper Pipe
	Dimensions	Diameter (OD): 34.2mm
		Diameter (ID): 31.1mm
		Wall Thickness: 1.65mm
2.3	Item	X-90 0.6/1 kV CU electric cable
	Cable	Outer Diameter: 19.3mm
		Sheath Material: PVC
		Sheath Thickness: 1.98mm
	Core	Number of Cores: 3 (circular shaped)
		Outer Diameter: 6.64mm
		Conductor Diameter: 1.7mm
		Conductor Material: Copper
		Insulation Material: X-90 PVC
		Insulation Thickness: 1.04mm
	Earth	Outer Diameter: 4.57mm
		Conductor Diameter: 1.01mm
2.4	Item	Multicore Aluminium Flexible Rubber (Fixed Wiring) 4 Core + Earth Cable
	Cable	Outer Diameter: 30.5mm
		Sheath Material: E-Rubber S-20
		Sheath Thickness: 3.0mm

	Core	Number of Cores: 4 (circular shaped)
		Outer Diameter: 9.2mm
		Conductor Diameter: 0.53mm
		Conductor Material: Aluminium
		Insulation Material: LSFLEX R-70
		Insulation Thickness: 1.3mm
2.5	Item	100x1.63 B 100mm Copper Pipe
	Dimensions	Diameter (OD): 104.8mm
		Diameter (ID): 101.5mm
		Wall Thickness: 1.65mm
2.6	Item	50mm Steel Pipe
	Dimensions	Diameter (OD): 48.3mm
		Diameter (ID): 42.2mm
		Wall Thickness: 3.05mm
2.7	Item	Electrical Cable 450/750V 2C + E
	Cable	Width x Depth: 14mm x 6.5mm
		Sheath Material: 3V-90 PVC
		Sheath Thickness: 1.24mm
	Core	Number of Cores: 2 (circular shaped)
		Outer Diameter: 4mm
		Conductor Diameter: 0.85mm
		Conductor Material: Copper
		Insulation Material: V-90 PVC
		Insulation Thickness: 1.15mm
	Earth	Outer Diameter: 3.2mm
		Wire Diameter: 0.64mm
2.8	Item	DN100 PVC-U DWV Pipe
	Dimensions	Diameter (OD): 111.0mm
		Diameter (ID): 104.0mm
		Wall Thickness: 3.5mm

2.9	Item	Polyethylene Pair Coil Insulated Refrigeration Tube – Ardent Annealed Copper Tube
	Copper Tube 1	Diameter (OD): 19.05mm
		Diameter (ID): 16.77mm
		Wall Thickness: 1.14mm
	Copper Tube 2	Diameter (OD): 9.52mm
		Diameter (ID): 7.9mm
		Wall Thickness: 0.81mm
	Insulation	Thickness: 6.8mm
		Material: Polyethylene
2.10	Item	PVC-U 20mm Pipe
	Dimensions	Diameter (OD): 20.0mm
		Diameter (ID): 16.0mm
		Wall Thickness: 2.0mm
2.11	Item	Ardent Super Pair FR Rubber Insulated Fire Retardant Pair Coil
	Copper Tube 1	Diameter (OD): 15.88mm
		Diameter (ID): 13.84mm
		Wall Thickness: 1.02mm
	Copper Tube 2	Diameter (OD): 9.52mm
		Diameter (ID): 7.9mm
		Wall Thickness: 0.81mm
	Insulation	Thickness: 16mm
		Material: Fire rated closed cell rubber
2.12	Item	DN25 PE-X Pipe
	Dimensions	Diameter (OD): 25.1mm
		Diameter (ID): 19.2mm
		Wall Thickness: 2.95mm

Sealants		
3.1	Item	AGNI-Seal
	Dimensions	600mL Sausage

3.2	Item	AGNI-Black
	Dimensions	310mL Cartridge

Intumescent		
4.1	Item	AGNI-Wrap 50
	Dimensions	50mm
4.2	Item	AGNI-Collar 100 (50)
	Steel Frame	Height: 49mm Steel: 0.50bmt
	Intumescent	Height x Thickness: 47.5mm x 3.5mm Layers: 2
	Fixing Points	4

Insulation		
5.1	Item	AGNI-Shield
	Dimensions	Width: 300mm - 450mm Thickness: 13mm

Fixings		
6.1	Item	AGNI-Strap
	Dimensions	Width x Height: 4.6mm x 450mm
	Installation	Used to secure AGNI-Shield to services
6.2	Item	90° Angle 1.83bmt
	Dimensions	Size: 30mm x 30mm Length: 200mm
	Installation	Used to secure AGNI-Box to Hebel wall
6.3	Item	Hex Head Screw
	Dimensions	12g x 40mm (to Habel panel)
	Installation	Used to secure 90° angle to AGNI-Box and Hebel wall

5. Test Results

5.1 Observations during the test

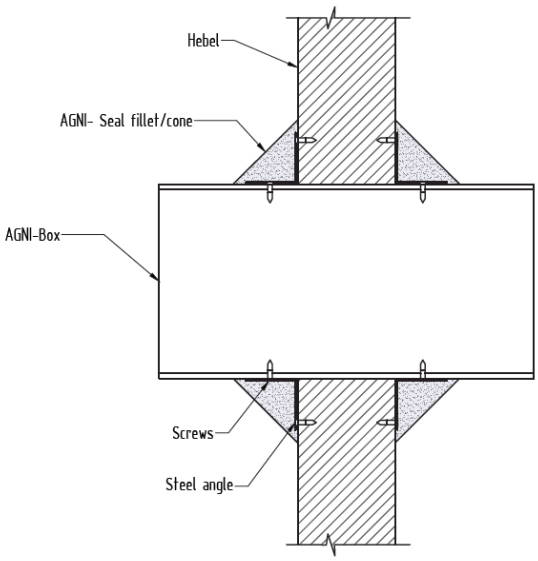
Time min	Test face	SP#	OBSERVATIONS/REMARKS
5	U	7	Continual smoke coming through the cables
23	U	1	Minor smoke coming from behind the foam face of the AGNI-Box
46	U	2, 5, 7	Smoke coming from behind the foam face of the AGNI-Box
67	U	1	Foam face of the AGNI-Box fallen away from separating element, the opening is sealed with expanded intumescent material
123			**TEST DISCONTINUED**

NOTE: E – Exposed Face (inside furnace)

U – Unexposed Face (outside furnace)

SE – Separating element

5.2 Specimen 1

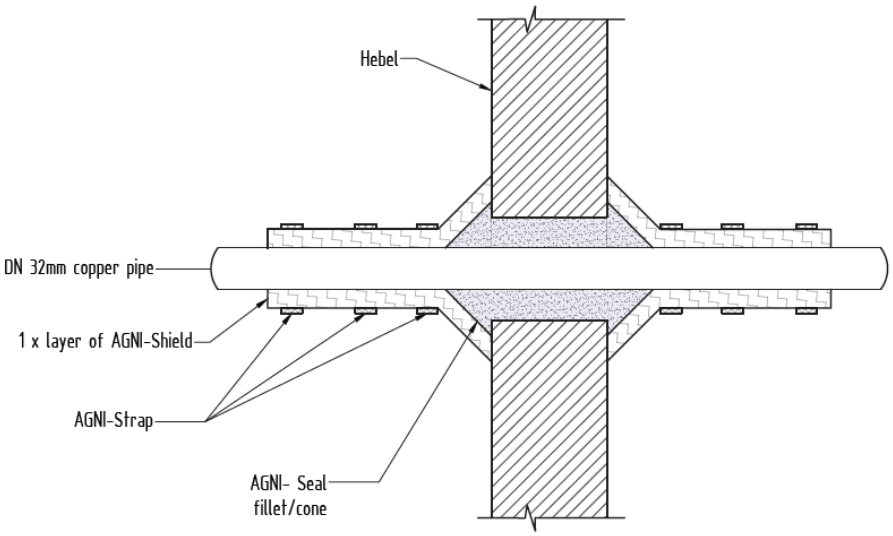


Service penetration details	
Service	AGNI-Box (empty)
Aperture Size	310mm x 162mm
Annular Spacing	Min: 2.7mm, Max: 9.3mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Seal
Procedure	1. 200mm long 30mm x 30mm 90° angle used at the top and the bottom of the AGNI-Box, secured to Hebel wall and the AGNI-Box using hex head screws at 50mm from each end. 2. 20mm (nominal) deep AGNI-Seal applied into annular gap around AGNI-Box (no sealant behind the angles). 3. Nominal 50mm x 50mm AGNI-Seal sealant cone applied around the AGNI-Box.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	No failure at 123 minutes

5.3 Specimen 2

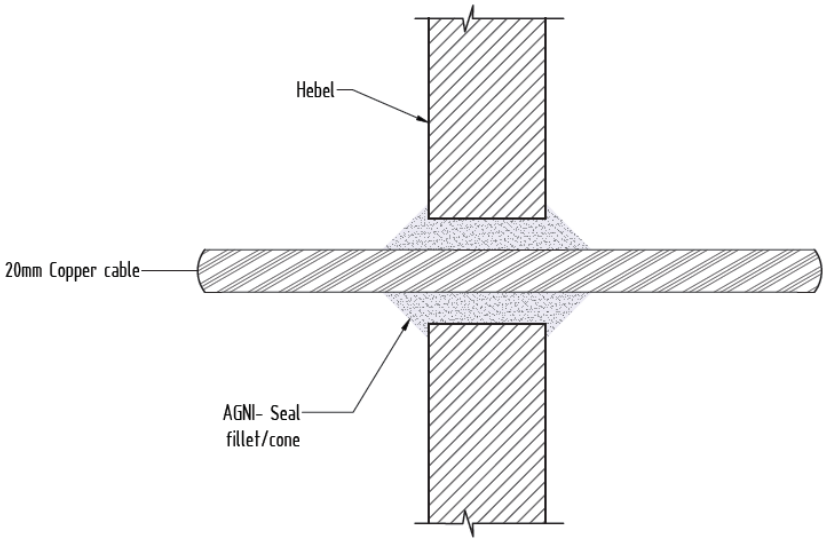


Service penetration details	
Service	32mm Copper Pipe
Aperture Size	59.8mm
Annular Spacing	Min: 10.3mm, Max: 15.3mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Seal, AGNI-Shield, AGNI-Strap
Procedure	1. AGNI-Seal applied into annular gap around service full depth of the wall. 2. 30mm x 30mm AGNI-Seal sealant cone applied around the service. 3. One layer of 300mm wide AGNI-Shield wrapped around service with 50mm overlap. 4. AGNI-Straps secure the AGNI-Shield to the service, positioned 50mm from each end and 150mm maximum spacing between each strap.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	No failure at 123 minutes

5.4 Specimen 3

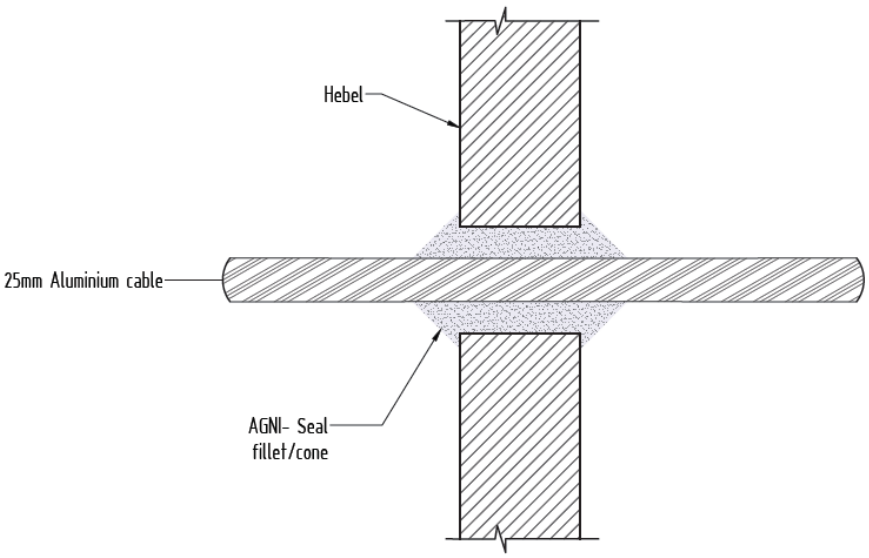


Service penetration details	
Service	X-90 20mm Copper cable
Aperture Size	39.1mm
Annular Spacing	Min: 8.2mm, Max: 11.6mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Seal
Procedure	1. AGNI-Seal applied into annular gap around service full depth of the wall. 2. 30mm x 30mm AGNI-Seal sealant cone applied around the service.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	80 minutes

5.5 Specimen 4

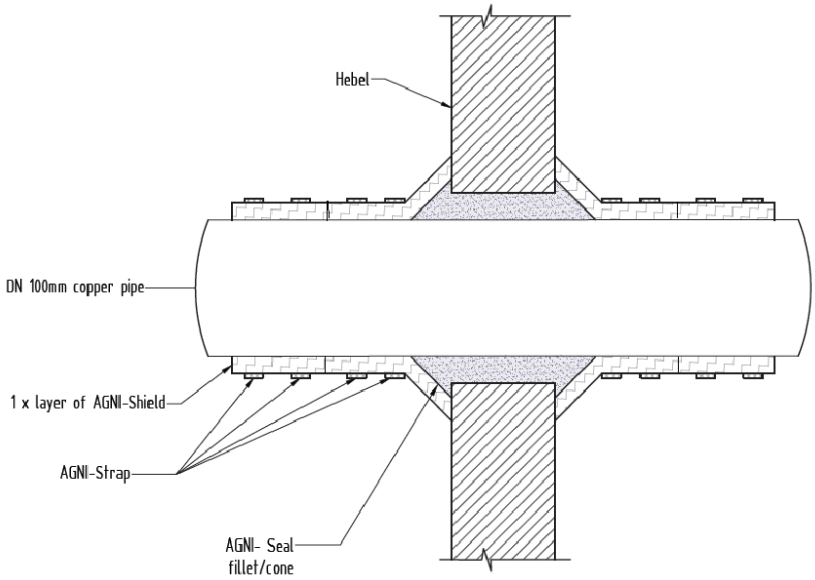


Service penetration details	
Service	25mm aluminium cable
Aperture Size	49.1mm
Annular Spacing	Min: 8.8mm, Max: 9.8mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Seal
Procedure	1. AGNI-Seal applied into annular gap around service full depth of the wall. 2. 30mm x 30mm AGNI-Seal sealant cone applied around the service.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	No failure at 123 minutes

5.6 Specimen 5

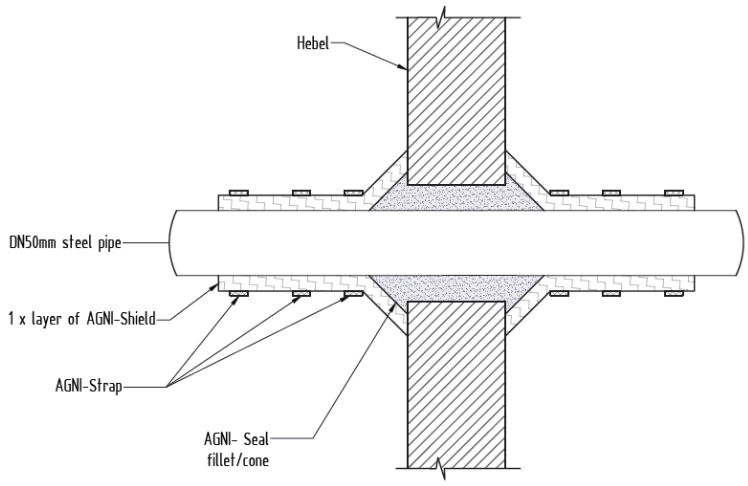


Service penetration details	
Service	100mm Copper Pipe
Aperture Size	123.1mm
Annular Spacing	Min: 6.9mm, Max: 11.4mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Seal, AGNI-Shield, AGNI-Strap
Procedure	1. AGNI-Seal applied into annular gap around service full depth of the wall. 2. 30mm x 30mm AGNI-Seal sealant cone applied around the service. 3. One layer of 450mm wide AGNI-Shield wrapped around service with 50mm overlap (consisted of 300mm wide strip (to the wall) and 150mm wide strip, butt jointed and taped with 75mm wide solid aluminium tape). 4. AGNI-Straps secure the AGNI-Shield to the service, positioned 50mm from each end and 150mm maximum spacing between each strap with additional straps 50mm from the AGNI-shield joint.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	123 minutes

5.7 Specimen 6

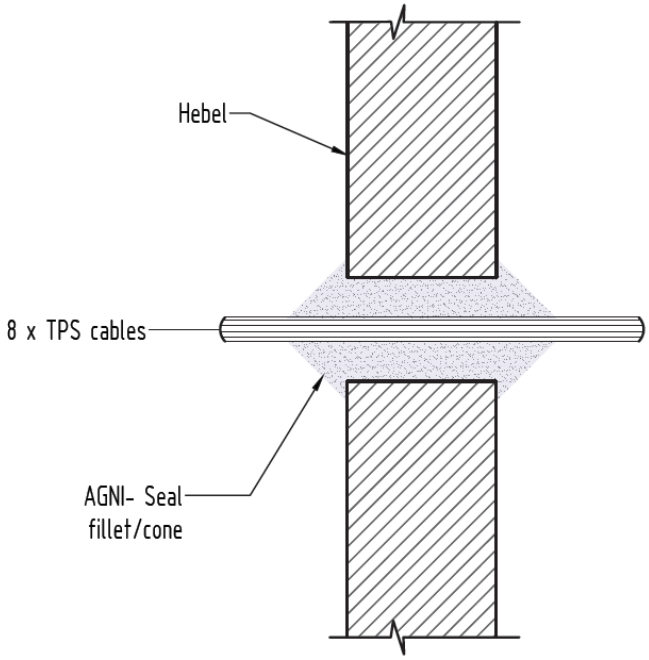


Service penetration details	
Service	50mm Steel Pipe
Service Support	Exposed Side: NA Unexposed Side: 410mm
Aperture Size	70.4mm
Annular Spacing	Min: 8.6mm, Max: 13.5mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Seal, AGNI-Shield, AGNI-Strap
Procedure	1. AGNI-Seal applied into annular gap around service full depth of the wall. 2. 30mm x 30mm AGNI-Seal sealant cone applied around the service. 3. One layer of 300mm wide AGNI-Shield wrapped around service with 50mm overlap. 4. AGNI-Straps secure the AGNI-Shield to the service, positioned 50mm from each end and 150mm maximum spacing between each strap.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	No failure at 123 minutes

5.8 Specimen 7

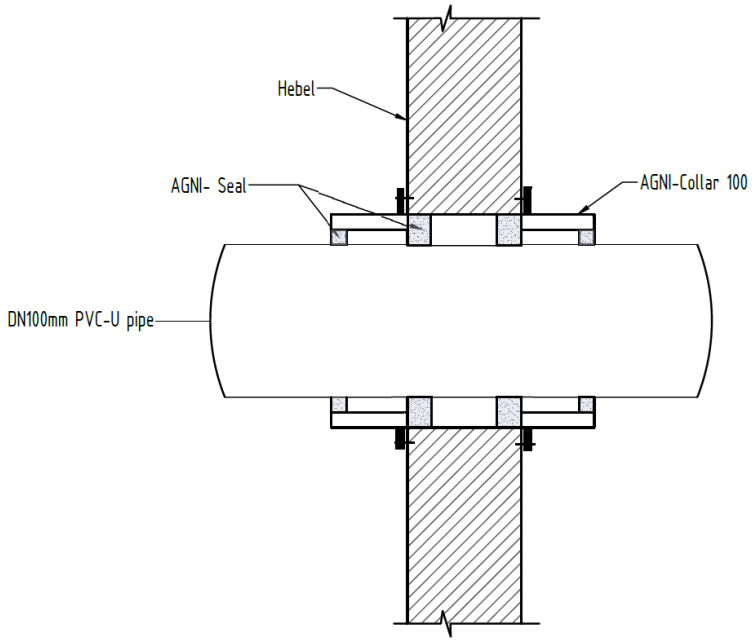


Service penetration details	
Service	Prysmian Electrical Cable 450/750V 2C + E (bundle of 8)
Aperture Size	54.2mm
Annular Spacing	Min: 5.2mm, Max: 15.4mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Seal
Procedure	1. AGNI-Seal applied into annular gap around service full depth of the wall. 2. 30mm x 30mm AGNI-Seal sealant cone applied around the service.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	66 minutes

5.9 Specimen 8

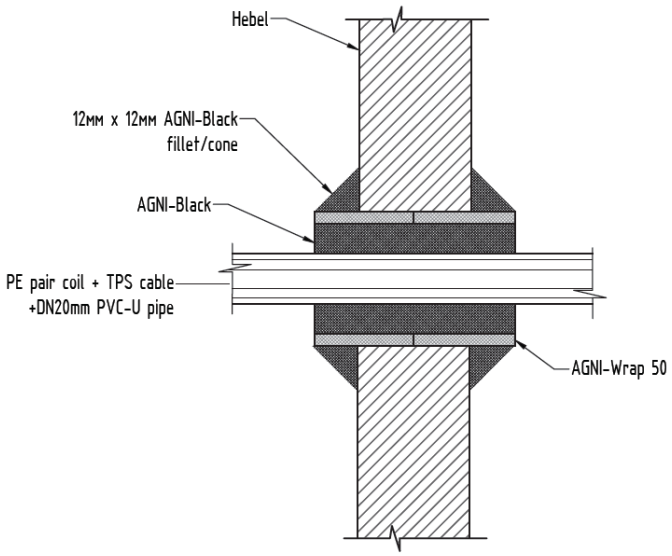


Service penetration details	
Service	Marley Optim DN100 PVC-U DWV Pipe
Aperture Size	122.6mm
Annular Spacing	Min: 4.2mm, Max: 7.4mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Seal, AGNI-Collar, Screws
Procedure	1. 20mm deep AGNI-Seal applied into annular gap around service. 2. AGNI-Collar placed around the service and secured with screws at the fixing points. 3. 10mm (nominal) deep AGNI-Seal applied between AGNI-Collar and service, finished flush with AGNI-Collar.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	No failure at 123 minutes

5.10 Specimen 9

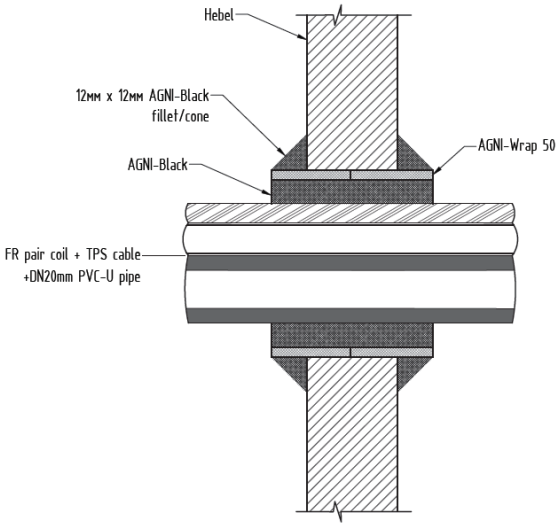


Service penetration details	
Service	Polyethylene Pair Coil Insulated Refrigeration Tube **+** Prysmian Electrical Cable 450/750V 2C + E **+** Milford S1 PVC-U 20 PN12 20mm Pipe
Aperture Size	92.1mm
Annular Spacing	Min: 5.9mm, Max: 36.4mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Wrap 50, AGNI-Black
Procedure	1. One revolution of AGNI-Wrap 50 inserted 37mm deep into the annular gap against the Hebel panel. 2. AGNI-Black applied between AGNI-Wrap 50 and service, finishing flush with the top of the AGNI-Wrap 50. 3. 12mm x 12mm AGNI-Black sealant cone applied between AGNI-Wrap 50 and separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	72 minutes

5.11 Specimen 10

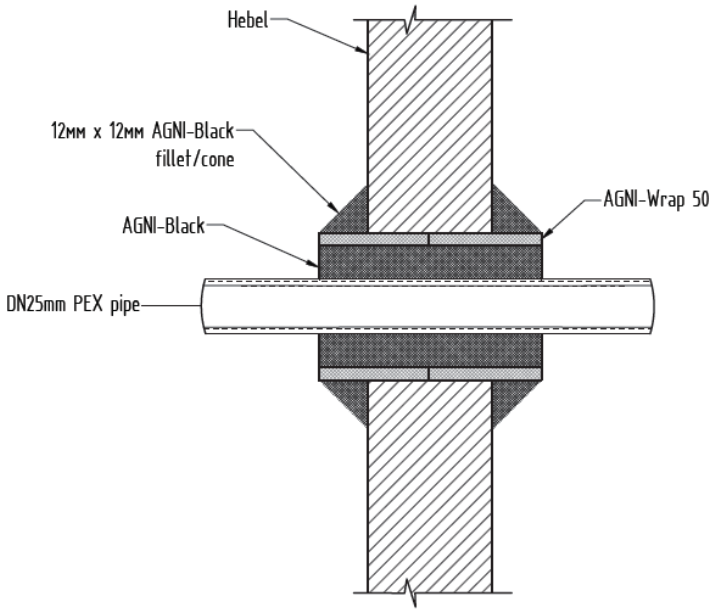


Service penetration details	
Service	Ardent Super Pair FR Rubber Insulated Fire Retardant Pair Coil **+** Prysmian Electrical Cable 450/750V 2C + E **+** Milford S1 PVC-U 20 PN12 20mm Pipe
Aperture Size	128.1mm
Annular Spacing	Min: 9.4mm, Max: 42.6mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Wrap 50, AGNI-Black
Procedure	1. One revolution of AGNI-Wrap inserted 37mm deep into the annular gap against the Hebel panel. 2. AGNI-Black applied between AGNI-Wrap 50 and service, finishing flush with the top of the AGNI-Wrap 50. 3. 12mm x 12mm AGNI-Black sealant cone applied between AGNI-Wrap and separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	No failure at 123 minutes

5.12 Specimen 11



Service penetration details	
Service	Auspex DN25 PN20 SDR9 PE-Xb Pipe
Aperture Size	46.3mm
Annular Spacing	Min: 8.2mm, Max: 13.0mm

Local Fire-stopping system	
Application	Symmetrical
Products	AGNI-Wrap 50, AGNI-Black
Procedure	1. One revolution of AGNI-Wrap inserted 37mm deep into the annular gap against the Hebel panel. 2. AGNI-Black applied between AGNI-Wrap 50 and service, finishing flush with the top of the AGNI-Wrap 50. 3. 12mm x 12mm AGNI-Black sealant cone applied between AGNI-Wrap and separating element.

Test results	
Structural adequacy	Not applicable
Integrity	No failure at 123 minutes
Insulation	No failure at 123 minutes

6. Photos

6.1 Photos before the test

Figure 1 - Unexposed face prior to test commencement

Figure 2 - Exposed face prior to test commencement