Sponsor:

ROCKWOOL Limited
Pencoed
Bridgend
CF35 6NY
United Kingdom
www.rockwool.com

Prepared by:
UL International (UK) Ltd

Approved body No.:
0843

Product Name:
FirePro® HES

Project No.:
4791353110

Report No.:
4791353110.1

Issue number:
01

Date of Issue:
02-07-2025

4705

UL International (UK) Ltd.
220, Cygnet Court, Centre Park, Warrington. WA1 1PP

TABLE OF CONTENTS

1. Introduction

This classification report defines the classification assigned to the product FirePro® HES, in accordance with the procedures given in EN 13501-2: 2023.

2. Details of classification product

2.1 General

The product FirePro® HES is a water based acrylic sealant containing graphite that is designed for use in the protection of combustible services. In the event of a fire, the active components provide a high-volume expansion and pressure seal, closing off the void left by combustible materials.

2.2 Product description

The element, FirePro® HES, is fully described in the test reports provided in support of classification, detailed in clause 3.1.

3. Test reports in support of classification

3.1 Summary of test reports

Name of laboratory	Name of sponsor	Test reference	Test date	Test method
FPA UKAS Accreditation no. 10536	Rockwool Limited	FPA 104948 r0	13/12/2023	EN 1366-3: 2021
		FPA 104949 r0	19/03/2024	
		FPA 104789 r1	14/12/2023	
		FPA 104790 r0	19/12/2023	
		FPA 106135 r0	21/05/2024	
		FPA 106132 r0	23/05/2024	
WarringtonFire UKAS Approved Body no. 0833		546853/R Iss1	17/11/2024	
		549198/R Iss2	28/01/2025	EN 1366-3-2021+A1-2024
		549199/R Iss2	29/01/2025	

3.2 Results

Summary of report No.: FPA 104948 r0

A range of twelve plastic pipes were protected with FirePro® HES. The seals were installed flush to the top of the 150 mm thick aerated concrete floor slab. All pipes were installed in U/C configuration.

Spec	Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	Seal depth (mm)	Annular gap (b2) (mm)	Integrity (minutes)			Insulation (minutes)
						Sustained Flaming	Cotton Pad	Gap gauge	
A	PP	110	2.7	50	20	190#	190#	190	190
B	PE	110	2.7	50	20	128#	128	128	119
C	PVC	110	4.2	50	20	146#	146#	146	138
D	PP	110	10	50	20	138#	138#	138	131
E	PE	110	10	50	20	206#	206#	206	206
F	PVC	110	6.6	50	20	112#	112#	112	103
G	PP	40	1.8	50	20	240*	240*	240*	240*
H	PP	40	5.5	50	20	240*	240*	240*	240*
I	PE	40	2.4	50	20	240*	240*	240*	240*
J	PE	40	3.7	50	20	240*	240*	240*	240*
K	PVC	40	1.9	50	20	240*	240*	240*	240*
L	PVC	40	3	50	20	240*	240*	240*	240*

ROCKWOOL RWA45, 20mm wide x nominally 50mm deep and Set 50mm from the top face. Installed as a backing material.

The seals were covered up. No further evaluation.

* Test was discontinued after a period of 240 minutes without a failure being observed.

Summary of report No.: FPA 104949 r0

A range of twelve plastic pipes were protected with FirePro® HES. The seals were installed flush to the top of the 150 mm thick aerated concrete floor slab. All pipes were installed in U/C configuration.

Spec	Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	Seal depth (mm)	Annular gap (b2) (mm)	Integrity (minutes)			Insulation (minutes)
						Sustained Flaming	Cotton Pad	Gap gauge	
A	PVC	40	1.9	25	20	125#	124	125#	118
B	PVC	40	3.0	25	20	132*	132*	132*	132*
C	HDPE	40	2.4	25	20	132*	132*	132*	132*
D	HDPE	40	3.7	25	20	132*	132*	132*	132*
E	PP	40	1.8	25	20	132*	132*	132*	118
F	PP	40	5.5	25	20	114#	113	114#	113
G	PVC	110	6.6	50	20	132*	132*	132*	132*
I	cPVC (Blazemaster)	27	3.5	50	17.5	132*	132*	132*	132*
J	cPVC (Blazemaster)	88	8	50	20	122#	120	122#	116
K	HDPE	110	2.7	50	20	122#	122	122#	109
M	cPVC (FlameGuard)	27	3.5	50	17.5	132*	132*	132*	132*
N	cPVC (FlameGuard)	88	8	50	20	132*	132*	132*	132*

All seals except for G & K were backed with PU foam backer.

Seals G & K backed with ROCKWOOL RWA45, 20mm wide x nominally 50mm deep and Set 50mm from the top face.

The seals were covered up. No further evaluation.

*Test was discontinued after a period of 132 minutes without a failure being observed.

Summary of report No.: FPA 104789 r1

Two test constructions comprising 100 mm standard supporting walls (one rigid blockwork, one flexible stud and board) penetrated by a range of FirePro® HES graphite based intumescent sealant pipe penetration seals. All pipes were installed in U/C configuration.

Rigid Wall

Spec	Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	Seal depth (mm)	Annular gap (b2) (mm)	Integrity (minutes)			Insulation (minutes)
						Sustained Flaming	Cotton Pad	Gap gauge	
A1	PVC	40	3	25	20	126*	126*	126*	126*
B1	PVC	40	1.9	25	20	126*	126*	126*	126*
C1	PE	40	3.7	25	20	126*	126*	126*	126*
D1	PE	40	2.4	25	20	126*	126*	126*	126*
E1	PP	40	5.5	25	20	126*	126*	126*	126*
F1	PP	40	1.8	25	20	119#	119	119#	117**
H1	cPVC (FlameGuard)	25	2.5	25	20	126*	126*	126*	126*
I1	cPVC (FlameGuard)	88	8	25	20	126*	126*	126*	126*
K1	PVC	110	6.6	25	20	126*	126*	126*	126*
L1	PE	110	10	25	20	126*	126*	126*	126*
M1	PP	110	10	25	20	126*	126*	126*	123
N1	PVC	110	4.2	25	20	126*	126*	126*	126*
O1	PE	110	2.7	25	20	126*	126*	126*	126*
P1	PP	110	2.7	25	20	126*	126*	126*	126*

ROCKWOOL RWA45, 20mm wide x nominally 50mm deep and Set 25mm from the exposed and unexposed faces of the supporting construction. Installed as a backing material.

The seals were covered up. No further evaluation. *Test was discontinued after a period of 126 minutes without a failure being observed.

**Insulation performance impacted by furnace gasses

Flexible wall

Spec	Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	Seal depth (mm)	Annular gap (b2) (mm)	Integrity (minutes)			Insulation (minutes)
						Sustained Flaming	Cotton Pad	Gap gauge	
A2	PVC	40	3	25	20	126*	126*	126*	111
B2	PVC	40	1.9	25	20	126*	126*	126*	105
C2	PE	40	3.7	25	20	126*	126*	126*	116
D2	PE	40	2.4	25	20	126*	126*	126*	126*
E2	PP	40	5.5	25	20	126*	126*	126*	122
F2	PP	40	1.8	25	20	126*	126*	126*	123
G2	cPVC (FlameGuard)	88	8	25	20	126*	126*	126*	106
I2	cPVC (FlameGuard)	25	2.5	25	17.5	126*	126*	126*	111
K2	PVC	110	6.6	25	20	126*	126*	126*	98
L2	PE	110	10	25	20	126*	126*	126*	119
M2	PP	110	10	25	20	126*	126*	126*	126*
N2	PVC	110	4.2	25	20	111#	111#	111	111
O2	PE	110	2.7	25	20	118#	118#	118	116
P2	PP	110	2.7	25	20	118#	118#	118	116

ROCKWOOL RWA45, 20mm wide x nominally 50mm deep and Set 25mm from the exposed and unexposed faces of the supporting construction. Installed as a backing material.

The seals were covered up. No further evaluation.

*Test was discontinued after a period of 126 minutes without a failure being observed.

Summary of report No.: FPA 104790 r0

A range of FirePro® HES graphite based intumescent sealant cable and pipe penetration seals penetrating a 75 mm thick flexible stud and board wall.

Spec	Service type (Cables)	Seal depth (mm)	Annular gap (b2) (mm)	Integrity (minutes)			Insulation (minutes)
				Sustained Flaming	Cotton Pad	Gap gauge	
A	Blank Seal	12.5	N/A	68*	68*	68*	68*
B	A1, A3, B	12.5	20	68*	68*	68*	64
C	G2	12.5	20	68*	68*	68*	39
D	C1, C3, E	12.5	20	68*	68*	68*	68*
E	D1, D3, E	12.5	20	68*	68*	68*	53
F	F Bunch	12.5	20	68*	68*	68*	68*

ROCKWOOL RWA45, 20mm wide x nominally 50mm deep and Set 12.5mm from the exposed and unexposed faces of the supporting construction. Installed as a backing material.

*Test was discontinued after a period of 68 minutes without a failure being observed.

Summary of report No.: FPA 106135 r0

A range of FirePro® HES graphite based intumescent sealant cable/blank penetration seals penetrating apertures formed within a 150 mm thick standard EN 1366-3 specification low density rigid floor slab.

Spec	Service type	Additional protection (25mm DuctWrap)	Seal depth (mm)	Annular gap (b2) (mm)	Integrity (minutes)			Insulation (minutes)
					Sustained Flaming	Cotton Pad	Gap gauge	
A	D3	N/A	25	0	240*	240*	240*	77
B	E	N/A	25	0	240*	240*	240*	140
C	B	N/A	25	0	240*	240*	240*	83
D	G2	N/A	25	0	240*	240*	240*	112
E	D3	N/A	25	20	240*	240*	240*	69
F	E	N/A	25	20	240*	240*	240*	53
G	B	N/A	25	20	240*	240*	240*	152
H	G2	N/A	25	20	240*	240*	240*	54
I	D3	300 mm	25	0	240*	240*	240*	106
J	E	300 mm	25	0	240*	240*	240*	240*
K	B	300 mm	25	0	240*	240*	240*	208
L	G2	300 mm	25	0	240*	240*	240*	151
M	F Bunch	300 mm	25	0	240*	240*	240*	90
N	F Bunch	N/A	25	0	240*	240*	240*	113
O	F Bunch	N/A	25	20	240*	240*	240*	149
P	Blank (200 x 200mm)	N/A	25	n/a	240*	240*	240*	240*

ROCKWOOL RWA45, 20mm wide x nominally 100mm deep and Set 25mm from the top face of the supporting construction. Installed as a backing material.

*Test was discontinued after a period of 68 minutes without a failure being observed.

Summary of report No.: FPA 106132 r0

Two test constructions comprising 100 mm standard supporting walls (one rigid blockwork, one flexible stud and board) penetrated by a range of FirePro® HES graphite based intumescent sealant cable & pipe penetration seals.

Flexible wall

Spec	Service type	Additional protection (25mm DuctWrap)	Seal depth (mm)	Annular gap (b1-1) (mm)	Annular gap (b1-2) (mm)	Integrity (minutes)			Insulation (minutes)
						Sustained Flaming	Cotton Pad	Gap gauge	
A	D1, D3, E	N/A	25	20	10	132*	132*	132*	70
B	C1, C3, E	N/A	25	20	10	132*	132*	132*	91
C	G2	N/A	25	22	15	132*	132*	132*	42
D	A1, A3, B	N/A	25	30	17	132*	132*	132*	101
I	Blank 150x150	N/A	25	N/A	N/A	132*	132*	132*	132*
J	F Bunch	N/A	25	27	15	132*	132*	132*	123

ROCKWOOL RWA45, 50mm deep and Set 25mm from the unexposed face of the supporting construction. Installed as a backing material. *Test was discontinued after a period of 132 minutes without a failure being observed.

Rigid Wall

Spec	Service type	Additional protection (25mm DuctWrap)	Seal depth (mm)	Annular gap (b1-1) (mm)	Annular gap (b1-2) (mm)	Integrity (minutes)			Insulation (minutes)
						Sustained Flaming	Cotton Pad	Gap gauge	
A2	D1, D3, E	N/A	25	20	10	132*	132*	132*	64
B2	C1, C3, E	N/A	25	20	10	132*	132*	132*	76
C2	G2	N/A	25	20	15	132*	132*	132*	49
D2	A1, A3, B	N/A	25	30	35	132*	132*	132*	89
I2	Blank 150x150	N/A	25	N/A	N/A	132*	132*	132*	132*
J2	F Bunch	N/A	25	30	00	132*	132*	132*	74

ROCKWOOL RWA45, 50mm deep and Set 25mm from the unexposed face of the supporting construction. Installed as a backing material.
*Test was discontinued after a period of 132 minutes without a failure being observed.

Summary of report No.: 546853/R Iss1

A range of FirePro® HES graphite-based intumescent sealant cable and pipe penetration seals penetrating a 75 mm flexible stud and board wall. All pipes were installed in U/C configuration.

							Integrity (minutes)			Insulation (minutes)
Spec	**Seal**	type	Pipe Dia (mm)	Wall (mm)	HES Annular (mm)	HES Depth (mm)	**Cotton Pad**	**Sustained flaming**	**Gap Gauge**	
C	17.5 mm wide anulus sealed with a 12.5 mm deep layer of 'ROCKWOOL® FIREPRO® HES' sealant installed over a 50 mm deep by 17.5 mm high 'RWA45' stone mineral wool backer to both faces.	CPVC	26	2.1	17.5	12.5	72*	72*	72*	72*
D		CPVC	26	2	17.5	12.5	72*	72*	72*	72*
E	20 mm wide anulus sealed with a 12.5 mm deep layer of 'ROCKWOOL® FIREPRO® HES' sealant installed over a 50 mm deep by 20 mm high 'RWA45' stone mineral wool backer to both faces.	PP	40	1.8	20	12.5	72*	72*	72*	57
F		PP	40	5.5	20	12.5	72*	72*	72*	72*
G		HDPE	40	2.4	20	12.5	72*	72*	72*	72*
H		HDPE	40	3.7	20	12.5	72*	72*	72*	72*
I		PVC-U	40	1.9	20	12.5	72*	72*	72*	72*
J		PVC-U	40	3	20	12.5	72*	72*	72*	72*
K		PVC	110	4.2	20	12.5	72*	72*	72*	65
L		PVC	110	6.6	20	12.5	66	66	72*	53
M		HDPE	110	4.2	20	12.5	39	39	40#	38
N		HDPE	110	10	20	12.5	29	29	29#	29
O		PVC-C	88	6.8	20	12.5	72*	72*	72*	72*
P		PVC-C	88	7.2	20	12.5	54	54#	54#	43
Q		PP	110	2.7	20	12.5	24	24#	24#	24
R		PP	110	10	20	12.5	69	69	72*	68

* Test was discontinued after a period of 72 minutes
\# Specimen blanked off

Summary of report No.: 549198/R Iss2

A range of FirePro® HES graphite based intumescent sealant pipe penetration seals penetrating a 75 mm flexible stud and board wall.

Spec	Seal	Material	Pipe Dia (mm)	Wall thickness (mm)	Cotton Pad	Sustained flaming	Gap Gauge	Insulation	Pipe End Configuration
E1###	15 mm thick layer of Kooltherm insulation installed in a local sustained configuration. 20 mm Annular gap sealed with a 12.5 mm deep layer of FirePro® HES' installed over a 50 mm thick layer of RWA45®' to both faces.	3 x Copper pipes in linear arrangement	42	1.2	68*	68*	68*	46	C/U
E2###					68*	68*	68*	46	C/U
E3###					68*	68*	68*	35	C/U
F1###	32 mm thick layer of Kooltherm insulation installed in a local sustained configuration. 20 mm Annular gap sealed with a 12.5 mm deep layer of FirePro® HES installed over a 50 mm thick layer of RWA45®' to both faces.	3 x Copper pipes in linear arrangement	42	1.2	68*	68*	68*	25**	C/U
F2###					68*	68*	68*	53	C/U
F3###					51	51	68*	39	C/U
H	20 mm wide annular gap sealed with a 12.5 mm deep layer of FirePro® HES installed over a 50 mm thick layer of RWA45®' to both faces.	PVC-U	63	3	64	64	65##	61	U/C
I		HDPE		4.2	65	65	65##	62	U/C
J		PP		2.5	68*	68*	68*	54	U/C
L	20 mm wide annular gap sealed with a 12.5 mm deep layer of FirePro® HES installed over a 50 mm thick layer of RWA45®' to both faces.	MLCP	40	4	68*	68*	68*	66	U/C
N1###	9 mm thick layer of 'Armaflex' insulation installed in a local sustained configuration. 20 mm Annular gap sealed with a 12.5 mm deep layer of FirePro® HES installed over a 50 mm thick layer of RWA45®' to both faces.	3 x Copper pipes in linear arrangement	42	1.2	68*	68*	68*	32	C/U
N2###					68*	68*	68*	52	C/U
N3###					68*	68*	68*	33	C/U
O1###	32 mm thick layer of 'Armaflex' insulation installed in a local sustained configuration. 20 mm Annular gap sealed with a 12.5 mm deep layer of FirePro® HES installed over a 50 mm thick layer of RWA45 to both faces.	3 x Copper pipes in linear arrangement	42	1.2	68*	68*	68*	40	C/U
O2###			42	1.2	68*	68*	68*	30	C/U
O3###			42	1.2	68*	68*	68*	51	C/U
Q	20 mm wide annular gap sealed with a 12.5 mm deep layer of ® FirePro® HES' installed over a 50 mm thick layer of RWA45®' to both faces.	PVC-U	63	4.7	68*	68*	68*	31	U/C
R		HDPE	63	5.8	68*	68*	68*	50	U/C
S		PP	63	5.8	68*	68*	68*	59***	U/C

*Test was discontinued after a period of 68 minutes. **Thermocouple detached and unable to monitor insulation.
##Specimen extinguished. ###Insulation result provided based on insulation being installed in a continuous sustained configuration, as in practice, as confirmed by the Test Sponsor. *** Reading taken using the roving thermocouple

Summary of report No.: 549199/R Iss2

A range of FirePro® HES graphite based intumescent sealant pipe penetration seals penetrating a 100 mm flexible stud and board wall. All plastic pipes were installed in U/C configuration.

Spec	Seal	Aperture / Services	Wall thickness (mm)	Depth (mm)	Cotton Pad	Sustained flaming	Gap Gauge	Insulation
E1	15 mm thick layer of Kooltherm insulation installed in a continuous sustained configuration. 20mm annular gap sealed with a 25 mm deep layer of 'FIREPRO® HES' installed over a 50 mm thick layer of 'RWA45®' to both faces.	256 mm wide by 110 mm high mm Aperture / linear cluster of 3 No. 42 mm Ø by 1.2 mm wall thickness copper pipes, C/U.	1.2	25	136*	136*	136*	127
E2			1.2	25	136*	136*	136*	96
E3			1.2	25	136*	136*	136*	114
F1	30 mm thick layer of 'Kooltherm' insulation installed in a continuous sustained configuration. 20 mm annular gap sealed with a 25 mm deep layer of 'FIREPRO® HES' installed over a 50 mm thick layer of 'RWA45®' to both faces.	410 mm wide by 160 mm high mm Aperture / linear cluster of 3 No. 42 mm Ø by 1.2 mm wall thickness copper pipes, C/U.	1.2	25	136*	136*	136*	125
F2			1.2	25	136*	136*	136*	118
F3			1.2	25	136*	136*	136*	127
H	20 mm wide by 25 mm deep annulus sealed with 'FIREPRO® HES' installed over a stone wool backer to both faces.	103 mm Ø Aperture / 63 mm Ø by 3.0 mm wall thickness PVC-U pipe, U/C.	3	25	116	116	122#	113
I		103 mm Ø Aperture / 63 mm Ø by 4.2 mm wall thickness HDPE pipe, U/C.	4.2	25	120	120	122#	120
J		103 mm Ø Aperture / 63 mm Ø by 2.5 mm wall thickness PP pipe, U/C.	2.5	25	118	118	122#	118
L	20 mm wide annular gap sealed with a 25mm deep layer of 'FIREPRO® HES' installed over a 50 mm thick layer of stone wool backer to both faces.	80 mm Ø Aperture / 40 mm Ø by 4 mm wall thickness PP-RT/AL/PP-RT pipe, U/C.	4	25	136*	136*	136*	136*
N1	9 mm thick layer of 'Armaflex' insulation installed in a continuous sustained configuration. 20 mm annular gap sealed with a 25mm deep layer of 'FIREPRO® HES' installed over a 50 mm thick layer of stone wool backer to both faces.	250 mm wide by 110 mm high mm Aperture / linear cluster of 3 No. 42 mm Ø by 1.2 mm wall thickness copper pipes, C/U.	1.2	25	136*	136*	136*	39
N2			1.2	25	136*	136*	136*	82**
N3			1.2	25	136*	136*	136*	64

Spec	Seal	Aperture / Services	Wall thickness (mm)	Depth (mm)	Cotton Pad	Sustained flaming	Gap Gauge	Insulation
O1	32 mm thick layer of 'Armaflex' insulation installed in a continuous sustained configuration. Annular gap sealed with a 25 mm deep layer of 'FIREPRO® HES' installed over a 50 mm thick layer of stone wool backer to both faces.	410 mm wide by 160 mm high mm Aperture / linear cluster of 3 No. 42 mm Ø by 1.2 mm wall thickness copper pipes, C/U.	1.2	25	133	133	133#	68
O2			1.2	25	133	133	133#	80
O3			1.2	25	133	133	133#	118
Q	20 mm wide annular gap sealed with a 25 mm deep layer of 'FIREPRO® HES' installed over a 50 mm thick layer of stone wool backer to both faces.	103 mm Ø Aperture / 63 mm Ø by 4.7 mm wall thickness PVC-U pipe, U/C.	4.7	25	136*	136*	136*	117
R		103 mm Ø Aperture / 63 mm Ø by 5.8 mm wall thickness HDPE pipe, U/C.	5.8	25	128	128	136*	122
S		103 mm Ø Aperture / 63 mm Ø by 5.8 mm wall thickness PP pipe, U/C.	5.8	25	129	129	136*	120

*Test was discontinued after a period of 136 minutes.
** Reading taken using a roving thermocouple.
# Specimen blanked off

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with Clause 7 of EN 13501-2:2023.

4.2 Classification

The element, ROCKWOOL FirePro® HES is classified according to the following combinations of performance parameters and classes as appropriate.

R	**E**	**I**	**W**		***t***	***t***	**-**	**M**	**S**	**-**	**C**	**IncSlow**	**sn**	**ef**	**r**

Summary of assumptions

The ROCKWOOL FirePro® HES shall be installed in line with the details given in the latest revision of Classification report 4791353110-01

Service support

Floor
Maximum distance from the top of the seal to the first service support shall be in line with the below distances unless specified otherwise within a specific detail:

Plastic pipes:	500 mm
Cable:	400 mm

Wall
Maximum distance from the face of the wall to the first service support shall be in line with the below distances unless specified otherwise within a specific detail: Services shall be supported either side of the wall

Metallic services:	450 mm
Plastic pipes:	450 mm
Cable carriers:	400 mm

Pipe end configuration for pipe penetrations

Non-Combustible pipes:	C/U
Combustible pipes:	U/C

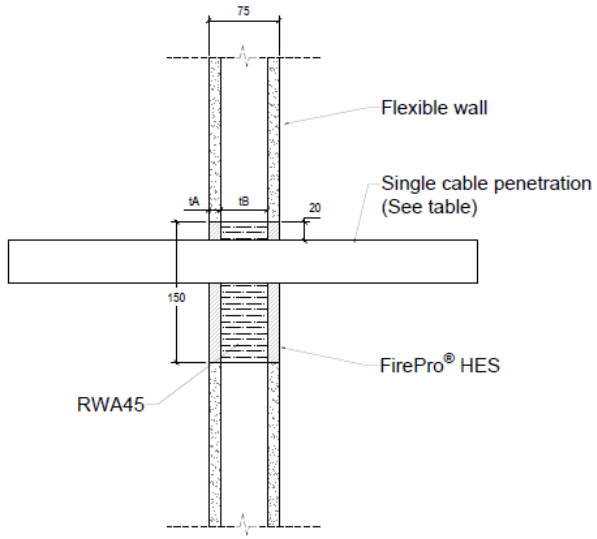
FirePro® HES seals within min. single skin 75 mm Flexible wall

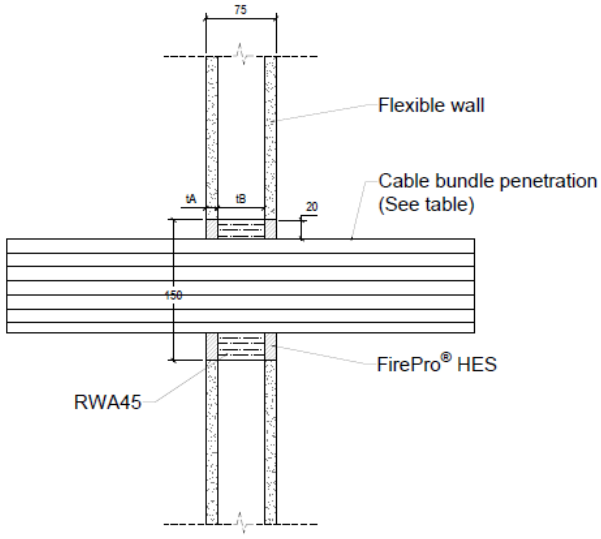
Cables

tA – 12.5 mm

tB – 50 mm

Max. seal size – 150 x 150mm





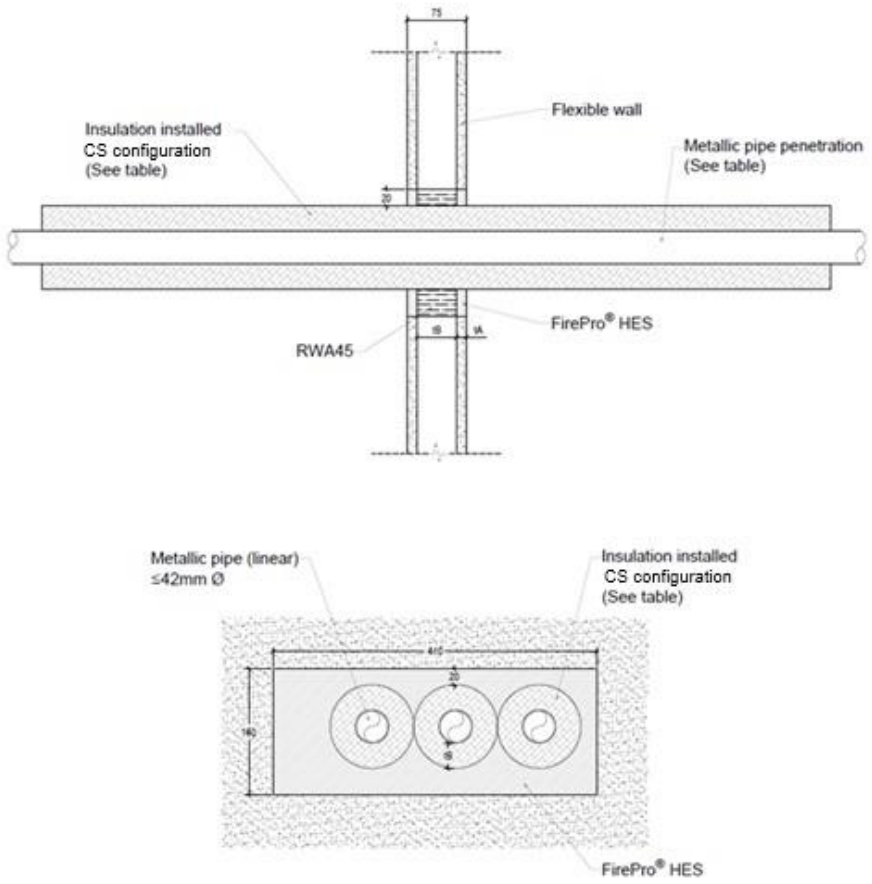
Service Type		Service Size (mm)	HES depth tA (mm)	Min annulus (mm)	Backing material (tB)	Classification
Blank		N/A	12.5	N/A	50 mm RWA45	**EI 60**
Sheathed Cables	S	≤21		20		**EI 60**
	M	≤50				**EI 60**
	L	≤80				**E 60/EI 45**
Cable bundles		≤Ø100 cable bundle ≤Ø21				**EI 60**
Unsheathed cables		≤24				**E 60/EI 30**

Metallic Pipes

tA – 25 mm

tB – 50 mm

Maximum aperture size 160 x 410 mm



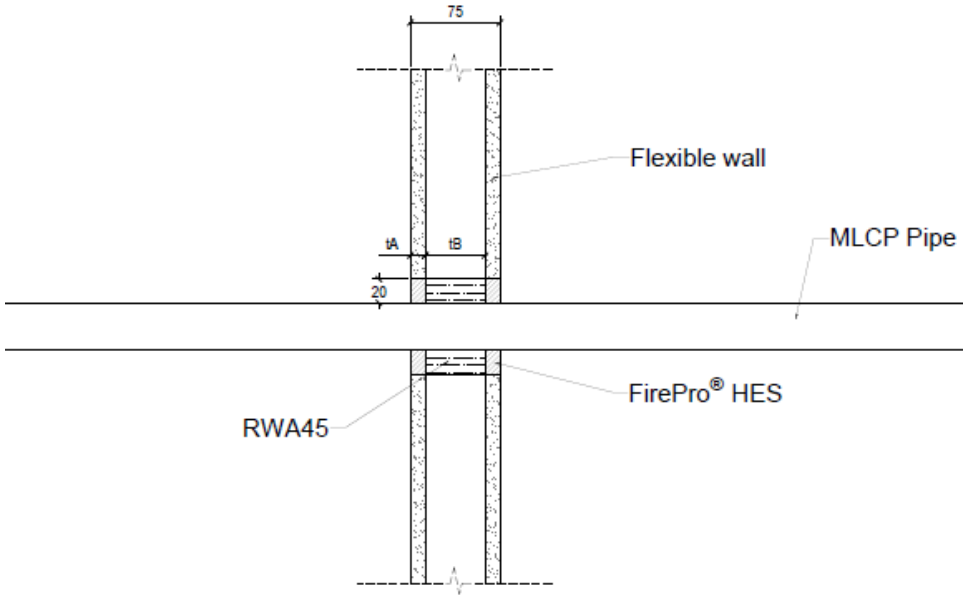
Service Type	Service Size (mm)	Wall thickness (mm)	Seal depth tA (mm)	Annular gap (mm)	Insulation type	Insulation thickness (mm)	Max. seal size	Classification
Copper, steel and cast-iron pipes Linear (0 mm)	≤42 Ø	≥1.2	12.5	20	Kingspan Kooltherm: CS config	15-32	410 mm x 160 mm (l x h)	**E 45/EI 20 C/U**
Copper, steel and cast-iron pipes Linear (0 mm)					Armacell Armaflex: CS config	9-32	405 mm x 160 mm (l x h)	**E 60/EI 30 C/U**

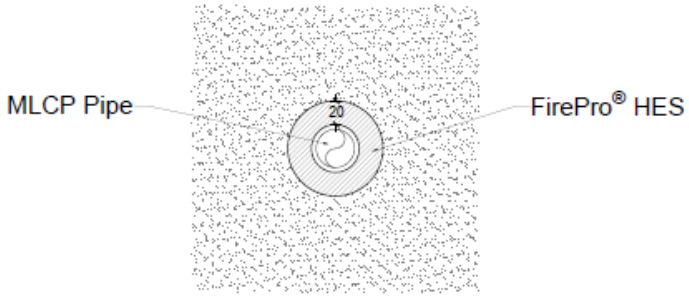
MLCP Pipes

tA – 12.5 mm

tB – 50 mm

Maximum aperture size 80 mm Ø





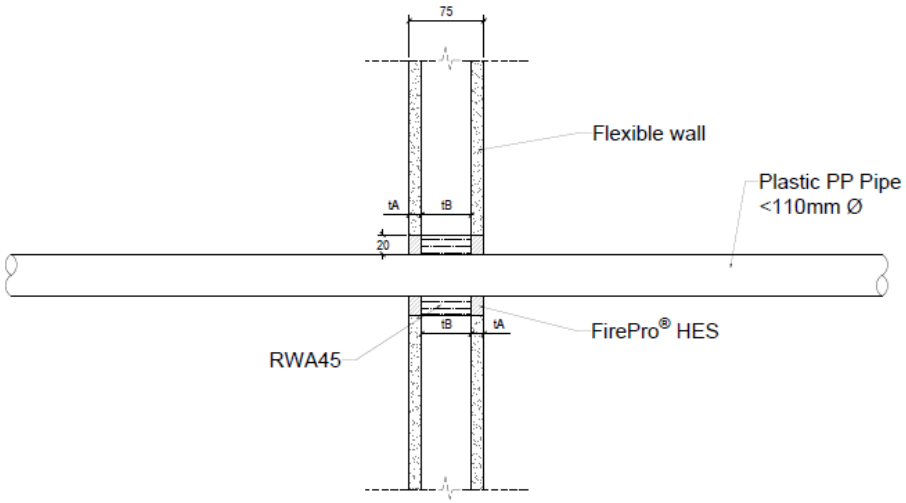
Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing material	Max. seal size	Classification
UPONOR Uni Pipe Plus PP-RT/AL/PP-RT	40 Ø	4	12.5	20	50mm thick 45kg/m^3 stone wool	80mm Ø	**EI 60 U/C**

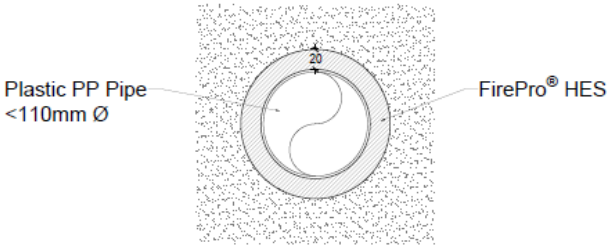
Plastic pipes

PP Pipes

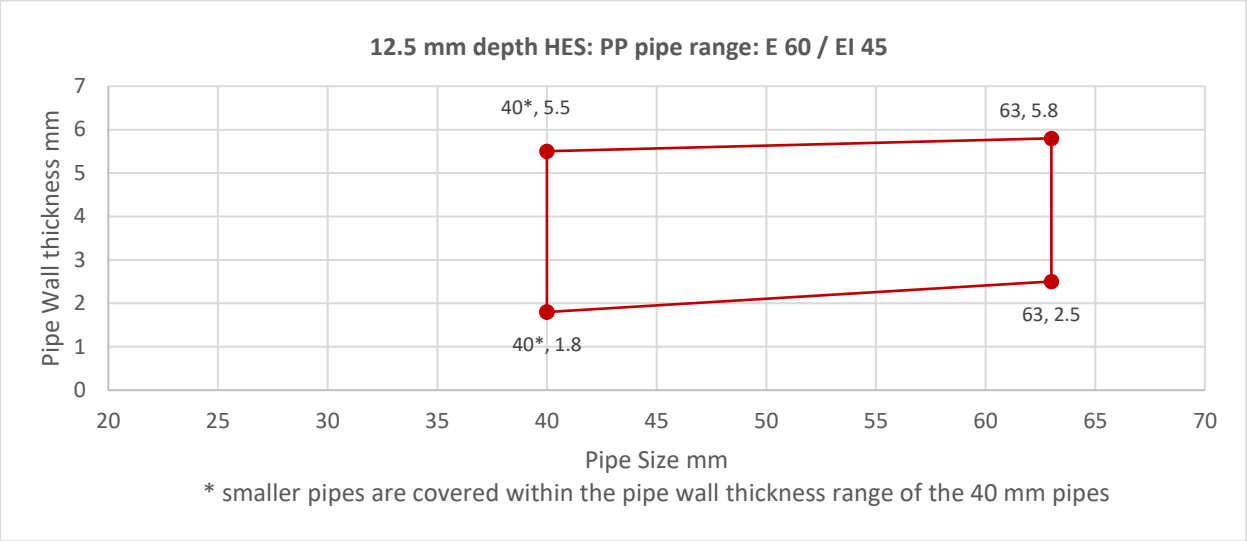
tA – 12.5 mm

tB – 50 mm





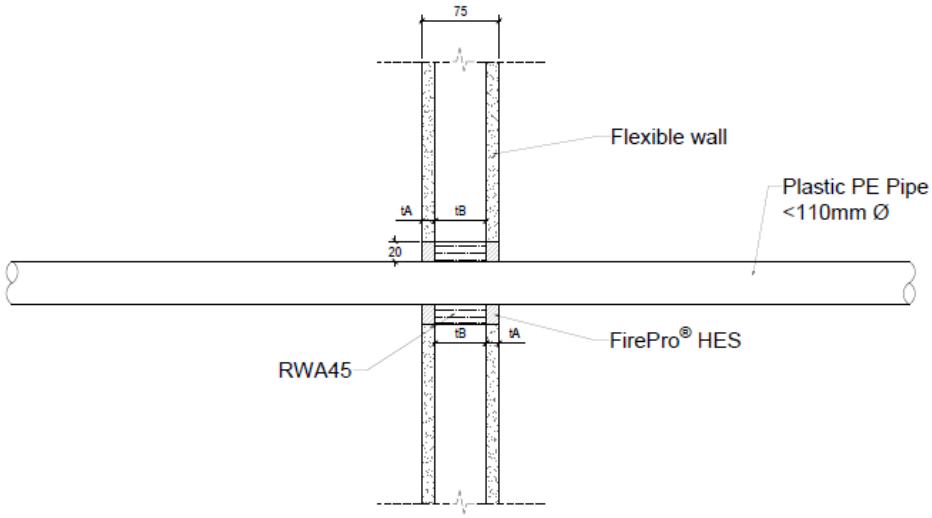
Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing material	Max. seal size	Classification
PP	40	1.8	12.5	20	50mm thick 45kg/m³ stone wool	80mm Ø	**E 60/EI 45 U/C**
		5.5					**EI 60 U/C**
	63	2.5				103mm Ø	**E 60/EI 45 U/C**
		5.8					**E 60/EI 20 U/C**
	110	2.7				150 mm Ø	**EI 15 U/C**
		10					**EI 60 U/C**

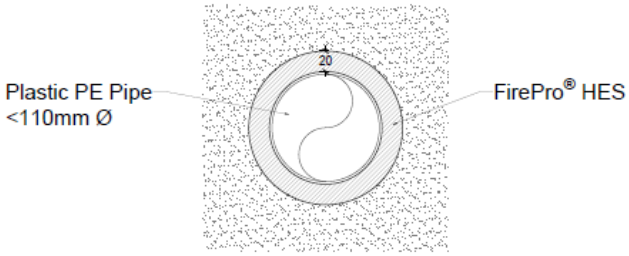

12.5 mm depth HES: PP pipe range: E 60 / EI 45
Pipe Wall thickness mm
0
1
2
3
4
5
6
7
20
25
30
35
40
45
50
55
60
65
70
40*, 5.5
63, 5.8
63, 2.5
40*, 1.8
Pipe Size mm
* smaller pipes are covered within the pipe wall thickness range of the 40 mm pipes

PE Pipes

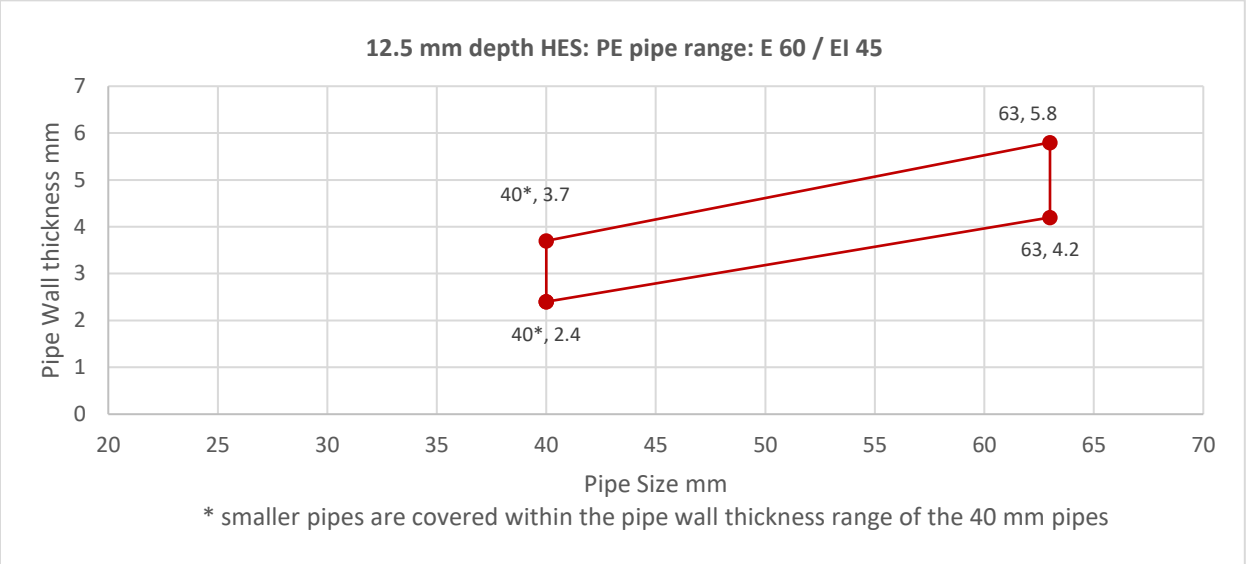
tA – 12.5 mm

tB – 50 mm





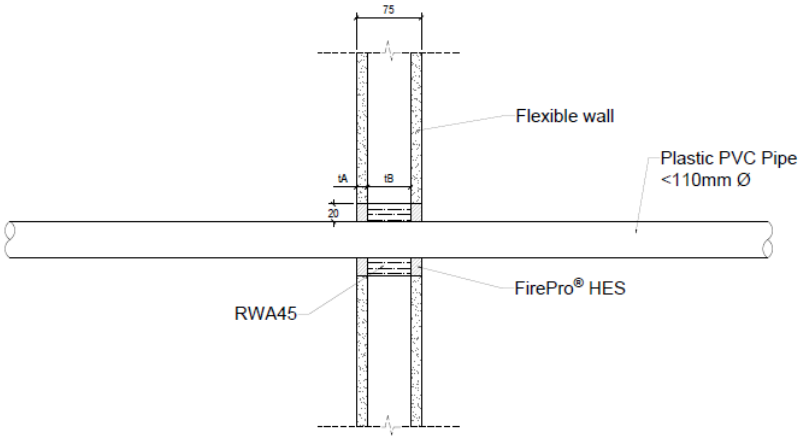
Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing material	Max. seal size	Classification
PE	40	2.4	12.5	20	50mm thick 45kg/m³ stone wool	80mm Ø	**EI 60 U/C**
		3.7					**EI 60 U/C**
	63	4.2				103mm Ø	**EI 60 U/C**
		5.8					**E 60/EI 45 U/C**
	110	4.2				150mm Ø	**EI 30 U/C**
		10					**EI 15 U/C**

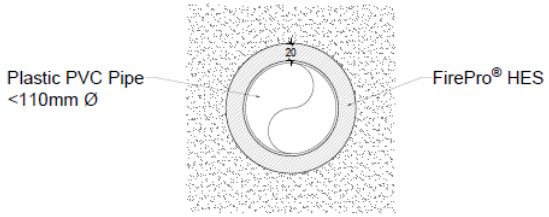

12.5 mm depth HES: PE pipe range: E 60 / EI 45
Pipe Wall thickness mm
0
1
2
3
4
5
6
7
20
25
30
35
40
45
50
55
60
65
70
63, 5.8
40*, 3.7
63, 4.2
40*, 2.4
Pipe Size mm
* smaller pipes are covered within the pipe wall thickness range of the 40 mm pipes

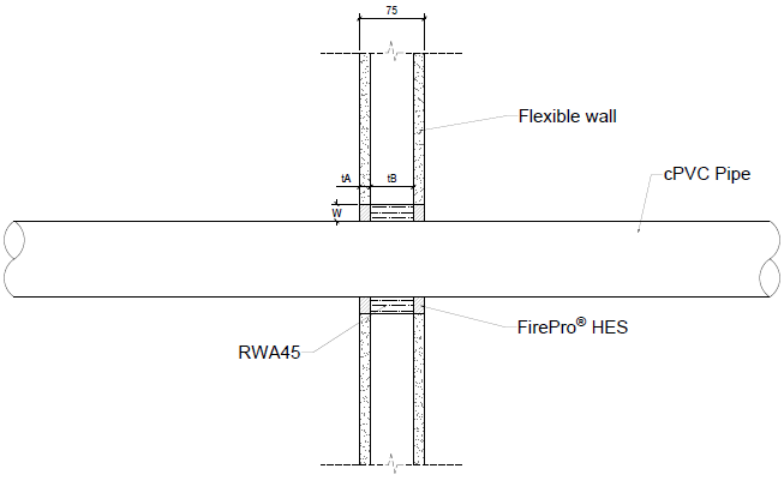
PVC Pipes

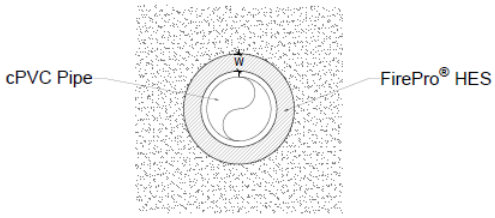
tA – 12.5 mm

tB – 50 mm

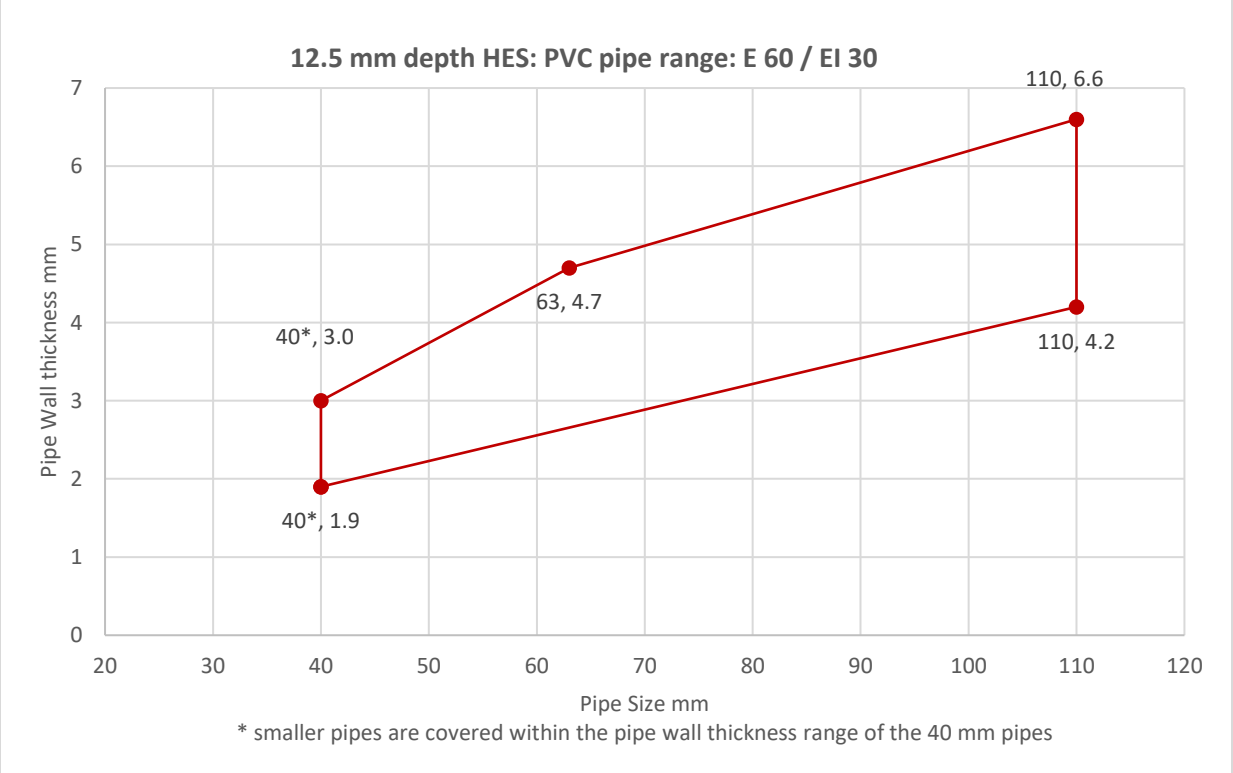








Pipe material	Pipe size (mm)	Pipe wall (mm)	HES depth (mm)	Annular gap (mm)	Backing material	Max. seal size	Classification
cPVC BlazeMaster	26	2.1	12.5	17.5	50mm thick 45kg/m^3 stone wool	60mm Ø	**EI 60 U/C**
cPVC Flameguard		2.0					**EI 60 U/C**
cPVC Blazemaster	88	6.8		20		128mm Ø	**EI 60 U/C**
cPVC Flameguard		7.2					**E 45/EI 30 U/C**
PVC	40	1.9				80mm Ø	**EI 60 U/C**
		3					**EI 60 U/C**
	63	3				103mm Ø	**EI 60 U/C**
		4.7					**E 60/EI 30 U/C**
	110	4.2				150mm Ø	**EI 60 U/C**
		6.6					**E 60/EI 45 U/C**



* smaller pipes are covered within the pipe wall thickness range of the 40 mm pipes

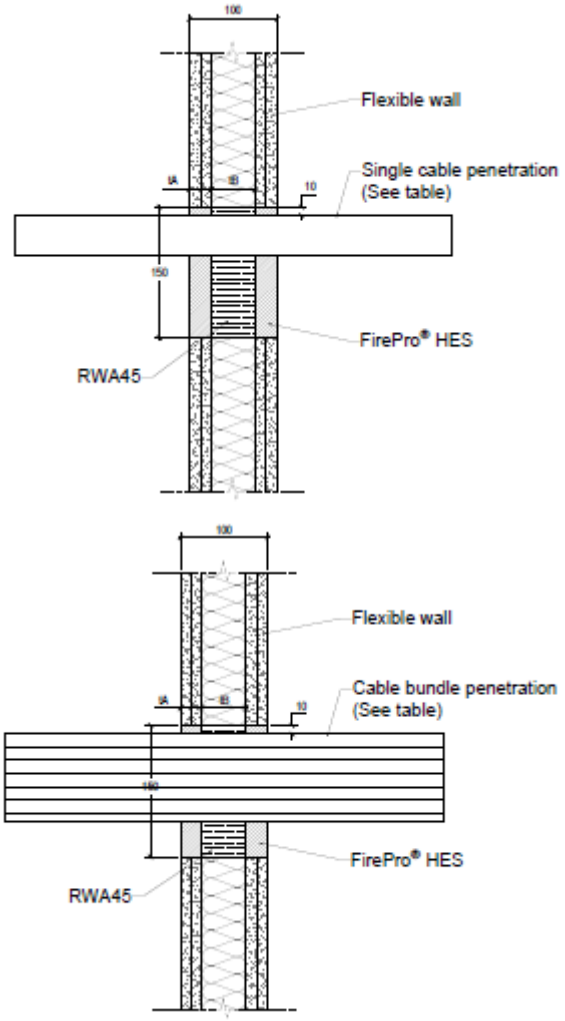
FirePro® HES seals within min double skin 100 mm Flexible wall

Cables

tA – 25 mm

tB – 50 mm

Max. seal size – 150 x 150mm



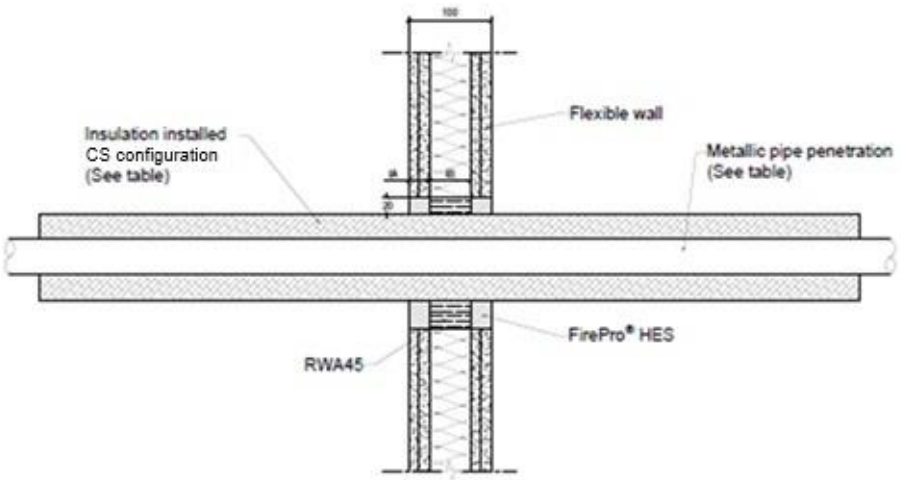
Service Type		Service Size (mm)	HES depth tA (mm)	Min annulus (mm)	Backing material (tB)	Classification
Blank		N/A	25	N/A	50 mm RWA45	**EI 120**
Sheathed Cables	S	≤21		10		**E 120/EI 90**
	M	≤50				**E 120/EI 90**
	L	≤80				**E 120/EI 60**
Cable bundles		≤Ø100 cable bundle ≤Ø21				**EI 120/EI 90**
Unsheathed cables		≤24				**E 120 / EI 30**

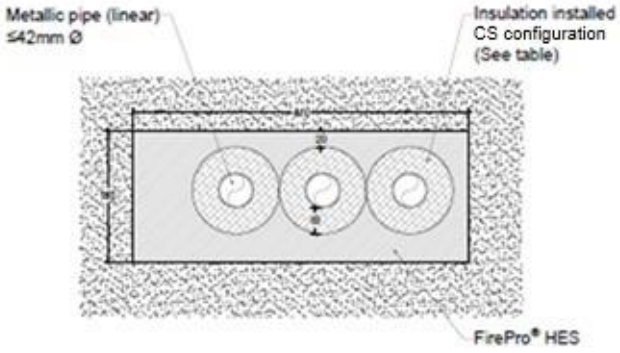
Metallic Pipes

tA – 25 mm

tB – 50 mm

Maximu aperture size 160 x 410 mm





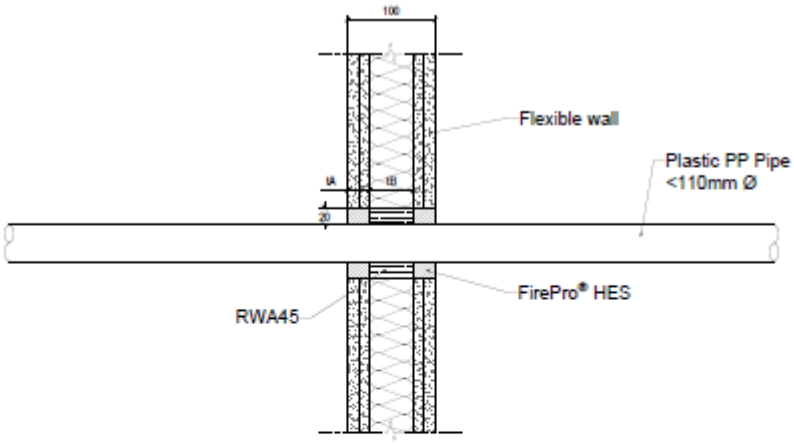
Service Type	Service Size (mm)	Wall thickness (mm)	Seal depth tA (mm)	Annular gap (mm)	Insulation type	Insulation thickness (mm)	Max. seal size	Classification
Copper; steel and cast-iron pipes Linear (0 mm)	≤42 Ø	≥1.2	25	20	Kingspan Kooltherm: CS config	15-30	410 mm x 160 mm (l x h)	**E 120/EI 90 C/U**
Copper; steel and cast-iron pipes Linear (0 mm)					Armacell Armaflex: CS config	9-32	410 mm x 160 mm (l x h)	**E 120/EI 30 C/U**

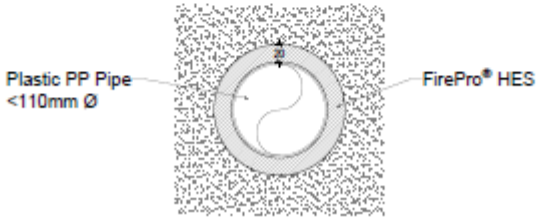
Plastic pipes

PP Pipes

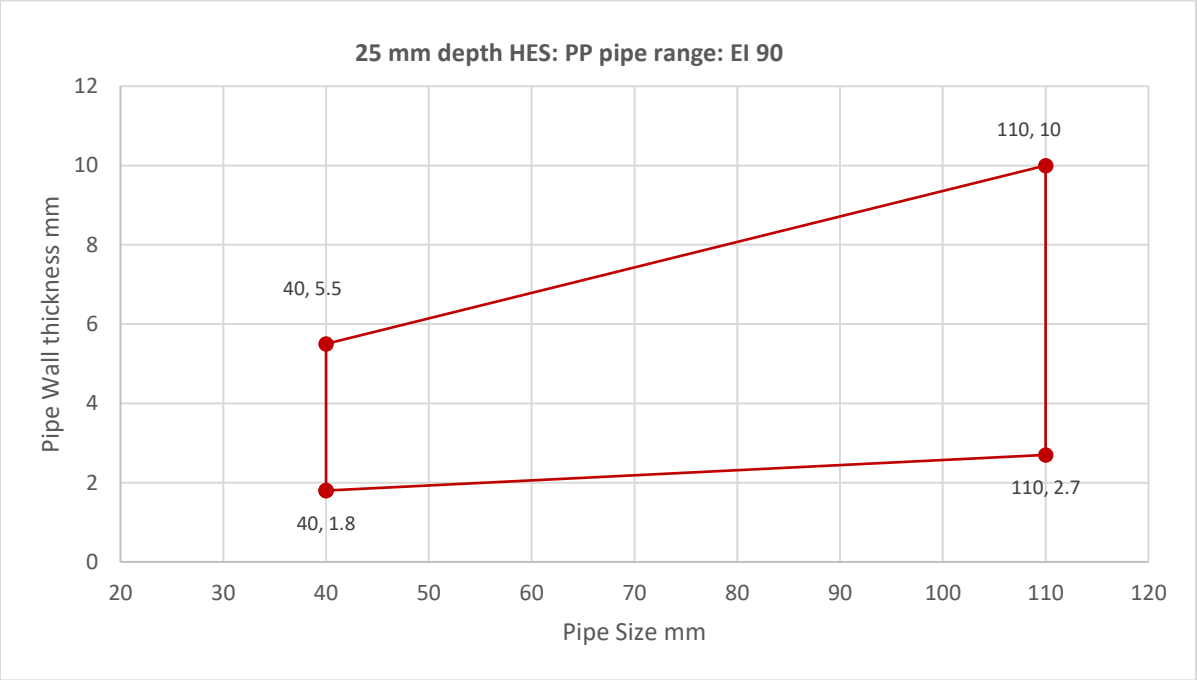
tA – 25 mm

tB – 50 mm





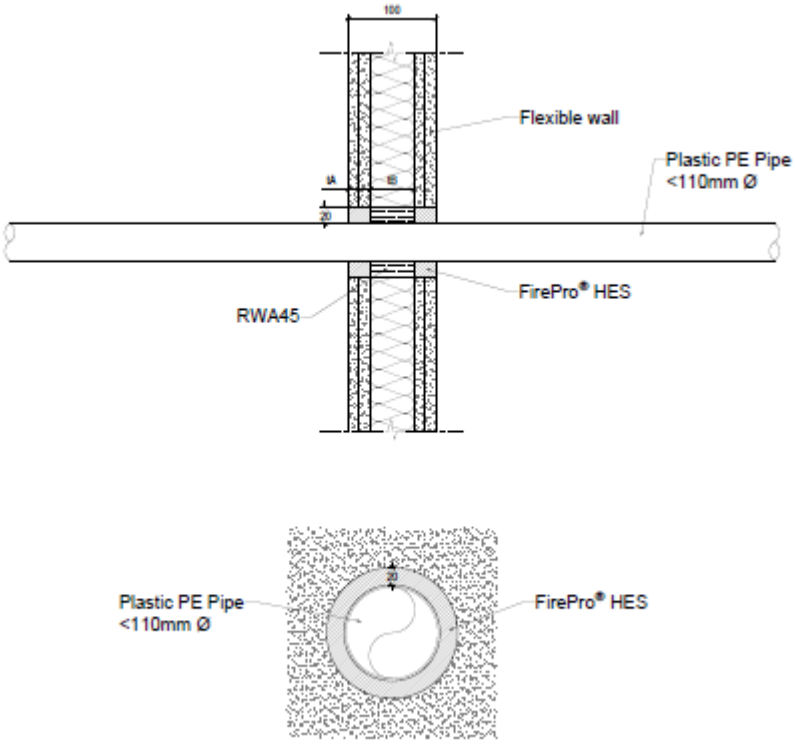
Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing material	Max. seal size	Classification
PP	40	1.8	25	20	50mm thick 45kg/m³ stone wool	80mm Ø	**EI 120 U/C**
		5.5					**EI 120 U/C**
	63	2.5				103mm Ø	**EI 90 U/C**
		5.8					**EI 120 U/C**
	110	2.7				150mm Ø	**EI 90 U/C**
		10					**EI 120 U/C**


25 mm depth HES: PP pipe range: EI 90
Pipe Wall thickness mm
Pipe Size mm
0
2
4
6
8
10
12
20
30
40
50
60
70
80
90
100
110
120
110, 10
40, 5.5
110, 2.7
40, 1.8

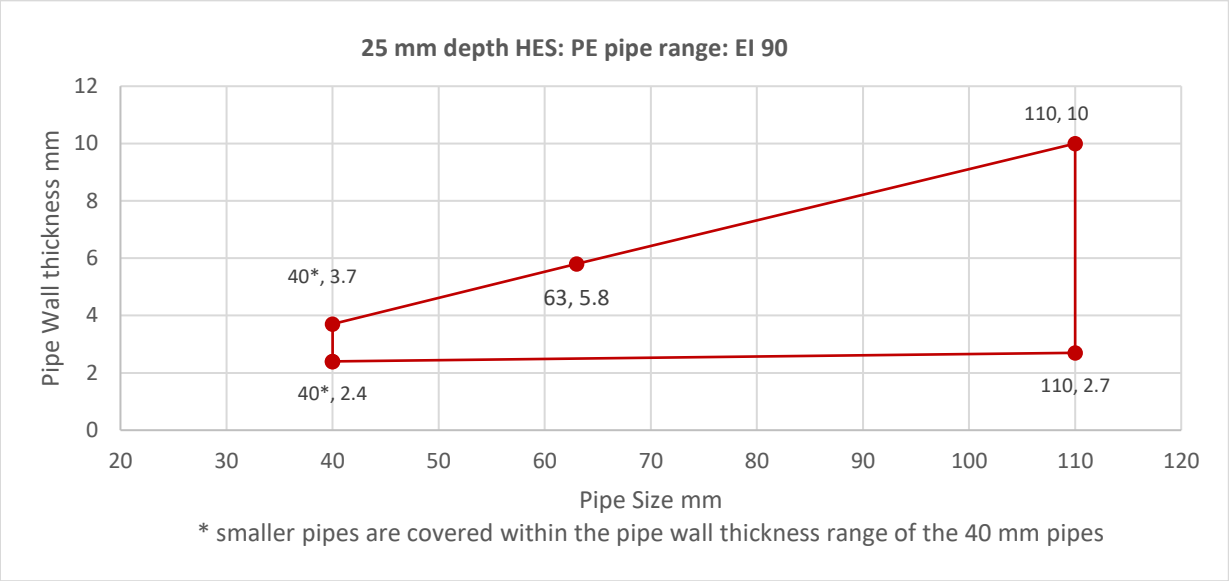
PE Pipes

tA – 25 mm

tB – 50 mm



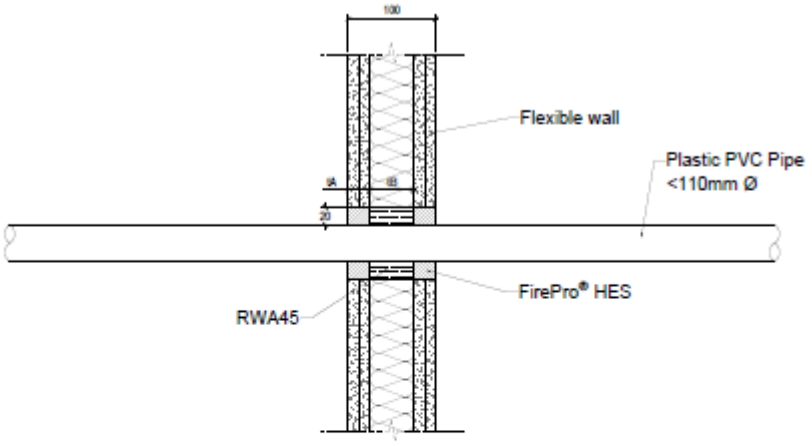
Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing Material (tB)	Max. seal size	Classification
PE	40	2.4	25	20	50mm thick 45kg/m³ stone wool	80mm Ø	**EI 120 U/C**
		3.7					**E 120/EI 90 U/C**
	63	4.2				103mm Ø	**EI 120 U/C**
		5.8					**EI 120 U/C**
	110	2.7				150mm Ø	**EI 90 U/C**
		10					**E 120/EI 90 U/C**

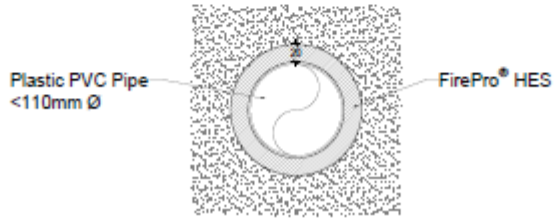

25 mm depth HES: PE pipe range: EI 90
Pipe Wall thickness mm
12
10
8
6
4
2
0
20
30
40
50
60
70
80
90
100
110
120
110, 10
40*, 3.7
63, 5.8
40*, 2.4
110, 2.7
Pipe Size mm
* smaller pipes are covered within the pipe wall thickness range of the 40 mm pipes

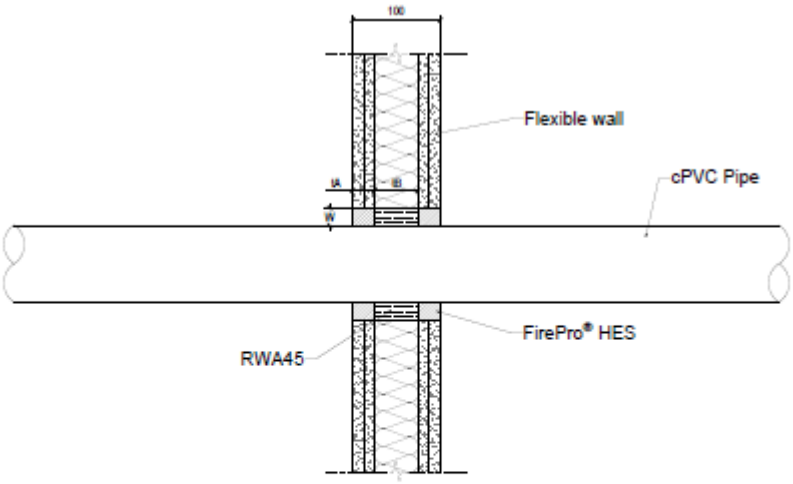
PVC Pipes

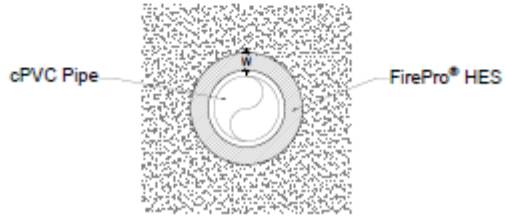
tA – 25 mm

tB – 50 mm

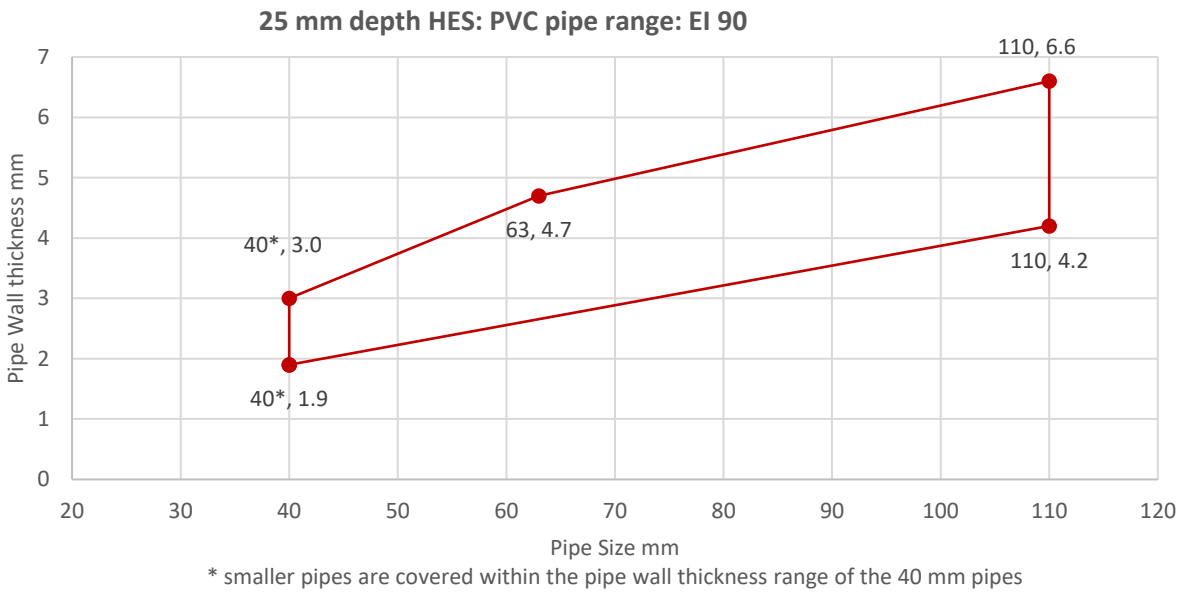








Pipe material	Pipe size (mm)	Pipe wall (mm)	HES depth (mm)	Annular gap (mm)	Backing Material (tB)	Max. seal size	Classification
cPVC FlameGuard	25	2.5	25	17.5	50mm thick 45kg/m^3 stone wool	60mm Ø	**E 120/EI 90 U/C**
	88	8.0		20		127mm Ø	**E 120/EI 90 U/C**
PVC	40	1.9				80mm Ø	**E 120/EI 90 U/C**
		3					**E 120/EI 90 U/C**
PVC-U	63	3				103mm Ø	**EI 90 U/C**
		4.7					**E 120/EI 90 U/C**
PVC	110	4.2				150mm Ø	**EI 90 U/C**
		6.6					**E 120/EI 90 U/C**



* smaller pipes are covered within the pipe wall thickness range of the 40 mm pipes

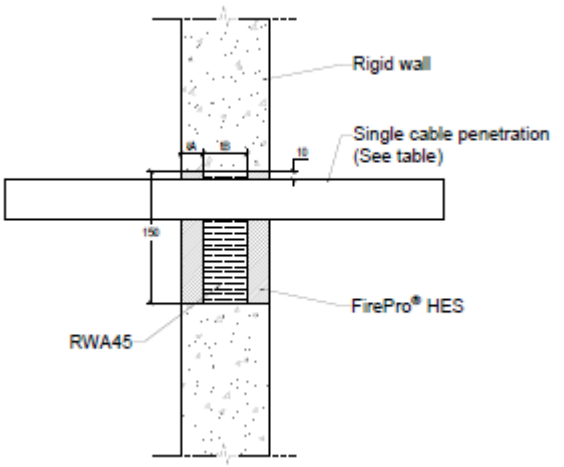
FirePro® HES seals within min 100 mm Rigid wall

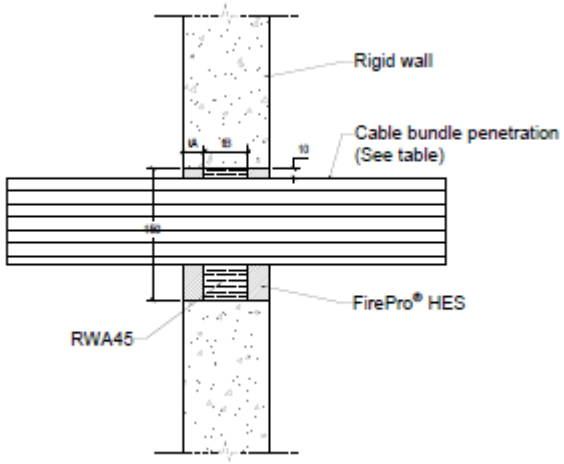
Cables

tA – 25 mm

tB – 50 mm

Max. opening size – 150 x 150mm





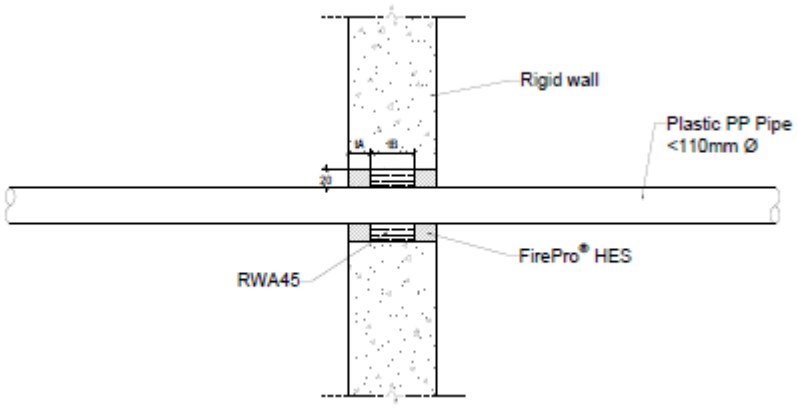
Service Type		Service Size (mm)	HES depth tA (mm)	Min annulus (mm)	Backing material (tB)	Classification
Blank		N/A	25	N/A	50 mm RWA45	**EI 120**
Sheathed Cables	S	≤21		10		**E 120 / EI 60**
	M	≤50				**E 120 / EI 60**
	L	≤80				**E 120 / EI 60**
Cable bundles		≤Ø100 cable bundle ≤Ø21				**E 120 / EI 60**
Unsheathed cables		≤24				**E 120 / EI 45**

Plastic pipes

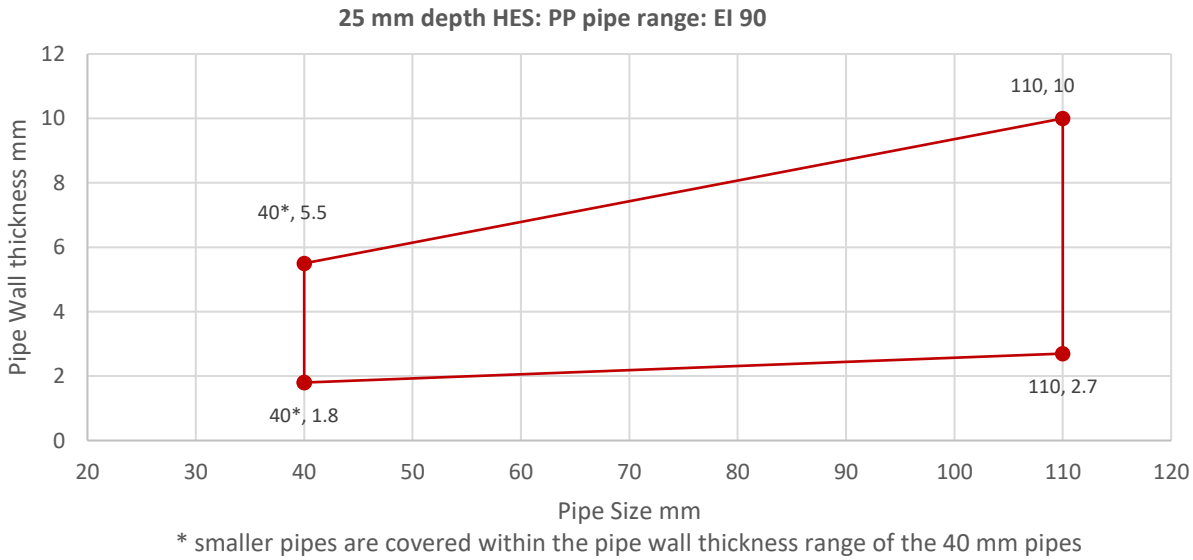
PP Pipes

tA – 25 mm

tB – 50 mm



Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing Material (tB)	Max. seal size	Classification
PP	40	1.8	25	20	50mm thick 45kg/m³ stone wool	80mm Ø	**EI 90 U/C**
		5.5					**EI 120 U/C**
	110	2.7				150mm Ø	**EI 120 U/C**
		10					**EI 120 U/C**

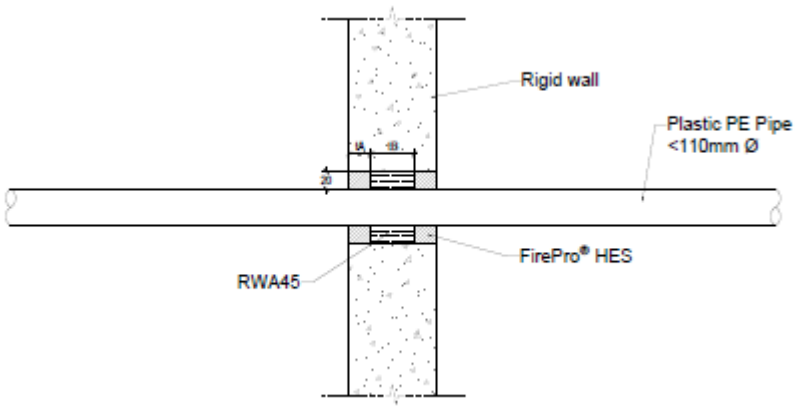


* smaller pipes are covered within the pipe wall thickness range of the 40 mm pipes

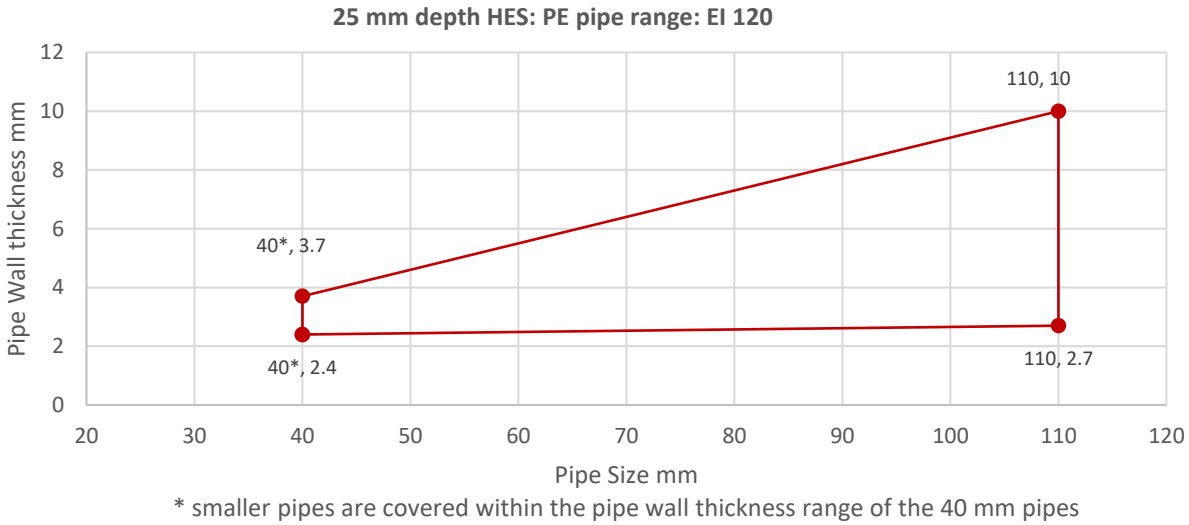
PE Pipes

tA – 25 mm

tB – 50 mm



Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing Material (tB)	Max. seal size	Classification
PE	40	2.4	25	20	50mm thick 45kg/m^3 stone wool	80mm Ø	**EI 120 U/C**
		3.7					**EI 120 U/C**
	110	2.7				150mm Ø	**EI 120 U/C**
		10					**EI 120 U/C**

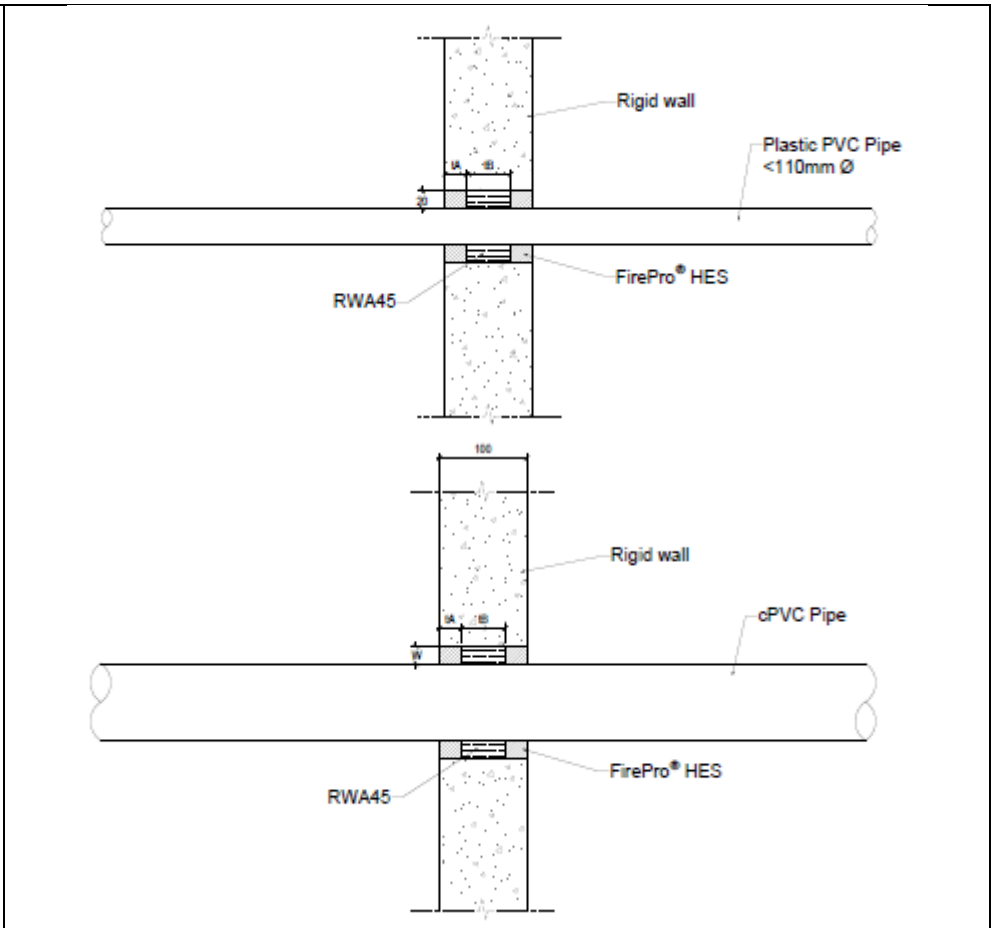


* smaller pipes are covered within the pipe wall thickness range of the 40 mm pipes

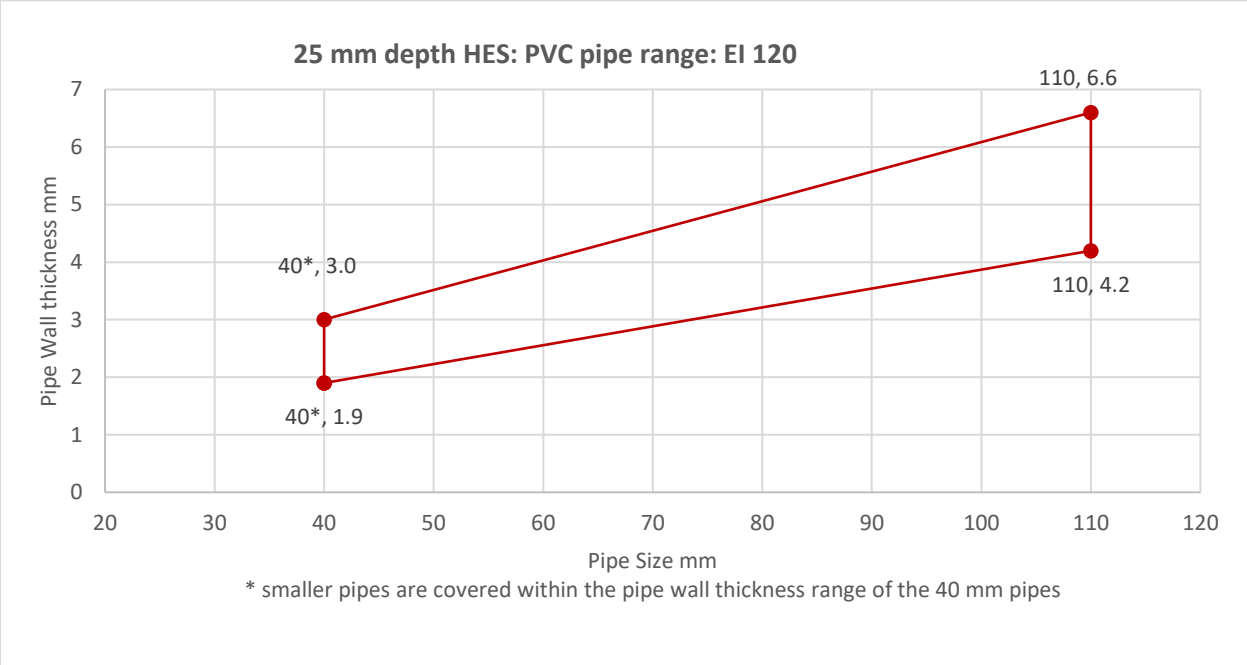
PVC Pipes

tA – 25 mm

tB – 50 mm

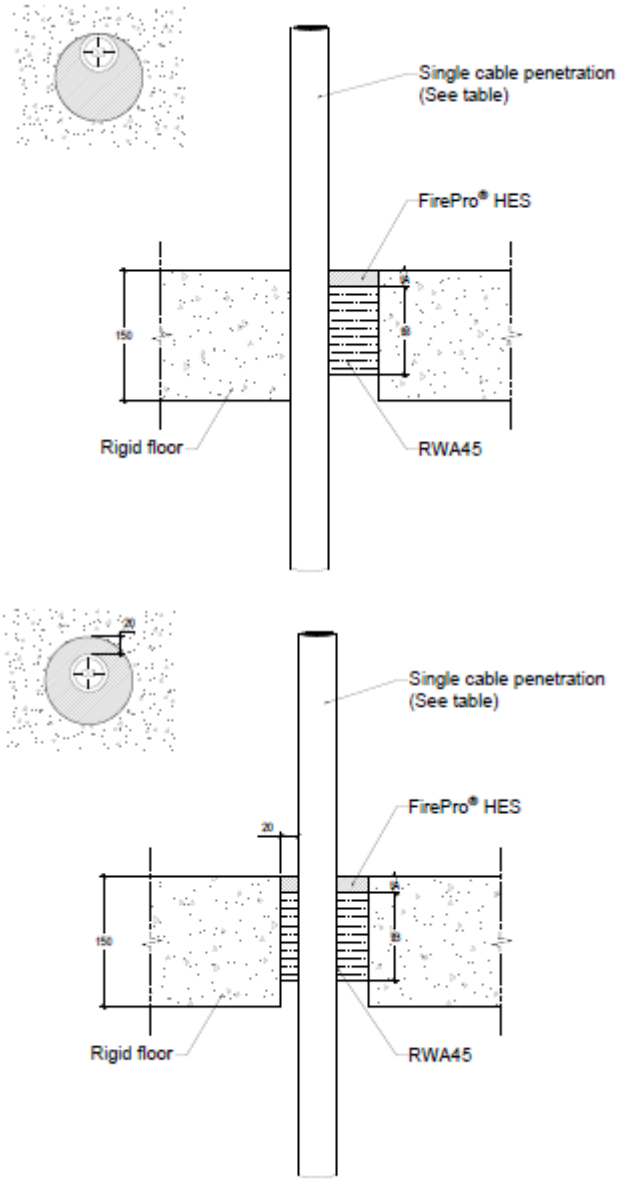


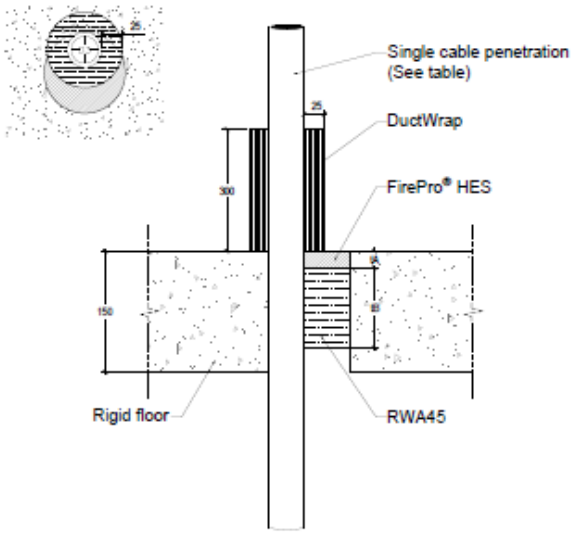
Pipe material	Pipe size (mm)	Pipe wall (mm)	HES depth (mm)	Annular gap (mm)	Backing Material (tB)	Max. seal size	Classification
cPVC FlameGuard	25	2.5	25	17.5	50mm thick 45kg/m^3 stone wool	60mm Ø	**EI 120 U/C**
	88	8.0		20		127mm Ø	**EI 120 U/C**
PVC	40	1.9				80mm Ø	**EI 120 U/C**
		3					**EI 120 U/C**
	110	4.2				150mm Ø	**EI 120 U/C**
		6.6					**EI 120 U/C**


25 mm depth HES: PVC pipe range: EI 120
110, 6.6
40*, 3.0
110, 4.2
40*, 1.9
Pipe Wall thickness mm
0
1
2
3
4
5
6
7
20
30
40
50
60
70
80
90
100
110
120
Pipe Size mm
* smaller pipes are covered within the pipe wall thickness range of the 40 mm pipes

FirePro® HES seals within min 150 mm thick rigid floor

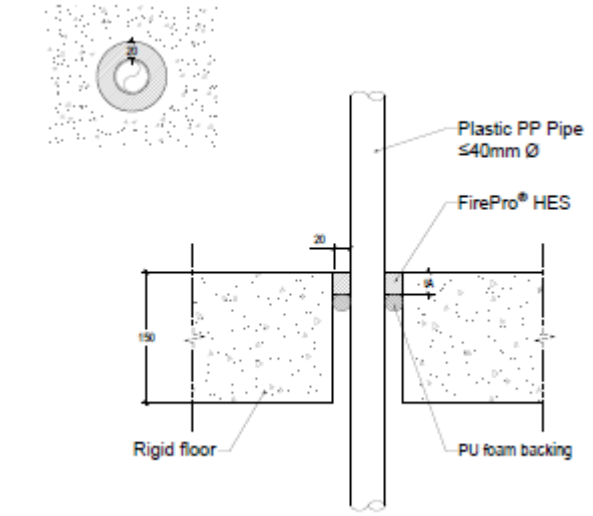
Cables

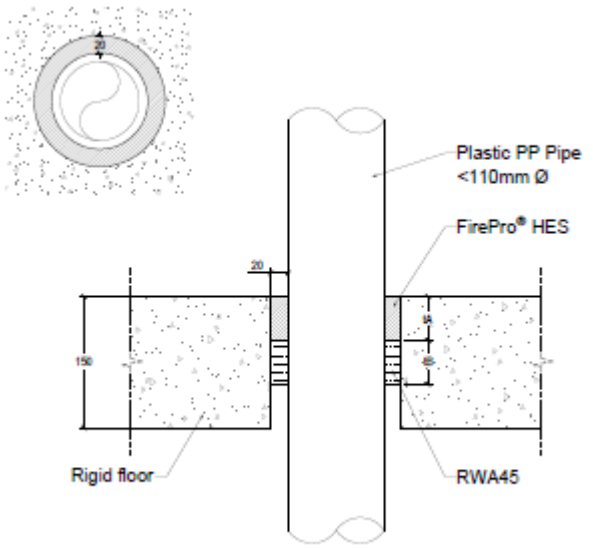
tA – 25 mm **tB – 100 mm** **Backing material (tB) - 100 mm RWA45**	



Service Type		Service Size	HES depth tA (mm)	Min annulus (mm)	Max. seal size	Additional protection (mm)	Classification
Blank		N/A	25	N/A	200 x 200mm	N/A	**EI 240**
Sheathed Cables	S	≤21 mm		0	100mm Ø		**E 240/EI 60**
	M	≤50 mm					**E 240/EI 60**
	L	≤80 mm					**E 240/EI 60**
Cable bundles		≤Ø100 mm cable bundle ≤Ø21 mm			160mm Ø		**E 240/EI 60**
Unsheathed cables		≤24 mm			100mm Ø		**E 240/EI 90**
Sheathed Cables	S	≤21 mm		20			**E 240/EI 120**
	M	≤50 mm					**E 240/EI 45**
	L	≤80 mm					**E 240/EI 45**
Cable bundles		≤Ø100 mm cable bundle ≤Ø21 mm			160mm Ø		**E 240/EI 120**
Unsheathed cables		≤24 mm			100mm Ø		**E 240/EI 45**
Sheathed Cables	S	≤21 mm		0		ROCKWOOL DuctWrap 25 mm thick, extending nominally 300 mm from the floor slab. Secured via 1 mm steel wire at approx. 75 mm from top and bottom	**E 240/EI 180**
	M	≤50 mm					**EI 180**
	L	≤80 mm					**E 240 / EI 90**
Cable bundles		≤Ø100 mm cable bundle ≤Ø21 mm			160mm Ø		**E 240 / EI 90**
Unsheathed cables		≤24 mm			100mm Ø		**E 240 / EI 120**

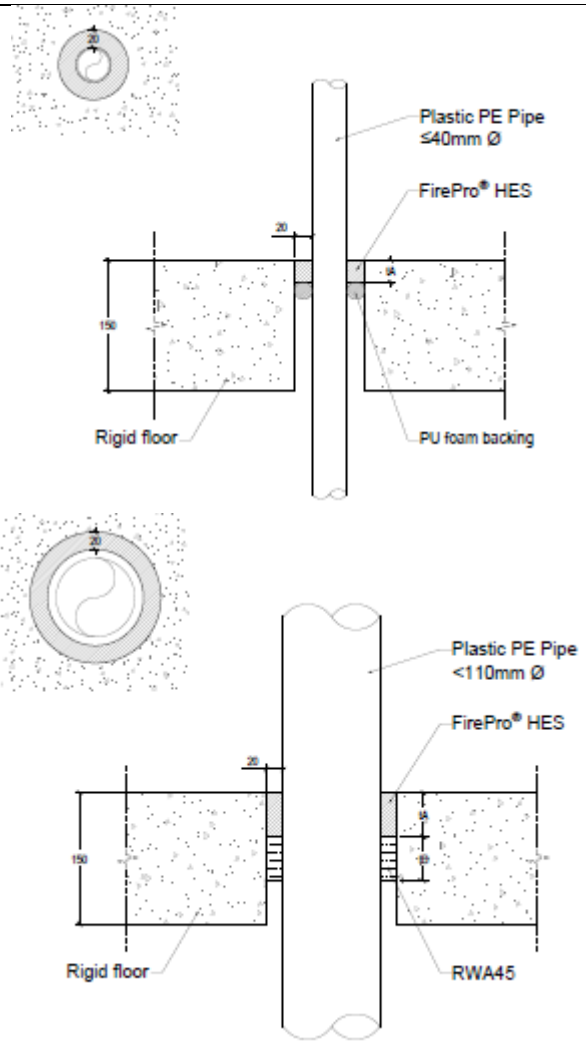
PP Pipes





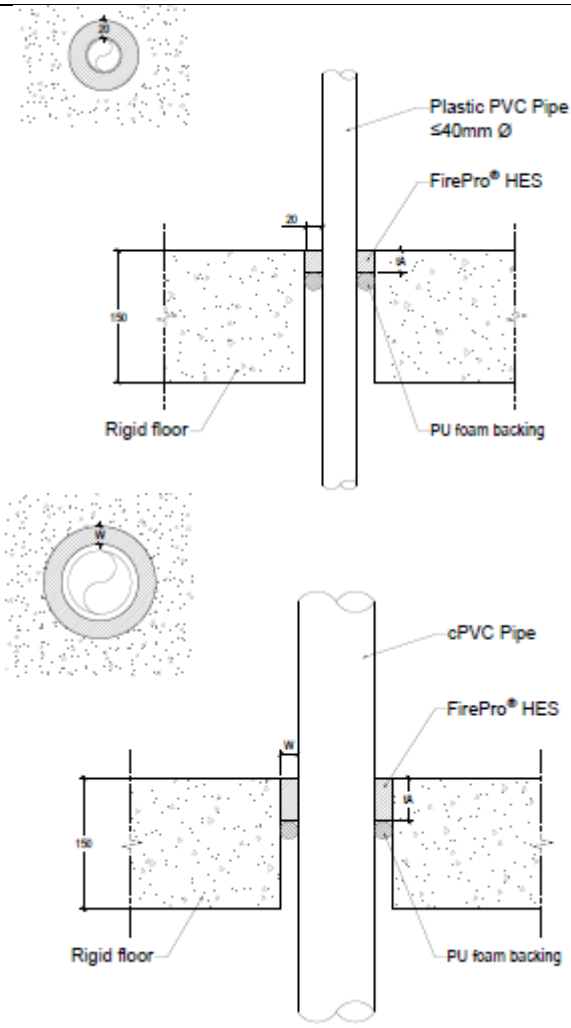
Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing material	Max. seal size	Classification
PP	≤40	1.8 - 5.5	25	20	50mm thick PU foam backer	80mm Ø	**EI 90 U/C**
	40	1.8					**E120/EI 90 U/C**
		5.5					**EI 90 U/C**
	110	2.7	50		50mm thick RWA45	150mm Ø	**EI 120 U/C**
		10					**EI 120 U/C**

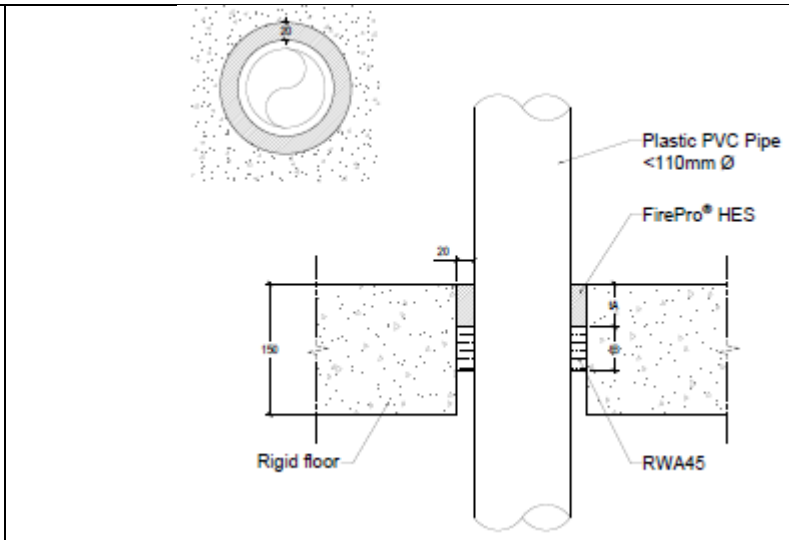
PE Pipes



Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing material	Max. seal size	Classification
PE	≤40	2.4 – 3.7	25	20	50mm thick PU foam backer	80mm Ø	**EI 120 U/C**
	40	2.4					**EI 120 U/C**
		3.7					**EI 120 U/C**
	110	2.7	50		50mm thick RWA45	150mm Ø	**E 120 / EI 90 U/C**
		10					**EI 180 U/C**

PVC Pipes


Plastic PVC Pipe
≤40mm Ø
FirePro® HES
20
150
Rigid floor
PU foam backing
W
cPVC Pipe
FirePro® HES
W
150
Rigid floor
PU foam backing



Pipe material	Pipe size (mm)	Pipe wall thickness (mm)	HES depth (mm)	Annular gap (mm)	Backing material	Max. seal size	Classification
PVC	≤40	1.9 – 3.0	25	20	50mm thick PU foam backer	80mm Ø	**E 120 / EI 90 U/C**
cPVC BlazeMaster	27	3.5	50	17.5		60mm Ø	**EI 120 U/C**
	88	8		20		127mm Ø	**E 120 / EI 90 U/C**
cPVC FlameGuard	27	3.5		17.5		60mm Ø	**EI 120 U/C**
	88	8		20		127mm Ø	**EI 120 U/C**
PVC	40	1.9	25			80mm Ø	**EI 120/EI 90 U/C**
		3.0					**EI 120 U/C**
	110	6.6	50		50mm thick 45kg/m^3 Stone wool	150mm Ø	**EI 120 U/C**

4.3 Field of Application – Penetrations

See EN 1366-3: 2021, Clause 13 (as appropriate) for the field of direct application rules that may be applied.

5. Limitations

This classification report does not represent type approval or certification of the product.

6. Signatories

Report by:

Andres Mena Gallego
Associate Project Engineer
Built Environment

Reviewed by:

Chris Sweeney
Senior Project Engineer
Built Environment

For and on behalf of UL International (UK) Ltd.