

TECHNICAL HANDBOOK





INTELLIGENT ENGINEERED PASSIVE FIRE PROTECTION

We are specialists, with one focus that has not and will not change – to protect people and buildings from fire. For 50 years, Nullifire has been a market leader in the Passive Fire Protection industry.

Passive fire protection is highly complex but crucially important, especially as buildings become more sophisticated and with the introduction of the Building Safety Act. At Tremco CPG, we understand the need to have confidence in fire protection. So our systems perform when they are called upon.

With a unique team of technical experts, everything is focused on providing what our customers need at every stage of their project.

Nullifire is a brand of Tremco CPG (Construction Products Group), a manufacturer and service provider of high performance building materials.

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ASSISTANCE WHEN REQUIRED

Our targeted approach allows you to access answers to all of your questions - quickly, simply and at any stage of the design, build and installation process.

Regardless of the complexity of a project, you can turn to the team here at Tremco CPG. Our trained expert team support architects, specifiers, main contractors and installers in product selection, specification writing and industry best practices. Involving us at the early stages of a project can help you save money and time, as well as the assurance that the products selected are fully compatible and ideal for the job at hand.

Whilst choosing the right product is vitally important, the application is equally as critical. To optimise this process, we are able to supply the field teams data on formulations, installation specifications and technical drawings to ensure the correct application of our products. Bespoke manuals and instructions can be prepared by our technical teams for specific situations. Our extensive online and face-to-face training ensures Nullifire products are applied professionally and efficiently, whilst giving installers and contractors access to new technologies and solutions.

All of our product data sheets, technical notes and additional product information can be downloaded from www.nullifire.com.

**Technical
Fire Stopping:
01942 251400**

NULLIFIRE INNOVATION FZ100 FIRE SAFE ZONE

FZ100 Fire Safe Zone is a revolutionary fire protection system, and a single product solution tested to cover many fire stopping requirements. Nullifire has developed a ground breaking and unique fire stopping technology: GXT (Graphite eXpansion Technology). GXT has been incorporated within FZ100, encompassing the ability of many fire protection products within a single sheet.



Up to 2 hours fire resistance-
tested to EN 1366-3



Unique GXT technology



Fire stopping of existing &
future service penetrations



Quick and easy to install: dry,
easy to cut, lightweight



Fibre free, no odour



Simple service installation



Allows building service
movement



Fully breathable, does not
absorb moisture

Composition	Graphite impregnated polyurethane foam
Acoustic Rating	Up to 66 dB
Density	127 kg/m ³ (±20)
Durability	Type X: intended for use at conditions exposed to weathering (also covers type Y1, Y2, Z1, Z2)
Thermal Conductivity	0.08 W/(m·K)
Service Temperature	-40°C to +90°C
Environmental Classification	LEED, EMICODE EC1+, Eurofins Indoor Air Comfort GOLD
Storage	Store in dry shaded conditions between -10°C and +70°C
Shelf Life	Unlimited when stored as recommended
Product codes:	Dimensions / Supply
FZ100511224	1000 (L) x 620 (W) x 50 (T) mm / 15 slabs per pallet box
FZ100511183	3000 x 100 x 50 mm / 18 rolls per pallet box
FZ100513173	3000 x 350 x 50 mm / 12 rolls per pallet box
FZ100510358	Identification tape, 50 mm (W) / 66 m on a tape roll



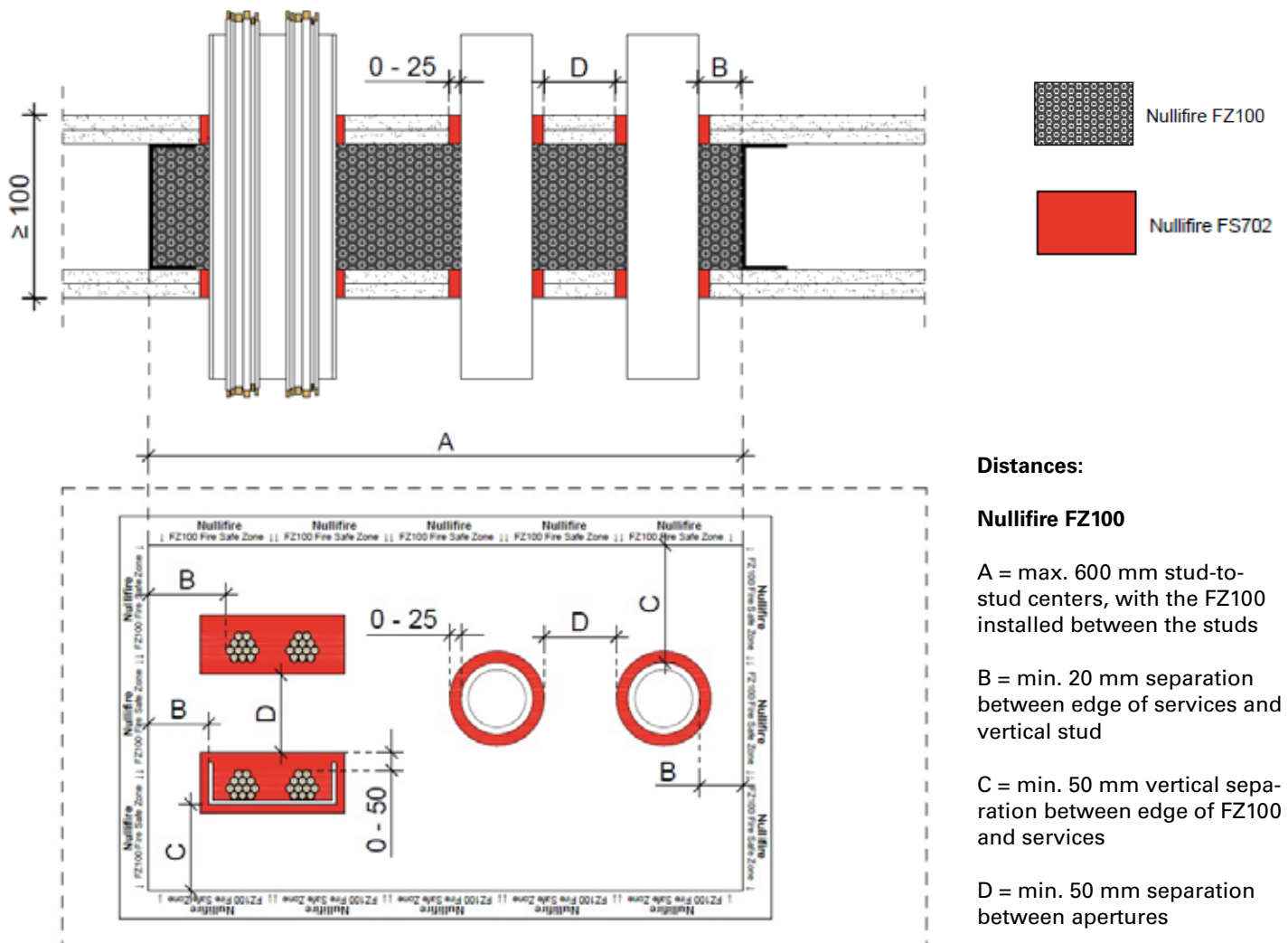
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CONSTRUCTION DETAILS

	Wall	Floor
Substrate material and thickness	Fire rated Plasterboard ≥ 95 mm within FZ100 compliant apertures	CLT ≥ 120 mm Plasterboard Timber Frame $\geq 150 \times 45$ mm Plasterboard Steel Frame $\geq (2 \times) 120 \times 60 \times 4$ mm AAC / Concrete ≥ 120 mm
Construction	Integrated in flexible walls only: minimum 1 layer of 12.5 mm plasterboard installed to each side of stud (for more details see Wall Configurations pages 10-11)	Variety of different constructions and substrates as above (for more details see Floor Configurations pages 26-28)
Maximum aperture	Depending on the height of the wall (≤ 3000 mm) and the distance stud-to-stud (≤ 600 mm) and limited to below details	CLT ≥ 140 mm $\leq 1,04$ m ² CLT ≥ 120 mm $\leq 0,66$ m ² Plasterboard Timber Frame $\leq 0,36$ m ² Plasterboard Steel Frame $\leq 0,66$ m ² AAC / Concrete $\leq 0,48$ m ²
Location first service support	200 mm from the face of the partition	250 mm above the floor
Classification	EN 13501-2, tested to EN 1366-3	

Minimum aperture distances in Wall construction



SERVICE DISTANCES

WALL

Min. distance
mm

	Cable	Cable carrier	Tied cable bundle	Conduit combustible	Conduit combustible Ø≤28mm	Conduit non-combustible	Metal pipe + combustible insulation	Metal pipe + non combustible insulation	Combustible pipe	Combustible pipe Ø≤28mm	MLCP (Al-comp.) pipe, non- insulated	MLCP (Al-comp.) pipe Ø≤28mm, non-insulated	MLCP pipe + combustible insulation	Combustible air transfer pipe
Cable	0	0	50	0	0	0	100	100	100	100	100	100	100	100
Cable carrier		0	0	100	100	100	100	100	100	100	100	100	100	100
Tied cable bundle			100	100	100	100	100	100	100	100	100	100	100	100
Conduit combustible				100	100	100	100	100	100	100	100	100	100	100
Conduit combustible Ø≤28mm					0	100	100	100	100	100	100	100	100	100
Conduit non-combustible						100	100	100	100	100	100	100	100	100
Metal pipe + combustible insulation							0	100	100	100	100	100	100	100
Metal pipe + non combustible insulation								0	100	100	100	100	100	100
Combustible pipe									100	100	100	100	100	100
Combustible pipe Ø≤28mm										0	100	100	100	100
MLCP (Al-comp.) pipe, non-insulated											100	100	100	100
MLCP (Al-comp.) pipe Ø≤28mm, non-insulated												0	100	100
MLCP (Al-comp.) pipe + combustible insulation													100	100
Combustible air transfer pipe														100

FLOOR

Min. distance
mm

	Cable	Cable carrier	Tied cable bundle	Conduit combustible	Conduit non-combustible	Metal pipe + combustible insulation	Metal pipe + non combustible insulation	Metal pipe Ø≤35mm + non combustible insulation	Combustible pipe	MLCP pipe, non-insulated	MLCP pipe + combustible insulation	Combustible air transfer pipe	Edge of aperture
Cable	0	0	0	100	100	100	100	100	100	100	100	100	25
Cable carrier		0	0	100	100	100	100	100	100	100	100	100	30
Tied cable bundle			100	100	100	100	100	100	100	100	100	100	25
Conduit combustible				100	100	100	100	100	35	100	100	100	20
Conduit non-combustible					100	100	100	100	35	100	100	100	20
Metal pipe + combustible insulation						25	100	100	100	100	100	100	20
Metal pipe + non combustible insulation							20	20	70	100	100	100	0
Metal pipe Ø≤35mm + non combustible insulation								0	70	100	100	100	0
Combustible pipe									68	100	100	100	20
MLCP pipe, non-insulated										100	100	100	20
MLCP pipe + combustible insulation											100	100	20
Combustible air transfer pipe												60	25

FREQUENTLY ASKED QUESTIONS (FAQ)

What is FZ100 Fire Safe Zone?

FZ100 Fire Safe Zone is a fire barrier which has been designed specifically for off-site construction. FZ100 allows for both instant and future fire protection and is an innovation to current traditional solutions offered by Nullifire.

Why should FZ100 Fire Safe Zone be used within off-site construction?

Our ground-breaking technology provides off-site construction with an easy to install, compliant and cost-effective solution to speed up the manufacturing process of fire stopping within modules. The technology allows for the compliant substitution of a variety of products, to a single product within this area of application.

Do Nullifire have any future tests scheduled for FZ100 Fire Safe Zone?

As a leading product manufacturer our solutions are continuously being tested to comply with upcoming building regulations and our customers' requirements. To learn more about our testing or share your needs, please don't hesitate to contact us.

Do I require training to install FZ100 Fire Safe Zone?

As a responsible manufacturer we will be offering installation training to ensure that those working with the product understand the requirements, the product itself and how to install. For more information on our training please contact cpguktraining@tremcocpg.com.

Does FZ100 Fire Safe Zone require a wet or dry installation?

FZ100 Fire Safe Zone is a dry install – making the installation process quick, simple, and easy to complete. Why not check out our videos for an insight into how to install this product.

How does the fire inspector know whether FZ100 Fire Safe Zone is installed into the wall?

To identify whether FZ100 Fire Safe Zone is installed as marked out, simply drill a small hole through the identified plasterboard wall and complete a visual check. Please ensure that upon inspection completion, the drilled hole is filled with Nullifire FS702.

Where should I apply the FZ100 identification tape?

Nullifire FZ100 identification tape must be used to identify the Fire Safe Zone area. The tape should be applied evenly over the FZ100 boundary edge.

Can FZ100 Fire Safe Zone accommodate future service changes (e.g. remove or remove & replace)?

Existing penetration openings within FZ100 Fire Safe Zone may be reused when services are replaced or modified, provided the FZ100 material remains intact and has not been removed. Any existing sealant should be removed and the new service penetration sealed in accordance with the applicable Nullifire installation instructions. The suitability and fire performance of the revised penetration arrangement must always be verified for the specific service configuration being installed.

If the Service is to be changed:

If the FZ100 has not been removed from the seal, any service maybe reinstated into the same or larger opening, provided the required distances and installation methods are adhered to, and the smoke seal is reinstated. If the FZ100 has been removed from the seal around non-combustible services such as metal pipes with/without non-combustible insulation, an equal or larger service of the same material type may use the same opening, provided the required distances and installation methods are adhered to, and the smoke seal is reinstated.

If the service is to be removed and omitted completely:

If the FZ100 has not been removed from the seal, you would be required to reinstate the smoke seal. If the FZ100 has been removed from the seal, you would need to reinstate the FZ100 material and reinstate the smoke seal: FZ100 may be used for the material reinstatement, which should be installed under 5 mm compression.

Can FZ100 Fire Safe Zone be used to future-proof my building?

FZ100 Fire Safe Zone is designed to future-proof buildings. Simply define areas of the builds where future trades are likely to require access for data / telecoms, electrical additions or plumbing changes and identify the area using the FZ100 identification tape. This can be added to the project documentation (e.g. O&M manual) and provides clear locations for the addition of the extensively tested service range, to be added at a later date.

Notes



**WALL
SOLUTIONS**

WALL APPLICATION



FZ100 is typically installed during the drywall construction phase. One side of the partition may be fully constructed prior to the application of **FZ100**.



FZ100 should be compressed between two vertical studs at the expected service locations (e.g. above door head). Horizontally, **FZ100** must be supported from below (and from the top, ensuring no void is left) using either studs or mineral wool boards ($\geq 100 \text{ kg/m}^3$).



Close the partition wall with the required plasterboard system to manufacturer's tested recommendations.



Externally identify the Fire Safe Zone area using **FZ100** identification tape.



In the required locations, and within the **FZ100** perimeter identification, mark out and identify your service requirements (ensuring to avoid stud locations).



For square or rectangular services, drill directly through the partition at the 4 corners in the required service location. Plasterboard can now be cut to each side individually without removing **FZ100** infill.



For circular services, drill a pilot hole directly through the partition at the centre of the required service location. Using a suitable core drill bit, plasterboard can now be cut to each side individually **without removing FZ100 infill**.



Once **FZ100** is revealed, cross cut using a suitable cutting knife, creating 4 slits from the centre of the opening to the corners of the opening (rectangular type aperture), or at centre point to perimeter at 90° (circular type aperture). Alternatively use a horseshoe cut for pipes.



Once cross cut, gently push back **FZ100** within cavity space to reveal your required opening, and pass the required service through the now revealed opening (**FZ100** will over time form its original shape around the service).

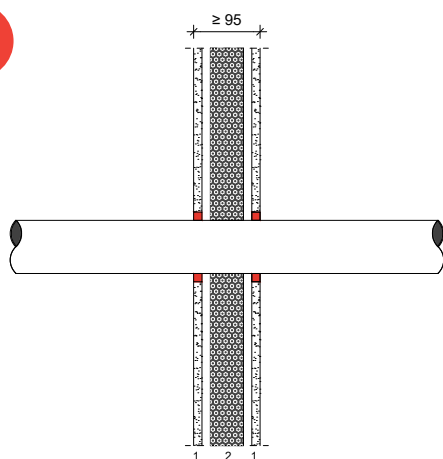


A cold smoke seal will be required on both sides of partition; we recommend the use of **FS702 Intumastic** (please read **FS702** TDS for limitations).

Plasterboard openings are required to be either the same dimensions as the services, or can be up to 25mm larger to all sides of the service dimensions (building conditions may require the increased opening size, e.g. building movement tolerances).

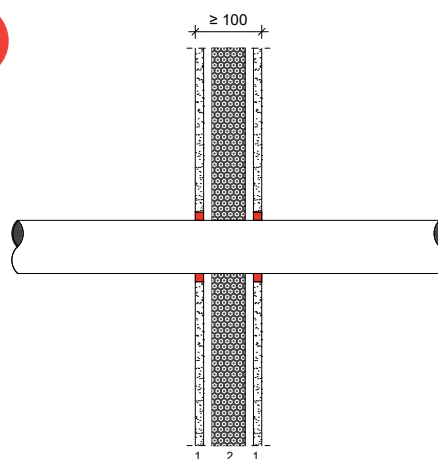
WALL CONFIGURATIONS

A1



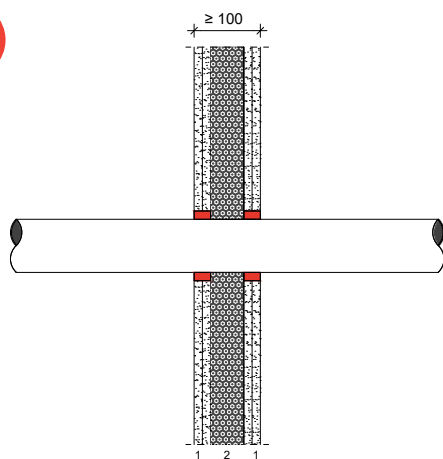
- 1 - 12.5 mm Vinyl faced plasterboard
- 2 - 50 mm FZ100 Fire Safe Zone; central within 70 mm timber stud

A2



- 1 - 12.5 mm Plasterboard
- 2 - 50 mm FZ100 Fire Safe Zone; central within 75 mm metal stud

A3



- 1 - 2x 12.5 mm Plasterboard
- 2 - 50 mm FZ100 Fire Safe Zone; central within 50 mm metal stud

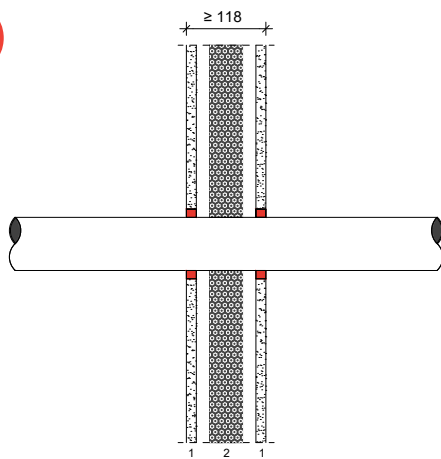


Nullifire FZ100



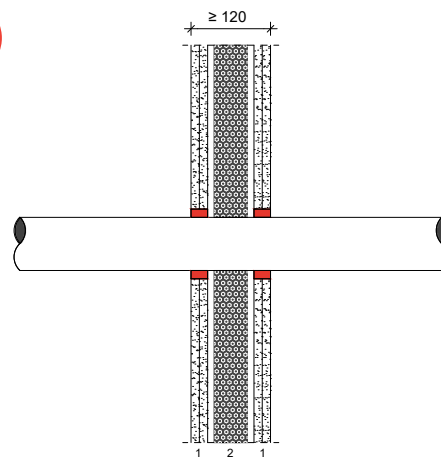
Nullifire FS702

BI



- 1 - 15 mm Vinyl faced plasterboard
- 2 - 50 mm FZ100 Fire Safe Zone; central within 88 mm timber stud

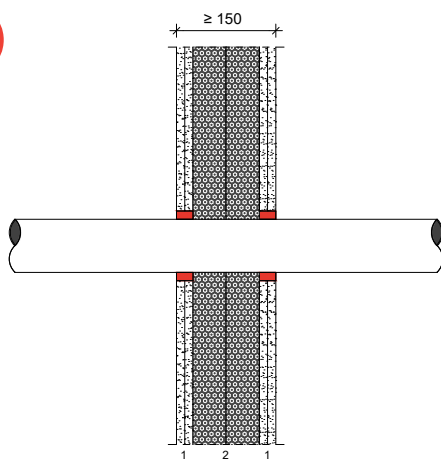
B2



- 1 - 2x 12.5 mm Plasterboard
- 2 - 50 mm FZ100 Fire Safe Zone; central within 70 mm metal stud

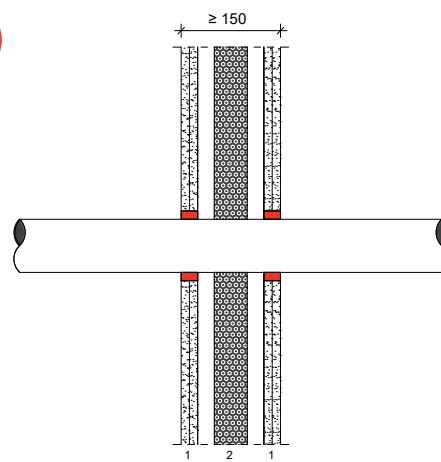
1 12.5 + 12.5 mm Plasterboard

CI



- 1 - 2x 12.5 mm Plasterboard
- 2 - 2x 50 mm FZ100 Fire Safe Zone; within 100 mm metal stud

C2



- 1 - 2x 12.5 mm Plasterboard
- 2 - 50 mm FZ100 Fire Safe Zone; central within 100 mm metal stud



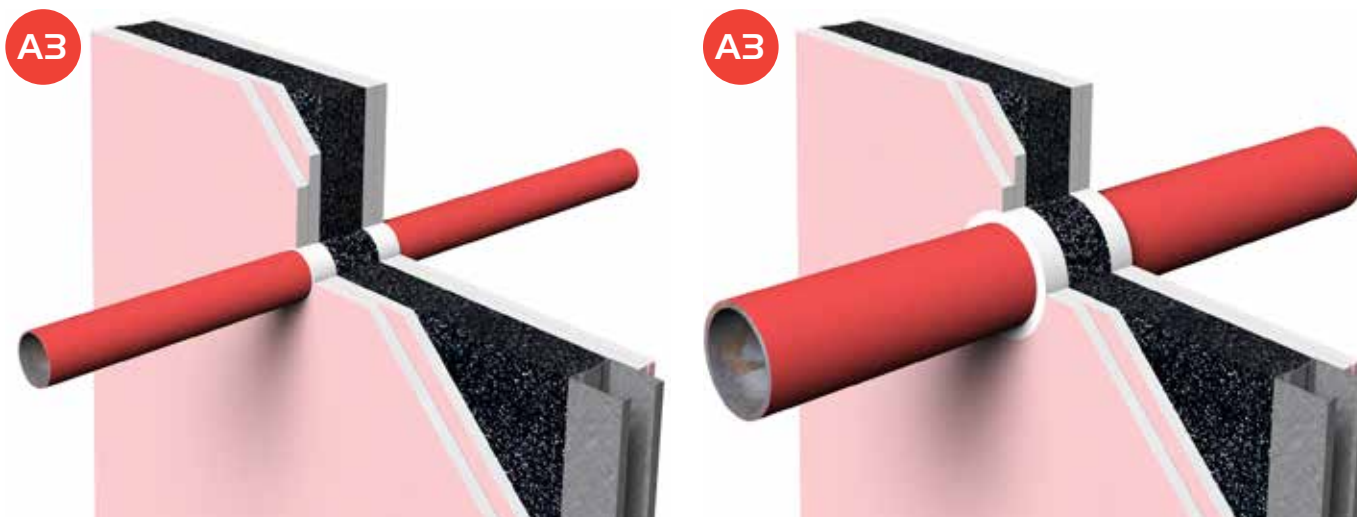
Nullifire FZ100



Nullifire FS702

NON-COMBUSTIBLE PIPES

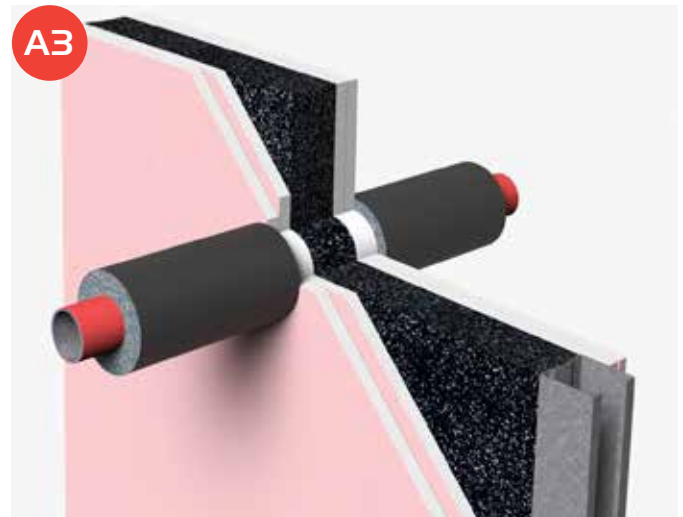
Copper and Steel Pipes



FZ100 Fire Safe Zone and copper pipe

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
Copper and steel pipes (including cast iron)	≤15	1-14.2	-	-	-	C/U	C/U, C/C	E190 E90	A3, C1, C2
	≤42 ≤160	1-14.2 / 2-14.2	-	-	-	C/U	C/U, C/C	- E90	
	≤15	1.5-14.2	-	-	-	C/U	C/U, C/C	E130 E90	B1, B2, (C2)
	≤42	1-14.2	-	-	-	C/U	C/U, C/C	- E90	
	≤15 running into the wall	1-14.2	-	-	-	C/U, U/C	C/U, U/C, C/C	E120 E120	B2, (C2)
	≤160	2-14.2	-	-	-	C/U	C/U, C/C	E145 E120	
	≤12 up to 3 pipes each in 28mm PVC sleeve (150x0.8mm)	1.5-14.2	-	-	-	C/U	C/U, C/C	E120 E120	C1, C2
	≤15 up to 3 pipes each in 28mm PVC sleeve (150x0.8mm)	0.8-14.2	-	-	-	C/U	C/U, C/C	E120 E120	
	≤22 up to 3 pipes each in 28mm PVC sleeve (150x0.8mm)	1.2-14.2	-	-	-	C/U	C/U, C/C	E130 E120	
	≤15 up to 3 pipes each in 28mm PVC sleeve (150x0.8mm)	0.8-14.2	-	-	-	C/U	C/U, C/C	E120 E120	
	≤22 up to 3 pipes each in 28mm PVC sleeve (150x0.8mm)	1.2-14.2	-	-	-	C/U	C/U, C/C	E190 E120	
	≤25	1.8-14.2	-	-	-	C/U	C/U, C/C	E160 E90	A3, C1, C2
Steel pipes (including cast iron)	≤89	5-14.2	-	-	-	C/U	C/U, C/C	- E90	
	≤25	1.8-14.2	-	-	-	C/U	C/U, C/C	E160 E90	B1, B2, (C2)
Steel pipes (including cast iron) spiral air ventilation	≤103	0.8-14.2	-	-	-	C/U	C/U, C/C	E190 E90	B1, B2, (C2)

Copper and Steel Pipes with insulation



FZ100 Fire Safe Zone and metal pipe with non-combustible insulation

FZ100 Fire Safe Zone and copper pipe with combustible insulation

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
Copper and steel pipes (including cast iron)	≤20	1.2-14.2	FI025 (1 row, both sides)	≥25	LI	C/U	C/U, C/C	EI60 E60	A2, A3, C1, C2
	≤42	1-14.2	Phenolic (500mm long)	20	LI	C/U	C/U, C/C	EI90 E90	
	≤24	1.2-14.2	Glass fibre	≥25	CI	U/C	U/C, C/U, C/C	EI60 E120	
	≤42	1-14.2	Glass wool (80 kg/m³)	≥20	CI	C/U	C/U, C/C	EI60 E90	A3, C1, C2
	≤64	2-14.2	Elastomeric (K-Flex)	19	CS	C/U	C/U, C/C	EI60 E60	
	≤89	2-14.2	Elastomeric (200mm long)	50	LI	C/U	C/U, C/C	EI45 E120	
	≤160	2-14.2	Anaconda (500mm long)	50	LI	C/U	C/U, C/C	EI30 E90	
	≤42	1.2-14.2	FI025 (1 row, both sides)	≥25	LI	C/U	C/U, C/C	EI90 E90	B1, B2, (C2)
	≤40 ≤160	1.5-14.2 / 2.0-14.2	FI025 (1 row, both sides)	≥25	LI	C/C	C/C	EI60 E90	B2, (C2)
	≤22	1.2-14.2	FI025 (1 row, both sides)	≥25	LI	C/U	C/U, C/C	EI90 E120	C1, C2
	≤22	1.2-14.2	Phenolic	20	CS	C/U	C/U, C/C	EI120 E120	C1, C2
	≤22	1.2-14.2	FI025 (1 row, both sides)	≥25	LI	C/U	C/U, C/C	EI120 E120	C2
Copper and Steel (including cast iron) air con combination	≤12.7 + ≤6.35 up to 2 pipes; PVC 19x2mm, 1x cable	3-14.2	Ruberoid (around copper) FI025 (1 row, both sides)	13 ≥25	CS LI	C/C; U/C	C/C; U/C, C/C	EI90 E90	B1, B2, (C2)
	≤110	1.2-14.2	FI025 (1 row, both sides)	≥25	LI	C/U	C/U, C/C	EI60 E60	A2, A3, C1, C2
Steel pipes (including cast iron)	≤89	2-14.2	Elastomeric (200mm long)	50	LI	C/U	C/U, C/C	EI90 E120	A3, C1, C2
	≤28*	1.2-14.2	Mineral wool	≥30	CS	C/U	C/U, C/C	EI60 E60	
	≤25	1.8-14.2	FI025 (1 row, both sides)	≥25	LI	C/U	C/U, C/C	EI90 E90	B1, B2, (C2)
Steel pipes (including cast iron) spiral air ventilation	≤103	0.8-14.2	FI025 (1 row, both sides)	≥25	LI	C/U	C/U, C/C	EI90 E90	B1, B2, (C2)

*FZ100 may be removed from the penetration area up to Ø92 mm.

COMBUSTIBLE PIPES

PE Pipes



FZ100 Fire Safe Zone and combustible pipes



FZ100 Fire Safe Zone and combustible pipe at 45°

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
PE (including HDPE, ABS, SAN+PVC)	≤50	4	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	A2, A3, C1, C2
	≤110	8	-	-	-	U/U	U/U, C/U, U/C, C/C	E130 E30	
	≤50 ≤110	4-8	-	-	-	U/U	U/U, C/U, U/C, C/C	- E30	
	≤40	2.4	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	A3, C1, C2
	≤125	17.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	
	≤110	10	-	-	-	U/C	U/C, C/C	E120 E120	
	≤40 ≤125	2.4-17.1 / 3.7-17.1	-	-	-	U/C	U/C, C/C	E160 E60	
	≤63 up to 3 pipes	3.7	-	-	-	U/C	U/C, C/C	E160 E60	
	≤40	3.7	-	-	-	U/C	U/C, C/C	E160 E120	
	≤63 ≤110 at 45° angle	3.2-10	-	-	-	U/C	U/C, C/C	E120 E120	B2, (C2)
	≤40 up to 4 pipes	2.3	-	-	-	U/C	U/C, C/C	E190 E120	
	≤110	10	-	-	-	U/C	U/C, C/C	E190 E90	
	≤110	10	-	-	-	U/C	U/C, C/C	E145 E120	
	≤40 ≤110	2.3-10 / 3.2-10	-	-	-	U/C	U/C, C/C	E130 E30	
	≤110	10	-	-	-	U/C	U/C, C/C	E120 E120	C1, C2
ABS	≤40 up to 3 pipes	1.9	-	-	-	U/C	U/C, C/C	E160 E60	A3, C1, C2
	≤50 ≤110	1.9-11.2 / 3.4-11.2	-	-	-	U/C	U/C, C/C	E160 E60	
	≤110	≤6	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	
Geberit Silent db20 (PE-S2)	≤110	≤6	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	A3, C1, C2

PP Pipes



FZ100 Fire Safe Zone and a row of combustible pipes

FZ100 Fire Safe Zone and combustible pipe

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
PP	≤50	4	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	A2, A3, C1, C2
	≤40	1.9	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	
	≤40	1.9	-	-	-	U/C	U/C, C/C	EI60 E120	A3, C1, C2
	≤40 up to 4 pipes	1.9	-	-	-	U/C	U/C, C/C	EI60 E60	
Poloplast POLO-KAL NG/XS (PP)	≤50	≤2	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	A3, C1, C2
Geberit Silent PP (PP-MD)	≤110	≤3.6	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	A3, C1, C2
Geberit Silent Pro (PP-MX)	50	3	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	A3, C1, C2
REHAU Raupiano plus (PP)	50	1.8	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	
	90	2.2	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	A3, C1, C2
	≤90	≤2.2	-	-	-	U/U	U/U, C/U, U/C, C/C	- E60	
Wavin AS+ (PP)	50	3	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	
	≤75	≤3.5	-	-	-	U/U	U/U, C/U, U/C, C/C	- E60	A3, C1, C2
Wavin SiTech+ (PP)	≤75	≤2.6	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	A3, C1, C2

COMBUSTIBLE PIPES

PVC Pipes



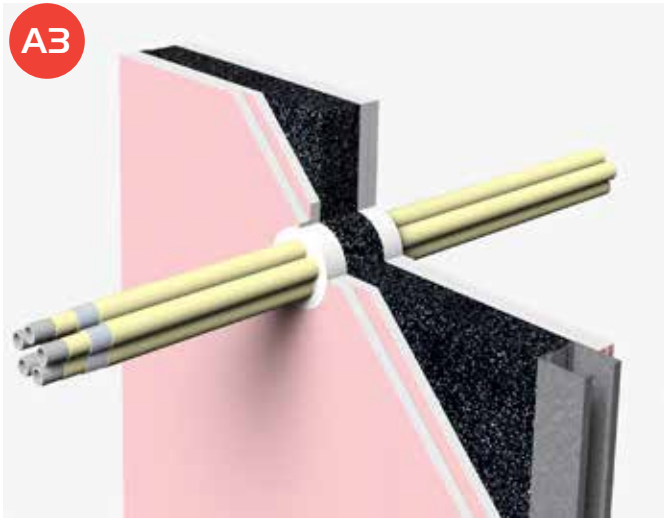
FZ100 Fire Safe Zone and row of combustable pipes



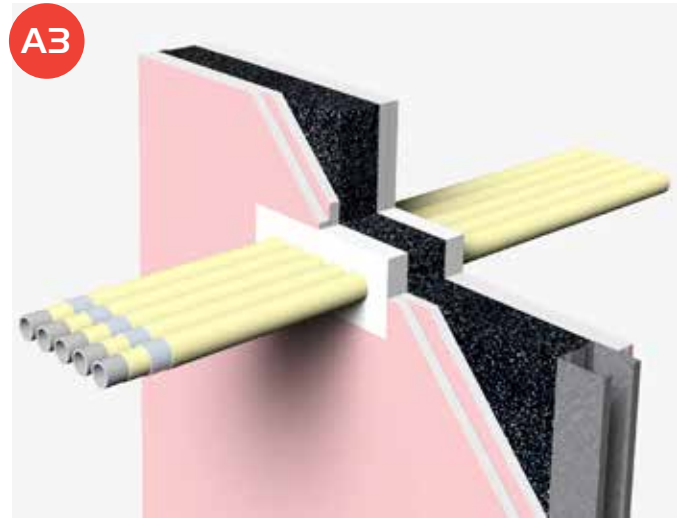
FZ100 Fire Safe Zone and combustable pipe

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
PVC	≤36	1.5-3.4	-	-	-	U/C	U/C, C/C	EI30 E30	A1, A2, A3, C1, C2
	≤43	2-3.4	-	-	-	U/C	U/C, C/C	EI30 E30	
	≤110	3.4	-	-	-	U/C	U/C, C/C	EI30 E30	
	≤20 up to 5 pipes	1.2	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	A2, A3, C1, C2
	≤40 incl. 28mm PEX	1.2	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	
	≤40	1.2	-	-	-	U/U	U/U, C/U, U/C, C/C	EI30 E30	
	≤110	4.2-6.6	-	-	-	U/U	U/U, C/U, U/C, C/C	EI120 E120	A3, C1, C2
	≤40 ≤110	1.9-6.6 / 4.2-6.6	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	
	≤40 ≤110	1.9-6.6 / 3.1-6.6	-	-	-	U/U	U/U, C/U, U/C, C/C	- E45	
	≤40 up to 3 pipes	1.9	-	-	-	U/C	U/C, C/C	EI60 E60	
	≤40 ≤110	1.9-7.4 / 4.2-7.4	-	-	-	U/C	U/C, C/C	EI60 E60	
	≤40 ≤125	1.9-7.4 / 4.8-7.4	-	-	-	U/C	U/C, C/C	EI60 E60	
	≤50	2-3.2	-	-	-	U/C	U/C, C/C	EI120 E120	C1, C2
	≤110	3.2	-	-	-	U/C	U/C, C/C	EI120 E120	
PVC-C Spears	≤90	7.5	-	-	-	U/C	U/C, C/C	EI120 E120	B2, (C2)

MLCP Pipes



FZ100 Fire Safe Zone and bundle of PEX multilayer pipes



FZ100 Fire Safe Zone a row of PEX multilayer pipes

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
PEX	≤22	1.9	-	-	-	U/C	U/C, C/C	EI30 E30	A1, A2, A3, C1, C2
	≤60 up to 2 pipes	4	Ruberoid	15	CS	U/U	U/U, C/U, U/C, C/C	EI60 E60	A2, A3, C1, C2
	≤22 up to 5 pipes	1.5-10	-	-	-	U/C	U/C, C/C	EI60 E60	A3, C1, C2
	≤110	10	-	-	-	U/C	U/C, C/C	EI45 E60	
MLCP Wavin Tigris (PE-HD/Al/PE-Xc)	≤50	≤4.5	-	-	-	U/C	U/C, C/C	EI60 E60	A3, C1, C2

COMBUSTIBLE PIPES

PVC Ducts

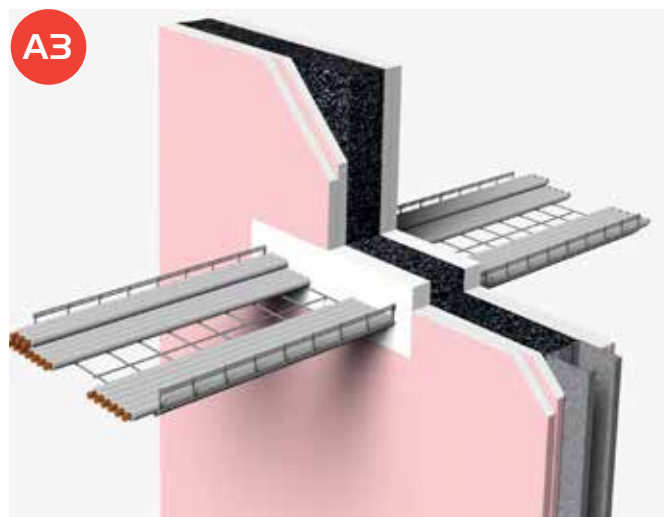


FZ100 Fire Safe Zone and rectangular PVC duct

Service Material	Service Dimensions mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating		Wall Configuration Permitted
PVC duct	205x55	-	-	-	-	U/C	U/C, C/C	EI30	E30	A1, A2, A3, C1, C2
PVC duct sealed with FS709	200x60	≤1.5	-	-	-	U/U	U/U, C/U, U/C, C/C	EI30	E30	A2, A3, C1, C2
	204x60	≤1.5	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60	E120	B2, (C2)
PVC duct	220x90	≤1.5	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60	E60	C2
	220x90	≤1.5	-	-	-	U/U	U/U, C/U, U/C, C/C	EI120	E120	
	204x60	≤1.5	-	-	-	U/U	U/U, C/U, U/C, C/C	EI120	E120	

CABLE AND CABLE CARRIERS

Cable and Cable Bundles



FZ100 Fire Safe Zone and cable ladder with cables

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
Non-sheathed cables	≤24		FI025 (1 row, both sides)	≥25	LI			EI60 E60	A2, A3, C1, C2
	≤24		FI025 (1 row, non fire side)	≥25	LI			EI120 E120	B2, (C2)
Coaxial sheathed cables	≤10		-	-	-			EI120 E120	A3, C1, C2
in a bundle	≤80		-	-	-				
Misc sheathed cables 4x T&E cables: 16 x 8mm dia 1x Earth cable: 8mm dia	8-16		-	-	-			EI30 E30	A1, A2, A3, C1, C2
Misc sheathed cables incl. 32x TV coaxial cables, 26x Twin and Earth 2.5 mm cables, 80x Cat 5 cables	≤10		-	-	-			EI90 E90	
Misc sheathed cables incl. 5x Fibre optic cables	≤10		-	-	-			EI60 E90	
Misc sheathed cables incl. 10x Fibre optic cables	≤10		-	-	-			EI45 E90	A3, C1, C2
Misc sheathed cables incl. 308x Fibre optic cables	≤10		-	-	-			EI30 E90	
Misc sheathed cables incl. 2x T&E Electric cable ≤6mm, PVC sheathed copper core, 3-17x Cat 6 cables ≤7mm, 2x Type F cables	≤12		FI025 (1 row, both sides)	≥25	LI			EI90 E90	
Misc sheathed cables incl. 2x T&E Electric cable ≤6mm, PVC sheathed copper core, 3-17x Cat 6 cables ≤7mm, 2x Type F cables	≤12		-	-	-			EI60 E90	B1, B2, (C2)

CABLE AND CABLE CARRIERS

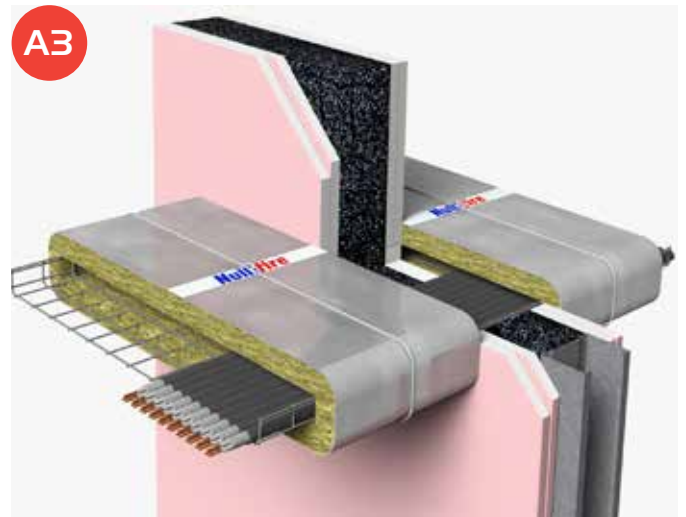
Cable and Cable Bundles (continuation)



FZ100 Fire Safe Zone and cable tray with cable bundle

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
Cable bundles incl. 32x TV coaxial cables	≤80		-	-	-			EI120 E120	
Sheathed cables in a bundle 125x Cat 5 cables sealed with FP170 collar	≤125		-	-	-			EI90 E120	
Misc cable bundles incl. 26x Twin and Earth 2.5 mm cables, 80x Cat 5 cables	≤100 ≤80		-	-	-			EI90 E90	A3, C1, C2
Misc cable bundles incl. 10x Fibre optic cables	≤10		-	-	-			EI45 E90	
Misc cable bundles incl. 308x Fibre optic cables	≤100		-	-	-			EI30 E90	
Cable bundles incl. 13x PVC sheathed copper core	≤45		FI025 (1 row, both sides)	≥25	LI			EI90 E90	
Cable bundles incl. 13x PVC sheathed copper core	≤45		-	-	-			EI90 E90	
Cable bundles incl. PVC sheathed copper core 5x 11mm Ø x 5 mm, 10x 9.5mm Ø x 6 mm, 4x 12mm Ø x 7 mm	≤23		FI025 (1 row, both sides)	≥25	LI			EI90 E90	B1, B2, (C2)
Cable bundles incl. PVC sheathed copper core 5x 11mm Ø x 5 mm	≤23		-	-	-			EI90 E90	
Cable bundles incl. PVC sheathed copper core 10x 9.5mm Ø x 6 mm, 4x 12mm Ø x 7 mm	≤23		-	-	-			EI60 E90	
Cable bundles incl. Cat 7 cables	≤50		-	-	-			EI120 E120	C1, C2

Cable and Cable Bundles (continuation)



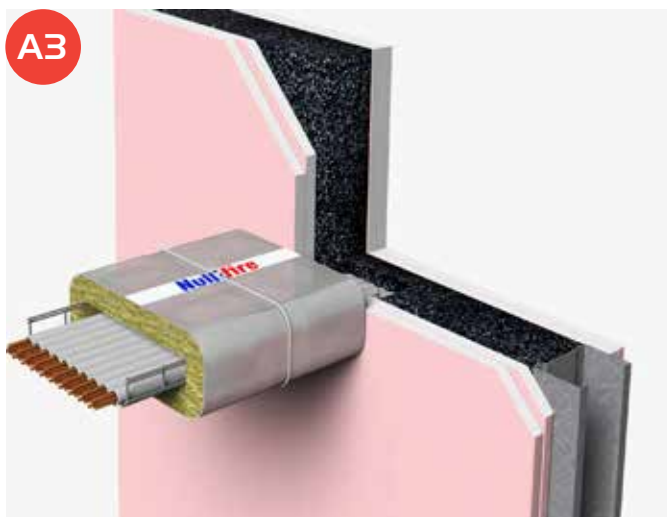
FZ100 Fire Safe Zone and cable tray with cables

FZ100 Fire Safe Zone, FI025 Insulation Wrap and a cable tray with cables

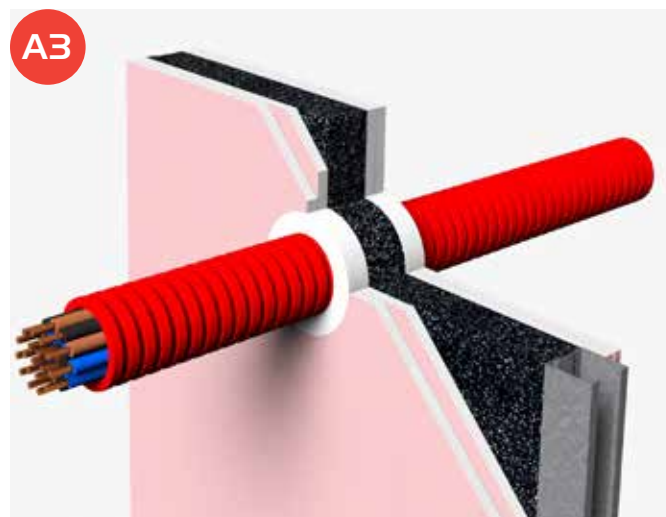
Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
Misc sheathed cables 2x G, 8x A1, B, E, D1	≤52		-	-	-			EI30 E30	A1, A2, A3, C1, C2
Misc sheathed cables C1, C2	40-47		FI025 (1 row, both sides)	≥25	LI			EI60 E60	A2, A3, C1, C2
Sheathed cables D2	≤52		-	-	-			EI90 E90	A3, C1, C2
Sheathed cables 10 cables A1 running into the wall	≤14		FI025 (1 row, both sides)	≥25	LI			EI120 E120	
Sheathed cables 1 cable D2	≤52		FI025 (1 row, non fire side)	≥25	LI			EI120 E120	B2, (C2)
Sheathed cables 10 cables A1 1 cable D2	≤14 ≤52		FI025 (1 row, both sides)	≥25	LI			EI90 E120	
Sheathed cables 14x A1, 13x A2, 13x A3, C1, C2 D1, D3	≤14 40-47 ≤52		-	-	-			EI90 E120	
Sheathed cables 1 cable D2	≤52		-	-	-			EI60 E120	C1, C2
Cable bundles made of F cables ≤Ø21mm	≤100		-	-	-			EI60 E120	

CABLE AND CABLE CARRIERS

Cable Carriers and Cable Conduits



FZ100 Fire Safe Zone and cable carrier with FI025 Insulation Wrap



FZ100 Fire Safe Zone and flexible pipe with cables

Service Material	Service Dimension / Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
Cable carriers	≤300x50	-	-	-	-	-	-	EI30 E30	A1, A2, A3, C1, C2
	≤215x60	-	-	-	-	-	-	EI30 E30	
	≤330x50	FI025 (1 row, both sides)	≥25	LI	-	-	-	EI60 E60	A2, A3, C1, C2
	≤450x25	FI025 (1 row, both sides)	≥25	LI	-	-	-	EI60 E120	
	≤450x25	-	-	-	-	-	-	EI60 E90	A3, C1, C2
	≤450x57	-	-	-	-	-	-	EI30 E60	
	≤340x27mm	FI025 (1 row, both sides)	≥25	LI	-	-	-	EI90 E90	B1, B2, (C2)
	≤340x27mm	-	-	-	-	-	-	EI90 E90	
	≤150x55	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI120 E120	B2 (C2)
	≤400x25	FI025 (1 row, both sides)	≥25	LI	-	-	-	EI90 E120	
	≤450x25	-	-	-	-	-	-	EI90 E120	C1, C2
	≤350x50	-	-	-	-	-	-	EI60 E120	
	Electrical conduits PEX incl. 1x Cat 5 cable 1xTV coaxial cable 1x fibre optic cable	≤28	-	-	-	-	-	EI120 EI120	A3, C1, C2
Electrical flexible conduits	≤40	0.5-1.5	-	-	-	-	-	EI120 E120	B2, (C2)
	≤100	0.5-1.5	-	-	-	-	-	EI90 E120	
	≤40 running into the wall	0.5-1.5	-	-	-	-	-	EI90 E90	
PVC Trunking Lidded, Marco Apollo incl. 5x Data cables: Ø8mm 1xT&E Cables: 6x8mm	115 x 50	1.6	-	-	-	U/C	U/C, C/C	EI30 E30	A1, A3, C1, C2
PVC Trunking Lidded, Bendex incl. 5x Data cables: Ø8mm 7xT&E Cables: 16x8mm	170 x 50	-	-	-	-	U/C	U/C, C/C	EI30 E30	
PVC Trunking Marshall Tufflex incl. 5x Data cables: Ø8mm 2xT&E Cables: 16x8mm	100 x 45	-	-	-	-	U/C	U/C, C/C	EI30 E30	

CABLE SOCKET BOXES

Cable Socket Boxes



FZ100 Fire Safe Zone and gang socket box with twin and earth cables

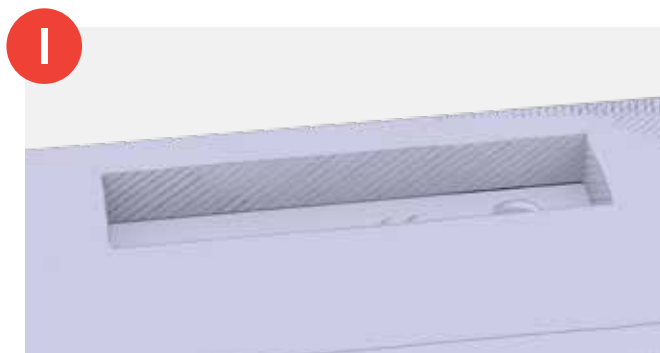
FZ100 Fire Safe Zone and fuse box with twin and earth cables

Service Material	Service Dimensions mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Wall Configuration Permitted
Electrical socket boxes, single sided ≤147x87x48mm	≤147x87x48		-	-	-			EI60 EI60	A2, A3, C1, C2
Electrical socket boxes, back to back	≤147x87x33		-	-	-			EI30 E30	A2, A3, C1, C2
Electrical socket boxes, single sided	≤147x87x48		-	-	-			EI120 E120	B2, (C2)
Steel and plastic fuse box, single sided (British General, 12 ways)	231x389x115		-	-	-			EI120 E120	B2, (C2)
PVC UK Double socket box, back to back (BG 900 Series, 2 gang)	146x86x48		-	-	-			EI120 E120	B2, (C2)
Timber and PVC Double socket box, back to back (MKTimmer face, 2 gang)	143x83x49		-	-	-			EI120 E120	B2, (C2)
PVC UK Multimedia socket box, back to back (Prysmian, 3 gang)	228x86x35		-	-	-			EI120 E120	B2, (C2)
PVC UK Double socket box, back to back (MK Logic Plus)	146x86x40		-	-	-			EI90 E90	B2, (C2)



**FLOOR
SOLUTIONS**

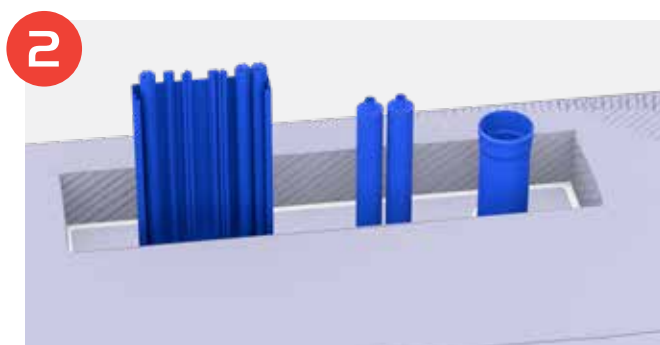
CEILING / FLOOR APPLICATION



Fix the board underneath the opening allowing for an overlap of 70 mm for concrete/AAC and 80 mm for CLT. This creates the **framework for the installation of FZ100**.

The board will be fixed using metal screws/anchors that are suitable for the substrate (e.g. wood screws 120x8 mm for CLT, screw/impact anchors 6x70 mm for AAC or concrete).

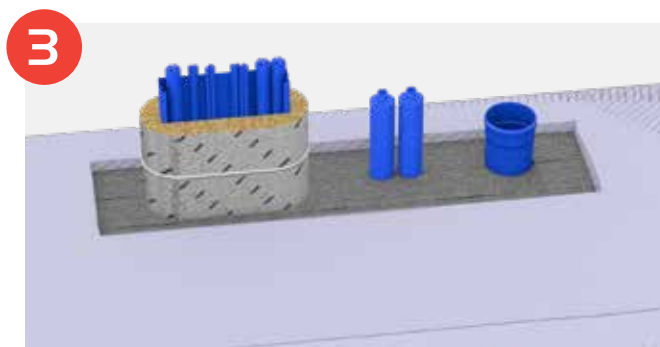
Alternatively, a formwork box can be created and integrated into the floor (or poured into concrete). For further details please see configuration details on the following pages.



Drill into the cement board and install all services penetrating the floor.

Clean the surface from dust and debris.

Apply FS702 smoke seal around all services to the cement board and to the edges of the board/opening.

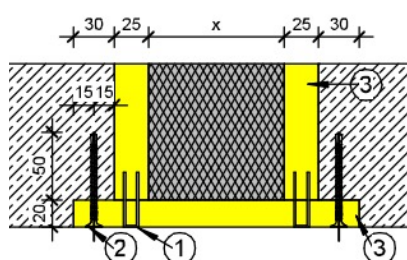


Install two layers of 50 mm thick FZ100 around the services (we recommend stripes for better handling).

The overall amount of **FZ100** to be used in the opening, is the length of the opening plus min. 5 mm, or alternatively the width of the opening plus min. 5 mm.

After the first layer of **FZ100** has been worked around the service penetrations fill all voids using cut pieces of **FZ100**. Repeat the same for the second layer.

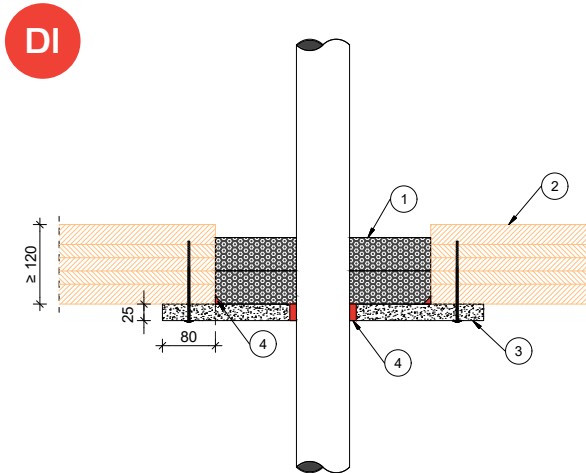
EXAMPLE OF A FORMWORK BOX FOR CONCRETE



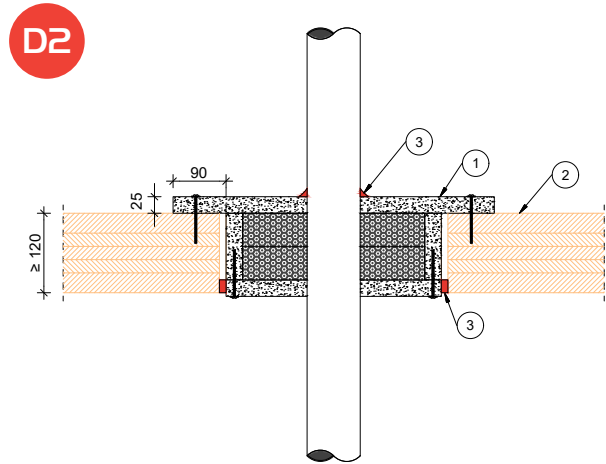
For more information please refer to our Safety and Technical Datasheet.



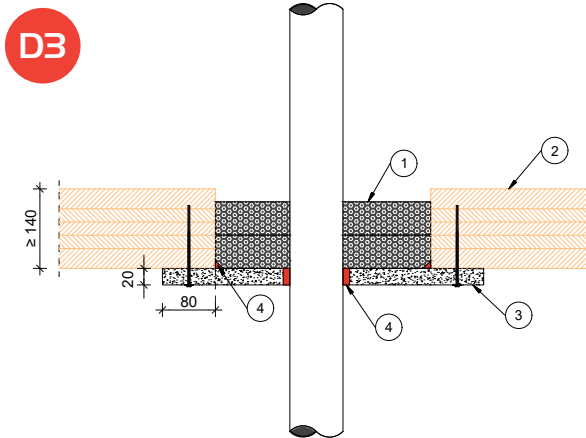
FLOOR CONFIGURATIONS



- 1 - 2x 50 mm FZ100 Fire Safe Zone
- 2 - 120 mm CLT floor
- 3 - 25 mm Cement board
- 4 - Nullifire FS702 to seal around services and at the junction between floor opening and cement board



- 1 - FZ100 Fire Safe Zone box made of 25 mm cement board; 90 mm overlap to floor opening; fixed with silicate adhesive (e.g. Nullifire FO143) and screws ~4.5x70 mm; 2x 50 mm FZ100 Fire Safe Zone inside cement board box
- 2 - 120 mm CLT floor
- 3 - Nullifire FS702 to seal around services and the gap between cement board box and floor opening



- 1 - 2x 50 mm FZ100 Fire Safe Zone
- 2 - 140 mm CLT floor
- 3 - 20 mm Cement board
- 4 - Nullifire FS702 to seal around services and at the junction between floor opening and cement board

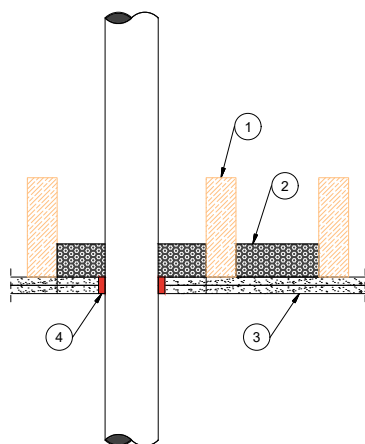


Nullifire FZ100



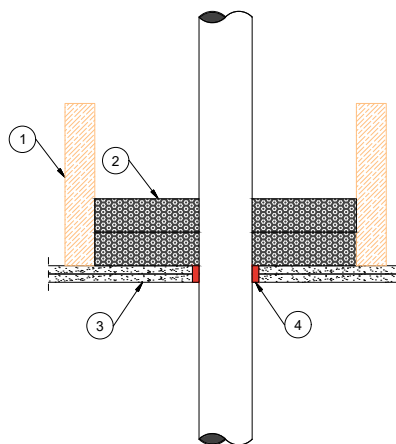
Nullifire FS702

E1



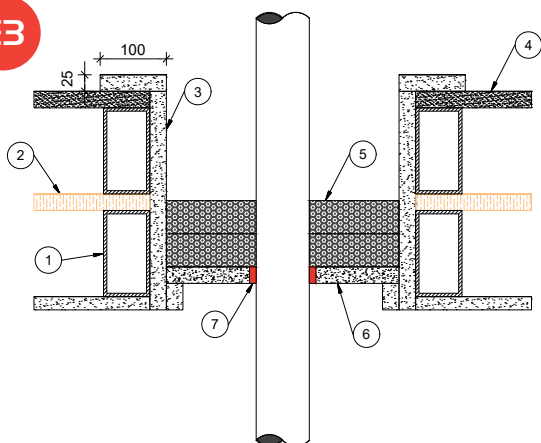
- 1 - 150x45 mm Timber frame
- 2 - 50 mm FZ100 Fire Safe Zone;
1.2 mm Nullifire FS712 coated on top of FZ100
- 3 - 2x 12.5 mm Plasterboard
- 4 - Nullifire FS702 to seal around services

E2



- 1 - 245x45 mm Timber frame
- 2 - 2x 50 mm FZ100 Fire Safe Zone
- 3 - 2x 12.5 mm Plasterboard
- 4 - Nullifire FS702 to seal around services

E3



- 1 - 2x 120x60x4 mm Steel frame
- 2 - 22 mm Chipboard
- 3 - 25 mm Cement board or plasterboard
- 4 - 28 mm Cement board
- 5 - 2x 50 mm FZ100 Fire Safe Zone
- 6 - 20 or 25 mm Cement board or plasterboard
- 7 - Nullifire FS702 to seal around services

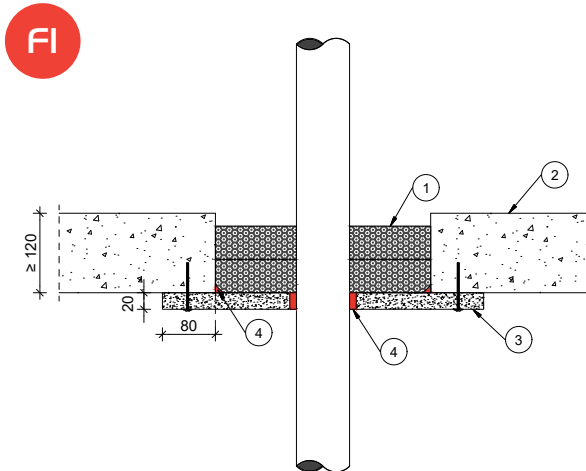


Nullifire FZ100

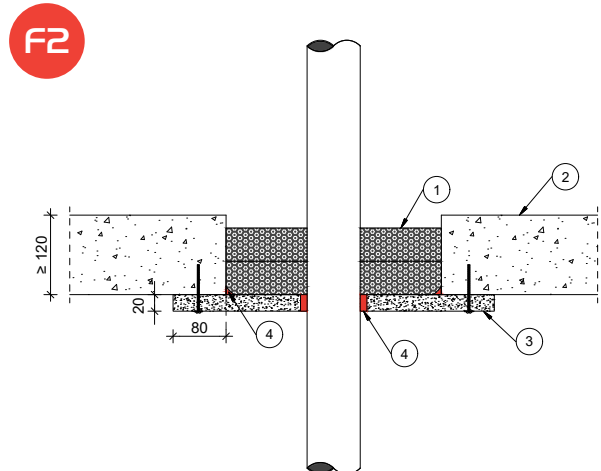


Nullifire FS702

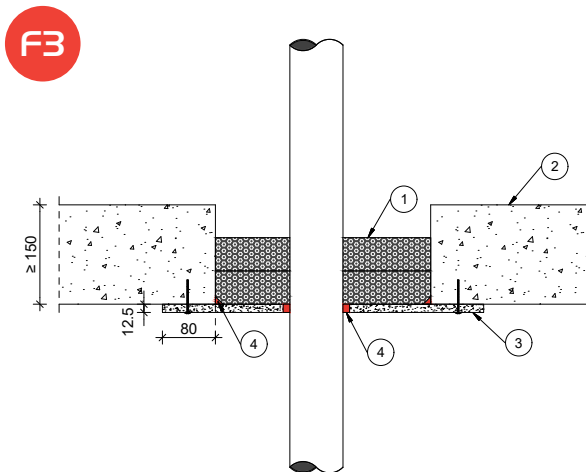
FLOOR CONFIGURATIONS



- 1 - 2x 50 mm FZ100 Fire Safe Zone
- 2 - 120 mm AAC floor
- 3 - 20 mm Cement board
- 4 - Nullifire FS702 to seal around services and at the junction between floor opening and cement board



- 1 - 2x 50 mm FZ100 Fire Safe Zone
- 2 - 120 mm Concrete floor
- 3 - 20 mm Cement board
- 4 - Nullifire FS702 to seal around services and at the junction between floor opening and cement board



- 1 - 2x 50 mm FZ100 Fire Safe Zone
- 2 - 150 mm Concrete floor
- 3 - 12.5 mm Plasterboard
- 4 - Nullifire FS702 to seal around services and at the junction between floor opening and cement board



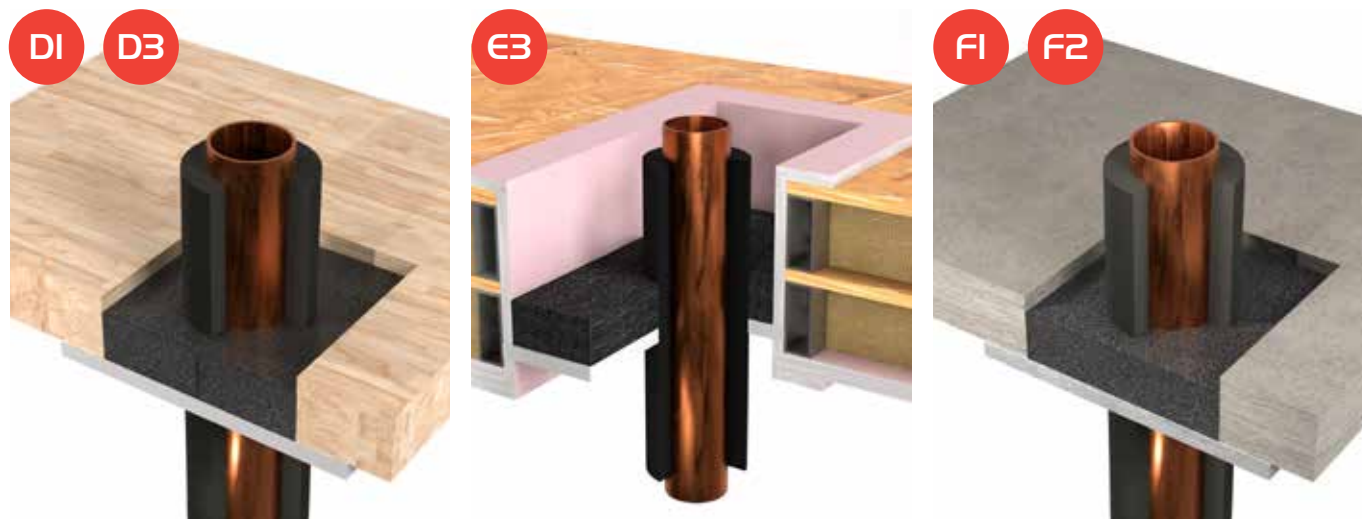
Nullifire FZ100



Nullifire FS702

NON-COMBUSTIBLE PIPES

Copper Pipes with insulation

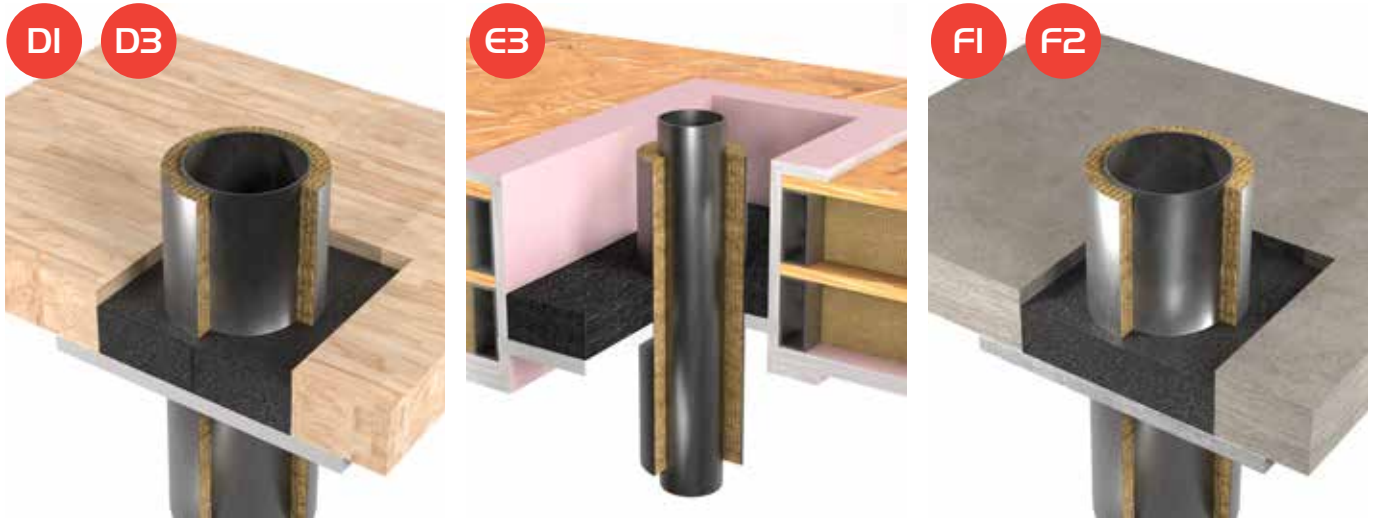


FZ100 Fire Safe Zone and copper pipe with combustible insulation

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
Copper and steel pipes (including cast iron)	≤15	1-7.5	Elastomeric	10-32	CS	C/U	C/U, C/C	EI90 E90	D1, D2, D3, F1, F2
	≤42	1.2-14.2	Elastomeric	32	CS	C/U	C/U, C/C	EI60 E90	
	≤42	1.2-14.2	Elastomeric	10-32	CS	C/U	C/U, C/C	EI30 E90	
	≤15	0.7-7.5	PVC	2	CS	C/U	C/U, C/C	EI45 E90	
	≤15	0.7-7.5	PVC	2	CS	C/U	C/U, C/C	EI90 E90	D2
	≤64	2-14.2	Elastomeric	32	CS	C/U	C/U, C/C	EI60 E60	D3, F1, F2
	≤15	1-7.5	Elastomeric	20	CS	U/C	U/C, C/U, C/C	EI60 E60	E2, E3
	≤28	1-14.2	Elastomeric	20	CS	U/C	U/C, C/U, C/C	EI45 E60	
	≤40	1-14.2	-	-	-	U/C	U/C, C/U, C/C	- E60	
	≤15	1-7.5	Elastomeric	32	CS	C/U	C/U, C/C	EI60 E90	E3
	≤15	1-7.5	Elastomeric	32	CS	C/U	C/U, C/C	EI30 E90	
	≤64	2-14.2	Elastomeric	32	CS	C/U	C/U, C/C	EI30 E90	
	≤18	1-9	Elastomeric	25	CS	C/U	C/U, C/C	- E90	F2
	≤64	2-14.2	Elastomeric	25	CS	C/U	C/U, C/C	- E90	
	≤108	2.5-14.2	Elastomeric	32	CS	C/U	C/U, C/C	- E30	

NON-COMBUSTIBLE PIPES

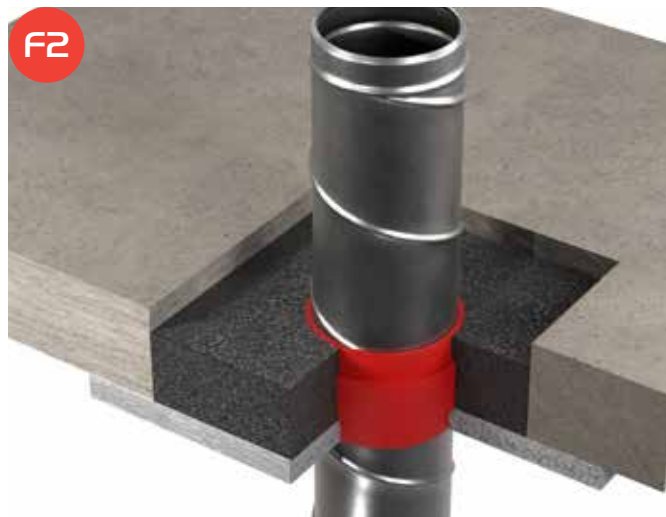
Steel Pipes with insulation



FZ100 Fire Safe Zone and steel pipe with non-combustible insulation

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
Steel pipes (including cast iron)	≤18	1-9	Mineral wool	≥30	CS	C/U	C/U, C/C	E190 E90	D1, D2, D3, F1, F2
	≤35	1.5-14.2	Mineral wool	≥50	CS	C/U	C/U, C/C	E190 E90	
	≤108	1.5-14.2	Mineral wool	≥30	CS	C/U	C/U, C/C	E160 E90	
	≤219	2-14.2	Mineral wool	≥50	CS	C/U	C/U, C/C	E160 E60	D3, F1, F2
	≤63	6.9-14.2	PE	2,5	CS	C/U	C/U, C/C	E160 E60	E2, E3
	≤89	4-14.2	FI025 (1 row)	≥25	LI	U/C	U/C, C/U, C/C	E145 E60	E2, E3
	≤18	1-9	Mineral wool	≥30	CS	C/U	C/U, C/C	E160 E90	E3
	≤108	2.9-14.2	Mineral wool	≥30	CS	C/U	C/U, C/C	E160 E90	
	≤219	2-14.2	Mineral wool	≥50	CS	C/U	C/U, C/C	E145 E90	
	≤28	0.9-14.2	Mineral wool	≥30	CS	C/U	C/U, C/C	E120 E120	F1, F2
	≤35	1.2-14.2	Mineral wool	≥30	CS	C/U	C/U, C/C	E120 E120	
	≤114.3	2-14.2	Mineral wool	≥30	CS	C/U	C/U, C/C	E190 E90	
	≤159	2.9-14.2	Mineral wool	≥50	CS	C/U	C/U, C/C	E190 E90	F2
	≤219	2-14.2	Mineral wool	≥50	CS	C/U	C/U, C/C	E160 E90	

Steel Ducts

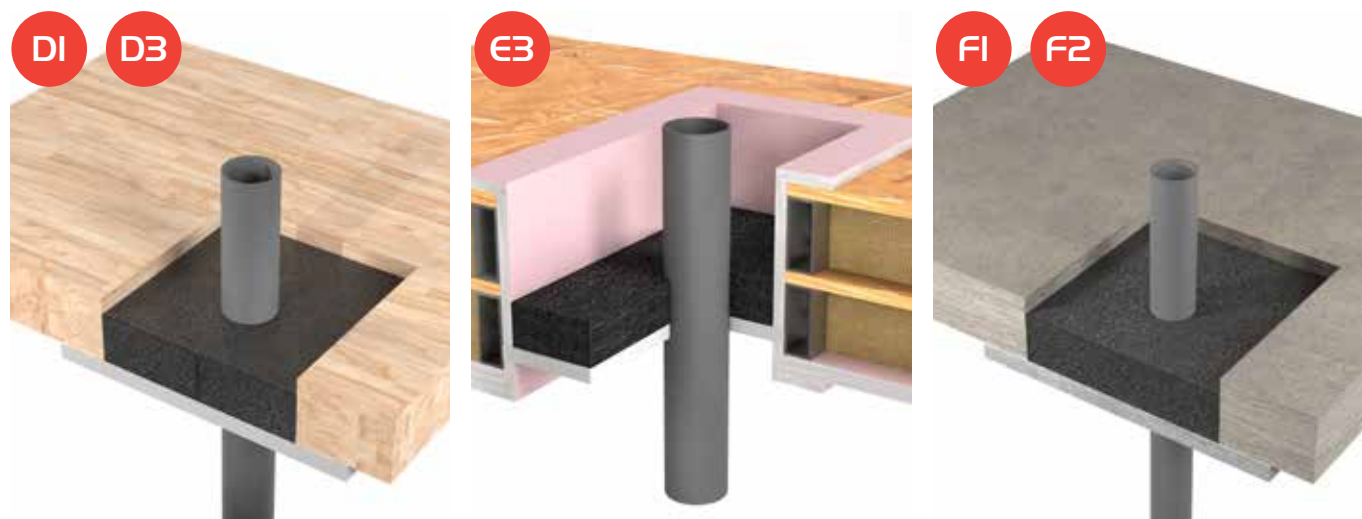


FZ100 Fire Safe Zone and steel duct

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
Steel pipes (including cast iron) spiral air ventilation	≤180 with Wildeboer TS18 damper	0.7-14.2	-	-	-	C/U	C/U, C/C	- E90	E3
	≤200 with Wildeboer TS18 damper	0.7-14.2	-	-	-	C/U	C/U, C/C	E160 E90	F2

COMBUSTIBLE PIPES

PE Pipes



FZ100 Fire Safe Zone and PE pipe

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
PE (including HDPE, ABS, SAN+PVC)	≤40	2.4-3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E130 E30	D3, F1, F2
	≤125	3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E130 E30	
	≤40 ≤125	2.4-17.1 / 3.1-17.1	-	-	-	U/C	U/C, C/C	E130 E30	
	≤50	2-12	-	-	-	U/C	U/C, C/C	E145 E45	E1, E2, E3
	≤110	3.2-12	-	-	-	U/C	U/C, C/C	E145 E45	
	≤125	12	-	-	-	U/C	U/C, C/C	E145 E45	
	≤110	10	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	E2, E3
	≤50	2.8-10	-	-	-	U/U	U/U, C/U, U/C, C/C	E145 E60	
	≤110	3.4-10	-	-	-	U/U	U/U, C/U, U/C, C/C	E145 E60	
	≤40	3.2-10	-	-	-	U/U	U/U, C/U, U/C, C/C	- E45	E3
	≤40	2.4-17.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	
	≤40 ≤125	3.1-17.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	
	≤32	3.7	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E120	F3
ABS (Durapipe super FLO)	≤110	5.4	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	E2, E3
Geberit Silent db20 (PE-S2)	≤110	≤6	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	D3, F1, F2
	≤75	≤3.6	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	E3
		≤6	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E90	
	≤56	3.2	-	-	-	U/U	U/U, C/U, U/C, C/C	- E90	F2

PP Pipes

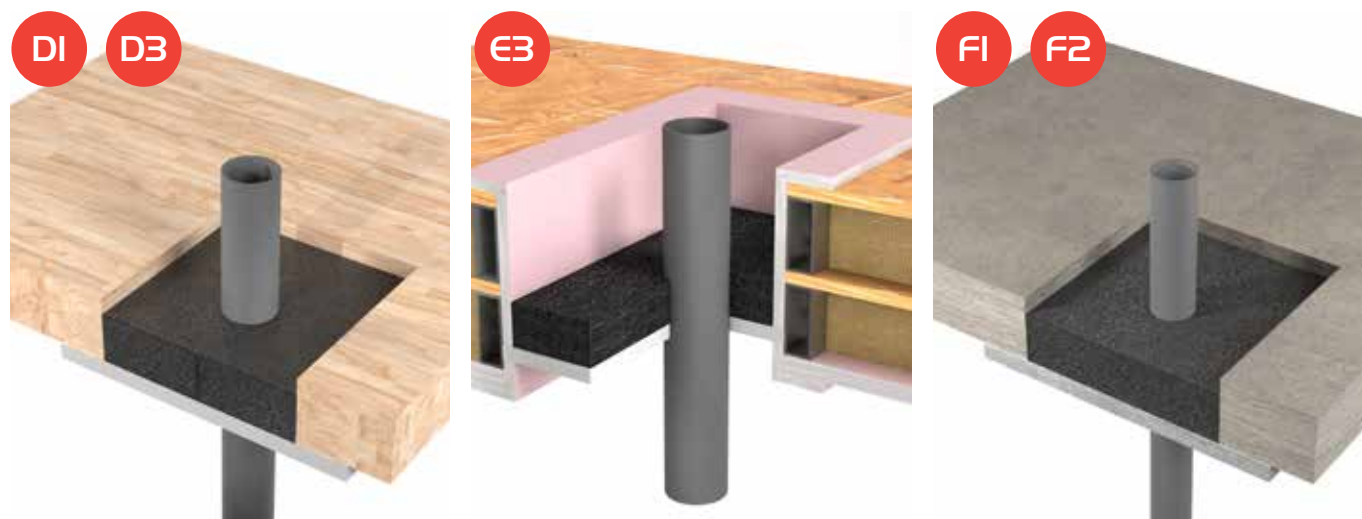


FZ100 Fire Safe Zone and PP pipe

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
PP	≤125	17.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	D1, D2, D3, F1, F2
	≤40	2.3-3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E130 E30	D3, F1, F2
	≤125	3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E130 E30	
	≤40	2.3-17.1 / 3.1-17.1	-	-	-	U/C	U/C, C/C	E130 E30	E2, E3
	≤75	6.8	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	
	≤110	15.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E145 E60	
	≤40	2.3-17.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	E3
	≤125	17.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	
	≤40	2.3-17.1 / 3.1-17.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E90	
	≤50	1.8	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E120	F3
Poloplast POLO-KAL NG/XS (PP)	≤110	≤3.4	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	D3, F1, F2
	≤125	3.9	-	-	-	U/U	U/U, C/U, U/C, C/C	- E60	
	≤110	≤3.4	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	E3
		≤3.9	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E90	
	≤32	1.8	-	-	-	U/U	U/U, C/U, U/C, C/C	E145 E90	F2

COMBUSTIBLE PIPES

PP Pipes (continuation)



FZ100 Fire Safe Zone and PP pipes

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
Geberit Silent PP (PP-MD)	≤110	≤3.6	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	D1, D2, D3, F1, F2
	≤125	≤4.2	-	-	-	U/U	U/U, C/U, U/C, C/C	- E60	D3, F1, F2
	≤75	2.6	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	E3
	≤75	≤2.6	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E90	
	≤32	1.8	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E90	F2
	≤160	4.9	-	-	-	U/U	U/U, C/U, U/C, C/C	- E30	
Geberit Silent Pro (PP-MX)	≤110	≤4.5	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	D1, D2, D3, F1, F2
	≤125	≤5	-	-	-	U/U	U/U, C/U, U/C, C/C	E145 E60	D3, F1, F2
	≤50	3	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	E3
	≤110	≤4.5	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E90	
REHAU Raupiano plus (PP)	≤110	≤4.5	-	-	-	U/U	U/U, C/U, U/C, C/C	E1120 E120	F1, F2
	≤75	≤1.9	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	D3, F1, F2
	≤125	≤3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	- E60	
	≤50	≤1.8	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	E3
	≤90	2.2	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	
	≤125	3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	
UPONOR Decibel (PP-MD)	≤125	≤3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E90	D1, D2, D3, F1, F2
	≤110	≤3.8	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	
	≤50	≤2.0	-	-	-	U/U	U/U, C/U, U/C, C/C	E145 E60	E2, E3
	≤50	≤2.0	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	E3
	≤110	3.8	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	
Pipelife Master 3 PLUS	≤110	≤3	-	-	-	U/U	U/U, C/U, U/C, C/C	E190 E90	D1, D2, D3, F1, F2
	≤125	5.3	-	-	-	U/U	U/U, C/U, U/C, C/C	E145 E60	D3, F1, F2
Wavin AS+ (PP)	≤50	3	-	-	-	U/U	U/U, C/U, U/C, C/C	E130 E30	
	≤125	≤5.3	-	-	-	U/U	U/U, C/U, U/C, C/C	- E60	D3, F1, F2
Wavin SiTech+ (PP)	≤50	≤2.1	-	-	-	U/U	U/U, C/U, U/C, C/C	E160 E60	
	≤125	≤4	-	-	-	U/U	U/U, C/U, U/C, C/C	- E60	

PVC Pipes



FZ100 Fire Safe Zone and pipe

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
PVC	≤40	1.9	-	-	-	U/U	U/U, C/U, U/C, C/C	EI30 E30	D3, F1, F2
	≤125	3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	EI30 E30	
	≤40	1.9-9.2 / 3.1-9.2	-	-	-	U/C	U/C, C/C	EI30 E30	
	≤33	2-7.5 / 5-7.5	-	-	-	U/C	U/C, C/C	EI45 E45	E1, E2, E3
	≤90	5-7.5	-	-	-	U/C	U/C, C/C	EI45 E45	
	≤34	2.4-6.8	-	-	-	U/C	U/C, C/C	EI60 E60	
	≤60	2.4-6.8	-	-	-	U/C	U/C, C/C	EI60 E60	E2, E3
	≤89	6.8	-	-	-	U/C	U/C, C/C	EI60 E60	
	≤40	2	-	-	-	U/U	U/U, C/U, U/C, C/C	- E45	
	≤40	1.9-3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E90	E3
	≤125	3.1	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E90	
	≤40	3	-	-	-	U/U	U/U, C/U, U/C, C/C	EI90 E120	
	≤50	2.4	-	-	-	U/U	U/U, C/U, U/C, C/C	EI90 E120	F3
	≤32 (WRAS)	2.4	-	-	-	U/U	U/U, C/U, U/C, C/C	EI20 E120	

COMBUSTIBLE PIPES

MLCP Pipes



FZ100 Fire Safe Zone and MLCP pipe

Service Material	Service Diameter mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
Wavin Tigris PE-HD/Al/PE-Xc	≤50	≤4.5	-	-	-	U/C	U/C, C/C	E190 E90	D1, D2, D3, F1, F2
	≤25	≤2.5	-	-	-	U/C	U/C, C/C	E160 E90	E3
	≤50	≤4.5	-	-	-	U/C	U/C, C/C	E160 E60	
Viega Raxofix PE-RT/Al/PE-RT	≤32	≤3.2	PE-HD foam	9	CS	U/C	U/C, C/C	E190 E90	D1, D2, D3, F1, F2
	>32 ≤50	≤4	-	-	-	U/C	U/C, C/C	E190 E90	
	25	2.5	-	-	-	U/C	U/C, C/C	E190 E90	D1, D2, D3, F1, F2
Uponor Uni Pipe Plus PE-RT/Al/PE-RT	≤25	≤2.5	-	-	-	U/C	U/C, C/C	E160 E90	
	≤25	≤2.5	-	-	-	U/C	U/C, C/C	E190 E90	D2
Uponor MLCP PE-RT/Al/PE-RT	40	4	-	-	-	U/C	U/C, C/C	E190 E90	D1, D2, D3, F1, F2
	40	4	-	-	-	U/U	U/C, C/C	- E45	E2, E3

PVC Ducts

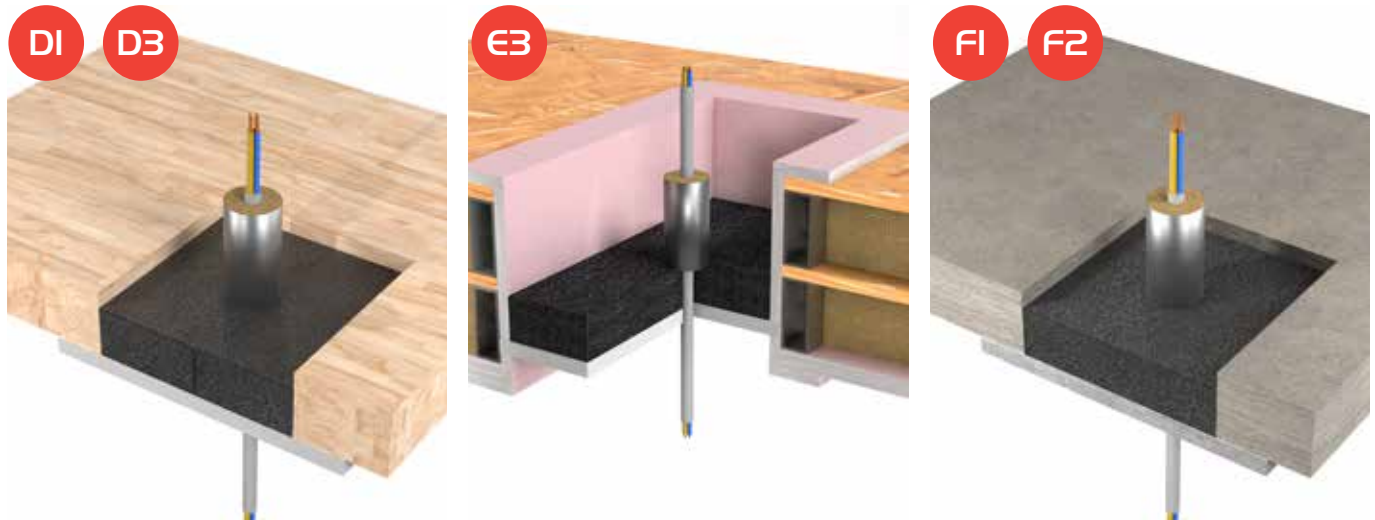


FZ100 Fire Safe Zone and PVC duct

Service Material	Service Dimensions mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
PVC Duct	204x60	1.5	-	-	-	U/C	U/C, C/C	EI45 E45	E1, E2, E3
	220x90	1.5	-	-	-	U/C	U/C, C/C	EI45 E45	
	205x60	3	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	E2, E3
	225x90	1.8	-	-	-	U/U	U/U, C/U, U/C, C/C	EI60 E60	

CABLE AND CABLE CARRIERS

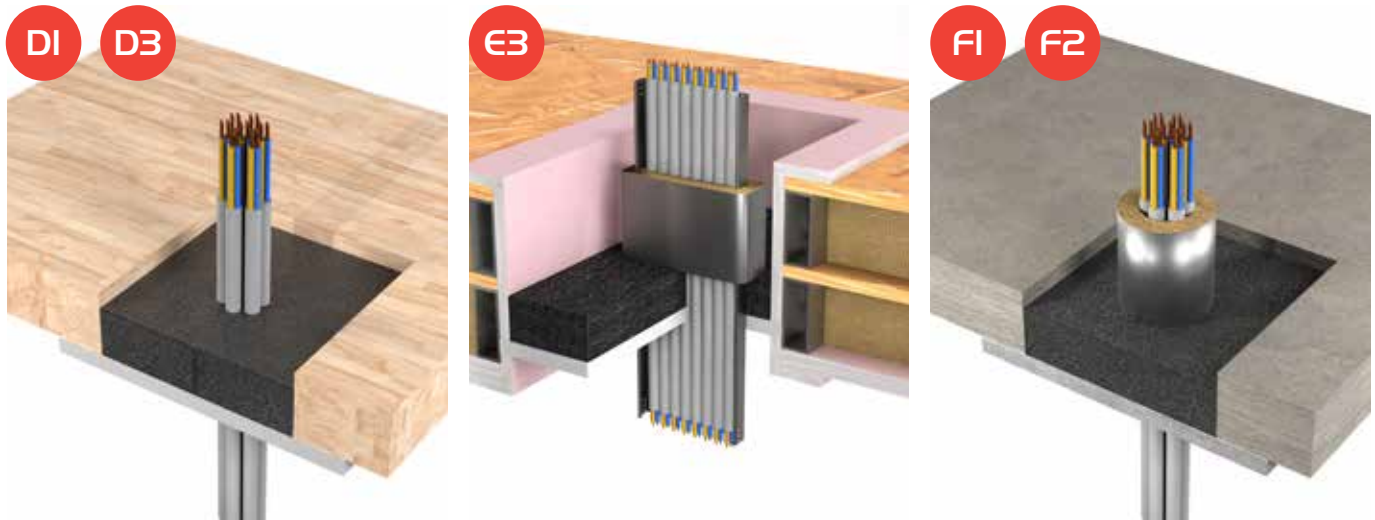
Cables



FZ100 Fire Safe Zone and cables

Service Material	Service Diameter mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
Non-sheated cables	≤24	FI025 (1 row, non fire side)	≥25	LI			EI60 E90	D1, D2, D3, F1, F2
		FI025 (1 row, non fire side)	≥25	LI			EI45 E45	E1, E2, E3
		-	-	-			EI30 E45	E2, E3
		FI025 (2 rows, non fire side)	≥25	LI			EI90 E90	E3
		FI025 (1 row, non fire side)	≥25	LI			EI60 E90	F2
Coaxial sheated cables	≤28	FI025 (1 row, non fire side)	≥25	LI			EI60 E60	D3, F1, F2
		FI025 (1 row, non fire side)	≥25	LI			EI45 E45	E1, E2, E3
		FI025 (2 rows, non fire side)	≥25	LI			EI90 E90	E3
		FI025 (1 row, non fire side)	≥25	LI			EI60 E90	F2
		FI025 (1 row, non fire side)	≥25	LI			EI60 E60	D3, F1, F2
All other sheated cables	≤80	FI025 (1 row, non fire side)	≥25	LI			EI45 E45	E1, E2, E3
		Nitrile rubber (150mm)	≥20	LI			EI30 E45	E2, E3
		FI025 (2 rows, non fire side)	≥25	LI			EI90 E90	E3
		FI025 (1 row, non fire side)	≥25	LI			EI60 E90	F2
Misc sheated cables	18-21	FI025 (1 row, non fire side)	≥25	LI			EI90 E90	F2
B	23-27							
C3	42							
D1, D3	52-58							
E								
UC Home fibre								

Cable bundles, trays and ladders



FZ100 Fire Safe Zone and cable bundles, trays and ladders

Service Material	Service Diameter / Dimension mm	Wall Thickness mm	Insulation Material	Insulation Thickness mm	Insulation Configuration	Service End Configuration Tested	Service End Configuration Permitted	Fire Rating	Floor Configuration Permitted
Cable bundles incl. 5x Ø6.2mm coaxial, 5x 3G Ø11.6mm-YMVK 5x 5G Ø11.7mm-YMVK	≤50	-	-	-	-	-	-	EI90 E90	D1, D2, D3, F1, F2
	≤80	-	-	-	-	-	-	EI90 E90	D1, D2, D3, F1, F2
	≤100	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI45 E60	D3, F1, F2
	≤40	Nitrile rubber (150mm)	≥20	LI	-	-	-	EI30 E45	E2, E3
	≤100	FI025 (2 rows, non fire side)	≥25	LI	-	-	-	EI60 E90	E3
Cable bundles made of cables ≤Ø21mm	≤100	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI60 E90	F2
	≤500x60 perforated	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI90 E90	D1, D2, D3, F1, F2
	≤500x60 perforated	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI60 E60	D3, F1, F2
	≤290x60x1.8	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI45 E45	E1, E2, E3
	≤450x25x1.5	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI45 E45	
	≤500x60	FI025 (2 rows, non fire side)	≥25	LI	-	-	-	EI60 E90	E3
	≤500x60 non-perforated	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI90 E90	F2
	≤200x60	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI90 E90	
	≤500x60	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI60 E90	
	≤500x60	FI025 (1 row, non fire side)	≥25	LI	-	-	-	EI60 E90	
Electrical flexible conduits (empty)	≤63	0.5-1.5	-	-	-	U/C	U/C, C/C	EI90 E90	D1, D2, D3, F1, F2
	≤75 incl. 2x A3	2.5	-	-	-	U/C	U/C, C/C	EI45 E45	E1, E2, E3
Electrical flexible conduits	≤20	-	-	-	-	U/C	U/C, C/C	EI45 E60	F2
	≤63	-	-	-	-	U/C	U/C, C/C	EI30 E90	

ABBREVIATIONS

GXT – Graphite eXpansion Technology

FZ100 – Nullifire FZ100 Fire Safe Zone

FS702 – Nullifire FS702 Intumastic Fire Resistant Acrylic Sealant

FS712 – Nullifire FS712 Intucoat Brush Coating (used on FZ100 in some configurations)

FI025 – Nullifire FI025 Intuflex Insulation Wrap

CLT – Cross-Laminated Timber

AAC – Autoclaved Aerated Concrete

PB – Plasterboard

Stud – Metal or timber stud in wall construction

A1, A2, A3, B1, B2, C1, C2, D1, D2, D3, E1, E2, E3, F1, F2, F3 – Configuration codes for wall and floor constructions (application-specific layouts)

CS – Continuous Sustained (insulation runs continuously along the pipe)

LI – Locally Interrupted insulation (not running through the fire seal)

U/U, U/C, C/U, C/C – Furnace exposure/capping conditions in fire testing

U = Uncapped

C = Capped

First letter = furnace side / **second letter** = ambient side

EI – Integrity & Insulation fire rating (EN 13501-2), duration measured in minutes

E = Étanchéité (from the French) = Integrity: prevents the passage of flames/hot gases

I = Insulation: limits temperature rise on the unexposed side to ≤180 K max for the classified duration

PE – Polyethylene pipe

PP – Polypropylene pipe

PVC – Polyvinyl chloride pipe

PEX – Cross-linked polyethylene pipe

MLCP – Multi-Layer Composite Pipe (aluminium-plastic multilayer pipe)

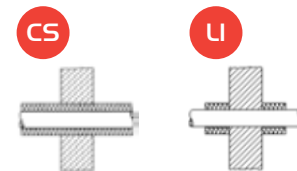
HDPE – High density polyethylene

ABS – Acrylonitrile butadiene styrene pipe

SAN – Styrene acrylonitrile pipe

Cable Types (EN 1366-3)

Cable and type	Dimension	Material	Designation	Ø mm
A1 – Small sheathed	5x1.5 mm ²	PVC/PVC	E-YY-J 5x1,5 RE; NYY-J 5x1,5 RE; VV 5x1,5	14
A3 – Small sheathed	5x1.5 mm ²	PE-X/EVAC	e.g. YMz1Kmbzh 0,6/1 kV 5G1,5 RM; PVIK-LS-HF 5x1,5; N2XH-J 5x1,5RE or N2XH-O 5x1,5RE	13 (≤14)
B – Small sheathed	1x95 mm ²	PVC/PVC	E-YY-J 1x95RM or E-YY-O 1x95RM; NYY-J 1x95RM or NYY-O 1x95RM; VV 1x95; TT 1x95 RM 0,6/1 kV	18-21
C1 – Medium sheathed	4x95 mm ²	PVC/PVC	E-YCWY 4x95SM/50; MCMK 4x95/50; NYCWY 4x95SM/50; PFSP CU 4x95/50; FKKJ 1 4x95/50 S	40-47
C3 – Medium sheathed	4x95 mm ²	PE-X/EVAC	e.g. YMz1Kmbzh 0,6/1 kV 4G95; PVIK-LS-HF 4x95; N2XH-J 4x95SM or N2XH-O 4x95SM	42 (≤45,5)
D1 – Large sheathed	4x185 mm ²	PVC/PVC	E-YCWY 4x185SM/95; MCMK 4x185/95; NYCWY 4x185SM/95; PFSP CU 4x185/95; FKKJ 4x185/95 S	52
D3 – Large sheathed	4x185 mm ²	PE-X/EVAC	e.g. YMz1Kmbzh 0,6/1 kV 4G185 svs; PVIK-LS-HF 4x185; N2XH-J 4x185SM or N2XH-O 4x185SM	58 (≤62,5)
E – Medium sheathed	1x185 mm ²	PVC/PVC	E-YY-J 1x185RM or E-YY-O 1x185RM; NYY-J 1x185RM or NYY-O 1x185RM; VV 1x185; TT 1x185 RM 0,6/1 kV	23-27
F – Telecom bundle	20x2x0.6 mm screened	PE/PE		15-17
G – Non-sheathed wire	1x185 mm ²	PVC	H07V-R	19,3-23,3



NOTES

[illegible]

Tremco CPG Europe manufactures high performance building materials in order to solve the complex challenges faced by today's construction industry. It is the home for multiple European construction product brands, including illbruck, Flowcrete, Nullifire, Tremco, Vandex, Dryvit and Nudura. With over 1,400 employees across Europe, we are committed to being by your side to shape a world where buildings and structures save energy, last longer and exceed sustainability benchmarks.

From joint sealing, bonding and insulation through to passive fire protection, flooring, waterproofing and roofing solutions- the product brands housed within Tremco CPG Europe cover a wide array of different construction needs. Combined with the wealth of expertise, services and support we provide a truly unique offer- to make our customers more successful time after time.

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HONESTY &
INTEGRITY



RESPECT



ENGAGEMENT



SUSTAINABLE
DEVELOPMENT

Delivering World-Class Construction Product Solutions.

The product brands housed within Tremco CPG Europe cover a wide array of different construction needs and provide a wealth of complex services, support and systems that are rarely found together under one roof.



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