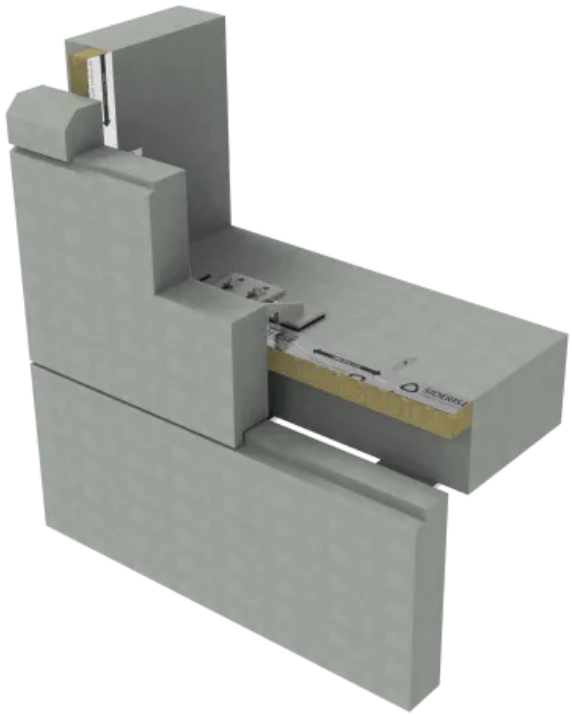
Siderise PC-FS Firestop & PC-CB Cavity Barrier



Factory engineered stone wool Lamella passive fire protection for compartmentation in precast concrete façade applications

Application

Siderise PC-FS firestops and PC-CB cavity barriers are designed for use in precast concrete cladding systems, where they can be applied to firestopping, horizontal perimeter interface sealing, and acoustic barrier functions.

PC-FS and PC-CB products have been tested in both horizontal and vertical orientations in accordance with BS EN 1366-4:2006+A1:2010, “Fire resistance tests for service installations – Linear joint seals”. These tests assess the fire-resistance performance of the systems when installed between compartment floors or walls and external precast concrete cladding.

Siderise’s lamella construction used in PC-FS and PC-CB incorporates vertically oriented stone wool fibres. This construction has been developed to support movement accommodation within the stated performance parameters and expected 60-year service life of the product. The lamella features a special formulation of stone wool insulation with vertically oriented fibres, instead of a horizontal fibre structure.

The fibres are laterally compressed under controlled factory conditions to promote consistency of density across the product sections. This compression is retained by heat-applied reinforced foil facings. The pre-compressed vertical fibre structure contributes to the functional characteristics of the system. It allows the product to be supplied as a single dry-fit unit and enables compression within the void, supporting its friction-fit installation method. The design can also eliminate the requirement for a secondary wet seal where this is appropriate to the project design and specification.

Product Description

Siderise PC-FS firestops and PC-CB cavity barriers are manufactured using a method that provides resilient lateral compression. This facilitates installation, ensuring the requisite tight fit and enhancing the fire integrity of the product.

Standard Systems

The materials can be either supplied as pre-cut units to suit a specified void size or in sheet form for cutting on-site. Standard sheet products are supplied 1200 x 1200 mm which may prove beneficial when the actual void size is not known or where it varies significantly. Please note that when ordered in sheet form, the requisite quantity of fixing brackets needs to be purchased separately.

Pre-cut strips are available in 1mm increments of width to suit the cavity size to provide a tight compressive fit within the void - Please see Table 1 regarding fit type. Each pre-cut unit is supplied with appropriate fixing brackets as part of the system.

The standard fixing brackets are supplied in galvanized mild steel & stainless steel in a flat form for folding on-site. Fixing brackets are provided pre-drilled, enabling uncomplicated installation in accordance with project requirements. Different size brackets are available according to the cavity size – please see Table 1.

All fixing brackets are to be mechanically secured to the substructure with suitable non-combustible fixings.

Fire Performance

Reaction to fire

This is the response of a material in contributing by its own decomposition to a fire to which it is exposed under specified conditions. Results are classified to BS EN 13501-1:2018 “Fire classification of construction products and building elements”.

Siderise PC-FS firestops and PC-CB cavity barriers used at precast concrete cladding interfaces incorporate a one-piece, pre-compressed, non-combustible stone wool core with integral aluminium foil facings, enabling them to achieve a Class A1 reaction-to-fire classification in accordance with BS EN 13501-1:2018, supported by third-party certification with Intertek.

Resistance to fire

This is the ability of an element of structure or product to maintain its stability for a specific time period as determined by ‘integrity’ (E) and ‘insulation’ (I) as specified in the fire resistance test. Where appropriate results can then be classified in accordance with EN 13501-2.

Siderise PC-FS firestop & PC-CB cavity barrier systems have been proven to maintain their integrity (E) and insulation (I) requirements when tested, in horizontal and vertical applications to BS EN 1366-4:2006+A1:2010 “Fire resistance tests for service installations - Linear joint seal..

PC-FS is offered with a 1- or 2-hour fire resistance, with the PC-CB offering 30-minute fire resistance and can accommodate void widths up to 400mm. In addition to providing an effective seal against the passage of fire, the products are also acoustically absorptive.

See Table 1 for the full range of fire resistance performance and details of its third-party certification, where applicable.

BS EN 1366-4:2006+A1:2010 sets out the recognised method for testing the fire-resistance performance of horizontal and vertical linear joint seals. For precast concrete cladding systems, this testing shows how a joint seal behaves under fire conditions representative of interfaces between compartment floors or walls and external precast elements. The results help inform the specification of products designed to maintain fire-resistance continuity at these junctions, provided they align with project-specific design requirements and the tested parameters.

Third-party Certification

IFC certification (IFCC 2080) is available based on proven fire performance for horizontal and vertical applications to BS EN 1366-4:2006+A1:2010 (Table 1).

For further details on all Third-party Certification, the certificates can be downloaded from our online technical resources or from the certification body.

Table 1: Fire Resistance to BS EN 1366-4:2006+A1:2010 (Vertical & Horizontal Orientation)

Product Ref	Void Width (mm)	Thickness (mm)	Compression (min.)	Integrity (Mins)	Insulation (mins)	Product Length (mm)	Bracket Requirement	Third-party Certification
PC-CB30	20 - 50	75	+10%	90	30	1200	None.	IFCC 2080
	51 - 150	75	+10%	90	30	1200	2no.B65/110 600mm centres	IFCC 2080
	151 - 250	75	+10%	90	30	1200	2no.B195 600mm centres	IFCC 2080
PC-CB30X	251 - 400	90	+10%	90	30	1200	2no.B355 600mm centres	IFCC 2080
PC-FS60	20 - 50	100	+10%	90	60	1200	None.	IFCC 2080
	51 - 150	100	+10%	90	60	1200	2no.B65/110 600mm centres	IFCC 2080
	151 - 250	100	+10%	90	60	1200	2no.B195 600mm centres	IFCC 2080
PC-FS60X	251 - 400	120	+10%	90	60	1200	2no.B355 600mm centres	IFCC 2080
PC-FS120	20 - 50	120	+10%	120	120	1200	None.	IFCC 2080
	51 - 150	120	+10%	120	120	1200	2no.B65/110 600mm centres	IFCC 2080
	151 - 250	120	+10%	120	120	1200	2no.B195 600mm centres	IFCC 2080
PC-FS120X	251 - 400	150	+10%	120	120	1200	2no.B355 600mm centres	IFCC 2080

Whilst the PC-FS and PC-CB range has been tested in general accordance with BS EN 1366-4:2006+A1:2010 in narrow void widths 20-50mm without mechanical fixings and brackets, we note that some supervising authorities may require a form of mechanical fixing. We recommend engaging with the project supervising authorities prior to installation to ensure all their requirements are met.

- For vertical firestop applications to the end of a flexible wall (e.g. stud partitions), please consult technical.services@siderise.com for advice on appropriate product selection and application.
- All fixing brackets are to be mechanically fixed to the structure. Please see the installation instructions.
- Façade deflection should be taken into consideration with respect to installation compression, please see **'Movement Characteristics'**.

Acoustic Performance

The PC-FS and PC-CB range of barriers are also acoustically absorptive. Furthermore, the foil facings and the additional sealing of joints with Siderise foil tape all serve to provide improved airtightness.

Table 2 confirms the laboratory tested values for Weighted Sound Reduction Index (dB Rw) in accordance with BS EN ISO 10140-2:2021; Acoustics-Laboratory measurement of sound insulation of building elements, Part 2: Measurement of airborne sound insulation.

Table 2: Acoustic Performance - Weighted Sound Reduction Index

Product Type	Thickness (mm)	Rw (dB)	C:Ctr
PC-CB30	75	21	(-1;-2)
PC-CB30X	90	21	(-1;-2)
PC-FS60	100	21	(-1;-2)
PC-FS60X	120	23	(-1;-3)
PC-FS120	120	23	(-1;-3)
PC-FS120X	150	23	(-1;-3)

Rw is the weighted sound reduction index. It is a laboratory measured value to identify the airborne sound insulation performance of a building element. It is used for internal or external walls, ceilings/floors, windows, doors, or any separating element. The higher the Rw value, the better that element performs in reducing sound transmission. Please note that the values presented in the above table refer to the standalone performance of the Siderise products only.

Acoustic Overlays/Enhancements

Siderise offers a range of complementary acoustic mass barriers which can further improve the overall acoustic performance of the construction.

The Siderise AB10 is a flexible acoustic membrane for use above Siderise PC-FS fire stops in precast cladding applications. Using this acoustic upgrade offers an improvement to the acoustic performance of the firestop. Incorporating mass barriers such as the Siderise AB10 into slab-edge details can reduce flanking sound transmission.

The product is thin, flexible, and is designed to accommodate façade movement, unlike traditional mass-barrier materials such as steel or plasterboard. As the AB10 is sold as an acoustic upgrade for our PC-FS firestops, we have not tested its standalone performance. However, for the purposes of assessment by project acoustic consultants, the Weighted Sound Reduction index (dB-Rw) of the mass barrier layer alone is presented below (Table 4).

Table 3: AB acoustic performance - Weighted Sound Reduction Index

Product Ref.	Product Surface Weight (kg/m^2)	Rw (dB)
AB10	10	28

Table 4: PC-FS, CW-AB and CVB/C acoustic performance

Product Type	21 - 30dB Rw	21 - 30dB Rw + Ctr	36 - 50dB Rw	36 - 50dB Rw + Ctr	50dB Rw	50dB Rw + Ctr
PC-FS60	23	21				
PC-FS120	25	23				
PC-FS120 +AB10 Overlay			37	32		
PC-FS120 + AB10 Overlay + CVB/C10 below					51	45
PC-FS120 + 2mm Steel Plate Overlay + CVB/C10/75 below					53	45

The table above illustrates typical acoustic performance of PC-FS, CW-AB and CVB/C products when used in an arrangement, please see our website for individual product information and standard details. Please note that the values presented in the above table refer to the standalone performance of Siderise products only. For full system performance requirements given as a $D_{nT,w}$ or $D_{n,f,w}$ value, Contact our façades technical team at technical.services@siderise.com for performance guidance.

Technical Specification

Siderise PC-FS Firestop and PC-CB Cavity Barrier for precast concrete cladding

Table 5: Product Properties

Properties	Value
Form Supplied	Sheets : 1200mm x 1200mm (UK and EU); 1200mm x 1150mm (RoW): Thickness is denoted by the rating Pre-cut strips: 1200mm x (void width + compression) x thickness, please see table 1

Colour	Solid, green-brown exposed edges with silver aluminium top and bottom facings
Finish	Aluminium Foil
Void Width	20mm to 400mm (see Table 1)
Fungi Resistance	When tested to ASTM C1338-19 no fungal growth was observed after 28 days
Water Vapour Absorption	5% by weight to ASTM C1104-19 (with foil facing removed). This meets the standard specification for 'Mineral Fibre Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing' ASTM C C665-17, clause 7.5
Reaction to fire	Class 'A1' to BS EN 13501-1:2018
Resistance to fire	30, 60, or 120 minutes (see tables 1)

Environmental

Recyclability

The stone wool core is recyclable.

Third-party verified EPD

Siderise PC-FS Firestops and PC-CB Cavity barriers have an Environmental Product Declaration (HUB-1301) in accordance with BS EN 15804+A2 & ISO 14025 / ISO 21930. Please see EPD in Product Resources or EPD Hub for further information.

60 Year Design life

To confirm long-term durability, PC-FS Firestops and PC-CB Cavity barriers have been put through EOTA TR 024 'Type X' accelerated age testing. This is the harshest category which replicates exposure to rain, UV, high temperatures, and frost and thaw cycles.

When correctly installed in recommended applications, PC-FS and PC-CB have an expected service lifespan of 60 years.

Additional Information Available

The following information is available upon request or via download from the website:

- Third-Party Certification
- Environmental Product Declaration
- Material Data Sheet
- Standard Details
- Installation Instructions
- NBS Specification Clauses

Technical Support

For technical advice, support, or to request a copy of a test or classification report - please contact: technical.services@siderise.com

For Installation Training or Site Inspections - please contact: site.services@siderise.com

For technical advice or support in the Middle East, India or Asia Pacific - please contact: smetech@siderise.com

Context

The information in this datasheet is believed to be accurate at the date of publication. Siderise has a policy of continuous product improvement and reserves the right to alter or amend the specifications of products without prior notice. Siderise does not accept responsibility for the consequences of using the products described outside of the recommendations within this datasheet. Expert advice should be sought where there is any doubt about the correct specification or installation of Siderise products.

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