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appointed according to Article 29 of Construction Products Regulation 2011 as amended by the Construction Products (Amendment etc.) (EU Exit) Regulations 2019 and the Construction Products (Amendment etc.) (EU Exit) Regulations 2020

UK Technical Assessment

0843-UKTA-22/0036 of 20/01/2023

Technical Assessment Body Issuing the UKTA:	UL International (UK) Ltd
Trade name of the construction product	Hilti Firestop Sleeve CFS-SL GA
Product family to which the construction product belongs	Fire Stopping and Fire Sealing Products - Penetration Seals
Manufacturer	Hilti Corporation Feldkircherstrasse 100 9494 Schaan LIECHTENSTEIN
Manufacturing plant(s)	HILTI production plant 4a HILTI production plant 5a HILTI production plant 14
This UK Technical Assessment contains	27 pages including 3 Annexes which form an integral part of this assessment.
This UK Technical Assessment* is issued, on the basis of	EAD 350454-00-1104, September 2017

*** in accordance with Construction Products Regulation 2011 as amended by the Construction Products (Amendment etc.) (EU Exit) Regulations 2019 and the Construction Products (Amendment etc.) (EU Exit) Regulations 2020**

Content

SPECIFIC PARTS OF THE UK TECHNICAL ASSESSMENT

1. Technical Description of the Product

1.1 Definition of the construction product

A detailed specification of the products listed below is given in document "Identification_CFS-SL GA" relating to the UK Technical Assessment UKTA-22/0036 - Hilti Firestop Sleeve which is a non-public part of this UKTA.

The Hilti Firestop Sleeve CFS-SL is a maintenance free cable management firestop device (cable box), intended to form a seal to reinstate the fire resistance performance of flexible wall, rigid wall, sandwich panel, rigid floors, and timber walls and floors (solid and engineered) where they have been provided with openings for the penetration of services. Related acronyms following "CFS-SL" are listed below:

Acronym	Full Name	Variation/s
GA	CFS-SL GA	Hilti Firestop Sleeve CFS-SL with Rubber Gasket
S	CFS-SL GA S	Small diameter device
M/L	CFS-SL GA M/L*	• Medium and Long device • Medium and Long device with Foam membrane
ILS	CFS-SL GA M/L ILS*	• Medium and Long device with locking mechanism at one end • Medium and Long device with locking mechanism at one end and Foam membrane

*See Annex A.9 for illustrations of: device with Foam membrane and device with locking mechanism

The CFS-SL "sleeve" portion consists of a corrugated steel tube that houses a pair of plastic parts ("tabs") at each end, intumescent wrap strips, and a twistable inner fabric smoke seal. Pressing the tabs allows twisting the fabric smoke seal to close the seal.

Two rubber gaskets composed of EPDM, are provided with each sleeve, and are placed on both sides of sleeve - flush to wall/floor surface - to seal the annular gap between edge of opening and perimeter of sleeve. The rubber gaskets are positioned after the sleeve is installed, and pressed against wall/floor by flanges.

The two flanges made from steel - also provided with each sleeve - are used to mount the sleeve to the wall or floor (one flange on each side). Flanges are turned clockwise on the threading of the metal housing till tight against rubber gasket and wall/floor surface.

For installation details, see Seal Type 1 in Annex A.3. For Fire Resistance Classifications, see Annex B.

1.2 **Ancillary products**

Acronyms used for ancillary products also follow "CFS-SL" and are listed below:

- GP 40 – The 40 centimeter Gangplate with 3 openings (CFS-SL GP 40)
- GP 60 – The 60 centimeter Gangplate with 4 openings (CFS-SL GP 60)
- GP CAP - The Gangplate CAP for "blank" Gangplate openings (CFS-SL GP CAP)

1.2.1 Hilti Firestop Gangplate CFS-SL GP 40 and CFS-SL GP 60

Both Gangplate variants consist of a sandwich type construction of steel plates, ceramic paper, EPDM rubber seal and EPDM foam sealing strips. Gangplates are used only with the Medium and Long diameter Sleeve variants - CFS-SL GA M/L (flanges and rubber gaskets not required.) Gangplates are surface mounted over pre-formed openings, direct to surface of flexible/rigid wall or sandwich panel by twelve screws (CFS-SL GP 40) or fourteen screws (CFS-SL GP 60).
For installation details - see Seal Type 2 in Annex A.3.

1.2.2 Hilti Firestop Gangplate CAP CFS-SL GP CAP

The Gangplate CAP consists of a zinc coated, steel plate. It allows for the option of having "blank" openings in a Gangplate (openings without sleeves installed.) The CAPs are installed both sides of wall, in Gangplate openings, each by removing four hexagonal nuts and a flange plate, then by inserting the CAP, and reinstalling the flange plate and nuts.
For installation details, see Seal Type 2a in Annex A.4.

Further ancillary products - used as needed - for annular space filling or additional insulation:

1.2.3 Hilti Firestop Acrylic Sealant CFS-S ACR

For Specification, see relevant UKTA/ETA. For installation details, see Seal Type 1a in Annex A.4.

1.2.4 Hilti Firestop Plug CFS-PL 132

For Specification, see relevant ETA. For installation details, see Seal Type 2a in Annex A.4.

1.2.5 Hilti Firestop Putty Roll CP 619 T

For Specification, see relevant ETA. For installation details, see Seal Type 1b in Annex A.4.

1.2.6 Hilti Firestop Putty Pad CP 617

For Specification, see relevant ETA. For installation details, see Seal Type 1b in Annex A.4.

1.2.7 Hilti Firestop Putty Bandage CFS-P BA

For Specification, see relevant ETA. For installation details, see Seal Type 1b in Annex A.4.

For Fire Resistance Classifications, see Annex B.

Technical product literature
Technical Data Sheet Hilti Firestop Sleeve CFS-SL GA including all ancillary products.

2 Specification of the intended use(s) in accordance with the UK European Assessment Document (Pre-Exit European Assessment Document): EAD 350454-00-1104

Detailed information and data is given in Annex A and Annex B.

The intended use of Hilti Firestop Sleeve CFS-SL GA (and ancillary products) is to reinstate the fire resistance performance of flexible or rigid wall, sandwich panel, rigid floors and timber walls and floors (solid and engineered), where they are penetrated by services.

Construction elements for use of CFS-SL GA to provide a penetration seal in, are detailed in Annex A.1.

The provisions made in this UK Technical Assessment are based on an assumed working life of the Hilti Firestop Sleeve of 25 years, provided that the conditions laid down in the manufacturer's datasheet and instructions for the packaging / transport / storage / installation / use / repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

2.1 Use category

Type Z_2: intended for uses at internal conditions with humidity classes other than Z_1, excluding temperatures below 0° C.

3 Performance of The Product And References To The Methods Used For Its Assessment

Product-type: mixed seal		Intended use: Penetration Seal	
Basic requirement for construction work	Basic Requirement	Performance	
BWR 2 Safety in case of fire			
EN 13501-1	Reaction to fire	Class E	
EN 13501-2	Resistance to fire	Annex B	
BWR 3 Hygiene, health and environment			
EN 1026:2000	Air permeability (Device 0% Filled) (CFS-SL GA M/L)	Pressure	Leakage
		10 Pa	0.24 m3/(h)
		50 Pa	0.83 m3/(h)
		100 Pa	1.38 m3/(h)
		150 Pa	1.83 m3/(h)
		200 Pa	2.21 m3/(h)
		250 Pa	2.59 m3/(h)
		300 Pa	2.95 m3/(h)
EAD 350454-00-1104, Annex C	Water permeability (material property)	No performance determined	
Declaration of conformity by the manufacturer	Content, emission and/or release of dangerous substances	Clause 3.1.1 of the UKTA	
BWR 4 Safety in use			
EOTA TR 001:2003	Mechanical resistance and stability	No performance determined	
EOTA TR 001:2003	Resistance to impact/movement	No performance determined	
EOTA TR 001:2003	Adhesion	No performance determined	
EAD 350454-00-1104, Clause 2.2.9	Durability	Z_2	
BWR 5 Protection against noise			
EN 10140-2/EN ISO 717-1	Airborne sound insulation	No performance determined	
BWR 6 Energy economy and heat retention			
EN 12664, EN 12667, EN 12939, EN ISO 8990, EN ISO 6946, EN ISO 14683, EN ISO 10211, EN ISO 10456	Thermal properties	No performance determined	
EN ISO 12572 EN 12086	Water vapour permeability	No performance determined	

3.1 Hygiene, Health, and the environment.

3.1.1 Content and release of Dangerous Substances

The manufacturer has provided a declaration on the content, emission and/or release of dangerous substances in relation to their products with the title "Statement on Product Regulatory Compliance: Version 1.1 October 2022).

In addition to the specific clauses relating to dangerous substances contained in this UK Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed UK legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Regulation, these requirements need also to be complied with, when and where they apply.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

According to the Statutory Instrument 2019 No. 465 – made 5th March 2019 and cited as the Construction Products (Amendment etc.) (EU Exit) Regulations 2019 and coming into force on exit day and Statutory Instrument 2020 No. 1359 – made 26th November 2020 and cited as the Construction Products (Amendment etc.) (EU Exit) Regulations 2020 and coming into force immediately before the 2019 Regulations come into force, on the procedure for attesting the conformity of construction products as regards fire stopping, fire sealing and fire protective products, published as 'Pre-Exit' European Assessment Documents, (see https://www.gov.uk/guidance/pre-exit-european-assessment-documents-construction-products), the system of assessment and verification of constancy of performance (see Annex V to Construction Products Regulation 2011 as amended by the Construction Products (Amendment etc.) (EU Exit) Regulations 2019 and the Construction Products (Amendment etc.) (EU Exit) Regulations 2020) given in the following table(s) apply.

Product(s)	Intended use(s)	Level(s) or class(es)	System
Fire Stopping and Fire Sealing Products	For fire compartmentation and/or fire protection or fire performance	any	1

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Tasks of the manufacturer:
Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the product is in conformity with this UK Technical Assessment.

The manufacturer may only use initial / raw / constituent materials stated in the technical documentation of this UK Technical Assessment.

The factory production control shall be in accordance with the Control Plan of 01/02/2021 relating to the UK Technical Assessment 0843-UKTA-22/0036 issued on 20/01/2023 which is part of the technical documentation of this UK technical Assessment. The "Control Plan" is laid down in the context of the factory production control system operated by the manufacturer and deposited at UL International (UK) Ltd.

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the Control Plan.

Other tasks of the manufacturer
Additional information

The manufacturer shall provide a technical data sheet and an installation instruction with the following minimum information:

(a) Technical data sheet:

- Field of application:
- Building elements for which the penetration seal is suitable, type and properties of the building elements like minimum thickness, density, and - in case of lightweight constructions – the construction requirements.
- Limits in size, minimum thickness etc. of the penetration seal
- Construction of the penetration seal including the necessary components and additional products (e.g. backfilling material) with clear indication whether they are generic or specific.
- Services which the penetration seal is suitable, type and properties of the services like material, diameter, thickness etc. in case of pipes including insulation materials; necessary/allowed supports/fixings (e.g. pipe trays)

(b) Installation instruction:

- Steps to be followed
- Procedure in case of retrofitting
- Stipulations on maintenance, repair and replacement

Issued on:

20 January 2023

Report by:

C. Sweeney
Project Engineer Associate
Built Environment

Reviewed by:

C. Johnson
Senior Staff Engineer
Built Environment

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

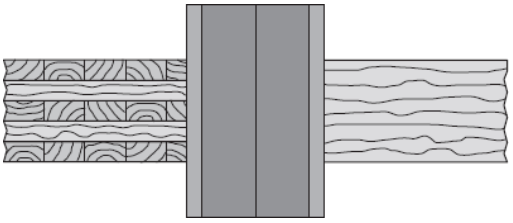
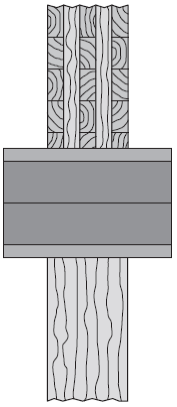
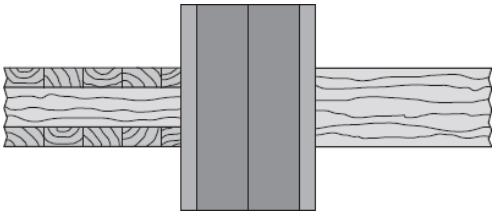
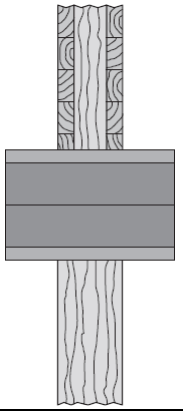
ANNEX A

Manufacturer Detailed Installation Information

A.1 Supporting Constructions for CFS-SL GA S/M/L:

Flexible and Rigid walls	Flexible Walls: • CFS-SL GA S/M: Minimum thickness 100mm & maximum thickness 200mm (Maximum thickness: 180mm if CFS-SL GA M in combination with Gangplate) • CFS-SL GA L: Minimum thickness 200mm & maximum thickness 300mm (Maximum thickness: 280mm if CFS-SL GA L in combination with Gangplate) Comprise timber or steel studs lined on both faces to a thickness of 25mm according to EN 520 type F. • For timber stud walls - minimum distance of 100mm of the seal to any stud, the cavity between stud and seal must be closed, and a minimum of 100mm insulation of Class A1 or A2 (in accordance with EN 13501-1) is required in the cavity between stud and seal. Rigid Walls: • Minimum thickness 100mm & maximum thickness 200mm (CFS-SL GA S/M) (Maximum thickness: 180mm if CFS-SL GA M in combination with Gangplate) • Minimum thickness 200mm & maximum thickness 300mm (CFS-SL GA L) (Maximum thickness: 280mm if CFS-SL GA L in combination with Gangplate) Comprise of: concrete, aerated concrete or masonry, with a minimum density of 550 kg/m^3.
Sandwich panels:	Tested with 100mm Paroc line 200 AST F 100/99 and 150mm Paroc line 200 AST F. Field of application, based on tested Specimens (in accordance with Standard EN 14509:2013): • Minimum thickness 100mm & maximum thickness 200mm (CFS-SL GA S/M) (Maximum thickness: 180mm if CFS-SL GA M in combination with Gangplate) • Minimum thickness 200mm & maximum thickness 300mm (CFS-SL GA L) (Maximum thickness: 280mm if CFS-SL GA L in combination with Gangplate) • Shall comprise Euroclass A1 structural stone wool core of density between: 100 kg/m^3 and 150kg/m^3, and Reaction to Fire: Euroclass A2-s1,d0 • Steel faced with exposed and unexposed sides between 0.50mm and 1mm • Flat or light profile type • Polyurethane based adhesive • Valid for vertically and horizontally installed panels • PVDF (external) and SP (Internal) steel coating • 1.2m width of panel. Unlimited decrease in width, and increase up to 1.44m
Floors:	• Minimum thickness 150mm & maximum thickness 200mm (CFS-SL GA S/M) Minimum thickness 200mm & maximum thickness 300mm (CFS-SL GA L) • Aerated concrete or concrete with a minimum density of 550kg/m^3.

The walls / floors must be classified in accordance with EN 13501-2 for the required fire resistance period or fulfil the requirements of the relevant Eurocode.

Timber Walls & Floors: **(Solid and Engineered)**	Timber wall and floor constructions should comprise of: **1. Solid timber** • Softwoods such as: spruce/fir, pine, larch, stone pine **2. Engineered timber** • Glued solid timber boards • Glued laminated timber (glulam) with or without finger joints • Cross laminated timber (CLT, X-Lam) with or without finger joints according EN 16351, with Resistance to Fire Classification (REI) according EN ISO 13501 Characteristics of Engineered timber: • Softwoods such as: spruce/fir, pine, larch, stone pine • Number of layers $\geq$ 3 • Thickness of layers: tl $\geq$ 20mm • Polyurethane and/or MUF (phenolic and amino plastic) based adhesives • With or without grooves and edge bonds acc. EN 16351:2015, chapter 5.2.2.4
	General Field of Application: • Minimum thickness 80mm & maximum thickness 200mm (CFS-SL GA M) • Minimum thickness 200mm & maximum thickness 300mm (CFS-SL GA L) • Thickness of Solid Timber must be ≥ total thickness of Engineered Timber • Thicknesses of Engineered Timber layers may be: o Identical, see images 1 & 2: 1.)  2.)  o Or non-identical, see images 3 & 4: 3.)  4.) 

A.2 Illustration Abbreviations:

A	Hilti Firestop Sleeve CFS-SL GA
A1	Rubber Gasket
B	Hilti Firestop Gangplate: CFS-SL GP 40 or 60
B1	Hilti Firestop Gangplate CAP: CFS-SL GP CAP
B1a	Hilti Firestop Plug: CFS-PL 132
A1a	Hilti Firestop Acrylic Sealant CFS-S ACR
A1b	Hilti Firestop Putty Roll CP 619 T
A1c	Hilti Firestop Putty Pad CP 617 – cut to 25mm width
A1d	Hilti Firestop Putty Bandage CFS-P BA
C	Cables/Conduits
E1	Building Element Flexible/Rigid Wall
E2	Building Element Sandwich Panel
E3	Building Element Floor
E4	Building Element Timber Walls and Floors (Solid and Engineered)
tE	Thickness of Building Element – refer to A.1

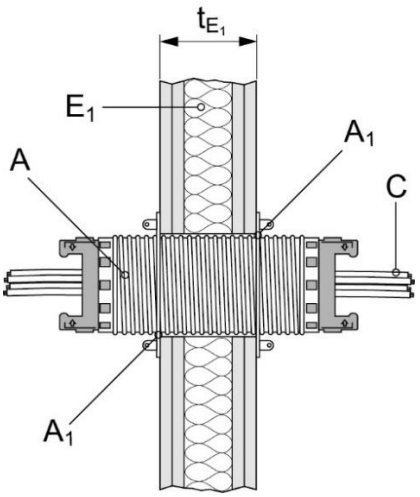
A.3 Seal Type Details and Installation:

There are two primary Seal Types:

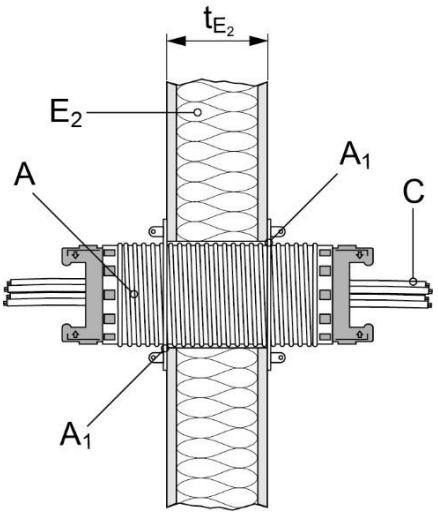
Seal Type	Seal Detail	Device(s)	
		Wall	Floor
1	Single Devices	CFS-SL GA S/M/L	CFS-SL GA S/M/L
2	Ganged Devices	CFS-SL GA M/L & CFS-SL GP 40 or 60	N/A

A.3.1 Seal Type 1 Details:

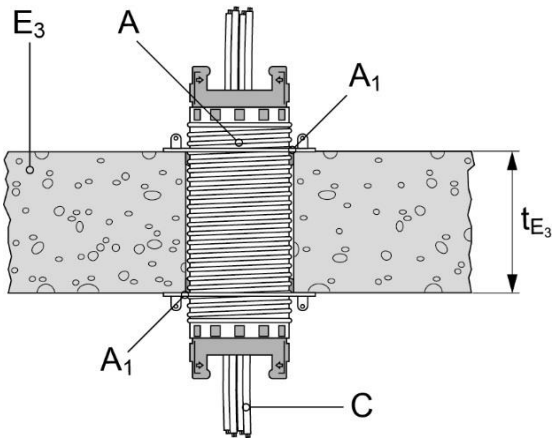
Section –
CFS-SL GA S/M/L
in Flexible or Rigid Wall



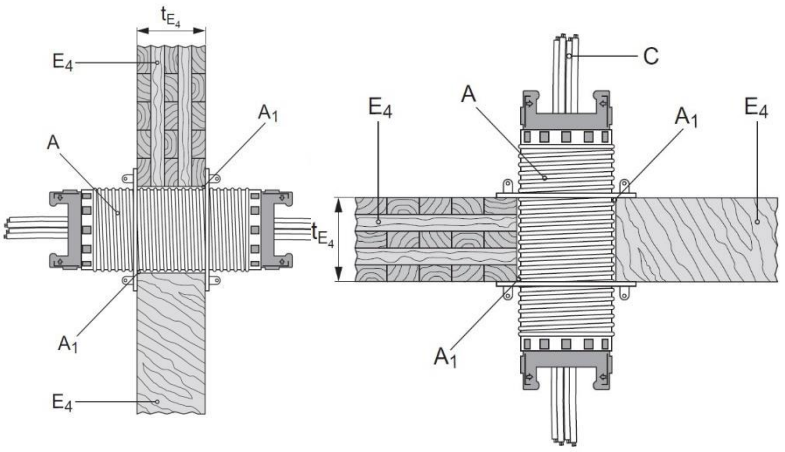
Section –
CFS-SL GA S/M/L
in Sandwich Panel



Section –
CFS-SL GA S/M/L
in Floor

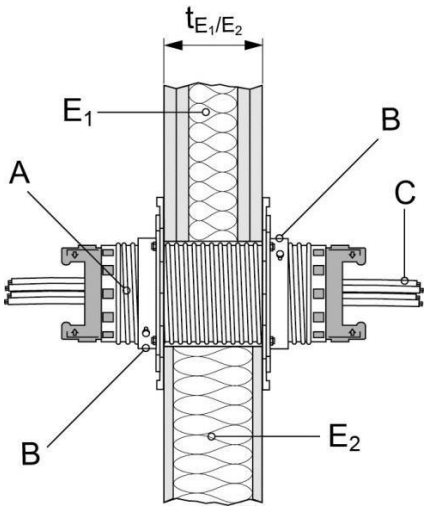


Section –
CFS-SL GA M/L
in Timber Walls and Floors



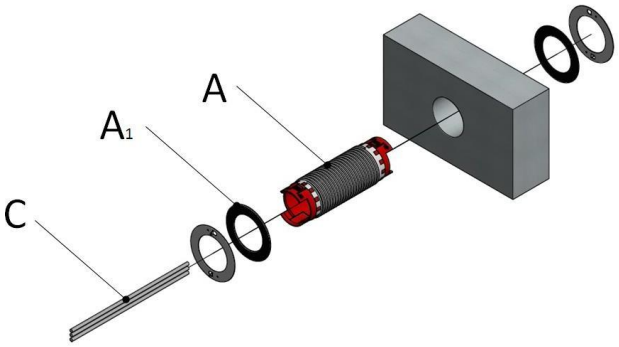
A.3.2 Seal Type 2 Details:

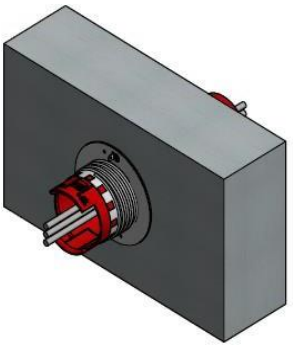
Section –
CFS-SL GA M/L and CFS-SL GP 40 or 60 in Flexible or Rigid Wall or Sandwich Panel



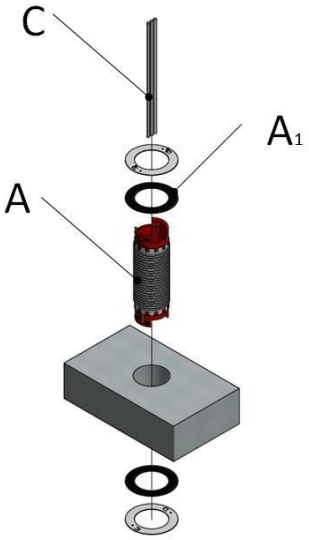
A.3.3 Seal Type 1 Application Information (CFS-SL GA S/M/L)

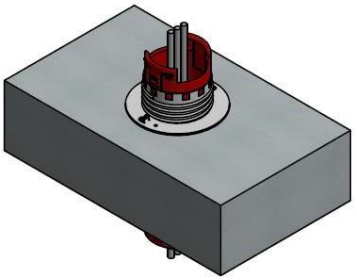
Walls:





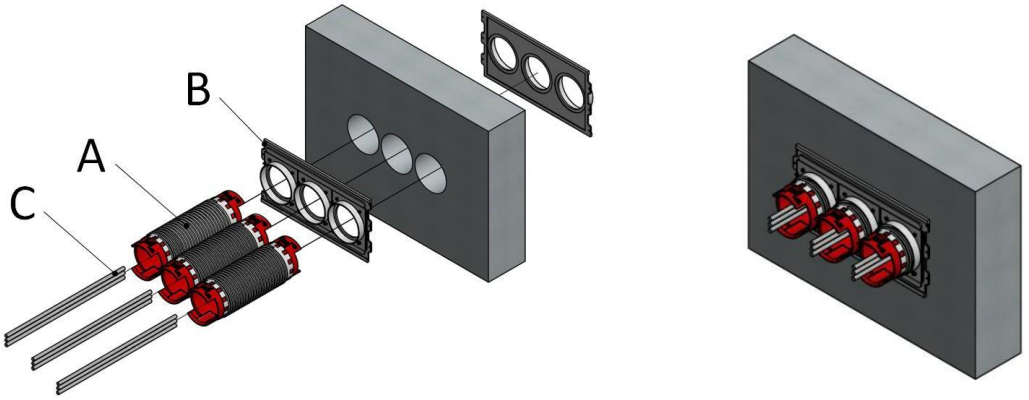
Floors:





A.3.4 Seal Type 2 Application Information (CFS-SL GP 40 or 60)

Walls and Sandwich Panels:



A.4 Variations on Seal Type

As variations to Seal Type 1 and 2, further ancillary products can be installed to provide:

- Higher Fire Classification ratings in specific flexible or rigid wall applications: Hilti Firestop Acrylic Sealant CFS-S ACR can be applied to seal annular gaps in place of Rubber Gaskets. (See Seal Type 1a for installation)

- Higher Fire Classifications for CFS-SL GA M/L in 150mm thick Sandwich Panels: Hilti Firestop Putty is pressed around opening - CP 619 T or CP 617 (cut to 25mm width) before installing rubber gasket, and CFS-P BA used to wrap first 100mm of cables as they project from tabs of sleeve.

In all cases, putty is installed in 2 layers with minimum 5mm overlap. (See Seal Type 1b for installation)

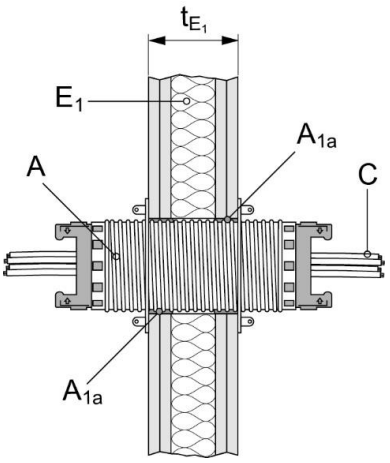
- Blank openings (no sleeve) in Gangplates: Hilti CFS-SL GP CAP & CFS-PL 132 are required. (See Seal Type 2a for installation)

Seal Type Variation	Seal Detail	Ancillary product		
		Wall	100mm Sandwich Panel	150mm Sandwich Panel
1a	Single Devices	CFS-S ACR	-	-
1b	Single Devices	-	-	CP 619 T or CP 617. And CFS-P BA
2a	Ganged Devices	CFS-SL GP 40 or 60, CFS-SL GP CAP & CFS-PL 132		

A.4.1 **Seal Type 1a Detail:**

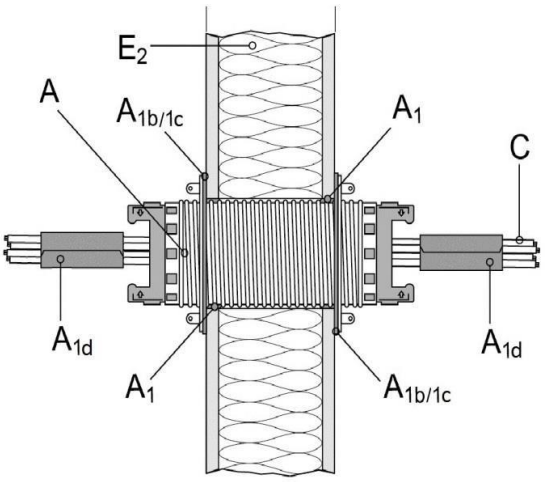
Section –
CFS-SL GA S/M/L and CFS-S ACR
in Flexible or Rigid Wall

Recommended A1a (CFS-S ACR) installed to 25mm depth into wall



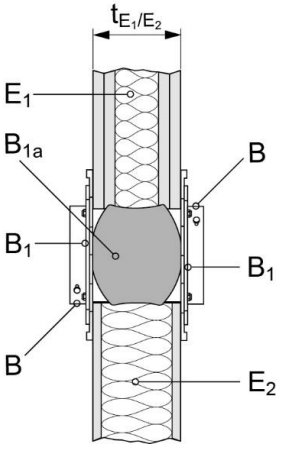
A.4.2 **Seal Type 1b Detail:**

Section –
CFS-SL GA M/L with CP 619 T or CP 617
behind flanges and CFS-P BA around Cables - in 150mm Sandwich Panel



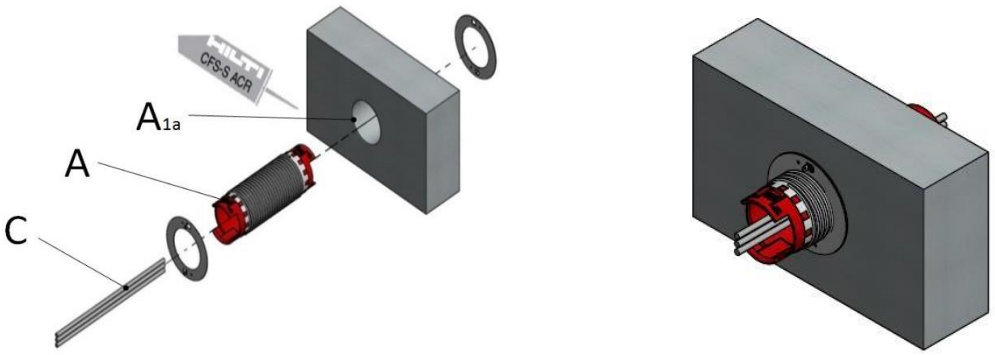
A.4.3 **Seal Type 2a Detail:**

Section –
CFS-SL GA M/L and CFS-SL GP 40 or 60 with CFS-SL GP CAP and CFS-PL 132 in Flexible or Rigid Wall or Sandwich Panel



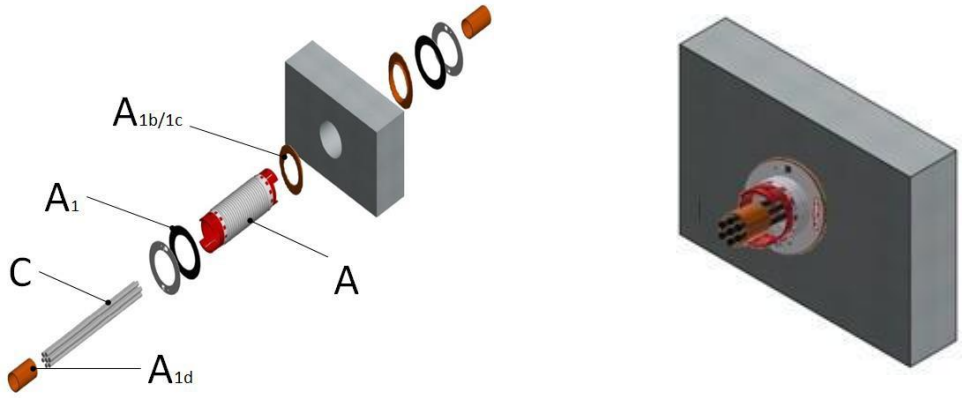
A.4.4 Seal Type 1a Application Information (CFS-SL GA S/M/L and CFS-S ACR)

Flexible and Rigid Walls



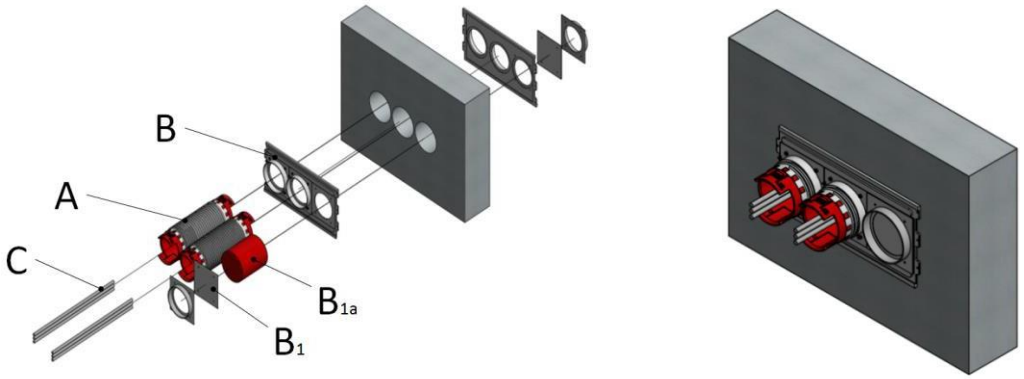
A.4.5 Seal Type 1b Application Information (CFS-SL GA M/L & CP 619 T/CP 617 and CFS-P BA)

Sandwich Panels



A.4.6 Seal Type 2a Application Information (CFS-SL GA M/L, CFS-SL GP 40 or 60, CFS-SL GP CAP & CFS-PL 132)

Flexible and Rigid Walls and Sandwich Panels



A.5 Seal Type Opening Sizes:

Seal Type	Seal Detail	Device	Opening Ø
1, 1a & 1b	Single Devices	CFS-SL GA S CFS-SL GA M/L	**63 – 73mm** **113 - 122mm**
2 & 2a	Ganged Devices	CFS-SL GP 40 or 60	**113 - 122mm**

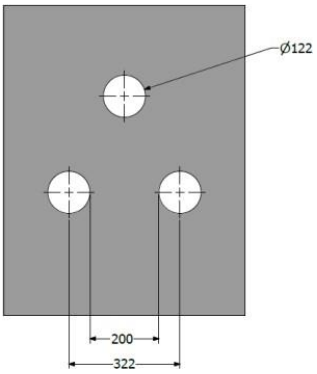
A.6 Distances between openings

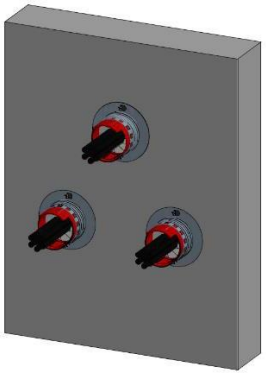
A.6.1 Seal Type 1 including 1a and 1b

Depending on Fire Classification and space requirements, the Hilti Firestop Sleeve CFS-SL GA can be installed with:

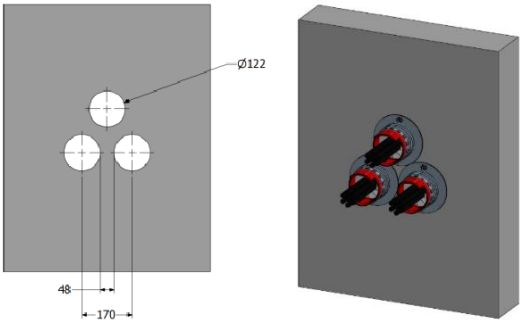
- ≥ 200mm distance between openings, or
- Clustered or Linear with flanges touching (zero distance between devices)

200mm (horizontal/vertical distance between openings)

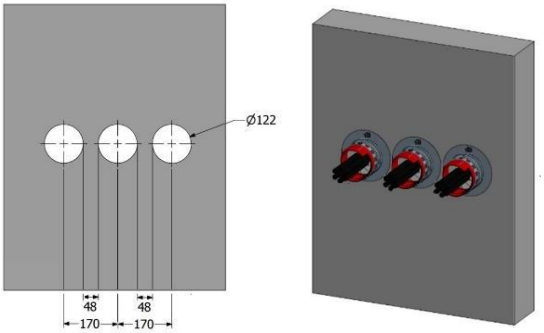




Zero distance (horizontal/vertical distance between flanges cluster or linear)



Cluster



Linear

Note: dimensions above relate to Ø122mm (CFS-SL GA M/L) – using smaller diameters will alter the distances between opening centres.

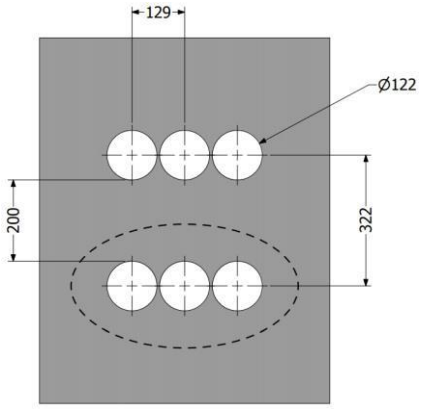
(For CFS-SL GA S – use diameter Ø63-73mm as in Section A.5.)

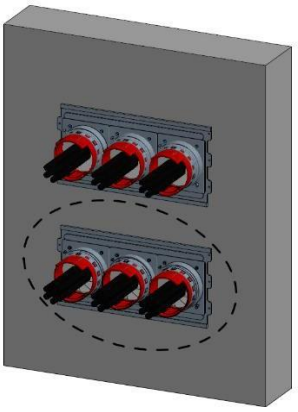
A.6.2 **Seal Type 2 including 2a**

Depending on Fire Classification and space requirements, the Hilti Firestop Sleeve CFS-SL GP can be installed with:

- ≥ 200mm distance between openings, or
- Gangplates touching or slight overlap (zero distance)

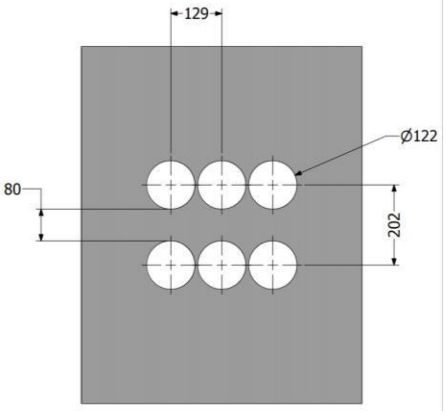
200mm from Opening to nearest Opening - For Single to any number of installations: (Lower, dashed Gangplate illustrates correct placement of 200mm distance)

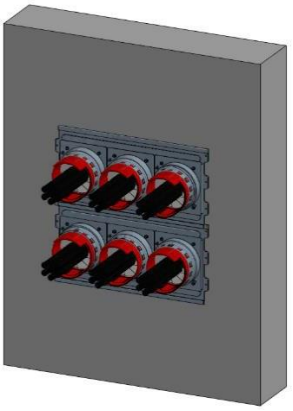




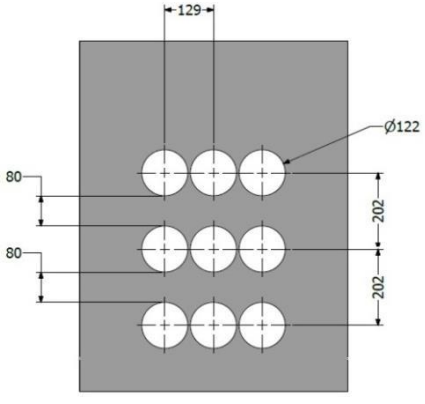
Zero Distance between Devices - For Double Gangplate installation:

(Outside of Double Constellation, 200mm to next Gangplate/Constellation /Device opening)





Zero Distance between Devices - For Triple Gangplates to any number of installations:



A.6.3 Guideline for Gangplate fixing elements

Anchoring solution	Anchor Indication	Drywall	Aerated Concrete wall	Sandwich Panel	Concrete
Drywall Screws:	Diameter: 3.5mm Length: ≥ 35mm	x	x		
Self-drilling Screws:	Diameter: 3.5mm Length: ≥ 19mm			x	
Screw Anchor (Hilti HUS3-PS 6)	Diameter: 6mm Length: ≥ 40mm				x*

*Minimum 4 anchors required. Edge distances to be considered.

	CFS-SL GP 40	CFS-SL GP 60
Total Number of fixations	12	14

A.7 Penetrating services

A.7.1 Cables

Penetrating services	**Description**
Small Cables Ø ≤ 21mm: (CFS-SL GA S/M/L)	All cable types currently and commonly used in building practice in Europe (e.g. power, control, signal, telecommunication, data, optical fibre cables, with or without cable supports) with a **diameter Ø ≤21mm.**
Medium and Large Cables (CFS-SL GA M/L)	All cable types currently and commonly used in building practice in Europe (e.g. power, control, signal, telecommunication, data, optical fibre cables, with or without cable supports) with a **diameter up to Ø ≤ 80mm**.
Cable Fills:	All Fire Classifications in Annex B allow sleeves to be left blank or filled with cables to up to 60% of the total sleeve cross section/area. For fills higher than 60%, there are classifications with: - 36mm bundles (CFS-SL GA S) and 86mm bundles (CFS-SL GA M/L) or, - 100% fills (CFS-SL GA S/M/L) Note that all cables with Ø ≤21mm are covered, and in cases cables up to Ø ≤80mm.

A.7.2 Conduits

Penetrating services	**Description**
Single conduits Ø ≤ 25mm: (CFS-SL GA S):	Rigid, flexible and pliable plastic conduits and metal conduits with a **diameter Ø ≤ 25mm** with or without cables.
Single conduits Ø ≤ 63mm (CFS-SL GA M/L):	Rigid, flexible and pliable plastic conduits and metal conduits with a **diameter Ø ≤ 63mm** with or without cables.
Conduit bundle (CFS-SL GA S):	Conduits with a **max. single conduit diameter Ø ≤ 25mm** with or without cables can be bundled to a **diameter Ø ≤ 48mm**.
Conduit bundle (CFS-SL GA M/L):	Conduits with a **max. single conduit diameter Ø ≤ 63mm** with or without cables can be bundled to a **diameter Ø ≤ 92mm.**

A.8 Distances for all cable support constructions

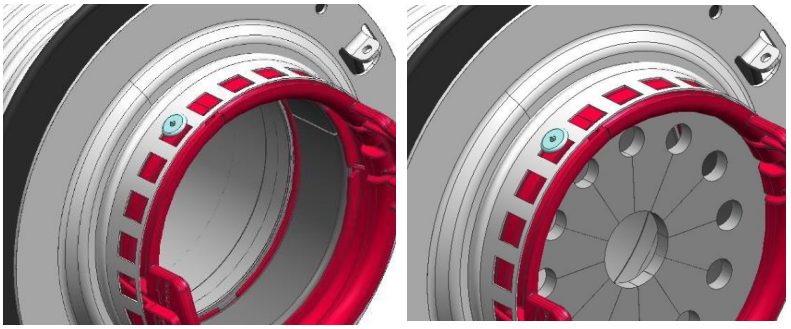
The distances from the surface of the separating element to the first supporting construction:

a) Wall (distance from the face of the wall on both sides): ≤ 250mm
b) Floor (distance from upper side of floor): ≤ 250mm

A.9 Illustrations of device with Foam membrane and locking mechanism

Illustration – CFS-SL GA M/L with Foam membrane at opening

Illustration – CFS-SL GA M/L ILS with Locking rivet for variant without* and with foam membrane.



* Note – classifications for CFS-SL GA M/L in following Annex B of UKTA cover: CFS-SL GA M/L ILS without Foam membrane.

ANNEX B

Resistance to Fire Classifications

B.1 Seal Type 1 (Including 1a and 1b)

B.1.1 200mm between openings (See A.6.1):

	Description	(CFS-SL GA S)	(CFS-SL GA M/L)
Flexible & Rigid wall	Blank Device	**EI 120**	**EI 120**
	All sheathed cables ≤ 21mm	**EI 90**	**EI 90** [1)]
	All sheathed cables ≤ 50mm	**-**	**EI 90**
	All sheathed cables ≤ 80mm	**-**	**EI 60**
	Cable bundles ≤ 36mm All sheathed cables ≤ 21mm	**EI 90**	**-**
	Cable bundles ≤ 86mm All sheathed cables ≤ 21mm	**-**	**EI 90**
	100% filled device with cables ≤ 21mm	**EI 60** [2)]	**EI 90**
	Conduits ≤ 25mm (CFS-SL GA S)	**EI 120**	**-**
	Conduits ≤ 63mm (CFS-SL GA M/L)	**-**	**EI 90** [3)]
	For higher Fire Classifications – follow Seal Type 1a (ACR) installation:		
	1) All sheathed cables ≤ 21mm	**-**	**EI 120**
	2) 100% filled device with cables ≤ 21mm	**EI 90**	**-**
	3) Conduits ≤ 63mm (CFS-SL GA M/L)	**-**	**EI 120**

Sandwich Panel 150mm thickness	Blank Device	**EI 90**	**EI 90** [4)]
	All sheathed cables ≤ 21mm	**EI 60**	**EI 90** [4)]
	All sheathed cables ≤ 50mm	**-**	**EI 90**
	100% filled device with cables ≤ 21mm	**EI 60**	**-**
	100% filled device with cables ≤ 50mm	**-**	**EI 60** [4)]
	For higher Fire Classifications – follow Seal Type 1b (Putty) installation:		
	4) 100% filled device with cables ≤ 21mm (CFS-SL GA M/L)	**-**	**EI 120**

B.1.2 Zero distance between flanges (See A.6.1):

	Description	(CFS-SL GA S)	(CFS-SL GA M/L)
Flexible & Rigid wall	Blank Device	**EI 120**	**EI 90**
	All sheathed cables ≤ 21mm	**EI 60**	**EI 90**
	All sheathed cables ≤ 50mm	-	**EI 60**
	All sheathed cables ≤ 80mm	-	**EI 60**
	Cable bundles ≤ 36mm All sheathed cables ≤ 21mm	**EI 90**	-
	Cable bundles ≤ 86mm All sheathed cables ≤ 21mm	-	**EI 60**
	100% filled device with cables ≤ 21mm	**EI 60**	**EI 60**
	100% filled device with cables ≤ 80mm	-	**EI 60**
	Conduits ≤ 25mm (CFS-SL GA S)	**EI 90**	-
	Conduits ≤ 63mm (CFS-SL GA M/L)	-	**EI 60**

Sandwich Panel 100mm thickness	Blank Seal	**EI 45**	**EI 90**
	All sheathed cables ≤ 21mm	**EI 45**	**EI 90**
	All sheathed cables ≤ 50mm	-	**EI 60**
	100% filled device with cables ≤ 21mm	**EI 45**	**EI 60**
	100% filled device with cables ≤ 50mm	-	**EI 60**

	Description	(CFS-SL GA S)	(CFS-SL GA M/L)
Floors	Blank Device	**EI 180**	**EI 180**
	All sheathed cables ≤ 21mm	**EI 180**	**EI 180**
	All sheathed cables ≤ 50mm	-	**EI 120** [5)]
	All sheathed cables ≤ 80mm	-	**EI 60**
	Cable bundles ≤ 36mm All sheathed cables ≤ 21mm	**EI 180**	-
	Cable bundles ≤ 86mm All sheathed cables ≤ 21mm	-	**EI 120**
	100% filled device with cables ≤ 21mm	**EI 120**	-
	100% filled device with cables ≤ 50mm	-	**EI 120**
	Conduits ≤ 25mm (CFS-SL GA S)	**EI 120**	-
	Conduits ≤ 63mm (CFS-SL GA M/L)	-	**EI 60** [6)]
	For higher Fire Classifications – increase distances between openings - 200mm:		
	5) All sheathed cables ≤ 50mm	-	**EI 180**
	6) Conduits ≤ 63mm (CFS-SL GA M/L)	-	**EI 120**

B.1.3 Zero distance between flanges. Devices installed Linear (See A.6.1).

	Description	(CFS-SL GA M/L)
Timber Walls Thickness ≥80 mm	Blank Device to 100% filled Cables ≤ 21mm	**EI 60**
Timber Walls Thickness ≥100 mm	Blank Device to 100% filled Cables ≤ 21mm	**EI 90**

B.1.4 Zero distance between flanges. Devices installed Cluster (See A.6.1).

	Description	(CFS-SL GA M/L)
Timber Floors Thickness ≥80 mm	Blank Device to 100% filled Cables ≤ 21mm	**EI 60**
Timber Floors Thickness ≥100 mm	Blank Device to 60% filled Cables ≤ 21mm	**EI 90**
	Blank device to 100% filled Telecommunications cables (≤ 17 mm dia.)	**E 90 / EI 60**
Timber Floors Thickness ≥140 mm	Blank Device to 100% filled Cables ≤ 21mm	**EI 90**

B.2 Seal Type 2 (Multiple/Ganged devices)

B.2.1 Flexible/Rigid Walls:

B.2.2 ≥ 200mm Distance between Openings (See A.6.2):

	Description	(CFS-SL GP)
Flexible & Rigid wall	Blank Device to 100% filled Cables ≤ 21mm	**EI120**
	Blank Seal (CAP and Plug)	

B.2.3 Double Gangplate Zero Distance between Devices (See A.6.2):

	Description	(CFS-SL GP)
Flexible & Rigid wall	Blank Device to 100% filled Cables ≤ 21mm	**EI90**
	Blank Seal (CAP and Plug)	

B.2.4 Triple Gangplate (or more) Zero Distance between Devices (See A.6.2):

	Description	(CFS-SL GP)
Flexible & Rigid wall	Blank Device to 100% filled Cables ≤ 21mm	**EI60**
	Blank Seal (CAP and Plug)	

B.2.5 Sandwich Panel – 100mm thick:

B.2.5.1 Double Gangplate Zero Distance between Devices (See A.6.2):

	Description	(CFS-SL GP)
Sandwich Panel 100mm thickness	Blank Device to 100% filled Cables ≤ 21mm	**EI60**
	Blank Seal (CAP and Plug)	

B.2.6 Sandwich Panel – 150mm thick:

B.2.6.1 ≥ 200mm Distance between Openings (See A.6.2):

	Description	(CFS-SL GP)
Sandwich Panel 150mm thickness	Blank Device to 100% filled Cables ≤ 21mm	**EI120**
	Blank Seal (CAP and Plug)	

ANNEX C

Abbreviations and referenced documents

C.1 References to standards mentioned in the UKTA

Norm	Description
EN 1366-3	Fire resistance tests for service installations - Part 3: Penetration seals
EN ISO 717-1	Acoustics – Rating of sound insulation of buildings and of building elements – Part 1: Airborne sound insulation
EN 10140-2	Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation
EN 1026	Windows and doors - Air permeability - Test method
EN 12086	Thermal insulating products for building applications - Determination of water vapour transmission properties
EN ISO 12572	Hygrothermal performance of building materials and products - Determination of water vapour transmission properties (ISO 12572:2001);
EN 12664	Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Dry and moist products with medium and low thermal resistance
EN 12667	Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meter methods – Products of high and medium thermal resistance
EN 12939	Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Thick products of high and medium thermal resistance;
EN 13501-1	Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests
EN 13501-2	Fire classification of construction products and building elements – Part 2: Classification using test data from fire resistance tests
EN 14509	Self-supporting double skin metal faced insulating panels - Factory made products
EN 520	Gypsum plasterboards - Definitions, requirements and test methods;
EOTA TR 001	Determination of impact resistance of panels and panel assemblies
EOTA TR 024	Characterization, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products
EAD 350454-00- 1104	Fire Stopping and Fire Sealing Products