

UL-AU CERTIFICATE

Certificate No. UL-AU-230005
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Date of Issue 2023-11-01

Certificate Holder Hilti (Aust.) Pty. Ltd
1G Homebush Bay Drive
PO Box 3217
Rhodes NSW 2138, Australia

Manufacturer Hilti AG,
Feldkircherstrasse 100
FL-9494 Schaan
Liechtenstein
Internet: www.hilti.com

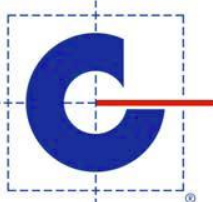
Production Sites (Factory) Hilti Plant 14

Certified Product Description Firestopping Cable Box
Model(s) Hilti Firestop Sleeve CFS-SL GA
Trade Name or Trademark Hilti Firestop Sleeve CFS-SL GA
Rating Information Refer to Appendix A
Standard tested to AS 1530.4:2014 and AS 4072.1:2005
Test Report References See pages 24 and 25
Listing Category and File Ref AUEC.RS5417
Additional Information and Conditions See page 2
Expiry date 2033-11-01



Stuart Foster
Certification Officer

JAS-ANZ



Certification Body

www.jas-anz.org/register

This is to certify that representative samples of the Product described herein ("Certified Product") have been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the UL-AU Mark Scheme requirements and JAS-ANZ accreditation requirements. The designated Certificate Holder is entitled to use the UL-AU Mark for the Certified Product manufactured at the production site(s) identified above, in accordance with the UL-AU Mark Scheme Service Agreement. Only those Products bearing the UL-AU Mark for Australia should be considered as being covered by UL's UL-AU Mark Service. This certificate shall remain valid through to the expiration date, unless terminated earlier in accordance with the Service Agreement including without limitation if the Standard identified on this Certificate is amended or withdrawn prior to the expiration date.

This Certificate remains the property of UL International New Zealand Ltd.

If the client provides copies of the certification documents to others, the documents shall be reproduced in their entirety.

All dates are in Year-Month-Day format (YYYY-MM-DD).

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Additional Information:

This certificate is evidence that prototypes of the nominated products and their configurations as detailed in Appendix A conform to the following parameters:

1. Have been tested to AS 1530.4:2014 and AS 4072.1:2005 or an equivalent or more severe test and the Fire Resistance Level (FRL) nominated in Appendix A was achieved by the prototype for each nominated assembly of service penetration, building element and protection method configuration, without the assistance of an active fire suppression system.
2. Test results are detailed in a confidential test report that may be available from the certificate holder upon request. The information regarding the test parameters is included in the confidential technical file.
 - (i) the method and conditions of the test;
 - (ii) form of construction of the tested prototype; and
 - (iii) that restraint complied with AS 1530.4.
3. Testing was conducted at multiple locations by suitably accredited laboratories that are accredited by a signatory to the International Accreditation Cooperation Mutual Recognition Arrangement (ILAC-MRA) as recognised by NATA who is also a signatory body to this Agreement. The data has been reviewed by UL against the relevant to accreditation schedules.

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The UL Enhanced Mark shall appear on certified products only and shall be used only in accordance with the UL-AU Mark Scheme Service Terms Minimum size is not specified, as long as the Mark is legible. The following are **examples** of the format.



The file number that replaces E123456 and NC12345 in the above examples is; **RS5417**

The following Supplementary Information shall be placed adjacent to the Certification Mark;
**Firestopping - Fire Collars and Cassettes
AS 1530.4**

The UL Enhanced Mark may appear on a label, nameplate, or may be cast, stamped or molded into the product. When appearing on a label or nameplate, the Manufacturer's name or trademark along with a model number are also required on that same label or nameplate. If cast, stamped or molded, the Manufacturer's name or trademark and model number shall also appear elsewhere on the product.

All content shall be in accordance with the details provided on this Certificate.

PROCUREMENT

The Production site may reproduce the Mark or obtain it from a UL authorized supplier. The list of UL authorized suppliers can be found on UL's online directory at www.ul.com.

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Appendix A

Conforming product configurations to achieve nominated FRL's

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

<u>Flexible and Rigid walls</u>	<p>Flexible Walls:</p> <ul style="list-style-type: none"> • 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) <p>Comprise timber or steel studs lined on both faces to a thickness of 25mm gypsum board.</p> <ul style="list-style-type: none"> • Flexible Wall: 2 x 13 mm or 16 mm plasterboard wall on steel or timber studs with or without insulation. • 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 non combustible insulation is required in the cavity between stud and seal. • Plasterboard wall may include but not be limited to USG Boral Firestop, CSR Gyprock Fyrecheck, Elephant Plasterboard, GIB Fyrelite, Knauf Fireshield, Midland fire-resistant plasterboard and BGC/GTEK Fireboards (provided the construction is same). <p>Rigid Walls:</p> <ul style="list-style-type: none"> • 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) <p>Comprise of: concrete, aerated concrete, autoclaved aerated concrete or masonry, with a minimum density of 550 kg/m³.</p> <p>Hebel wall: 13 mm or 16 mm plasterboard build up (100 mm x 100 mm) on both sides. The FRL is restricted to -/120/120.</p>
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<u>Sandwich panels:</u>	<p>Tested with 100mm Paroc line 200 AST F 100/99 and 150mm Paroc line 200 AST F.</p> <p>Field of application:</p> <ul style="list-style-type: none"> • 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 non combustible structural stone wool core of density between: 100 kg/m³ and 150kg/m³ • 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 <p>OR</p> <p>Internal Sheet: zincified steel (PE coated 0.5 mm) Core: Stone wool (Thickness 99/150 mm) External Sheet: zincified steel (PE coated 0.5 mm) Density: 115 kg/m³ The panel should achieve group n° 1 through AS ISO 9705-2003 (R2016).</p> <p>OR</p> <p>Firemaster, Rainspan, Rockspan and Europanel panels: 100 mm thick for FRL up to -/120/90 and greater or equal to 150 mm thick for FRL up to -/120/120</p>
<u>Floors:</u>	<ul style="list-style-type: none"> • 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/m³.

The walls / floors must be classified for the required fire resistance period.

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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
- Any cross laminated timber tested to AS 1530.4:2014 (minimum FRL -/90/90)

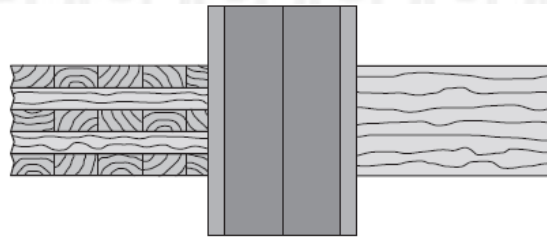
Characteristics of Engineered timber:

- Softwoods such as: spruce/fir, pine, larch, stone pine
- Number of layers ≥ 3
- Thickness of layers: $t_i \geq 20\text{mm}$
- Polyurethane and/or MUF (phenolic and amino plastic) based adhesives
- With or without grooves and edge bonds

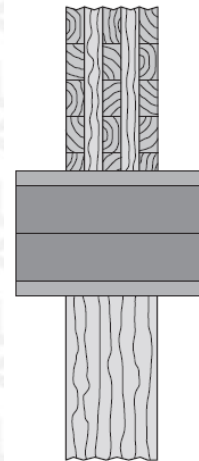
General Field of Application:

- 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 \geq total thickness of Engineered Timber
- Thicknesses of Engineered Timber layers may be:
 - Identical, see images 1 & 2:

1.)



2.)



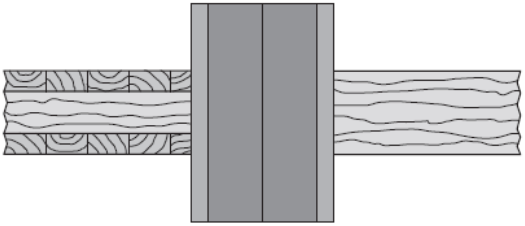
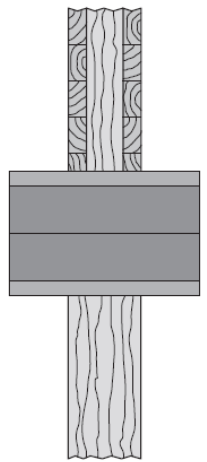
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Timber Walls & Floors: (Solid and Engineered)	○ Or non-identical, see images 3 & 4:	
	3.) 	4.) 

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
B_{1a}	Hilti Firestop Plug: CFS-PL 132
A_{1a}	Hilti Firestop Acrylic Sealant CFS-S ACR
A_{1b}	Hilti Firestop Putty Roll CP 619 T
A_{1c}	Hilti Firestop Putty Pad CP 617 – cut to 25mm width
A_{1d}	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)
t_E	Thickness of Building Element – refer to A.1

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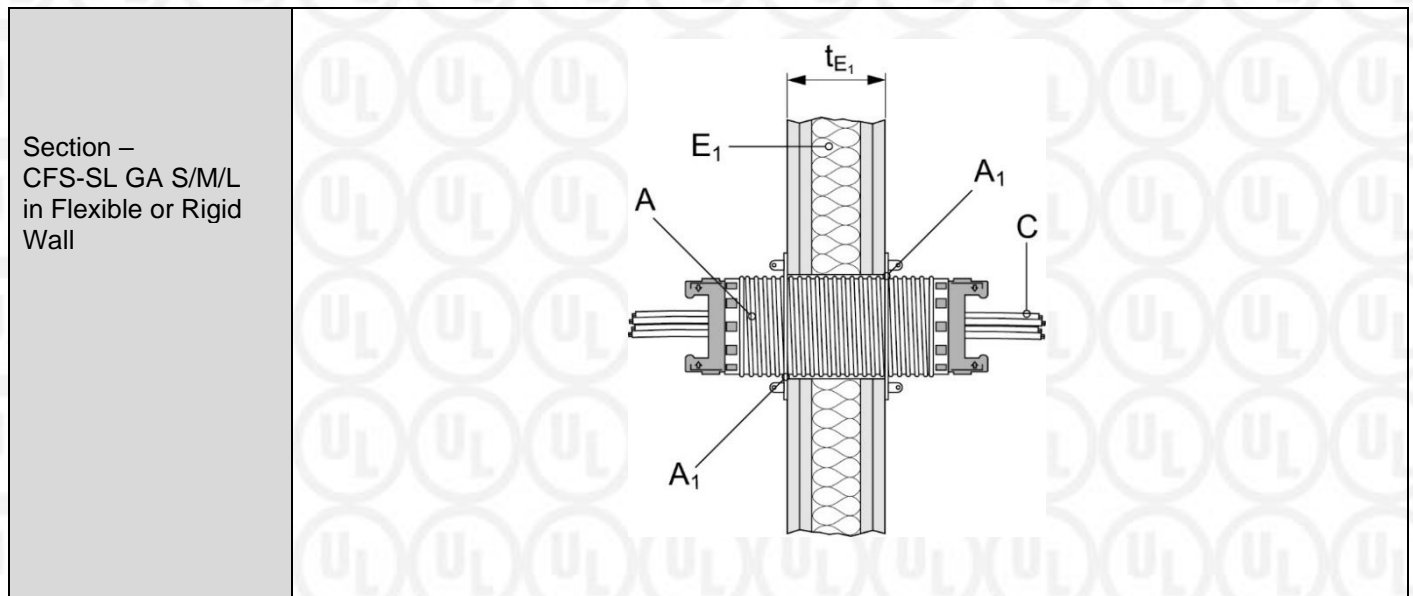
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A.3 Seal Type Details and Installation:

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:



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<p>Section – CFS-SL GA S/M/L in Sandwich Panel</p>	
<p>Section – CFS-SL GA S/M/L in Floor</p>	
<p>Section – CFS-SL GA M/L in Timber Walls and Floors</p>	

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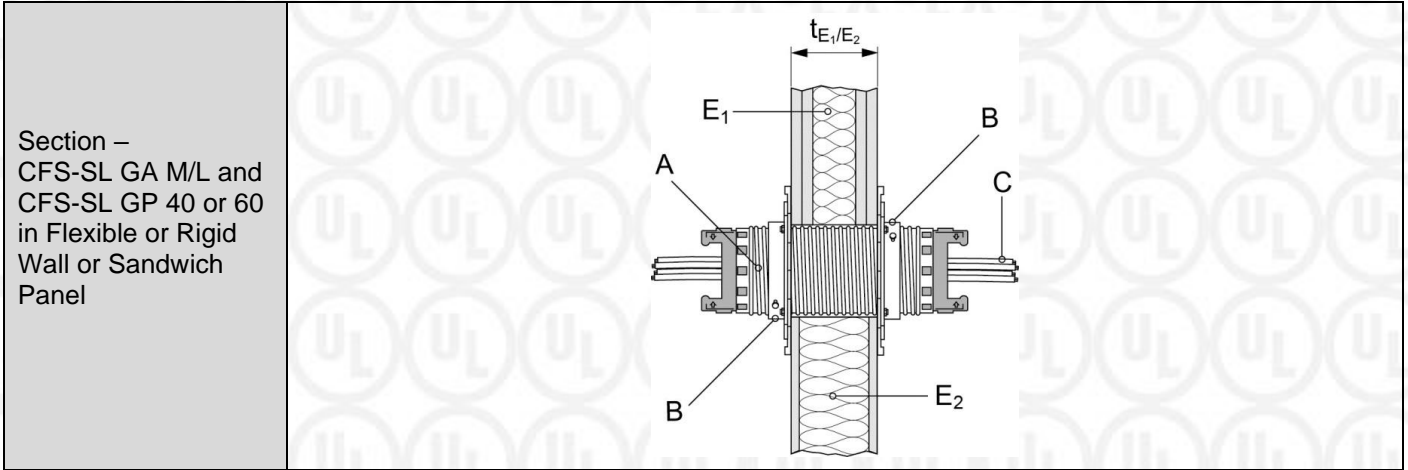
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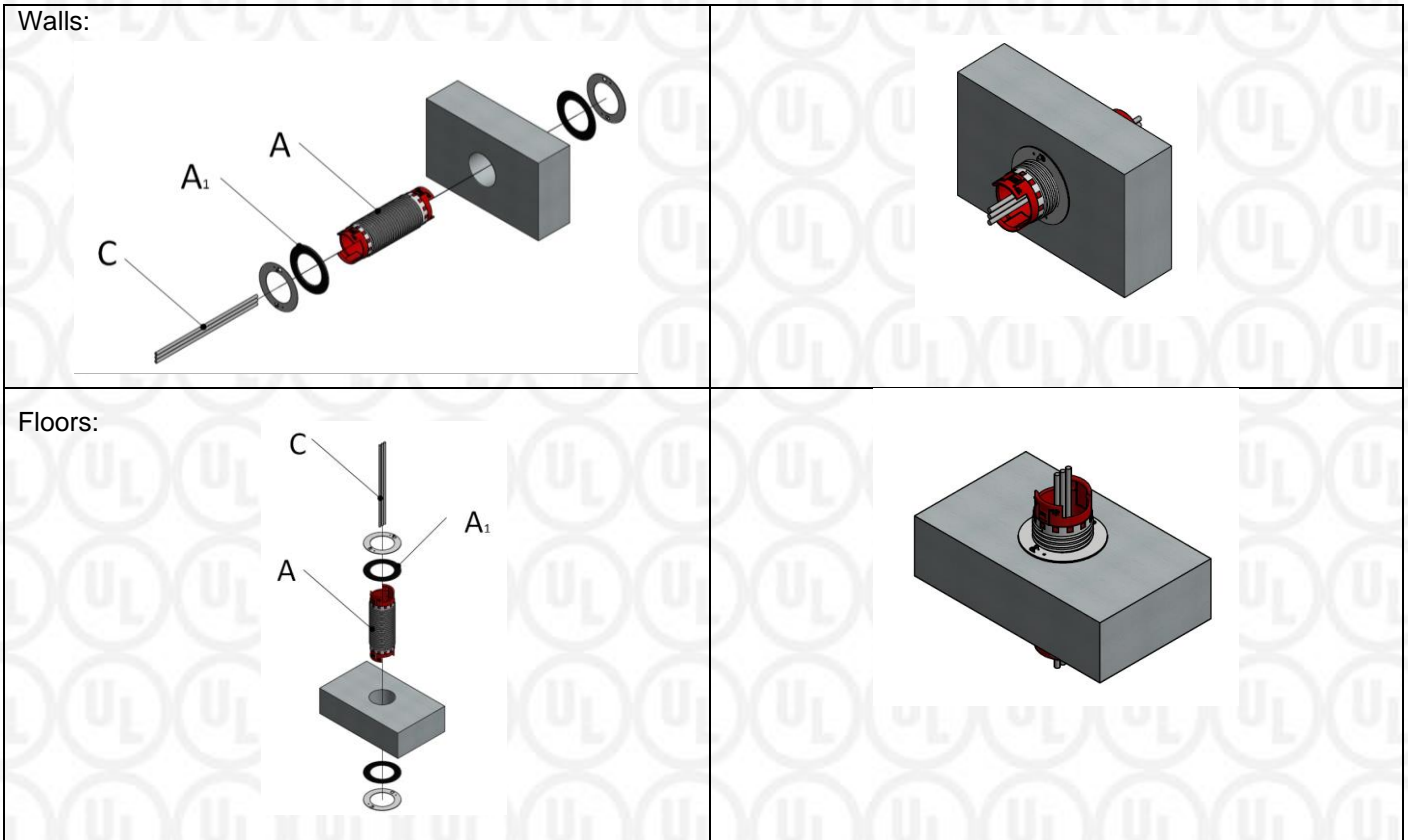
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A.3.2 Seal Type 2 Detail:



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



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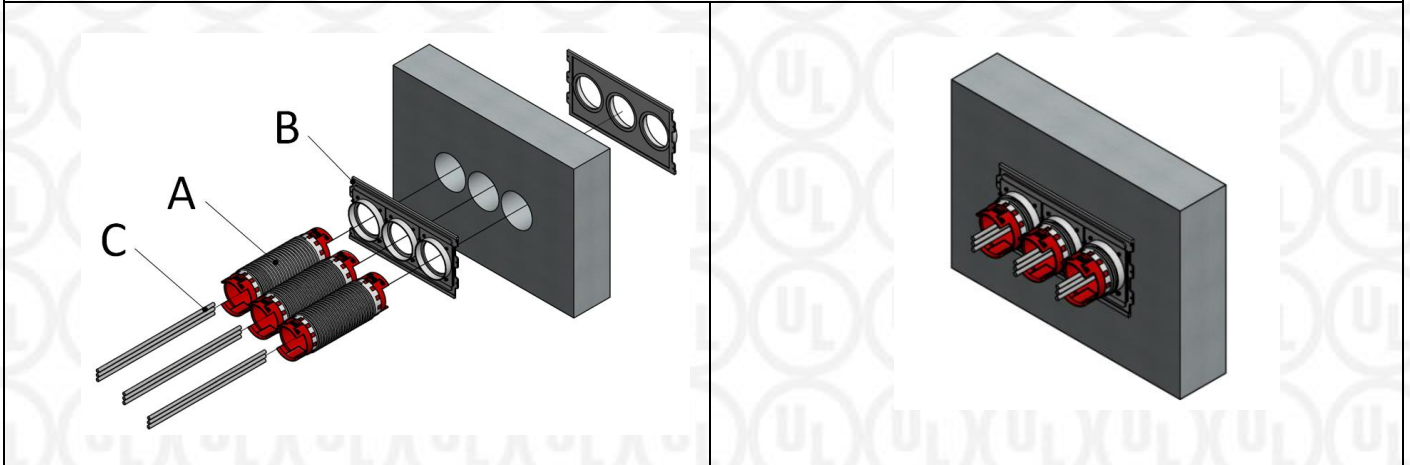


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A.3.4 Seal Type 2 Application Information (CFS-SL GP 40 or 60)

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 Resistance Level 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 Resistance Level 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		

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A.4.1 Seal Type 1a Detail:

<p>Section – CFS-SL GA S/M/L and CFS-S ACR in Flexible or Rigid Wall</p> <p>Recommended A_{1a} (CFS-S ACR) installed to 25mm depth into wall</p>	
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A.4.2 Seal Type 1b Detail:

<p>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</p>	
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A.4.3 Seal Type 2a Detail:

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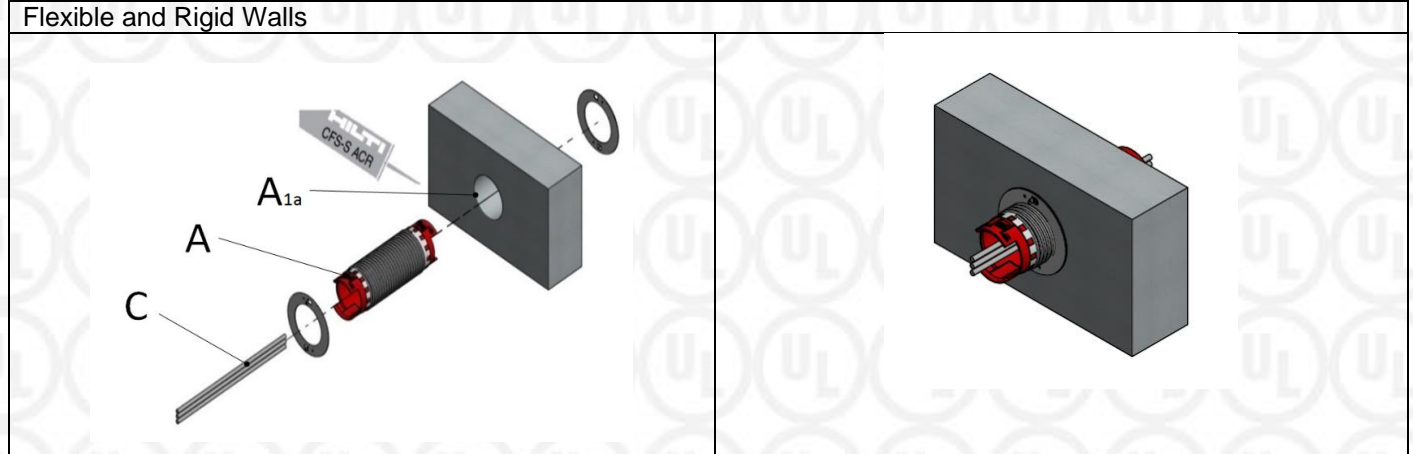
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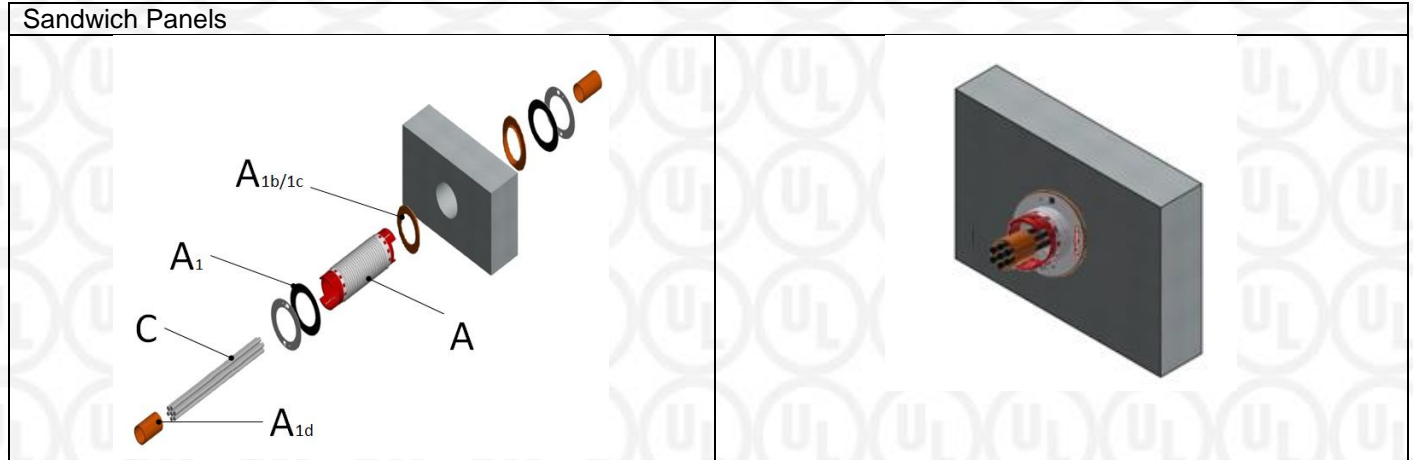
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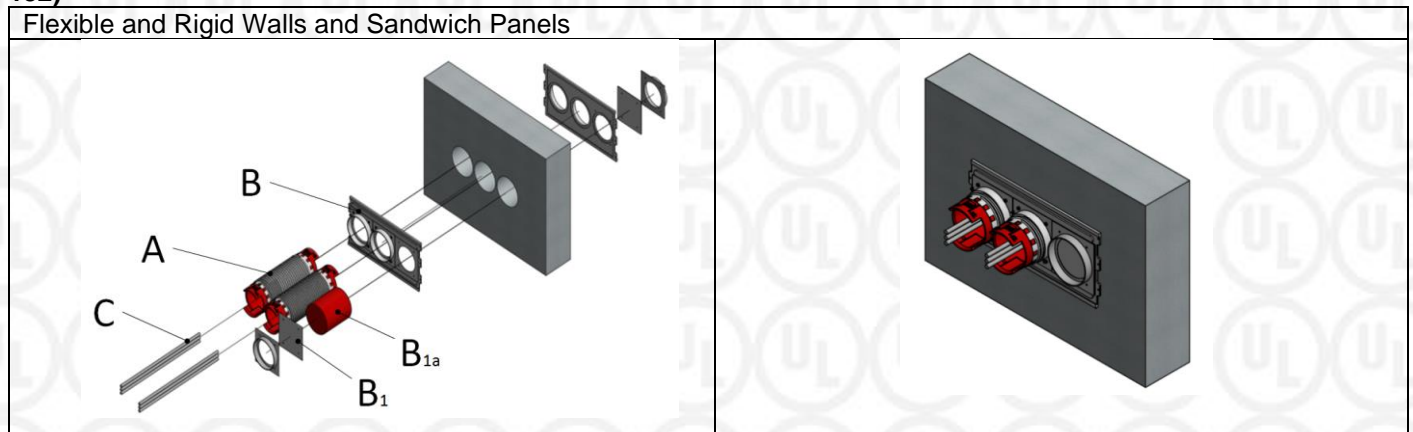
A.4.4 Seal Type 1a Application Information (CFS-SL GA S/M/L and CFS-S ACR)



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



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)



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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

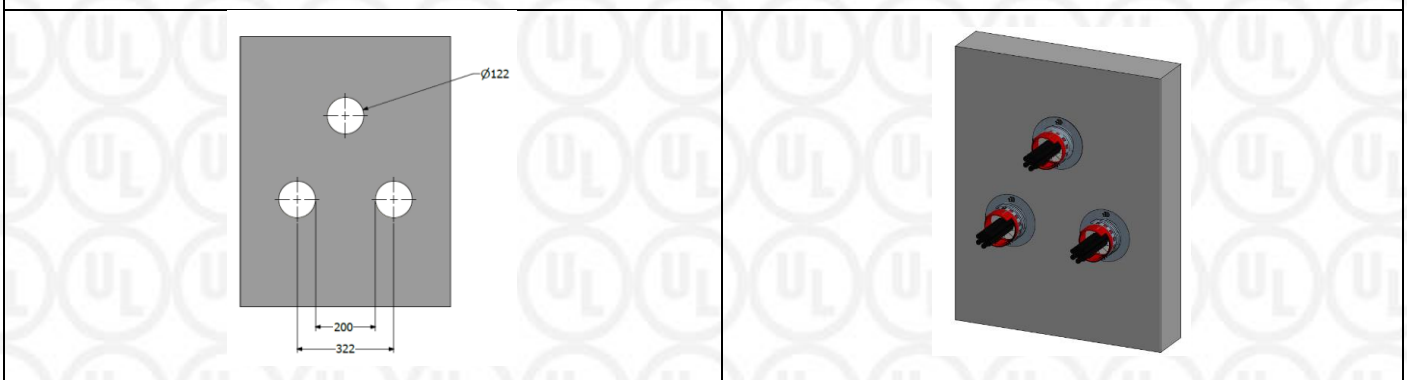
A.6 Distances between openings

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

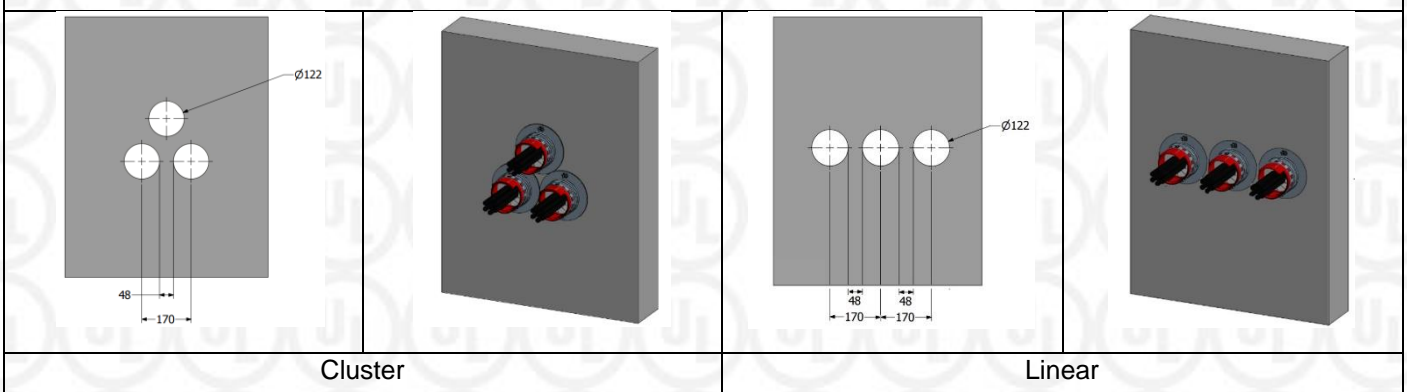
Depending on Fire Resistance Level and space requirements, the Hilti Firestop Sleeve CFS-SL GA can be installed with:

- $\geq 200\text{mm}$ 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)



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 A5)

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A.6.2 Seal Type 2 including 2a

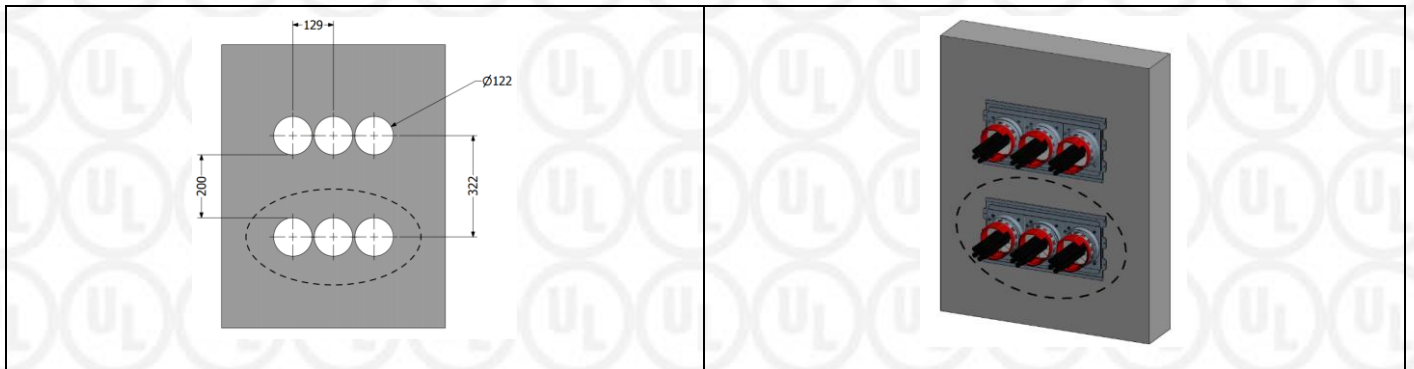
Depending on Fire Resistance Level

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

- $\geq 200\text{mm}$ distance between openings, or
- Gangplates touching or slight overlap (zero distance)

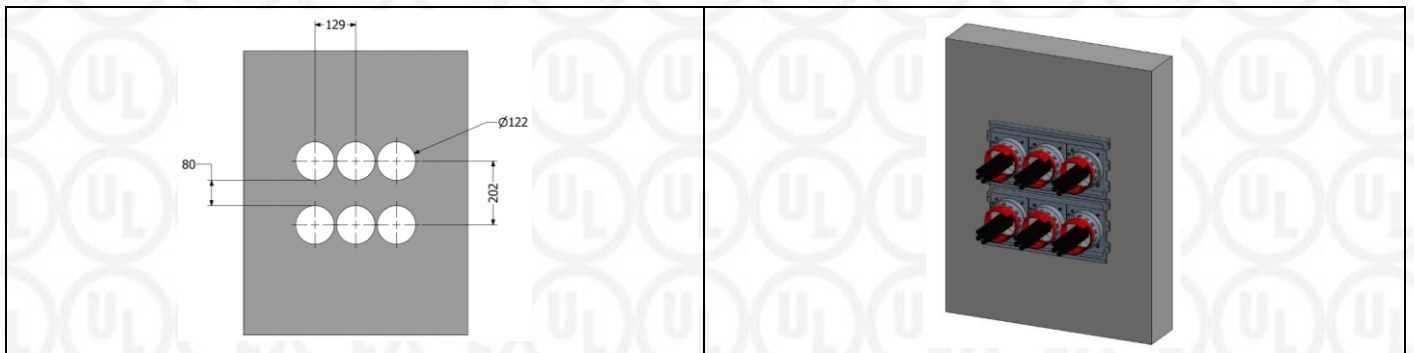
200mm from Opening to nearest Opening - For Single to any number of installations:

(Lower, dashed Gangplate illustrates correct placement of 200mm distance)

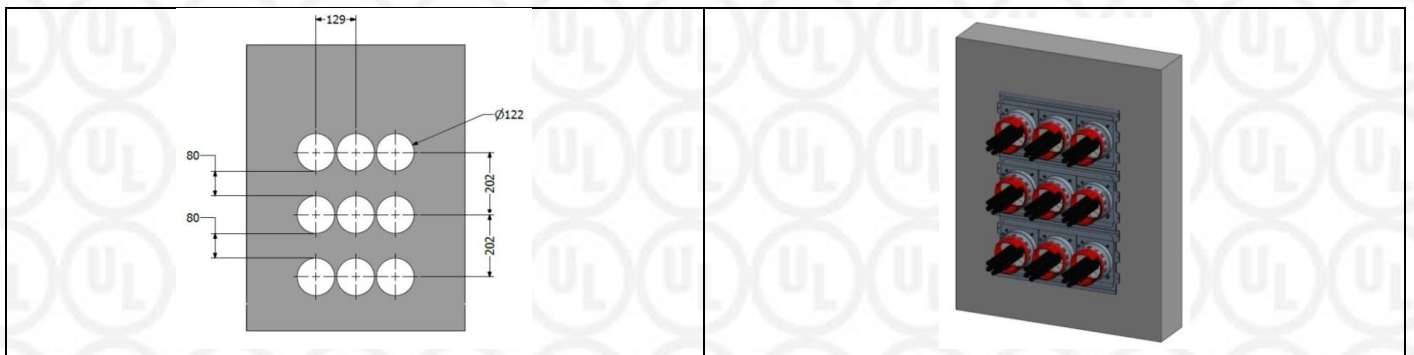


Zero Distance between Devices - For Double Gangplate installation:

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



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



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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

<u>Penetrating services</u>	<u>Description</u>
Small Cables $\varnothing \leq 21\text{mm}$: (CFS-SL GA S/M/L)	All cable types (e.g. copper core) currently and commonly used in building practice in Australia (e.g. power, control, signal, telecommunication, data, optical fibre cables, with or without cable supports) with a diameter $\varnothing \leq 21\text{mm}$.
Medium and Large Cables (CFS-SL GA M/L)	All cable types currently and commonly used in building practice in Australia (e.g. power, control, signal, telecommunication, data, optical fibre cables, with or without cable supports) with a diameter up to $\varnothing \leq 80\text{mm}$.
Cable Fills:	All Fire Resistance Levels in Appendix 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 $\varnothing \leq 21\text{mm}$ are covered, and in cases cables up to $\varnothing \leq 80\text{mm}$.

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A.7.2 Conduits

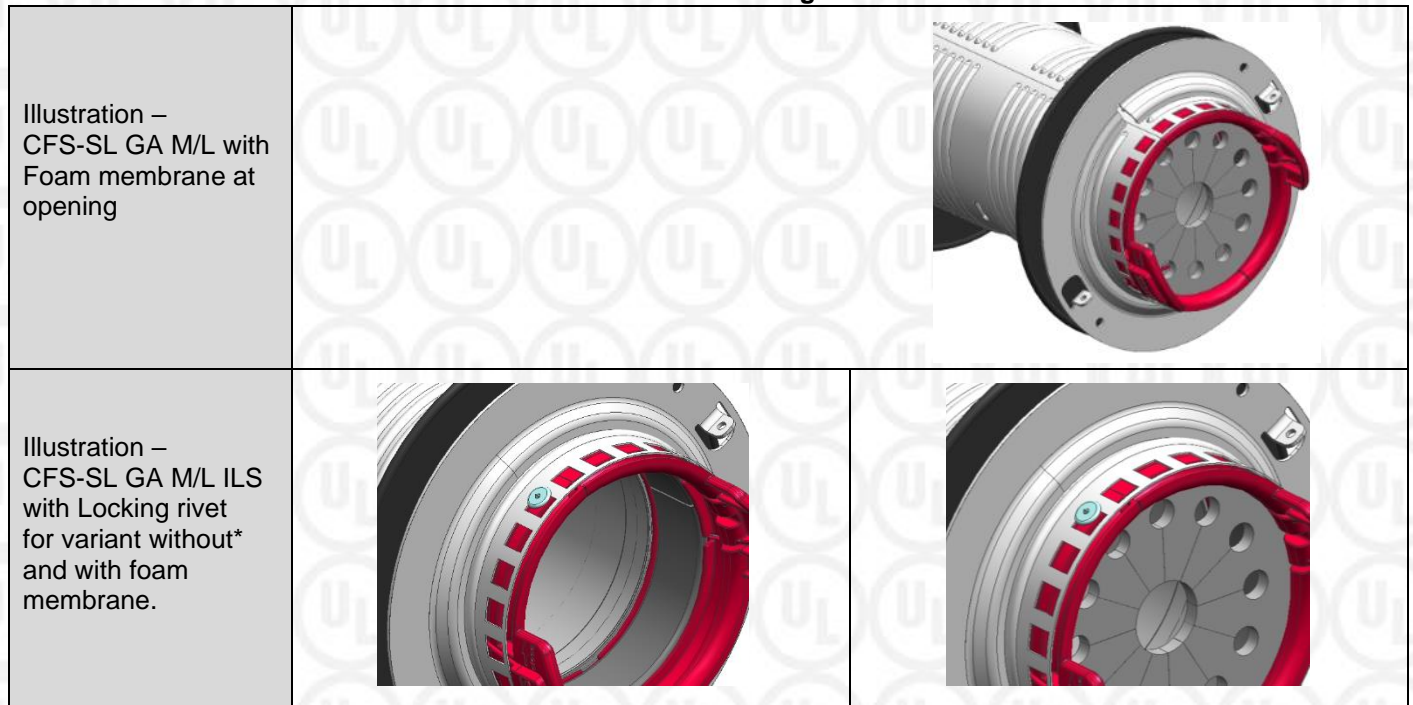
<u>Penetrating services</u>	<u>Description</u>
Single conduits $\varnothing \leq 25\text{mm}$: (CFS-SL GA S):	Rigid, flexible and pliable plastic conduits and metal conduits with a diameter $\varnothing \leq 25\text{mm}$ with or without cables.
Single conduits $\varnothing \leq 63\text{mm}$: (CFS-SL GA M/L):	Rigid, flexible and pliable plastic conduits and metal conduits with a diameter $\varnothing \leq 63\text{mm}$ with or without cables.
Conduit bundle (CFS-SL GA S):	Conduits with a max. single conduit diameter $\varnothing \leq 25\text{mm}$ with or without cables can be bundled to a diameter $\varnothing \leq 48\text{mm}$.
Conduit bundle (CFS-SL GA M/L):	Conduits with a max. single conduit diameter $\varnothing \leq 63\text{mm}$ with or without cables can be bundled to a diameter $\varnothing \leq 92\text{mm}$.

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): $\leq 250\text{mm}$
- b) Floor (distance from upper side of floor): $\leq 250\text{mm}$

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



* Note – classifications for CFS-SL GA M/L in following Appendix B of this UL certificate:
 CFS-SL GA M/L ILS without Foam membrane.

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Appendix B

FRL (Fire Resistance Level)

Seal Type 1 (Including 1a and 1b)
 200mm between openings (See A.6.1):

Separating element	Description	FRL (Fire Resistance Level)		
		(CFS-SL GA S)	(CFS-SL GA M/L)	
Flexible & Rigid wall (minimum thickness 100 mm)	Blank Device	-/120/120	-/120/120	
	All sheathed cables ≤ 21mm	-/90/90	-/90/90 ¹⁾	
	All sheathed cables ≤ 50mm	-	-/90/90	
	All sheathed cables ≤ 80mm	-	-/60/60	
	Cable bundles ≤ 36mm	-/90/90	-	
	All sheathed cables ≤ 21mm	-	-	
	Cable bundles ≤ 86mm	-	-/90/90	
	All sheathed cables ≤ 21mm	-	-	
	100% filled device with cables ≤ 21mm	-/60/60 ²⁾	-/90/90	
	Conduits ≤ 25mm (CFS-SL GA S)	-/120/120	-	
	Conduits ≤ 63mm (CFS-SL GA M/L)	-	-/90/90 ³⁾	
	For higher FRL – follow Seal Type 1a (CP 606/CFS-S ACR) installation:			
	¹⁾ All sheathed cables ≤ 21mm	-	-/120/120	
	²⁾ 100% filled device with cables ≤ 21mm	-/90/90	-	
³⁾ Conduits ≤ 63mm (CFS-SL GA M/L) with or without cables or Fiber Optics Conduits may be single or bundled (max 3) up to diameter ≤ 91mm	-	-/120/120		
Sandwich Panel (150 mm thickness)	Blank Device	-/90/90	-/90/90 ⁴⁾	
	All sheathed cables ≤ 21mm	-/60/60	-/90/90 ⁴⁾	
	All sheathed cables ≤ 50mm	-	-/90/90	
	100% filled device with cables ≤ 21mm	-/60/60	-	
	100% filled device with cables ≤ 50mm	-	-/60/60 ⁴⁾	
For higher FRL – follow Seal Type 1b (Putty) installation:				
⁴⁾ 100% filled device with cables ≤ 21mm (CFS-SL GA M/L)	-	-/120/120		

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Zero distance between flanges (See A.6.1):

Separating element	Description	FRL (Fire Resistance Level)	
		(CFS-SL GA S)	(CFS-SL GA M/L)
Flexible & Rigid wall (minimum thickness 100 mm, max 8 penetrations)	Blank Device	-/120/120	-/90/90
	All sheathed cables ≤ 21mm	-/60/60	-/90/90
	All sheathed cables ≤ 50mm	-	-/60/60
	All sheathed cables ≤ 80mm	-	-/60/60
	Cable bundles ≤ 36mm All sheathed cables ≤ 21mm	-/90/90	-
	Cable bundles ≤ 86mm All sheathed cables ≤ 21mm	-	-/60/60
	100% filled device with cables ≤ 21mm	-/60/60	-/60/60
	100% filled device with cables ≤ 80mm	-	-/60/60
	Conduits ≤ 25mm (CFS-SL GA S)	-/90/90	-
	Conduits ≤ 63mm (CFS-SL GA M/L)	-	-/60/60
Sandwich Panel 100mm thickness	Blank Seal	-/45/45	-/90/90
	All sheathed cables ≤ 21mm	-/45/45	-/90/90
	All sheathed cables ≤ 50mm	-	-/60/60
	100% filled device with cables ≤ 21mm	-/45/45	-/60/60
	100% filled device with cables ≤ 50mm	-	-/60/60

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Separating element	Sealing system	System description	FRL (Fire Resistance Level)			
			100 mm thick	≥ 150 mm thick		
Firemaster, Rainspan, Rockspan and Europanels 100 mm thick for an FRL of up to -/120/90 Greater or equal to 150 mm thick for an FRL of up to -/120/120	Hilti Firestop Speed Sleeve CFS-SL GA – Length: 265 mm Insulation sheet – material: ceramic wool – sheet thickness: 2.3 mm (MV) Intumescent strip – material: graphite based material – section dimensions: 10 mm x 2 mm (MV) Backfilling – type: Hilti Firestop Plug CFS-PL – material: graphite based foam – density: 270 kg/m ³ - dimensions: Ø 132 mm x 65 mm Additional protection – Hilti Firestop Putty Bandage CFS-PBA – thickness 3 mm – width 100 mm Annular gap – Hilti Firestop Acrylic sealant CP606/CFS-S ACR – maximum layer depth of 25 mm (for flexible and metal conduits) Core diameter sizes: CFS-SL GA S – 63 to 73 mm CFS-SL GA M/L – 113 to 122 mm When installing multiple sleeves, there can be zero distance between the CFS-SL GA flanges	Blank seals (no services)	-/120/90	-/120/120		
		Cables				
		All sheathed single cables Ø ≤ 25 mm (CFS-SL GA S/M/L)	-/120/90	-/120/120		
		All sheathed single cables 25 ≤ Ø ≤ 50 mm (CFS-SL GA M/L)	-/120/90	-/120/120		
		All sheathed single cables 50 ≤ Ø ≤ 80 mm (CFS-SL GA M/L)	-/120/90	-/120/120		
		Tied cable tied bundle Ø ≤ 86 mm (CFS-SL GA M/L) Ø single cable ≤ 21 mm	-/120/90	-/120/120		
		Non-sheathed cables (wires) Ø ≤ 24 mm (CFS-SL GA S/M/L)	-/120/90	-/120/120		
		Conduits and tubes				
		Flexible and metal conduits Ø ≤ 25 mm (CFS-SL GA S), with or without cables	-/120/90	-/120/120		
		Flexible and metal conduits Ø ≤ 63 mm (CFS-SL GA M/L), with or without cables				
Cables and conduit description: Cables: circular submains cables, flat TPS, RG6 Quad Shield coax cables, data cables (CAT5, CAT6, CAT7, CAT8), fire-rated cables and other electrical and communication cables (given diameter range and conductor size is satisfactory). Conduit material: plastic / steel with Ø ≤ 16 mm and wall thickness ≥ 1 mm.						

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Separating element	Description	FRL (Fire Resistance Level)		
		(CFS-SL GA S)	(CFS-SL GA M/L)	
Floors (minimum thickness 150 mm)	Blank Device	-/180/180	-/180/180	
	All sheathed single cables ≤ 21mm	-/180/180	-/180/180	
	All sheathed single cables ≤ 50mm	-	-/120/120 ⁵⁾	
	All sheathed single cables ≤ 80mm	-	-/60/60	
	Cable bundles ≤ 36mm All sheathed cables ≤ 21mm	-/180/180	-	
	Cable bundles ≤ 86mm All sheathed cables ≤ 21mm	-	-/120/120	
	100% filled device with cables ≤ 21mm	-/120/120	-	
	100% filled device with cables ≤ 50mm	-	-/120/120	
	Conduits ≤ 25mm (CFS-SL GA S) with or without cables or Fiber Optics, Single or bundled conduits (max 3) up to diameter ≤ 48 mm)	-/120/120 ⁶⁾	-	
	Conduits ≤ 63mm (CFS-SL GA M/L) with or without cables or Fiber Optics, Single or bundled conduits (max 4) up to diameter ≤ 92 mm)	-	-/60/60 ⁶⁾	
	For higher Fire Resistance Level – increase distances between openings - 200mm:			
	⁵⁾ All sheathed cables ≤ 50mm	-	-/180/180	
⁶⁾ Conduits ≤ 63mm (CFS-SL GA M/L) with or without cables or Fiber Optics, Single or bundled conduits (max 4) up to diameter ≤ 92 mm)	-	-/120/120		

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Zero distance between flanges.

Devices installed Linear (See A.6.1).	Description	FRL (Fire Resistance Level)
		(CFS-SL GA M/L)
Timber Walls Thickness ≥80 mm	Blank Device to 100% filled Cables ≤ 21mm	-/60/60
Timber Walls Thickness ≥100 mm	Blank Device to 100% filled Cables ≤ 21mm	-/90/90

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

Timber Floors Thickness ≥80 mm	Blank Device to 100% filled Cables ≤ 21mm	-/60/60
Timber Floors Thickness ≥100 mm	Blank Device to 60% filled Cables ≤ 21mm	-/90/90
	Blank device to 100% filled Telecommunications cables (≤ 17 mm dia.)	-/90/60
Timber Floors Thickness ≥140 mm	Blank Device to 100% filled Cables ≤ 21mm	-/90/90

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Seal Type 2 (Multiple/Ganged devices)

Flexible/Rigid Walls:

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

		FRL (Fire Resistance Level)
Flexible & Rigid wall (minimum thickness 100 mm)	Blank Device to 100% filled Cables ≤ 21mm	-/120/120
	Blank Seal (CAP and Plug)	

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

Flexible & Rigid wall (minimum thickness 100 mm)	Blank Device to 100% filled Cables ≤ 21mm	-/90/90
	Blank Seal (CAP and Plug)	

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

Flexible & Rigid wall (minimum thickness 100 mm)	Blank Device to 100% filled Cables ≤ 21mm	-/60/60
	Blank Seal (CAP and Plug)	

Sandwich Panel – 100mm thick:

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

Sandwich Panel 100mm thickness	Blank Device to 100% filled Cables ≤ 21mm	-/60/60
	Blank Seal (CAP and Plug)	

Sandwich Panel – 150mm thick:

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

Sandwich Panel 150mm thickness	Blank Device to 100% filled Cables ≤ 21mm	-/120/120
	Blank Seal (CAP and Plug)	

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Appendix C**Test report details – report reference.**

Name of Test Institute	Owner	Number of Report	Date of Test	Test standard
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	319091602-3, Rev.1 date 24.07.2020 (CLT W 80mm)	19/09/2019	EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	319091602-2, Rev. 1 date 24.07.2020 (CLT W 100mm)	17/09/2019	EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	319091602-1, Rev. 1 date 24.07.2020 (CLT W 100mm)	16/09/2019	EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	318092507-3, Rev. 1 date 24.07.2020 (CLT D 100mm)	22/05/2019	EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	318092507-2, Rev. 1 date 24.07.2020 (CLT D 140mm)	14/05/2019	EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str.100 LI-9494 Schaan	318092507-1, Rev. 1 date 24.07.2020 (CLT D 80mm)	18/12/2018	EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	319091602-4, Rev 1 date 23.07.2020 (CLT W 80mm)	06/05/2020	EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	319091602-5, Rev 1 date 22.07.2020 (CLT W 100mm)	08/05/2020	EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str.100 LI-9494 Schaan	318092507-4 date 22.07.2020 (CLT D 80mm)	16/04/2020	EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	318092507-5 date 22.07.2020 (CLT D 100mm)	23/04/2020	EN 1366-3: 2009
WFRGENT nv	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	16608A, date 05.02.2015	03/06/2014	EN 1366-3: 2009
WFRGENT nv	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	17764A, date 18.04.2017	14/06/2016	EN 1366-3: 2009
WFRGENT nv	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	17765A, date 18.04.2017	14/06/2016	EN 1366-3: 2009

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Name of Test Institute	Owner	Number of Report	Date of Test	Test standard
WFRGENT nv	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	18113A, date 18.04.2017	20/12/2016	EN 1366-3: 2009
WFRGENT nv	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	18114A, date 18.04.2017	21/12/2016	EN 1366-3: 2009
WFRGENT nv	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	18115A, date 18.04.2017	22/12/2016	EN 1366-3: 2009
WFRGENT nv	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	18116A, date 18.04.2017	21/12/2016	EN 1366-3: 2009
WFRGENT nv	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	18322C, date 18.04.2017	04/04/2017	EN 1366-3: 2009
WFRGENT nv	HILTI AG Feldkircher Str. 100 LI-9494 Schaan	18344A, date 28.04.2017	05/04/2017	EN 1366-3: 2009

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