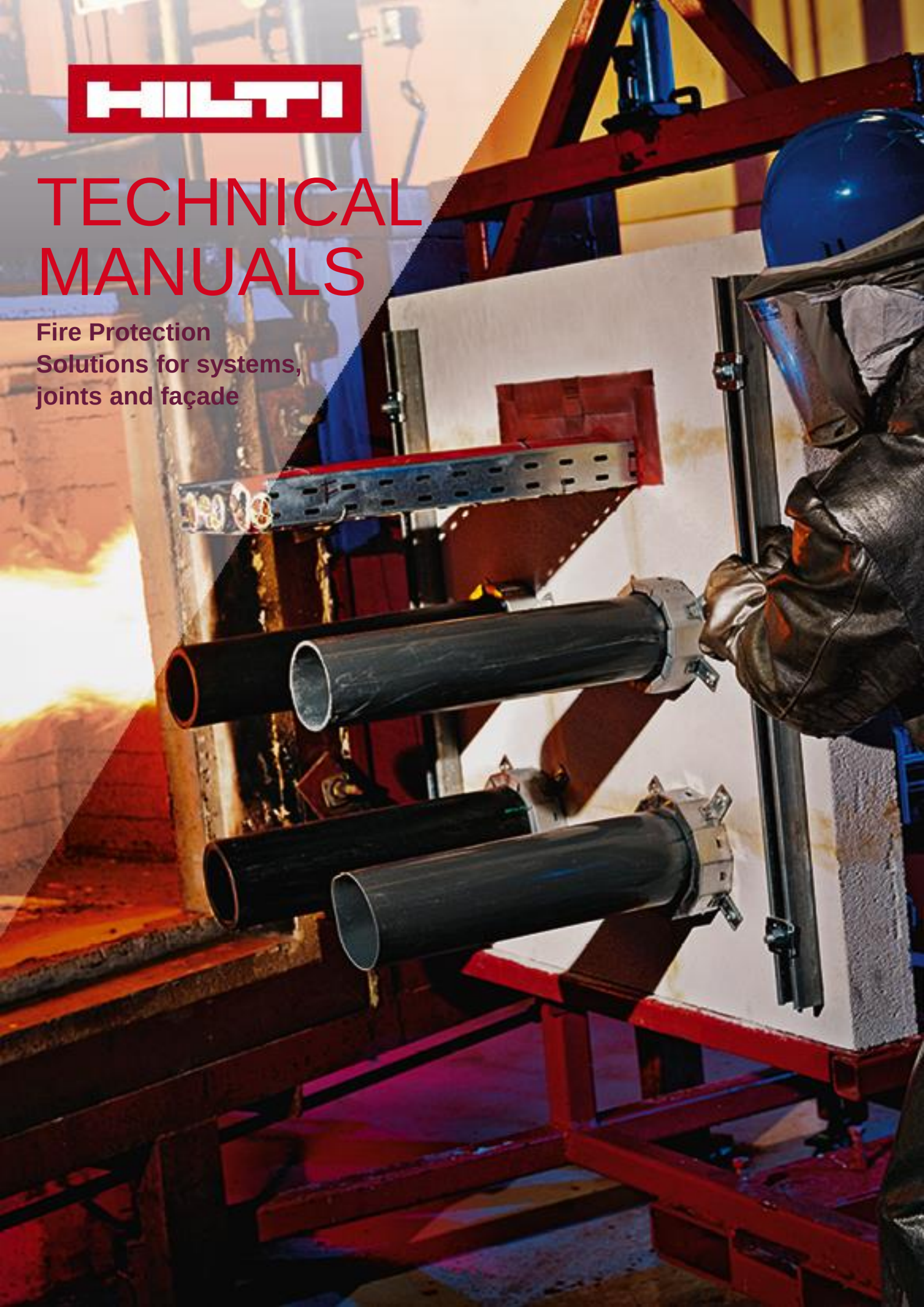


TECHNICAL MANUALS

Fire Protection Solutions for systems, joints and façade

INDEX

1. MECHANICAL SYSTEMS

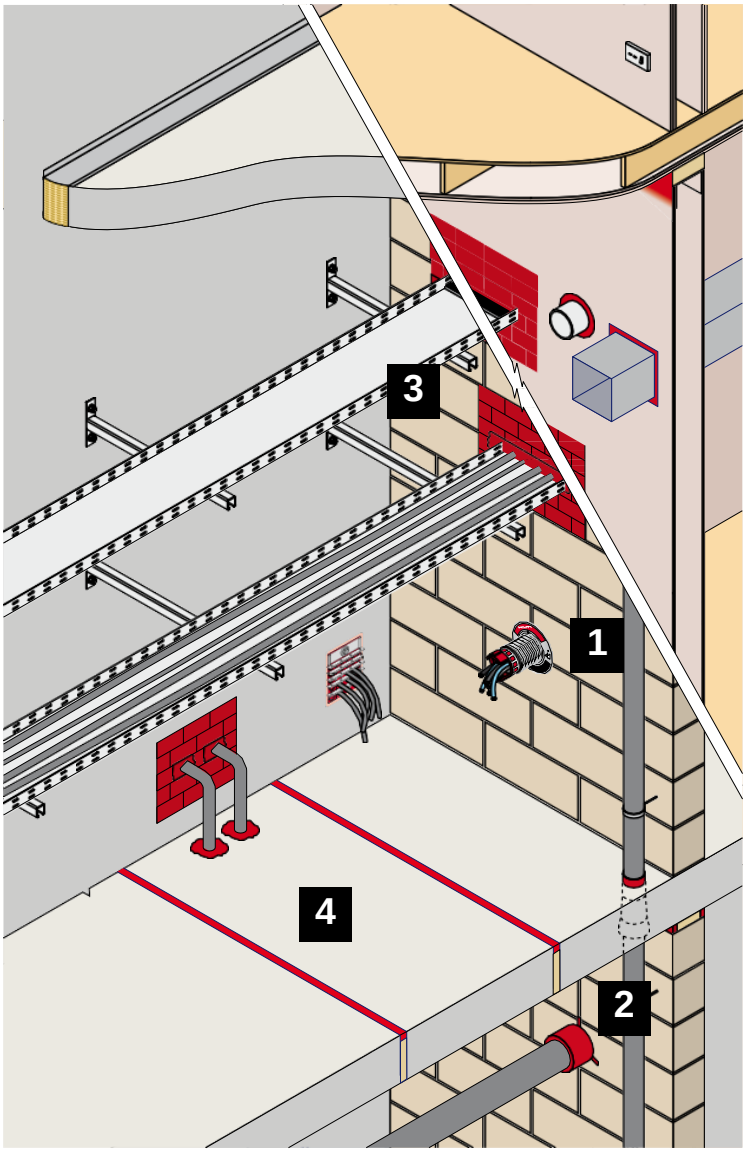
- FIRESTOP ACRYLIC SEALANT CFS-S ACR
- FIRESTOP BANDAGE CFS-B
- PREMIUM FIRESTOP COLLAR CFS-C P
- FIRESTOP CAST-IN DEVICE CFS-CID

2. ELECTRICAL AND MECHANICAL SYSTEMS

- FLEXIBLE FIRESTOP FOAM CFS-F FX
- FIRESTOP RECTANGULAR CABLE COLLAR CFS-RCC
- FIRESTOP COATED BOARD CFS-CT B
- FIRESTOP BLOCK CFS-BL

4. JOINTS AND FACADE

- FIRESTOP SILICONE SEALANT CFS-SP SIL
- FIRE CAVITY BATTIER CP 674



MECHANICAL SYSTEMS	ELECTRICAL AND MECHANICAL SYSTEMS	JOINTS AND FACADE
 Acrylic sealant CFS-S ACR	 Firestop foam CFS-F FX	 Silicone sealant CFS-S SIL
 Firestop bandage CFS-B	 Rectangular collar CFS-RCC	 Fire Cavity Barrier CP 674
 Firestop collar CFS-C P	 Coated board CFS-CT B	
 Cast-In device CFS-CID	 Firestop Block CFS-BL	

MECHANICAL SYSTEMS

- **Hilti Firestop Acrylic Sealant CFS-S ACR**
- **Hilti Firestop Bandage CFS-B**
- **Hilti Premium Firestop Collar CFS-C P**
- **Hilti Firestop Cast-In CFS-CID**

FIRESTOP ACRYLIC SEALANT CFS-S ACR

Technical Manual

European Technical Assessment
ETA 10/0292
ETA 10/0389

HILTI FIRESTOP ACRYLIC SEALANT CFS-S ACR

Applications

- Sealing low-movement joints in flexible wall, rigid wall, rigid floor and steel construction
- Sealing metal pipe penetrations
- For use in concrete, masonry, drywall, steel, aerated concrete

Advantages

- Easy to dispense, apply and tool
- Strong adhesion to various base materials
- Low shrinkage after curing
- Excellent sound insulation property
- Easy clean up with water

Technical Data

Chemical basis	Water-based acrylic dispersion
Colours	Grey, White
Application temperature range	1.5 – 40 °C
Movement	12.5% (ISO 11600)
Shelf life (@23 °C and 50% relative humidity	24 months
Mold and mildew performance	Class 0 (EN ISO 846, Method A)

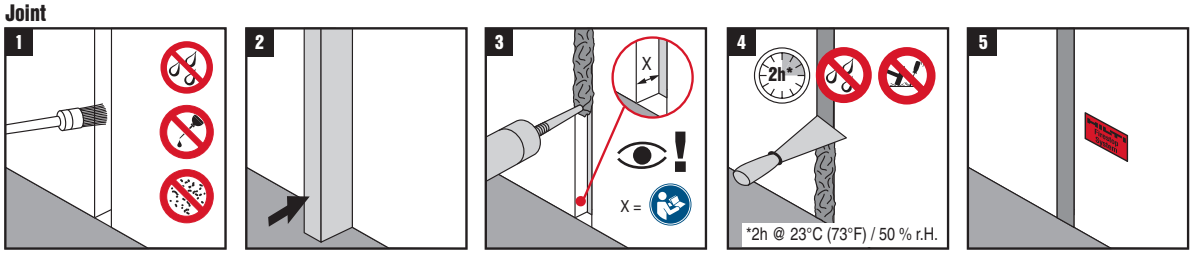
Order designation	Packaging	Volume	Color	Sales Quantity	Item Number
Firestop Acrylic Sealant CFS-S ACR CG	Cartridge	310 ml	Grey	1 pc	00435862
Firestop Acrylic Sealant CFS-S ACR CW	Cartridge	310 ml	White	1 pc	00435859
Firestop Acrylic Sealant CFS-S ACR FW	Foil pack	580 ml	White	20 pc	00435863
Firestop Acrylic Sealant CFS-S ACR PW	Pail	5000 ml	White	1 pc	00435864
Firestop Acrylic Sealant CFS-S ACR PW L	Pail	1000 ml	White	1 pc	02046766

Accessories

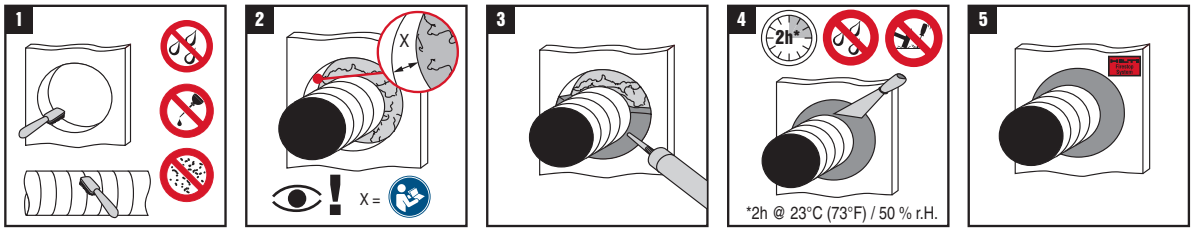
Ordering designation		USE	Sales pack quantity	Item number
CFS-DISP		Cartridge	1 pc	2005843
CS 270-P1		Foil	1 pc	24669
CD 4-A22 Cordless Dispenser		Cartridge & Foil	1 pc	2217418

INSTRUCTIONS FOR USE: HILTI FIRESTOP ACRYLIC SEALANT CFS-S ACR

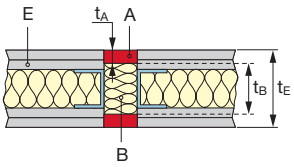
Joint

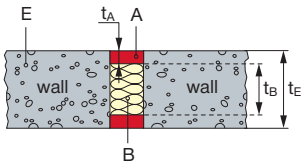


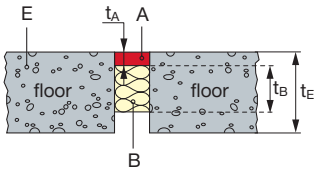
Penetration



GENERAL INFORMATION

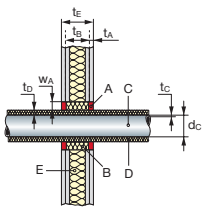


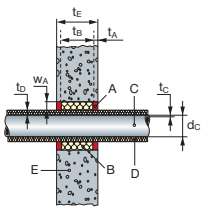


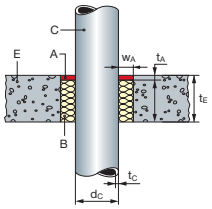


Joint	Flexible wall	Rigid wall	Rigid floor
Base Material Thickness (t_E)	≥ 100 mm	≥ 150 mm	≥ 150 mm
Base Material Min. Density		550 kg/m³	550 kg/m³

Backfilling material (B): stone wool, CE marked in accordance with EN 13162 or EN 14303 or combustible material, PE or PU based (see ETA for more details)







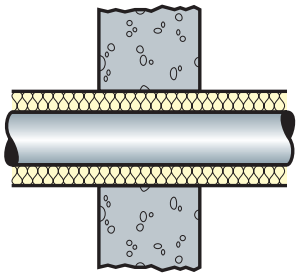
Penetration	Flexible wall	Rigid wall	Rigid floor
Base Material Thickness (t_E)	≥ 100 mm	≥ 100 mm ≥ 150 mm*	≥ 150 mm
Base Material Min. Density		550 kg/m³	550 kg/m³

* non-insulated metal pipes

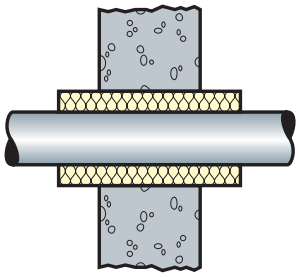
Maximum seal diameter of 300 mm with annular space W_A depending on pipe diameter (minimum distance between seals = 200 mm). Backfilling material (B): stone wool, CE marked in accordance with EN 13162 or EN 14303.

PIPE INSULATION TYPES

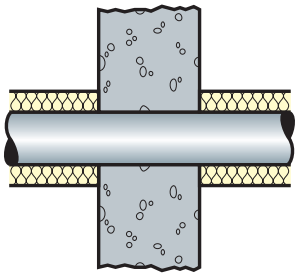
Continued Sustained CS



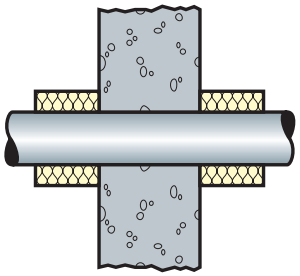
Local Sustained LS



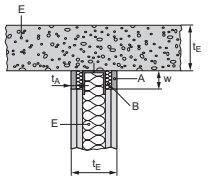
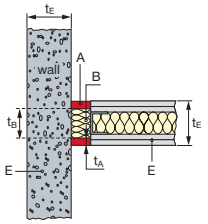
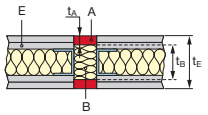
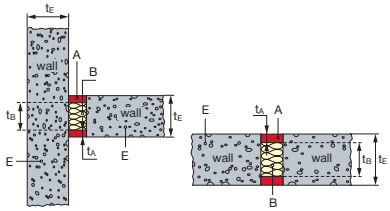
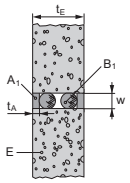
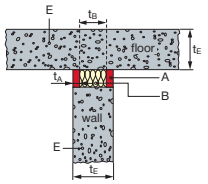
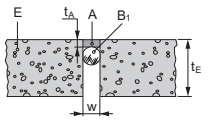
Continued Interrupted CI

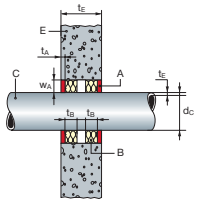
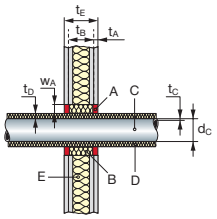
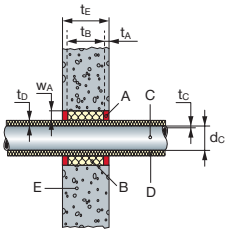
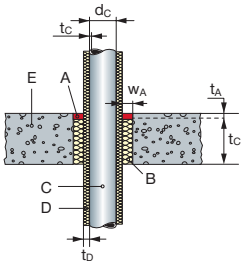
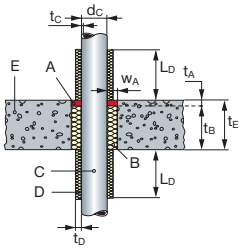


Local Interrupted LI



MAIN APPROVED APPLICATIONS

Joint		Joint Width (W) mm	Classification
Flexible walls/rigid walls			
Horizontal joints between flexible walls/rigid ceiling		6 – 30	EI 120
Vertical joints between flexible and rigid walls		10 – 20	EL 120
Vertical joints between flexible walls		10 – 30	EI 120
Rigid walls/floors			
Vertical joints in between rigid walls		6 – 100	EI 180
Vertical joints in between rigid walls (w/combustible backfiller)		6 – 25	EI 180
Horizontal joints between walls and floors		6 – 20 20 – 100	EI 180 EI 120
Floor to floor joints		6 – 20 20 – 100	EI 180 EI 120

Pipe Penetrations		Pipe diameter Ø mm	Insulation thickness	Classification
Rigid walls & rigid floors				
Steel pipes, non-insulated		32 – 159	n/a	E 180-C/U
Flexible & rigid walls				
Steel pipes		26.9 – 168.3	20 – 40	EI 90/120-C/U
Copper pipes		28 – 88.9	20 – 40	EI 90/120-C/U
Geberit Mepla pipes		16 – 32	≥20	EI 120-U/C
Rigid floors				
Steel pipes		26.9 – 168.3	20 – 40	EI 90/120/180-C/U
Copper pipes		28 – 88.9	20 – 40	EI 90/120/180-C/U
Geberit Mepla pipes, sustained		16 – 32	≥20	EI 90-U/C

CHARACTERISTICS OF CFS-S ACR

Characteristics	Assessment of charecteristics	Norm, standard, test
Health and the environment Air permeability	The air permeability of “Hilti Firestop Acrylic Sealant CFS-S ACR” with a thickness of 25 mm on both sides of the wall was tested according to EN 1026:2000 and EN 12211:2000 in an aerated concrete wall. The dimension of the tested joint was 1000 mm x 50 mm. Up to a pressure difference of 9700 PA no air permeability was measured.	EN 1026:2000 EN 12211:2000
Water permeability	Watertight to 1m head of water or 9806 Pa	ETAG 026-3
Dangerous substances	CFS-ACR complies with the registration, evaluation, authorization and restriction of chemicals (REACH). Toxic, carcinogenic, toxic for reproduction and mutagenic chemical substances of category 1 and 2 ≥ 0.1 % are not used.	Material safety datasheet
Protection against noise (Airborne sound insulation)	The tests were performed in a joint (length 1200 mm, depth 100 mm, width 25 mm) in a rigid wall backfilled with compressed mineral wool. Installation depth of “Hilti Firestop Acrylic Sealant CFS-S ACR” was 12 mm on both sides of the wall. Rw in dB 64 C in dB -2 Ctr in dB 64 -7	EN ISO 10140-1:2010+A1:2012 +A2:2014 EN ISO 10140-2:2010 EN ISO 717-1:2013
Durability and serviceability	Category Y_2 (suitable for use at temperatures below 0°C, but with no exposure to rain or UV)	ETAG 026-3
Movement capability (linear joints)	Class ISO 11600-F-12.5P	ISO 11600
Electrical properties	Volume resistivity $11.3 \times 10^{11} \pm 3.6 \times 10^{11}$ Ω Surface resistivity $8.5 \times 10^{6} \pm 2.4 \times 10^{6}$ Ω	DIN IEC 60093 (VDE 0303 Part 30)
Reaction to fire	Class E	EN 13501-1

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FIRESTOP BANDAGE CFS-B

Technical Manual

European Technical Assessment
ETA-20/0993

FIRESTOP BANDAGE CFS-B

Applications

- Firestopping around insulated (hot/cold) non-flammable pipes
- Pipe materials: copper, steel and other metals with heat conductivity lower than that of copper (e.g. cast iron, stainless steel etc.)
- Various insulation materials
- Suitable for use in openings in concrete, masonry block or drywall

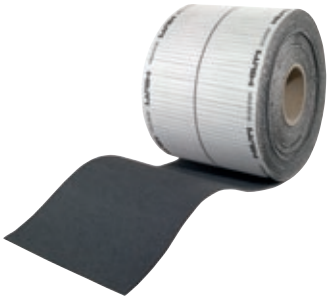
Advantages

- Highly versatile – one product for a variety of insulation materials, pipe materials and pipe diameters
- Quick and easy to install – no drilling or additional tools needed
- No need to interrupt the pipe insulation material within the wall/floor penetration
- Minimal thickness for easy installation in narrow gaps
- Good elasticity for optimum flexibility
- Good acoustic insulation properties

Technical Data

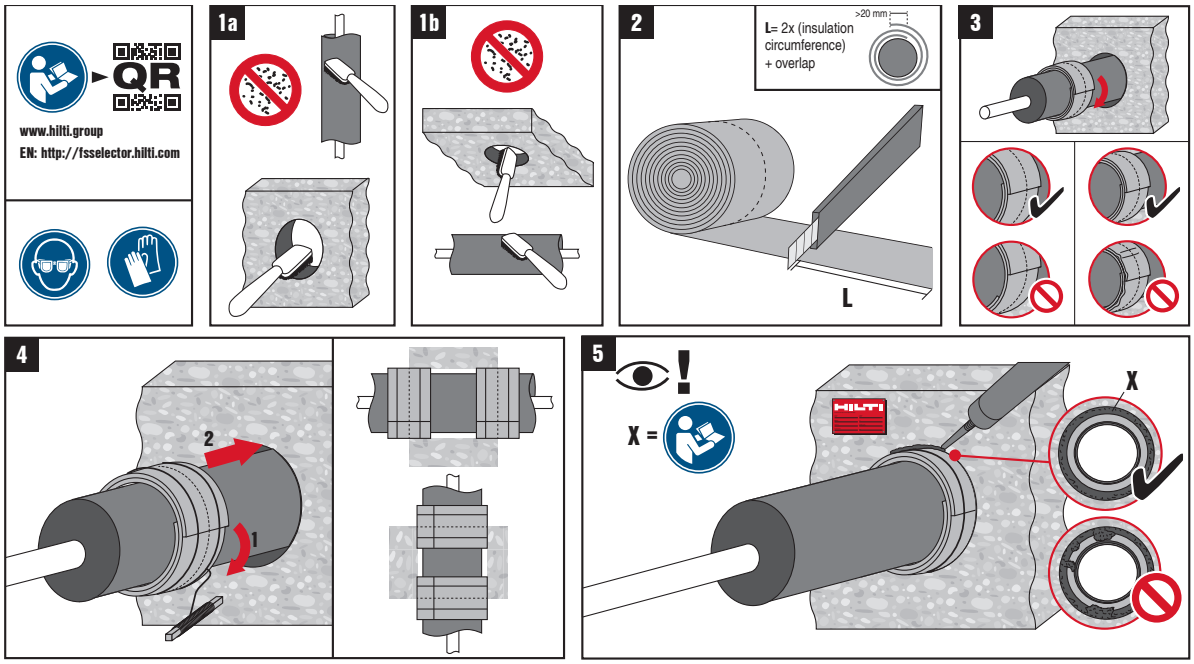
Base materials	Concrete, Masonry, Drywall
Application temperature range	–5 to 50 °C
Temperature resistance range	–20 to 100 °C
Reaction to fire class (EN 13501-1)	E
Dimensions (L × W × H)	10000 × 125 × 2 mm
Shelf life[1)]	Not relevant
Can be painted	No
LEED VOC	9.2 g/L (LEED 3.0)
Mold and mildew performance	Class 0 (EN ISO 846)

1) at 77 °F/25 °C and 50% relative humidity; from date of manufacture



Ordering designation	Height	Sales pack quantity	Item number
CFS-B	2 mm	1 pc	429557

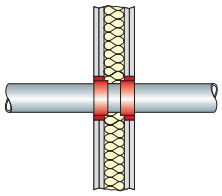
INSTRUCTIONS FOR USE: CFS-B

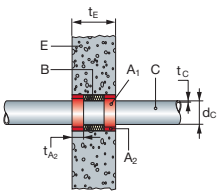


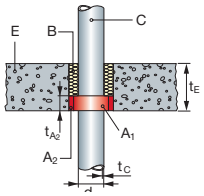
CONSUMPTION GUIDE

Pipe Ø mm	Insulation thickness (tDE) mm	CFS-B length mm per side	# Penetrations per roll (2 sides of wall)	# Penetrations per roll (1 side for floor)
10	8	196	25	51
	15	284	17	35
15	9	240	20	41
	30	504	9	19
30	10	347	14	28
	20	472	10	21
	30	596	8	16
50	10	472	10	21
	20	598	8	16
	30	724	6	13
75	10	629	7	15
	20	755	6	13
	40	1006	4	9
150	20	1226	4	8
	45	1541	3	6

GENERAL INFORMATION

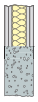






Partition	Flexible Wall		Rigid Wall		Rigid Floor
Base material thickness (t_E)	≥ 100 mm		≥ 200 mm		≥ 150 mm
Annular gap	0–15 mm	3–40 mm	0–15 mm	3–40 mm	3–40 mm
Gap filler	CFS-S ACR	Gypsum or mortar	CFS-S ACR	Gypsum or mortar	Gypsum or mortar
Penetrant	Combustible and non-combustible pipes. Pipe material: copper, steel, stainless steel, aluminium composite, PVC, PE,PP				
Approved elastomeric combustible insulation	Armaflex AF ®, Armaflex SH ®, Armaflex Ultima ®, Armaflex HT ®, Insul-Tube (nmc) ®, Insul-Tube H-Plus (nmc) ®, Kaiflex KK plus ®, Kaiflex KK ®, l'Isolante K-Flex HT ®, l'Isolante K-Flex ECO ®, l'Isolante K-Flex ST ®, l'Isolante K-Flex H ®, l'Isolante K-Flex ST Plus ®				

MAIN APPROVED APPLICATIONS



Application	Pipe material	Pipe Ø mm	Insulation thickness mm	Flexible & rigid wall ≥ 100 mm	Rigid wall ≥ 200 mm	Rigid floor
Potable water	PE (EN 12201-2) e.g. Wavin TS PE 100	50–110	9–42.5	EI 120 U/C		EI 180 U/C
	PE-Xa (EN ISO 15875) e.g. Rehai Rautitan Flex	16–63	8–39			
Potable water, refrigeration, industry, heating	Aluminum composite pipes*	10–75	6–40.5	EI 60 C/U – EI 90 C/U***	EI 90 C/U – EI 120 C/U***	EI 60 C/U – EI 120 C/U**
Refrigeration, heating	Copper pipes	10–88.9	6–36.5	EI 60 C/U – EI 90 C/U***	EI 90 C/U – EI 120 C/U***	EI 60 C/U – EI 120 C/U***
Potable water, refrigeration, heating	Steel and stainless steel	10.2–159	7.5–45	EI 120 C/U***	EI 90 C/U – EI 120 C/U***	EI 60 C/U – EI 120 C/U***

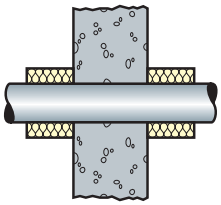
* Geberit Mepla ®, KeKelit KELOX KM 110 ®, Fränkische Rohrwerke Alpex F50 Profi ®, Rehau Rautitan stabil ®, Georg Fischer Sanipex ®, IVT PRINETO Stabilrohr ®,Viega SANIFIX Fosta-Rohr ®, Uponor Unipipe MLC ®, TECEflex ®.

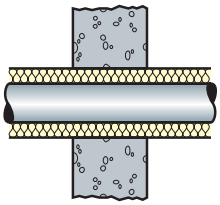
** Fire rating depends on substrate type, pipe type, insulation thickness, pipe diameter and pipe wall thickness.

*** Refer to ETA-20/0993 to validate the fire resistance rating.

OTHER APPROVED APPLICATIONS

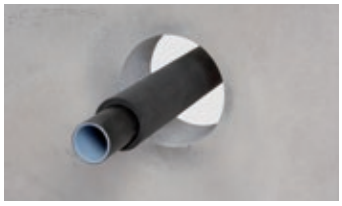
Local/continued and sustained/interrupted insulation affects EI classification





See ETA-20/0993 for the exact insulation configuration, length and thickness which will conform to the desired EI rating

Even wider range of insulated aluminium composite pipes (non regulated) covered by ETA-20/0993

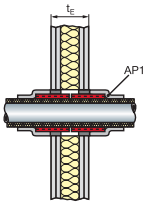


See ETA-20/0993 for the list of pipes brands, size and insulation sizes to find the fire rating achieveable with Firestop Bandage CFS-B

Pipe manufacturers: Geberit, KeKelit, Fränkische Rohrwerke, Rehau, Georg Fischer, IVT, Viega, Uponor, TECE. Ratings from EI 60 U/C – EI 180 U/C

Pipe diameter 16 to 75 mm, Insulation thickness 8 mm to 40.5 mm

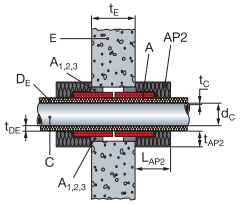
In some cases, EI rating can be improved with additional protection (AP1)



Armaflex AF elastomeric material for thermal insulation 19 mm thick, 250 mm length, local interrupted configuration

See ETA-20/0993 for additional options around copper and steel pipes in drywall to reach EI 90 C/U

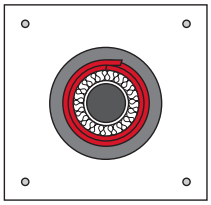
In some cases, EI rating can be improved with additional protection (AP2)

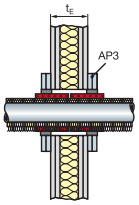


Mineral wool, Rockwool Klimarock, 40 mm thick, 250 mm in length; density approximately 40 kg/m³, local interrupted configuration

See ETA-20/0993 for additional options around steel pipes in rigid walls and floors to reach EI 120 C/U

In some cases, EI rating can be improved with additional protection (AP3) in drywall

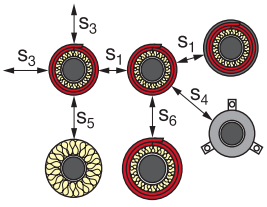


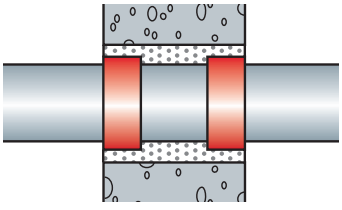


See ETA-20/0993 for copper and aluminium composite pipes improved ratings

For < 150 mm walls. 2 additional layers of boards on each side fixed with drywall screws

Reduced distance often allowed towards other pipes with CFS-B (S_1)





See ETA-20/0993 for more precise configuration options

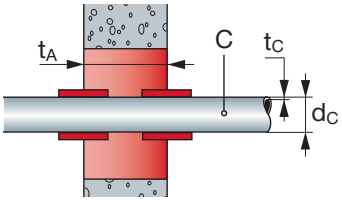
Reduced distance to CFS-C EL, Conlit, CFS-B

For pipes Ø ≤ 110 mm

See ETA 14/0085 (of Firestop Endless Collar) for details of approved pipes and configurations

Large (≥ 50 mm) plastic pipes

PVC/PE (EN ISO 15494, DIN 8074/8075, EN ISO 1452-2, EN ISO 15493 and DIN 8061/8062)



See ETA 10/0109 (of Firestop Flexible Foam) for various configurations where CFS-F FX and CFS-B are used together

CHARACTERISTICS OF CFS-B

Characteristics	Assessment of characteristics	Norm, standard, test
Dangerous substances	Hilti Firestop bandage CFS-B was tested for SVOC and VOC according EAD 350454-00-1104, clause 2.2.5.1, in accordance with EN 16516 with a loading factor of 0.007m^2/m^3. Release scenario IA1 and IA2 have been tested. The concentration of SVOC after 3 days and after 28 days was <0.005 mg/m^3. The concentration of the total emission of VOC after 3 days and after 28 days was, as well, <0.005 mg/m^3	Material safety data sheet
Durability	Category Z_2 (suitable for use in internal conditions with humidity lower than 85 % RH excluding temperatures below 0 °C, without exposure to rain or UV	EAD 350454-00-1104, clause 1.2.1
Reaction to fire	Class E	EN 13501-1

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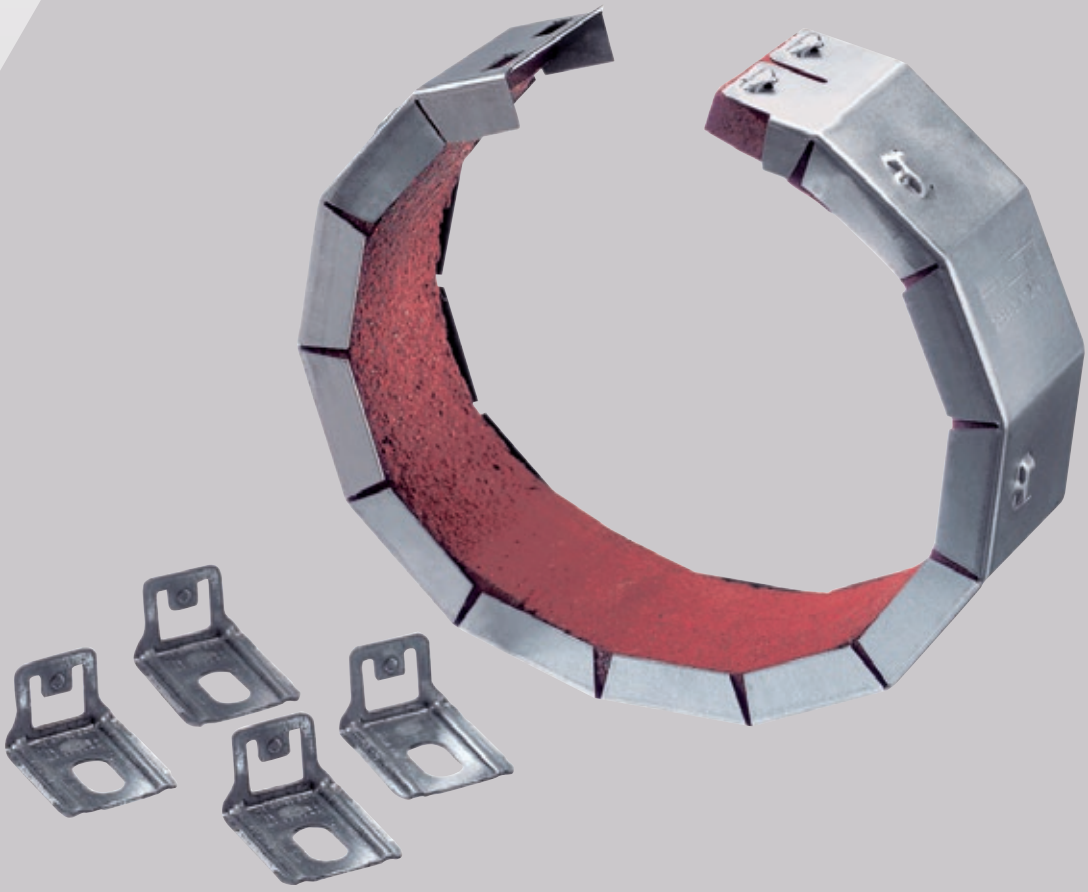
FIRESTOP COLLAR CFS-C P

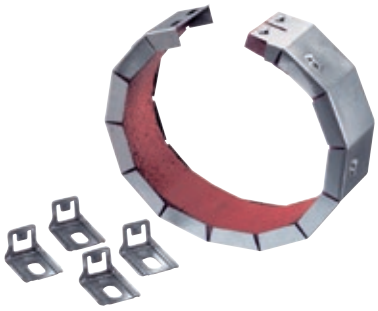
Technical Manual

European Technical Assessment
ETA-10/0404



HILTI FIRESTOP COLLAR CFS-C P

Firestopping for flammable pipes up to 250 mm in diameter with European Technical Approval.



Applications

- Sealing flammable pipes from 32 mm to 250 mm in diameter in penetrations through fire compartment walls and floors
- Pipe materials: PVC-C, PVC-U, PE, PE-HD, PE-X, PE-S2, PP, PP-R, ABS, Al-composite
- Suitable for use in openings in concrete, aerated concrete, masonry, drywall and in combination with coated board
- Different backfilling and sealing materials are covered

Advantages

- Quick and easy closure without use of a tool
- Adjustable position tabs for simple fastening
- Sound decoupling strip based on PE (foam) can be used
- Low profile for tight installations

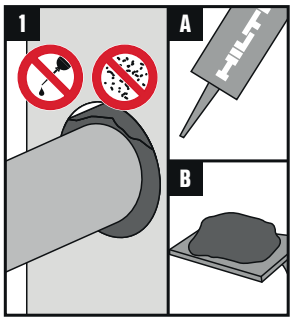
Technical Data

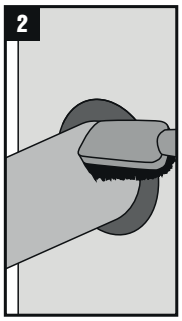
Base materials	Concrete, Masonry, Drywall
Minimum wall thickness	100 mm
Minimum floor thickness	150 mm
Storage and transportation temperature – range	–5° C to 50° C
Application temperature range	–5° C to 50° C
Temperature resistance range	–20° C to 100° C
Closure of annual gap	Gypsum plaster, cementitious mortar, Hilti Firestop Acrylic Sealant CFS-S ACR

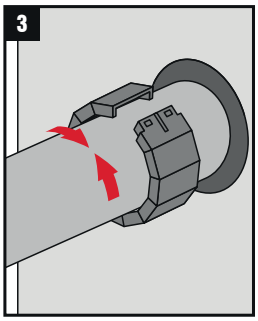
CE

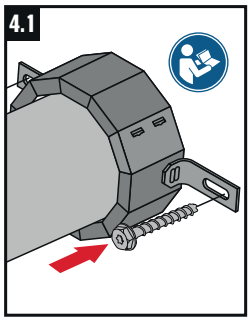
Nominal pipe diameter	Number of hooks and fasteners	Order designation	Sales quantity	Item number
50 mm	2	Firestop Collar CFS-C P 50/1.5"	1 pc	435406
63 mm	2	Firestop Collar CFS-C P 63/2"	1 pc	435407
75 mm	3	Firestop Collar CFS-C P 75/2.5"	1 pc	435408
90 mm	3	Firestop Collar CFS-C P 90/3"	1 pc	435409
110 mm	4	Firestop Collar CFS-C P 110/4"	1 pc	435410
125 mm	4	Firestop Collar CFS-C P 125/5"	1 pc	435411
160 mm	6	Firestop Collar CFS-C P 160/6"	1 pc	435412
180 mm	8	Firestop Collar CFS-C P 180/7"	1 pc	435413
200 mm	8	Firestop Collar CFS-C P 200/8"	1 pc	435414
225 mm	10	Firestop Collar CFS-C P 225/9"	1 pc	435415
250 mm	12	Firestop Collar CFS-C P 250/10"	1 pc	435416

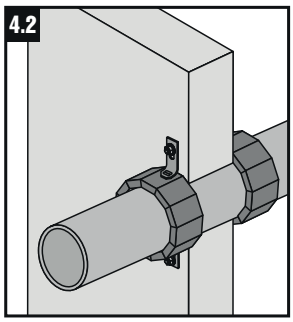
INSTRUCTION FOR USE: CFS-C P

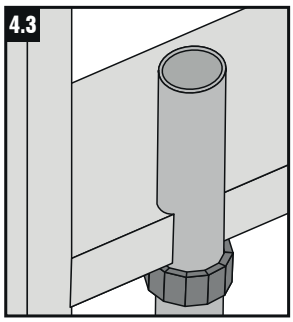








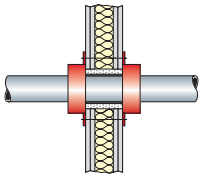


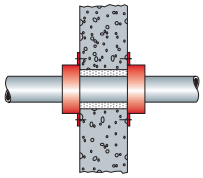


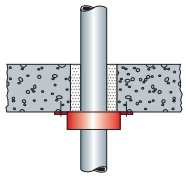
5

	CFS-C P-50/1.5" - 2 CFS-C P-63/2" - 2
	CFS-C P-75/2.5" - 3 CFS-C P-90/3" - 3
	CFS-C P-110/4" - 4 CFS-C P-125/5" - 4
	CFS-C P-160/6" - 6

GENERAL INFORMATION



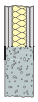


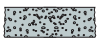


Partition	Flexible Wall	Rigid Wall	Rigid Floor
Base material thickness (t_E) density	≥ 100 mm	≥ 100 mm ≥ 450 kg/m³	≥ 150 mm ≥ 2400 kg/m³
Minimum seal depth	25 mm CFS-S ACR	15 mm CFS-S ACR	10 mm CFS-S ACR
Fixing to wall	M8 threaded rods + nuts	HUS, DBZ, HAS Ø ≥ 6 mm for collar up to 110 mm, Ø ≥ 10 mm larger collars	
Gap filler	CFS-S ACR, gypsum, cementitious mortar		CFS-S ACR with backfilling, gypsum, cementitious mortar
Penetrant	PVC-C, PVC-U, PE, PE-HD, PE-X, PE-S2, PP, PP-R, ABS, Al-composite		

Note: Opening diameter should not be larger than the collar outside diameter to allow a safe fixing of collar to wall/floor.

MAIN APPROVED APPLICATIONS





Applications	Pipe material	Pipe Ø (mm)	Flexible & rigid wall ≥ 100 mm	Rigid wall ≥ 150 mm	Rigid floor
Waste water	**PVC-U** (EN ISO 1452, EN 1329-1, EN 1453-1) and **PVC-C** (EN 1566-1)	50 – 160	EI 120 U/U		EI 120U/U
		180 – 250	–	EI 180 U/U	
	PE PE (EN 1519, EN 12666-1), ABS and PE-HD	50 – 160	EI 120 U/U		EI 120 U/U
		200 – 250	–	EI 120 U/U	
	PP (EN 1451-1, DIN EN 12056)*	32 – 110	EI 120 U/U		EI 90U/U
		125 – 160	–		
		200 – 250	–	EI 120 C/U	
Industry	**PVC-U** (EN ISO 15493, DIN 8061/8062)	50 – 160	EI 120 U/U		EI 120 U/U
		180 – 250	–	EI 180 U/U	
	PE (EN ISO 15494, DIN 8074/8075)	50 – 160	EI 120 U/U		EI 120 U/U
		180 – 200	–	EI 120 U/U	EI 120 U/C
		200 – 250	–	EI 180 U/U	
	PP (DIN 8077/8078)	50	EI 90 U/U		EI 120 U/U
		63	EI 60 U/U		EI 180 U/U
		75 – 110	EI 120 U/U		
		110 – 125	–		
Potable water	**PP** (EN ISO 15874, DIN 8077/8078)	50	EI 90 U/U		EI 120 U/U
		63	EI 60 U/U		EI 180 U/U
		75 – 110	EI 120 U/U		
		110 – 125	–		
	PE (EN 12201-2)	50 – 160	EI 120 U/U		EI 120 U/U
		200 – 250	–	EI 120 U/U	

* e.g. Magnaplast (R): Skolan dB (R), Phonex AS (R); Pipelife (R): Master 3 (R); POLOPLAST (R): Polo Kal NG (R); POLOPLAST (R): Polo Kal 3 S (R); Rehau (R), Raupiano Plus (R), Wavin (R); AS (R)/KeKelit (R); Phonex AS (R); Wavin (R); SiTech (R). Cloes (R); Blue Power (R), Cloes (R); PhoNoFire (R), Valsire (R); Triplus (R), Valsire (R); Silere (R), Geberit (R); Silent PP (R)

Excerpt of ETA document. Check the exact field of application (pipe types and diameters, pipe types, diameters and wall thickness, insulations types) in the ETA 10/0404 document.

OTHER APPROVED APPLICATIONS

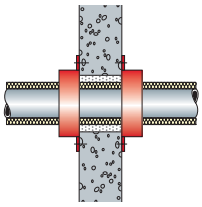
Wide range of branded plastic pipes through walls and floors approved

See ETA 10/0404 for list of approved pipes (+GF+, Aquaterm, Geberit, KeKelit, Magnaplast, Pipelife, POLOPLAST, Rehau, Wavin)

Pre-insulated pipes through walls and floors. PE-HD pipes (+GF+ Cool-Fit) with ABS/PUR insulation

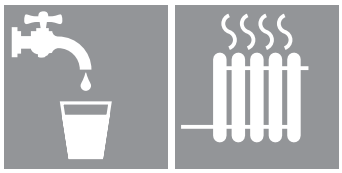
See ETA 10/0404 for list of approved pipe sizes from +GF+ Pipings Systems

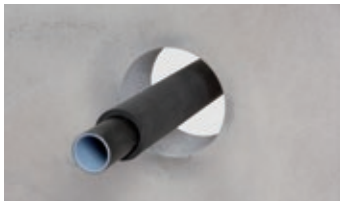
Plastic and Composite pipes with Armaflex AF insulation through walls and floors



See ETA 10/0404 for list of approved pipes and configurations.
PE, PP, branded (Aqutherm Wavin Friatec Rehau +GF+ Geberit Ke Kelit...)

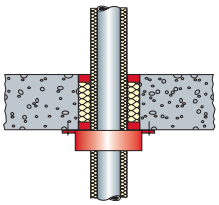
Composite pipe (PE-Xb/Al/PE-HD e.g. Geberit Mepla) approved through rigid floor and wall

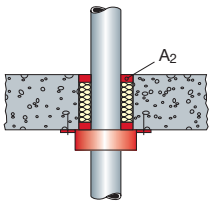




See ETA 10/0404 for list of approved pipes and configurations.
Ø 40, 50, 63 and 75mm

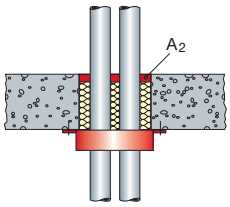
Approved configurations with 550 kg/m³ rigid floors. Insulated and non-insulated pipes.

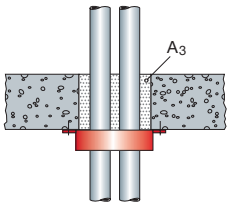




See ETA 10/0404 for list of approved pipes. Pre-insulated plastic pipes, PVC-U, PE, PP and various branded pipes

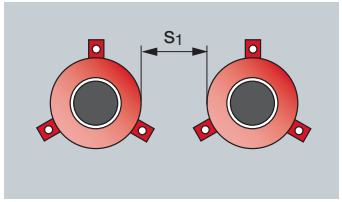
2 pipes in single collar configurations through rigid floors





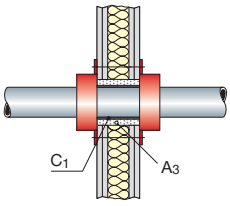
See ETA 10/0404 for list of approved pipes and configurations.
PE EN 15494 or DIN 8074/5
2×Ø 20mm

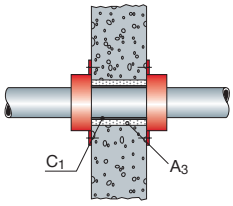
Zero distance between collars $S_1 = 0$



See ETA 10/0404 for details of approved pipes and configurations

Sound decoupling strip (C_1) to be used with Gypsum or Mortar as gap filler (A_3) to improve acoustic performances.





PE foam sound decoupling strips. Maximum allowed thickness ranges from 5 mm to 9 mm depending on the configuration.
See ETA 10/0404 for more details

CHARACTERISTICS OF FIRESTOP COLLAR CFS-C P

Characteristics	Assessment of characteristics	Norm, standard, test
Health and the environment Air permeability (tightness) Water permeability	Airtightness can be achieved up to 250 Pa when annular gap is sealed with a sealant e.g. Hilti Firestop Acrylic Sealant CFS-S ACR (10 mm thick) or Hilti Firestop Mastic Filler CFS-FIL (10 mm thickness).	EN 1026
	Watertight to 1 m head of water up to 3 days for Hilti Firestop Acrylic Sealant CFS-S ACR.	ETAG 026-2
Dangerous substances	CFS-C P does not contain dangerous substances detailed in Council Directive 67/548/EEC and Regulations (EC) no 1272/2008 as well as EOTA TR 034, edition March 2012 above the acceptable limits.	Material safety data sheet
Protection against noise (Airborne sound insulation)	The following airborne sound insulation for a single penetration of plastic pipe firestopped with Hilti Firestop Collar CFS-C P can be achieved when the annular gap is sealed. With Hilti Firestop Acrylic Sealant CFS-S ACR with mineral wool back filling: Flexible wall R_w = 53 dB $D_{n,w}$ = 60 dB Rigid wall R_w = 51 dB $D_{n,w}$ = 58 dB With cementitious mortar: Rigid wall R_w = 52 dB $D_{n,w}$ = 59 dB	EN ISO 140-3 EN ISO 20140-10 EN ISO 717-1
Durability and serviceability	Category Z_2 (suitable for penetration seals intended for use in dry indoor conditions excluding temperatures below 0° C).	ETAG 026-2
Reaction to fire	Class E	EN 13501-1

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FIRESTOP CAST-IN DEVICE CFS-CID

Technical Manual

European Technical Assessment
ETA-20/1233

Issue 12/2020

FIRESTOP CAST-IN DEVICE CFS-CID

Applications

- Concrete slabs built with traditional formwork
- New building construction
- Sealing combustible and non-combustible pipe penetrations
- Tested with pipe elbows, which allows reduced service zone

Advantages

- One-step firestop solution for a variety of pipe materials and diameters – no additional backfilling required
- Modular connection allows close placement of multiple penetrations
- Quicker and simpler installation
- Integrated moisture and smoke seal
- Lid strong enough to carry foot traffic and light access equipment

Technical Data

Base materials	Concrete
Approvals	EN 13501-2: 2007+A1:2009, EN 1366-3:2009
Height	250 mm
Application temperature range	–5 – 50 °C
Temperature resistance range	–20 – 100 °C
Color	Red
Re-penetration	Easy
Reaction to fire class (EN 13501-1)	E

Ordering description	Pipe diameter – range	Sales pack quantity	Item number
CFS-CID 50	40 – 63 mm	1 pc	2124523
CFS-CID 75	50 – 75 mm	1 pc	2124524
CFS-CID 110	80 – 110 mm	1 pc	2124525
CFS-CID 160	125 – 160 mm	1 pc	2124526

MANIFOLD ADAPTER CFS-CID

Applications

- Creation of a 70 mm deep recess in a slab
- For use in conjunction with the appropriate cast-in device
- Creates an underside void for the installation of an elbow-connector system

Technical Data

Base materials	Concrete
Height	77 mm
Application temperature range	–5 – 50 °C
Color	Red

Advantages

- Allows a manifold to be accommodated and thus simplifies plumbing installations
- Accommodates manifold connections and shower traps for walk-in showers and wet rooms
- Reduces final ceiling depth by creating a 70 mm recess in the slab
- Pipes can be installed closer to the ceiling, thus reducing spacing

Ordering description	Sales pack quantity	Item number
CFS-CID Manifold Adapter	1 pc	2124527

HEIGHT EXTENSIONS CFS-CID

Applications

- For use with CFS-CID cast-in devices

Technical Data

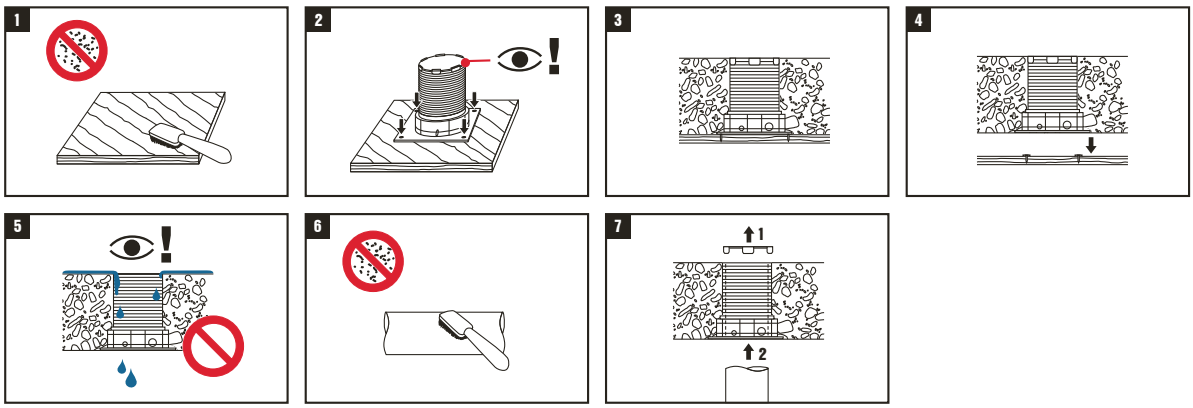
Base materials	Concrete
Height	150 mm
Application temperature range	–5 – 50 °C
Color	Red

Advantages

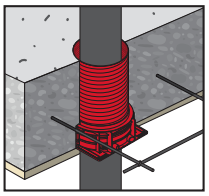
- “Screw on” feature promotes a secure connection to the device and cover cap
- Adds 150 mm of height to pre-formed firestop devices

Ordering description	Pipe diameter – range	Sales pack quantity	Item number
Extension tube 6" CP 680-P 2"	40 – 63 mm	1 pc	244252
Extension tube 6" CP 680-P 3"	50 – 75 mm	1 pc	244253
Extension tube 6" CP 680-P 4"	90 – 110 mm	1 pc	244254
Extension tube 6" CP 680-P 6"	125 – 160 mm	1 pc	244255

GENERAL INSTRUCTIONS FOR USE



GENERAL INFORMATION



Partition	Rigid Floor
Base material thickness (t_E)	≥ 150 mm
Distance between devices	Zero for all pipe types
Fixing to formwork	Wood nails
Gap filling	No backfilling required
Penetrant	Combustible and non-combustible Pipes

MAIN APPROVED APPLICATIONS

Application	Pipe material	Pipe Ø mm	Classification in rigid floor
Waste water, Roof drainage	**PE/PE-HD** EN 1519-1, EN 12666-1 (covers EN 12201-2, EN 1519-1, EN 12666-1, EN 1455-1 (ABS), EN 1565-1 (SAN+PVC) EN ISO 15494 (Industrial), DIN 8074	40 – 160	EI 180 U/U
	PVC-U EN 1329-1 or EN 1453-1 or EN 1452-1 (covers EN 1329-1, EN 1453-1, EN 1452-1, EN 1566-1), EN ISO 15493 (Industrial, equivalent EN 1452)	63 – 160 50 – 160	EI 180 U/U EI 120 U/U
	PE S2 Geberit db20 (Non-regulated)	56 – 160	EI 180 U/U
	PP (EN 1451-1, DIN 4102)*	40 – 160	EI 180 U/U
Drinking water	**PP-R DIN 8077/8078 (**e.g. Aquatherm)	32 – 160	EI 180 U/C
	PE-Xa Rehau Rautitan Flex	32 – 63	EI 180 U/U
	AL-composite pipes with elastomeric insulation (e.g Geberit Mepla, etc)	40	EI 180 U/C
Heating	Copper, steel, stainless steel and cast iron with elastomeric, glass or mineral wool insulation	18 – 89	EI 180 C/U

* Coes “Blue Power”, Coes “PhoNoFire”, “Geberit Silent PP”, Marley Silent, Ostendorf “Skolan-dB”, Pipelife “Master 3”, POLOPLAST “Polokal NG”, POLOPLAST “Polokal 3S”, “POLOPLAST Polokal XS”, Rehau “Raupiano Plus”, Wavin “AS”, KeKelit “Phonex AS”, Wavin “SiTech”, Valsire “Triplus”, Valsire “Silere”

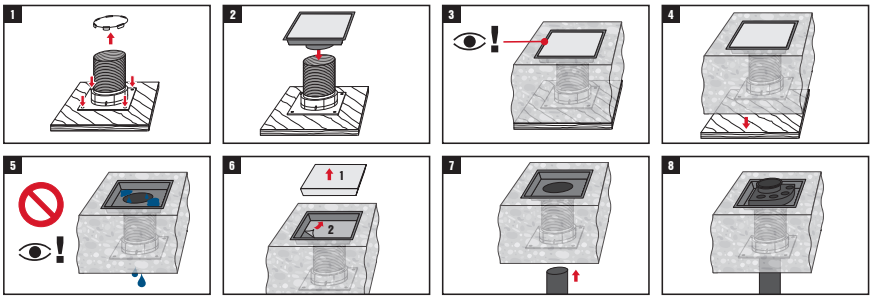
Excerpt of ETA document. Check the exact field of application for each pipe (type, diameter and pipe wall thickness) in the ETA-20/1233 document.

OTHER APPROVED APPLICATIONS

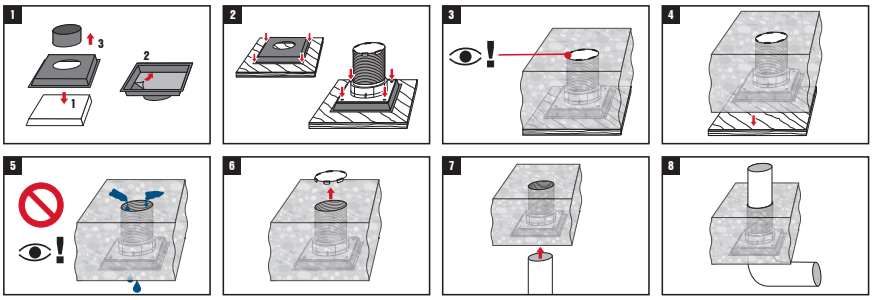
CFS-CID Manifold Adapter
Dimensions:
280 × 280 × 75 mm

To use with Firestop Cast-in Device CFS-CID 110 mm

Recess for pipe junctions



Recess for pipe elbow couplers
EI 180 U/U for PVC and HD-PE pipes Ø = 110 mm



Firestop Cast-in Extensions

Adds an extra 150 mm to the Cast-in Device with a strong and stable connection.

Coupler and extensions available for all CFS-CID diameters.

Firestop Cast-in CFS-CID without pipe penetrations

All sizes tested and approved only with the lid on top.

See ETA-20/1233 for details of approved pipes

Zero distance between Cast-in Devices

It is possible to assemble Firestop Cast-in Devices with zero separation between them.

See ETA-20/1233 for details of approved pipes

CHARACTERISTICS OF CFS-CID

Characteristics	Assessment of characteristics	Norm, standard, test
Health and the environment Emission test	CFS-CID was tested for VOC emissions according to ISO 16000 and was deemed compliant to the AgBB regulations (version 2010). The concentration of SVOC after 3 and 28 days was < 5 µg/m³. The concentration of the total emission of VOC after 3 and 28 days was ≤25 µg/m³	Material safety data sheet
Protection against noise Airborne sound insulation	Hilti CFS-CID 50 $D_{n,w}$ = 55 dB Hilti CFS-CID 75 $D_{n,w}$ = 51 dB Hilti CFS-CID 110 $D_{n,w}$ = 48 dB Hilti CFS-CID 160 $D_{n,w}$ = 46 dB	EN ISO 10140-1 EN ISO 10140-2 EN ISO717-1
Durability and serviceability	Category Y2 (suitable for penetration seals for use in dry indoor conditions at temperature below 0 °C with with no exposure to rain nor UV	EAD 350454-00-1104
Reaction to fire	Class E	EN 13501-1

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ELECTRICAL AND MECHANICAL SYSTEMS

- **Hilti Firestop Foam CFS-F FX**
- **Hilti Rectangular cable collar CFS-RCC**
- **Hilti Firestop Coated Board CFS-CT B**
- **Hilti Firestop Block CFS-BL**

FIRESTOP FOAM CFS-F FX

Technical Manual

European Technical Assessment
ETA 10/0109

FLEXIBLE FIRESTOP FOAM CFS-F FX

Applications

- Electrical: cable conduits, cables, cable bundles, cable trays and cable trunking
- Mechanical: metal & plastic pipes, composite pipes, split AC unit piping
- Mixed penetration seal
- Repenetration with single cables
- Approvals in combination with Hilti CFS-BL firestop blocks, especially for large openings or applications in specialist industry applications (telecom, industrial)

Advantages

- Foam can be easily shaped during the curing process
- Neat and tidy application
- Very quick and easy to install and provides a reliable firestop seal with only one product
- Maintenance and retrofitting of cables is very easy
- Single-sided installation possible
- Smoke-tightness and firestopping with one system

Technical Data

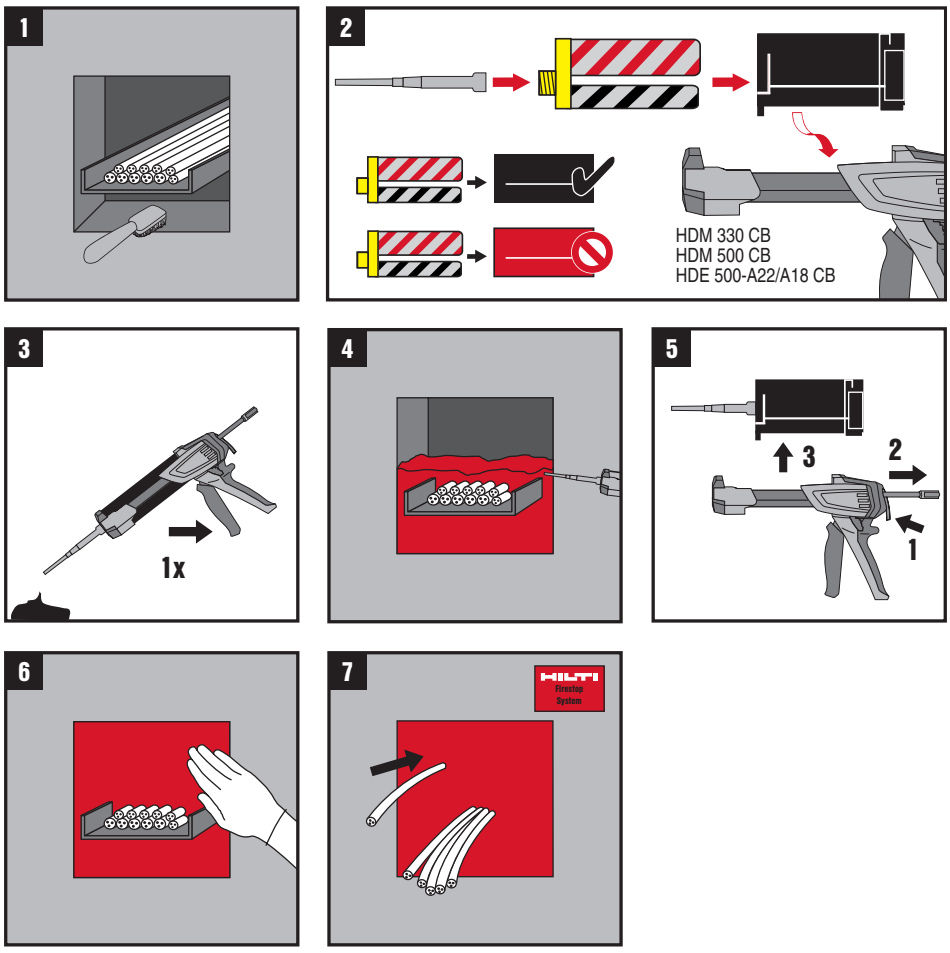
Base materials	Concrete, Masonry, Drywall
Approvals	ETA-10/0109
Repenetration	Easy
Approx. tack-free time (at 23 °C / 50% rel. humidity)	5 min
Approx. curing time1)	10 min
Application temperature range	10 - 35 °C
Temperature resistance range	-30 - 60 °C
Storage and transportation temperature range	5 - 25 °C
Required dispenser	HDM 330, HDE 500
Content per can / cartridge	325 ml

Ordering description	Package contents	Sales pack quantity	Item number
CFS-F FX	1x Firestop Foam CFS-F FX	1 pc	429802

Accessories

Ordering designation		CFS-F FX	Sales pack quantity	Item number
HDM 330 manual dispenser		•	1 pc	2036319
HDE 500-A22 cordless dispenser		•	1 pc	2005637

GENERAL INSTRUCTIONS FOR USE



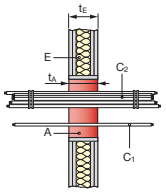
CONSUMPTION GUIDE

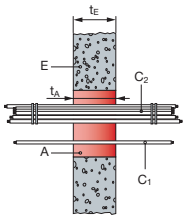
Number of 325 ml cartridges required for various opening sizes and penetration volumes:

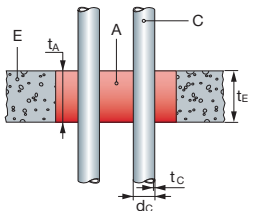
Circular opening – 200 mm depth					Rectangular opening – 200 mm depth					
Opening Ø	Visual fill of penetrating items				Opening (mm)		Visual fill of penetrating items			
(mm)	0%	10%	30%	60%	Width	Height	0%	10%	30%	60%
90	1.0	1.0	1.0	0.5	50	100	1.0	1.0	0.5	0.5
120	1.5	1.5	1.0	1.0	100	100	1.5	1.5	1.0	0.5
140	2.0	2.0	1.5	1.0	100	150	2.0	2.0	1.5	1.0
160	2.5	2.5	2.0	1.0	100	200	2.5	2.5	2.0	1.0
180	3.0	3.0	2.5	1.5	100	250	3.0	3.0	2.5	1.5
200	4.0	3.5	3.0	1.5	100	300	3.5	3.5	2.5	1.5
220	4.5	4.0	3.5	2.0	200	200	5.0	4.5	3.5	2.0
240	5.5	5.0	4.0	2.5	200	225	5.5	5.0	4.0	2.5
250	6.0	5.5	4.0	2.5	200	250	6.0	5.5	4.5	2.5
280	7.5	6.5	5.0	3.0	200	300	7.0	6.5	5.0	3.0
300	8.5	7.5	6.0	3.5	200	400	9.5	8.5	6.5	4.0
320	9.5	8.5	6.5	4.0	300	300	10.5	9.5	7.5	4.5
340	10.5	9.5	7.5	4.5	300	350	12.5	11.0	8.5	5.0
350	11.5	10.0	8.0	4.5	300	400	14.0	12.5	10.0	6.0
400	14.5	13.5	10.5	6.0	400	400	18.5	17.0	13.0	7.5

GENERAL INFORMATION





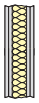


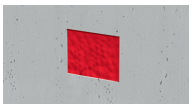


Partition	Flexible wall	Rigid wall	Floor
Base material thickness (t_E)	≥ 100 mm	≥ 100 mm	≥ 100 mm
Opening size	≤ 600 x 600 mm or ⌀ ≤ 600 mm	≤ 600 x 600 mm or ⌀ ≤ 600 mm	≤ 400 x 400 mm or ⌀ ≤ 400 mm
Total service surface	≤ 60% of surface of the opening		
Penetration	Blank seal cables and cable bundles, insulated and non-insulated metal pipes, plastic and AL composite pipes, Clima Split applications conduits and tubes plastic/metal, flexible or rigid conduits		

*conduits and tubes plastic/metal, flexible or rigid conduits

MAIN APPROVED APPLICATIONS



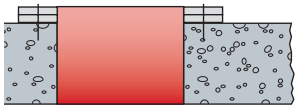
Penetration		Penetration Ø	Flexible wall	Rigid wall	Rigid floor
	Blank seal		EI 90 ≤ 600 × 600 mm t_A ≥ 100 mm EI 120 ≤ 400 × 400 mm t_A ≥ 150 mm		EI 120 ≤ 400 × 400 mm t_A ≥ 150 mm
	Cables Cable bundles	Cables Ø ≤ 80 mm Bundles Ø ≤ 100 mm	EI 60 up to EI 120* seal thickness t_A ≥ 100 mm		
	Metal conduits	Ø ≤ 16 mm	EI 90 up to EI 120 with t_A ≥ 100 mm		EI 120 t_A ≥ 150 mm
	Plastic conduits	Ø ≤ 16 mm	EI 120 t_A ≥ 100 mm		EI 120 t_A ≥ 150 mm
	Flexible / rigid plastic conduits	16 mm ≤ Ø ≤ 32 mm	EI 120 with t_A ≥ 200 mm		
	Bundles of plastic, conduits	Ø ≤ 100 mm bundle 16 mm ≤ Ø ≤ 32 mm conduits	EI 120 with t_A ≥ 200 mm		
	AL composite pipes	16 mm ≤ Ø ≤ 32 mm	EI 120 seal thickness t_A ≥ 200 mm		

Penetration		Penetration Ø	Flexible wall	Rigid wall	Rigid floor
	Non-insulated metal pipes	28 mm		EI 90 $t_A \geq 200$ mm	
	Metal pipes with mineral wool insulation	12 mm Ø 168 mm	EI 60 up to EI 120 $t_A \geq 150$ mm		EI 60 up to 120 $t_A \geq 150$ mm
	Metal pipes with Armaflex insulation	6 mm Ø ≤ 42 mm	EI 90 up to EI 120 $t_A \geq 200$ mm		EI 120 $t_A \geq 200$ mm
	Metal pipes with Armaflex insulation with CFS-B Firestop Bandage	28–114 mm	EI 60 up to EI 120 $t_A \geq 150$ mm EI 120 $t_A \geq 200$ mm		
	Plastic pipes	≤ 50 mm		EI 60 up to EI 120 $t_A \geq 150$ mm	
	Plastic pipes with CFS-B PE/PVC	50–110 mm		EI 120 $t_A \geq 200$ mm	

Excerpt of ETA document. Check the exact field of application (cable types and diameters, pipe types/diameters and wall thickness/insulations type) in the ETA 10/0109 document.

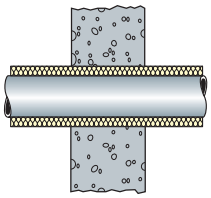
OTHER APPROVED APPLICATIONS

Framing for thicker seal than partition thickness



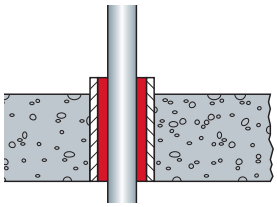
See ETA for more details

Local / continued and sustained / interrupted insulation affects EI classification



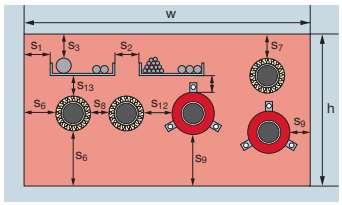
See ETA for more details

Metal and plastic pipe through wall / floors inside PVC cast-in sleeve



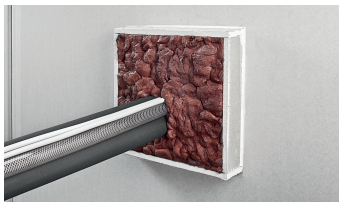
See ETA for detail of approved pipes and insulated pipes

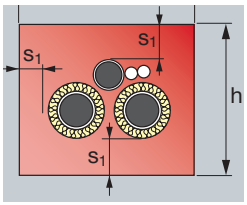
Mixed penetrations (pipes, cables, conduits)



See ETA for more details

“Clima Split” bundles of pipes, cables and PVC-U pipes





See ETA for more details

CHARACTERISTICS OF CFS-F FX

Characteristics	Flexible wall	Rigid wall
Health and the environment Air permeability (gas tightness)	Δ p 50 Pa ⇒ 0.0007 q/A [m^3/(h x m^2)] (174 mm thickness of layer) Δ p 250 Pa ⇒ 0.0033 q/A [m^3/(h x m^2)] Permeability regarding air	EN 1026
Dangerous substances	Below any respective occupational exposure limits as far as such limits exist.	Material safety data sheet
Safety in use Resistance to impact / movement / Mechanical resistance and stability / Adhesion	Soft body impact: Energy 1200 Nm Hard body impact: Energy 10 Nm	EOTA Technical Report TR001, A1
	Fullfills requirements of zones Type I, II, III and IV maximum opening 400 x 400 mm.	
Protection against noise (Airborne sound insulation)	Rw (C; Ctr) = 61 (–2; –6) dB Dn,e,w (C; Ctr) = 69 (–2; –7) dB	EN ISO 140-3 EN ISO 20140-10 EN ISO 717-1
Durability and serviceability	Category Y2 (suitable for penetration seals intended for use at temperatures between – 20 °C and + 70 °C) no exposure to rain or UV.	EOTA Technical Report TR024 EAD 350454-00-1104:2017
	May be coated with acrylic dispersion, alkyd resin, polyurethan / acrylic and epoxy resin).	
Reaction to fire	Class E	EN 13501-1

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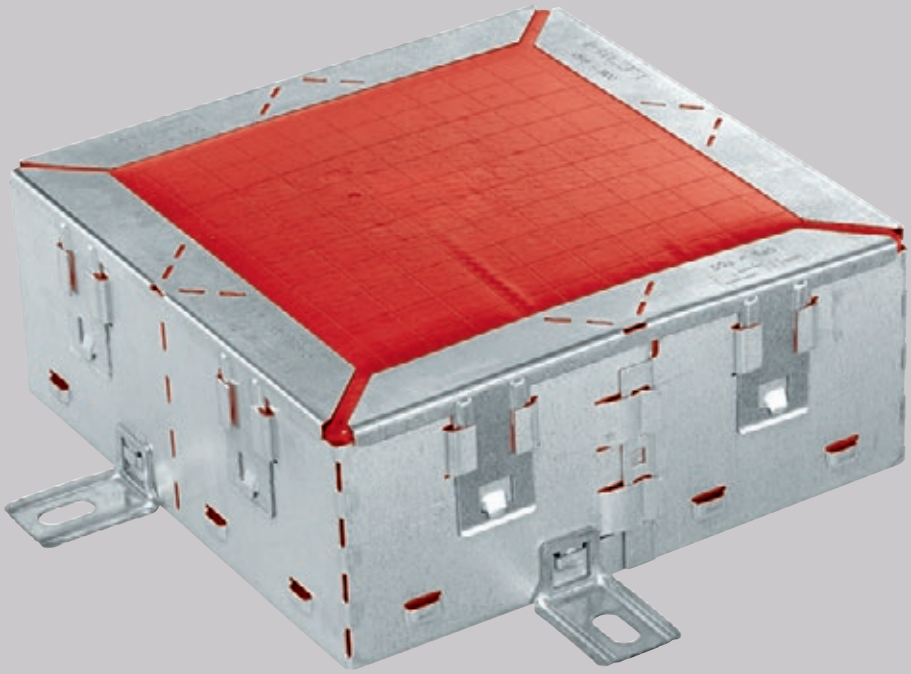
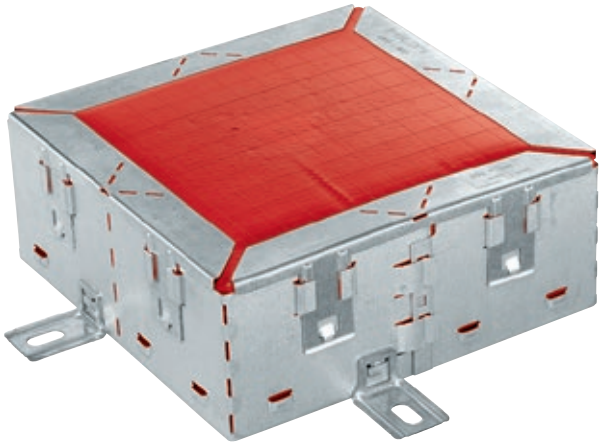
FIRESTOP RECTANGULAR CABLE COLLAR CFS-RCC



FIRESTOP CABLE COLLAR CFS-RCC



Applications

- Flexible solution for cables, conduits, cable trays and pipes in concrete, masonry and drywall applications
- For new and existing penetrations in floors and walls
- Especially suitable for renovation projects under difficult conditions
- Can be used to seal old/damaged fire compartment penetrations without removing the existing material

Advantages

- Broad approval range – also covers mixed penetrations and mechanical penetrations with metal pipes up to 114 mm and plastic pipes up to 50 mm
- Modular system – fast and easy to install, no mortar or mineral wool required
- Surface-mounted solution – perfect for use at openings with 100% cable fill
- Excellent solution for irregular openings
- Time-saving, dust-free solution – no need for framework for drywall applications, no chiseling work on solid walls necessary
- Preformed product – immediately functional after installation
- Reliable solution – easy to inspect
- Re-penetrable – allows easy increase in future cable capacity
- Also suitable for single-sided applications for floor and wall openings
- Green building – contains no halogens, solvents or asbestos.
- LEED information available

Technical Data

Base material	Concrete, aerated concrete, drywall, masonry
Chemical basis	Polyurethane foam
Color	Red
Complementary products	CFS-FIL, CFS-F FX, CFS-P BA, CP636
Intumescent	Yes
Expansion temperature (approx.)	200 °C
Expansion ratio (unrestricted, up to)	1:3
Application temperature range	5 – 40 °C
Storage and transportation temperature range	–5 – 40 °C
Temperature resistance range	–15 – 60 °C

Order designation	Package contents	Minimum order quantity	Item number
CFS-RCC firestop cable collar	2	2	2126526
CFS-RCC EXT firestop cable collar	2	2	2126527

FIRESTOP FILLER MASTIC CFS-FIL

Applications

- For use with Hilti Firestop Cable Collar CFS-RCC (gap filling)

Advantages

- Can be used with Hilti dispenser CFS-DISP

Order designation	Package contents	Minimum order quantity	Item number
Firestop Filler Mastic CFS-FIL	310 ml	1 pc	2052899

CFS-F FX FIRESTOP FOAM

Applications

- For use with Hilti Firestop Cable Collar RCC (gap filling)
- For use with Hilti Firestop Cable Collar (polyurethane inlay replacement on both sides)
- For use with Hilti Firestop Cable Collar (wall opening filling for single-sided application)

Advantages

- Can be used with Hilti HDM 330 Manual Dispenser and HDE 500-A22 Cordless Dispenser
- Allows rough cutting of the polyurethane inlay

Order designation	Package contents	Item number
CFS-F FX Firestop foam	incl. 1 mixing nozzle, instructions for use	429802

FIRESTOP PUTTY BANDAGE CFS-B PA

Applications

- For use with Hilti Cable Collar CFS-RCC
- For specific cable configurations, to achieve EI 120

Advantages

- Easy to cut
- Self-adhesive

Order designation	Packing content	Minimum order quantity	Item number
Firestop Putty Bandage CFS-PBA	5 m	1 pc	2062876

CP 636 FIRESTOP MORTAR

Applications

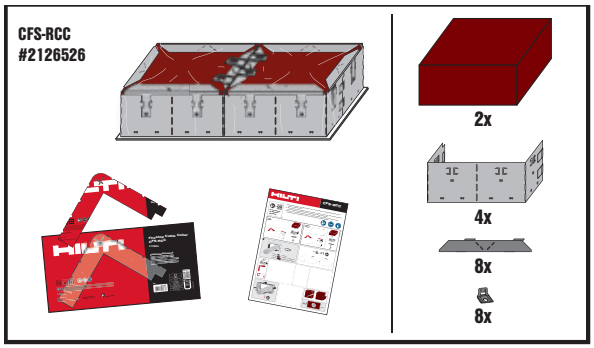
- Permanent firestopping of cables, cable trays, and non-combustible pipes in medium-to-large wall and floor openings
- Single, multiple and mixed penetrations
- Medium-large multiple penetrations in concrete and masonry in combination with other products

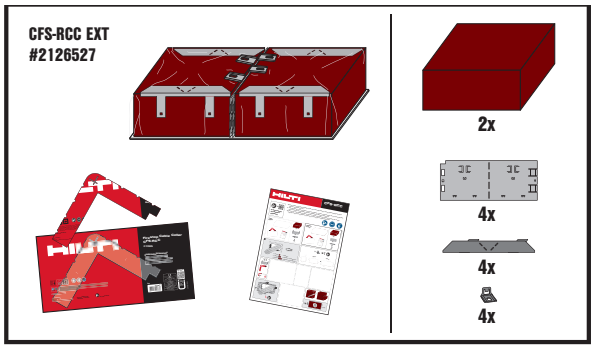
Advantages

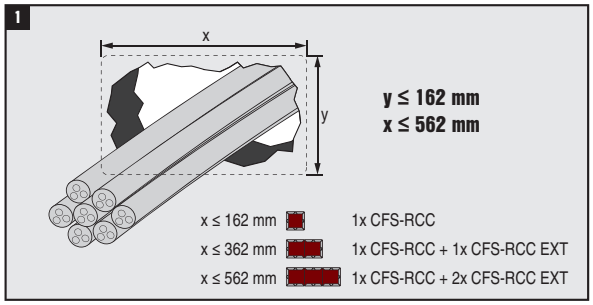
- Easier to install – consistency can be varied for application with a trowel or commercially available pumps
- Excellent thermal insulating properties
- Minimal shrinkage during curing and no spalling in event of fire

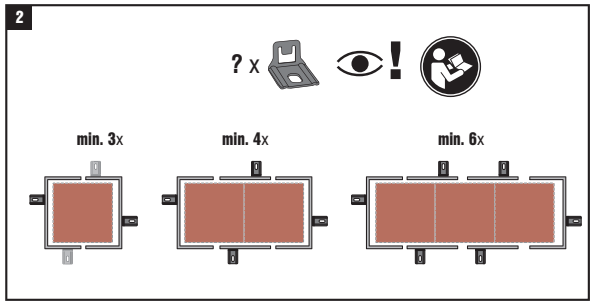
Order designation	Packing content	Minimum order quantity	Item number
CP 636 Firestop Mortar	20 kg	1	334897

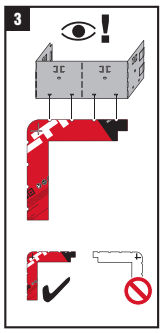
INSTALLATION INSTRUCTIONS

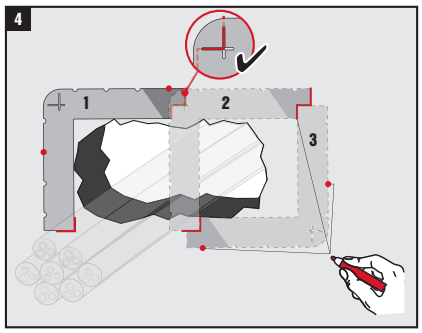


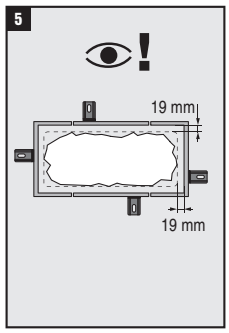


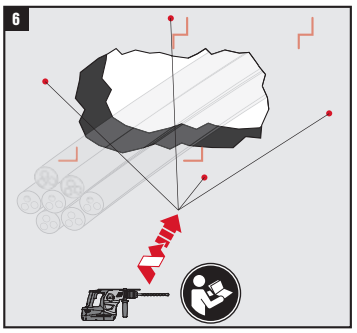


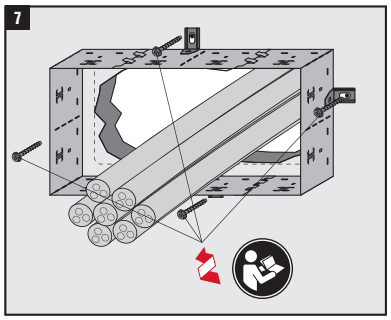


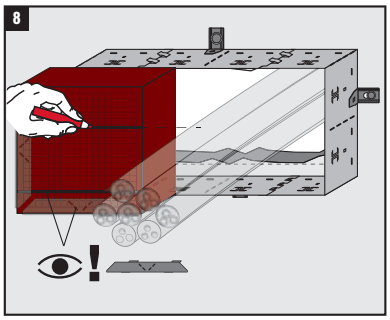


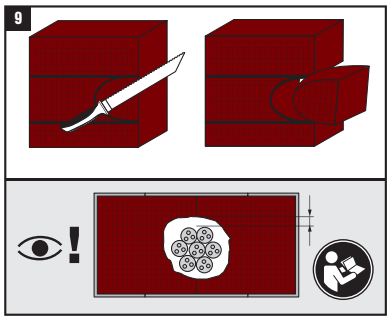




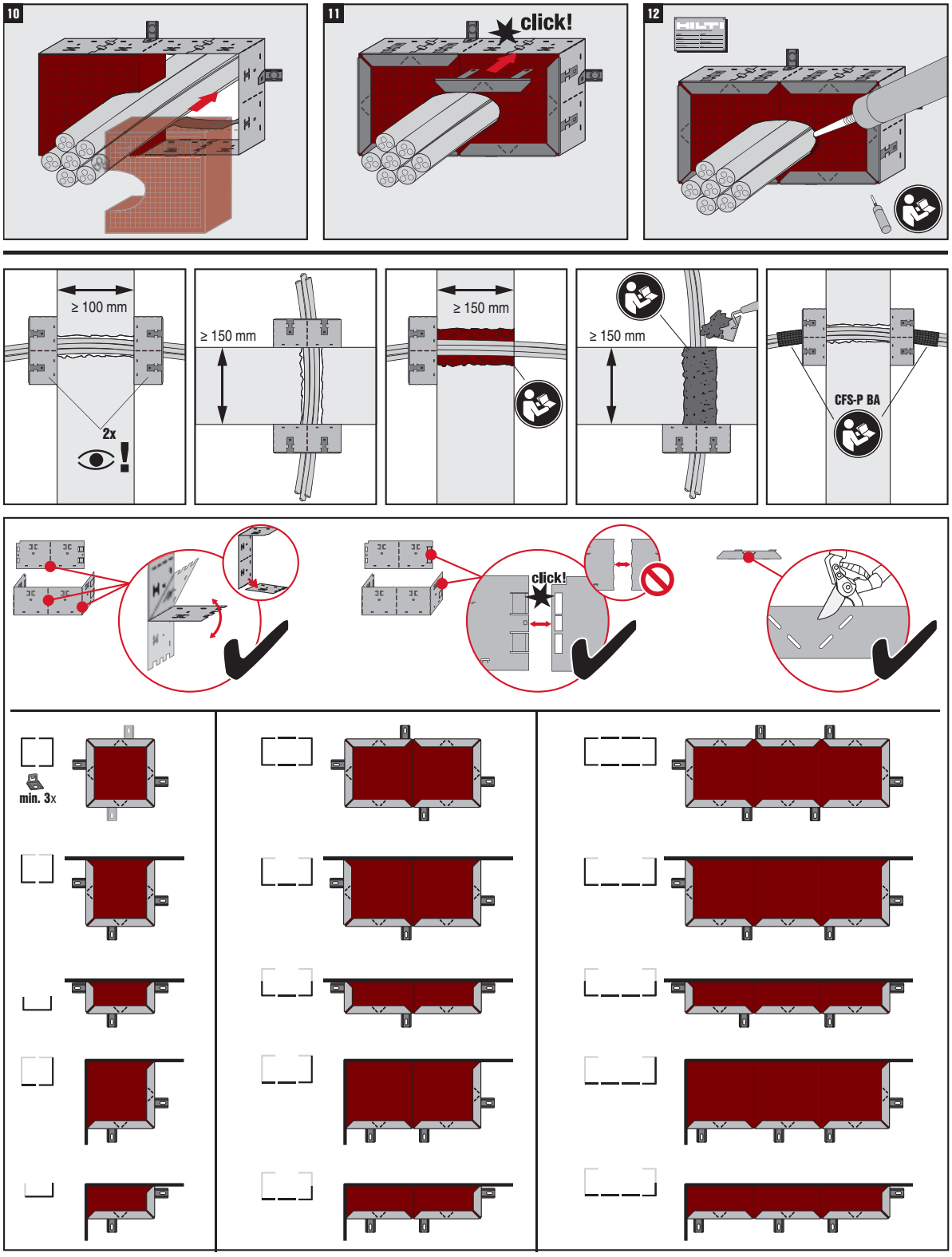




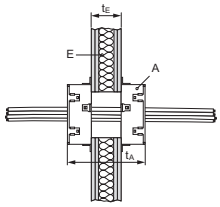


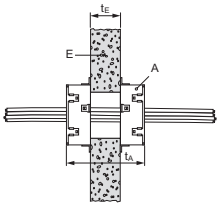


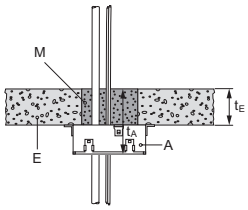
INSTALLATION INSTRUCTIONS



GENERAL INFORMATION



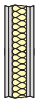




Partition	Flexible wall	Rigid wall	Floor
Base material thickness (t_E)	≥ 100 mm	≥ 100 mm	≥ 150 mm
Opening size*	≤ 181 x 581 mm		
Total service surface	≤ 60% of surface of the opening		
Penetration	Blank seal, cables and cable bundles, waveguides, conduits (flexible/rigid, metal/plastic), Insulated and non-insulated pipes (metal/plastic), aluminium composite pipes, mixed and special penetrations e.g. climasplit		

* Depending on configuration type

MAIN APPROVED APPLICATIONS



Penetration	Penetration Ø	Flexible wall	Rigid wall	Rigid floor
Blank seal		EI120		EI180
Small cables	≤ 21mm	EI120		EI180
	21 ≤ Ø ≤ 80 mm	EI90		EI180
Cable bundle	Ø ≤ 150 mm	EI120		
Waveguides	Ø ≤ 59.9 mm	EI120		EI180
Conduits	Ø ≤ 16 mm	EI120		EI180
	Ø ≤ 50 mm	EI120		EI120
Conduit bundle	Ø ≤ 80 mm	EI120		EI120
Special penetration bundle	Ø ≤ 80 mm	EI120		
Plastic pipes	Ø ≤ 50 mm	EI120		EI180
Copper pipes with combustible insulation	Ø ≤ 42 mm	EI120		EI180
Copper pipes with non-combustible insulation	Ø ≤ 42 mm	EI120		EI120
	Ø ≤ 28 mm			EI180
Steel pipes with combustible insulation	Ø ≤ 108 mm	EI120		EI120
	Ø ≤ 114 mm	EI90		
Steel pipes with non-combustible insulation	Ø ≤ 108 mm	EI120		
	Ø ≤ 114 mm	EI90		
Aluminum composite pipes with combustible insulation	Ø ≤ 42 mm	EI120		EI180
Mixed seals without electrical cables	View ETA please	EI60 / EI90 / EI120		
Mixed seals with large electrical cables		EI90		

RELEVANT CONSIDERATIONS

Configuration types: basic, side, corner



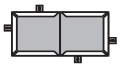
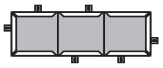
View ETA for more details

Seal and opening sizes

Dimensions [mm × mm]	Basic configuration	Corner configuration	Side configuration
Seal	200 × 200 (single), 200 × 400 (double), 200 × 800 (triple)		
Opening [$W_1 \times W_1$]	162 × 162 (single)	181/81 × 181 (single)	181/81 × 162 (single)
	162 × 362 (double)	181/81 × 381 (double)	181/81 × 362 (double)
	162 × 562 (triple)	181/81 × 581 (triple)	181/81 × 562 (triple)

View ETA for more details

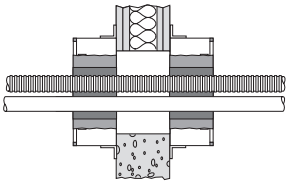
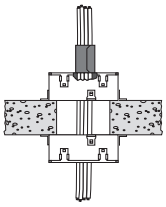
Number of fastening points

			
Basic configuration	3	4	6
Side configuration	3	3	4
Corner configuration	2	3	4

View ETA for more details

Seal types

Both sides at the end wall/floor
Both sides + foam inlay at the end wall/floor
Single-sided application with FX foam

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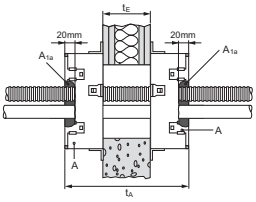
Filling gaps in penetration seals

Gaps between services and the Hilti Firestop Cable Collar are to be filled with Hilti CFS-FIL Firestop Filler.



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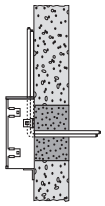
Application with existing firestop installations or in renovation

Old materials can remain inside opening between two Hilti cable collars. These have no negative influence on the fire resistance performance of the collar system.

View ETA for more details

Angle of penetrating services

Cables must lie perpendicular to the seal surface. In this case, up to 2 metal segments can be removed to make space for cable penetration. Three fixing hooks must be used to fasten the collar.



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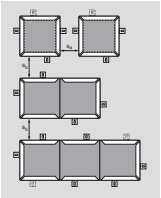
RELEVANT CONSIDERATIONS

Distances between cluster arrangements, distances for penetrations and distances to support structures



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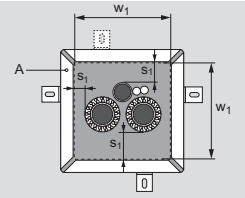
Special penetrations e.g. Climasplit, mixed penetrations



View ETA for more details

CHARACTERISTICS OF FIRESTOP CABLE COLLAR CFS-RCC

Hilti firestop products are comprehensively tested and individually tailored to the technical requirements of a building's mechanical and electrical installations. In addition to their superior behavior in passive fire protection, Hilti firestop products also meet the requirements in building technology that continue to gain significance and also help the designer and installer to meet these additional requirements. The assessment of fitness for use has been made in accordance with EOTA ETAG No 026 – Part 2.

Characteristics	Assessment of characteristics	Norm, standard, test
Health and the environment Dangerous substances	Below any respective occupational exposure limits as far as such limits exist (compared with the list of dangerous substances of the European Commission)	VOC test report in accordance with AgBB (2015) and AFSSET (2009). French VOC regulation (2011). French CMR components (2011). Belgian Regulation (2015). Indoor Air Comfort® (2015). BREEAM International. LEED 4
Protection against noise (airborne sound insulation)	CFS-RCC=Rw (C; Ctr)=63 (-3; –9) dB	EN ISO 140-1. EN 10140-2. EN ISO 717-1
Thermal properties	Thermal conductivity λ = 0.089 W/mK and thermal resistance r = 0.55 m2K/W	EN 12667
Electrical properties	Electrical volume resistivity: approx. 2.23E+9 Ω cm Electrical surface resistivity: approx. 47.1E+9 Ω cm	IEC 60093 (VDE 0303 Part 30): 1993-12
Durability and serviceability	Overall: Category Z2 (for internal use at low humidity)	EOTA TR 024:2009
Reaction to fire	Class E	EN 13501-1

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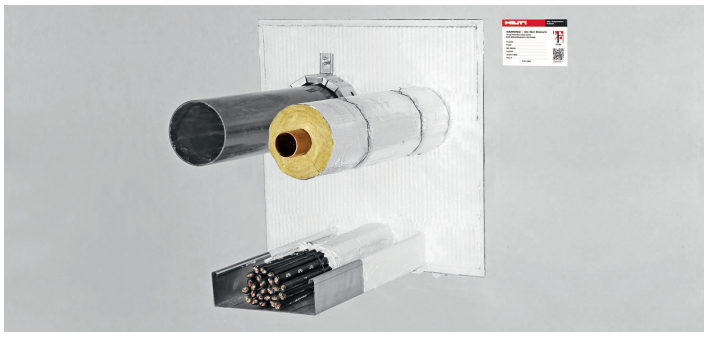
FIRESTOP COATED BOARD SYSTEM CFS-CT (DOUBLE BOARD SYSTEM)

Technical Manual

European Technical Assessment
ETA N° 11/0429

FIRESTOP COATING CFS-CT



Advantages

- EN testing for wide range of applications
- Single-layer coating – provides labor savings over multilayer coatings
- Dry film thickness 0.7 mm – up to 30% material savings compared to multilayer coatings
- Paintable, even on rough surfaces
- Flexible coating dries quickly to form an elastic protective layer

Technical Data

Color	White
Approx. Curing time	1 mm/day
Storage temperature	–5 – +30 °C
Application temperature	+5 – +40 °C
Temperature resistance	–40 – +100 °C
Shelf life	15 months
Can be painted	Yes

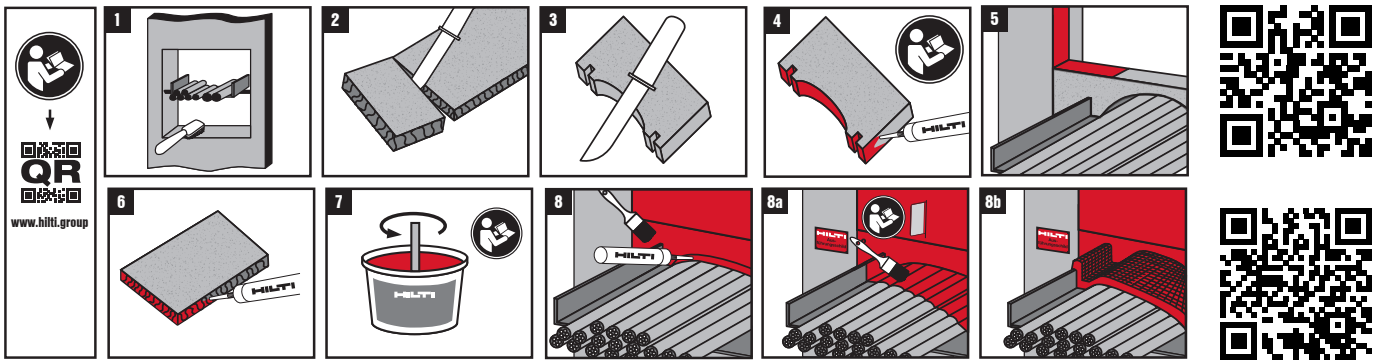
Applications

- Mixed penetrations in flexible and rigid walls from 100 mm and rigid floors from 150 mm
- Cables, cable bundles, cable trays and cable conduits
- Non-combustible (metal) pipes with non-combustible insulation
- Non-combustible (metal) and composite pipes with combustible insulation in combination with Firestop Bandage CFS-B or Firestop Collar CFS-C P
- Combustible pipes in combination with firestop collars CFC-C P or CFS-C or Firestop Wrap CFS-W
- Suitable for use with a wide variety of mineral wool boards

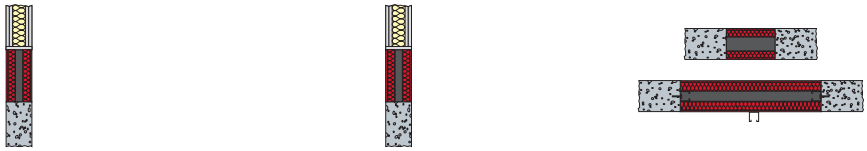
Product	Packaging	Content	Item Number
Firestop Coating CFS-CT, 18 kg, white	Pail	18 kg	2036607
Firestop Coating CFS-CT, 6 kg, white	Pail	6 kg	2036605
Firestop Acrylic Sealant CFS-S ACR CW, white	Cartridge	310 ml	435859
Firestop Acrylic Sealant CFS-S ACR PW, white	Pail	5 L	435864
Firestop Acrylic Sealant CFS-S ACR PW L, white	Pail	10 L	2046766
Firestop Board CFS-CT B 1S, white, 1000 mm × 600 mm × 50 mm	Cardboard box	5 boards	2036608

INSTALLATION INSTRUCTIONS

Consumption guide
Coating CFS-CT: dry film thickness of 0.7 mm (equivalent to wet film thickness of 1.1 mm): at least 1.6 kg coating per square meter.



GENERAL INFORMATION



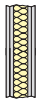
Partition	Flexible Wall	Rigid Wall	Rigid Floor
Base material thickness (t_E)	≥ 100 mm	≥ 100 mm	≥ 150 mm
Seal thickness	≥ 100 mm		≥ 150 mm
Max. opening size	1200 mm × 1200 mm (blank seal: EI 120) 4000 mm × 800 mm (blank seal: EI 90)		600 mm × 1000 mm (blank seal: EI 120) 1200 mm × 1500 mm (reinforced) (blank seal: EI 90)
Gap filler	CFS-S ACR		
Penetration	Single cable and cable bundles, cable trays, small steel and plastic conduits, insulated steel and copper pipes (with mineral wool and foamed elastomeric insulation), plastic pipes (with and without foamed elastomeric insulation), aluminum composite pipes with foamed elastomeric insulation		

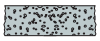
RELATED ITEMS

Product	Packaging	Content	Item Number
Firestop Collar CFS-C 50/1.5"	Plastic bag	1 collar + 2 hooks	435417
Firestop Collar CFS-C 63/2"	Plastic bag	1 collar + 2 hooks	435418
Firestop Collar CFS-C 75/2.5"	Plastic bag	1 collar + 3 hooks	435419
Firestop Collar CFS-C 90/3"	Plastic bag	1 collar + 3 hooks	435420
Firestop Collar CFS-C 110/4"	Plastic bag	1 collar + 4 hooks	435421
Firestop Collar CFS-C 125/5"	Plastic bag	1 collar + 4 hooks	435422
Firestop Collar CFS-C 160/6"	Plastic bag	1 collar + 4 hooks	435423
Firestop Collar CFS-C P 50/1.5"	Plastic bag	1 collar + 2 hooks	435406
Firestop Collar CFS-C P 63/2"	Plastic bag	1 collar + 2 hooks	435407
Firestop Collar CFS-C P 75/2.5"	Plastic bag	1 collar + 3 hooks	435408
Firestop Collar CFS-C P 90/3"	Plastic bag	1 collar + 3 hooks	435409
Firestop Collar CFS-C P 110/4"	Plastic bag	1 collar + 4 hooks	435410
Firestop Collar CFS-C P 125/5"	Plastic bag	1 collar + 4 hooks	435411
Firestop Collar CFS-C P 160/6"	Plastic bag	1 collar + 6 hooks	435412
Firestop Collar CFS-C P 180/7"	Plastic bag	1 collar + 8 hooks	435413
Firestop Collar CFS-C P 200/8"	Plastic bag	1 collar + 8 hooks	435414
Firestop Collar CFS-C P 225/9"	Plastic bag	1 collar + 10 hooks	435415
Firestop Collar CFS-C P 250/10"	Plastic bag	1 collar + 12 hooks	435416

Product	Packaging	Content	Item Number
Firestop Collar Endless CFS-C EL, 2580 mm × 52 mm × 5.6 mm	Cardboard box	2.58 m	2075120
Firestop Bandage CFS-B, 10000 mm × 125 mm × 2 mm	Cardboard box	10 m	429557
Firestop Wrap Strip CFS-W SG 50/1.5", 169 mm × 45 mm × 4.5 mm	Cardboard box	2 wrap strips	429549
Firestop Wrap Strip CFS-W SG 63/2", 210 mm × 45 mm × 4.5 mm	Cardboard box	2 wrap strips	429550
Firestop Wrap Strip CFS-W SG 75/2.5", 249 mm × 45 mm × 4.5 mm	Cardboard box	2 wrap strips	429551
Firestop Wrap Strip CFS-W SG 90/3", 311 mm × 45 mm × 9 mm	Cardboard box	2 wrap strips	429552
Firestop Wrap Strip CFS-W SG 110/4", 370 mm × 45 mm × 9 mm	Cardboard box	2 wrap strips	429553
Firestop Wrap Strip CFS-W SG 125/5", 421 mm × 45 mm × 9 mm	Cardboard box	2 wrap strips	429554
Firestop Wrap Strip CFS-W SG 160/6", 543 mm × 45 mm × 13.5 mm	Cardboard box	2 wrap strips	429555
Firestop Wrap Strip CFS-W EL W45/1.8", 10000 mm × 45 mm × 4.5 mm	Cardboard box	1 wrap strips	429556
Firestop Wrap Strip CFS-W P, 10000 mm × 50 mm × 2 mm	Cardboard box	10 m	2133384
Firestop Sleeve CFS-SL GA M	Cardboard box	1 pc.	2178493

MAIN APPROVED APPLICATIONS





Penetration: cables	Cable Ø mm	Flexible wall	Rigid wall	Rigid floor
All sheathed cables	≤ 80	EI 90 with additional protection of 2 mm CFS-CT coating (200 mm length on both sides) EI 120 with additional protection of 30 mm mineral wool mat, Al-facing outside (200 mm length on both sides)		EI 120 with additional protection of 30 mm mineral wool mat, Al-facing outside (200 mm length on both sides)
Tied cables* bundles Ø 100 mm	≤ 21	EI 120 with additional protection of 30 mm mineral wool mat, Al-facing outside (200 mm length on both sides)		
Non-sheathed cables	≤ 24	EI 120 with additional protection of 20 mm mineral wool mat, Al-facing outside (200 mm length on both sides)		EI 60 with additional protection of 1 mm CFS-CT coating (200 mm length on both sides)

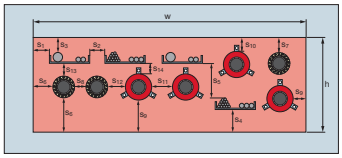
Penetration: conduits	Conduit Ø mm	Flexible wall	Rigid wall	Rigid floor
Plastic conduits and tubes with or without cables	≤ 16	EI 120-U/U with additional protection of 30 mm mineral wool mat, Al-facing outside (200 mm length on both sides)		EI 90-U/U with additional protection of 30 mm mineral wool mat, Al-facing outside (200 mm length on both sides)
Steel conduits and tubes with or without cables	≤ 16			EI 90-C/U with additional protection of 30 mm mineral wool mat, Al-facing outside (200 mm length on both sides)

Excerpt of ETA document. Check the exact field of application for each penetration (type, diameter) in the ETA 11/0429 document.
For wall installation, maximum distance of 1st service support is 250 mm.
For floor installation, maximum distance of 1st service support is 100 mm.

No penetration	Max. opening size (mm)	Flexible walls	Rigid walls	Rigid floors
Blank seal – wall	1200 x 1200	EI 120	EI 120	–
Blank seal – rigid wall ≥ 250 mm thick	1200 x 2000	–	EI 90	–
Blank seal – rigid wall ≥ 250 mm thick	4000 x 800	–	EI 90	–
Blank seal – floor	600 x 1000	–	–	EI 180
Blank seal – floor with support	1200 x 1500	–	–	EI 90

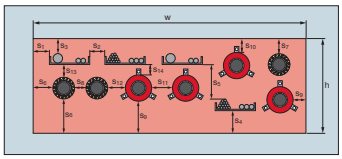
OTHER APPROVED APPLICATIONS

Distance requirements for walls



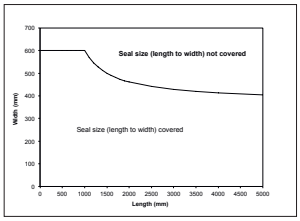
Minimum distance between services and edges is 0 mm, except:
- 50 mm between cables and cable supports above them (s_5)
- 3 mm between metal pipes and seal edge (s_6) and upper seal edge (s_7), respectively
- 17 mm between plastic pipes/pipe closure device and seal edge (s_9) and upper seal edge (s_{10}), respectively
- 30 mm between metal pipes and plastic pipes/pipe closure device (s_{12})
- 3 mm between cables/cable supports and metal pipes
- 40 mm between cables/cable supports and plastic pipes/pipe closure device

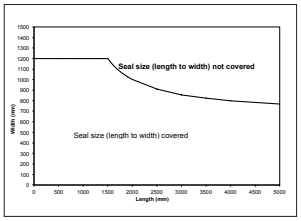
Distance requirements for floors



Minimum distance between services and edges is 0 mm, except:
- 50 mm between cable and cable support above them (s_5)
- 10 mm between metal pipes and seal edge (s_6)
- 20 mm between metal pipes
- 30 mm between metal pipes and plastic pipes/pipe closure device (s_{12})
- 30 mm between cables/cable supports and metal pipes
- 32 mm between cables/cable supports and plastic pipes/pipe closure device

Maximum seal size for floors





Metal pipes with mineral wool insulation	Copper pipes up to Ø 88.9 mm, Steel pipes up to Ø 323.9 mm
Metal pipes with foamed elastomeric insulation with Firestop Bandage CFS-B	Copper pipes up to Ø 88.9 mm, Steel pipes up to Ø 159.0 mm
Plastic pipes with Firestop Collar CFS-C and CFS-C P	Plastic pipes up to diameter Ø 160 mm
Plastic pipes with Firestop Wrap CFS-C W	Plastic pipes up to diameter Ø 125 mm
Plastic pipes with Firestop Collar Endless CFS-C EL	Plastic pipes up to diameter Ø 110 mm
Aluminum composite pipes with mineral wool insulation	Aluminum composite pipes up to diameter Ø 75 mm
Aluminum composite pipes with foamed elastomeric insulation with Firestop Collar CFS-C P	Aluminum composite pipes up to diameter Ø 63 mm
Aluminum composite pipes with foamed elastomeric insulation with Firestop Collar CFS-C P	Aluminum composite pipes up to diameter Ø 63 mm
Aluminum composite pipes with foamed elastomeric insulation with Firestop Bandage CFS-B	Aluminum composite pipes up to diameter Ø 63 mm
Cables with Firestop Sleeve CFS-SL M	All sheathed cables up to Ø 21 mm

CHARACTERISTICS OF CFS-CT

Characteristics	Assessment of characteristics	Norm, standard, test
Air permeability	Tested for gas permeability using air, nitrogen (N_2), carbon dioxide (CO_2) and methane (CH_4). See ETA 11/0429 for detailed results.	EN 1026
Water permeability	Watertight to 1000 mm head of water or 9806 Pa. for 0.7 mm dry film thickness.	ETAG 026-2
Health and the environment Dangerous substances	Below any respective occupational exposure limits as far as such limits exist (compared with the list of dangerous substances of the European Commission)	Material safety data sheet
Protection against noise Airborne sound insulation	Detailed test results, see ETA 11/0429.	EN ISO 140-3 EN ISO 20140-10 EN ISO 717-1
Safety in use Mechanical resistance and stability Resistance to impact/movement	Highest risk zone type has been fulfilled (Type IV) **Safety in use:** Soft body impact: energy 500 Nm. Hard body impact: energy 10 Nm **Serviceability:** Soft body impact: energy 120 Nm. Hard body impact: energy 6 Nm. Maximum dimension of the penetration seal is 1.0 × 1.5 m. In case of horizontal penetrations, precautions have to be taken to prevent a person stepping onto the penetration seal.	EOTA Technical Report TR001: A1
Adhesion	It is assumed that verification of adequate adhesion is covered by the impact test (see above).	
Thermal properties	CFS-CT B 1S: λ_{10} = 0.039 W/mK. Insulation performance of mineral wool slab slightly reduced by the coating.	EN 12667
Durability and servicability	Category Y_2 (suitable for penetration seals intended for use at internal dry conditions with temperatures between −20 °C and +70 °C with no exposure to rain nor UV. Y_2,(−20/+70) °C.	EOTA Technical Report TR 024 ETAG 026-2
Reaction to fire	Coating: Class D-s2 d0 Precoated Board: Class A1	EN 13501-1

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FIRESTOP BLOCK CFS-BL

Technical Manual

European Technical Assessment
ETA N° 13/0099

FIRESTOP BLOCK CFS-BL

Technical Data

Dimensions	200 mm × 130 mm × 50 mm
Chemical basis	polyurethane
Color	Red
Reaction to fire class	E
Storage temperature	–5 – +40 °C
Application temperature	+5 – +40 °C
Temperature resistance	–15 – +60 °C
Shelf life	Not relevant
Can be painted	Yes

Applications

- Temporary or permanent passive fire sealing around cables, cable bundles and cable trays in wall and floor openings
- Firestopping penetrations for cables, cable bundles and cable trays
- Firestopping penetrations for coaxial cables
- Optimal for rooms with dust- and fiber-free requirements and areas with frequent retrofitting, such as server rooms, laboratories and hospitals
- Firestopping penetrations for non-combustible (metal) pipes with mineral wool and flexible elastomeric foam insulation

Advantages

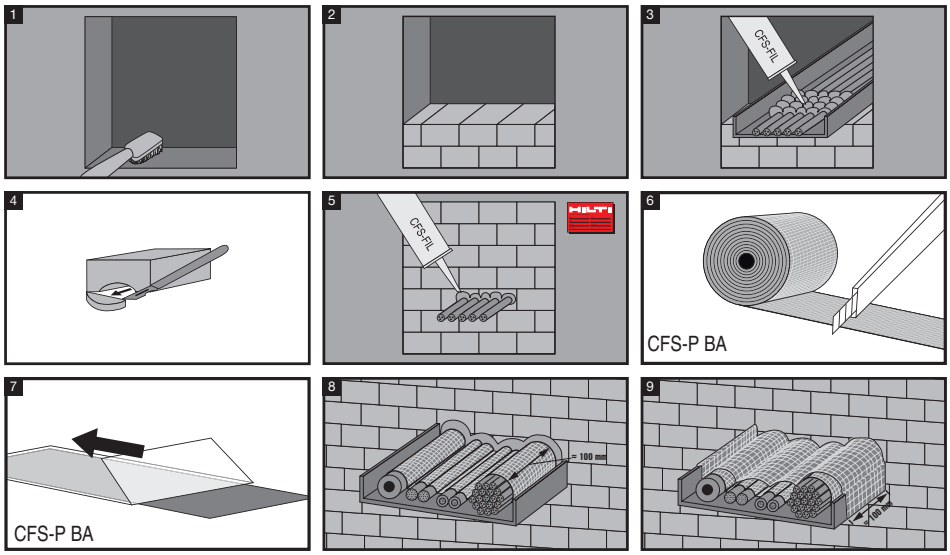
- Easier maintenance and possible retrofitting of cables is possible
- Economical installation – firestop blocks arrive pre-cured and ready to use
- Dust-, fiber-, halogen- and solvent-free
- Can be combined with CFS-F FX flexible firestop foam
- Very good seismic features
- Hilti Clean-Tec

Product	Packaging	Content	Item number
Firestop Block CFS-BL	–	1 firestop block	2062863

Accessories

Product	Packaging	Content	Item number
Firestop Filler mastic CFS-FIL	cartridge	310 ml	2052899
Firestop Putty bandage CFS-P BA	roll	5 m	2062876
Firestop Foam CFS-F FX	cartridge	300 ml	429802

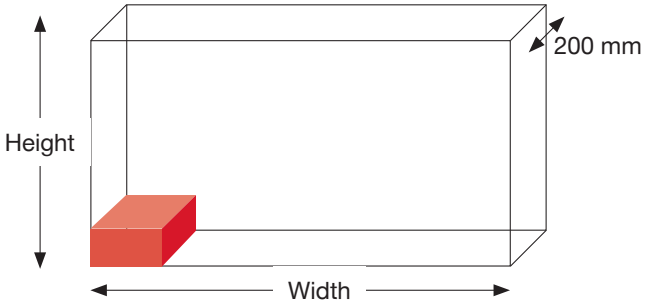
INSTALLATION INSTRUCTIONS



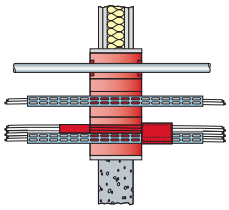
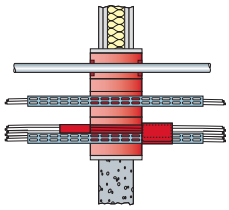
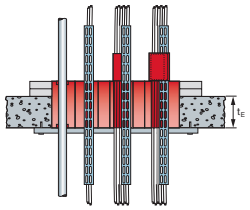
For some applications, firestop putty bandage CFS-P BA must be installed to upgrade the firestop classification to EI 120 (see pictures 6–9).

Consumption guide

Opening size		Number of CFS-BL
Width (mm)	Height (mm)	
200	200	7
300	300	15
500	500	40
700	500	55
1000	700	109
1000	1000	155

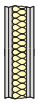
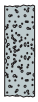
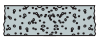


GENERAL INFORMATION

Partition	Flexible wall	Rigid wall	Rigid floor
Base material thickness (t_E)	≥ 100 mm	≥ 100 mm	≥ 150 mm
Seal thickness	200 mm (aperture framing or beading required)		
Opening size	1000 mm x 1000 mm		1000 mm x 700 mm
Gap filler	CFS-FIL		
Penetration	Single cable and cable bundles, cable trays, small steel and plastic conduits, insulated steel and copper pipes (with mineral wool and Armaflex insulation)		

MAIN APPROVED APPLICATIONS

Penetration: cables*	Cable Ø	Flexible wall	Rigid wall	Rigid floor
All sheathed cables*	≤ 80	EI 90 (EI 120 with CFS-P BA in addition)		
Tied cables* bundles Ø 100 mm	≤ 21	EI 120		
Non-sheathed cables	≤ 24	EI 60 (EI 120 with CFS-P BA in addition)		
Waveguide, coaxial cables**	27.8 – 59.9	EI 120-U/C with CFS-CT 0.7 mm thick150 mm length		
Penetration: conduits	**Conduit Ø mm**	**Flexible wall**	**Rigid wall**	**Rigid floor**
Plastic conduits and tubes with or without cables	≤ 16	EI 120-U/U		
Steel conduits and tubes with or without cables	≤ 16	EI 120-C/U		
Flexible conduits PO*** without cables	16 – 20	EI 120-U/U		
Flexible conduits PO*** with cables	16 – 40			
Flexible conduits PVC*** with or without cables	16 – 20			
Rigid conduits PO / PVC*** with or without cables	16 – 40			
Bundles (Ø ≤ 100 mm) of conduits	≤ 20			

* All sheathed cable types currently and commonly used in building practice in Europe (e.g. power, control, signal, telecommunication, data, optical fiber cables).
** RFS Cellflex: LCF 78-50 JA Ø 27.8 mm, LCF 214-50 J Ø 59.9 mm; RFS Helifex HCA 78-50 JFNA Ø 28.0 mm, HCA 158J Ø 59.9 mm; RFS Radialflex RLKW 78-50 Ø 28.5 mm, RLKU 158-50 JFLA Ø 48.2 mm.
*** PO: polyolefin (PE, PP, PPE, PPO); PVC: polyvinyl chloride.

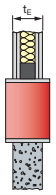
Excerpt of ETA document. Check the exact field of application for each penetration (type, diameter) in the ETA 13/0099 document.
For wall installation, maximum distance of 1st service support is 250 mm.
For floor installation, maximum distance of 1st service support is 230 mm.

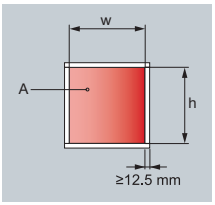
MAIN APPROVED APPLICATIONS

No penetration	Max. opening size (mm)	Flexible walls	Rigid walls	Rigid floors
Blank seal	1000 × 1000	EI 120	EI 120	–
Blank seal	500 × 700	–	–	EI 120
Blank seal with supporting structures	1000 × 700	–	–	EI 120
Blank seal without supporting structures	1000 × 700	–	–	EI 60

OTHER APPROVED SOLUTIONS

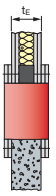
Aperture framing in rigid and flexible wall to reach 200 mm seal thickness

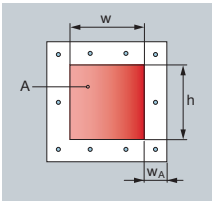




When t_E ≤ 200 mm, frame should be installed made of class A1 or A2 material (e.g. gypsum).

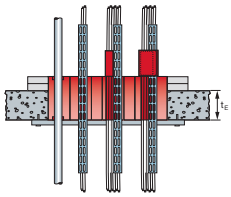
Beading in rigid and flexible wall can be used as alternative to aperture framing to reach 200 mm seal thickness.

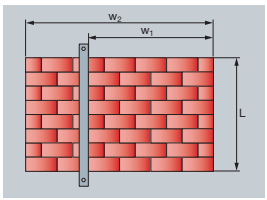




When t_E ≤ 200 mm beading should be installed made of class A1 or A2 material (e.g. gypsum). w_A ≥ 100 mm.

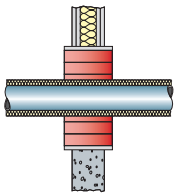
For large (≥ 700 mm x 500 mm) blank floor seals, additional support needed

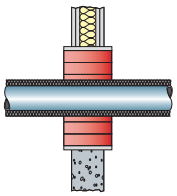




Add metal band width ≥ 30 mm, thickness ≥ 2 mm for large floor seals without penetration.

Metal pipes

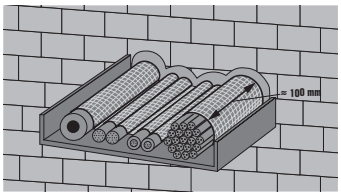


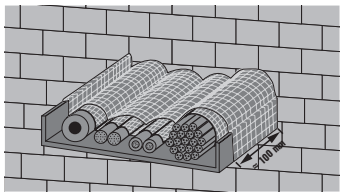


Copper pipes up to diameter of 54 mm and steel pipes up to 159 mm with mineral wool insulation.

Copper pipes up to diameter of 54 mm and steel pipes up to 159 mm with Armaflex insulation.

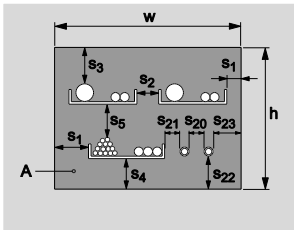
To reach EI 120 with cables, Firestop putty bandage CFS-P BA must be used





See ETA for details.
Cover to 100 mm outside opening with 1st layer. Cover the cables and the tray with additional layer.

Distance requirements



See ETA 13/0099 for details.

Hilti Firestop Foam CFS-F FX to seal small gaps

Hilti Firestop Foam CFS-F FX is used in areas without services to fill gaps at the top of penetrations where Hilti Firestop Block would be used. Otherwise have to cut to complete the sealing of the penetration. Classification of the penetration is as for a blank seal, seal depth 200 mm.

Application in sandwich panel partitions (≥ 100 mm)	All sheathed cables ≤ 80 mm Tied cable bundle Ø ≤ 100 mm Plastic conduits and tubes Ø ≤ 16 mm Steel conduits and tubes Ø ≤ 16 mm	EI 90 (with 2 layers of putty CFS-P BA)
Busbar	EAE ELEKTRIK – Type: E-Line KCX 40505-B; 4000 A Maximum outer dimension of the section: 372 mm x 150 mm Conductor material: copper Maximum number of conductors: 10 Maximum section of conductors: 140 mm x 6 mm	Flexible or rigid walls (≥ 200 mm): EI 120 (with and without support tray) with 2 layers of putty CFS-P BA Sandwich panel partitions (≥ 100 mm): EI 90 (with and without support tray, with 2 layers of putty CFS-P BA)

CHARACTERISTICS OF CFS-BL

Characteristics	Assessment of characteristics	Norm, standard, test
Air permeability	Resistance to static pressure: impermeable (lengthwise and crosswise)	EN 1026
Health and the environment Dangerous substances	Clean-Tec Below any respective occupational exposure limits as far as such limits exist (compared with the list of dangerous substances of the European Commission)	Hilti Clean-Tec criteria Material safety data sheet
Protection against noise Airborne sound insulation	CFS-BL = R_w (C; Ctr) = 51 (–1; –5) dB	EN ISO 140-3
Safety in use Mechanical resistance and stability resistance to impact / movement	No performance figures determined. Large floor seals or wall penetrations must be protected to avoid risk of injury to people, e.g. by installing a metal sheet or wire mesh.	
Thermal properties	Thermal conductivity λ = 0.089 W/mK and thermal resistance R = 0.563 m^2K/W	EN 12667
Electrical properties	Electrical volume resistivity: 2.17E + 9 (± 0.5) Ω cm	DIN IEC 60093 (VDE 0303 Part 30):1993-12
Durability and serviceability	Category Y_1 (products intended for use at temperatures between - 5 °C and + 70 °C with exposure to UV but without exposure to rain.)	EAD 350454-00-1104
Reaction to fire	Class E	EN 13501-1

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JOINTS AND FACADE

- **Hilti Silicone Sealant CFS-SP SIL**
- **Hilti Fire Cavity Barrier CP 674**

FIRESTOP SILICONE JOINT SPRAY

European Technical Assessment
ETA-20/1235

SILICONE JOINT SPRAY CFS-SP SIL

Areas of application

- Sealing perimeter joints between rated concrete floor slabs and curtain wall facades

Advantages

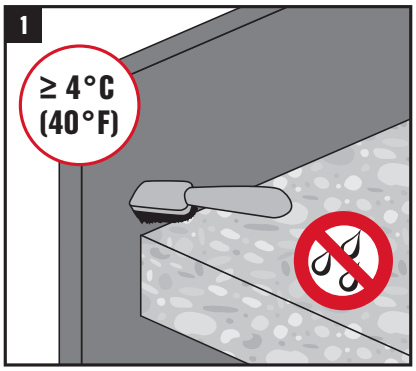
- Tested according to EN 1364-4 with an EI rating of up to 180 mins
- Achieving ±12.5% movement (EAD 350141-00-1106)
- Fast curing, with short tack-free time
- Excellent sprayability, and low slump characteristics
- Rain-resistant after 1-2h
- Excellent mold & mildew resistance
- Sprayable or apply by brush

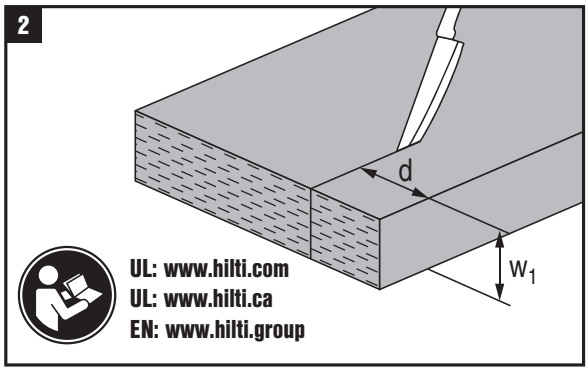
Technical Data

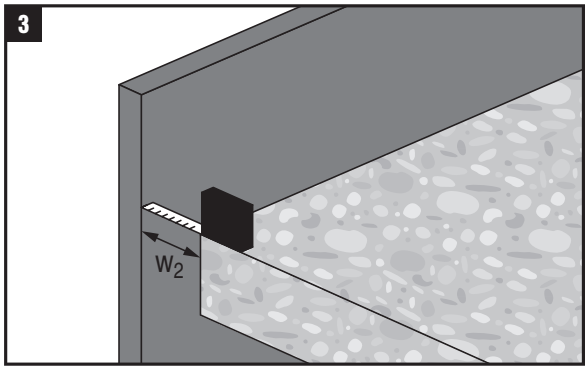
Base materials	Concrete, Masonry, Gypsum, Metal, Steel, Glass
Chemical basis	Neutral cross-linking silicone
Approx. curing time[1)]	2 mm/5 h
Movement	± 12.5% (ISO 11600)
Acoustics performance	Test report available
Shelf life[2)]	12 months
Application temperature range	1.5 °C – 40 °C
Temperature resistance range	–35 – 120 °C
Storage and transportation temperature range	1.5 °C – 25 °C
Colour	Off-white
Complementary products	Mineral wool
LEED VOC	65.9 g/l

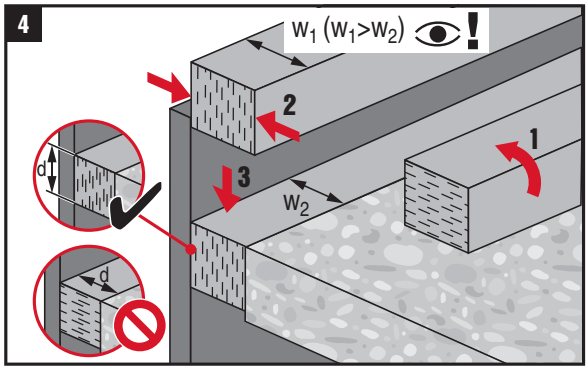
1) at 75 °F/24 °C, 50% relative humidity
2) at 77 °F/25 °C and 50% relative humidity; from date of manufacture

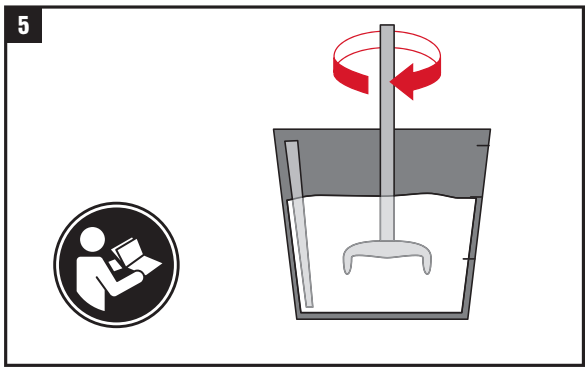
INSTRUCTION FOR USE SILICONE JOINT SPRAY CFS-SP SIL

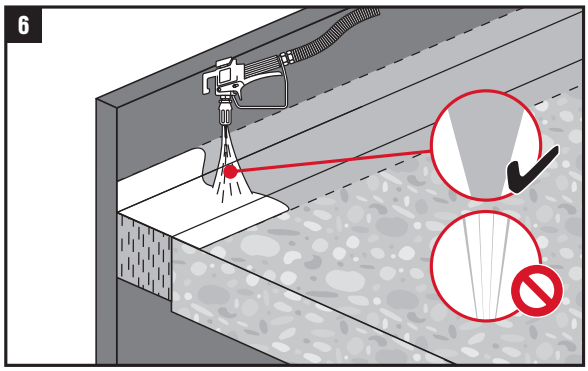


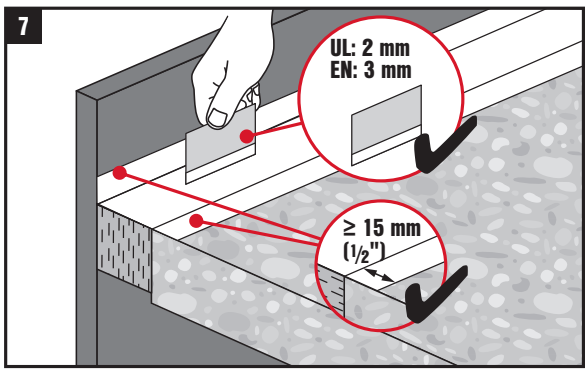


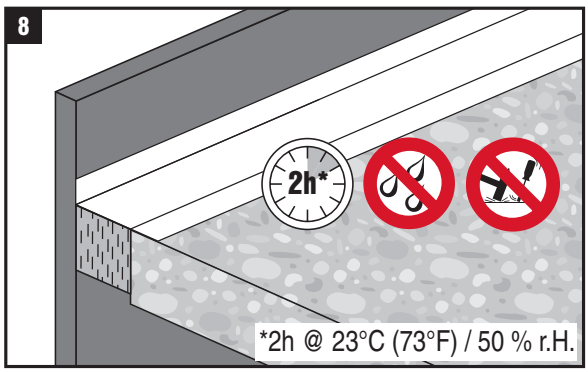




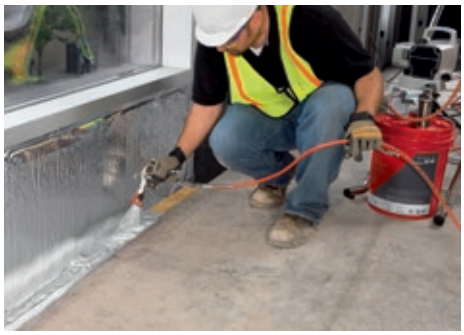


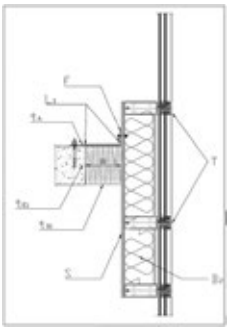


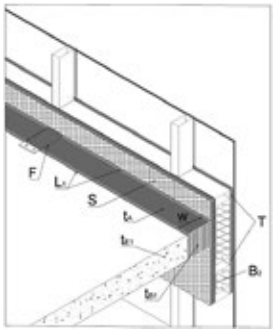




ETA-20/1235 SUMMARY







APPROVED APPLICATION

Joint between curtain wall with Steel or Aluminium framing, and rigid floor slab Excerpt from ETA.
Check ETA-20/1235 for exact details

Joint Type	Joint between rigid floor slab and curtain wall façade
Rigid floor Depth (t_{e1}) **Rigid floor material**	≥ 150 mm Concrete with Density ≥ 2400 kg/m³
Curtain Wall Façade	Steel or Aluminium Frames
Joint/Gap width (min-max)	10–150 mm
Mineral Wool Specification **Mineral Wool Density**	EN 13162 or EN 14303, and rated A1 or A2 according En 13501-1 ≥ 60 kg/m³
Mineral Wool Depth (t_{b1}) **Mineral Wool compression**	≥ 150 mm ≥ 33%
Material thickness	3 mm wet film
Max EI Rating	180 mins
Movement Capability	Max ±12.5%

CONSUMPTION GUIDE (PER 19L BUCKET)

Joint width (mm)	Joint Length in m per bucket *
10	140
20	110
50	70
100	40
150	30

* approximate values with 15 mm overlap on both sides of joint, based on ~3 mm wet film thickness.
Assumes ~15% overspray rate.

ADDITIONAL ATTRIBUTES

<table>
<tr><th>Characteristics</th><th>Assessment of characteristics</th><th>Norm, standard, test</th></tr>
<tr><td>VOC</td><td>65.9 g/l</td><td>LEED 4.1</td></tr>
<tr><td>Sound Transmission</td><td>The resulting $R_{w(C;\,Ctr)}$ and $D_{n,\,e,\,w(C;\,Ctr)}$ values are:
<table><tr><th>Joint width [mm]</th><th>Seal depth [mm]</th><th>Coating</th><th>$R_{w(C;\,Ctr)}$ [dB]</th><th>$D_{n,\,e,\,w(C;\,Ctr)}$ [dB]</th></tr><tr><td>200</td><td>200</td><td>Both sides</td><td>38 (–1;–5) a)</td><td>53 (–1;–4) b)</td></tr><tr><td>200</td><td>200</td><td>Top side</td><td>36 (–1;–3) a)</td><td>51 (–1;–3) b)</td></tr></table>a) where S = 0.3 m²
b) where A_0 = 10 m²</td><td>EN ISO 10140-1,
EN ISO 10140-2 & EN ISO 717-1</td></tr>
<tr><td>Reaction to Fire</td><td>Class E</td><td>EN 13501-1:2007 +A1:2009</td></tr>
<tr><td>Content and/or release of dangerous substances</td><td>Declaration of conformity</td><td>European Council Directive 67/548/EEC and Regulation (EC) No 1272/2008 as well as EOTA TR 034, edition October 2015</td></tr>
</table>

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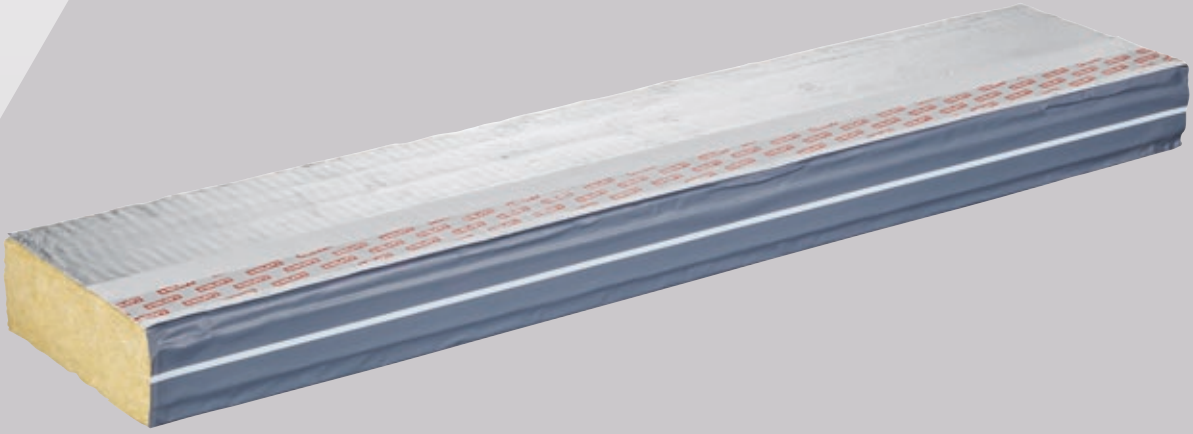
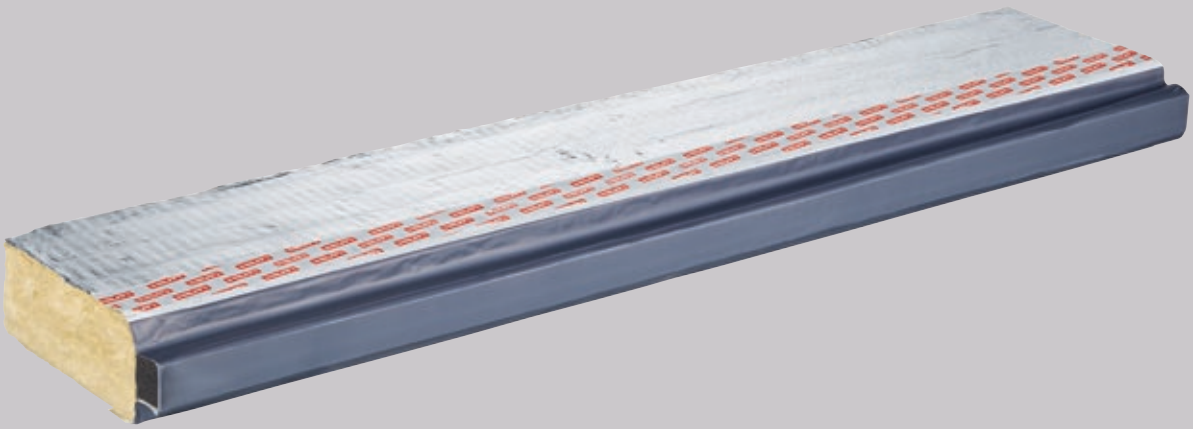
FIRESTOP CAVITY BARRIER CP 674

Product Information





VENTILATED FIRESTOP CAVITY BARRIER CP 674 V

Areas of application

- Pre-formed intumescent fire cavity barrier for ventilated façades

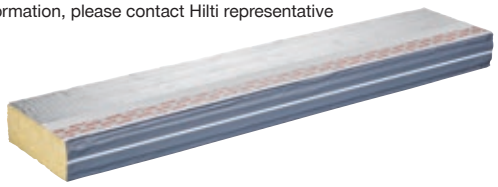
Advantages

- Faster, easier installation – cavity barriers arrive on-site ready to fasten in place using the included stainless-steel brackets
- Verified fire resistance – tested according to Association for Specialist Fire Protection (ASFP) TGD 19 & BS 476-20
- Extensive range – barriers and brackets available f or most common cavity widths
- Design support available – contact your local Hilti Building Envelope Specialists for advice on complex passive fire protection detailing

Technical Data

Approvals	BS 476-20, TGD-19
Base Materials	Concrete, Masonry, Brick, SFS frame
Intumescent	Yes
Length	1 meter
Storage and Transport Temp	–10 °C to 40 °C
Shelf life	no restriction
Max Width available	400 mm
(E/I) TGD19 (Pr EN 1364-6)	60/30
(E/I) BS476- 20	90/60

* For detailed approval information, please contact Hilti representative



Product Options

Product Name	Panel Gap Size	Item Number
CP 674 V 100-25	100	2312926
CP 674 V 150-25	150	2312927
CP 674 V 200-25	200	2312928
CP 674 V 250-25	250	2312929
CP 674 V 300-25	300	2313190
CP 674 V 400-25	400	2313191

NON-VENTILATED FIRESTOP CAVITY BARRIER CP 674 NV

Areas of application

- Pre-formed intumescent fire cavity barrier for ventilated and non-ventilated façades

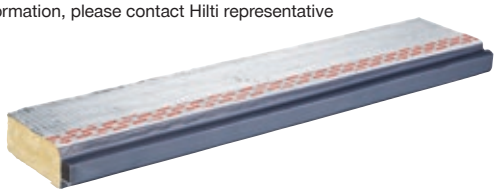
Advantages

- Faster, easier installation – cavity barriers arrive on-site ready to fasten in place using the included stainless-steel brackets
- Verified fire resistance – tested according to Association for Specialist Fire Protection (ASFP) TGD 19 & BS 476-20
- High tolerance – compressible foam strip simplifies correct installation despite building tolerances
- Extensive range – barriers and brackets available for most common cavity widths
- Design support available – contact your local Hilti Building Envelope Specialists for advice on complex passive fire protection detailing

Technical Data

Approvals	BS 476-20, TGD-19
Base Materials	Concrete, Masonry, Brick, SFS frame
Intumescent	Yes
Length	1 meter
Storage and Transport Temp	–10 °C to 40 °C
Shelf life	no restriction
Max Width available	400 mm
E/I) TGD19 (Pr EN 1364-6)	60/30
(E/I) BS476-20	120/120

* For detailed approval information, please contact Hilti representative



Product Options

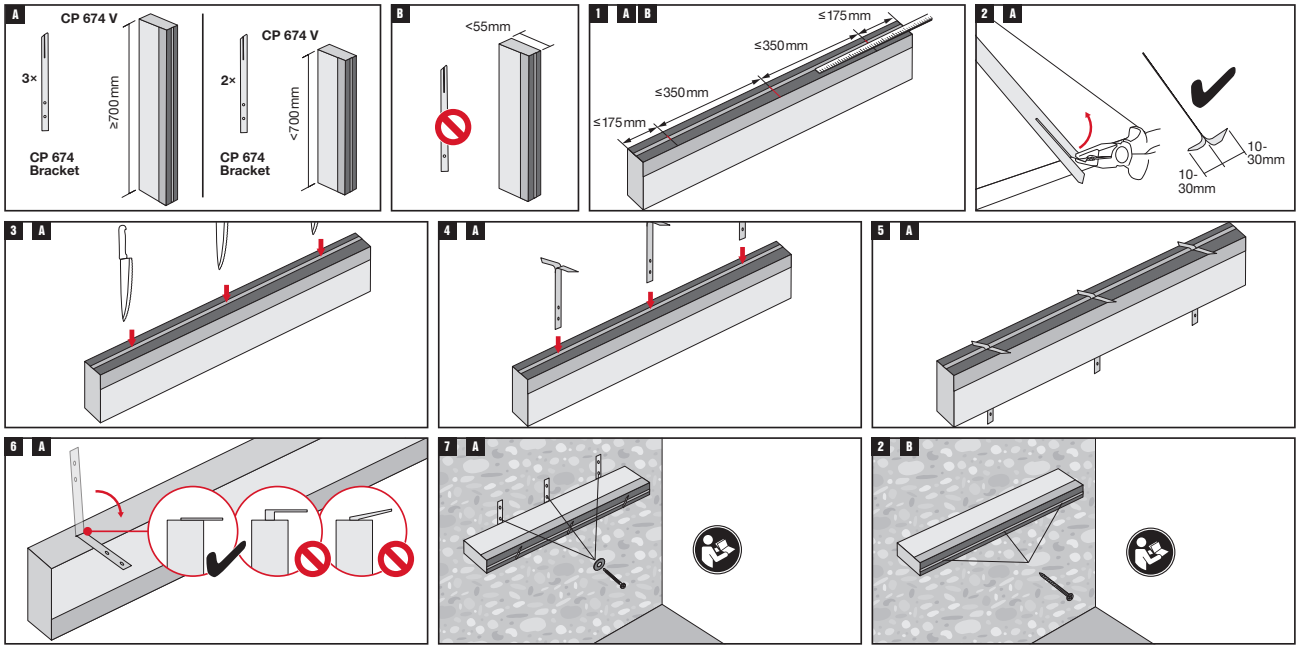
Product Name	Panel Gap Size	Item Number
CP 674 NV 100	100	2313192
CP 674 NV 150	150	2313193
CP 674 NV 200	200	2313194
CP 674 NV 250	250	2313195
CP 674 NV 300	300	2313196
CP 674 NV 400	400	2313197

Cavity barriers pre-cut to your project requirements are available – please contact your Hilti representative for more information

INSTRUCTIONS FOR USE: VENTILATED CAVITY BARRIER

www.hilti.group

Cn Before handling and for specific application details, refer to Hilti product literature, 3rd party published listings and national approvals. For industrial use only
Fr Avant toute utilization et pour tout detail concernant une application, référer à la documentation Hilti, à la liste de publications des tierces parties et aux approbations nationales. Seulement pour utilisateurs professionnels.
Es Antes de usar y para detalles específicos de aplicación, véase la información que acompaña al producto Hilti, el listado publicado por terceros y las aprobaciones nacionales. Solamente para los usuarios profesionales.



INSTRUCTIONS FOR USE: NON-VENTILATED CAVITY BARRIER

www.hilti.group

Cn Before handling and for specific application details, refer to Hilti product literature, 3rd party published listings and national approvals. For industrial use only
Fr Avant toute utilization et pour tout detail concernant une application, référer à la documentation Hilti, à la liste de publications des tierces parties et aux approbations nationales. Seulement pour utilisateurs professionnels.
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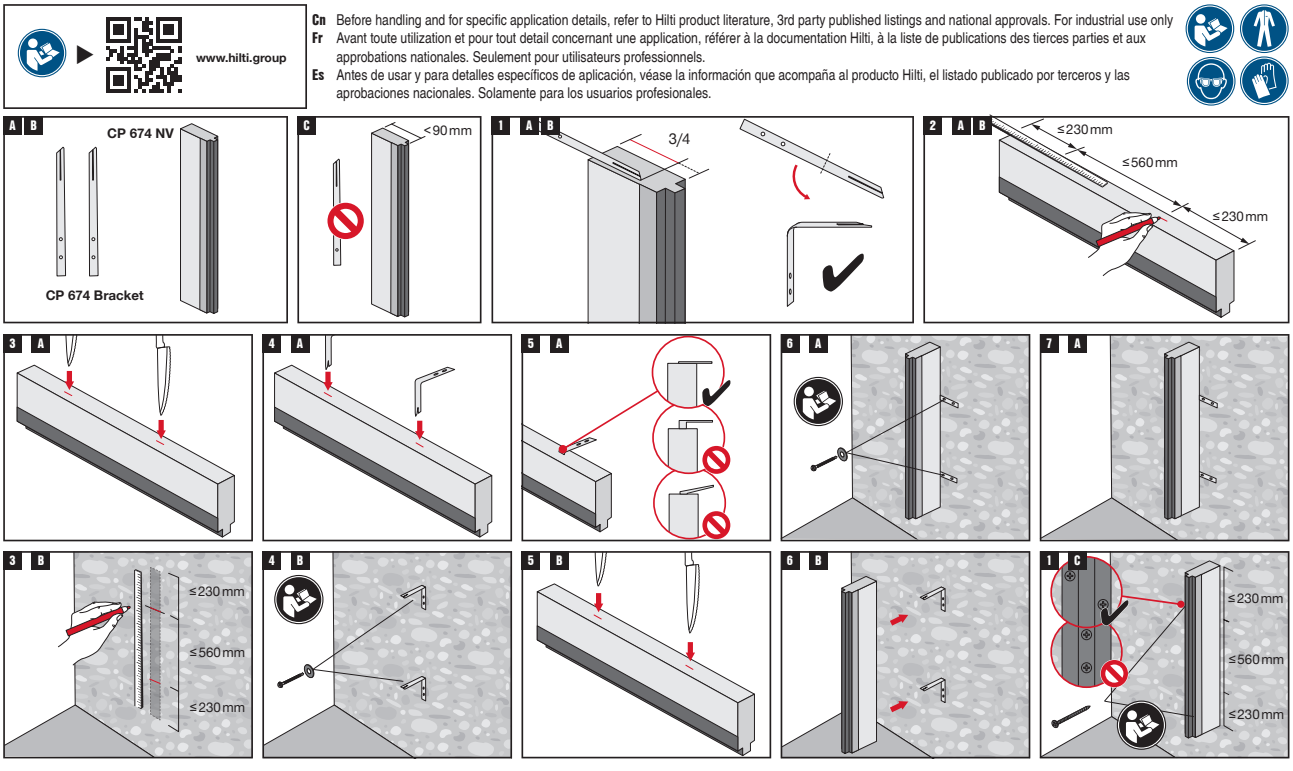
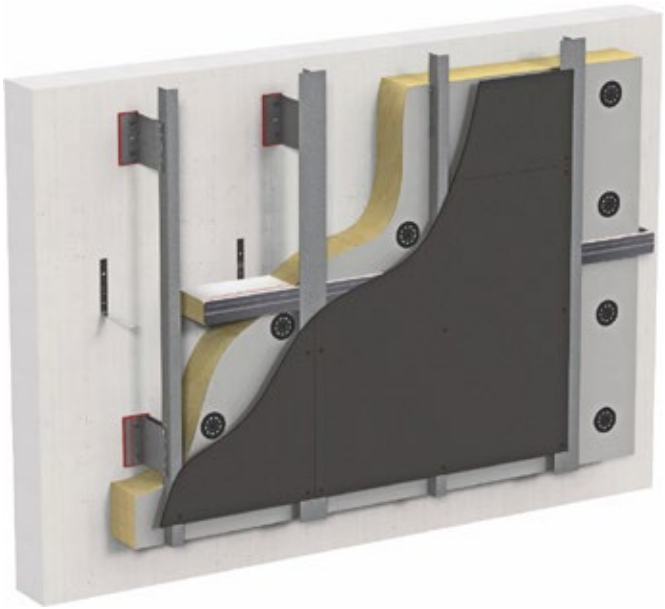


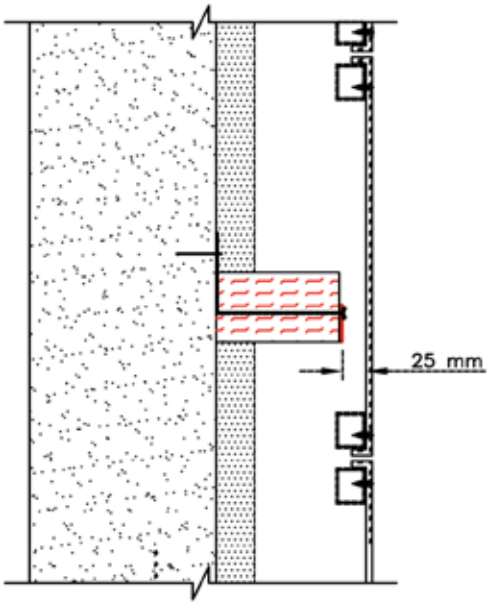
FIXING COMPONENTS FOR BASE MATERIAL

Substrate	Hilti Screw anchor: HUS HR6	Hilti Nail Anchor: HFB-R-6	Hilti Expansion anchor: HST3 R M6
Masonry Wall	X		
Concrete	X	X	X

For Panel gap size < 80mm, use Hilti Frame anchor HRD-HR 10x140 as shown in the instrcution of use

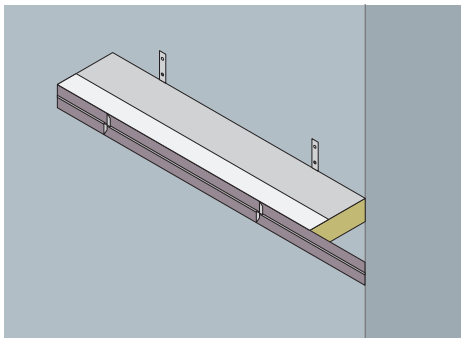
APPLICATIONS



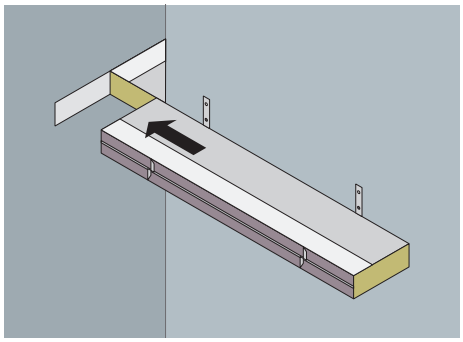


Joint Type	Joint between wall/floor and Rainscreen
Base Material	**Concrete, Masonry, Brick, SFS Frame**
Joint / cavity width (min-max)	**40–400 mm**
Approvals	**TGD19 (Pr EN 1364-6) & BS 476-20**
E/I Rating – CP 674 V	**60/30 - TGD19 (Pr EN 1364-6) & 90/60 (BS476- 20)**
E/I Rating – CP 674 NV	**60/30 - TGD19 (Pr EN 1364-6) & 120/120 (BS476- 20)**

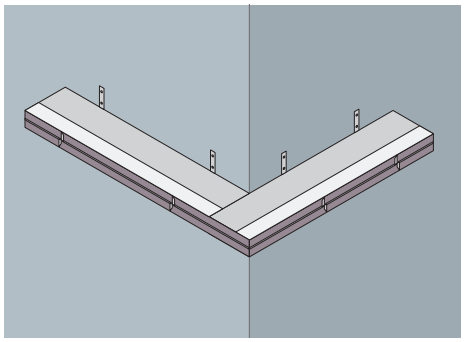
Exterior Corners: Should have a continuous strip of intumescent barrier on leading edge



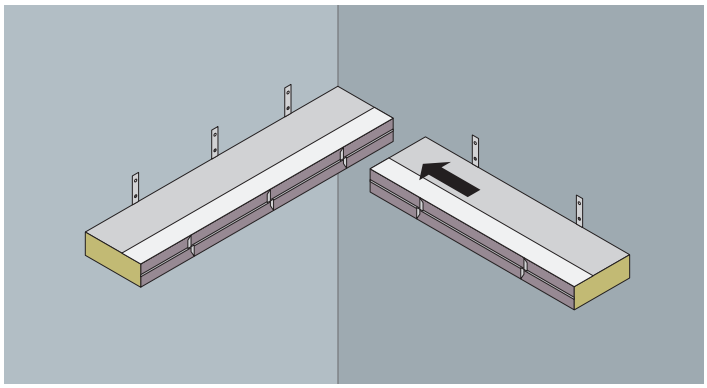
Fit CP 674 to extend past the corner by the width of the CP 674 barrier. Remove section of mineral wool from CP 674 back to corner leaving intumescent strip.



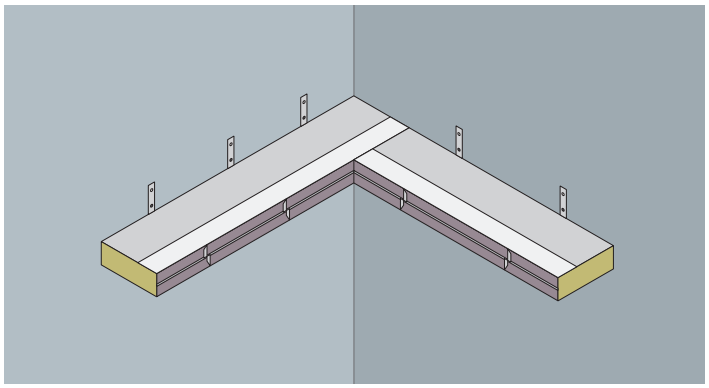
Coat back of intumescent facing strip with CP 606/CFS-S ACR. Take section of CP 674 barrier for other wall face and position end to the intumescent strip from previous step.



Fix barrier to substrate

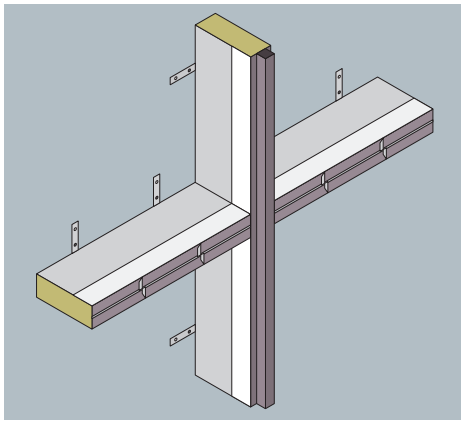


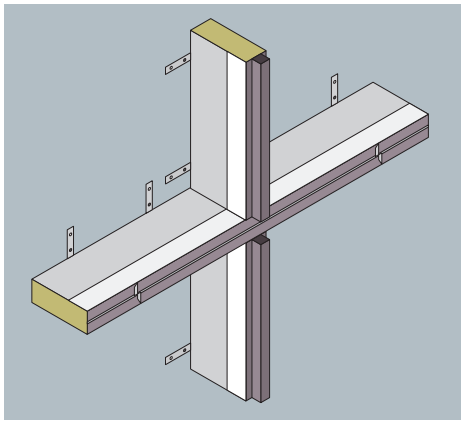
Butt barriers together



Ensure barrier alignment/flush surfaces

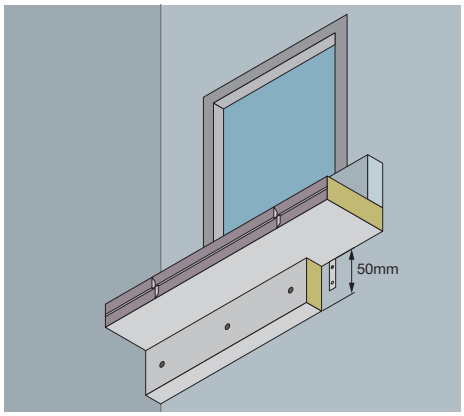
Butt Joints: Cavity Barriers must tightly abut one another





Can be installed Non-Ventilated first and then Ventilated, or vice-versa

Space Constraints: Brackets installed below the barrier need to be protected



Where access constraints mean brackets cannot be fixed above the cavity barrier, the brackets may be fixed beneath the barrier, with 50 mm CP 670 (coated board) used to protect brackets.

Notice: The product's foil cover is used for branding purposes only. Therefore, wrinkles or local detachments do not influence the product's functionality.

Scope of Report

This summary sheet covers 4 specimens; of which: 2 specimens are non-ventilated vertically installed (wall mounted) and 2 specimens are ventilated 'open-state' horizontally installed (floor mounted) barriers, tested utilising the general principles of **BS476: Part 20 (1987).**

Table 1 – Tested Cavity Barriers

Specimen	Orientation	Substrates	Cavity Width	Seal details
A	Vertical, Wall	AAC to AAC	400 mm	Hilti CP 674NV 400, installed by compression and 2 Nr stainless-steel brackets. 5 layers of 50 mm thick mineral fibre insulation (50 kg/m³) fixed back to inner wall with steel screws (abutting cavity barrier).
B	Vertical, Wall	AAC to AAC	200 mm	Hilti CP 674NV 200, installed by compression and 2 Nr stainless-steel brackets. 3 layers of 50 mm thick mineral fibre insulation (50 kg/m³) fixed back to inner wall with steel screws (abutting cavity barrier).
C	Horizontal, Floor	AAC to AAC	225 mm	Hilti CP 674V 225-25, installed by 3 Nr stainless-steel brackets with 25 mm air gap between leading edge and external wall. 3 layers of 50 mm thick mineral fibre insulation (50 kg/m³) fixed back to inner wall with steel screws (abutting cavity barrier).
D	Horizontal, Floor	AAC to AAC	400 mm	Hilti CP 674V 400-25, installed by 3 Nr stainless-steel brackets with 25 mm air gap between leading edge and external wall. 5 layers of 50 mm thick mineral fibre insulation (50 kg/m³) fixed back to inner wall with steel screws (abutting cavity barrier).

Table 2 – Fire Resistance Performance Utilising the General Principles of BS476: Part 20 (1987).

Specimen	Integrity	Insulation	Closure time	Comments
A	132 minutes*	75 minutes	N/A	
B	132 minutes*	132 minutes*	N/A	
C	0 minutes	0 minutes	4:00**	Due to the intended end use of Specimen C & D, the specimens were tested incorporating a 25 mm through gap along one edge, at the start of the test. As a result, the specimens automatically failed the integrity and insulation criteria of the test via penetration of a 25 mm gap gauge upon commencement of the test.
D	0 minutes	0 minutes	2:21**	

* Test was discontinued after a period of 132 minutes.

** After 4:00 mins (specimen C) and 2:21 mins (specimen D), the specimens had sealed the gaps to the point that no gaps in excess of those permitted by the standard were present. Therefore if assessed against the integrity and insulation (max temperature rise only) performance criteria of BS 476: Part 20: 1987, from this point, then: **111 mins integrity** and **88 mins insulation** (specimen C); and **105 mins integrity** and **83 mins insulation** (specimen D) were recorded.

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Test Report Summary for Hilti (Gt Britain) Ltd

Scope of Report

This Test Report Summary has been prepared by **Warringtonfire** and is a summary of the test report referenced below. Full details of the constructions, the test procedure, and the test results are given in that report.
This summary sheet covers two specimens of floor mounted 'open-state' cavity barriers as previously fire tested by **Warringtonfire** utilising the general principles of **ASFP Technical Guidance Document - TGD 19: Nov 2017** 'Fire resistance tests for 'Open-State' Cavity Barriers used in the external envelope or fabric of buildings in the configuration described below.

Test Report Reference	Test Date
WF No. 417308	21st August 2019

Table 1 – Tested 'Open-State' Cavity Barriers

Specimen	Orientation	Substrates	Cavity Width	Seal details
B	Horizontal, floor	AAC to AAC	313 mm	Hilti CP 674V 288, installed with a 25 mm air gap. A vertical section of Hilti CP 674NV 307-313 above and below the barrier.
C	Horizontal, floor	AAC to AAC	318 mm	Hilti CP 674V 241-288, installed with a 25 mm air gap. A Hilti Eurofox MFT-S2S TT rail & U bracket penetrated the barrier with Hilti CFS F FX expanding firestop within the cavity of the rail.

Table 2 – Fire Resistance Performance Utilising the General Principles of ASFP Technical Guidance Document - TGD 19: Nov 2017

Specimen	Integrity (cotton pad)	Integrity (sustained flaming)	Insulation	Insulation (Suspended T/C's)	Closure time
B	64 minutes	66 minutes	46 minutes	46 minutes	3 minutes
C	71 minutes	71 minutes*	36 minutes	38 minutes	3 minutes

* Test was discontinued after a period of 71 minutes.

Table 3 – Brief Details of Specimens Construction	
Specimen	**Description**
B	Specimen B comprised of a foil faced stone wool fibre cavity barrier referenced 'Hilti CP 674V 288' which had a stated density of 120 kg/m^3. The barrier had overall dimensions of 1300 mm long, 288 mm wide and 75 mm thick. The barrier was installed with a butt joint which was taped with aluminium foil tape at 300 mm from one end of the barrier. The barrier incorporated a 25 mm wide by 1.5 mm thick graphite based intumescent strip which was bonded to the leading edge. The barrier was fixed to the supporting construction using four steel hangers. Above and below the joint was two vertical section of 'Hilti CP 674NV 307-313' cavity barrier which incorporated a 30 mm x 30 mm section of intumescent foam strip down the length of the sections. The specimen also included a layer of 150 mm thick 'RW3' stone wool insulation above and below the barrier with a stated density of 60kg/m^3. The insulation was fixed to one face of the supporting construction using metal insulation fixings. The barrier was installed to provide a 25 mm air gap.
C	Specimen C comprised of a foil faced stone wool fibre cavity barrier referenced 'Hilti CP 674V 241-288' which had a stated density of 120 kg/m^3. The barrier had overall dimensions of 1300 mm long, 288 mm wide and 75 mm thick. The barrier was installed in two sections. The barrier incorporated a 25 mm wide by 1.5 mm thick graphite based intumescent strip which was bonded to the leading edge. The barrier was fixed to the supporting construction using four steel hangers. Between the two sections of barrier was a penetrating 'Hilti Eurofox MFT-S2S TT rail & U bracket'. The bracket was fixed to the supporting construction using 4 No. Hilti HRD-H anchors. The rail was fixed to the bracket using 8 No. S-AD 01SS screws. The barrier was installed around the rail and bracket and sealed with Hilti Mastic CP606. The intumescent strip of the barrier was cut and overlapped around the front of the rail to provide a continuous length of intumescent across the full length of the barrier. 60kg/m^3 mineral wool was installed in the cavity between the bracket and rail. The cavity within the rail was sealed with Hilti CFS F FX expanding firestop at the exposed face of the barrier. The specimen also included a layer of 150 mm thick 'RW3' stone wool insulation above and below the barrier with a stated density of 60kg/m^3. The insulation was fixed to one face of the supporting construction using metal insulation fixings. The barrier was installed to provide a 25 mm air gap.

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*This Report Summary is based upon a test report, as referenced above, prepared by **Warringtonfire**. Full details of the constructions the test procedure, and the test results are given in that report. The test report does not provide an endorsement by **Warringtonfire**, of the performance of the actual products supplied.*
*This report summary has been compiled between **Warringtonfire** and **Hilti (Gt Britain) Ltd.** It is intended to provide a brief outline of the above referenced test report and not to replace it.*

Full copies of the test report may be obtained from: Hilti (Gt Britain) Ltd only

Responsible Officer
D. Whittle*
Technical Officer
11th December 2019

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