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

European technical assessment

ETA N° 11/0429

TABLE OF CONTENTS

GENERAL INFORMATION

FIRE CLASSIFICATION DETAIL TABLES FOR WALLS

FIRE CLASSIFICATION DETAIL TABLES FOR FLOORS

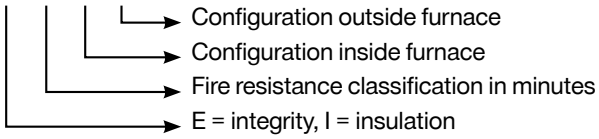
SPECIFICATIONS

ANCILLARY PRODUCTS

PIPE END CONFIGURATIONS

All pipes tested according to EN 1366-3 have been tested with a specific pipe end configuration. In the fire classification, the first letter of the end configuration refers to the end conditions within the furnace (fire-side), the second letter to the end conditions outside the furnace (non-fire-side).

EI 90 U/U



Test condition Designation	Pipe end configuration	
	Inside furnace	Outside furnace
U/U	Uncapped	Uncapped
C/U	Capped	Uncapped
U/C	Uncapped	Capped
C/C	Capped	Capped

As the EN test standard EN 1366-3 states, “it is important to ensure that sealing systems have been tested with appropriate pipe end conditions.” The conditions the pipe and sealing system must endure in a fire situation depend on whether one or both ends of the pipe are sealed in practice, as pressures and the flow of hot gases will vary depending on whether the pipe is ventilated or not.

There are rules that determine which tested end configurations are valid for additional pipe end situations.

For metal pipes:

		Tested		
		U/C	C/U	C/C
Covered	U/U	Y	N	N
	C/U	Y	Y	N
	C/C	Y	Y	Y
Y = acceptable, N = not acceptable				

For plastic pipes:

		Tested			
		U/U	C/U	U/C	C/C
Covered	U/U	Y	N	N	N
	C/U	Y	Y	N	N
	U/C	Y	Y	Y	N
	C/C	Y	Y	Y	Y
Y = acceptable, N = not acceptable					

So, for example, a plastic pipe tested with the end configuration U/U will cover all possible end conditions. But a plastic pipe tested U/C will only cover the conditions U/C or C/C.

RECOMMENDED END CONFIGURATIONS

As previously stated, it is important to ensure that the tested pipe configuration corresponds to the intended use of the pipe.

The table below outlines recommended end configurations for various intended pipe uses as per suggestions laid out in EN 1366-3 2009 H.4.2.2. In the event that a national regulation conflicts with this table, the national regulation takes precedence.

Intended use of penetrations
(list not exhaustive, other pipes applications possible)

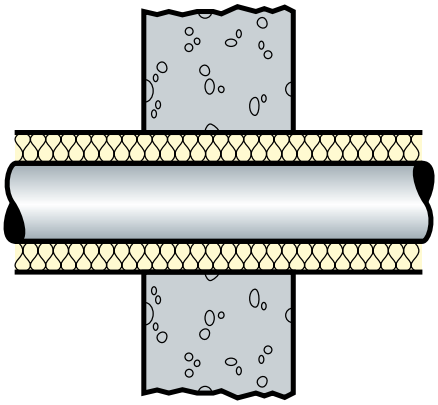
Application	Penetration material	Manufacturer, product (examples)	Pages		Recommended pipe end classification
			Wall	Floor	
Heating	Copper, steel, stainless steel		16-19	32-34	U/C
	Al-Composite	Geberit: Geberit Mepla Ke Kelit: Kelox KM 110 Rehau: Rautitan stabil	26-27	41	
Potable water	Copper, stainless steel		16-19	32-34	U/C
	Al-Composite	Geberit: Geberit Mepla Ke Kelit: Kelox KM 110 Rehau: Rautitan stabil	26-27	41	
	Plastic	Aquatherm: Fusiotherm Friatec: Friatherm starr Rehau: Rautitan flex Wavin: Wavin TS	21, 25	37, 40	
Refrigeration	Copper, steel, stainless steel		16-19	32-34	U/C
	Plastic – normed	PE: EN ISO 15494, DIN 8074/8075	20, 23-24	35, 37-39	
	Plastic – branded	Aquatherm: Climatherm, Fusiotherm Georg Fischer: Coolfit Wavin: Wavin TS	21-22, 25	37, 40	
Ventilated waste water/Storm water/ Roof drainage	Cast iron, SML		16-19	32-34	U/U
	Plastic - normed	PE: EN 1519 PVC-C: EN 1566 PVC-U: EN ISO 1452	20, 23-25	35, 37-39	
	Plastic – branded	Geberit: Silent -db20 Ke Kelit: Phonex AS Magnaplast: Skolan-dB Pipelife: Master 3 Poloplast: Polokal 3S, NG Rehau: Raupiano Plus Wavin: Wavin AS, SiTech	21-22, 24	36, 39	
Pneumatic	Steel		16-19	32-34	C/C
	Plastic	PVC-U: EN ISO 1452	20, 23-24	35, 37-39	
Industry	Copper, steel, stainless steel		16-19	32-34	Varies depending upon application, i.e. consider whether pipe is pressurized (U/C), ventilated (U/U) or unventilated (U/C)
	Al-Composite	Geberit: Geberit Mepla Rehau: Rautitan stabil Ke Kelit: Kelox KM 110	26-27	41	
	Plastic – normed	PE: EN ISO 15494, DIN 8074/8075 PVC-U: EN ISO 15493, DIN 8061/8062	20, 23-24	35, 37-39	
		Aquatherm: Climatherm, Fusiotherm Friatec: Friatherm starr Geberit: Silent -db20 Ke Kelit: Phonex AS Magnaplast: Skolan-dB Pipelife: Master 3 Poloplast: Polokal 3S, NG Rehau: Raupiano Plus Wavin: Wavin AS, SiTech, TS	21-22, 24-25	36-37, 39-40	

PIPE INSULATION CONFIGURATIONS

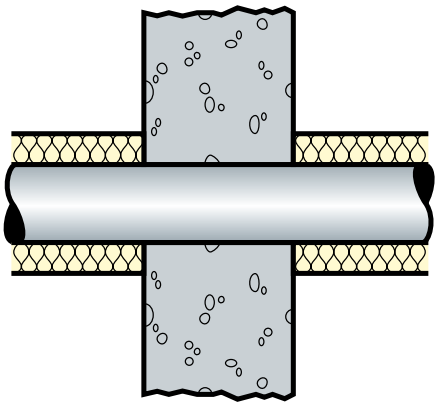
When sealing pipes, the insulation configuration must be considered.
The following configurations are possible:

Insulation over the entire length of the pipe (i.e. thermal insulation)

Continued sustained

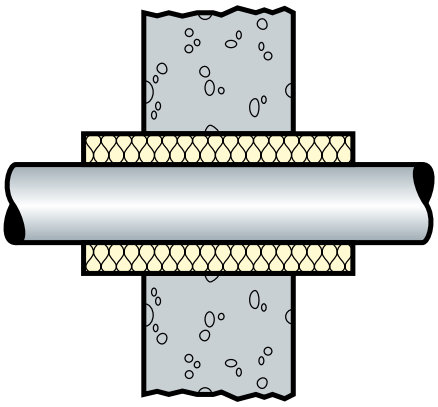


Continued interrupted

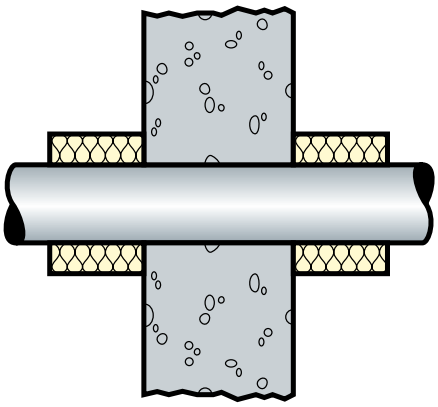


Insulation only required in the area of the penetration seal

Local sustained



Local interrupted



See page 43 for specification of suitable insulation products.

HILTI FIRESTOP COATING CFS-CT

A cost-effective system for permanent firestopping of mixed penetrations in medium to large wall and floor openings.

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

Advantages

- Extensive EN testing ensures wide range of application
- Single-layer coating for up to 50% time savings
- Up to 30% less coating required
- Easy to apply, even on rough surfaces
- Highly flexible coating dries quickly to form an elastic protective layer

The European Technical Assessment (ETA) and the technical data sheet can be obtained via your local Hilti contact.

Technical data

	CFS-CT
Approvals	ETA-11/0428 and ETA-11/0429
Reaction to fire class	Class D-s2 d0 according to EN 13501-1:2007
Base materials	Drywall, concrete, aerated concrete, masonry
Density	1.47 kg/l
Density (Imperial)	12.3 lb/gal (US)
Cure Time (at 23°C/50% r.H)	~ 1 mm / day
Shelf life (@73°F/23°C and 50% relative humidity)	15 month(s)
Application temperature range	5°C – 40°C
Application temperature range (Imperial)	41°F – 104°F
Storage and transportation temperature – range	5°C – 30°C
Storage and transportation temperature – range (Imperial)	41°F – 86°F

Ordering

Ordering designation	Sales quantity	Item number
Firestop coating CFS-CT 18kg white	1 PC	02036607
Firestop coating CFS-CT 6kg white	1 PC	02036605

HILTI FIRESTOP COATED BOARD CFS-CT B

A cost-effective system for permanent firestopping of mixed penetrations in medium to large wall and floor openings.

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 CFS-C P or CFS-C or firestop wrap CFS-W

Advantages

- Extensive EN testing ensures wide range of application
- Board pre-coated for immediate use
- Easy cutting, no fraying of edges and no mineral fiber exposure thanks to extremely low delamination of elastic firestop surface

The European Technical Assessment (ETA) and the technical data sheet can be obtained via your local Hilti contact.

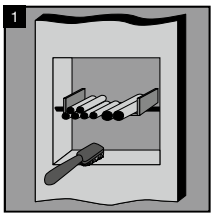
Technical data

	CFS-CT B
Approvals	ETA-11/0428 and ETA-11/0429
Approx. board density	140 kg/m³
Dimensions (LxWxH)	1000 × 600 × 50 mm
Color	White
Base materials	Drywall, concrete, aerated concrete, masonry
Reaction to fire class	Class D-s2 d0 according to EN 13501-1:2007
Complementary products	Firestop coating CFS-CT, firestop acrylic sealant CFS-S ACR

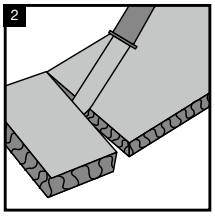
Ordering

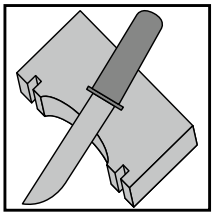
Ordering designation	Number of sides coated	Item number
Firestop coating CFS-CT 18kg white	1 PC	02036607
Firestop coating CFS-CT 6kg white	1 PC	02036605

INSTALLATION INSTRUCTIONS CFS-CT

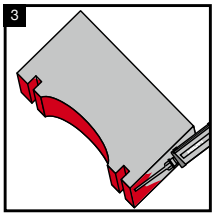


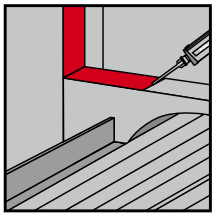
Clean the opening. Cables and supporting structures must be free of dust, grease or oil and installed in compliance with local building and electrical standards.

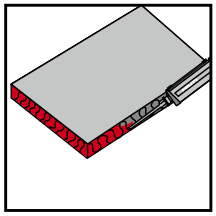




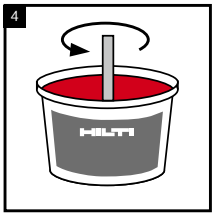
Cut mineral wool board to size. Cut out required space for any penetrating items.

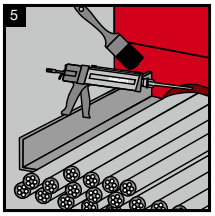






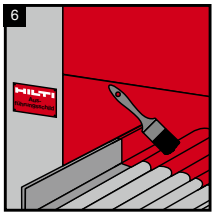
Coat cut edges, surface of the opening and joints between panels with Hilti Firestop Acrylic Sealant CFS-S ACR. Fit mineral wool board tightly into the opening.

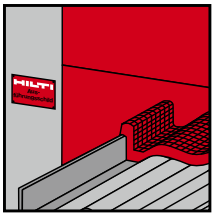




Thoroughly stir Hilti Firestop Coating CFS-CT.

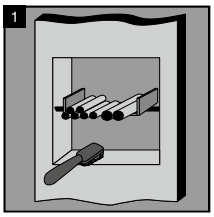
Fill any gaps with loose mineral wool. Coat mineral wool as well as packed gaps and voids with Hilti Firestop Coating CFS-CT (required dry film thickness: 0.7 mm). Apply Hilti Firestop Coating to a wet film thickness of ca. 1.1 mm to achieve a dry film thickness of 0.7 mm. Hilti Firestop Coating CFS-CT may be applied using a brush, roller or airless sprayer. (Alternatively, Hilti Firestop Coating CFS-CT may be sprayed or painted onto the outward-facing surface of the mineral wool panels prior to installation.) Fill gaps and seal between cables with Hilti Firestop Acrylic Sealant CFS-S ACR.



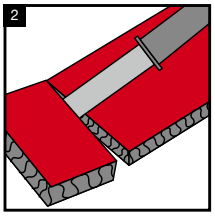


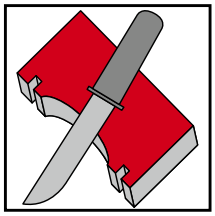
Apply Hilti Firestop Coating CFS-CT to penetrating items on all surfaces over the required length. Depending on the application and fire rating to be achieved, additional protection (i.e. increased coating thickness or a mineral wool mat) may be required (see ETA for details). In the event that an application requires a dry film thickness of 2 mm, the Hilti Firestop Coating CFS-CT must be applied in two layers, allowing the first layer to cure completely before applying an additional coat. Hilti Firestop Coating CFS-CT may be applied using a brush, roller or airless sprayer. For installation of additional components (e.g. Hilti Firestop Collar CFS-C P and Hilti Firestop Bandage CFS-B) see ETA. If required by national prescriptions, mark the penetration seal with an identification plate containing the required information. In such a case fasten the identification plate in a visible position next to the seal.

INSTALLATION INSTRUCTIONS CFS-CT B

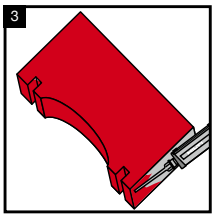


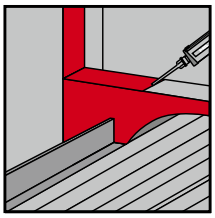
Clean the opening. Cables and supporting structures must be free of dust, grease or oil and installed in compliance with local building and electrical standards.

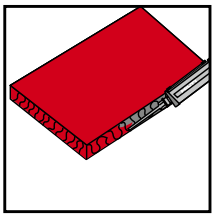




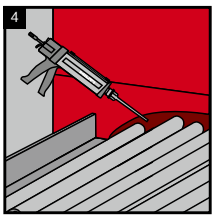
Cut mineral wool board to size. Cut out required space for any penetrating items.





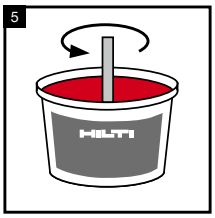


Coat cut edges, surface of the opening and joints between panels with Hilti Firestop Acrylic Sealant CFS-S ACR. Fit mineral wool board tightly into the opening.

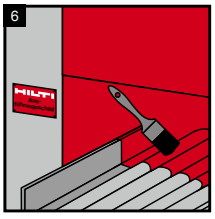


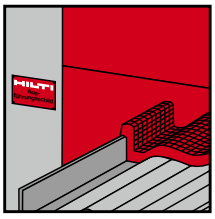
Hilti Firestop Coated Boards are pre-coated to 0.7 mm dry film thickness. In the event that cutting exposes mineral wool, re-coat with Hilti Firestop Coating CFS-CT.

Fill gaps and seal between cables with Hilti Firestop Acrylic Sealant CFS-S ACR.

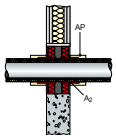
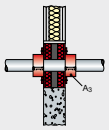
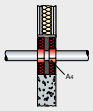
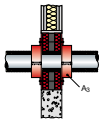
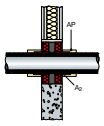
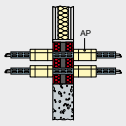
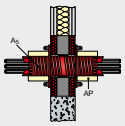
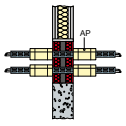
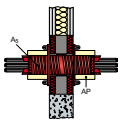


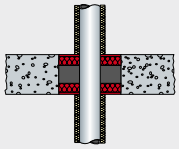
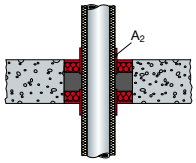
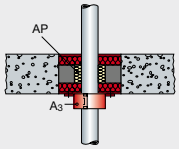
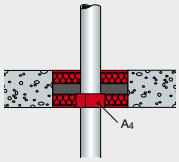
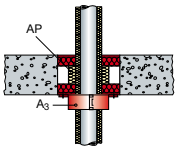
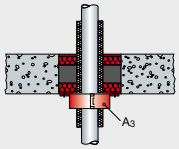
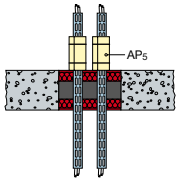
Thoroughly stir Hilti Firestop Coating CFS-CT.





Apply Hilti Firestop Coating CFS-CT to penetrating items on all surfaces over the required length. Depending on the application and fire rating to be achieved, additional protection (i.e. increased coating thickness or a mineral wool mat) may be required (see ETA for details). In the event that an application requires a dry film thickness of 2 mm, the Hilti Firestop Coating CFS-CT must be applied in two layers, allowing the first layer to cure completely before applying an additional coat. Hilti Firestop Coating CFS-CT may be applied using a brush, roller or airless sprayer. For installation of additional components (e.g. Hilti Firestop Collar CFS-C P and Hilti Firestop Bandage CFS-B) see ETA. If required by national prescriptions, mark the penetration seal with an identification plate containing the required information. In such a case fasten the identification plate in a visible position next to the seal.

Wall application		Pipe closure device	Pipe end configuration	Page
Blank seals		-	-	15
Metal pipes with mineral wool insulation		-	U / C	16
			C / U	17
Metal pipes with combustible insulation		Hilti firestop bandage CFS-B	U / C	18
			C / U	18-19
Plastic pipes		Hilti firestop collar CFS- C P	U / U	20-21
			U / C	22
		Hilti firestop collar CFS-C	U / C	23
		Hilti firestop wrap CFS-W	C / U	24
			U / C	24
Plastic pipes with combustible insulation		Hilti firestop collar CFS-C P	U/C (resp. U/U)	25
Composite pipes with mineral wool insulation		-	U / C	26
Composite pipes with combustible insulation		Hilti firestop collar CFS-C P	U / C	26
		Hilti firestop bandage CFS-B	U / C	27
Cables		-	-	28-29
		Hilti firestop sleeve CFS-SL M	-	28
Cables		-	-	28-29
		Hilti firestop sleeve CFS-SL M	-	28

Floor application		Pipe closure device	Pipe end configuration	Page
Blank seals		-	-	31
Metal pipes with mineral wool insulation		-	U/C	32
		-	C/U	33
Metal pipes with combustible insulation		Hilti firestop bandage CFS-B	U/C	34
			C/U	34
Plastic pipes		Hilti firestop collar CFS-C P	U/U (resp. C/U)	35-36
			U/C	37
		Hilti firestop collar CFS-C	U/C	38
		Hilti firestop wrap CFS-W	C/U	39
			U/C	39
Plastic pipes with combustible insulation		Hilti firestop collar CFS-C P	U/C	40
Composite pipes with combustible insulation		Hilti firestop collar CFS-C P	U/C	41
Cables		-	-	42

FLEXIBLE AND RIGID WALLS

Construction and minimum distance requirements

Penetration seal: Two 50 mm Hilti firestop boards CFS-CT B 1S1 or suitable mineral wool boards2 positioned flush to the surface of the building element on each side of the wall and coated with Hilti firestop coating CFS-CT to a dry film thickness of 0.7 mm on the outer face. All cut edges sealed with Hilti firestop acrylic sealant CFS-S ACR. Remaining gaps around cables/cable supports (i.e. trays, ladders) and other services filled with Hilti firestop acrylic sealant CFS-S ACR.

All penetrating items (cables, cable trays, conduits, metal, plastic and composite pipes) may be installed in a single, multiple or mixed configuration.

Installations must be fixed to the adjacent building elements (not to the seal) in accordance with the relevant regulations in such a way that no additional mechanical load is imposed on the seal.

FLEXIBLE AND RIGID WALLS ≥ 100 MM

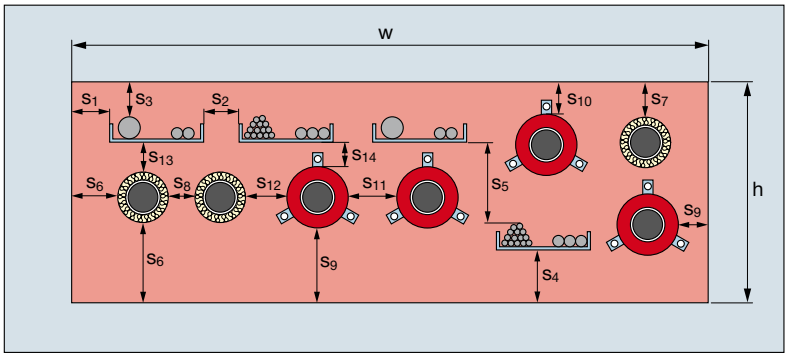
Flexible walls / Drywalls: minimum thickness 100, 112 or 135 mm respectively, with timber or steel studs lined on both faces with one or several layers of boards with a minimum 25 mm overall thickness. For timber stud walls there must be a minimum distance of 100 mm between the seal and any stud and the cavity must be filled with minimum 100 mm Class A1 or A2 insulation in accordance with EN 13501-1. An aperture framing must be installed made of C-studs and boards that have been used for the lining of the wall, minimum thickness of the board 12.5 mm.

Rigid walls comprised of concrete, blockwork or masonry with a minimum thickness of 100 mm and minimum density of 650 kg/m^3.

Maximum seal size (width x height): 1200 x 1200 mm for classification EI 120, 1200 x 2000 mm for classification EI 90.

Maximum distance for first service support: 250 mm.

Minimum distances in mm:[3]



s_1 = 0 (distance between cables/cable supports and seal edge)
s_2 = 0 (distance between cable supports)
s_3 = 0 (distance between cables and upper seal edge)
s_4 = 0 (distance between cable supports and bottom seal edge)
s_5 = 50 (distance between cables and cable support above)
s_6 = 3 (distance between metal pipes and seal edge)
s_7 = 3 (distance between metal pipes and upper seal edge)
s_8 = 0 (distance between metal pipes)
s_9 = 17 (distance between plastic pipes/pipe closure devices and seal edge)
s_{10} = 17 (distance between plastic pipes/pipe closure devices and upper seal edge)
s_{11} = 0 (distance between plastic pipes/pipe closure devices)
s_{12} = 30 (distance between metal pipes and plastic pipes/pipe closure devices)
s_{13} = 3 (distance between cables/cable supports and metal pipes)
s_{14} = 40 (distance between cables/cable supports and plastic pipes/pipe closure devices)

[1] Hilti firestop board CFS-CT B 2S (coated on both faces) may also be used
[2] See specification on page 43
[3] Composite pipes follow the same minimum distance requirements as plastic pipes

In addition to the classifications for walls ≥ 100 mm, there are some penetrants which may only be installed in other wall types or thicknesses. These penetrants may be combined with penetrants classified for walls ≥ 100 mm within one penetration seal, provided these are installed in the more restrictive wall type/thickness. When doing so, ensure that all separations meet the largest minimum distance requirement from all relevant supporting constructions.
Likewise, only the smaller maximum opening size and lesser distance for first service support may be used when combining penetrants from varying wall thicknesses/types.

FLEXIBLE AND RIGID WALLS ≥ 135 MM

Flexible walls[4] or rigid walls comprised of concrete, blockwork or masonry with a minimum thickness of 135 mm and minimum density of 650 kg/m^3.
Maximum seal size (width x height): 1200 x 1200 mm.
Maximum distance for first service support: 150 mm.
Minimum distances in mm:[3]
s_6 = 0 (distance between metal pipes and seal edge)
s_8 = 0 (distance between metal pipes)
s_9 = 15 (distance between plastic pipes/pipe closure devices and seal edge)
s_{11} = 0 (distance between plastic pipes/pipe closure devices)
s_{12} = 0 (distance between metal pipes and plastic pipes/pipe closure devices)
s_{13} = 96 (distance between cables/cable supports and metal pipes)
s_{14} = 69 (distance between cables/cable supports and plastic pipes/pipe closure devices)

RIGID WALLS ≥ 150 MM, MINIMUM DENSITY 600 KG / M^3

Rigid walls comprised of concrete, blockwork or masonry with a minimum thickness of 150 mm and minimum density of 600 kg/m^3.
Maximum seal size (width x height): 1200 x 1200 mm.
Maximum distance for first service support: 275 mm.
Minimum distances in mm:[3]
s_1 = 0 (distance between cables/cable supports and seal edge)
s_2 = 0 (distance between cable supports)
s_3 = 45 (distance between cables and upper seal edge)
s_4 = 0 (distance between cable supports and bottom seal edge)
s_5 = 50 (distance between cables and cable support above)
s_6 = 30 (distance between metal pipes and seal edge)
s_7 = 3 (distance between metal pipes and upper seal edge)
s_8 = 0 (distance between metal pipes)
s_9 = 55 (distance between plastic pipes/pipe closure devices and seal edge)
s_{10} = 17 (distance between plastic pipes/pipe closure devices and upper seal edge)
s_{11} = 0 (distance between plastic pipes/pipe closure devices)
s_{12} = 68 (distance between metal pipes and plastic pipes/pipe closure devices)
s_{13} = 76 (distance between cables/cable supports and metal pipes)
s_{14} = 45 (distance between cables/cable supports and plastic pipes/pipe closure devices)

RIGID WALLS ≥ 150 MM, MINIMUM DENSITY 760 KG / M^3

Rigid walls comprised of concrete, blockwork or masonry with a minimum thickness of 150 mm and minimum density of 760 kg/m^3.
Maximum seal size (width x height): 1200 x 1200 mm.
Maximum distance for first service support: 250 mm.
Minimum distances in mm:
s_6 = 0 (distance between metal pipes and lateral seal edge)
s_7 = 45 (distance between metal pipes and upper seal edge)
s_8 = 30 (distance between metal pipes)

[4] See flexible walls ≥ 100 mm for details about wall construction
[3] Composite pipes follow the same minimum distance requirements as plastic pipes

FLEXIBLE AND RIGID WALLS ≥ 100 MM BLANK SEAL (NO SERVICES)

If services are added later, only services from the following tables may be added that fulfill the required classification.

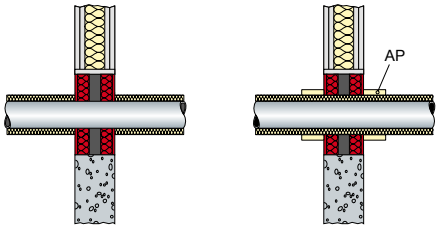
Maximum size (width x height)	Classification E = Integrity I = Insulation
1200 mm x 1200 mm	EI 120
4000 mm x 800 mm	EI 90

RIGID WALLS ≥ 250 MM BLANK SEAL (NO SERVICES)

If services are added later, only services from the following tables may be added that fulfill the required classification.

Maximum size (width x height)	Classification E = Integrity I = Insulation
1200 mm x 2000 mm	EI 90

FLEXIBLE AND RIGID WALLS ≥ 100 MM
METAL PIPES WITH MINERAL WOOL INSULATION



Minimum distance between metal pipes: 0 mm.

Additional protection:
Depending on the required fire resistance, additional protection (AP) may be necessary.

AP_8: Mineral wool mat wrapped around the pipe insulation on both sides of seal and fixed with wire, length along the pipe 250 mm on each side, thickness 40 mm.

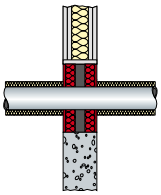
Copper pipes - Pipe end configuration U/C
Also valid for steel, cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys) and Ni

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation		Insulation configuration
			Without additional protection	AP_8	
10 mm	1.0 – 14.2 mm	20 – 30 mm	EI 120-U/C	-	Local sustained or interrupted, length on both sides ≥ 500 mm
10 – 40 mm	1.0/1.5 – 14.2	≥ 20 mm	EI 120-U/C	-	Continued sustained or interrupted
		20 mm	EI 120-U/C	-	Local sustained or interrupted, length on both sides ≥ 500 mm
40 – 88.9 mm	1.5/2.0 – 14.2 mm	≥ 40 mm	EI 90-U/C	EI 120-U/C	Continued sustained
			EI 120-U/C	-	Continued interrupted
		40 mm	EI 90-U/C	-	Local sustained or interrupted, length on both sides ≥ 1000 mm

Steel pipes - Pipe end configuration U/C
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation		Insulation configuration
			Without additional protection	AP_8	
114.3 mm	2.0 – 14.2 mm	≥ 30 mm	EI 60-U/C	-	Continued sustained
		≥ 40 mm	EI 120-U/C	-	
		≥ 30 mm	EI 120-U/C	-	Continued interrupted
		30 – 40 mm	EI 60-U/C	-	Local sustained or interrupted, length on both sides ≥ 500 mm
		40 mm	EI 120-U/C	-	Local sustained or interrupted, length on both sides ≥ 1000 mm
114.3 – 159 mm	2.0/2.6 – 14.2 mm	≥ 40 mm	EI 60-U/C	-	Continued sustained
			EI 120-U/C	-	Continued interrupted
		40 mm	EI 45-U/C	-	Local sustained or interrupted, length on both sides ≥ 500 mm
			EI 60-U/C	-	Local sustained, length on both sides ≥ 1000 mm
			EI 90-U/C	-	Local interrupted, length on both sides ≥ 1000 mm
159 mm	2.6 – 14.2 mm	≥ 40 mm	EI 60-U/C	EI 120-U/C	Continued sustained
		40 mm	EI 60-U/C	EI 90-U/C	Local sustained, length on both sides ≥ 1000 mm
159 – 323.9 mm	2.6/4.0 – 14.2	≥ 40 mm	EI 60-U/C	EI 90-U/C	Continued sustained
			EI 60-U/C	-	Continued interrupted
		40 mm	EI 30-U/C	-	Local sustained or interrupted, length on both sides ≥ 1000 mm

FLEXIBLE AND RIGID WALLS ≥ 100 MM METAL PIPES WITH MINERAL WOOL INSULATION

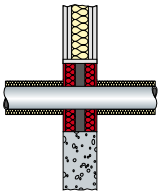


Minimum distance between metal pipes: 0 mm.
No additional protection (AP) necessary.

Steel pipes – Pipe end configuration C/U
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
26.9 mm	1.4 – 14.2 mm	≥ 40 mm	EI 120-C/U	Continued interrupted
		40 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 500 mm
34 – 48.3 mm	4.0 – 14.2 mm	≥ 20 mm	EI 120-C/U	Continued interrupted
		20 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 500 mm
34 – 114.3 mm	3.6 – 14.2 mm	≥ 30 mm	EI 120-C/U	Continued interrupted
48.3 mm	1.6 – 14.2 mm	≥ 20 mm	EI 90-C/U	Continued sustained
			EI 120-C/U	Continued interrupted
		20 mm	EI 90-C/U	Local sustained, length on both sides ≥ 450 mm
			EI 120-C/U	Local interrupted, length on both sides ≥ 500 mm
114.3 mm	3.6 – 14.2 mm	30 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 500 mm

FLEXIBLE AND RIGID WALLS ≥ 135 MM METAL PIPES WITH MINERAL WOOL INSULATION



Minimum distance between metal pipes: 0 mm.
No additional protection (AP) necessary.

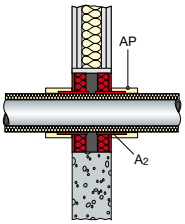
Copper pipes – Pipe end configuration C/U
Also valid for steel, cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys) and Ni

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
88.9 mm	1.8 – 14.2 mm	≥ 40 mm	EI 120-C/U	Continued sustained
		40 mm	EI 120-C/U	Local sustained, length on both sides ≥ 800 mm

Steel pipes – Pipe end configuration C/U
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
32 mm	2.6 – 14.2 mm	30 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 500 mm
32 – 168.3 mm	2.6/4.0 – 14.2 mm	≥ 30 mm	EI 120-C/U	Continued interrupted
		30 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 800 mm
168.3 mm	4.0 – 14.2 mm	30 – 40 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 1000 mm

FLEXIBLE AND RIGID WALLS ≥ 100 MM METAL PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP BANDAGE CFS-B



Minimum distance between metal pipes: 0 mm.
Two layers of Hilti firestop bandage CFS-B (A_2) wrapped around the pipe insulation on both sides of the seal. Bandage positioned with half its width inside seal and fixed with wire outside seal. Additional protection (AP_6) installed over bandage.

Additional protection:
AP_6: Armaflex AF pipe insulation wrapped around bandage/insulation on both sides of seal and fixed with wire, length along the pipe 250 mm on each side, thickness 32 mm.

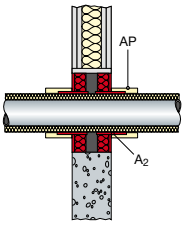
Copper pipes - Pipe end configuration U/C
Also valid for steel, cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys) and Ni

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
10 mm	1.0 – 14.2 mm	7.5 – 40.5 mm	EI 120-U/C	Continued sustained
10 – 40 mm	1.0/1.5 – 14.2 mm	7.5 – 9 mm	EI 90-U/C	
40 – 88.9 mm	1.5/2.0 – 14.2 mm	9 – 9.5 mm	EI 45-U/C	
		45.5 – 47.5 mm	EI 120-U/C	
88.9 mm	2.0 – 14.2 mm	9.5 – 47.5 mm	EI 45-U/C	
		15 – 47.5 mm	EI 60-U/C	

Steel pipes - Pipe end configuration U/C
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
1.058 mm	2.0 – 14.2 mm	9 – 20 mm	EI 90-U/C	Continued sustained
114.3 – 159 mm	2.0/2.6 – 14.2 mm	9 – 10 mm	EI 60-U/C	
159 mm	2.6 – 14.2 mm	10 – 45 mm		

FLEXIBLE AND RIGID WALLS ≥ 100 MM METAL PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP BANDAGE CFS-B



Minimum distance between metal pipes: 0 mm.
Two layers of Hilti firestop bandage CFS-B (A_2) wrapped around the pipe insulation on both sides of the seal. Bandage positioned with half its width inside seal and fixed with wire outside seal. Additional protection (AP_6) installed over bandage.

Additional protection:
AP_6: Armaflex AF pipe insulation wrapped around bandage/insulation on both sides of seal and fixed with wire, length along the pipe 300 mm on each side, thickness 19 mm.

Copper pipes – Pipe end configuration C/U
Also valid for steel, cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys) and Ni

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
28 mm	1.0 – 14.2 mm	19 – 35 mm	EI 120-C/U	Continued sustained or local sustained, length on both sides ≥ 500 mm

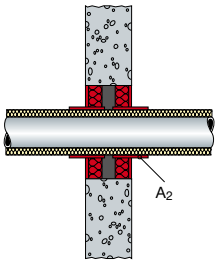
Steel pipes – Pipe end configuration C/U
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
60.3 mm	3.6 – 14.2 mm	21.5 – 39 mm	EI 90-C/U	Continued sustained or local sustained, length on both sides ≥ 500 mm
60.3 – 114.3 mm		21.5 – 39 mm	EI 60-C/U	
114.3 mm		43 mm	EI 90-C/U	

Stainless steel pipes – Pipe end configuration C/U

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
60.3 mm	2.0 – 14.2 mm	21.5 – 39 mm	EI 120-C/U	Continued sustained or local sustained, length on both sides ≥ 500 mm

RIGID WALLS ≥ 150, MINIMUM DENSITY 760 KG/M^3
METAL PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP BANDAGE CFS-B



Two layers of Hilti firestop bandage CFS-B (A_2) wrapped around the pipe insulation on both sides of the seal. Bandage positioned with half its width inside seal and fixed with wire outside seal.

No additional protection (A_P) necessary.

Copper pipes – Pipe end configuration C/U
Also valid for steel, cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys) and Ni

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
28 mm	1.0 – 14.2 mm	19 – 35 mm	EI 60-C/U	Continued sustained or local sustained, length on both sides ≥ 500 mm
		35 mm	EI 120-C/U	

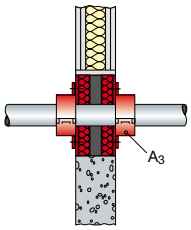
Steel pipes – Pipe end configuration C/U
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
60.3 mm	3.6 – 14.2 mm	21.5 – 39 mm	EI 90-C/U	Continued sustained or local sustained, length on both sides ≥ 500 mm
		39 mm	EI 120-C/U	
60.3 – 114.3 mm	3.6 – 14.2 mm	21.5 – 39 mm	EI 60-C/U	
114.3 mm	3.6 – 14.2 mm	43 mm	EI 90-C/U	

Stainless steel pipes – Pipe end configuration C/U

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
60.3 mm	2.0 – 14.2 mm	21.5 – 39 mm	EI 90-C/U	Continued sustained or local sustained, length on both sides ≥ 500 mm
		39 mm	EI 120-C/U	

FLEXIBLE AND RIGID WALLS ≥ 100 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR CFS-C P

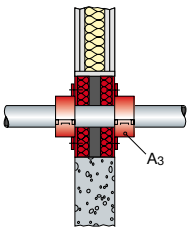


Minimum distance between pipe closure devices: 0 mm.
Hilti Firestop collar CFS-C P (A_3) installed on both sides of the seal and fixed together with M8 threaded rods, washers and nuts.

Normed pipes – Pipe end configuration U/U

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
PVC-U	EN ISO 1452-2, EN ISO 15493, DIN 8061/2, EN 1329-1, EN 1453-1	50 mm	2.4 – 5.6 mm	CFS-C P 50/1.5”	EI 90-U/U
			5.6 mm	CFS-C P 50/1.5”	EI 120-U/U
		63 mm	3.0 – 4.7 mm	CFS-C P 63/2”	EI 90-U/U
		75 mm	2.2 – 3.6 mm	CFS-C P 75/2.5”	EI 90-U/U
			2.2 mm	CFS-C P 75/2.5”	EI 120-U/U
		90 mm	2.7 – 4.3 mm	CFS-C P 90/3”	EI 90-U/U
		110 mm	2.2 – 8.1 mm	CFS-C P 110/4”	EI 90-U/U
			8.1 mm	CFS-C P 110/4”	EI 120-U/U
		110 – 125 mm	3.7 – 6.0 mm	CFS-C P 125/5”	EI 120-U/U
		>125 – 160 mm	2.5 – 11.8 mm	CFS-C P 160/6”	EI 120-U/U
PE	EN 1519, EN 12201-2, EN 12666-1	50 mm	3.0 mm	CFS-C P 50/1.5”	EI 90-U/U
		63 mm	3.0 mm	CFS-C P 63/2”	
		75 mm	3.0 mm	CFS-C P 75/2.5”	
		90 mm	3.5 mm	CFS-C P 90/3”	
		110 mm	4.2 mm	CFS-C P 110/4	
		110 - 125 mm	4.8 mm	CFS-C P 125/5”	EI 120-U/U
		>125 – 160 mm	6.2 mm	CFS-C P 160/6”	
PE	EN ISO 15494, DIN 8074/5	50 mm	2.9 – 4.6 mm	CFS-C P 50/1.5”	
		63 mm	1.8 – 5.8 mm	CFS-C P 63/2”	
		75 mm	1.9 – 6.8 mm	CFS-C P 75/2.5”	
		90 mm	2.2 – 8.2 mm	CFS-C P 90/3”	
		110 mm	2.7 – 10.0 mm	CFS-C P 110/4”	
		110 – 125 mm	3.1 – 7.1 mm	CFS-C P 125/5”	EI 120-U/U
		>125 – 160 mm	4.0 – 9.1 mm	CFS-C P 160/6”	

FLEXIBLE AND RIGID WALLS ≥ 100 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR CFS-C P



Minimum distance between pipe closure devices: 0 mm.
Hilti Firestop Collar CFS-C P (A_3) installed on each side of the seal and fixed together with M8 threaded rods, washers and nuts.

Branded pipes - Pipe end configuration U/U resp. C/U

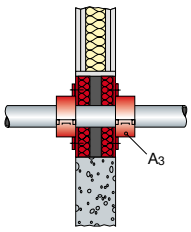
Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
Dekaprop Industry pipes (PP-H 100)	Georg Fischer	50 mm	1.8 mm	CFS-C P 50/1.5”	EI 120-U/U
		110 mm	2.7 mm	CFS-C P 110/4”	EI 90-U/U
Geberit Silent-db20 (PE-S2)	Geberit	75 mm	3.6 mm	CFS-C P 75/2.5”	EI 90-U/U
		90 mm	5.5 mm	CFS-C P 90/3”	
		110 mm	6.0 mm	CFS-C P 110/4”	
		135 mm	6.0 mm	CFS-C P 160/6”	EI 120-C/U
		160 mm	7.0 mm	CFS-C P 160/6”	
PROGEF standard pipe (PP-H)	Georg Fischer	50 mm	2.9 mm	CFS-C P 50/1.5”	EI 120-U/U
		75 mm	6.8 mm	CFS-C P 75/2.5”	EI 90-U/U
Wavin TS (PE-HD 100 RC)	Wavin	50 mm	4.6 mm	CFS-C P 50/1.5”	EI 120-U/U
		75 mm	6.8 mm	CFS-C P 75/2.5”	EI 90-U/U
		90 mm	8.2 mm	CFS-C P 90/3”	
		110 mm	10.0 mm	CFS-C P 110/4”	

Normed pipes - Pipe end configuration U/U resp. C/U

Pipe designation	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
PP	EN 1451-1*	32	1.8	CFS-C P 50/1.5”	EI 90-U/U
		50	1.8 – 2.0	CFS-C P 50/1.5”	
		58	4.0	CFS-C P 63/2”	
		70	4.5	CFS-C P 75/2.5”	
		75	1.9 – 2.3	CFS-C P 75/2.5”	
		90	2.8 – 4.5	CFS-C P 90/3”	
		110	2.7 – 5.3	CFS-C P 110/4”	
PP	EN 1451-1*	125	3.1 – 5.3	CFS-C P 125/5”	EI 120-C/U
		135	5.3 – 5.8	CFS-C P 160/6”	
		160	3.9 – 7.5	CFS-C P 160/6”	

*e.g. Rehau AG “Raupiano Plus”, Magnaplast GmbH „Skolan-dB“, Wavin Ireland Ltd or KeKelit “Wavin AS” or “Phonex AS”, Wavin Ireland Ltd “Wavin SiTech”, Poloplast “Polokal NG”, Poloplast “Polokal 3S”, Geberit “Siltent PP”, Coes “Blue Power”, Coes “PhoNoFire”, Valsir “Triplus”, Valsir “Silere”, Pipelife “Master 3”

FLEXIBLE AND RIGID WALLS ≥ 100 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR CFS-C P



Minimum distance between pipe closure devices: 0 mm.
Hilti firestop collar CFS-C P (A_3) installed on both sides of the seal and fixed together with M8 threaded rods, washers and nuts.

Pre-insulated pipes – Pipe end configuration U/C

Pipe designation	Pipe manufacturer	Pipe diameter	Inner pipe diameter	Collar size	Classification E = integrity, I = insulation
Coolfit (ABS/PUR/ PE-HD)	Georg Fischer	90 mm	32 mm	CFS-C P 90/3”	EI 90-U/C
		110 mm	40 – 50 mm	CFS-C P 110/4”	

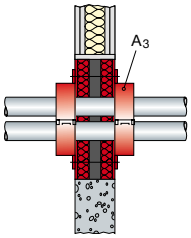
Normed pipes – Pipe end configuration U/C

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
PP	EN 1451–1	78 mm	45 mm	CFS-P75/2.5”	EI 90-U/C
PP-R	EN ISO 15874	50 mm	8.3 mm	CFS-C P 50/1.5”	EI 120-U/C
		63 mm	10.5 mm	CFS-C P 63/2”	
		75 mm	12.5 mm	CFS-C P 75/2.5”	EI 90-U/C
		90 mm	15 mm	CFS-C P 90/3”	

Branded pipes – Pipe end configuration U/C

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
PROGEF standard pipe (PP-H)	Georg Fischer	50 mm	4.6 mm	CFS-C P 50/1.5”	EI 120-U/C
		90 mm	8.2 mm	CFS-C P 90/3”	EI 90-U/C
Skolan-dB (PP)	Magnaplast	78 mm	4.5 mm	CFS-C P 75/2.5”	EI 90-U/C

FLEXIBLE AND RIGID WALLS ≥ 100 MM
MULTIPLE PLASTIC PIPES IN SINGLE HILTI FIRESTOP COLLAR CFS-C P

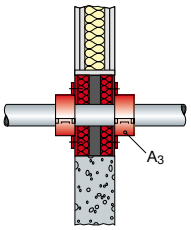


Minimum distance between pipe closure devices: 0 mm.
Hilti firestop collar CFS-C P (A_3) installed on both sides of the seal and fixed together with M8 threaded rods, washers and nuts.

Normed pipes - Pipe end configuration U/U

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
PVC-U	EN ISO 15493, DIN 8061/2	20 mm	1.5/2.2 mm	CFS-C P 50/1.5”	EI 120-U/U
PE	EN ISO 15494, DIN 8074/5	20 mm	1.9/2.8 mm		
PP-R	EN ISO 15874, DIN 8077/8	20 mm	3.4 mm		
PP-H	EN ISO 15874, DIN 8077/8	20 mm	1.9 mm		

FLEXIBLE AND RIGID WALLS ≥ 100 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR CFS-C

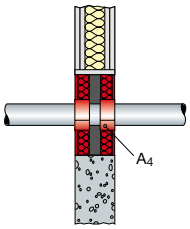


Minimum distance between pipe closure devices: 0 mm.
Hilti firestop collar CFS-C (A_3) installed on both sides of the seal and fixed together with M8 threaded rods, washers and nuts.

Normed pipes - Pipe end configuration U/C

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
PVC-U	EN ISO 1452-2, EN ISO 15493, DIN 8061/2, EN 1329-1, EN 1453-1	50 mm	2.4 – 5.6 mm	CFS-C 50/1.5”	EI 120-U/C
		63 mm	3.0 – 4.7 mm	CFS-C 63/2”	
		75 mm	2.2 – 3.6 mm	CFS-C 75/2.5”	
		90 mm	2.7 – 4.3 mm	CFS-C 90/3”	
		110 mm	1.8 – 8.1 mm	CFS-C 110/4”	
		125 mm	3.7 – 6.0 mm	CFS-C 125/5”	
		160 mm	2.5 – 11.8 mm	CFS-C 160/6”	
PE	EN 1519, EN 12201-2, EN 12666-1	50 mm	3.0 mm	CFS-C 50/1.5”	
		63 mm	3.0 mm	CFS-C 63/2”	
		75 mm	3.0 mm	CFS-C 75/2.5”	
		90 mm	3.5 mm	CFS-C 90/3”	
		110 mm	4.2 mm	CFS-C 110/4”	
		125 mm	4.8 mm	CFS-C 125/5”	
		160 mm	6.2 mm	CFS-C 160/6”	
PE	EN ISO 15494, DIN 8074/5	50 mm	2.9 – 4.6 mm	CFS-C 50/1.5”	
		63 mm	1.8 – 5.8 mm	CFS-C 63/2”	
		75 mm	1.9 – 6.8 mm	CFS-C 75/2.5”	
		90 mm	2.2 – 8.2 mm	CFS-C 90/3”	
		110 mm	2.7 – 10.0 mm	CFS-C 110/4”	
		125 mm	3.1 – 7.1 mm	CFS-C 125/5”	
		160 mm	4.0 – 9.1 mm	CFS-C 160/6”	

FLEXIBLE AND RIGID WALLS ≥ 100 MM
PLASTIC PIPES WITH HILTI FIRESTOP WRAP CFS-W

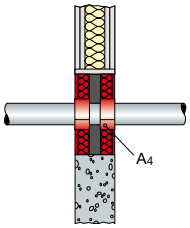


Minimum distance between pipe closure devices: 0 mm.
Hilti firestop wrap CFS-W (A_4) wrapped around pipe on both sides of the seal and positioned within the annular space so that the outer edge of the wrap is flush with the surface of the wall.

Branded pipes – Pipe end configuration C/U

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Wrap size/ number of layers	Classification E = integrity I = insulation
Geberit Silent-db20 (PE-S2)	Geberit	≤ 75 mm	3.6 mm	CFS-W EL 1 layer	EI 120-C/U
phonEX (PP)	Ke Kelit	≤ 78 mm	4.5 mm		
Raupiano Plus (PP)	Rehau	≤ 75 mm	1.9 mm		
Wavin AS (PP)	Wavin	≤ 78 mm	4.5 mm		

FLEXIBLE AND RIGID WALLS ≥ 100 MM
PLASTIC PIPES WITH HILTI FIRESTOP WRAP CFS-W

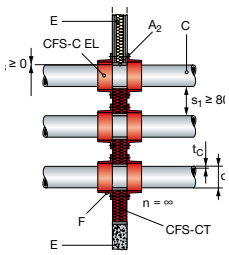


Minimum distance between pipe closure devices: 0 mm.
Hilti firestop wrap CFS-W (A_4) wrapped around pipe on both sides of the seal and positioned within the annular space so that the outer edge of the wrap is flush with the surface of the wall.

Normed pipes - Pipe end configuration U/C

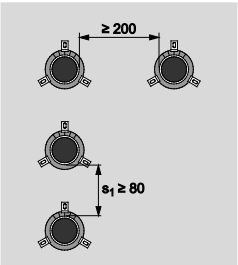
Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Wrap size/ number of layers	Classification E = integrity I = insulation
PVC-U	EN ISO 1452-2, EN ISO 15493, DIN 8061/2, EN 1329-1, EN 1453-1	50 mm	2.2 – 3.6 mm	CFS-W SG 50/1.5”	EI 90-U/C
		63 mm	2.2 – 3.6 mm	CFS-W SG 63/2”	
		75 mm	2.2 – 3.6 mm	CFS-W SG 75/2.5”	
		90 mm	3.7 – 6.0 mm	CFS-W SG 90/3”	
		110 mm	3.7 – 6.0 mm	CFS-W SG 110/4”	
		125 mm	3.7 – 6.0 mm	CFS-W SG 125/5”	
		≤ 75 mm	2.2 – 3.6 mm	CFS-W EL 1 layer	
		> 75 ≤ 125 mm	3.7 – 6.0 mm	CFS-W EL 2 layers	
PE	EN 1519, EN 12201-2, EN 12666-1	50 mm	3.0 mm	CFS-W SG 50/1.5”	
		63 mm	3.0 mm	CFS-W SG 63/2”	
		75 mm	3.0 mm	CFS-W SG 75/2.5”	
		90 mm	4.8 mm	CFS-W SG 90/3”	
		110 mm	4.8 mm	CFS-W SG 110/4”	
		125 mm	4.8 mm	CFS-W SG 125/5”	
		≤ 75 mm	3.0 mm	CFS-W EL 1 layer	
		> 75 ≤ 125 mm	4.8 mm	CFS-W EL 2 layers	
PE	EN ISO 15494, DIN 8074/5	50 mm	1.9 – 6.8 mm	CFS-W SG 50/1.5”	
		63 mm	1.9 – 6.8 mm	CFS-W SG 63/2”	
		75 mm	1.9 – 6.8 mm	CFS-W SG 75/2.5”	
		90 mm	3.2 – 7.1 mm	CFS-W SG 90/3”	
		110 mm	3.2 – 7.1 mm	CFS-W SG 110/4”	
		125 mm	3.2 – 7.1 mm	CFS-W SG 125/5”	
		≤ 75 mm	1.9 – 6.8 mm	CFS-W EL 1 layer	
		> 75 ≤ 125 mm	3.2 – 7.1 mm	CFS-W EL 2 layers	

FLEXIBLE AND RIGID WALLS ≥ 100 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR ENDLESS CFS-C EL



The pipes penetrating the board have to be grouped in line only and the minimum distance between them is s1 ≥ 80 mm, however, the distance to the building element is zero (s3 ≥ 0 mm). Minimum distances between two lines of pipes: ≥ 200 mm.

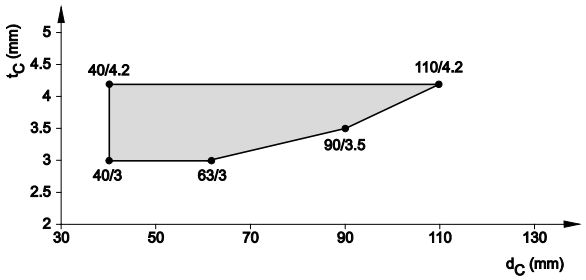
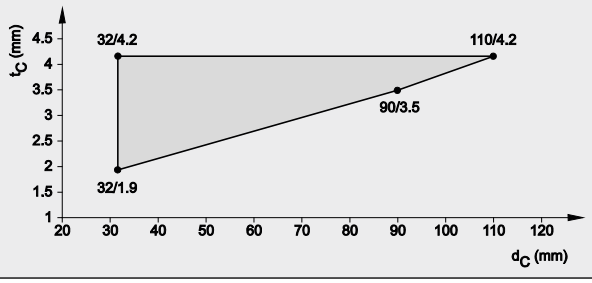
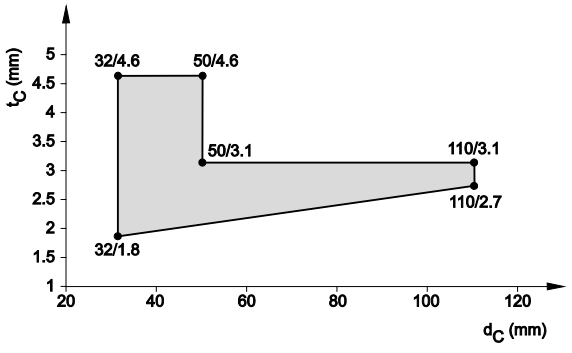
The gap filler is CFS-S ACR- Hilti firestop collar endless CFS-C EL installed on both sides and fixed with threaded rods M6 with disc and nut.

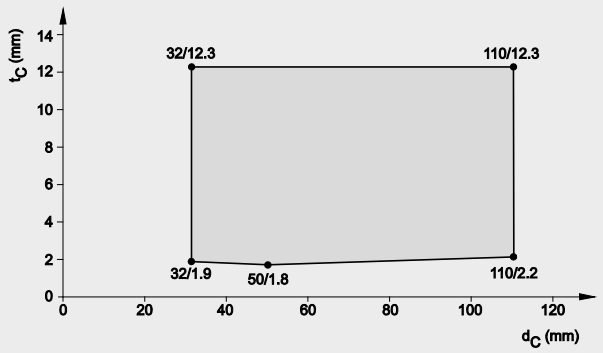
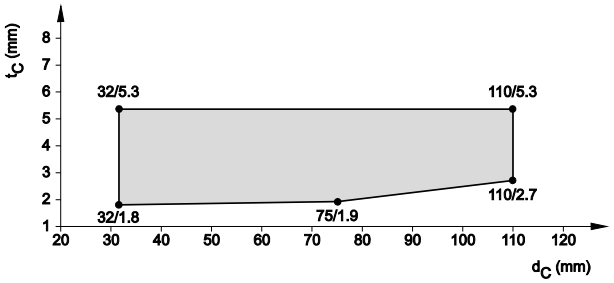
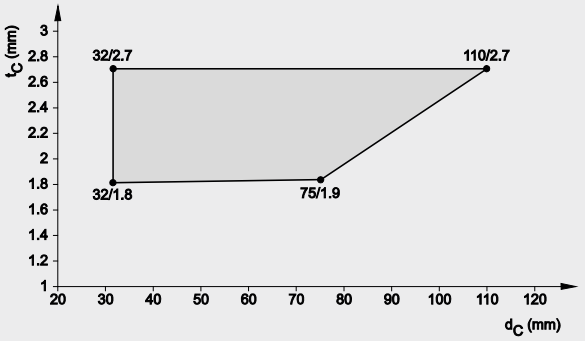
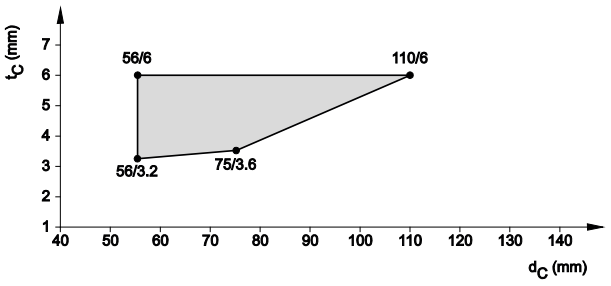


If the wall thickness is bigger than 100 mm the free space between both boards has to be closed around penetrating plastic pipes with mineral wool, at least 100 mm around the plastic pipes.

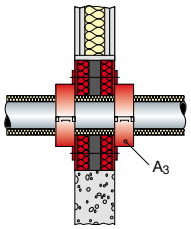
Pipes could be covered with a sound decoupling insulation, penetrating the wall and all installed jackets CFS-C EL in local sustained and continuous sustained situation.

Sound decoupling insulation comprises a max. 9 mm polyethylene based insulation or a max. 4 mm Polyesther insulation (Thermaflex, ThermoVließ B2).

Pipe designation	Pipe norm	Approved range	Classification E = integrity I = insulation
Plastic pipes	EN 1519-1, EN 12666-1, EN 12201-2		EI 90-U/U
ABS	EN 1455-1		
SAN+PVC	EN 1565-1		
ABS	EN 1455, EN 15493		
SAN+PVC	EN 1565-1		
PE	EN15494, EN12201-2, DIN 8074/75		

PVC	EN 1452-1, EN 1329-1, EN 1453-1, EN 1566-1, EN ISO 15493, DIN 8061/62		
PP pipes, non-regulated	Coes Blue Power Coes PhoNo Fire, Geberit Silent PP Marley Silent Ostendorf Skolan db Pipelife Master 3 Poloplast Polokal NG Poloplast Polokal 3S Poloplast Polokal XS Rehau Raupiano Plus KE KELIT PhonEx AS Valsir Triplus Valsir Silere Wavin SiTech Wavin AS		
PP	EN1451-1, DIN 8077/78		
PE pipes, non-regulated	Geberit Silent dB20		

FLEXIBLE AND RIGID WALLS ≥ 100 MM PLASTIC PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP COLLAR CFS-C P



Minimum distance between pipe closure devices: 0 mm.
Hilti firestop collar CFS-C P (A_3) installed on both sides of the seal and fixed together with M8 threaded rods, washers and nuts.

Normed pipes – Pipe end configuration U/U

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Insulation thickness	Collar size	Classification E = integrity I = insulation	Insulation configuration
PE	EN 1519, EN 12201-2, EN 12666-1	110 mm	4.2 mm	25 mm	CFS-C P 160/6”	EI 90-U/U	Continued sustained
				10 mm	CFS-C P 160/6”	EI 90-U/U	Continued interrupted

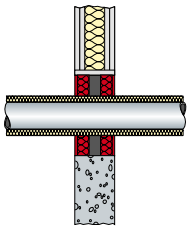
Normed pipes - Pipe end configuration U/C

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Insulation thickness	Collar size	Classification E = integrity I = insulation	Insulation configuration
PE-X (i.e. Rehau: Rautitan flex)	EN ISO 15875	40 mm	5.5 mm	9 mm	CFS-C P 50/1.5”	EI 90-U/C	Continued sustained or local sustained, length on both sides ≥ 250 mm
		50 mm	6.9 mm	9 mm	CFS-C P 63/2”		
		63 mm	8.6 mm	10 mm	CFS-C P 75/2.5”		

Branded pipes - Pipe end configuration U/C

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Insulation thickness	Collar size	Classification E = integrity I = insulation	Insulation configuration
Friatherm starr (PVC-C)	Friatec	32 mm	3.6 mm	9 mm	CFS-C P 50/1.5”	EI 120-U/C	Continued sustained or local sustained, length on both sides ≥ 200 mm
		40 mm	4.5 mm	9 mm	CFS-C P 63/2”		
		50 mm	5.6 mm	9 mm	CFS-C P 63/2”		
		63 mm	7.1 mm	10 mm	CFS-C P 75/2.5”		
Fusiotherm Faser SDR 7.4/S3.2” (PP)	Aquatherm	40 mm	5.5 mm	9 mm	CFS-C P 50/1.5”		
		50 mm	6.9 mm	9 mm	CFS-C P 63/2”		
		75 mm	10.3 mm	10 mm	CFS-C P 90/3”		
		110 mm	15.1 mm	10 mm	CFS-C P 125/5”		
Fusiotherm SDR 11 (PP)	Aquatherm	40 mm	3.7 mm	9 mm	CFS-C P 50/1.5”		
		50 mm	4.6 mm	9 mm	CFS-C P 63/2”		
		75 mm	6.8 mm	10 mm	CFS-C P 90/3”		
		110 mm	10.0 mm	10 mm	CFS-C P 125/5”		
Wavin TS (PE-100RC)	Wavin	50 mm	4.6 mm	9 mm	CFS-C P 63/2”		
		63 mm	5.8 mm	10 mm	CFS-C P 75/2.5”		
		75 mm	6.8 mm	10 mm	CFS-C P 90/3”		
		90 mm	8.2 mm	10 mm	CFS-C P 110/4”		
		110 mm	10.0 mm	10 mm	CFS-C P 125/5”		

FLEXIBLE AND RIGID WALLS ≥ 100 MM COMPOSITE PIPES WITH MINERAL WOOL INSULATION

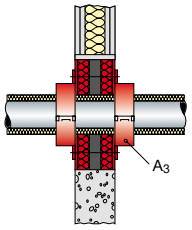


Minimum distance between pipes: 0 mm.
No additional protection necessary.

Branded pipes – Pipe end configuration U/C

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
Geberit Mepla (PE-Xb/Al/PE-HD)	Geberit	16 – 32 mm	2.0 – 3.0 mm	≥ 20 mm	EI 120-U/C	Continued sustained
				20 mm	EI 120-U/C	Local sustained, length on both sides ≥ 250 mm
KELOX KM 110 (PE-X/Al/PE)	Ke Kelit	16 – 32 mm	2.0 – 3.0 mm	≥ 20 mm	EI 120-U/C	Continued sustained
				20 mm	EI 120-U/C	Local sustained, length on both sides ≥ 250 mm
Rautitan stabil (PE-Xa/Al/PE-HD)	Rehau	16.2 – 32 mm	2.6 – 4.7 mm	≥ 20 mm	EI 120-U/C	Continued sustained
				20 mm	EI 120-U/C	Local sustained, length on both sides ≥ 250 mm

FLEXIBLE AND RIGID WALLS ≥ 100 MM COMPOSITE PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP COLLAR CFS-C P



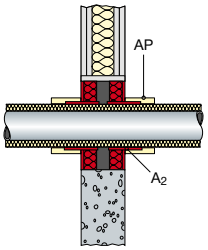
Minimum distance between pipe closure devices: 0 mm.

Hilti firestop collar CFS-C P (A_3) installed on both sides of the seal and fixed together with M8 threaded rods, washers and nuts

Branded pipes – Pipe end configuration U/C

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Insulation thickness	Collar size	Classification E = integrity I = insulation	Insulation configuration
Geberit Mepla (PE-Xb/Al/PE-HD)	Geberit	40 mm	3.5 mm	9 mm	CFS-C P 50/1.5”	EI 60-U/C	Continued sustained
		50 mm	4.0 mm	9 mm	CFS-C P 63/2”		
KELOX KM 110 (PE-X/Al/PE	Ke Kelit	50 mm	4.5 mm	9 mm	CFS-C P 50/1.5”		
		63 mm	6.0 mm	9 mm	CFS-C P 75/2.5”		
Rautitan stabil (PE-Xa/Al/PE-HD)	Rehau	40 mm	6.0 mm	9 mm	CFS-C P 50/1.5”		

FLEXIBLE AND RIGID WALLS ≥ 100 MM COMPOSITE PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP BANDAGE CFS-B



Minimum distance between pipe closure devices: 0 mm.

Two layers of Hilti firestop bandage CFS-B (A_2) wrapped around the pipe insulation on both sides of the seal. Bandage positioned with half its width inside seal and fixed with wire outside seal. Install additional protection (AP_6 or AP_7) over bandage to achieve desired rating.

Additional protection:
Depending on the required fire resistance, differing additional protection (AP) is necessary.

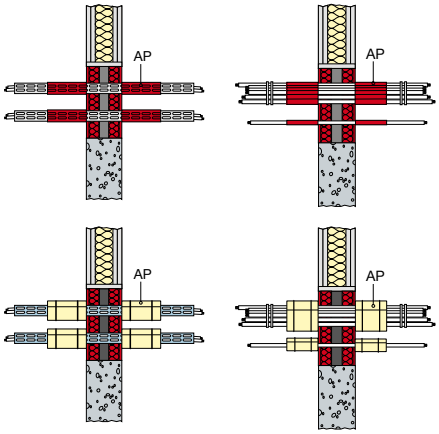
AP_6: Armaflex AF pipe insulation wrapped around bandage/insulation on both sides of seal and fixed with wire, length along the pipe 300 mm on each side, thickness 19 mm.

AP_7: Mineral wool mat wrapped around the bandage/pipe insulation on both sides of seal and fixed with wire, length along the pipe 300 mm on each side, thickness 20 mm.

Branded pipes - Pipe end configuration U/C

Pipe designation and material	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity I = insulation		Insulation configuration
					AP_6	AP_7	
Geberit Mepla (PE-Xb/Al/PE-HD)	Geberit	16 mm	2.25 mm	10 – 32 mm	EI 120-U/C	EI 90-U/C	Continued sustained or local sustained, length on both sides ≥ 450 mm
		26 – 63 mm	3.0 – 4.5 mm	10 – 32 mm	EI 120-U/C	-	
		32 mm	3.0 mm	10 – 32 mm	-	EI 90-U/C	
				32 mm	-	EI 120-U/C	
		40 – 63 mm	3.5 – 4.5 mm	10 – 32 mm	-	EI 120-U/C	

FLEXIBLE AND RIGID WALLS ≥ 100 MM CABLES, CABLE BUNDLES, CABLE TRAYS, CONDUITS



All classifications with or without cable supports.

Additional protection:
Depending on the required fire resistance, differing additional protection (AP) is necessary.

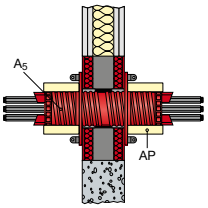
AP_3: cables/small conduits coated with Hilti firestop coating CFS-CT over a length of 200 mm on both sides of the seal, thickness 2 mm.

AP_4: mineral wool mat, Al-facing outside, wrapped around the cables/cable supports on both sides of seal and fixed with wire, width (length along the cables/small conduits) 200 mm on each side of the seal, thickness 20 mm.

AP_5: mineral wool mat, Al-facing outside, wrapped around the cables/cable supports on both sides of seal and fixed with wire, width (length along the cables/small conduits) 200 mm on each side of the seal, thickness 30 mm.

Services	**Classification E = integrity, I = insulation**		
	AP_3	**AP_4**	**AP_5**
All sheathed cables up to 21 mm diameter	EI 90	EI 120	EI 120
All sheathed cables up to 80 mm diameter	EI 90	EI 90	EI 120
Non-sheathed cables up to 24 mm diameter	EI 60	EI 120	EI 120
Tied cable bundle up to 100 mm diameter, max. diameter of single cable 21 mm	EI 90	EI 120	EI 120
Plastic conduits and tubes up to 16 mm with or without cables or cable supports	EI 120-U/C	EI 120-U/C	EI 120-U/U
Steel conduits and tubes up to 16 mm with or without cables or cable supports	EI 90-C/U	EI 120-C/U	EI 120-U/U

FLEXIBLE AND RIGID WALLS ≥ 100 MM CABLES WITH HILTI FIRESTOP SLEEVE CFS-SL M



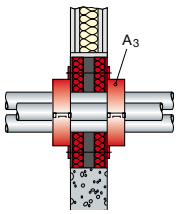
Hilti firestop sleeve CFS-SL M (A5) centered in the wall and fixed by means of two flanges delivered together with the sleeve.

Additional protection:
AP_{10}: mineral wool mat, installed around Hilti firestop sleeve CFS-SL M on both sides of the seal over the total visible length of the sleeve, thickness 30 mm.

Services	**Classification E = integrity, I = insulation**
All sheathed cables up to 21 mm diameter	EI 120

[5] EI 120 in rigid walls ≥ 150 mm with minimum density of 760 kg/m³

FLEXIBLE AND RIGID WALLS ≥ 100 MM MULTIPLE PLASTIC CONDUITS IN SINGLE HILTI FIRESTOP COLLAR CFS-C P

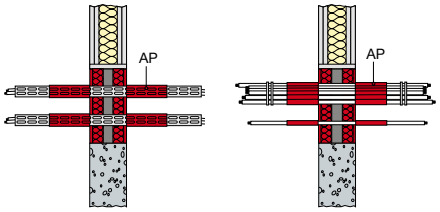


With or without cables.

Hilti firestop collar CFS-C P (A_3) installed on both sides of the seal and fixed together with M8 threaded rods, washers and nuts.

Pipe material	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity I = insulation
PVC	16 mm	1.0 mm	CFS-C P 63/2”	EI 120-U/C
	25 mm	1.5 mm		
Polyolefin	32 mm	2.0 mm		

RIGID WALLS ≥ 150 MM, MINIMUM DENSITY 600 KG/M³ CABLES, CABLE BUNDLES, CABLE TRAYS, CONDUITS



All classifications with or without cable supports.

Additional protection:
AP1: cables/small conduits coated with Hilti firestop coating CFS-CT over a length of 150 mm on both sides of the seal, thickness 0.7 mm.

Services	Classification E = integrity, I = insulation
All sheathed cables up to 80 mm diameter	EI 60
Non-sheathed cables up to 17 mm diameter	EI 90
Tied cable bundle up to 100 mm diameter, max. diameter of single cable 21 mm	EI 60
Plastic conduits and tubes up to 16 mm with or without cables or cable supports	EI 120-U/C
Steel conduits and tubes up to 16 mm with or without cables or cable supports	EI 120-C/U

RIGID FLOORS
INSTALLATION REQUIREMENTS

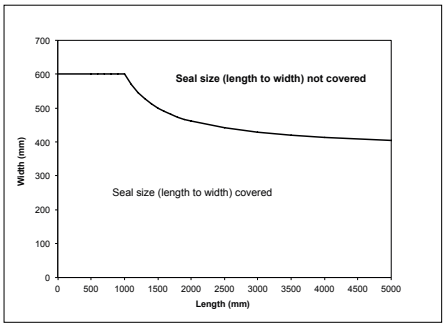
Penetration seal: Two 50 mm Hilti firestop boards CFS-CT B 1S[1] or suitable mineral wool boards[2] positioned flush to the surface of the building element on each side of the floor and coated with Hilti firestop coating CFS-CT to a dry film thickness of 0.7 mm on the outer face. All cut edges sealed with Hilti firestop acrylic sealant CFS-S ACR. Remaining gaps around cables/cable supports (i.e. trays, ladders) and other services filled with Hilti firestop acrylic sealant CFS-S ACR.

All penetrating items (cables, cable trays, conduits, metal, plastic and composite pipes) may be installed in a single, multiple or mixed configuration.

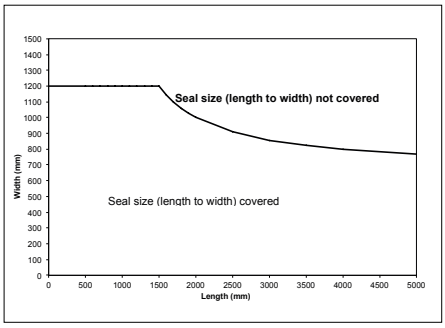
Installations must be fixed to the adjacent building elements (not to the seal) in accordance with the relevant regulations in such a way that no additional mechanical load is imposed on the seal.

Rigid floors comprised of aerated concrete or concrete with a minimum thickness of 150 mm and minimum density of 670 kg/m^3.

Maximum seal size:

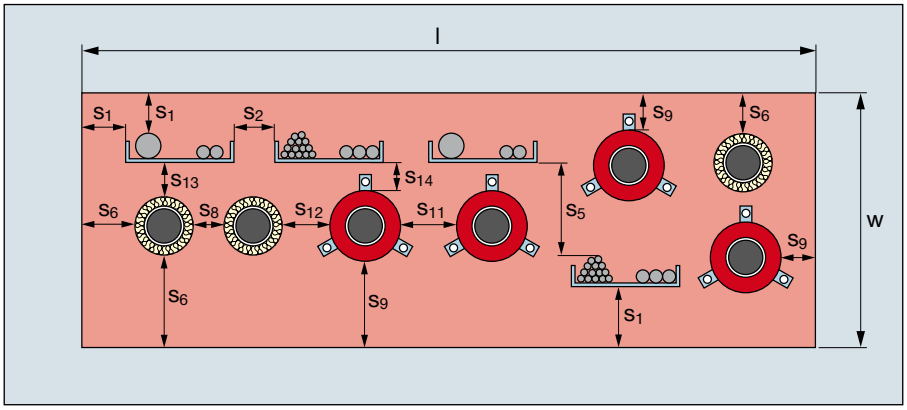


Unreinforced



Reinforced

Maximum distance for first service support: 100 mm.
Minimum distances in mm:[3]



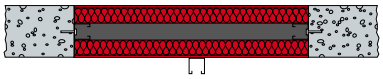
s_1 = 0 (distance between cables/cable supports and seal edge)
s_2 = 0 (distance between cable supports)
s_5 = 50 (distance between cables and cable support above)
s_6 = 10 (distance between metal pipes and seal edge)
s_8 = 20 (distance between metal pipes)
s_9 = 0 (distance between plastic pipes/pipe closure devices and seal edge)
s_{11} = 0 (distance between plastic pipes/pipe closure devices)
s_{12} = 30 (distance between metal pipes and plastic pipes/pipe closure devices)
s_{13} = 30 (distance between cables/cable supports and metal pipes)
s_{14} = 32 (distance between cables/cable supports and plastic pipes/pipe closure devices)

[1] Hilti firestop board CFS-CT B 2S (coated on both faces) may also be used
[2] See specification on page 43
[3] Composite pipes follow the same minimum distance requirements as plastic pipes

RIGID FLOORS ≥ 150 MM
BLANK SEAL (NO SERVICES)

If services are added later, only services listed in the following tables may be added that fulfill the required classification.

Maximum size (width x length)	Classification E = integrity, I = insulation
600 x 1000 mm	EI 180



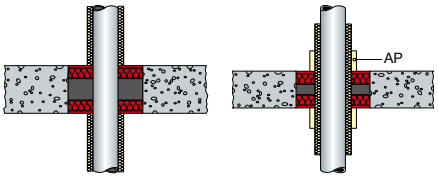
RIGID FLOORS ≥ 150 MM
REINFORCED BLANK SEAL (NO SERVICES)

Additional supporting construction: a steel Hilti MQ-41/3 profile centered underneath the lower board layer along the length of the opening and affixed at each end with anchor bolts (diameter 6 mm, length 60 mm). Steel Hilti MQ-41/3 profiles installed between the two board layers and affixed to both slab edges along length of opening every 450 mm with anchor bolts (diameter 6 mm, length 60 mm).

If services are added later, only services listed in the following pages may be added that fulfill the required classification.

Maximum size (width x length)	Classification E = integrity, I = insulation
1200 x 1500 mm	EI 90

RIGID FLOORS ≥ 150 MM
METAL PIPES WITH MINERAL WOOL INSULATION



Additional protection:
Depending on the required fire resistance, additional protection (AP) may be necessary.

AP_8: Mineral wool mat wrapped around the pipe insulation on both sides of seal and fixed with wire, length along the pipe 250 mm on each side, thickness 40 mm.

Copper pipes – Pipe end configuration U/C
Also valid for steel, cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys) and Ni

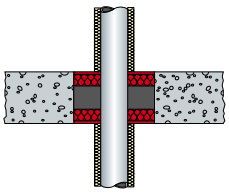
Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation		Insulation configuration
			Without additional protection	AP_8	
10 – 40 mm	1.0/1.5 – 14.2	≥ 20 mm	EI 120-U/C	-	Continued sustained or interrupted
		20 mm	EI 120-U/C	-	Local sustained or interrupted, length on both sides ≥ 500 mm
40 mm	1.5 – 14.2 mm	40 mm	EI 120-U/C	-	Local sustained or interrupted, length on both sides ≥ 1000 mm
40 – 88.9 mm	1.5/2.0 – 14.2 mm	≥ 40 mm	EI 90-U/C	-	Continued sustained
			EI 120-U/C	-	Continued interrupted
		40 mm	EI 60-U/C	EI 90-U/C	Local sustained, length on both sides ≥ 1000 mm
			EI 90-U/C	-	Local interrupted, length on both sides ≥ 1000 mm

Steel pipes – Pipe end configuration U/C
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation		Insulation configuration
			Without additional protection	AP_8	
114.3 mm	2.0 – 14.2 mm	≥ 30 mm	EI 120-U/C	-	Continued sustained or interrupted
		30 – 40 mm	EI 120-U/C	-	Local sustained or interrupted, length on both sides ≥ 500 mm
114.3 – 159 mm	2.0/2.6 – 14.2 mm	≥ 40 mm	EI 120-U/C	-	Continued sustained or interrupted
		40 mm	EI 90-U/C	-	Local sustained or interrupted, length on both sides ≥ 500 mm
			EI 120-U/C	-	Local sustained or interrupted, length on both sides ≥ 1000 mm
159 – 323.9 mm	2.6/4.0 – 14.2	≥ 40 mm	EI 90-U/C	EI 120-U/C	Continued sustained or interrupted
		40 mm	EI 60-U/C	EI 90-U/C	Local sustained or interrupted, length on both sides ≥ 1000 mm

RIGID FLOORS ≥ 150 MM
METAL PIPES WITH MINERAL WOOL INSULATION

No additional protection (AP) necessary.



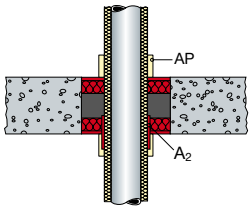
Copper pipes – Pipe end configuration C/U
Also valid for steel, cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys) and Ni

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
42 mm	1.5 – 14.2 mm	≥ 20 mm	EI 120-C/U	Continued sustained or interrupted
		20 mm	EI 120-C/U	Local sustained or interrupted, length on both sides ≥ 500 mm
		20 – 40 mm	EI 120-C/U	Local sustained, length on both sides ≥ 800 mm
		40 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 800 mm
88.9 mm	1.8 – 14.2 mm	≥ 40 mm	EI 120-C/U	Continued sustained
		40 mm	EI 120-C/U	Local sustained, length on both sides ≥ 800 mm

Steel pipes – Pipe end configuration C/U
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
26.9 mm	1.4 – 14.2 mm	≥ 40 mm	EI 180-C/U	Continued interrupted
		40 mm	EI 180-C/U	Local interrupted, length on both sides ≥ 500 mm
32 mm	4.0 – 14.2 mm	≥ 20 mm	EI 120-C/U	Continued interrupted
		20 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 500 mm
32 mm – 114.3 mm	2.6 – 14.2 mm	30 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 500 mm
32 mm – 168.3 mm	2.6 – 14.2 mm	30 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 800 mm
34 mm – 168.3 mm	2.6 – 14.2 mm	≥ 30 mm	EI 120-C/U	Continued interrupted
48.3 mm	1.6 – 14.2 mm	≥ 20 mm	EI 180-C/U	Continued sustained or interrupted
		20 mm	EI 180-C/U	Local sustained, length on both sides ≥ 450 mm
			EI 180-C/U	Local interrupted, length on both sides ≥ 500 mm
114.3 mm	3.6 mm	≥ 40 mm	EI 120-C/U	Continued sustained
		40 mm	EI 120-C/U	Local sustained, length on both sides ≥ 500 mm
168.3 mm	4.0 – 14.2 mm	30 – 40 mm	EI 120-C/U	Local interrupted, length on both sides ≥ 1000 mm

RIGID FLOORS ≥ 150 MM
METAL PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP BANDAGE CFS-B



Two layers of Hilti firestop bandage CFS-B (A_2) wrapped around the pipe insulation on bottom side of the seal. Bandage positioned with half its width inside seal and fixed with wire outside seal. Additional protection (AP_6) installed over bandage.

Additional protection:
AP_6: Armaflex AF pipe insulation wrapped around bandage/insulation on both sides of seal and fixed with wire, length along the pipe 250 mm on each side, thickness 32 mm.

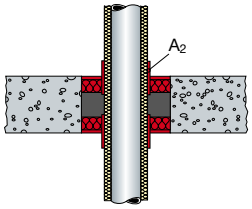
Copper pipes – Pipe end configuration U/C
Also valid for steel, cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys) and Ni

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
10 mm	1.0 – 14.2 mm	7.5 – 40.5 mm	EI 120-U/C	Continued sustained
10 – 40 mm	1.0/1.5 – 14.2 mm	45.5 – 47.5 mm	EI 90-U/C	
40 – 88.9 mm	1.5/2.0 – 14.2 mm	7.5 – 9.0 mm	EI 120-U/C	

Steel pipes – Pipe end configuration U/C
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
114.3 mm	2.0 – 14.2 mm	9 – 42 mm	EI 90-U/C	Continued sustained
159 mm	2.6 – 14.2 mm	10 mm		

RIGID FLOORS ≥ 150 MM
METAL PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP BANDAGE CFS-B



Two layers of Hilti firestop bandage CFS-B (A_2) wrapped around the pipe insulation on both sides of the seal. Bandage positioned with half its width inside seal and fixed with wire outside seal.

No additional protection (AP) necessary.

Copper pipes – Pipe end configuration C/U
Also valid for steel, cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys) and Ni

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
28 mm	1.0 – 14.2 mm	19 – 35 mm	EI 60-C/U	Continued sustained or local sustained, length on both sides ≥ 500 mm
		35 mm	EI 90-C/U	

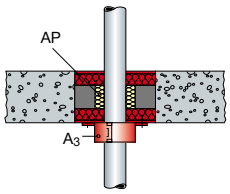
Steel pipes – Pipe end configuration C/U
Also valid for cast iron, stainless steel, Ni alloys (NiCu, NrCr, NiMO alloys)

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
60.3 mm	3.6 – 14.2 mm	21.5 – 39 mm	EI 90-C/U	Continued sustained or local sustained, length on both sides ≥ 500 mm
60.3 – 114.3 mm				

Stainless steel pipes – Pipe end configuration C/U

Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity, I = insulation	Insulation configuration
60.3 mm	2.0 – 14.2 mm	21.5 – 39 mm	EI 90-C/U	Continued sustained or local sustained, length on both sides ≥ 500 mm
		39 mm	EI 120-C/U	

RIGID FLOORS ≥ 150 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR CFS-C P



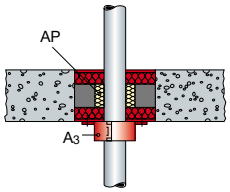
Minimum distance between pipe closure devices: 0 mm.
Hilti firestop collar CFS-C P (A_3) installed on bottom side of seal and fixed with M8 threaded rods, washers and nuts.

Additional protection:
AP9: Mineral wool board installed around the pipe in the air gap between the two layers of the Hilti firestop double board seal, distance on all sides of pipe 100 mm, depth 50 mm (height of air gap).

Normed pipes – Pipe end configuration U/U resp. C/U

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification (single or multiple) E = integrity, I = insulation
PVC-U	EN ISO 1452-2, EN ISO 15493, DIN 8061/2, EN 1329-1, EN 1453-1	20 mm	1.5 – 2.2 mm	CFS-C P 50/1.5”	EI 120-U/U
		50 mm	2.4 – 5.6 mm		
		63 mm	3.0 – 4.7 mm	CFS-C P 63/2”	
		75 mm	2.2 – 3.6 mm	CFS-C P 75/2.5”	
		90 mm	2.7 – 4.3 mm	CFS-C P 90/3”	
		110 mm	1.8 – 8.1 mm	CFS-C P 110/4”	
		125 mm	3.7 – 6.0 mm	CFS-C P 125/5”	EI 120-C/U
		125 mm	3.7 mm	CFS-C P 125/5”	EI 180-C/U
		160 mm	2.5 – 11.8 mm	CFS-C P 160/6”	EI 120-C/U
PE	EN ISO 15494, DIN 8074/5	50 mm	2.9 – 4.6 mm	CFS-C P 50/1.5”	EI 120-U/U
		63 mm	1.8 – 5.8 mm	CFS-C P 63/2”	
		75 mm	1.9 – 6.8 mm	CFS-C P 75/2.5”	
		90 mm	2.2 – 8.2 mm	CFS-C P 90/3”	
		110 mm	2.7 – 10.0 mm	CFS-C P 110/4”	
		125 mm	3-1 – 7.1 mm	CFS-C P 125/5”	EI 180-C/U
		160 mm	14.6 mm	CFS-C P 160/6”	
PE	EN 1519, EN 12201-2, EN 12666-1	50 mm	3.0 mm	CFS-C P 50/1.5”	EI 120-U/U
		63 mm	3.0 mm	CFS-C P 63/2”	
		75 mm	3.0 mm	CFS-C P 75/2.5”	
		90 mm	3.5 mm	CFS-C P 90/3”	
		110 mm	4.2 mm	CFS-C P 110/4”	
		125 mm	4.8 mm	CFS-C P 125/5”	EI 180-C/U
		160 mm	6.2 mm	CFS-C P 160/6”	

RIGID FLOORS ≥ 150 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR CFS-C P



Minimum distance between pipe closure devices: 0 mm.
Hilti firestop collar CFS-C P (A_3) installed on bottom side of seal and fixed with M8 threaded rods, washers and nuts.

Additional protection:
AP_9: Mineral wool board installed around the pipe in the air gap between the two layers of the Hilti firestop double board seal, distance on all sides of pipe 100 mm, depth 50 mm (height of air gap).

Branded pipes – Pipe end configuration U/U resp. C/U

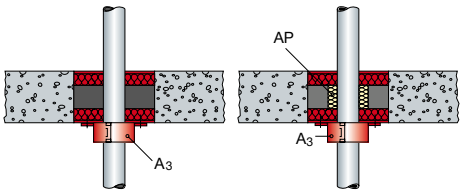
Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
Dekaprop Industry pipe (PP-H 100)	Georg Fischer	50 mm	1.8 mm	CFS-C P 50/1.5”	EI 120-U/U
		63 mm	1.8 mm	CFS-C P 63/2”	
		75 mm	1.9 mm	CFS-C P 75/2.5”	
		90 mm	2.2 mm	CFS-C P 90/3”	
		110 mm	2.7 mm	CFS-C P 110/4”	
Fusiotherm SDR6 (PP-R)	Aquatherm	20 mm	3.4 mm	CFS-C P 50/1.5”	EI 120-U/U
Geberit Silent-db20 (PE-S2)	Geberit	75 mm	3.6 mm	CFS-C P 75/2.5”	EI 120-U/U
		90 mm	5.5 mm	CFS-C P 90/3”	
		110 mm	6.0 mm	CFS-C P 110/4”	EI 120-C/U
		135 mm	6.0 mm	CFS-C P 160/6”	EI 180-C/U
		160 mm	7.0 mm	CFS-C P 160/6”	
phonEX (PP)	Ke Kelit	70 mm	4.5 mm	CFS-C P 75/2.5”	EI 120-U/U
		90 mm	4.5 mm	CFS-C P 90/3”	
		110 mm	5.3 mm	CFS-C P 110/4”	EI 120-C/U
PROGEF standard pipe (PP-H)	Georg Fischer	20 mm	1.9 mm	CFS-C P 50/1.5”	EI 120-U/U
		50 mm	2.9 mm		
		63 mm	5.8 mm	CFS-C P 63/2”	
		75 mm	6.8 mm	CFS-C P 75/2.5”	
		90 mm	8.2 mm	CFS-C P 90/3”	
Raupiano Plus (PP)	Rehau	50 mm	1.8 mm	CFS-C P 50/1.5”	EI 120-U/U
		75 mm	1.9 mm	CFS-C P 75/2.5”	
		110 mm	2.7 mm	CFS-C P 110/4”	
Skolan-dB (PP)	Magnaplast	58 mm	4.0 mm	CFS-C P 63/2”	EI 120-U/U
		78 mm	4.5 mm	CFS-C P 75/2.5”	
		90 mm	4.5 mm	CFS-C P 90/3”	
		110 mm	5.3 mm	CFS-C P 110/4”	
Wavin AS (PP)	Wavin	70 mm	4.5 mm	CFS-C P 75/2.5”	EI 120-U/U
		90 mm	4.5 mm	CFS-C P 90/3”	
		110 mm	5.3 mm	CFS-C P 110/4”	EI 120-C/U
Wavin SiTech (PP)	Wavin	75 mm	2.3 mm	CFS-C P 75/2.5”	EI 120-U/U
		90 mm	2.8 mm	CFS-C P 90/3”	

Normed pipes – Pipe end configuration U/U resp. C/U

Pipe designation	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
PP	EN 1451-1*	50	1.8 – 2.0	CFS-C P 50/1.5”	EI 90-U/U
		58	4.0	CFS-C P 63/2”	
		70	4.5	CFS-C P 75/2.5”	
		75	1.9 – 3.8	CFS-C P 75/2.5”	
		78	4.5	CFS-C P 75/2.5”	
		90	2.8 – 4.5	CFS-C P 90/3”	
		110	2.7 – 5.3	CFS-C P 110/4”	
PP	EN 1451-1*	110	5.3	CFS-C P 110/4”	EI 120-C/U
		125	3.1 – 5.3	CFS-C P 125/5”	EI 180-C/U
		135	5.3 – 5.8	CFS-C P 160/6”	
		160	3.9 – 7.5	CFS-C P 160/6”	

*e.g. Rehau AG “Raupiano Plus”, Magnaplast GmbH „Skolan-dB“, Wavin Ireland Ltd or KeKelit “Wavin AS” or “Phonex AS”, Wavin Ireland Ltd “Wavin SiTech”, Poloplast “Polokal NG”, Poloplast “Polokal 3S”, Geberit “Siltent PP”, Coes “Blue Power”, Coes “PhoNoFire”, Valsir “Triplus”, Valsir “Silere”, Pipelife “Master 3”

RIGID FLOORS ≥ 150 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR CFS-C P



Minimum distance between pipe closure devices: 0 mm.
Hilti firestop collar CFS-C P (A_3) installed on bottom side of seal and fixed with M8 threaded rods, washers and nuts.

Additional protection:
Depending on the required fire resistance, additional protection (AP) may be necessary.

AP9: Mineral wool board installed around the pipe in the air gap between the two layers of the Hilti firestop double board seal, distance on all sides of pipe 100 mm, depth 50 mm (height of air gap).

Pre-insulated pipes – Pipe end configuration U/C

Pipe designation	Pipe manufacturer	Pipe diameter	Inner pipe diameter	Collar size	Classification E = integrity, I = insulation	
					without additional protection	AP_9
Coolfit (ABS/PUR/ PE-HD)	Georg Fischer	90 mm	32 mm	CFS-C P 90/3”	-	EI 90-U/C
		110 mm	40 – 50 mm	CFS-C P 110/4”	-	EI 120-U/C

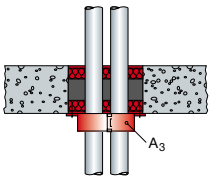
Normed pipes – Pipe end configuration U/C

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation	
					without additional protection	AP9
PVC-U	EN ISO 1452-2, EN ISO 15493, DIN 8061/2, EN 1329-1, EN 1453-1	50 mm	1.8 mm	CFS-C P 50/1.5”	EI 120-U/C	-
		160 mm	1.8 – 11.9 mm	CFS-C P 160/6”		
PE	EN ISO 15494, DIN 8074/5	160 mm	14.6 mm	CFS-C P 160/6”		

Branded pipes – Pipe end configuration U/C

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation	
					without additional protection	AP9
Aquatherm Firestop (PP-R)	Aquatherm	90 mm	12.3 mm	CFS-C P 90/3”	-	EI 120-U/C
Fusiotherm SDR6 (PP-R)	Aquatherm	63 mm	10.5 mm	CFS-C P 63/2”		
		75 mm	12.5 mm	CFS-C P 75/2.5”		
		90 mm	15.0 mm	CFS-C P 90/3”		
Fusiotherm SDR7.4 (PP-R)	Aquatherm	40 mm	5.5 mm	CFS-C P 50/1.5”		
		50 mm	6.9 mm	CFS-C P 50/1.5”		
		75 mm	10.3 mm	CFS-C P 90/3”		
		110 mm	15.1 mm	CFS-C P 110/4”		
Fusiotherm SDR11 (PP-R)	Aquatherm	40 mm	3.7 mm	CFS-C P 50/1.5”		
		50 mm	4.6 mm	CFS-C P 50/1.5”		
		75 mm	6.8 mm	CFS-C P 75/2.5”		
		110 mm	10.0 mm	CFS-C P 110/4”		
Wavin TS (PE-HD 100 RC)	Wavin	50 mm	4.6 mm	CFS-C P 50/1.5”	-	EI 90-U/C
		63 mm	5.8 mm	CFS-C P 63/2”	-	EI 120-U/C
		75 mm	6.8 mm	CFS-C P 75/2.5”		
		90 mm	8.2 mm	CFS-C P 90/3”		
		110 mm	10.0 mm	CFS-C P 110/4”		

RIGID FLOORS ≥ 150 MM
MULTIPLE PLASTIC PIPES IN SINGLE
HILTI FIRESTOP COLLAR CFS-C P



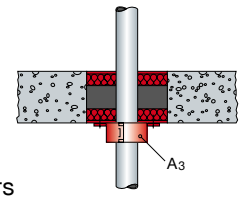
Minimum distance between pipe closure devices: 0 mm.

Hilti firestop collar CFS-C P (A_3) installed on bottom side of the seal and fixed together with M8 threaded rods, washers and nuts.

Normed pipes – Pipe end configuration U/U

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
PVC-U	EN ISO 15493, DIN 8061/2	20 mm	1.5 / 2.2 mm	CFS-C P 50/1.5”	EI 90-U/U
PE	EN ISO 15494, DIN 8074/5	20 mm	1.9 / 2.8 mm		
PP-R	EN ISO 15874, DIN 8077/8	20 mm	3.4 mm		
PP-H	EN ISO 15874, DIN 8077/8	20 mm	1.9 mm		

RIGID FLOORS ≥ 150 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR CFS-C



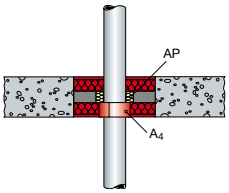
Minimum distance between pipe closure devices: 0 mm.

Hilti firestop collar CFS-C (A_3) installed on bottom side of seal and fixed with M8 threaded rods, washers and nuts.

Normed pipes – Pipe end configuration U/C

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Collar size	Classification E = integrity, I = insulation
PVC-U	EN ISO 1452-2, EN ISO 15493, DIN 8061/2, EN 1329-1, EN 1453-1	32 mm	1.9 mm	CFS-C 50/1.5”	EI 120-U/C
		110 mm	2.2 – 8.2 mm	CFS-C 110/4”	
		160 mm	4.7 mm	CFS-C 160/6”	EI 90-U/C
PE	EN ISO 15494, DIN 8074/5	50 mm	3.0 mm	CFS-C 50/1.5”	
		63 mm	2.0 mm	CFS-C 63/2”	

RIGID FLOORS ≥ 150 MM
PLASTIC PIPES WITH HILTI FIRESTOP WRAP CFS-W



Minimum distance between pipe closure devices: 0 mm.

Hilti firestop wrap CFS-W (A_4) wrapped around pipe on bottom side of the seal and positioned within the annular space so that the outer edge of the wrap is flush with the surface of the floor.

Additional protection:
AP_9: Mineral wool board installed around the pipe in the air gap between the two layers of the Hilti firestop double board seal, distance on all sides of pipe 100 mm, depth 50 mm (height of air gap).

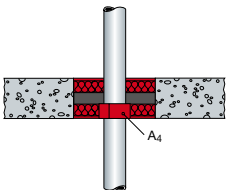
Normed pipes – Pipe end configuration C/U resp. U/U

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Wrap size/ number of layers	Classification E = integrity I = insulation
PVC-U	EN ISO 1452-2, EN ISO 15493, DIN 8061/2, EN 1329-1, EN 1453-1	≤ 75 mm	2.2 – 5.6 mm	CFS-W EL 2 layers	EI 60-C/U
			5.6 mm	CFS-W EL 2 layers	EI 90-C/U
		> 75 ≤ 110 mm	2.2 – 8.1 mm	CFS-W EL 2 layers	EI 60-C/U
PE	EN ISO 15494, DIN 8074/5	≤ 75 mm	4.3 mm	CFS-W EL 2 layers	EI 60-C/U
		≤ 125 mm	3.1 mm	CFS-W EL 2 layers	EI 60-U/U
PE	EN 1519, EN 12201-2, EN 12666-1	≤ 75 mm	3.0 mm	CFS-W EL 2 layers	EI 60-C/U

Branded pipes – Pipe end configuration C/U

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Wrap size/ number of layers	Classification E = integrity I = insulation
Geberit Silent-db20 (PE-S2)	Geberit	≤ 75 mm	3.6 mm	CFS-W EL 2 layers	EI 120-C/U
phonEX AS (PP)	Ke Kelit	≤ 70 mm	4.5 mm		
Polokal 3S (PP/ Porolen/ PP)	Poloplast	≤ 75 mm	3.8 mm		
		> 75 ≤ 110 mm	4.8 mm		
Polokal NG (PP/ PP-MV/PP)	Poloplast	≤ 75 mm	2.6 mm		
Wavin AS (PP)	Wavin	≤ 70 mm	4.5 mm		

RIGID FLOORS ≥ 150 MM
PLASTIC PIPES WITH HILTI FIRESTOP WRAP CFS-W



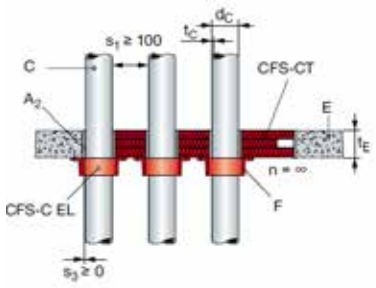
Minimum distance between pipe closure devices: 0 mm.

Hilti firestop wrap CFS-W (A_4) wrapped around pipe on bottom side of the seal and positioned within the annular space so that the outer edge of the wrap is flush with the surface of the floor.

Normed pipes – Pipe end configuration U/C

Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Wrap size/ number of layers	Classification E = integrity I = insulation
PVC-U	EN ISO 1452-2, EN ISO 15493, DIN 8061/2, EN 1329-1, EN 1453-1	75 mm	3.6 mm	CFS-W SG 75/2.5”	EI 90-U/C
		125 mm	6.0 mm	CFS-W SG 125/5”	
PE	EN 1519, EN 12201-2, EN 12666-1	75 mm	3.0 mm	CFS-W SG 75/2.5”	
PE	EN ISO 15494, DIN 8074/5	75 mm	1.9 mm	CFS-W SG 75/2.5”	
		110 mm	2.7 mm	CFS-W SG 110/4”	
		125 mm	7.1 mm	CFS-W SG 125/5”	

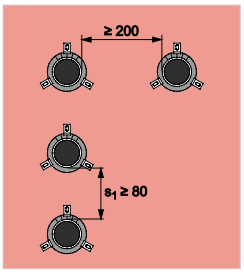
RIGID FLOORS ≥ 150 MM
PLASTIC PIPES WITH HILTI FIRESTOP COLLAR ENDLESS CFS-C EL



The pipes penetrating the board have to be grouped in line only and the minimum distance between them is s1 ≥ 100 mm, however, the distance to the building element is zero (s3 ≥ 0 mm). Minimum distances between two lines of pipes: ≥ 200 mm.

The gap filler is CFS-S ACR- Hilti firestop collar endless CFS-C EL installed on the underside of the floor only and fixed with threaded rods M6 with disc and nut.

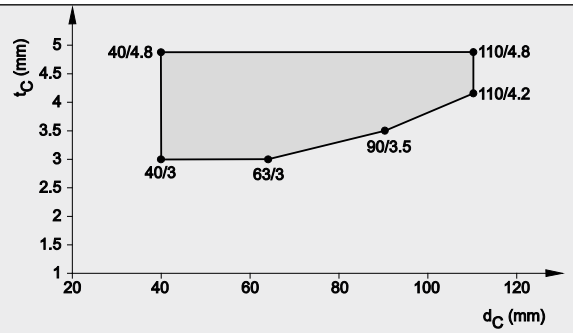
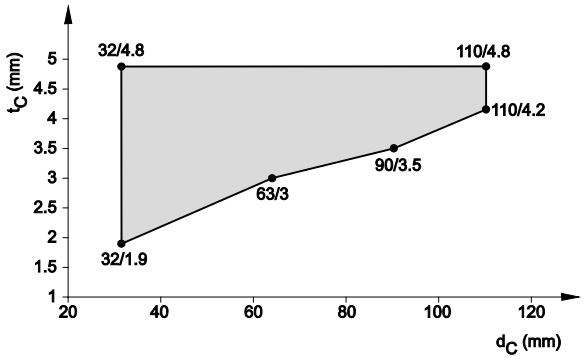
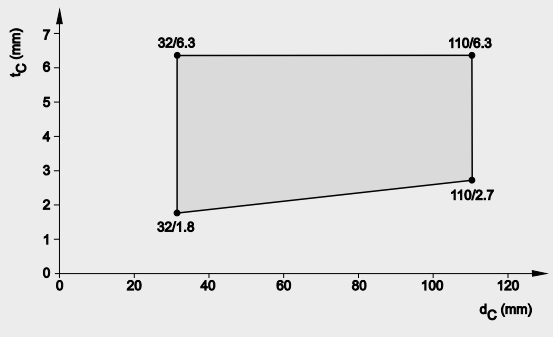
If the wall thickness is bigger than 100 mm the free space between both boards has to be closed around penetrating plastic pipes with mineral wool, at least 100 mm around the plastic pipes.

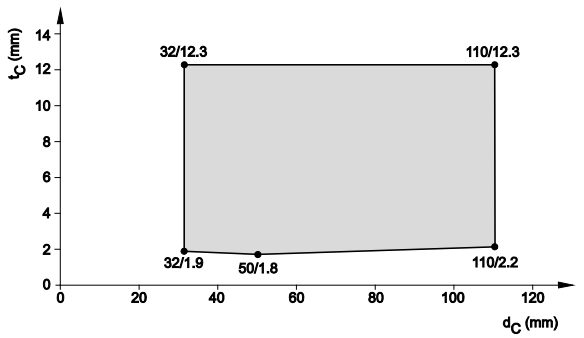
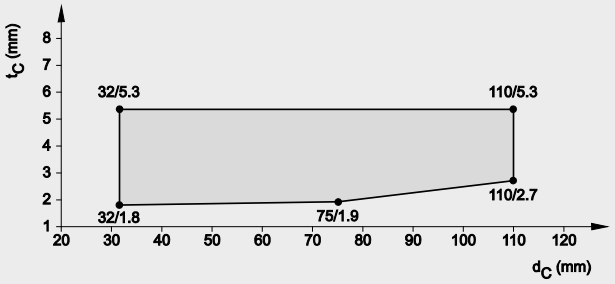
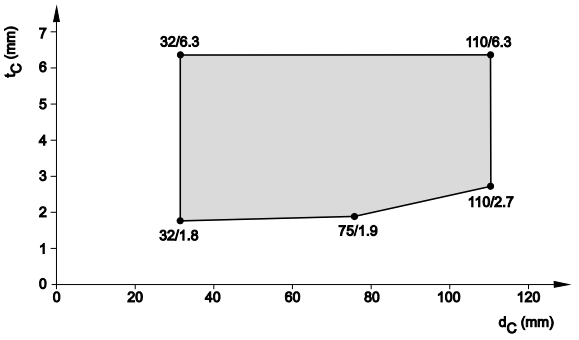
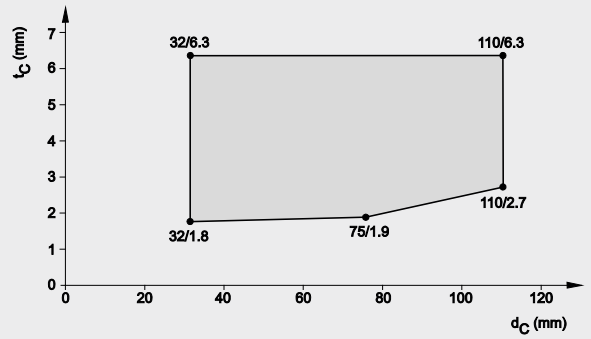
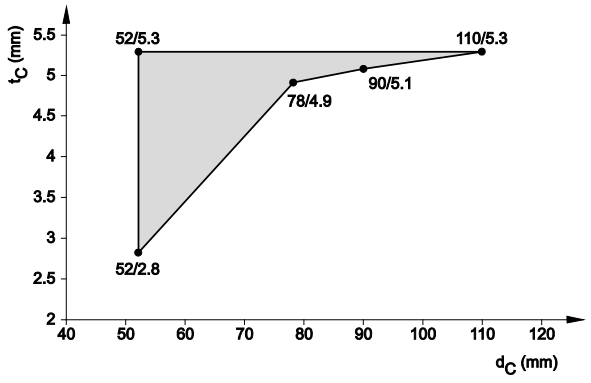


Pipes could be covered with a sound decoupling insulation, penetrating the wall and all installed jackets CFS-C EL in local sustained and continuous sustained situation.

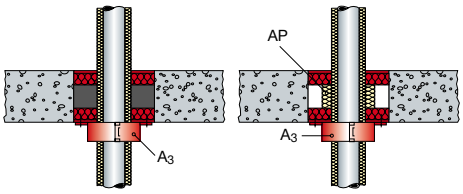
Sound decoupling insulation comprises a max. 9 mm polyethylene based insulation or a max. 4 mm Polyesther insulation (Thermaflex, ThermoVließ B2).

Normed pipes – Pipe end configuration U/C

Pipe designation	Pipe norm	Approved range	Classification E = integrity, I = insulation
PE	EN 1519-1, EN 12666-1, EN 12201-2		EI 90-U/U
ABS	EN 1455-1		
SAN+PVC	EN 1565-1		
ABS	EN 1455, EN 15493		
SAN+PVC	EN 1565-1		
PE	EN15494, EN12201-2, DIN 8074/75		

PVC	EN 1452-1, EN 1329-1, EN 1453-1, EN 1566-1, EN ISO 15493, DIN 8061/62	
PP pipes, non-regulated	Coes Blue Power Coes PhoNo Fire, Geberit Silent PP Marley Silent Ostendorf Skolan db Pipelife Master 3 Poloplast Polokal NG Poloplast Polokal 3S Poloplast Polokal XS Rehau Raupiano Plus KE KELIT PhonEx AS Valsir Triplus Valsir Silere Wavin SiTech Wavin AS	
PP	EN1451-1, DIN 8077/78	
PE pipes, non-regulated	Geberit Silent dB20	
PVC-pipes, non-regulated	Friatec Friaphon	

RIGID FLOORS ≥ 150 MM
PLASTIC PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP COLLAR CFS-C P



Minimum distance between pipe closure devices: 0 mm.
Hilti firestop collar CFS-C P (A_3) installed on bottom side of seal and fixed with M8 threaded rods, washers and nuts.

Additional protection:
Depending on the required fire resistance, additional protection (AP) may be necessary.
AP_9: Mineral wool board installed around the pipe in the air gap between the two layers of the Hilti firestop double board seal, distance on all sides of pipe 100 mm, depth 50 mm (height of air gap).

Normed pipes – Pipe end configuration U/C

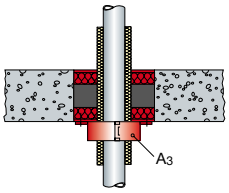
Pipe material	Pipe norm	Pipe diameter	Pipe wall thickness	Insulation thickness	Collar size	Classification E = integrity I = insulation		Insulation configuration
						Without additional protection	AP_9	
PE-X (i.e. Rautitan flex)	EN ISO 15875	16 mm	2.2 mm	8 mm	CFS-C P 50/1.5“	-	EI 120-U/C	Continued sustained or local sustained, length on both sides ≥ 250 mm
				32 mm	CFS-C P 90/3“			
		16 mm	4.4 mm	9 mm	CFS-C P 50/1.5“			
				35 mm	CFS-C P 110/4“			
		40 mm	5.5 mm	9 mm	CFS-C P 63/2”			
				20.5 mm	CFS-C P 75/2.5”			
		50 mm	6.9 mm	9 mm	CFS-C P 75/2.5"			
				21 mm	CFS-C P 90/3"			
		63 mm	8.6 mm	9 mm	CFS-C P 90/3"			
				21.5 mm	CFS-C P 110/4"			

Branded pipes – Pipe end configuration U/C

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Insulation thickness	Collar size	Classification E = integrity I = insulation		Insulation configuration
						Without additional protection	AP_9	
Aquatherm Firestop (PP-R)	Aquatherm	110 mm	15.1 mm	10 mm	CFS-C P 125/5”	-	EI 120-U/C	Continued sustained or local sustained, length on both sides ≥ 200 mm
Climatherm Faser (PP-R)	Aquatherm	75 mm	6.8 mm	10 mm	CFS-C P 90/3”	-	EI 120-U/C	
		90 mm	12.3 mm	22.5 mm	CFS-C P 160/6”	-	EI 120-U/C[6]	
Friatherm starr (PVC-C)	Friatec	32 mm	3.6 mm	9 mm	CFS-C P 50/1.5”	-	EI 120-U/C	
		40 mm	4.5 mm	9 mm				
		50 mm	5.6 mm	9 mm	CFS-C P 75/2.5”			
		63 mm	7.1 mm	9 mm	CFS-C P 110/4”			
Fusiotherm Faser SDR 7.4/ S3.2” (PP)	Aquatherm	40 mm	5.5 mm	9 mm	CFS-C P 63/2”	-	EI 120-U/C	
		50 mm	6.9 mm	9 mm	CFS-C P 63/2”	EI 90-U/C[6]	-	
					CFS-C P 75/2.5”	-	EI 120-U/C	
		75 mm	10.3 mm	10 mm	CFS-C P 90/3”		EI 120-U/C	
		110 mm	15.1 mm	10 mm	CFS-C P 125/5”			
Fusiotherm SDR 11 (PP)	Aquatherm	40 mm	3.7 mm	9 mm	CFS-C P 63/2”	-	EI 120-U/C	
		50 mm	4.6 mm	9 mm	CFS-C P 75/2.5”			
		75 mm	6.8 mm	10 mm	CFS-C P 90/3”			
		110 mm	10.0 mm	10 mm	CFS-C P 125/5”	EI 90-U/C[6]	EI 120-U/C	
Wavin TS (PE-100RC)	Wavin	50 mm	4.6 mm	9 mm	CFS-C P 63/2”	-	EI 120-U/C	
		63 mm	5.8 mm	10 mm	CFS-C P 75/2.5”			
		75 mm	6.8 mm	10 mm	CFS-C P 90/3”			
		90 mm	8.2 mm	10 mm	CFS-C P 110/4”	EI 90-U/C[6]	EI 120-U/C	
		110 mm	10.0 mm	10 mm	CFS-C P 125/5”	-	EI 120-U/C	

[6] Local sustained: length on both sides ≥ 250 mm

RIGID FLOORS ≥ 150 MM
COMPOSITE PIPES WITH FOAMED ELASTOMERIC INSULATION AND HILTI FIRESTOP COLLAR CFS-C P

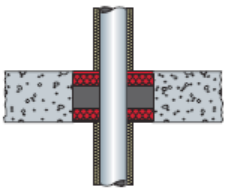


Minimum distance between pipe closure devices: 0 mm.
Hilti firestop collar CFS-C P (A_3) installed on bottom side of seal and fixed with M8 threaded rods, washers and nuts.

Branded pipes – Pipe end configuration U/C

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Insulation thickness	Collar size	Classification E = integrity I = insulation	Insulation configuration
Geberit Mepla (PE-Xb/Al/ PE-HD)	Geberit	16 mm	2.3 mm	8 mm	CFS-C P 50/1.5”	EI 120-U/C	continued sustained
				32 mm	CFS-C P 90/3”		
		32 mm	3.0 mm	9 mm	CFS-C P 50/1.5”		
				35 mm	CFS-C P 50/1.5”		
		40 mm	3.5 mm	9 mm	CFS-C P 63/2”	EI 90-U/C	Local sustained, length on both sides ≥ 250 mm
		63 mm	4.5 mm	9 mm	CFS-C P 75/2.5”		
		75 mm	4.7 mm	9 mm	CFS-C P 90/3”		
KELOX KM 110 (PE-X/Al/PE)	Ke Kelit	16 mm	2.3 mm	8 mm	CFS-C P 50/1.5”	EI 120-U/C	continued sustained
				32 mm	CFS-C P 90/3”		
		32 mm	3.0 mm	9 mm	CFS-C P 50/1.5”		
				35 mm	CFS-C P 110/4”		
		40 mm	4.0 mm	9 mm	CFS-C P 50/1.5”	EI 120-U/C	Local sustained, length on both sides ≥ 250 mm
		63 mm	6.0 mm	9 mm	CFS-C P 75/2.5”		

RIGID FLOORS ≥ 150 MM
COMPOSITE PIPES WITH MINERAL WOOL INSULATION



Minimum distance between pipes: 0 mm
No additional protection necessary.

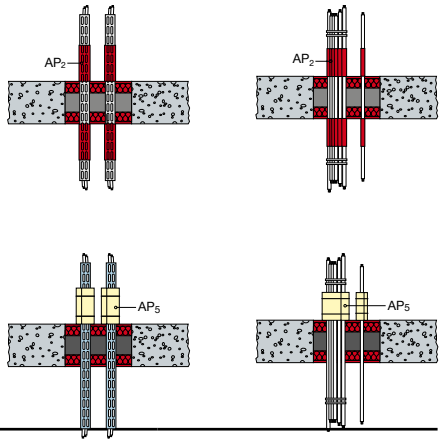
Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity I = insulation	Insulation configuration
Geberit Mepla (PE-Xb/Al/ PE-HD)	Geberit	16 mm	2.3 mm	≥ 20 mm	EI 180-U/C	continued sustained
		32 mm	32 mm			
		75 mm	4.7 mm			
KELOX KM 110 (PE-X/Al/VPE)	Ke Kelit	16 mm	2.0 mm			
		32 mm	3.0 mm			
		75 mm	3.0 mm			

RIGID FLOORS ≥ 150 MM
PE PIPES WITH MINERAL WOOL INSULATION

Minimum distance between pipes: 0 mm
No additional protection necessary.

Pipe designation	Pipe manufacturer	Pipe diameter	Pipe wall thickness	Insulation thickness	Classification E = integrity I = insulation	Insulation configuration
Rautitan flex (PE-Xa)	Rehau	16 mm	2.2 mm	≥ 20 mm	EI 180-U/C	continued sustained
		32 mm	4.4 mm			
		63 mm	8.6 mm			

RIGID FLOORS ≥ 150 MM
CABLES, CABLE BUNDLES, CABLE TRAYS, CONDUITS



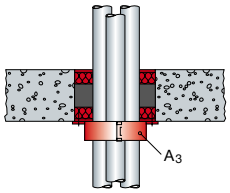
Additional protection:
Depending on the required fire resistance, differing additional protection (AP) is necessary.

AP_2: cables/small conduits coated with Hilti firestop coating CFS-CT over a length of 200 mm on both sides of the seal, thickness 1 mm.

AP_5: mineral wool mat, Al-facing outside, wrapped around the cables/cable supports and fixed with wire, width (length along the cables/small conduits) 200 mm on top side of the seal, thickness 30 mm.

Services	**Classification** **E = integrity** **I = insulation**		
	AP_2		**AP_5**
	with cable support	**without cable support**	**with or without cable support**
All sheathed cables up to 21 mm diameter	EI 90	EI 120	EI 120
All sheathed cables up to 80 mm diameter	EI 60	EI 60	EI 120
Non-sheathed cables up to 24 mm diameter	EI 60	EI 60	-
Tied cable bundle up to 100 mm diameter, max. diameter of single cable 21 mm	EI 90	EI 120	EI 120
Plastic conduits and tubes up to 16 mm with or without cables	EI 90-U/C	EI 120-U/C	EI 90-U/C
Steel conduits and tubes up to 16 mm with or without cables	EI 90-C/U	EI 120-C/U	EI 90-C/U

RIGID FLOORS ≥ 150 MM
MULTIPLE PLASTIC CONDUITS IN SINGLE HILTI FIRESTOP COLLAR CFS-C P



With or without cables.

Hilti firestop collar CFS-C P (A_3) installed on bottom side of the seal and fixed together with M8 threaded rods, washers and nuts.

Pipe material	**Pipe diameter**	**Pipe wall thickness**	**Collar size**	**Classification** **E = integrity** **I = insulation**
PVC	16 mm	1.0 mm	CFS-C P 63/2”	EI 90-U/C
	25 mm	1.5 mm		
Polyolefin	35 mm	2.0 mm		

MINERAL WOOL BOARDS SUITABLE FOR HILTI FIRESTOP COATINGS CFS-CT

- Flumroc Flumroc 341
- Isover Fireprotect 150, Orsil Pyro, Orsil S, Orsil T, Protect BSP 150, Stropoterm
- Knauf Heralan BS-15, Heralan DDP-S, Heralan DP-15
- Paroc FPS 14, FPS 17, Pyrotech Slab 140, Pyrotech Slab 160
- Rockwool Hardrock II, Hardrock 040, RP-XV, RPB-15, ProRox SL 980

MINERAL WOOL PRODUCTS SUITABLE AS ADDITIONAL PROTECTION FOR CABLE SUPPORT AND METAL PIPES

- Stone wool according to EN 14303, reaction to fire class acc. to EN 13501-1 A1 or A2, thermal conductivity at 20°C ≦ 0.040 W/(mK),density 35-45 kg/m^3, surface Al-foil faced on one side.
- Suitable products e.g. Isover Ultimate U TFA 34, Knauf Lamella Forte LLMF AluR, Paroc Lamella Mat 35 Alu Coat, Rockwool Klimafix, Klimarock or 133 (Lamella mat).

MINERAL WOOL PRODUCTS SUITABLE FOR PIPE INSULATION

- Interrupted insulation: Stone wool acc. to EN 14303, class A2 or A1 acc. to EN13501-2, Al-faced.
- Sustained insulation: Isover Coquilla AT-LR, Protect BSR 90 alu, Paroc Section AluCoat T, Rockwool Conlit Pipe sections, Klimarock, RS 800 pipe sections, TP Thermoprodukt TP-Protect RS 1, TP-Protect RS 105, TP-Protect RS 120, TP-Protect RS 150.

SPECIFICATION OF FLEXIBLE ELASTOMERIC FOAM PRODUCTS SUITABLE FOR PIPE INSULATION

- Armacell International GmbH: Armaflex AF (CE marked according to EN 14304), Armaflex SH, Armaflex Ultima, Armaflex HAT
- NMC Group: Insul-Tube (nmc), Insul-Tube H-Plus (nmc)
- Kaimann GmbH: Kaiflex KK plus, Kaiflex KK
- L'Isolante K-Flex: 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

CHARACTERISTICS OF CFS-CT

Additional Attributes

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 behaviour in passive fire protection, Hilti Firestop products also meet the requirements of building technology that continue to gain significance to help the designer and installer meet these additional requirements. The assessment of fitness for use has been made in accordance with EOTA ETAG N° 026 – Part 2.

Characteristics	Assessment of Characteristics	Norm, standard, test
Health and the environment Air permeability (gas tightness)	Tested for gas permeability regarding the gases air, nitrogen (N_2), carbon dioxide (CO_2) and CH_4 (methane). See ETA 11/0429 for detailed results.	EN 1026
Water permeability	Water tight to 1000 mm head of water or 9806 Pa. for 0.7 mm dry film thickness.	ETAG 026-2
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 datasheet
Protection against noise (air borne 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 serviceability	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

SERVICE

With more than 20 years of experience worldwide, Hilti is one of the leading suppliers of firestop systems. We actively help you manage your firestop projects better by providing:

- Quick engineering judgements
- Extensive technical literature
- On-site training and demonstration
- Sophisticated jobsite logistics
- Assurance of conformity with specific application requirements
- International network of Hilti firestop specialists

Our network of experienced sales representatives, field engineers, firestop specialists and customer service representatives is just a phone call away (use the local toll-free Hilti number).

FIRESTOP ACRYLIC SEALANT CFS-S ACR

An acrylic based firestop sealant that provides movement capability in fire rated linear joint seals and penetration seals

Applications

- Within or between flexible wall constructions
- Vertical joints in / between wall constructions
- Horizontal joints in a wall abutting a floor, ceiling or roof
- Joints in floor construction
- Penetration seals (steel and copper pipes)

Advantages

- Easy to dispense, apply and tool
- Strong adhesion to various base materials
- Low shrinkage after curing
- Excellent airborne sound insulation property
- Broad application temperature range

Technical data

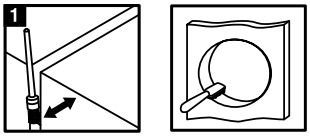
	CFS-S ACR
Chemical basis	Water-based acrylic dispersion
Volume shrinkage	< 20 %
Movement	12.5 % (ISO 11600)
Cure Time (at 23° C / 50 % r.H.)	~ 3 mm / 72 h
Application temperature range	5° C – 40° C
Storage and transportation temperature - range	5° C – 25° C
Shelf life (@73° F / 23° C and 50 % relative humidity)	24 month(s)
Reaction to fire class	D-s1d0 (EN13501-1)
Approvals*	ETA 10 / 0292, ETA 10 / 0389

* The European Technical Approval (ETA) can be obtained via your local Hilti contact or www.hilti.com

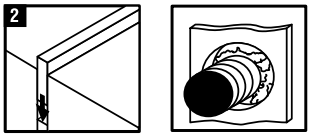
Package	Volume	Color	Order designation	Sales Quantity	Item Number
Cartridge	310 ml	white	**Firestop acrylic sealant CFS-S ACR**	1 pc	435859
Cartridge	310 ml	white	**Firestop acrylic sealant CFS-S ACR**	1 pc	435860
Cartridge	310 ml	grey	**Firestop acrylic sealant CFS-S ACR**	1 pc	435862
Foil pack	580 ml	white	**Firestop acrylic sealant CFS-S ACR**	20 pc	435863
Pail	5 l	white	**Firestop acrylic sealant CFS-S ACR**	1 pc	435864
Pail	10 l	white	**Firestop acrylic sealant CFS-S ACR**	1 pc	2046766

INSTALLATION INSTRUCTIONS

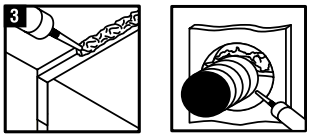
Joint **Penetration**



Clean opening. Surfaces to which CFS-S ACR will be applied should be dry, cleaned of loose debris, dirt, oil, wax and grease. Use wire brushing for cleaning.

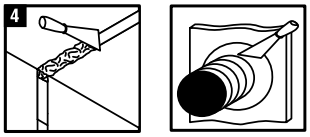


Insert backing material if required. Make sure proper backing material is used and compressed according European Technical Approval (see ETA Annex)



Apply CFS-S ACR using a dispenser.

CFS-S ACR adheres to most substrates (concrete, masonry, drywall, plaster, etc.) without using a primer. For best adhesion on porous substrates, use CFS-S ACR diluted with water as primer. Other primers are not necessary.
Smooth joint with water using a narrow spatula or finger.



Notes on Cleaning:

- Surfaces with cured acrylic sealant can only be cleaned mechanically e.g. using a knife, but not with a solvent.
- Remove uncured sealant first mechanically then clean with water.
- CFS-S ACR cannot be completely cleaned off porous surfaces – joints may be taped off to avoid staining.
- Dispenser equipment and tools have to be cleaned if a work break lasts longer than approximately 20 minutes.

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 50 mm to 250 mm in diameter in penetrations through fire compartment walls and floors
- Pipe materials: PVC, PVC-U, PE, PE-HD, PE-X, PP, ABS, Al-composite
- Suitable for use in openings in concrete, aerated concrete, masonry, drywall, shaft wall and coated board.
- Different backfilling and sealing materials are covered

Advantages

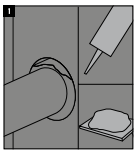
- Quick and easy closure without use of a tool
- Adjustable position tabs for simple fastening
- Sound decoupling strip based on PE (foam) can be used
- Low profile for tight installations

Technical data

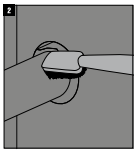
	CFS-C P
Minimal wall thickness	100mm
Minimal ceiling thickness	150mm
Storage and transportation temperature - range	–5 °C – 50 °C
Close aperture with	Gypsum plaster, cementitious mortar, Hilti Firestop Acrylic Sealant CFS-S ACR
Expansion temperature	180 °C

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	00435406
63 mm	2	**Firestop collar CFS-C P 63/2”**	1 pc	00435407
75 mm	3	**Firestop collar CFS-C P 75/2.5”**	1 pc	00435408
90 mm	3	**Firestop collar CFS-C P 90/3”**	1 pc	00435409
110 mm	4	**Firestop collar CFS-C P 110/4”**	1 pc	00435410
125 mm	4	**Firestop collar CFS-C P 125/5”**	1 pc	00435411
160 mm	6	**Firestop collar CFS-C P 160/6”**	1 pc	00435412
180 mm	8	**Firestop collar CFS-C P 180/7”**	1 pc	00435413
200 mm	8	**Firestop collar CFS-C P 200/8”**	1 pc	00435414
225 mm	10	**Firestop collar CFS-C P 225/9”**	1 pc	00435415
250 mm	12	**Firestop collar CFS-C P 250/10”**	1 pc	00435416

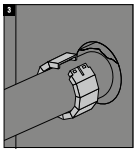
INSTALLATION INSTRUCTIONS



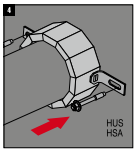
Seal the opening: The aperture around the pipe is filled with gypsum plaster (flexible walls) or cementitious mortar (concrete walls/floors) over the full thickness of the wall/floor or alternatively sealed with minimum 25 mm thick Hilti Firestop Acrylic Sealant CFS-S ACR on both sides. Backfilling with stone wool may be omitted in case of small annular gaps and classifications ≤ EI 120.
In case of missing sound decoupling means around the pipe it is recommended to use Hilti Firestop Acrylic Sealant CFS-S ACR as annular gap seal. If gypsum plaster or cementitious mortar is intended to be used it is recommended to install a PE foam strip around the pipe over the entire wall or floor thickness for sound decoupling of the pipe.

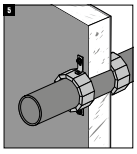


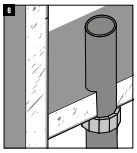
Clean the plastic pipe. Remove all plaster/mortar or dust from the pipe in the area where the Firestop collar is to be installed.



Close the Hilti Firestop Collar: Place the Hilti Firestop Collar around the plastic pipe and apply firm pressure by hand until it latches with a "click" sound. No tools, pins or screws are necessary. The Hilti Firestop Collar can be re-opened by pushing down the engaged "tongue" with a screwdriver while pulling the Hilti Firestop Collar apart.





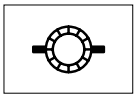


Attach fastening hooks/tabs: The fastening hooks can be attached to various points of the metal housing. The hooks must be positioned as symmetrically as possible. The required number of fastening hooks is indicated below and on the packaging.

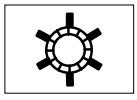
Fasten the Hilti Firestop Collar:
a) Attach fastening hooks/tabs on the metal housing.
b) Mark the fastening points on the wall/floor.
c) Fasten the Hilti Firestop Collar, using recommended metal anchors/fasteners, e.g. Hilti DBZ, Hilti HUS, Hilti HSA for rigid walls and floors or threaded rod, nuts, washers in flexible walls. These are defined in the respective test reports and approvals.
d) If required b y national prescriptions mark the penetration seal with an identification plate containing the required information. In such a case fasten the identification plate in a visible position next to the seal.

For wall applications: Repeat installation on the other side of the wall.

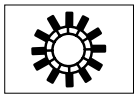
COLLAR SIZES AND NUMBER OF HOOKS FOR SUITABLE PIPE DIAMETERS



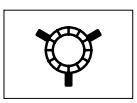
FS Collar P 50/1,5" – 2
FS Collar P 63/2" – 2



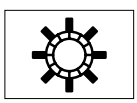
FS Collar P 160/6" – 6



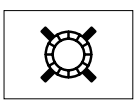
FS Collar P 250/10" – 12



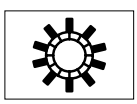
FS Collar P 75/2,5" – 3
FS Collar P 90/3" – 3



FS Collar P 180/7" – 8
FS Collar P 200/8" – 8



FS Collar P 110/4" – 4
FS Collar P 125/5" – 4



FS Collar P 225/9" – 10

FIRESTOP COLLAR
CFS-C

Firestopping for plastic pipes with European Technical Approval.

Applications

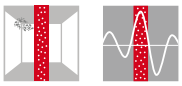
- Sealing flammable pipes from 50 mm to 160 mm in diameter in penetrations through fire compartment walls and floors
- Pipe materials: PE, PE-HD, PVC, PVC-U
- Suitable for use in openings in concrete, aerated concrete, masonry and drywall
- Different backfilling and sealing materials are covered

Advantages

- Quick and easy closure without the use of a tool
- Adjustible position tabs for simple fastening
- Low profile for tight installations
- Sound decoupling strip based on PE (foam) can be used
- Collar stays in place whilst fixing (foam insert grips pipe)
- Reduces noise transmission from pipes to structure (foam insert)

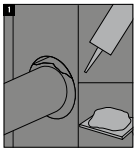
Technical data

	CFS-C
Minimal wall thickness	100mm
Minimal ceiling thickness	150mm
Storage and transportation temperature - range	–5 °C – 50 °C
Close aperture with	Gypsum plaster, cementitious mortar, Hilti Firestop Acrylic Sealant CFS-S ACR
Expansion temperature	180 °C
Expansion ratio	1:15 load expansion, load = 5g/cm³



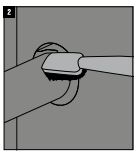
Nominal pipe diameter	Number of hooks and fasteners	Order designation	Sales Quantity	Item Number
50 mm	2	**Firestop collar CFS-C 50/1.5”**	1	00435417
63 mm	2	**Firestop collar CFS-C 63/2”**	1	00435418
75 mm	3	**Firestop collar CFS-C 75/2.5”**	1	00435419
90 mm	3	**Firestop collar CFS-C 90/3”**	1	00435420
110 mm	4	**Firestop collar CFS-C 110/4”**	1	00435421
125 mm	4	**Firestop collar CFS-C 125/5”**	1	00435422
160 mm	4	**Firestop collar CFS-C 160/6”**	1	00435423

INSTALLATION INSTRUCTIONS

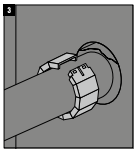


Seal the opening: The aperture around the pipe is filled with gypsum plaster (flexible walls) or cementitious mortar (concrete walls/floors) over the full thickness of the wall/floor or alternatively sealed with minimum 25 mm thick Hilti Firestop Acrylic Sealant CFS-S ACR on both sides. Backfilling with stone wool may be omitted in case of small annular gaps and classifications ≤ EI 120.

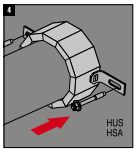
In case of missing sound decoupling means around the pipe it is recommended to use Hilti Firestop Acrylic Sealant CFS-S ACR as annular gap seal. If gypsum plaster or cementitious mortar is intended to be used it is recommended to install a PE foam strip around the pipe over the entire wall or floor thickness for sound decoupling of the pipe.



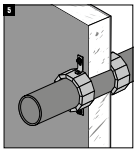
Clean the plastic pipe. Remove all plaster/mortar or dust from the pipe in the area where the Firestop collar is to be installed.



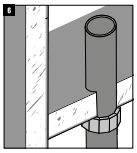
Close the Hilti Firestop Collar: Place the Hilti Firestop Collar around the plastic pipe and apply firm pressure by hand until it latches with a "click" sound. No tools, pins or screws are necessary. The Hilti Firestop Collar can be re-opened by pushing down the engaged "tongue" with a screwdriver while pulling the Hilti Firestop Collar apart.



Attach fastening hooks/tabs: The fastening hooks can be attached to various points of the metal housing. The hooks must be positioned as symmetrically as possible. The required number of fastening hooks is indicated below and on the packaging.



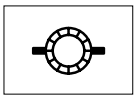
Fasten the Hilti Firestop Collar:
a) Attach fastening hooks/tabs on the metal housing.
b) Mark the fastening points on the wall/floor.
c) Fasten the Hilti Firestop Collar, using recommended metal anchors/fasteners, e.g. Hilti DBZ, Hilti HUS, Hilti HSA for rigid walls and floors or threaded rod, nuts, washers in flexible walls. These are defined in the respective test reports and approvals.



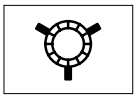
d) If required by national prescriptions mark the penetration seal with an identification plate containing the required information. In such a case fasten the identification plate in a visible position next to the seal.

For wall applications: Repeat installation on the other side of the wall.

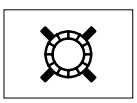
COLLAR SIZES AND NUMBER OF HOOKS FOR SUITABLE PIPE DIAMETERS



FS Collar 50/1,5" – 2
FS Collar 63/2" – 2



FS Collar 75/2,5" – 3
FS Collar 90/3" – 3



FS Collar 110/4" – 4
FS Collar 125/5" – 4
FS Collar 160/6" – 4

FIRESTOP BANDAGE
CFS-B

Easy firestopping solution with European Technical Approval for insulated metal pipes

Applications

- Firestopping around insulated (hot/cold) metal pipes
- Pipe materials: copper, steel and other metals with heat conductivity lower than that of copper (e.g.cast iron, stainless steel etc.) and melting point of minimum 1050°C
- 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
- Very good acoustic insulation properties

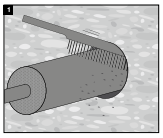
Technical data

	CFS-B
Color	Grey
Intumescent	Yes
Length	10 m
Width	125 mm
Thickness	2 mm
Application temperature range	–5°C–50°C
Temperature resistance temperature range	–20°C–100°C
Expansion temperature	180°C

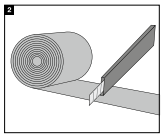
Ordering

Order designation	Sales Quantity	Item Number
Firestop bandage CFS-B	1 pc	00429557

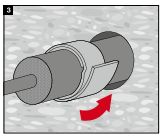
INSTALLATION INSTRUCTIONS



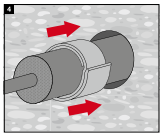
Clean the opening. The material around the opening must be dry, in sound condition and free from dust or grease.



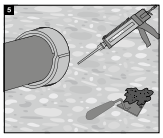
Cut Hilti Firestop Bandage CFS-B to fit the outside diameter of the insulation. Ensure 2 layers and an overlap.



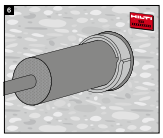
Wrap Hilti Firestop Bandage CFS-B around the insulation. Secure the bandage with steel bands or wire (≥ 0.7 mm).



Install Hilti Firestop Bandage CFS-B on both sides of the opening to a depth of 62.5 mm (see marking on bandage).



Close the remaining gap with gypsum or Hilti Firestop Foam (see details from ETA 10/109 for CFS-F FX FS Foam).



If it is necessary, an additional insulation over the bandage has to be installed. Mount the installation identification plate beside the correctly sealed opening, if required.

FIRESTOP WRAP STRIP CFS-W SG

Firestopping for flammable pipes from 50 mm up to 160 mm in diameter with pre-cut wraps strips with European Technical Approval.

Applications

- Sealing flammable pipes from 50 mm to 160 mm in diameter in penetrations through fire compartment walls and floors
- Pipe materials: PE, PE-HD, PVC-U, PVC, PVC-C
- Suitable for use in openings in concrete, aerated concrete, masonry and drywall
- Different backfilling and sealing materials are covered

Advantages

- Quick and easy closure without tools
- Ready-to-use pre-measured wrap strips for quick installation
- Sound decoupling strip based on PE (foam) can be used
- Ideal for very tight installations

Technical data

	CFS-W SG
Storage and transportation temperature - range	–5 °C –50 °C
Expansion temperature	> 180 °C
Expansion ratio	1:15 load expansion, load = 5g/cm³
Compatibility other Hilti Firestop Products	Hilti Firestop Acrylic Sealant CFS-ACR

Dimensions (LxWxH)	Nominal pipe diameter	Recommended opening size	Order designation	Sales Quantity	Item Number
169 x 45 x 4.5 mm	50 mm	67 mm	**Firestop wrap strip CFS-W SG 50/1.5”**	2	00429549
210 x 45 x 4.5 mm	63 mm	77 mm	**Firestop wrap strip CFS-W SG 63/2”**	2	00429550
249 x 45 x 4.5 mm	75 mm	92 mm	**Firestop wrap strip CFS-W SG 75/2.5”**	2	00429551
311 x 45 x 9 mm	90 mm	112 mm	**Firestop wrap strip CFS-W SG 90/3”**	2	00429552
370 x 45 x 9 mm	110 mm	132 mm	**Firestop wrap strip CFS-W SG 110/4”**	2	00429553
421 x 45 x 9 mm	160 mm	152 mm	**Firestop wrap strip CFS-W SG 125/5”**	2	00429554
543 x 45 x 13.5 mm		202 mm	**Firestop wrap strip CFS-W SG 160/6”**	2	00429555

FIRESTOP WRAP STRIP CFS-W EL

Firestopping for flammable pipes from 50 mm up to 160 mm with endless wraps strip providing an European Technical Approval.

Applications

- Sealing flammable pipes from 50 mm to 160 mm in diameter in penetrations through fire compartment walls and floors
- Pipe materials: PE, PE-HD, PVC-U, PVC, PVC-C
- Suitable for use in openings in concrete, aerated concrete, masonry and drywall
- Different backfilling and sealing materials are covered

Advantages

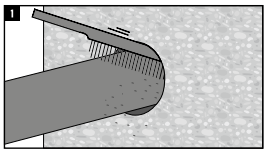
- Quick and easy closure without tools
- Highest flexibility – one product for pipe diameters from 50 mm to 160 mm
- Sound decoupling strip based on PE (foam) can be used
- Ideal for very tight installations

Technical data

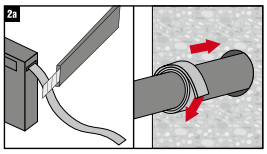
	CFS-W EL
Storage and transportation temperature – range	–5 °C – 50 °C
Expansion temperature	> 180 °C
Expansion ratio	1:15 load expansion, load = 5g/cm³
Compatibility other Hilti Firestop Products	Hilti Firestop Acrylic Sealant CFS-ACR

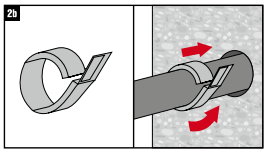
Dimensions (LxWxH)	Pipe diameter - range	Order designation	Sales Quantity	Item Number
10000 x 45 x 4.5 mm	50 – 160mm	Firestop wrap strip CFS-W EL W45/1.8”	1	00429556

INSTALLATION INSTRUCTIONS



Clean the plastic pipe in the area where the Hilti Firestop Wrap CFS-W is to be installed.



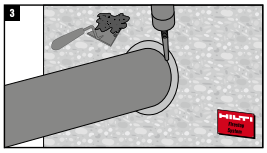


Installation of the wrap

a) Hilti Firestop Wrap CFS-W SG:
Use the Hilti Firestop Wrap CFS-W SG corresponding to the diameter of the pipe. Wrap the Hilti Firestop Wrap CFS-W SG around the pipe and fasten its end to each other tightly using the integrated adhesive strip. Push the Hilti Firestop Wrap CFS-W into the annular gap until its outer edge is flush with the surface of the wall or floor.

b) Hilti Firestop Wrap CFS-W EL:
Cut the Hilti Firestop Wrap CFS-W EL to length according to the outer diameter of the pipe, taking the required number of layers into consideration. If sound decoupling means are installed around the pipe this has to be considered when cutting the wrap to length. Wrap the Hilti Firestop Wrap CFS-W EL around the pipe and secure it with a short strip of adhesive tape. Push the Hilti Firestop Wrap CFS-W into the annular gap until its outer edge is flush with the surface of the wall or floor.

Do not install Hilti Firestop Wrap CFS-W in the centre of the wall/floor or using single layers of CFS-W EL one behind the other.



Seal the remaining gap with Hilti Firestop Acrylic Sealant CFS-S ACR or a cementitious mortar. Use minimum 25 mm Hilti Firestop Acrylic Sealant CFS-S ACR in case of flexible wall constructions, minimum 15 mm in rigid wall constructions and minimum 10 mm, backfilled with mineral wool, in case of rigid floor constructions. In case of use of mortar the gap is to be filled completely over the entire thickness of the wall or floor.

FIRESTOP COLLAR ENDLESS – CFS-C EL

Endless solution: One product for all applications

Applications

- Approved for use with PVC, PP, PE and a wide array of standard acoustic pipes
- Configurations tested include pipe elbows, inclined pipes, pipes with limited clearance to the wall
- Acoustic pipes tested with insulation and sound decoupling
- Zero distance required to CFS-B firestop bandage, CFS-C EL firestop endless collar and Conlit
- Suitable for use on shaft walls, coated board, drywall, aerated concrete, masonry and concrete

Advantages

- Flexible solution for waste water, roof drainage and pneumatic pipes
- Easy installation
- Problem solver for non-standard applications
- Zero distance required to CFS-B firestop bandage, CFS-C EL firestop endless collar and Conlit
- Well-suited to complex pipe configurations

The ETA (European Technical Assessment) and the Technical data sheet can be obtained via your local Hilti contact.

Technical data

	CFS-C EL
Pipe diameter range	16 – 160 mm
Intumescent	Yes
Length	2580 mm
Width	52 mm
Thickness	17 mm
Expansion temperature	210 °C
Application temperature range	–5 °C – 50 °C
Temperature resistance	–30 °C – 80 °C

Ordering

Ordering designation	Sales quantity	Item number
Firestop Collar Endless CFS-C EL	2.58 meters of Inlay 18 Closure Plates 22 Short Hooks	2075120

FIRESTOP SLEEVE
CFS-SL

Simplifies cable management where frequent re-penetration is required

Applications

- Sealing penetrations for single cables and cable bundles
- Suitable for small to medium-sized circular openings in walls and ceilings
- For use on concrete, masonry and drywall

Advantages

- Easy to install and to inspect
- Fully functional immediately after installation
- Robust
- Optimum smoke-proofing performance
- Easy subsequent installation of additional cables
- Fire resistance rating of up to 2 hours

Technical data

	CFS-SL
Intumescent	Yes
Max. annular space	7 mm
Minimum wall thickness	100 mm
Minimum ceiling thickness	150mm
2nd component	Firestop Acrylic Sealant CFS-SACR
Reaction to fire class	E (according to EN 13501-1:2007)

The European Technical Approval (ETA) and the technical data sheet can be obtained via your local Hilti contact.

CE
0843
HILTI Corporation
Feldkirchstrasse 100
9494 Schaan
Liechtenstein
11
0843-CPD-0105
ETA-11/0153
ETAG N° 026, Part 2
Penetration Seal 'Hilti Firestop Sleeve CFS-SL'
Use category: Z_2
See ETA-11/0153 for other relevant characteristics

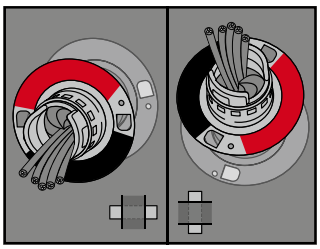
FM
APPROVED

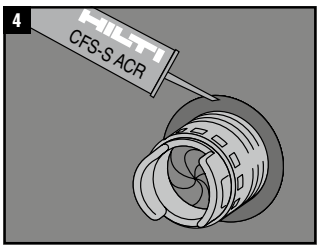
CLASSIFIED
c UL us
FIRESTOP DEVICES
FOR USE IN THROUGH-PENETRATION
FIRESTOP SYSTEMS SEE UL DIRECTORY
OF PRODUCTS CERTIFIED FOR CANADA
AND UL FIRE RESISTANCE DIRECTORY
5N76

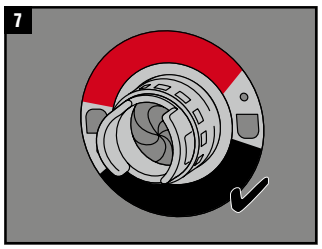
Ordering

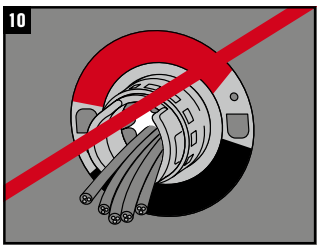
Order designation	Recommended opening size	Item Number
Firestop sleeve CFS-SL S	Ø 63-73 mm	02019717
Firestop sleeve CFS-SL M	Ø 113-122 mm	02019718

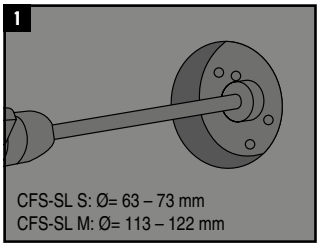
INSTALLATION INSTRUCTIONS

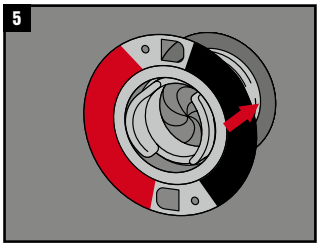


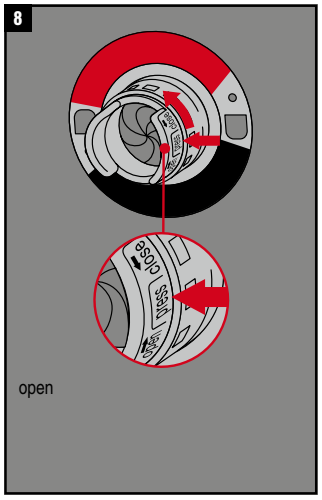


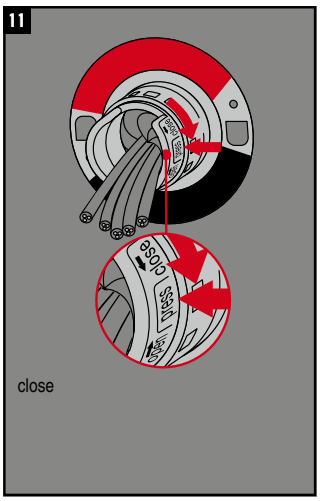


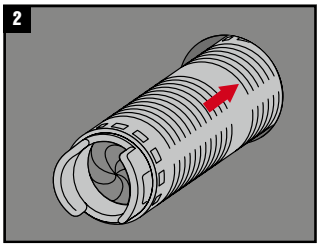


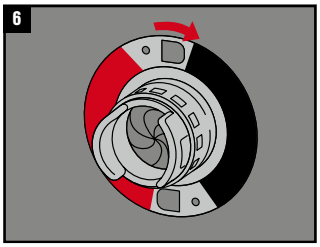


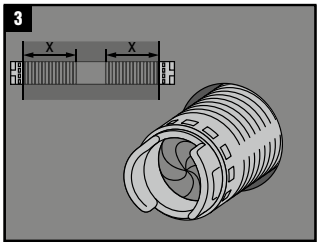


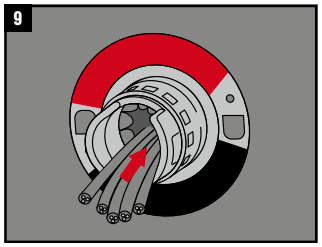


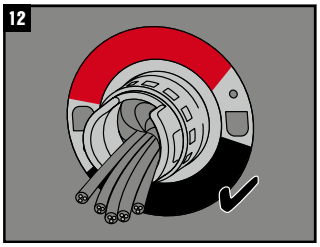












Hilti Aktiengesellschaft
9494 Schaan, Liechtenstein
P +423-234 2965

www.facebook.com/hiltigroup
www.hilti.group