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to Article 29 of the Regulation (EU)
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Parliament and of the Council of 9
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MEMBER OF EOTA



European Technical Assessment ETA-20/1233 of 2025/08/20

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:

Hilti Firestop Cast-in Device CFS-CID

Product family to which the above construction product belongs:

Firestop Collar for Use in penetrations Seals

Manufacturer:

Hilti AG
Feldkircherstraße 100
DE-9494 Schaan
Liechtenstein
Telephone +49 423 234 21 11
Internet: www.hilti.group

Manufacturing plant:

Hilti Plant 4a

This European Technical Assessment contains:

31 pages including 3 annexes which form an integral part of the document

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:

EAD 350454-00-1104 Fire stopping and fire sealing products, Penetration Seals

This version replaces:

The ETA with the same number issued on 2023-11-27

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of the product

This European technical assessment refers to the Hilti Firestop Cast-in Device for use in Penetration Seals with the designation Hilti CFS-CID.

Hilti Firestop Cast-in Device CFS-CID is a pipe closure device that is cast into rigid floors. Ancillary products referred to in this European technical assessment within the framework of evaluating resistance to fire (see Annexes 1 and 2) are not covered by this ETA and cannot be CE-marked on the basis of it.

Hilti Firestop Cast-in Device CFS-CID consists of a plastic housing, an intumescent inlay and rubber seal for the purpose of smoke and draft stop, air or water tightness and airborne sound insulation.

Hilti Firestop Cast-in Device CFS-CID is supplied in several sizes – see table below.

Pipe sealing size	For plastic pipes with nominal outside diameter range (mm)	For insulated metal pipes	
		nominal outside diameter range (mm)	nominal pipe insulation range (mm)
CFS-CID 50	32 - 63	18 - 54	8 - 38
CFS-CID 75	50 - 75		
CFS-CID 110	80 - 110	54 - 76	14 - 40,5
CFS-CID 160	125 - 160		

2 Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

Hilti Firestop Cast-in Device CFS-CID is intended to form a part of a penetration seal, which is used to maintain the fire resistance of a separating element (rigid floor) when and where services with plastic, composite pipes and insulated metal pipes as single penetrations pass through.

Annex 2 gives details of penetration for which fire resistance tests were carried out. This ETA covers assemblies installed in accordance with the provisions given in Annex 2.

For details on diameters, wall thicknesses, pipe materials, pipe insulation and pipe standards see Annex 2.

Pipes shall be perpendicular to the seal surface. The pipe penetration seal is intended for piping systems for non-combustible liquids and fluids, for pneumatic dispatch systems and for pipes in centralised vacuum-cleaning systems.

The assessment does not cover the avoidance of destruction of the seal or of the abutting building element(s) by forces caused by temperature changes in case of fire. This must be considered when designing the piping system.

For evaluating resistance to fire of the penetration seal using "Hilti Firestop Cast-in Device CFS-CID" as specified in Annex 2 it is assumed that:

- the installation of the penetration seal does not affect the stability of the adjacent building elements – even in case of fire,
- the installations are fixed to the adjacent building elements (not to the seal) in accordance with the relevant regulations in such a way that, in case of fire, no additional mechanical load is imposed on the seal, the support of the installations is maintained for the classification period required and
- pneumatic dispatch systems, compressed air systems, etc. are switched off by additional means in case of fire.

The arrangement and installation of Hilti Firestop Cast-in Device CFS-CID shall be done in accordance with the details given in Annex 2 and Annex 3 for the penetration seal(s).

This European technical assessment does not verify the prevention of destruction of adjacent building elements with fire separating function or of the pipes themselves due to distortion forces caused by extreme temperatures. These risks shall be accounted for by taking appropriate measures when designing or installing the pipe work.

The mounting or hanging of the pipes or the layout of the pipe work shall be implemented in such a way that the pipes and the fire-resistant building elements shall remain functional for at least the indicated minutes (corresponding to the target period of fire resistance). The risk of downward spread of fire caused by burning material which drips through a pipe to floors below, is not considered in this ETA (see EN 1366-3, section 1).

The durability assessment does not take account of the possible effect on the penetration seal of substances permeating through pipe floors.

The provisions made in this European Technical Assessment are based on an assumed working life of the Hilti Firestop Cast-in Device CFS-CID of 10 years, provided that the conditions laid down in the manufacturer's datasheet and instructions for the packaging / transport / storage / installation / use / repair are met.

The indications given on the intended working life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body but are to be regarded only as a means for selecting the appropriate products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment.

Characteristic	Assessment of characteristic									
3.2 Safety in case of fire (BWR 2)										
Reaction to fire	The product is classified as Class E in accordance with EN13501-1, and the EC Delegated regulation 2016/364/EU.									
Resistance to fire	See Annex 2									
3.3 Hygiene, Health and the Environment (BWR 3)										
Air permeability	No performance assessed									
Water permeability	No performance assessed									
Content, emission and/or release of dangerous substances*)	Release scenario: IA2 <table><tr><td></td><td>After 3 days [mg/m³]</td><td>After 28 days [mg/m³]</td></tr><tr><td>SVOC</td><td>< 5</td><td>< 5</td></tr><tr><td>VOC</td><td>98</td><td>56</td></tr></table>		After 3 days [mg/m ³]	After 28 days [mg/m ³]	SVOC	< 5	< 5	VOC	98	56
	After 3 days [mg/m ³]	After 28 days [mg/m ³]								
SVOC	< 5	< 5								
VOC	98	56								
3.4 Safety and accessibility in use (BWR4)										
Mechanical resistance and stability	No performance assessed									
Resistance to impact/movement	No performance assessed									
Adhesion	No performance assessed									
Durability	Use category: Type Y₂									
3.5 Protection against noise (BWR5)										
Airborne sound insulation**	Rigid floor: Assessed standard level difference: CFS-CID 50 and plastic pipe: D _{n,e,w} (C; C _{tr}) = 55 (-3;-2) dB CFS-CID 50 blank version: D _{n,e,w} (C; C _{tr}) = 62 (-1;-2) dB CFS-CID 75 and plastic pipe: D _{n,e,w} (C; C _{tr}) = 51 (-1;-1) dB CFS-CID 75 blank version: D _{n,e,w} (C; C _{tr}) = 56 (-1;-2) dB CFS-CID 110 and plastic pipe: D _{n,e,w} (C; C _{tr}) = 48 (-1;0) dB CFS-CID 110 blank version: D _{n,e,w} (C; C _{tr}) = 53 (-1;-2) dB CFS-CID 160 and plastic pipe: D _{n,e,w} (C; C _{tr}) = 46 (0;0) dB CFS-CID 160 blank version: D _{n,e,w} (C; C _{tr}) = 45 (-3;-5) dB From this D _{n,e,w} the assessed standard level calculates to: R _w (C;C _{tr}) = 61 (-3;-7) dB									
3.6 Energy economy and heat retention (BWR6)										
Thermal properties	No performance assessed									
Water vapour permeability	No performance assessed									

See additional information in section 3.8-3.9

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

^{**) Airborne sound insulation for a single penetration of a plastic pipe, fire stopped with Firestop Cast-in Device CFS-CID can only be achieved when the pipe closure device is cast in rigid floor.}

The acoustic tests were performed in a rigid wall. Hilti Firestop Cast-in Device CFS-CID 50, 75, 110 and 160 was tested in combination with a plastic pipe.

The acoustic characteristics of the walls themselves have not been measured. According to these test reports the single number ratings are:

Structure of the rigid wall: 150 mm thick concrete wall with a density of 2000 kg/m³

It should be noticed that both above-mentioned results apply to the total wall construction of the size $S = 1,23 \text{ m} \times 1,48 \text{ m} (= 1,82 \text{ m}^2)$.

$D_{n,e,w}$: Assessed standard level difference of small building elements (given with spectrum adaptation terms C and C_{tr})

R_w : Assessed standard level (given with spectrum adaptation terms C and C_{tr})

3.8 Methods of verification

The assessment of Hilti Firestop Cast-in Device CFS-CID for the declared intended use has been made in accordance with EAD 350454-00-1104 Firestopping and fire sealing products, Penetration Seals, assessed as a pipe collar according to table 1.1 of the EAD.

3.9 General aspects related to the fitness for use of the product.

The verification of durability is part of testing the essential characteristics Hilti Firestop Cast-in Device CFS-CID may be used in end-use applications according to the provisions for use category Y₂ (intended for use at temperatures below 0°C, without exposure to rain or UV) without expecting significant changes in the characteristics relevant for fire protection. Products that meet the requirements for type Y₂ also meet the requirements for type Z₁ and Z₂.

The European Technical Assessment is issued for the product based on agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide if such changes affect the ETA and consequently the validity of the CE marking based on the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

Hilti Firestop Cast-in Device CFS-CID are manufactured in accordance with the provisions of this European Technical Assessment using the manufacturing processes as identified in the inspection of the plant by the notified inspection body and laid down in the technical documentation.

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

4.1 AVCP system

According to the decision 1999/454/EC of the European Commission, the system of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) is: **1**.

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

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking.

Issued in Copenhagen on 2025-08-20 by



Thomas Bruun
Managing Director, ETA-Danmark

ANNEX 1

DESCRIPTION OF THE PRODUCT AND ANCILLARY PRODUCT(S)

Hilti Firestop Cast-in Device CFS-CID

The Cast-in device consists of a plastic housing, an inlay with different number of intumescent layers, and a rubber gasket.

In case of greater floor thicknesses (>150mm) the Cast-in device length can be increased through an extension tube.

A detailed specification of the product is contained in document "Identification / Product Specification relating to the European technical assessment ETA – 20/0383 Hilti Firestop Cast-in Device CFS-CID" which is a non-public part of this ETA.

The Control Plan defined in document "Control Plan is relating to the European technical assessment ETA – 20/0383 Hilti Firestop Cast-in Device CFS-CID" which is a non-public part of this ETA

Manifold adapter to create a spacing of 280 x 280 x 75 mm.

ANNEX 2**RESISTANCE TO FIRE CLASSIFICATION OF PENETRATION SEALS MADE OF****HILTI FIRESTOP Cast-in Device CFS-CID****Overview intended use of pipes¹ and reference to relevant section**

Application	Pipe material	Standard	Insulation	Diameter (mm)	Distance (s ₁) (mm)	Fire resistance Classification	Rigid floor $\geq 550 \text{ kg/m}^3$
							Details (see section)
Waste water Roof Drainage	PE (PE-HD)	EN 1519-1, EN 12666-1 (covers EN 12201-2, EN 1519-1, EN 12666-1, EN 1455-1 (ABS), EN 1565-1 (SAN+PVC))	-	40 - 160	100	EI 180	2.2.1.1
					0	EI 120	
	PE	EN ISO 15494, DIN 8074	-	50 - 160	100	EI 180	2.2.1.2
					0	EI 120	
	PE-S2 Geberit dB20	Non regulated	-	56 - 160	100	EI 180	2.2.2
					0	EI 120	
	PVC-U	EN 1329-1 or EN 1453-1 or EN 1452-1 (covers EN 1329-1, EN 1453-1, EN 1566-1), EN ISO 15493 (Industrial, equivalent EN 1452)	-	63 - 160	100	EI 180	2.2.3
				50 - 160	0	EI 120	2.2.4
	PP	EN 1451-1 (DIN 4102)	-	40 - 160	100	EI 180	2.2.5
					0	EI 120	
Drinking water	PP-R	DIN 8077/8078	-	32 - 160	100	EI 180	2.2.6
	PE-Xa	Non-regulated (Rehau Rautitan Flex)	-	32 - 63	100	EI 180	2.2.7
					0	EI 120	
	PE-RT II/AI/PE-RT II	Geberit Mepla	Elastomeric	40	100	EI 180	2.2.8
					0	EI 120	

1 According to technical literature of pipe manufacturers

Application	Pipe material	Standard	Insulation	Diameter (mm)	Distance (s ₁) (mm)	Fire resistance Classification	Rigid floor ≥ 550 kg/m ³
							Details (see section)
Heating	Copper and Steel	DIN 1786/1754,	Elastomeric	18 - 76	100	EI 180	2.2.9
					100	EI 120	2.2.10
			Glass wool	18 - 76	0	EI 120	2.2.11
			Mineral wool	18 - 89	100	EI 180	2.2.12
Elbow	PE (PE-HD)	EN 1519-1, EN 12666-1 (covers EN 12201-2, EN 1519-1, EN 12666-1, EN 1455-1 (ABS), EN 1565-1 (SAN+PVC))	-	110	100	EI 180	2.2.13
	PVC-U	EN 1329-1 or EN 1453-1 or EN 1452-1 (covers EN 1329-1, EN 1453-1, EN 1566-1), EN ISO 15493 (Industrial, equivalent EN 1452)					
Blank	-	-	-	-	100	EI 180	2.2.14
					0	EI 120	
Manifold	-	-	-	-	100	EI 180	3.1

CPVC or c-PVC-pipes, not to be sealed with CFS-CID or other Hilti Firestop Systems

If Hilti CFS-CID is intended to be used in combination with CPVC or C-PVC pipes please check prior the installation - beside the Resistance to Fire annex in this ETA - also the system compatibility via the Lubrizol FBC™ System Compatible Program.

Consider not only the Hilti components in direct contact to those pipes, but all involved components of the proposed Hilti fire sealing system.

Essential:

Only listed and Lubrizol FBC™- labelled construction products must be used together.

See: (<https://www.lubrizol.com/CPVC/FBC-System-Compatible-Program/System-Compatible-Product-Finder>)

2.1 General information

2.1.1 Rigid floor

The floor must have a minimum thickness of 150 mm and comprise concrete with a minimum density of 550 kg/m³.

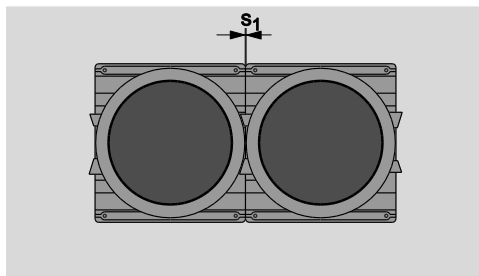
2.1.2 Penetration seal:

Single penetration;

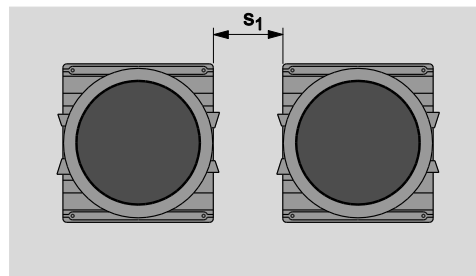
Hilti Firestop Cast-In CFS-CID flush on the underside of the floor

2.1.3 Distance between penetrations:

Minimum distance between Cast-In / annular gap edge (s_1):

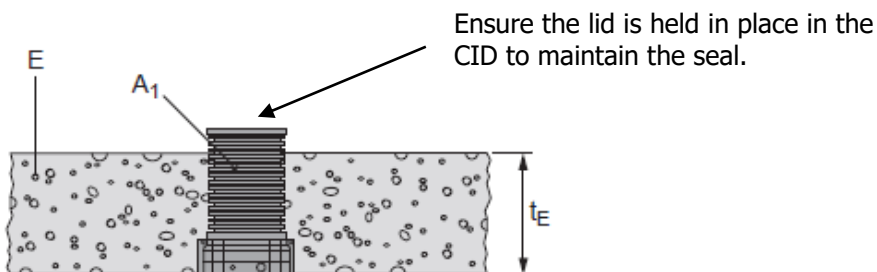


Note: s_1 (0 mm) = max. **EI 120**



s_1 (100 mm) = max. **EI 180**

2.1.4 Blank seal penetrations:



2.1.5 Pipes with insulation.**2.1.5.1 Pipes provided with foamed elastomeric insulation.**

The following types of foamed elastomeric insulation material may be used in direct contact ($s_1 \geq 0$ mm) to Hilti Firestop Cast-in Device CFS-CID:

Producer	Approved Type of foamed elastomeric thermal isolation
Armacell GmbH	• Armaflex AF, Armaflex SH, Armaflex Ultima, Armaflex HT
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

Named material may be used in form of an insulation hose, bandage/wrap or plates. If a protect insulation D_P is used, it should be made of the same elastomeric material as the thermal pipe isolation itself.

2.1.5.2 Pipes provided with stone wool insulation.

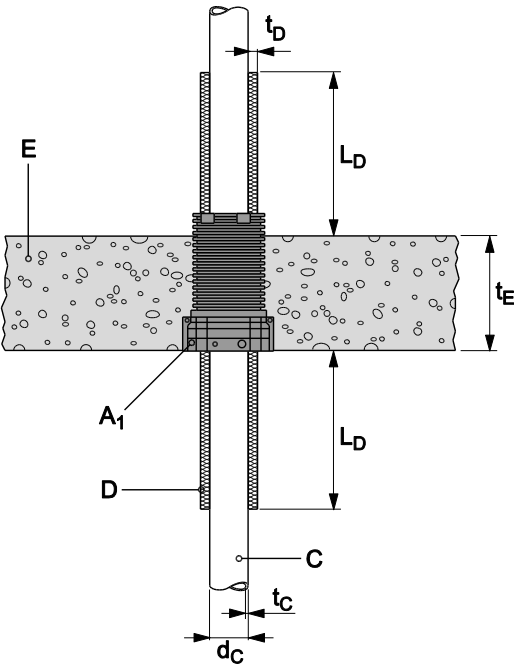
Type	Mineral wool insulation
Form	• Half shell, coated with aluminium foil
Reaction to fire classification (EN 13501-1)	• A2
Material	• Mineral stone wool
Density	• ≥ 70 kg/m³
Melting point	• ≥ 1000 C°

2.1.5.3 Pipes provided with glass wool fibre insulation.

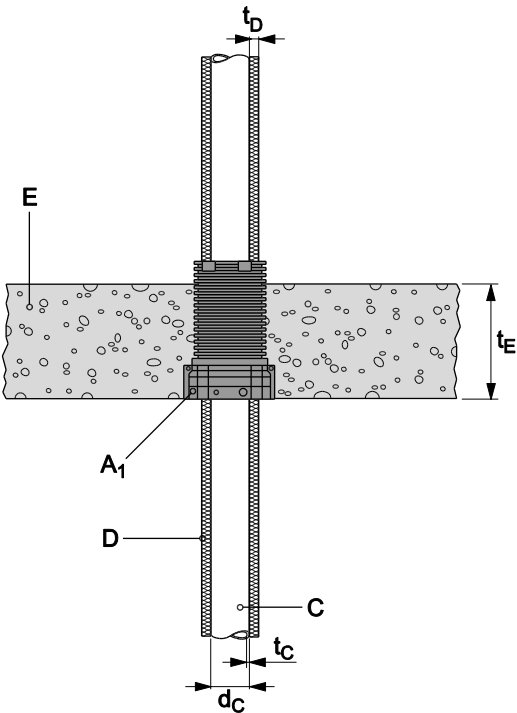
Typ	Glass wool insulation
Form	• Half shell, coated with aluminium foil
Reaction to fire classification (EN 13501-1)	• A2
Material	• Mineral glass wool
Density	• $\geq 35 \text{ kg/m}^3$

Pipe insulation

Local/Sustained pipe insulation (LS)



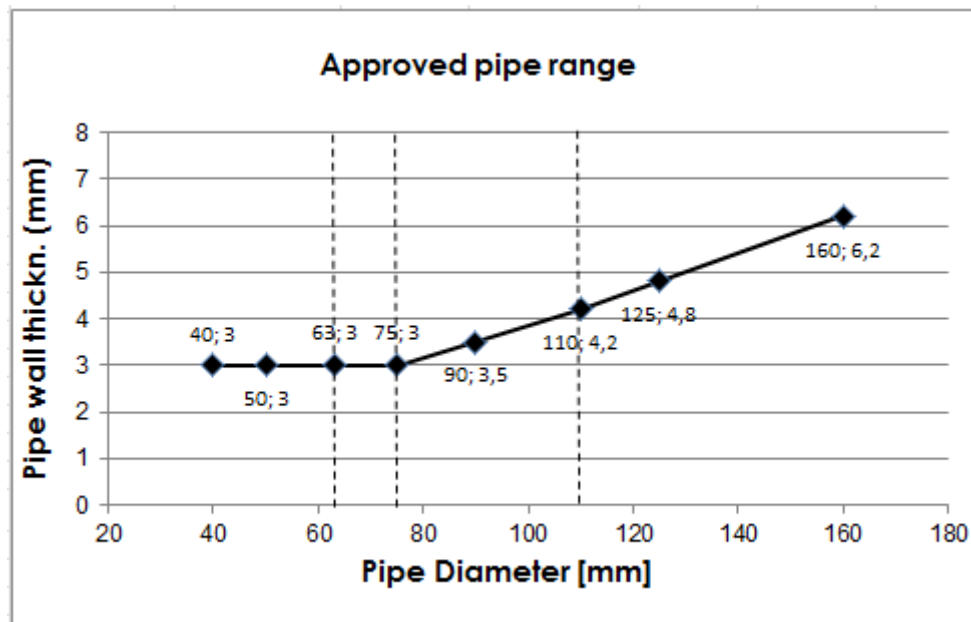
Continued/Sustained pipe insulation (CS)



for abbreviations see Annex 4.1

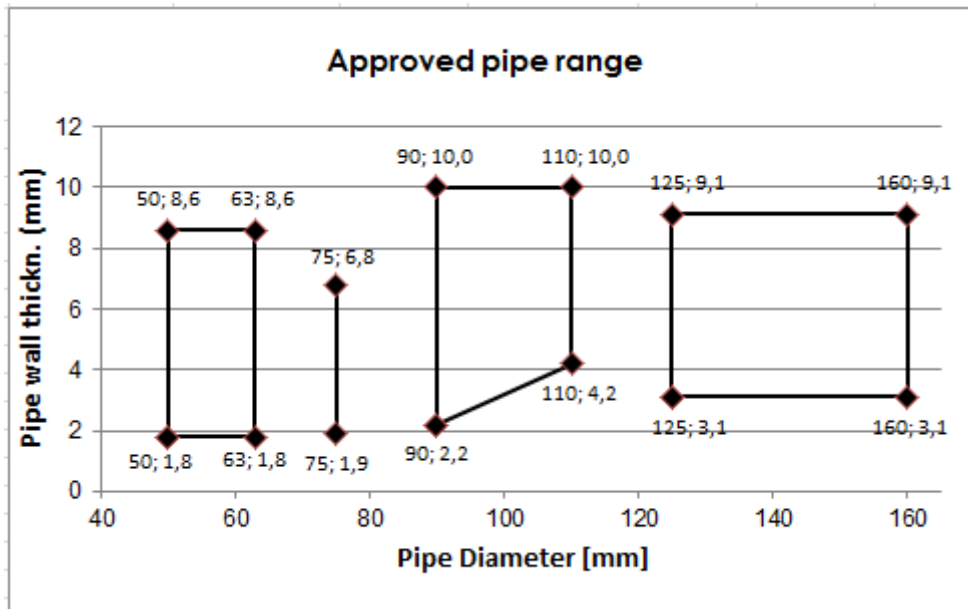
2.2 Penetrating services approved with CFS-CID**2.2.1 PE pipes****Pipe end configuration: U/U****Distance of penetrations (s_1): 100 mm****2.2.1.1 PE pipes according to EN 1519-1, EN 12666-1, EN 12201-2****Pipe end configuration: U/U****Distance of penetrations (s_1): 0mm /100 mm (B)**

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Classification with Distance (s_1) 0mm	Classification with Distance (s_1) 100
CFS-CID 50	40	3,0	EI 120-U/U	EI 180-U/U
	50	3,0		
	63	3,0		
	40 - 63	3,0		
CFS-CID 75	75	3,0		
CFS-CID 110	90	3,5		
	110	4,2		
	90 - 110	3,5/4,2 ⁽¹⁾		
CFS-CID 160	125	4,8		
	160	6,2		
	125 - 160	4,8/6,2 ⁽¹⁾		

⁽¹⁾ interpolation of min. pipe wall thickness within pipe diameter range

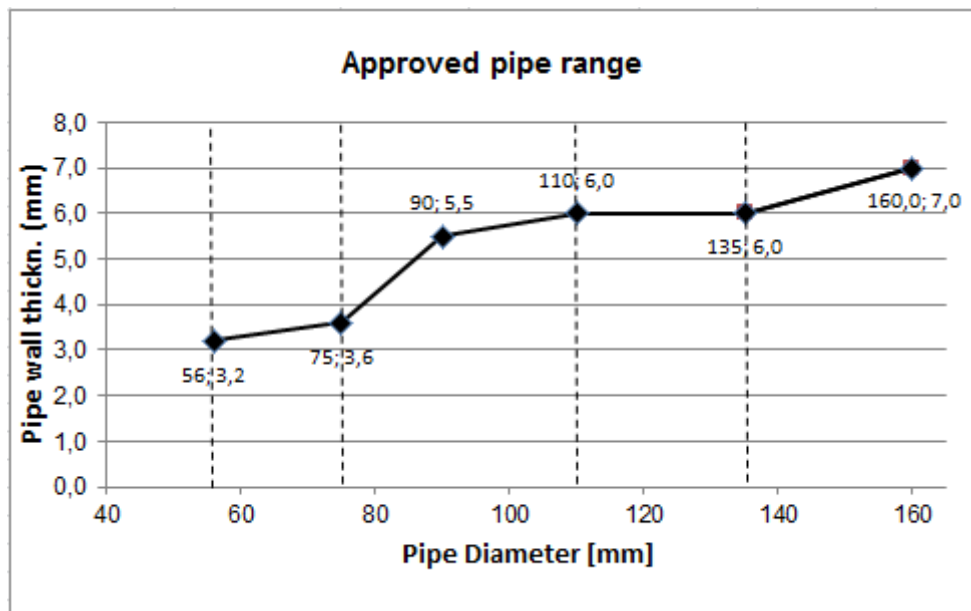
2.2.1.2 PE pipes according to EN ISO 15494 and DIN 8074/8075**Pipe end configuration: U/U + U/C****Distance of penetrations (s_1): 0mm / 100 mm (B)**

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Classification with Distance (s_1) 0mm	Classification with Distance (s_1) 100
CFS-CID 50	50	2,9	EI 120-U/U	EI 180-U/C
	63	1,8		
	63	8,6		
	50 - 63	1,8/1,8⁽¹⁾ - 8,6		
CFS-CID 75	75	1,9		
	75	6,8		
	75	1,9⁽¹⁾ to 6,8		
CFS-CID 110	90	2,2		
	110	2,7		
	110	10,0		
	90 - 110	2,2/2,7⁽¹⁾ - 10,0		
CFS-CID 160	125	3,1		
	160	4,0		
	160	9,1		
	125 - 160	3,1/4,0⁽¹⁾ - 9,1		

⁽¹⁾ interpolation of min. pipe wall thickness within pipe diameter range

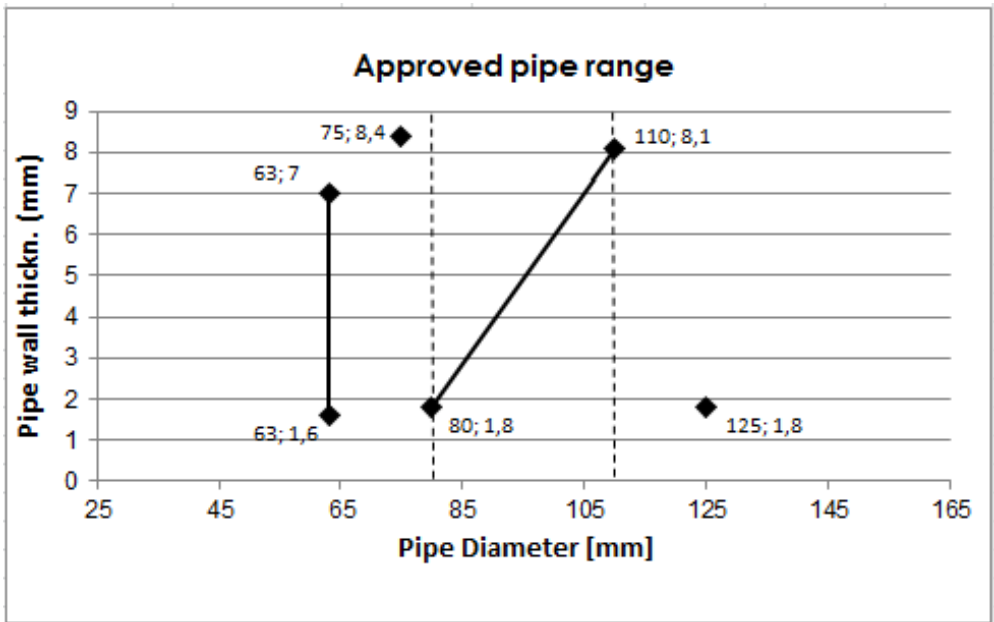
2.2.2 PE-S2 pipes, designation "Geberit Silent dB20"**Pipe end configuration: U/U****Distance of penetrations (s_1): 0mm / 100 mm (B)**

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Classification with Distance (s_1) 0mm	Classification with Distance (s_1) 100
CFS-CID 50	56	3,2	EI 120-U/U	EI 180-U/U
CFS-CID 75	56	3,2		
	75	3,6		
	56 - 75	3,2/3,6⁽¹⁾		
CFS-CID 110	90	5,5		
	110	6,0		
	90 - 110	5,5/6,0⁽¹⁾		
CFS-CID 160	135	6,0		
	160	7,0		
	135 - 160	6,0/7,0⁽¹⁾		

⁽¹⁾ interpolation of min. pipe wall thickness within pipe diameter range

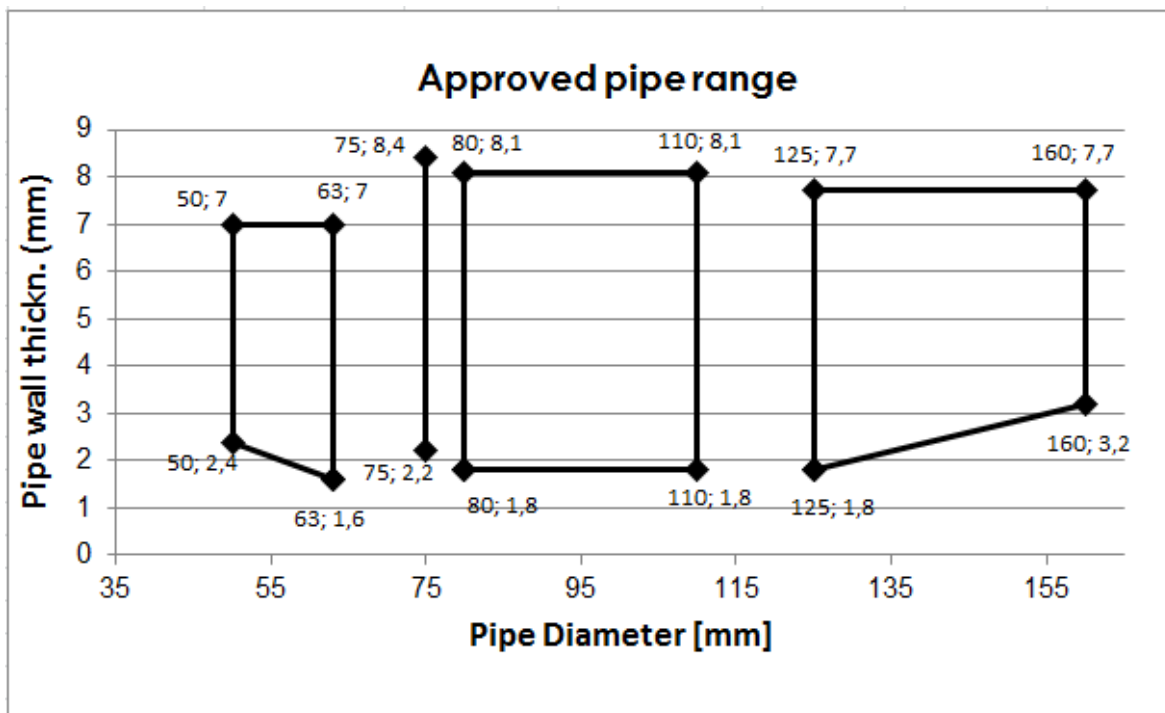
2.2.3 PVC-U pipes acc. to EN 1452-2, EN 1329-1, EN 1453-1			
Pipe end configuration: U/U			
Distance of penetrations (s ₁): 100 mm (B)			
Collar size (A ₁)	Pipe diameter d _c (mm)	Pipe wall thickness t _c (mm)	Classification with Distance (s ₁) 100mm
CFS-CID 50	63	1,6	EI 180-U/U
	63	7,0	
	63	1,6 - 7,0	
CFS-CID 75	75	8,4	
CFS-CID 110	80	1,8	
	110	8,1	
	80 - 110	1,8/8,1⁽¹⁾	
CFS-CID 160	125	1,8	

⁽¹⁾ interpolation of min. pipe wall thickness within pipe diameter range



2.2.4 PVC-U pipes acc. to EN 1452-2, EN 1329-1, EN 1453-1**Pipe end configuration: U/U****Distance of penetrations (s_1): 0 mm (A)**

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Classification with Distance (s_1) 0mm
CFS-CID 50	50	2,4	EI 120-U/U
	63	1,6	
	63	7,0	
	50 - 63	1,6/1,6⁽¹⁾ - 7,0	
CFS-CID 75	75	2,2	
	75	8,4	
	75	2,2 - 8,4	
CFS-CID 110	80	1,8	
	110	1,8	
	110	8,1	
	80 - 110	1,8/1,8⁽¹⁾ - 8,1	
CFS-CID 160	125	1,8	
	160	3,2	
	160	7,7	
	125 - 160	1,8/3,2⁽¹⁾ - 7,7	

⁽¹⁾ interpolation of min. pipe wall thickness within pipe diameter range

2.2.5 PP pipes according to EN 1451-1

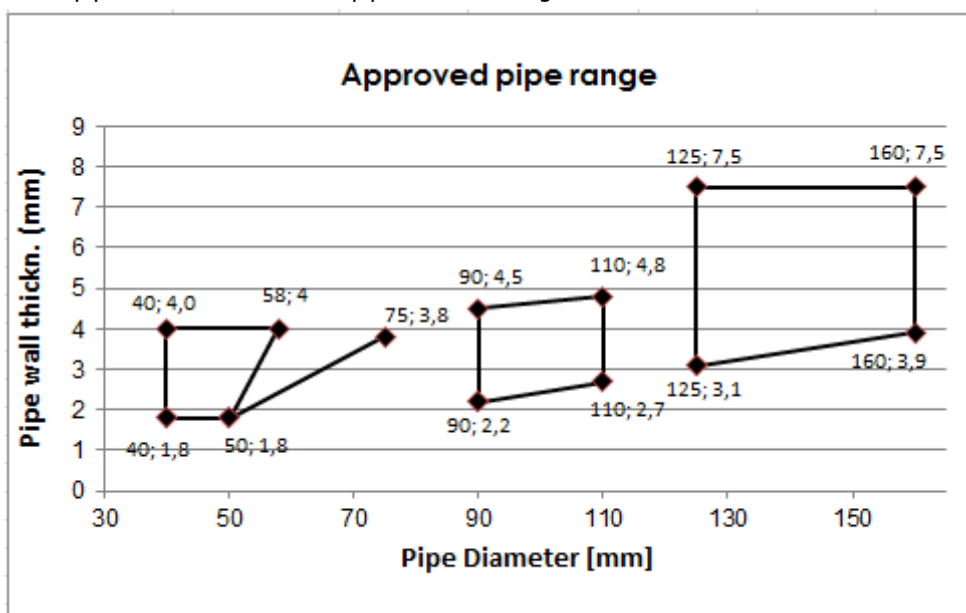
Designation: Cloes "Blue Power", Cloes "PhoNoFire", "Geberit Silent PP", Marley Silent, Ostendorf "Skolan-dB", Pipelife "Master 3", POLOPLAST "Polokal NG", "POLOPLAST Phonex AS", POLOPLAST "Polokal 3S", "POLOPLAST Polokal XS", Rehau "Raupiano Plus", Wavin "AS", KeKelit "Phonex AS", Wavin "SiTech", Valsire "Triplus", Valsire "Silere",

Pipe end configuration: U/U

Distance of penetrations (s_1): 0mm / 100 mm (B)

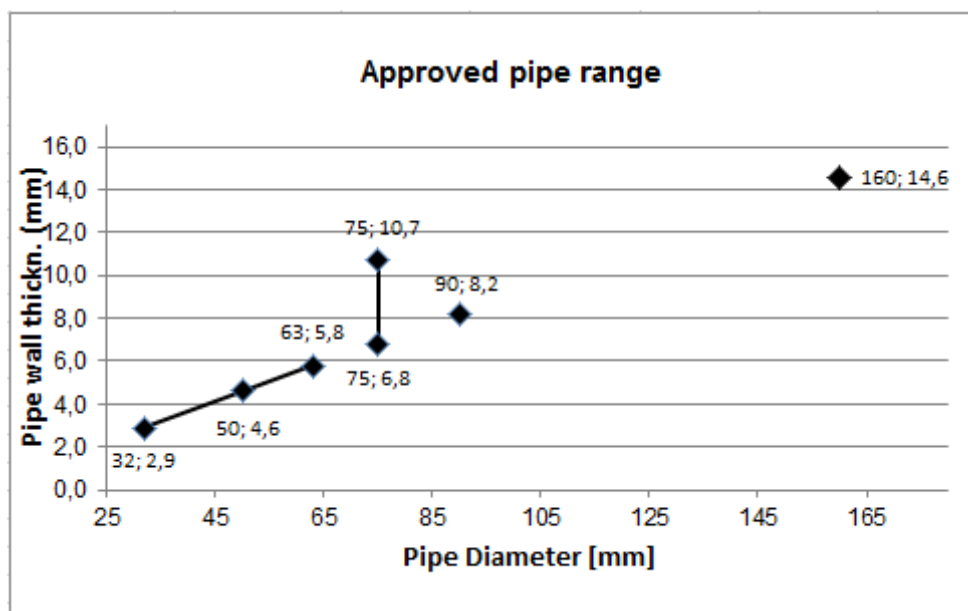
Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Classification with Distance (s_1) 0mm	Classification with Distance (s_1) 100mm
CFS-CID 50	40	1,8	EI 120-U/U	EI 180-U/U
	50	1,8		
	58	4,0		
	40 - 58	1,8 - 1,8/4,0⁽¹⁾		
CFS-CID 75	50	1,8		
	75	3,8		
	50 - 75	1,8/3,8⁽¹⁾		
CFS-CID 110	90	2,2		
	90	4,5		
	110	2,7		
	110	4,8		
	110	5,3		
	90 - 110	2,2/2,7⁽¹⁾ - 5,3		
CFS-CID 160	125	3,1		
	160	3,9		
	160	7,5		
	125 - 160	3,1/3,9⁽¹⁾ - 7,5		

⁽¹⁾ interpolation of min. pipe wall thickness within pipe diameter range



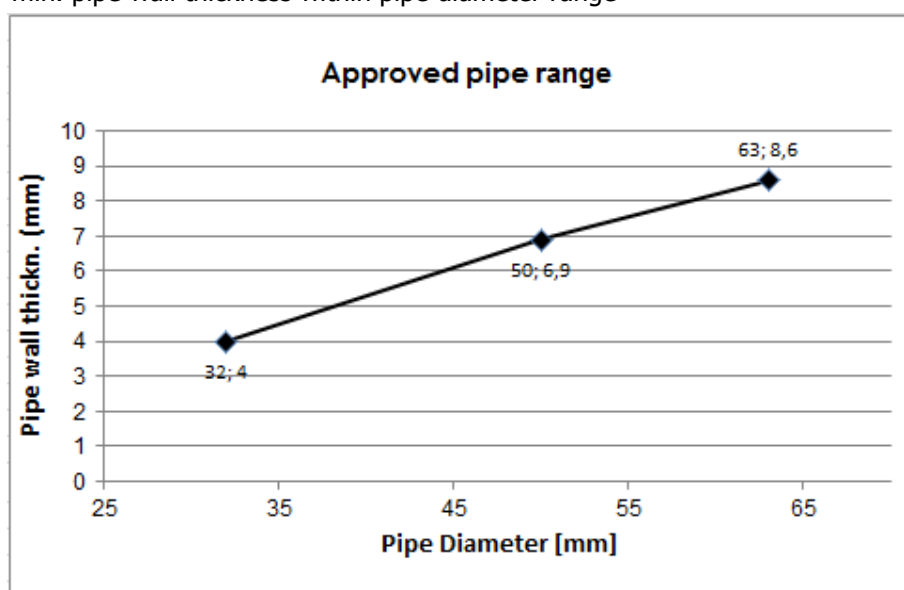
2.2.6 PP-R pipes designation "Aquatherm"**Pipe end configuration: U/C****Distance of penetrations (s_1): 100 mm (B)**

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Classification with Distance (s_1) 100mm
CFS-CID 50	32	2,9	EI 180-U/C
	50	4,6	
	63	5,8	
	32 - 63	2,9/5,8 ⁽¹⁾	
CFS-CID 75	75	6,8	
	75	10,7	
	75	6,8 - 10,7	
CFS-CID 110	90	8,2	
CFS-CID 160	160	14,6	

⁽¹⁾ interpolation of min. pipe wall thickness within pipe diameter range

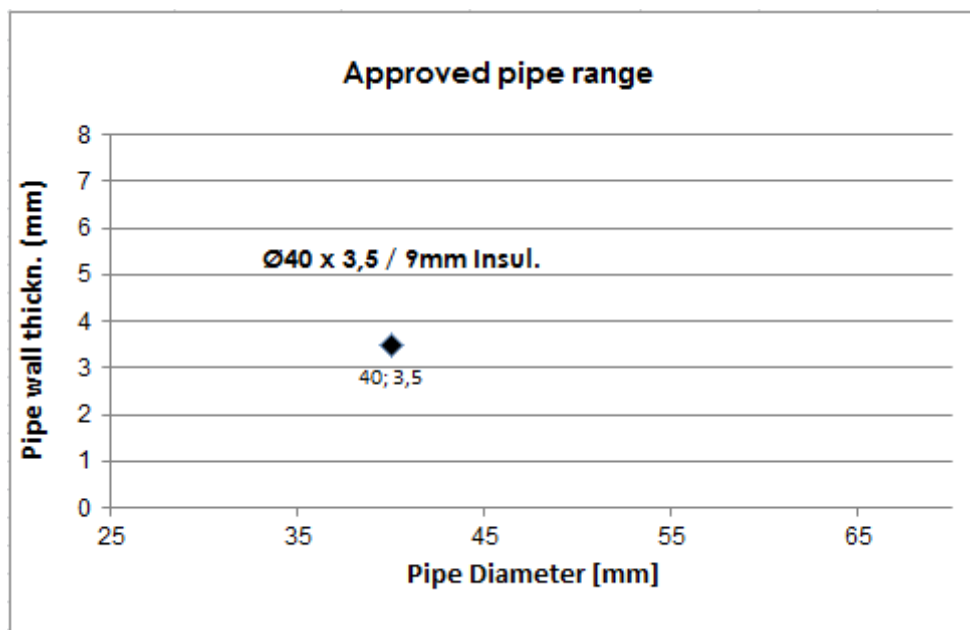
2.2.7 PE-Xa pipes designation "Rehau Rautitan Flex"**Pipe end configuration: U/U****Distance of penetrations (s_1): 100 mm (B)**

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Classification with Distance (s_1) 100mm
CFS-CID 50	32	4,0	EI 180-U/U
	50	6,9	
	63	8,6	
	32 - 63	4,4/8,6 ⁽¹⁾	

⁽¹⁾ interpolation of min. pipe wall thickness within pipe diameter range

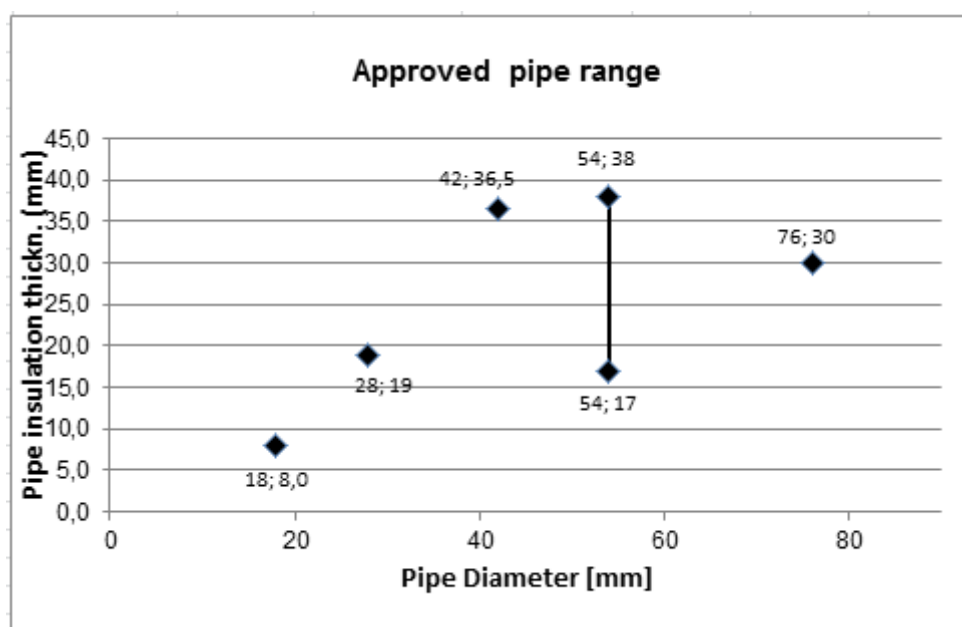
2.2.8 PE-RT II/AL/PE-RT II pipes designation "Geberit Mepla", elastomeric foamed thermal pipe insulation,**Pipe end configuration: U/C****Distance of penetrations (s_1): 100 mm (B)**

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Pipe insulation thickness (mm), CS	Classification with Distance (s_1) 100mm
CFS-CID 50	40	3,5	9,0	EI 180-U/C



2.2.9 Copper pipes including metal pipes, sustained (CS) elastomeric foamed thermal pipe insulation**Pipe end configuration: C/U****Distance of penetrations (s_1): 100 mm (B)**

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Pipe insulation thickness (mm)	Classification with Distance (s_1) 100mm
CFS-CID 50	18	1,0 – 14,2	8,0	EI 180-C/U
	28	1,5 – 14,2	19,0	
CFS-CID 75	18	1,0 – 14,2	32,0	
CFS-CID 110	42	1,5 – 14,2	36,5	
	54	2,0 – 14,2	17,0	
CFS-CID 160	54	2,0 – 14,2	38,0	
	76	2,0 – 14,2	30,0	

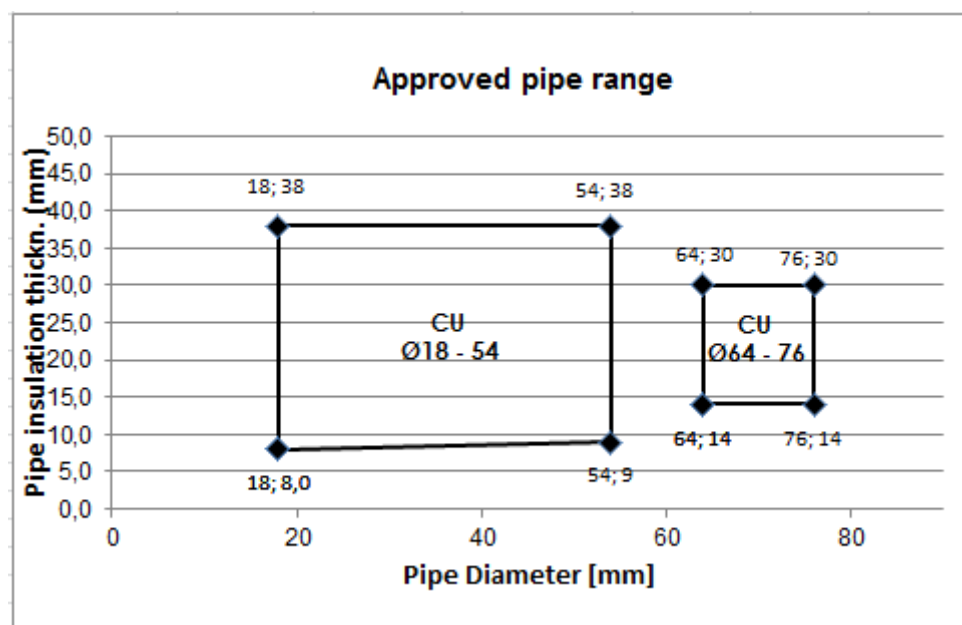


**2.2.10 Copper pipes including metal pipes,
with sustained (CS) elastomeric foamed thermal pipe insulation**
Pipe end configuration: C/U
Distance of penetrations (s_1): 100 mm (B)

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Pipe insulation thickness (mm)	Classification with Distance (s_1) 100mm
CFS-CID 50 CFS- CID 75 CFS-CID 110 CFS-CID 160	18 - 54	1,0/2,0 ⁽¹⁾ - 14,2	8,0 - 38,0 ⁽³⁾	EI 120-C/U
	54 - 76	1,0/2,0 ⁽¹⁾ - 14,2	16,0 - 40,5 ⁽³⁾	

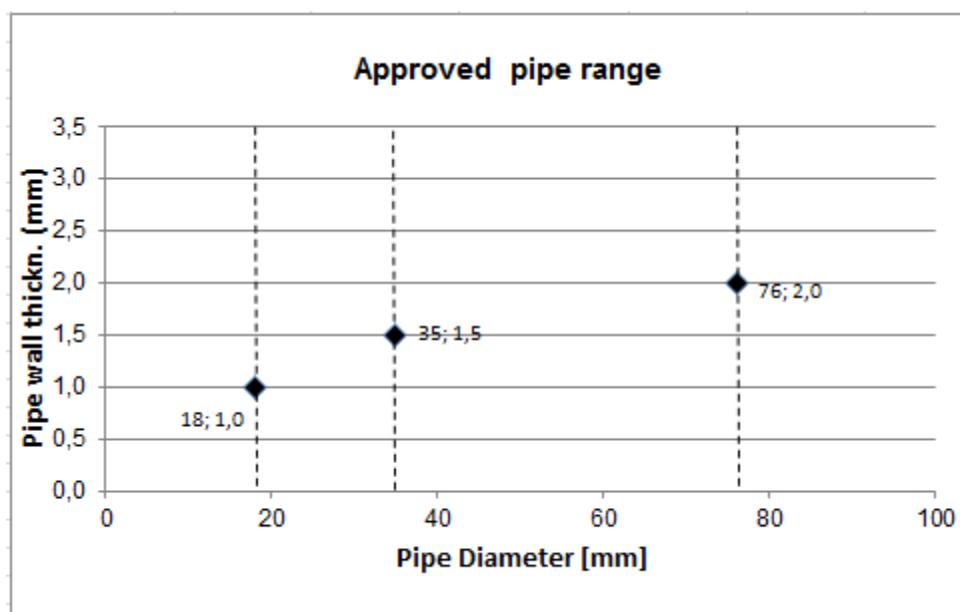
⁽¹⁾ interpolation of min. pipe wall thickness within pipe diameter range

⁽³⁾ interpolation of min. pipe insulation within pipe diameter range



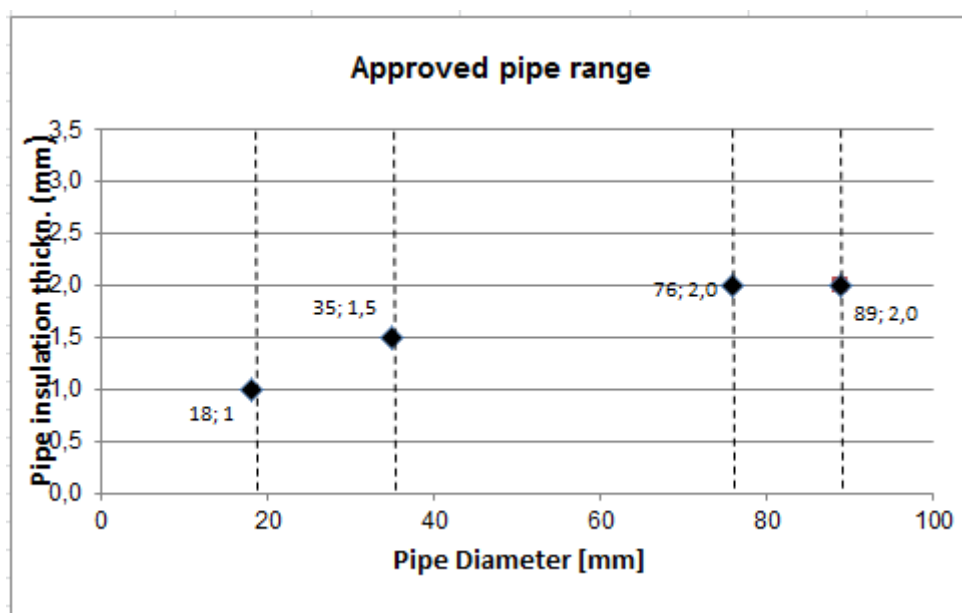
**2.2.11 Copper pipes including metal pipes,
with local sustained (LS) mineral glass wool thermal pipe insulation
Insolation length: $\geq 500\text{mm}$
Pipe end configuration: C/U
Distance of penetrations (s_1): 0 mm (B)**

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Pipe insulation thickness (mm)	Classification with Distance (s_1) 0mm
CFS-CID 50	18	1,0 – 14,2	20,0	EI 120-C/U
CFS-CID 75	35	1,5 – 14,2	20,0	
CFS-CID 110	76	2,0 – 14,2	20,0	



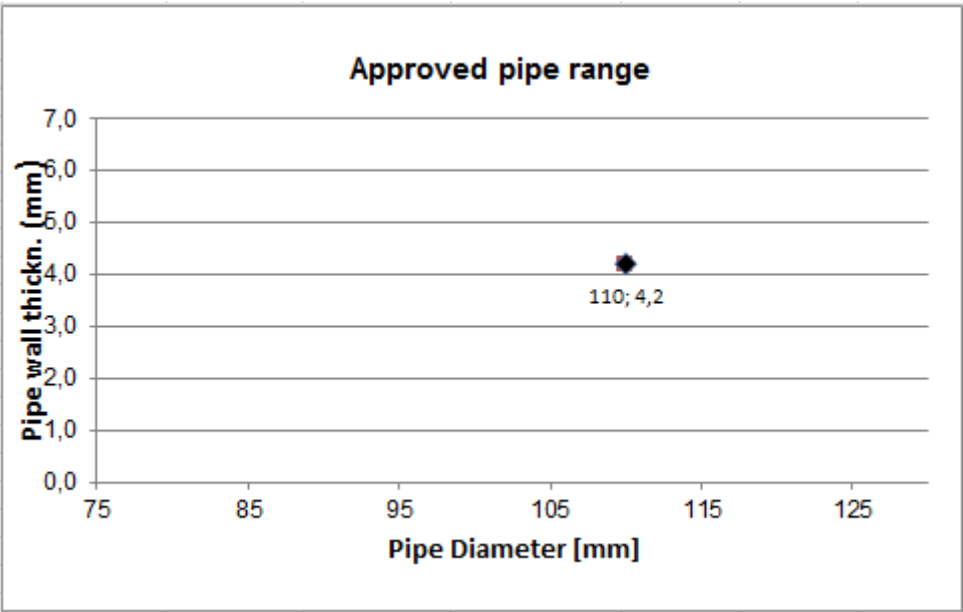
**2.2.12 Copper pipes including metal pipes,
with local sustained (LS) mineral stone wool thermal pipe insulation**
Insulation length: $\geq 500\text{mm}$
Pipe end configuration: C/U
Distance of penetrations (s_1): 100 mm (B)

Collar size (A_1)	Pipe diameter d_c (mm)	Pipe wall thickness t_c (mm)	Pipe insulation thickness (mm)	Classification with Distance (s_1) 100mm
CFS-CID 50	18	1,0 – 14,2	20,0	EI 180-C/U
CFS-CID 75	35	1,5 – 14,2	20,0	
CFS-CID 110	76	2,0 – 14,2	20,0	
CFS-CID 160	89	2,0 – 14,2	20,0	



**2.2.13 PE pipes according to EN 1519-1, EN 12666-1, EN 12201-2 with 87° elbow,
PVC-U pipes acc. to EN 1452-2, EN 1329-1, EN 1453-1 with 87° elbow
Pipe end configuration: U/U
Distance of penetrations (s₁): 100 mm (B)**

Collar size (A ₁)	Pipe diameter d _c (mm)	Pipe wall thickness t _c (mm)	Classification with Distance (s ₁) 100mm
CFS-CID 110	110	4,2	EI 180-U/U



2.2.14 Blank seals Distance of penetrations (s_1): 0mm /100 mm (B)		
Collar size (A_1)	Classification with Distance (s_1) 0mm	Classification with Distance (s_1) 100mm
CFS-CID 50	EI 120	EI 180
CFS-CID 75		
CFS-CID 110		
CFS-CID 160		

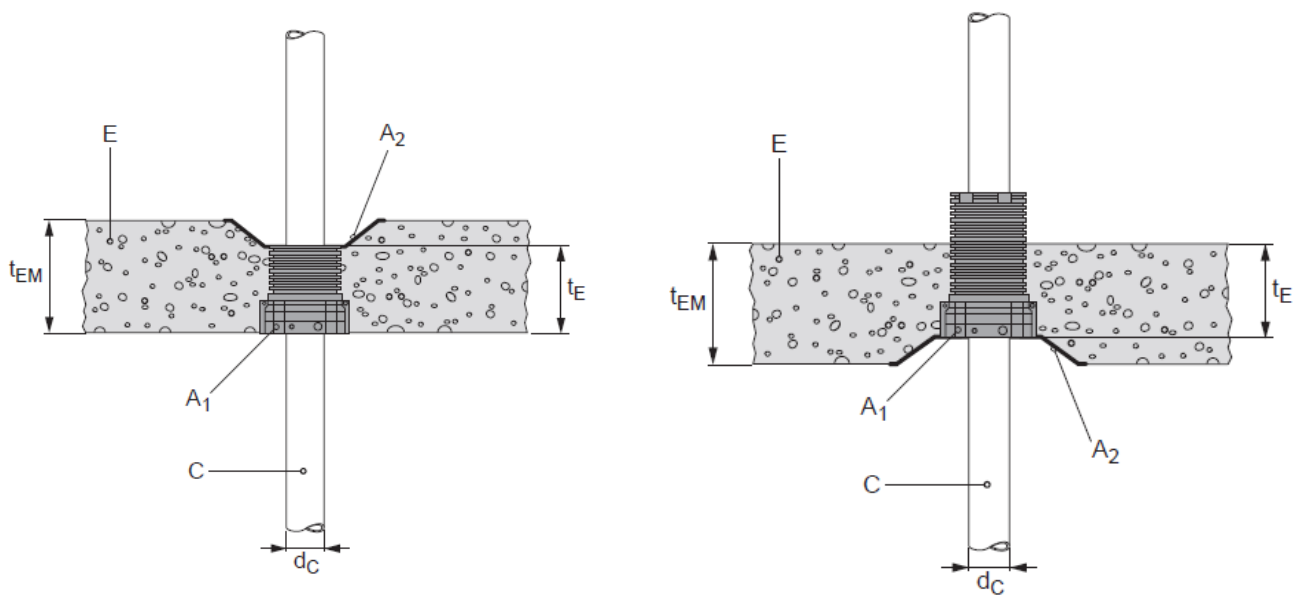
3.1 Penetrating services approved for CFS-CID with "Manifold"

The floor must have a minimum thickness of 150 mm and comprise concrete with a minimum density of 550 kg/m³.

Penetration seal:

- Pipes classified in the section 2.2.1 to 2.2.13 can be sealed with a Hilti Firestop Cast-in device CFS-CID with a Manifold adapter if the requirements of the options a) or b) given below are respected (the conditions to expose the intumescent layer of the Cast-in device to a potential fire have to be maintained):
 - a) the bottom side of the Cast-in device A₁ must be installed flush with the bottom side of the floor, the manifold A₂ is positioned on top of the Cast-in device
 - b) the bottom side of the manifold A₂ must be installed flush with the bottom side of the floor, the Cast-in device A₁ is positioned directly on top of the manifold
- the remaining floor thickness t_E around the Cast-in device must be ≥150 mm
- the min. total floor thickness t_{EM} around the Cast-in device + Manifold must be ≥225 mm

Manifold:



ANNEX 3

ABBREVIATIONS AND REFERENCE DOCUMENTS

5.1 Abbreviations used in drawings

Abbreviation	Description
A ₁	Hilti Firestop Cast-in CFS-CID
A ₂	Manifold
C	Plastic Pipe
D	Pipe insulation
d _c	Pipe diameter (nominal outside diameter)
E	Building element (wall, floor)
s ₁	Minimum distance between single penetration seals
t _c	Pipe wall thickness
t _D	Insulation thickness
t _E	Thickness of the building element
t _{E M}	Minimum thickness of the building element with Manifold application.
L _D	Length of Insulation

5.2 References to standards mentioned in the ETA:

EN 1026	Windows and doors – Air permeability – Test method
EN 1329-1	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Unplasticized poly(vinyl chloride) (PVC-U)
EN 1366-3	Fire resistance tests for service installations - Part 3: Penetration seals
EN 1451-1	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polypropylene (PP) – Part 1: Specifications for pipes, fittings and the system
EN 1453-1	Plastics piping systems with structured-wall pipes for soil and waste discharge (low and high temperature) inside buildings - Unplasticized poly (vinyl chloride) (PVC-U)
EN 1519-1	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Polyethylene (PE) - Part 1: Specifications for pipes, fittings and the system
EN 1566-1	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Chlorinated poly (vinyl chloride) (PVC-C) - Part 1: Specifications for pipes, fittings and the system
EN 12201-2	Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 2: Pipes
EN 12666-1	Plastics piping systems for non-pressure underground drainage and sewerage – Polyethylene (PE) – Part 1: Specifications for pipes, fittings and the system
EN 13501	Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests Part 2: Classification using test data from fire resistance tests, excluding ventilation services
EN ISO 140-3	Acoustics – Measurement of sound insulation in buildings and of building elements – Part 3: Laboratory measurements of airborne sound insulation of building elements ²
EN ISO 717-1	Acoustics – Rating of sound insulation of buildings and of building elements – Part 1: Airborne sound insulation

² In September 2010 substituted by the EN ISO 10140 series

EN ISO 1519	Paints and varnishes – Bend test (cylindrical mandrel)
EN ISO 1452	Plastics piping systems for water supply and for buried and above-ground drainage and sewerage under pressure - Unplasticized poly(vinyl chloride) (PVC-U) ³
EN ISO 15493	Plastics piping systems for industrial applications - Acrylonitrile-butadiene-styrene (ABS), unplasticized poly (vinyl chloride) (PVC-U) and chlorinated poly (vinyl chloride) (PVC-C) - Specifications for components and the system; Metric series
EN ISO 15494	Plastics piping systems for industrial applications - Polybutene (PB), polyethylene (PE) and polypropylene (PP) - Specifications for components and the system; Metric series
EN ISO 15874	Plastics piping systems for hot and cold-water installations - Polypropylene (PP)
EN ISO 20140-10	Acoustics – Measurements of sound insulation in buildings and of building elements – Part 10: Laboratory measurement of airborne sound insulation of small building elements ²
DIN 8061	Unplasticized polyvinyl chloride (PVC-U) pipes - General quality requirements and testing
DIN 8062	Unplasticized polyvinyl chloride (PVC-U) pipes - Dimensions
DIN 8074	Polyethylene (PE) - Pipes PE 80, PE 100 - Dimensions
DIN 8075	Polyethylene (PE) pipes - PE 80, PE 100 - General quality requirements, testing
DIN 8077	Polypropylene (PP) pipes - PP-H, PP-B, PP-R, PP-RCT – Dimensions
DIN 8078	Polypropylene (PP) pipes - PP-H, PP-B, PP-R, PP-RCT - General quality requirements and testing
DIN 19531-10	Pipes and fittings made of unplasticized polyvinyl chloride (PVC-U) socket for waste and soil discharge systems inside buildings – Part 10: Fire behaviour, quality control and installation recommendations
DIN 19535-10	High-density polyethylene (PE-HD) pipes and fittings for hot-water resistant waste and soil discharge systems (HT) inside buildings – Part 10: Fire behaviour, quality control and installation recommendations

4.3 Other reference documents

EOTA TR 001	Determination of impact resistance of panels and panel assemblies
EOTA TR 024	Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products
EAD 350454-00-1104	Fire stopping and fire sealing products, Penetration Seals

³ Successor of EN 1452 since December 2009