UL-EU CERTIFICATE

Certificate No.
UL-EU-01277-EN

Issue date
2023-11-14

Issue No.
2

Re-Issue date
2026-05-21

Expiry date
2033-11-13

This is to acknowledge that:
fischerwerke GmbH & Co. KG

Address:
Klaus-Fischer-Strasse 1
72178 Waldachtal
Germany

Has had the product:
Fire Stopping and Sealing Product - fischer FiAM Plus

evaluated and meets the requirements of the standard(s):

EAD 350454-00-1104, September 2017,
EAD 350141-00-1106, September 2017 and EN 13501-2

Places of production:
fischerwerke GmbH & Co. KG
Industriestr. 103,
72160 Horb am Neckar,
Germany

Authorised Signatory:

Chris Johnson
Issued by UL International (UK) Ltd

UKAS PRODUCT CERTIFICATION
4705

This is to certify that representative samples of the Certified Product listed above have been investigated by Underwriters Laboratories to the Standard(s) indicated on this Certificate, in accordance with the UL Global Services Agreement and the UL-EU Mark Service Terms and Conditions ("Agreement"). The Certificate Holder is entitled to use the UL-EU Mark for the Certified Product listed on the certificate and manufactured at the production site(s) listed, in accordance with the terms of the Agreement. Only those products bearing the UL-EU Mark for Europe should be considered as being covered by UL's UL-EU Mark Service. This Certificate shall remain valid through the Expiration date, unless a Standard identified on this Certificate is amended or withdrawn prior to that date or there is a non-compliance with the Agreement.

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This certificate relates to the use of fischer FiAM Plus for fire stopping where there are joints in or between walls & floors and service penetrations through walls & floors. The detailed scope is given in pages 4 to 78 of this Certificate. This shows the thickness and acceptable dimensions, substrates and orientations required to provide fire resistance periods of up to 240 minutes for differing seal configurations and supporting constructions.

The product is certificated on the basis of:

i) Inspection and surveillance of factory production control by UL
ii) Fire resistance test data in accordance with EN 1366-3:2021 and EN 1366-4:2021
iii) Classification in accordance with EN 13501-2
iv) Durability and Serviceability as defined in EAD 350141-00-1106 / EAD 350454-00-1104

The durability class of fischer FiAM Plus is Type Y_2 - Intended for use in conditions below 0°C (occasionally), but with no exposure to wetness, rain or UV (exception: re-drying short-term condensation). Please refer to installation instructions from manufacturer.

fischer FiAM Plus is a one-part water based acrylic sealant system and is supplied in cartridges and tubular bags which can be applied as a surface-mounted system on a suitable backing material as specified in this Certificate.

According to EN 1366-3: 2021+A1: 2024, Clause H.4.1.8.6.2, the following end uses are envisaged* based upon the tested pipe end configuration:

Pipe material	Tested pipe end	Envisaged use scenario
Metal	C/U or C/C	Closed pipe systems (e.g. systems under pressure)
	U/U, U/C or C/U	Ventilated pipe systems (e.g. sewage pipes) and for closed pipe systems
Plastic	U/U or C/U	Ventilated pipe systems and for closed pipe systems
	U/U	Ventilated pipe systems, for rainwater systems and for closed pipe systems

* In the case where a national prescription is in conflict with the content of the table above, the national prescriptions prevail.

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According to EN 13501-2: 2023, Clause 7.5.8.4, the following classification codes are defined in addition E & EI:

Test conditions	Designation
Specimen orientation - Horizontal supporting construction - Vertical supporting construction – vertical joint - Vertical supporting construction – horizontal joint	 H V T
Movement capability - No movement - Movement induced lateral (in%) - Movement induced lateral (in%)	 X $M_{lat}000$ $M_{shear}000$
Type of splices - Manufactured - Field - Both manufactured and field	 M F B
Joint widths range (in mm)	W w1 to w2
e.g. EI 30 – H – $M_{lat}30$ – B – W 30 to W 90	

UL Solutions
Form-ULID-006104 V10.0
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Product-type: Sealant		Intended use: Linear Joint and Gap Seals & Penetration Seals
Basic requirement for construction work	Basic Requirement	Basic requirement for construction work
BWR 2 Safety in case of fire		
EN 13501-1	Reaction to fire	D-s1, d0
EN 13501-2	Resistance to fire	See pages 6-78
BWR 3 Hygiene, health and environment		
Declaration of manufacturer & EN 16516	Content, emission and/or release of dangerous substances	Use categories: IA1 VOC / SVOC: See page 5
EN 1026	Air permeability (material property)	See page 5
EAD 350141-00-1106, Annex C & EN 12390-8	Water permeability (material property)	No performance determined
BWR 4 Safety in use		
EOTA TR 001:2003	Mechanical resistance and stability	No performance determined
EOTA TR 001:2003	Resistance to impact/movement	No performance determined
EOTA TR 001:2003 ISO 11600 & EAD 350141-00-1106, Clause 2.2.8	Adhesion	7,5P
EAD 350141-00-1106, Clause 2.2.12	Durability	Type Y_2
EAD 350141-00-1106, Clause 2.2.13	Movement capacity	7,5P*
EAD 350141-00-1106, Clause 2.2.14	Cycling of perimeter seals for curtain walls	No performance determined
EAD 350141-00-1106, Clause 2.2.15	Compression set	No performance determined
EAD 350141-00-1106, Clause 2.2.16	Linear expansion on setting	No performance determined
BWR 5 Protection against noise		
EN 10140-1,2,4,5/ EN ISO 717-1	Airborne sound insulation	See page 5
BWR 6 Energy economy and heat retention		
EN 12664, EN 12667, EN 12939, EN ISO 8990, EN ISO 6946, EN ISO 10456	Thermal properties	No performance determined
EN ISO 12572, EN 12086, EN ISO 10456	Water vapour permeability	No performance determined

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Content, emission and/or release of dangerous substances The release of semi-volatile organic compounds (SVOC) and volatile organic compounds (VOC) has been determined according to EAD 350141-00-1106 / EAD 350454-00-1104 and EN 16516:2017+A1:2020. The loading factor used for emission testing was 0.007 m^2/m^3.		
Total emission of SVOC after 3 days / 28 days [mg/m^3]	Total emission of VOC after 3 days [mg/m^3]	Total emission of VOC after 28 days [mg/m^3]
None determined	0.036	0.013

Air Permeability according to EN 1026:2016	
Dimensions of blank specimen fischer FiAM Plus applied on one side of assembly 4 mm thick (dry film thickness) and backfilled with stone wool insulation (60 kg/m^3)	**Air leakage**
Ø 300 mm	No measurable air flow up to 600 Pa
550 mm x 200 mm	
100 mm x 1000 mm	

Acoustic performance according to EN ISO 10140-2 / EN ISO 717-1	
Configuration	**Rated sound reduction index**
5 mm thick (dry film thickness) fischer FiAM Plus coating applied onto both sides, backed with 40 mm thick compressed stone wool insulation (80 kg/m^3), installed flush with both surfaces of 100 mm thick test assembly. Opening size: 1250 mm x 40 mm.	Rw (C; Ctr) = 55 (-2; -5) dB

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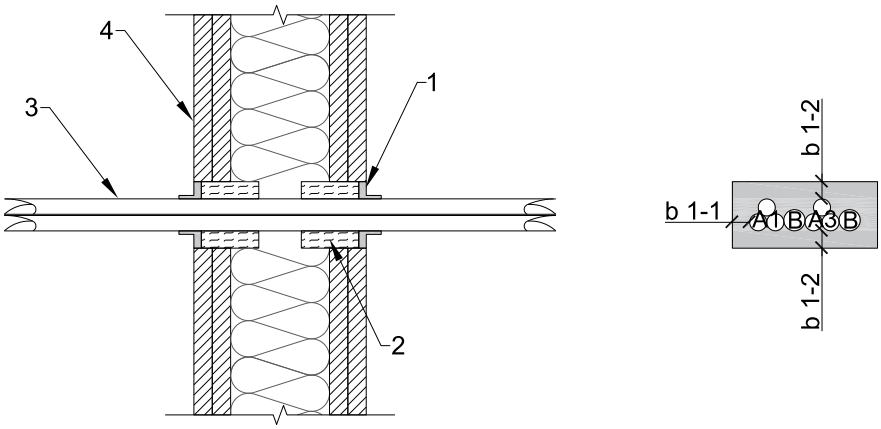
Flexible wall constructions with minimum wall thickness of 100 mm

Double-sided, double-layer gypsum board (Type F, EN 520, ≥ 12.5 mm) wall construction with min. 40 mm mineral wool insulation (≥ 100 kg/m^3) and an overall minimum wall thickness of 100 mm.

Double sided penetration seal with cables (service option S)

Penetration Seal:	Cables sealed with fischer FiAM Plus sealant to both sides of the wall, backed with stone wool, seal installed flush with surface of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Cables
4. Wall (≥100 mm)

b 1-1 –side (≥10 mm)
b 1-2 – top / bottom (≥10 mm)
Cable support ≤250 mm from wall

Type of penetrant	Cable type	Maximum aperture size	Seal thickness	Seal overlap on penetrant	Backing material	Classification
service option S	Sheathed cables / telecommunication cables / optical fibre cables up to a max. outer diameter of 21 mm without cable carrier	112 mm x 46 mm	5 mm	13 mm*	Stone wool ρ ≥60 kg/m³, ≥40 mm deep from both sides**	E 60 EI 30

* overlap with sealant thickness of t ≥3 mm
** ≥10 mm air gap between layers of insulation

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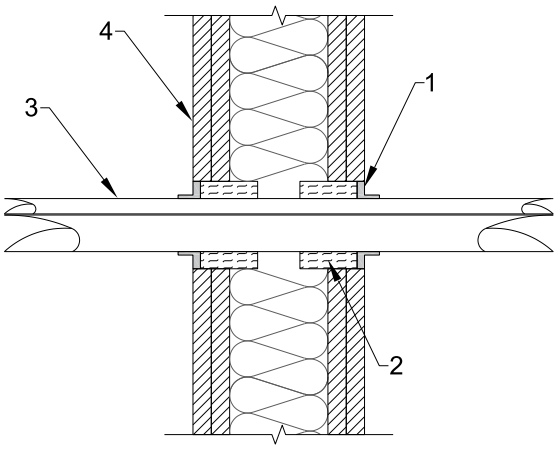
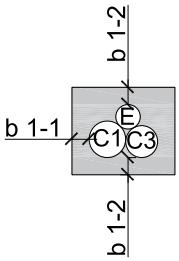
Double sided penetration seal with cables (service option M)

Penetration Seal:	Cables sealed with fischer FiAM Plus sealant to both sides of the wall, backed with stone wool, seal installed flush with surface of wall

Construction details:





Key:

1. fischer FiAM Plus
2. Backing material
3. Cables
4. Wall (≥100 mm)

b 1-1 –side (≥10 mm)
b 1-2 – top/bottom (≥10 mm)
Cable support ≤250 mm from wall

Type of penetrant	Cable type	Maximum aperture size	Seal thickness	Seal overlap on penetrant	Backing material	Classification
Service option M	Sheathed cables / telecommunication cables / optical fibre cables up to a max. outer diameter of 50 mm without cable carrier	105 mm x 81 mm	5 mm	13 mm*	Stone wool ρ ≥60 kg/m³, ≥40 mm deep from both sides**	E 60 EI 20

* overlap with sealant thickness of t ≥3 mm
** ≥10 mm air gap between layers of insulation

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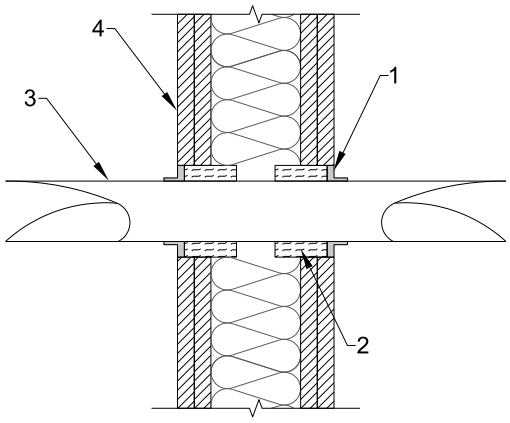
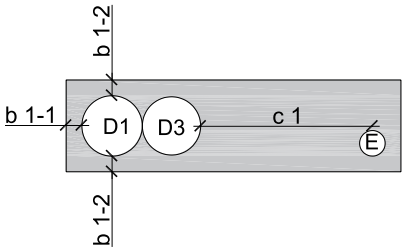
Double sided penetration seal with cables (service option L)

Penetration Seal:	Cables sealed with fischer FiAM Plus sealant to both sides of the wall, backed with stone wool, seal installed flush with surface of wall

Construction details:





Key:

1. fischer FiAM Plus
2. Backing material
3. Cables
4. Wall (≥100 mm)

b 1-1 –side (≥10 mm)
b 1-2 – top (≥10 mm)
c 1 – (≥ 0 mm)
Cable support ≤250 mm from top surface of floor

Type of penetrant	Cable type	Maximum aperture size	Seal thickness	Seal overlap on penetrant	Backing material	Classification
Service option L	Sheathed cables / telecommunication cables / optical fibre cables up to a max. outer diameter of 80 mm without cable carrier	310 mm x 78 mm	5 mm	13 mm*	Stone wool ρ ≥60 kg/m³, ≥40 mm deep from both sides**	E 60 EI 20

* overlap with sealant thickness of t ≥3 mm
** ≥10 mm air gap between layers of insulation

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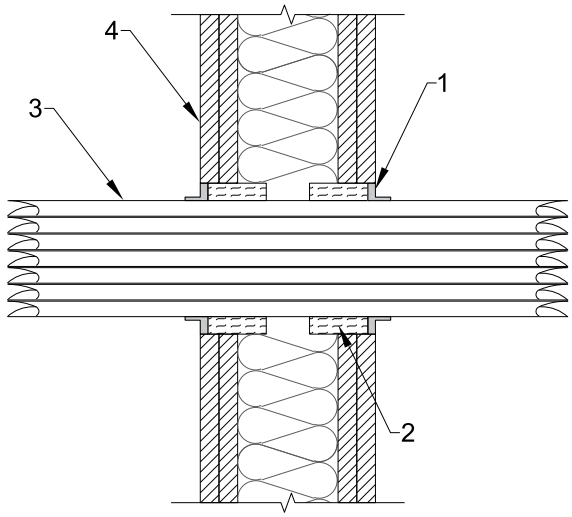
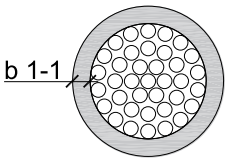
Double sided penetration seal with cables (tied bundle of cables)

Penetration Seal:	Cable bundle sealed with fischer FiAM Plus sealant to both sides of the wall, backed with stone wool, seal installed flush with surface of wall

Construction details:





F-cable bundle

Key:

1. fischer FiAM Plus
2. Backing material
3. Cable bundle
4. Wall (≥100 mm)

b 1-1 –side (≥10 mm)
Cable support ≤250 mm from wall

Type of penetrant	Cable type	Maximum aperture size	Seal thickness	Seal overlap on penetrant	Backing material	Classification
Tied bundle of cables	Tied bundles up to 100 mm overall diameter containing sheathed electrical / telecommunication / optical fibre cables up to a max. outer diameter of 21 mm without cable carrier	Ø120 mm	≥5 mm	≥13 mm**	Stone wool ρ ≥60 kg/m³, ≥40 mm deep from both sides***	E 60 EI 20

* overlap with sealant thickness of t ≥3 mm
** ≥10 mm air gap between layers of insulation

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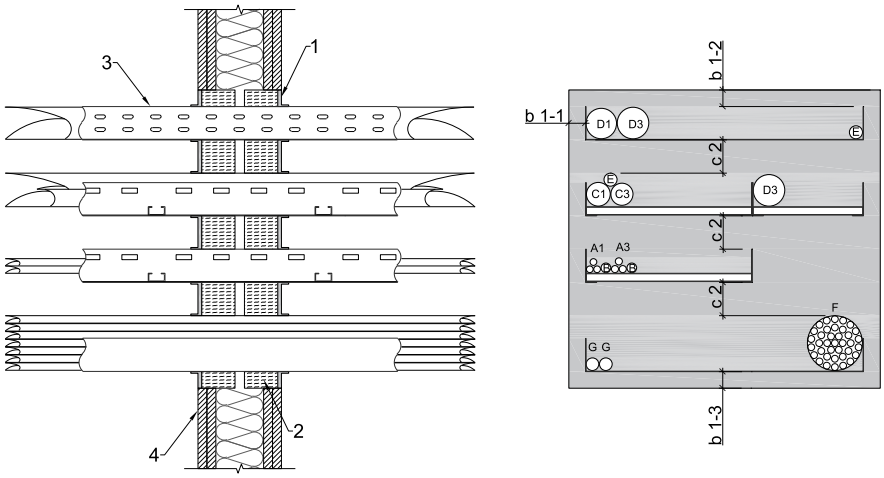
Double sided penetration seal with cables supports (service option L)

Penetration Seal:	Cable supports, and cables sealed with fischer FiAM Plus sealant to both sides of the wall, backed with stone wool insulation, seal installed flush with surface of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Cable support
4. Wall (≥100 mm)

Minimum working clearance: Distance between cable / cable carrier and the aperture edge

b 1-1 – Distance between a cable / the cable carrier and the aperture edge – aside (≥25 mm)

b 1-2 – Distance between a cable / the cable carrier and the aperture edge – above (≥25 mm and ≤ 85 mm)

b 1-3 – Distance between a cable / the cable carrier and the aperture edge – underneath (≥25 mm)

c1 (not shown) – Distance between a cable carrier and another cable carriers – aside (≥0 mm)

c2 – Distance between a cable / the cable carrier and other cables / cable carriers – underneath (≥50 mm)

Cable support (with cable carrier) ≤ 250 mm from both surface of wall

Cable support (without cable carrier) ≤ 150 mm from both surface of wall

Type of penetrant	Cable type***	Maximum aperture size	Seal thickness	Seal overlap on penetrant	Backing material	Classification
Service option L	Sheathed cables / telecommunication cables / optical fibre cables up to a max. outer diameter of 80 mm	550 mm x 500 mm (width x height)	≥5 mm	≥13 mm*	Stone wool ρ ≥60 kg/m³ , ≥40 mm deep from both sides**	E 45 EI 20
	Tied bundles up to 100 mm overall diameter containing sheathed electrical / telecommunication / optical fibre cables up to a max. outer					
	Non-sheathed cables up to a maximum outer diameter of 24 mm					

* overlap with sealant thickness of t ≥3 mm

** ≥10 mm air gap between layers of insulation

*** with or without cable carrier

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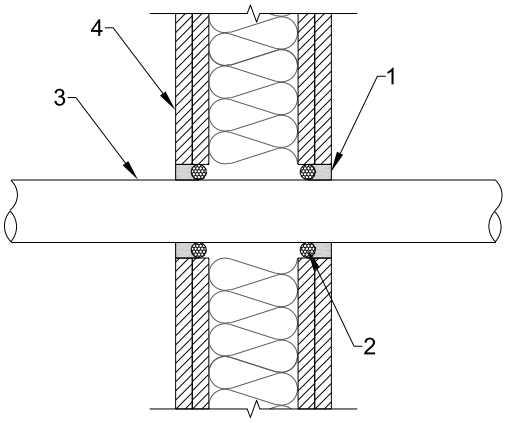
Double sided penetration seal with steel pipes

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant on to both sides of the wall, installed flush with both surfaces of wall
Construction details: 	Key: 1. fischer FiAM Plus 2. Backing material 3. Pipe 4. Wall (≥100 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	≥10 mm	10 mm	PE backer rod	EI 60 – C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness				E 60 – C/U, C/C EI 15 – C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness				E 60 – C/U, C/C
Steel pipe, max. Ø355.6 mm, min. 10.0 mm wall thickness				E 60 – C/U, C/C EI 20 – C/U, C/C
Steel pipe, max. Ø355.6 mm, min. 20.0 mm wall thickness				E 60– C/U, C/C EI 30 – C/U, C/C

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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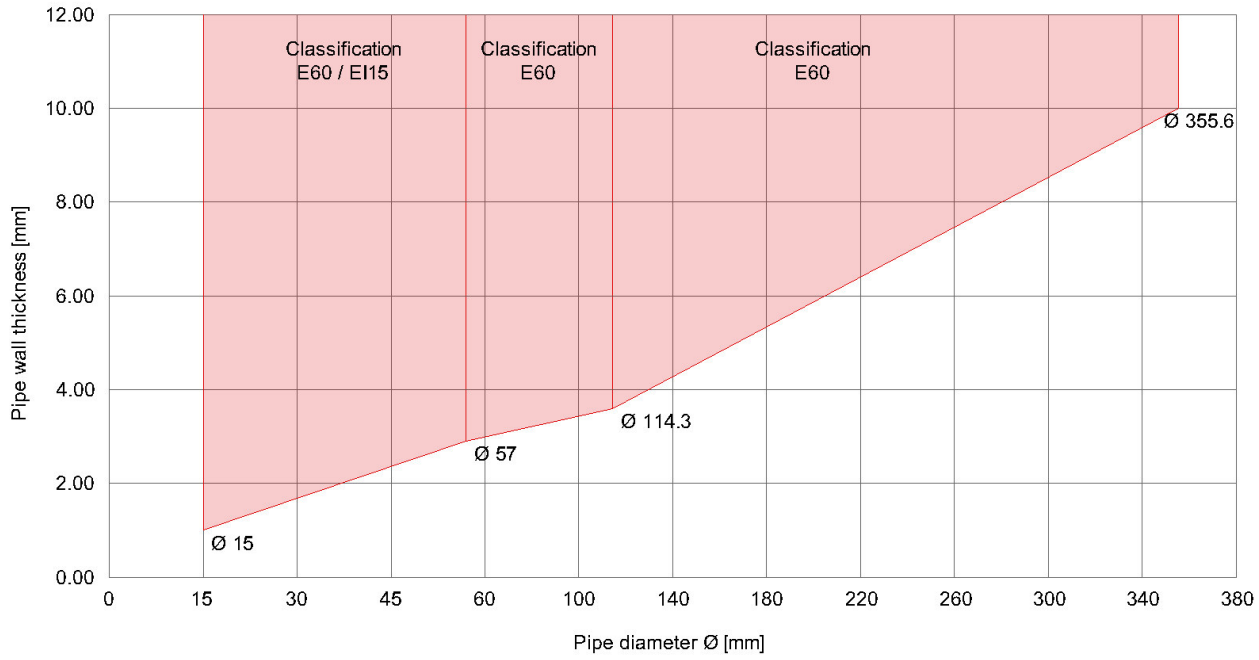
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with steel pipes



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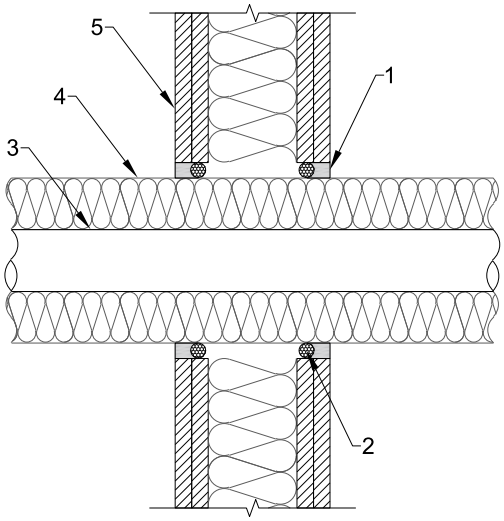
Double sided penetration seal with stone wool insulated steel pipes (CS)

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥100 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	Stone wool, ρ ≥42 kg/m³, thickness ≥50 mm*	≥10 mm	10 mm	PE backer rod	E 60 – U/C, C/U, C/C EI 45 – U/C, C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness					E 60 – U/C, C/U, C/C EI 30 – U/C, C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness					E 60 – U/C, C/U, C/C EI 45 – U/C, C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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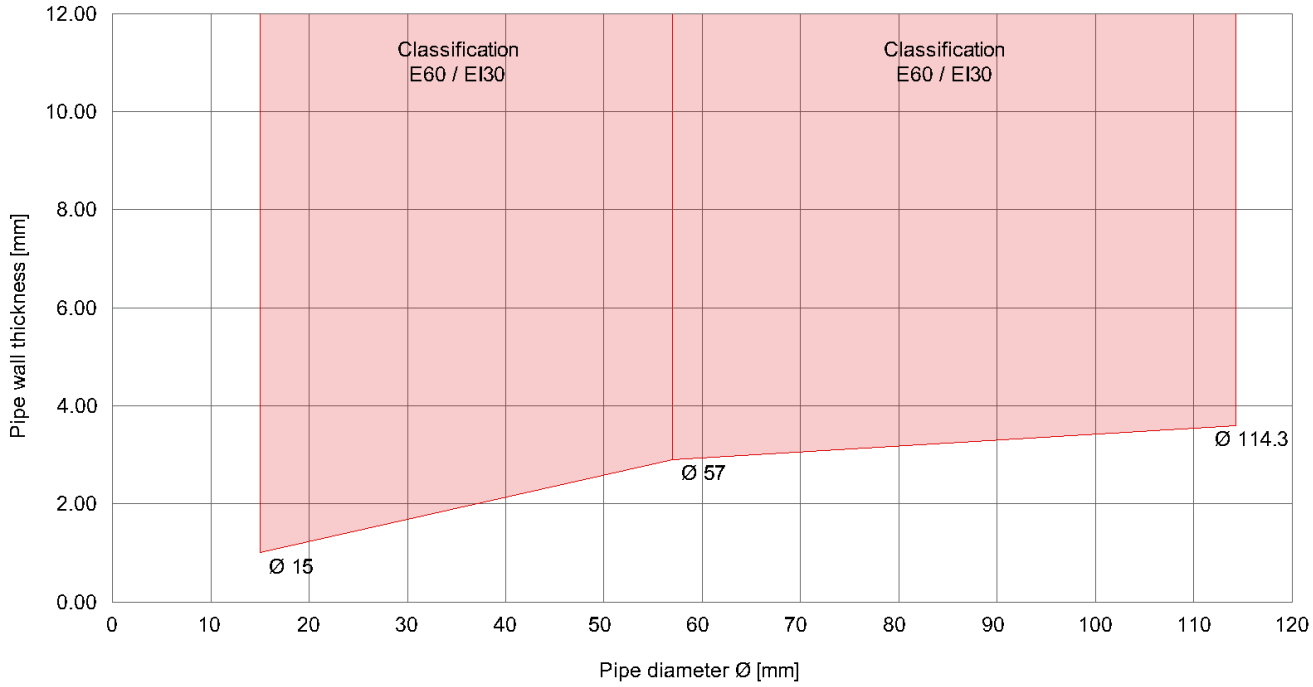
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with stone wool insulated steel pipes (CS)



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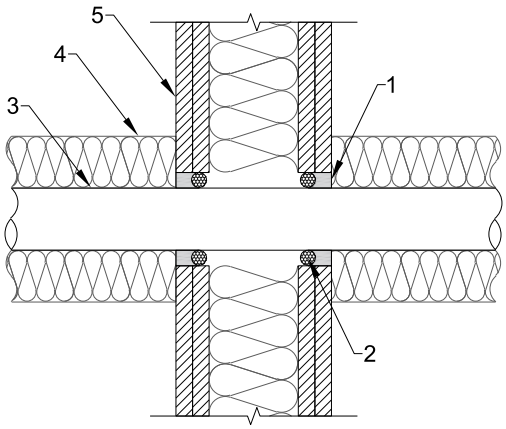
Double sided penetration seal with stone wool insulated steel pipes (CI)

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥100 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	Stone wool, ρ ≥ 42 kg/m³, thickness ≥ 50 mm*	≥10 mm	10 mm	PE backer rod	EI 60 – U/C, C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness					E 60 – U/C, C/U, C/C EI 45 – U/C, C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness					E 60 – U/C, C/U, C/C EI 30 – U/C, C/U, C/C

* CI = Continued Interrupted

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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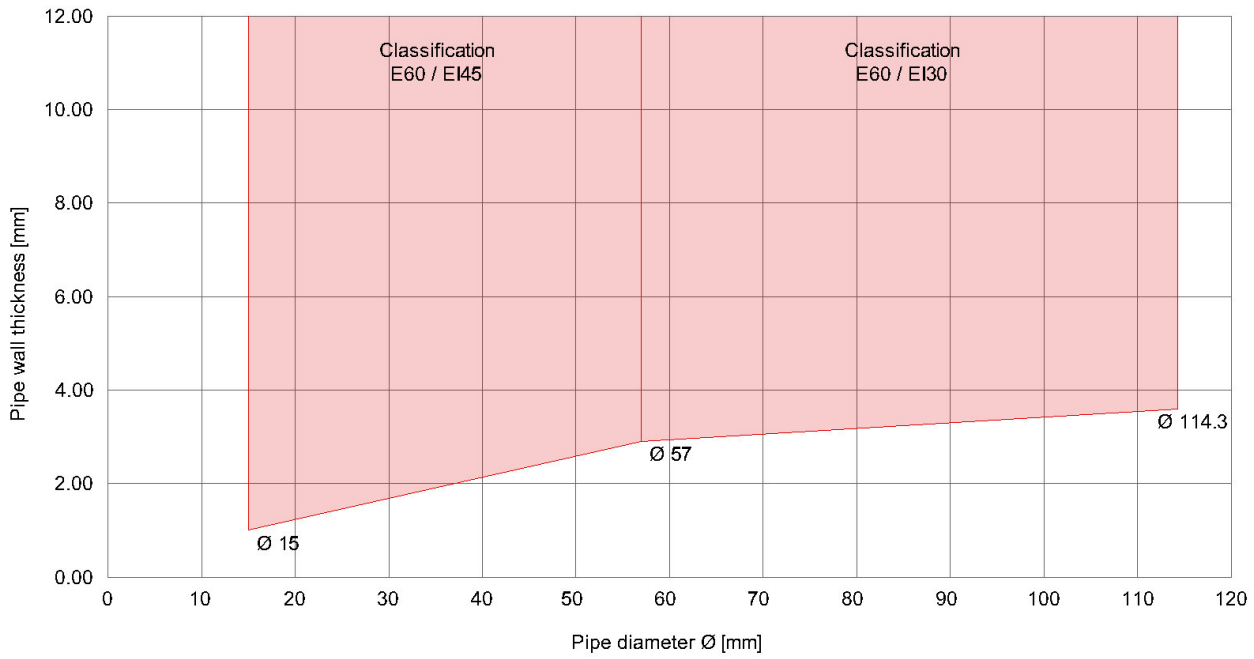
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with stone wool insulated steel pipes (CI)



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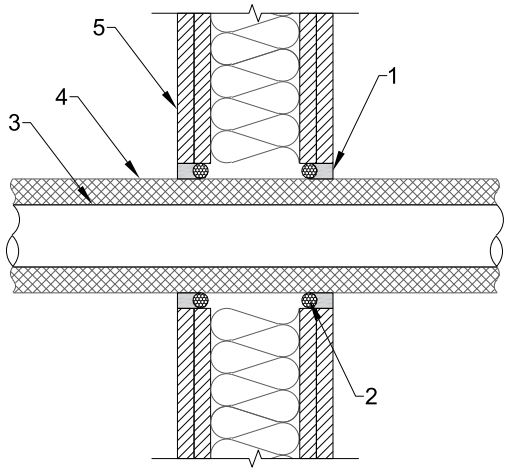
Double sided penetration seal with rubber type insulated steel pipes (CS)

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥100 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	AF/ArmaFlex Evo, 13 mm thickness*	≥20 mm	20 mm	PE backer rod	EI 60 – C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness					EI 60 – C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness	AF/ArmaFlex Evo, 25 mm thickness*				E 60 – C/U, C/ EI 45 – C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness					E 60 – C/U, C/ EI 45 – C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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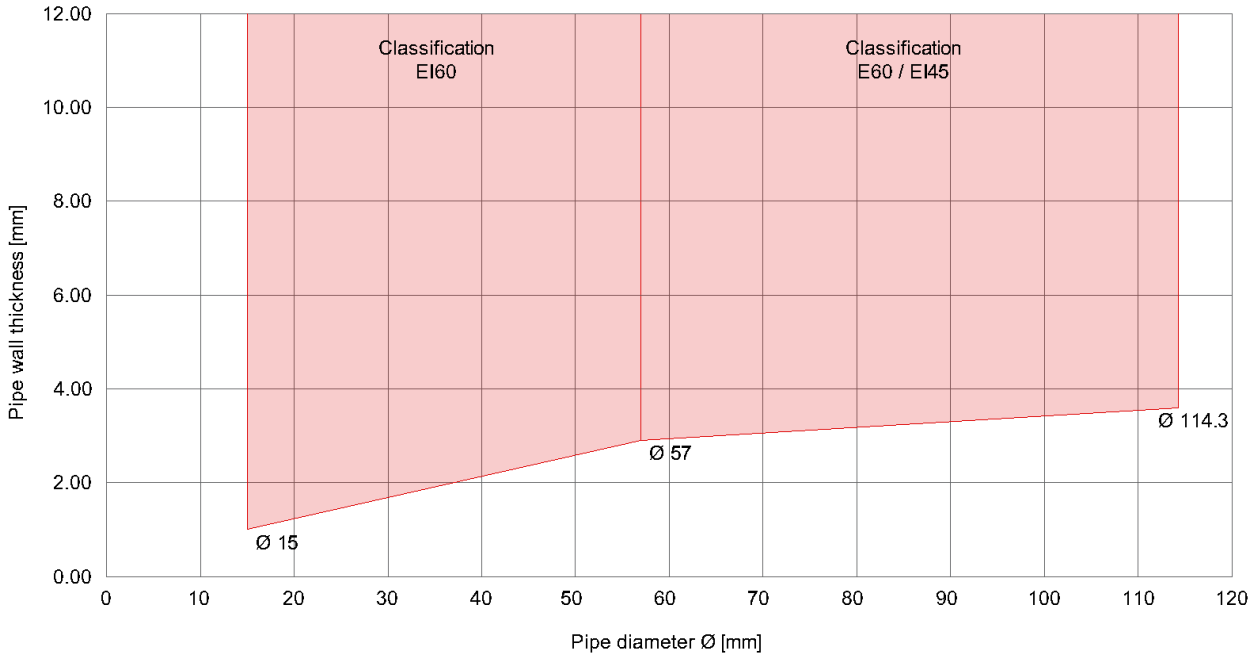
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with rubber type insulated steel pipes (CS)



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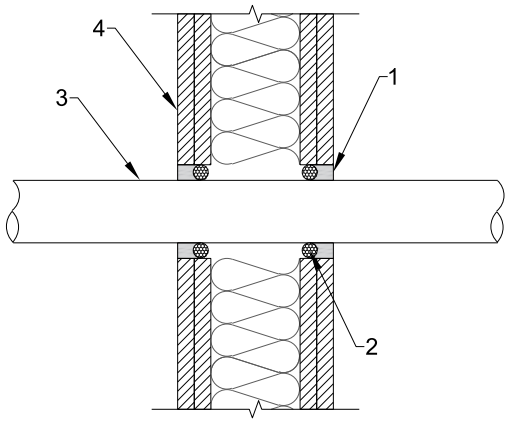
Double sided penetration seal with copper pipes

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Wall (≥100 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	≥10 mm	10 mm	PE backer rod	E 60 – C/U, C/C
Copper pipe, max. Ø40 mm, min. 1.5 mm wall thickness				E 60 – C/U, C/C

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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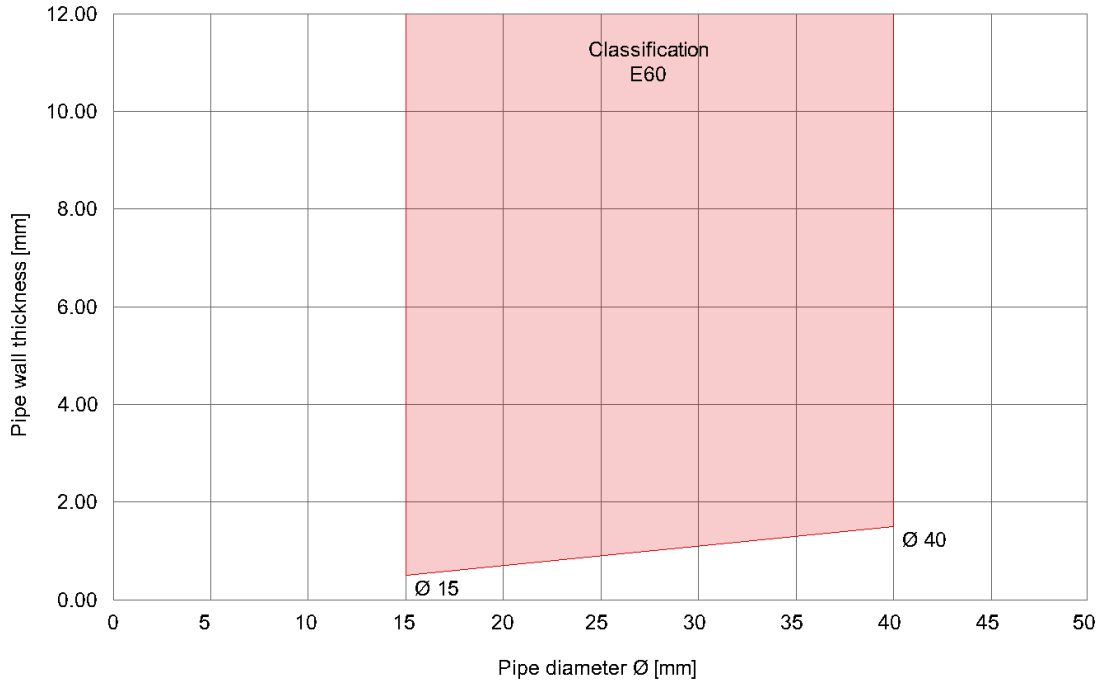
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with copper pipes



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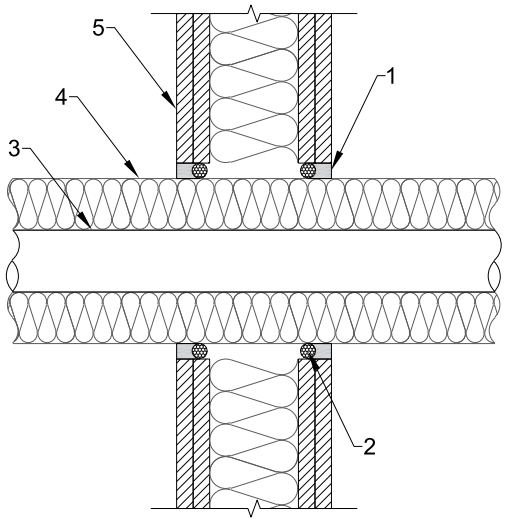
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Double sided penetration seal with stone wool insulated copper pipes (CS)

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥100 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	Mineral stone wool, ρ ≥ 42 kg/m³, thickness ≥ 50 mm*	≥10 mm	10 mm	PE backer rod	EI 60 – U/C, C/U, C/C
Copper pipe, max. Ø40 mm, min. 1.5 mm wall thickness					E 60 – U/C, C/U, C/C EI 45 – U/C, C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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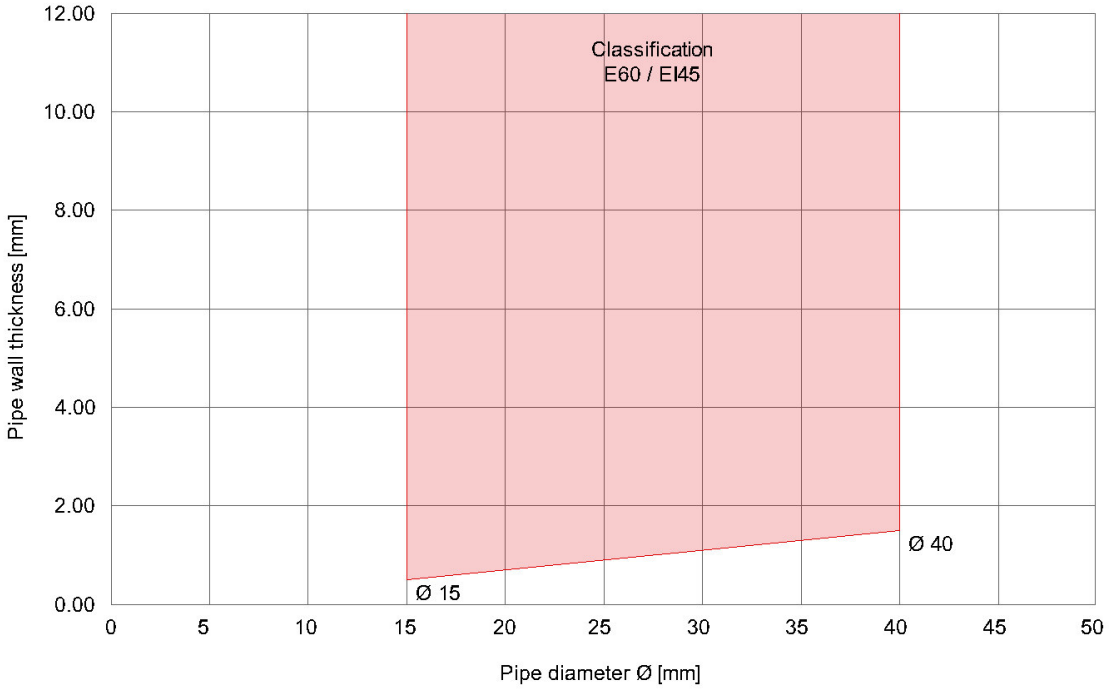
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with stone wool insulated copper pipes (CS)



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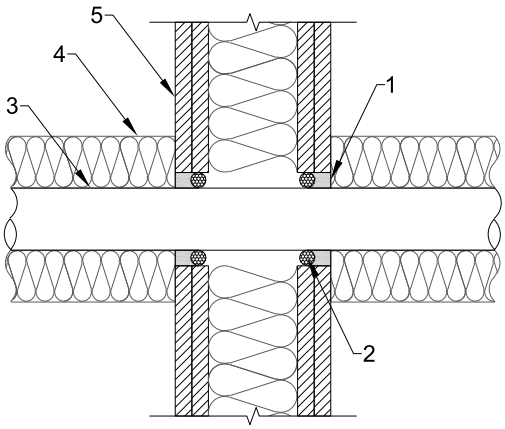
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Double sided penetration seal with stone wool insulated copper pipes (CI)

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥100 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	Stone wool, ρ ≥ 42 kg/m³, thickness ≥50 mm*	≥10 mm	10 mm	PE backer rod	EI 60- – U/C, C/U, C/C
Copper pipe, max. Ø40 mm, min. 1.5 mm wall thickness					EI 60 – U/C, C/U, C/C

* CI = Continued Interrupted

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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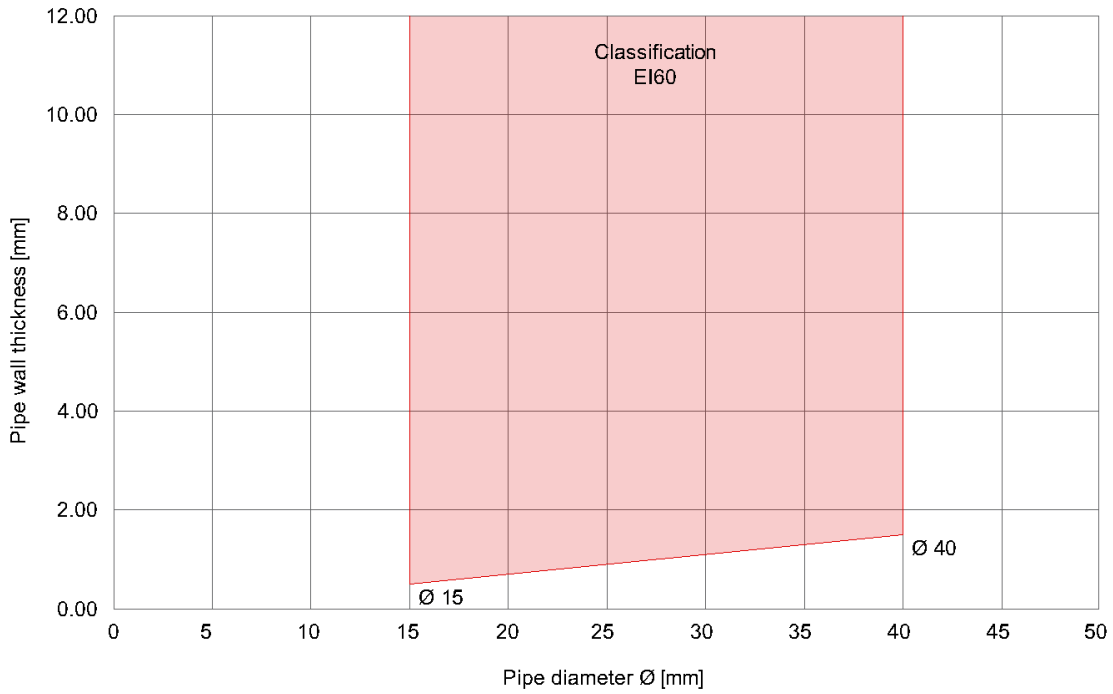
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with stone wool insulated copper pipes (CI)



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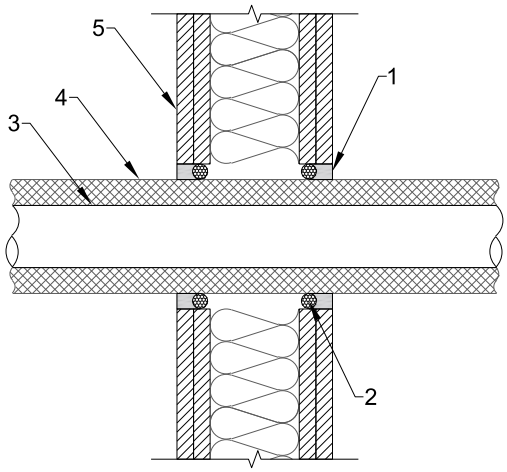
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Double sided penetration seal with rubber type insulated copper pipes (CS)

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥100 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	AF/ArmaFlex Evo, 13 mm thickness*	≥20 mm	20 mm	PE backer rod	EI 60 – C/U, C/C
Copper pipe, max. Ø40 mm, min. 1.5 mm wall thickness					E 60 – C/U, C/C EI 45 – C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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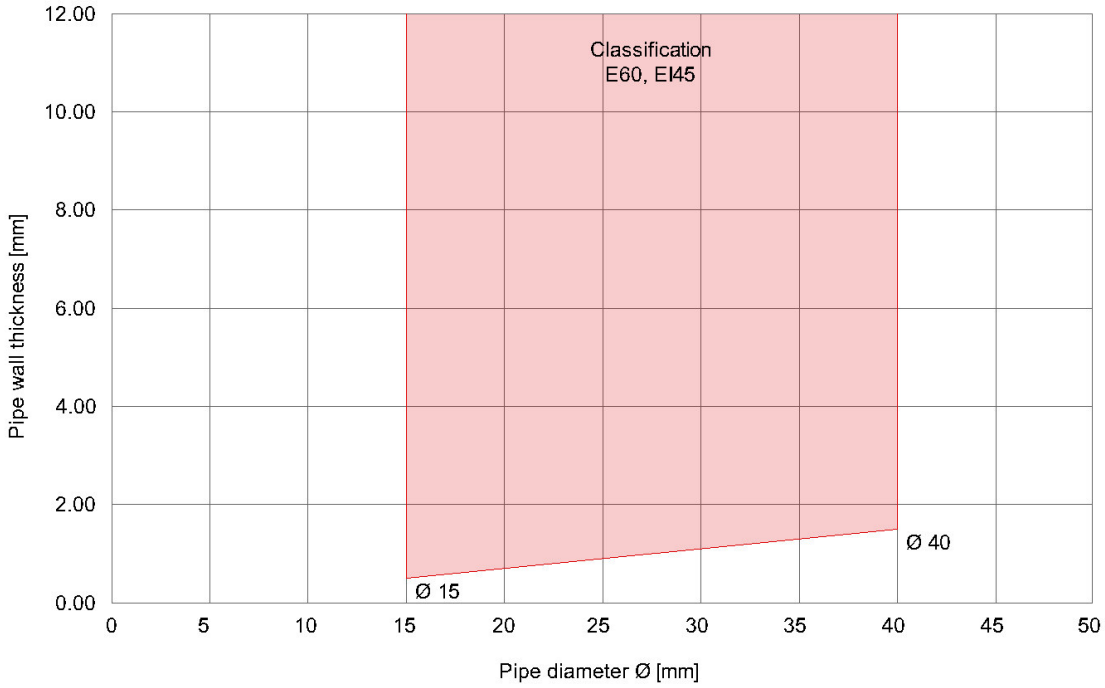
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with rubber type insulated copper pipes (CS)



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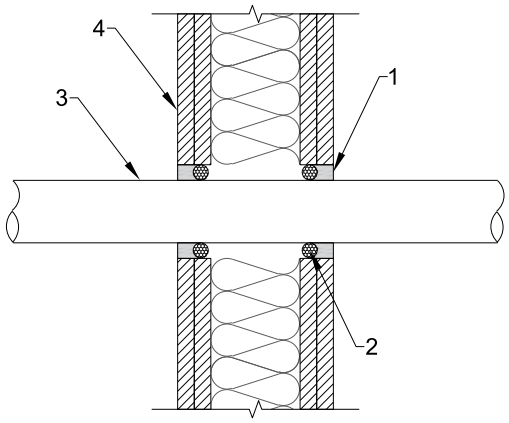
Double sided penetration seal with combustible pipes

Penetration Seal:	Combustible pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Wall (≥100 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Seal thickness	Annular space	Backing material	Classification
PP pipe, max. Ø50 mm, 2.7 mm wall thickness	≥20 mm	20 mm	PE backer rod	EI 45 – U/C, C/C
PVC pipe, max. Ø50 mm, 3.7 mm wall thickness				E 60 – U/C, C/C EI 15 – U/C, C/C
PE pipe, max. Ø50 mm, 3.0 mm wall thickness				EI 60 – U/C, C/C

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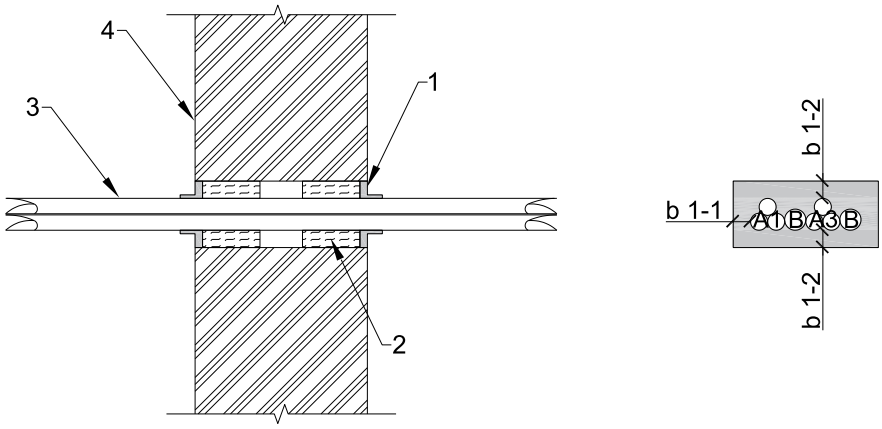
Rigid wall constructions with minimum wall thickness of 115 mm

Double sided penetration seal with cables (service option S)

Penetration Seal:	Cables sealed with fischer FiAM Plus sealant to both sides of the wall, backed with stone wool insulatio Sealant installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Cables
4. Wall (≥^s115 mm)

b 1-1 –side (≥10 mm)
b 1-2 – top/bottom (≥10 mm)
Cable support ≤250 mm from wall

Type of penetrant	Cable type	Maximum aperture size	Seal thickness	Seal overlap on penetrant	Backing material	Classification
Service option S	Sheathed cables / telecommunication cables / optical fibre cables up to a max. outer diameter of 21 mm without cable carrier	112 mm x 55 mm	≥5 mm	≥13 mm*	Stone wool ρ ≥60 kg/m³, ≥40 mm deep from both sides**	E 120 EI 45

• overlap with sealant thickness of t ≥3 mm
** ≥10 mm air gap between layers of insulation

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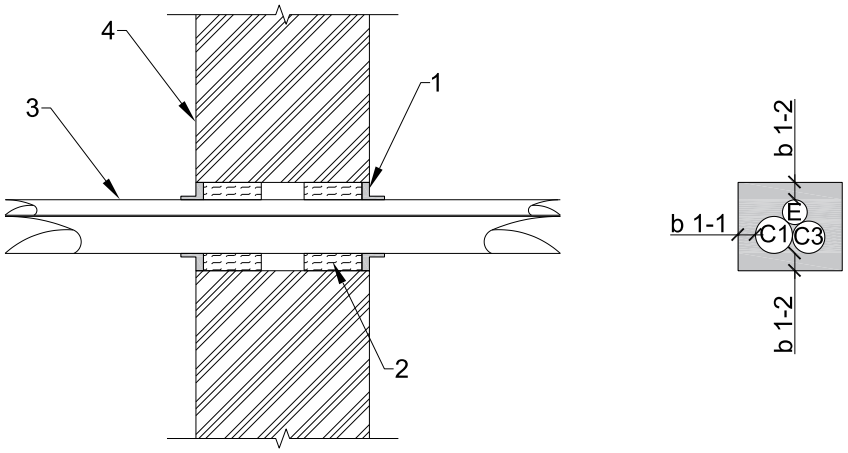
Double sided penetration seal with cables (service option M)

Penetration Seal:	Cables sealed with fischer FiAM Plus sealant to both sides of the wall, backed with stone wool insulati Sealant installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Cables
4. Wall (≥115 mm)

b 1-1 –side (≥10 mm)
b 1-2 – top/bottom (≥10 mm)
Cable support ≤250 mm from wall

Type of penetrant	Cable type*	Maximum aperture size	Seal thickness	Seal overlap on penetrant	Backing material	Classification
Service option M	Sheathed cables / telecommunication cables / optical fibre cables up to a max. outer diameter of 50 mm without cable carrier	105 mm x 81 mm	≥5 mm	≥13 mm*	Stone wool ρ ≥60 kg/m³, ≥40 mm deep from both sides**	E 120 EI 30

* overlap with sealant thickness of t ≥3 mm
** ≥10 mm air gap between layers of insulation

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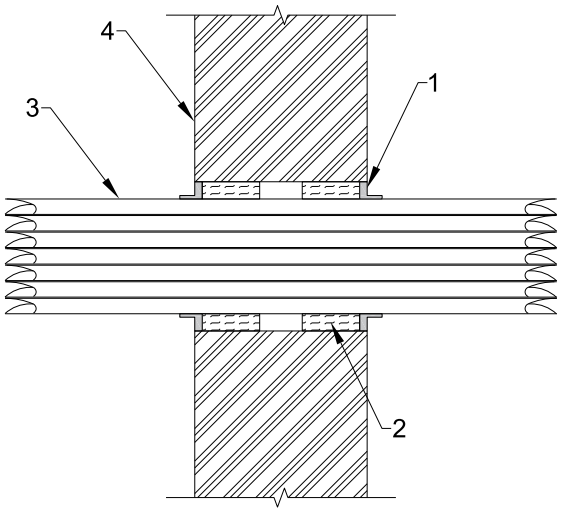
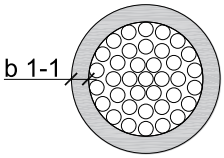
Double sided penetration seal with cables (tied bundle of cables)

Penetration Seal:	Cable bundle sealed with fischer FiAM Plus sealant to both sides of the wall, backed with stone wool ins Sealant installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:





F-cable bundle

Key:

1. fischer FiAM Plus
2. Backing material
3. Cable bundle
4. Wall (≥115 mm)

b 1-1 –side (≥ 10 mm)
Cable support ≤250 mm from wall

Type of penetrant	Cable type	Maximum aperture size	Seal thickness	Seal overlap on penetrant	Backing material	Classification
Tied bundle of cables	Tied bundles up to 100 mm overall diameter containing sheathed electrical / telecommunication / optical fibre cables up to a max. outer diameter of 21 mm without cable carrier	Ø120 mm	≥5 mm	≥13 mm*	Stone wool ρ ≥60 kg/m³, ≥40 mm deep from both sides**	E 120 EI 45

* overlap with sealant thickness of t ≥3 mm
** ≥10 mm air gap between layers of insulation

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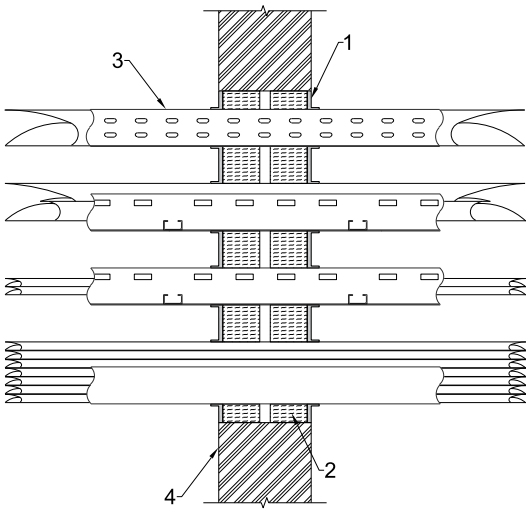
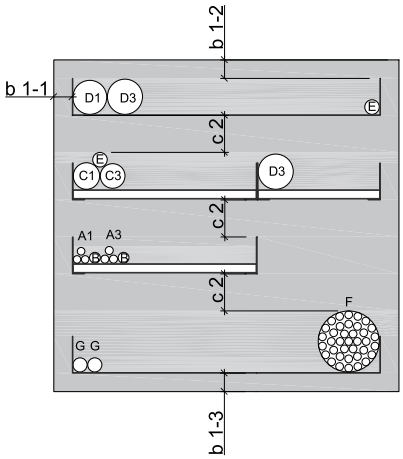
Double sided penetration seal with cables support (service option 'L')

Penetration Seal:	Cables sealed with fischer FiAM Plus sealant to both sides of the wall, backed with stone wool insulation Sealant installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:





Key:

1. fischer FiAM Plus
2. Backing material
3. Cable carrier
4. Wall (≥115 mm)

Minimum working clearance: Distance between cable / cable carrier and the aperture edge

b 1-1 – Distance between a cable / the cable carrier and the aperture edge – aside (≥25 mm)

b 1-2 – Distance between a cable / the cable carrier and the aperture edge – above (≥25 mm and ≤ 85 mm)

b 1-3 – Distance between a cable / the cable carrier and the aperture edge – underneath (≥25 mm)

c1 (not shown) – Distance between a cable carrier and another cable carriers – aside (≥0 mm)

c2 – Distance between a cable / the cable carrier and other cables / cable carriers – underneath (≥50 mm)

Cable support (with cable carrier) ≤250 mm from both surface of wall

Cable support (without cable carrier) ≤150 mm from both surface of wall

Type of penetrant	Cable type***	Maximum aperture size	Seal thickness	Seal overlap on penetrant	Backing material	Classification
Service option L	Sheathed cables / telecommunication cables / optical fibre cables up to a max. outer diameter of 80 mm	550 mm x 500 mm	≥5 mm	≥13 mm*	Stone wool ρ ≥60 kg/m³, ≥40 mm deep from both sides**	E 120 EI 30
	Tied bundles up to 100 mm overall diameter containing sheathed electrical / telecommunication / optical fibre cables up to a max. outer					
	Non-sheathed cables up to a maximum outer diameter of 24 mm					

* overlap with sealant thickness of t ≥3 mm

** ≥10 mm air gap between layers of insulation

*** with or without cable carrier

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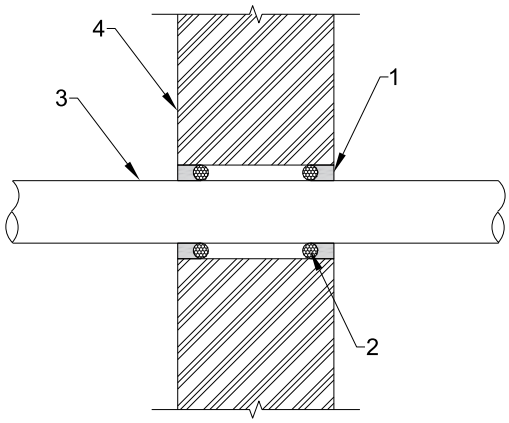
Double sided penetration seal with steel pipes

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Wall (≥115 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	≥10 mm	10 mm	PE backer rod	EI 240 – C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness				E 240 – C/U, C/C EI 30 – C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness				E 240 – C/U, C/C EI 15 – C/U, C/C
Steel pipe, max. Ø355.6 mm, min. 10.0 mm wall thickness				E 240 – C/U, C/C EI 20 – C/U, C/C

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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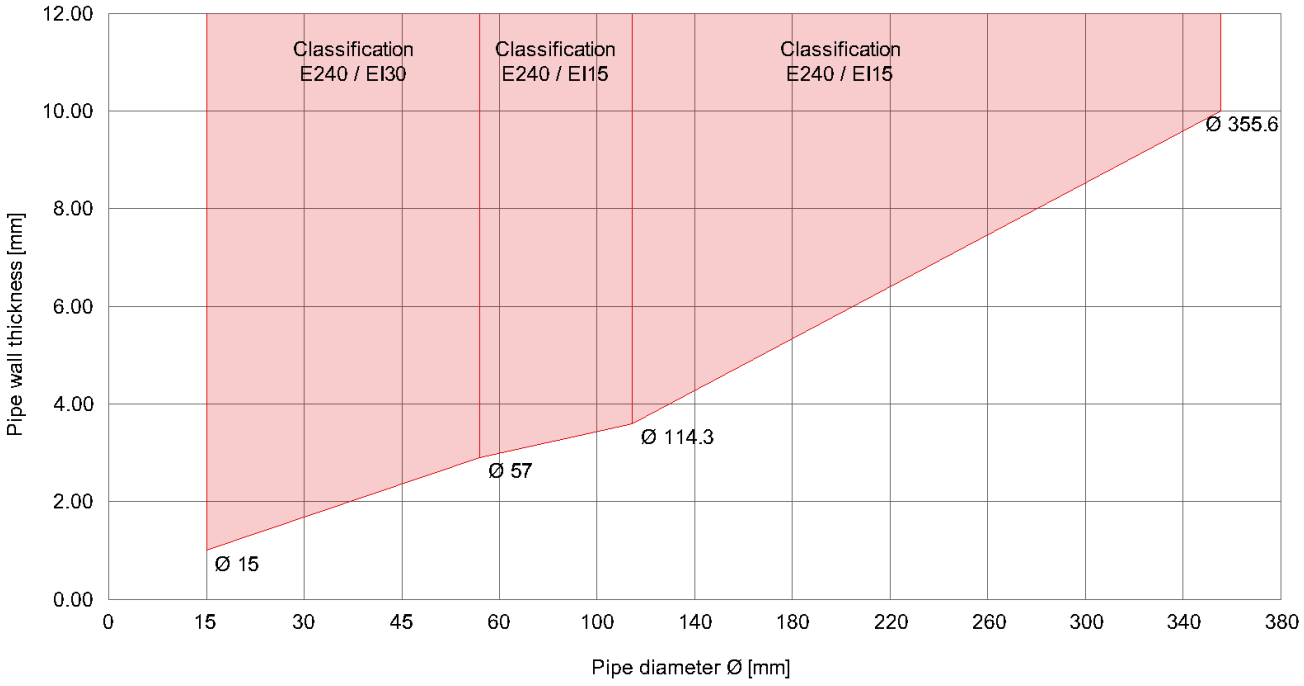
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with steel pipes



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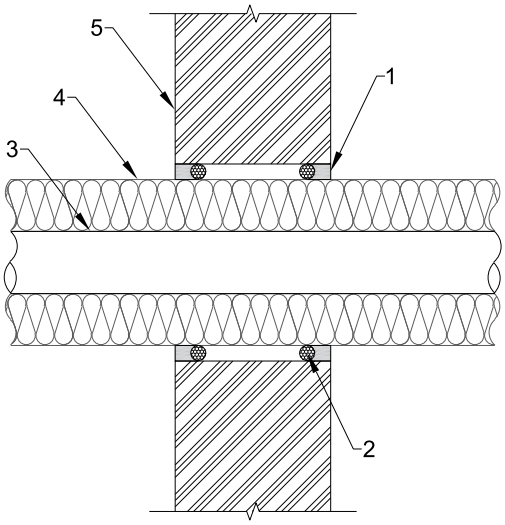
Double sided penetration seal with stone wool insulated steel pipes (CS)

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥115 mm)

Pipe support ≤ 250mm from wall

Type of penetration	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	Stone wool, ρ ≥ 100 kg/m³, thickness ≥ 50 mm*	≥10 mm	10 mm	PE Backer rod	E 240 – U/C, C/U, C/C EI 120 – U/C, C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness					E 240 – U/C, C/U, C/C EI 120 – U/C, C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness					E 240 – U/C, C/U, C/C EI 90 – U/C, C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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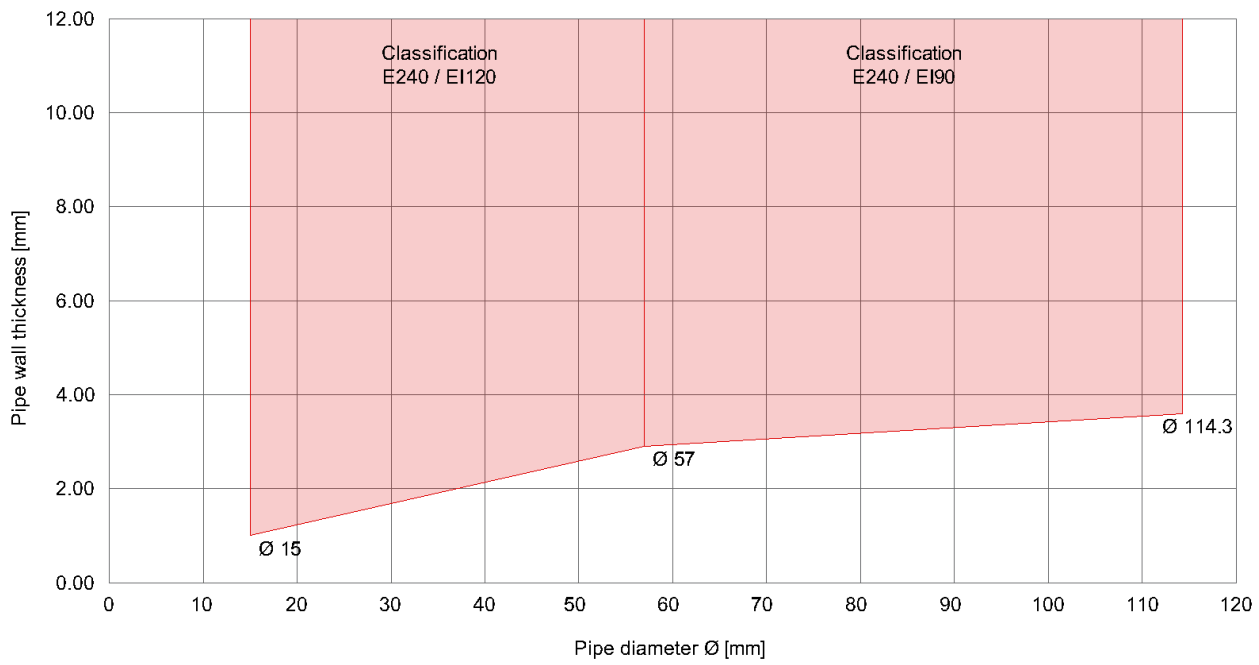
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with stone wool insulated steel pipes (CS)



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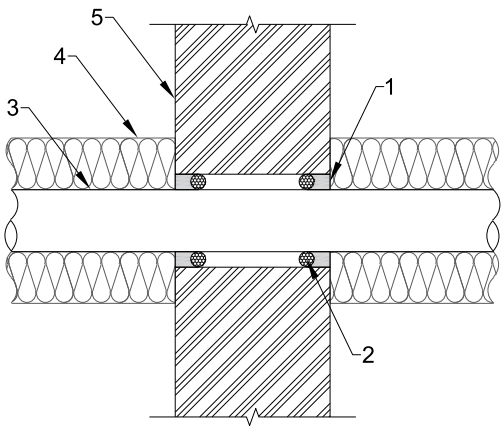
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Double sided penetration seal with stone wool insulated steel pipes (CI)

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥115 mm)

Pipe support ≤ 250mm from wall

Type of penetration	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	Stone wool, ρ ≥ 100 kg/m³, thickness ≥ 50 mm*	≥10 mm	10 mm	PE Backer rod	EI 240 – U/C, C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness					E 240 – U/C, C/U, C/C EI 180 – U/C, C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness					E 240 – U/C, C/U, C/C EI 90 – U/C, C/U, C/C

* CI = Continued Interrupted

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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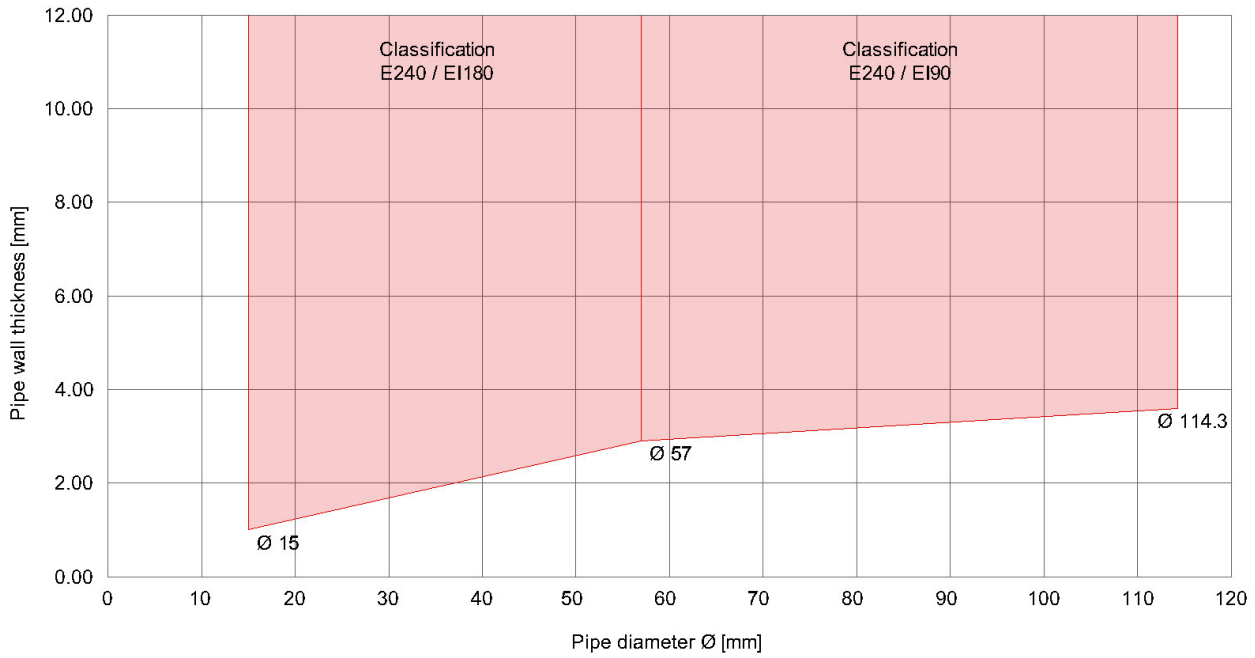
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with stone wool insulated steel pipes (CI)



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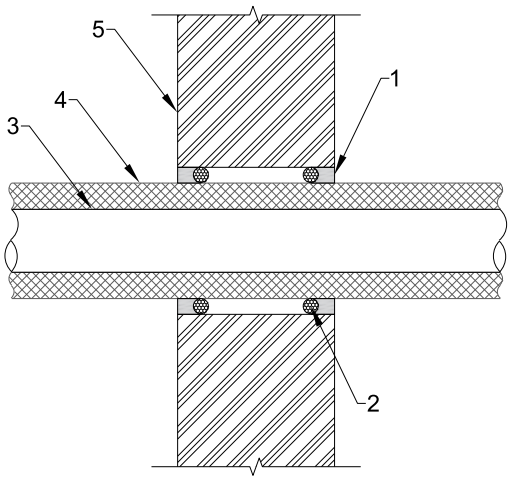
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Double sided penetration seal with rubber type insulated steel pipes (CS)

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥115 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	AF/ArmaFlex Evo, 13 mm – 25 mm thickness*	≥20 mm	20 mm	PE backer rod	EI 120 – C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness					E 120 – C/U, C/C EI 90 – C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness	AF/ArmaFlex Evo, 25 mm thickness*				E 120 – C/U, C/C EI 90 – C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness					EI 60 – C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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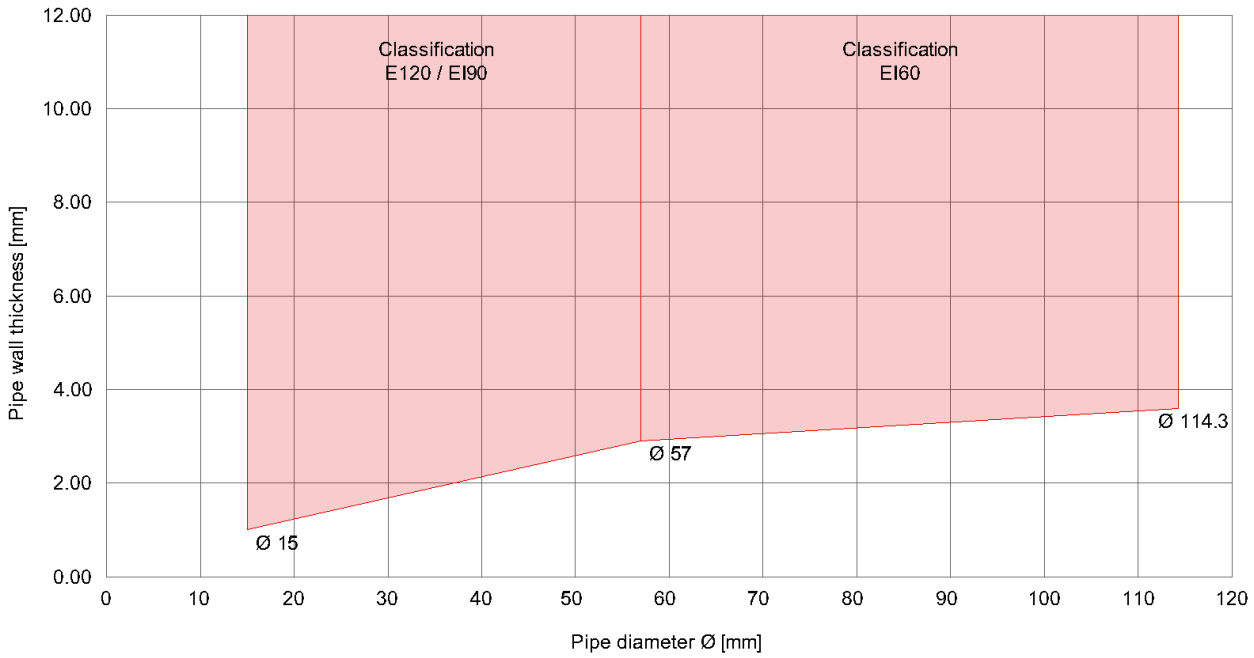
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with rubber type insulated steel pipes (CS)



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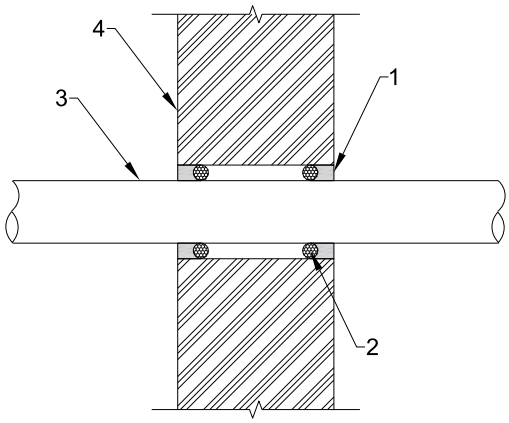
Double sided penetration seal with copper pipes

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Wall (≥115 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	≥10 mm	10 mm	PE backer rod	E 240 – C/U, C/C EI 15 – C/U, C/C
Copper pipe, max. Ø42 mm, min. 1.5 mm wall thickness				E 240 – C/U, C/C

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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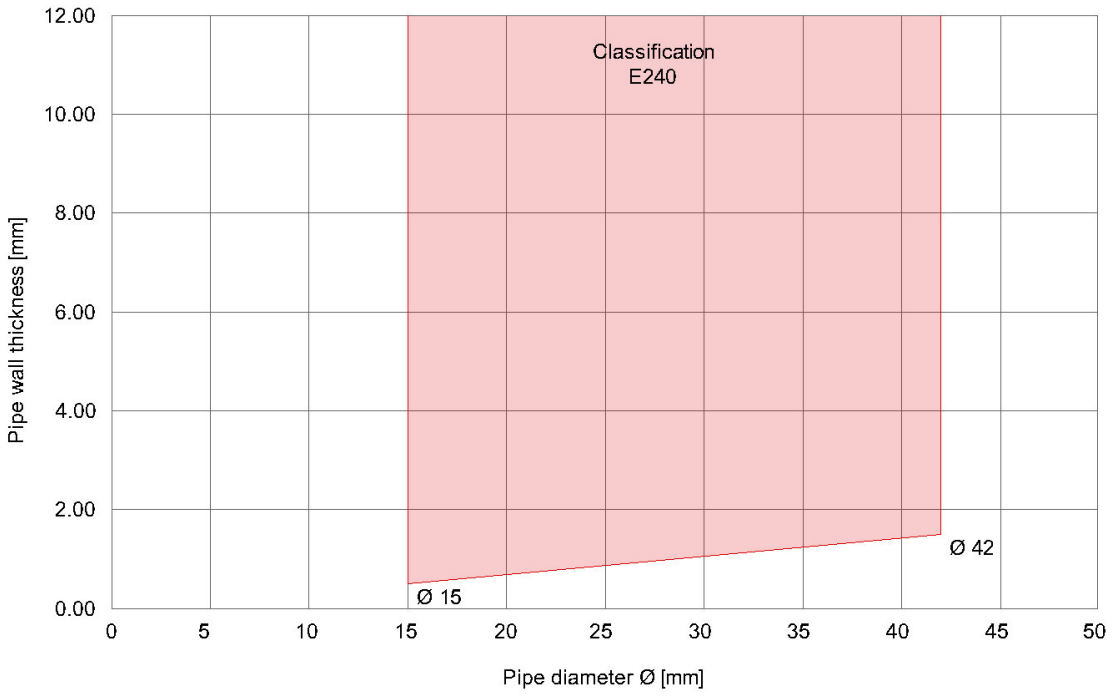
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with copper pipes



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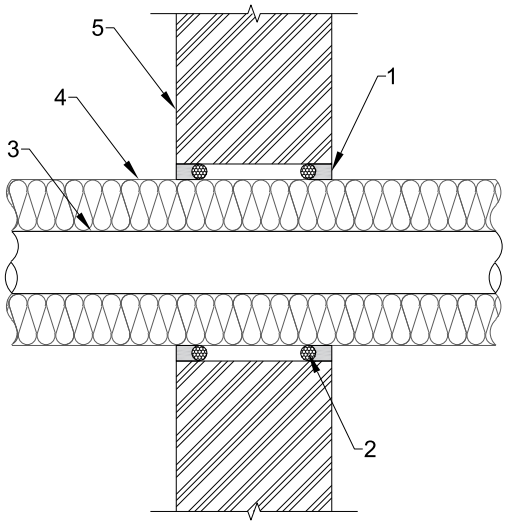
Double sided penetration seal with stone wool insulated copper pipes (CS)

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥115 mm)

Pipe support ≤ 250mm from wall

Type of penetration	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	Stone wool, ρ ≥ 100 kg/m³, thickness ≥ 50 mm*	≥10 mm	10 mm	PE backer rod	E 240 – U/C C/U, C/C EI 180 – U/C, C/U, C/C
Copper pipe, max. Ø42 mm, min. 1.5 mm wall thickness					E 240 – U/C C/U, C/C EI 120 – U/C C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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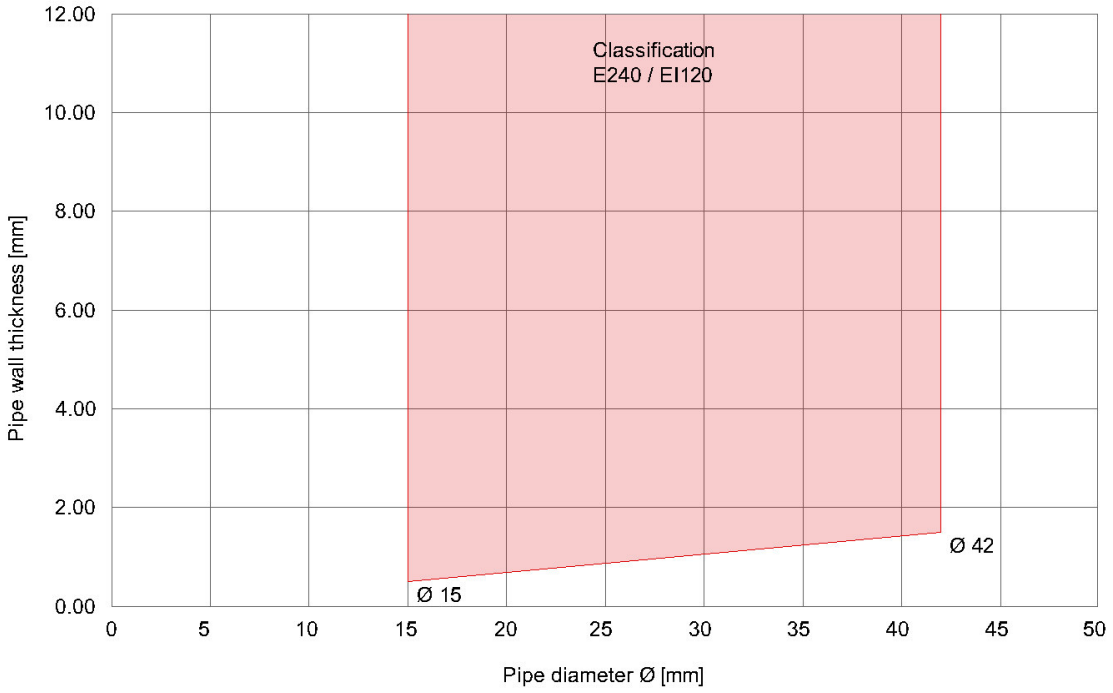
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with stone wool insulated copper pipes (CS)



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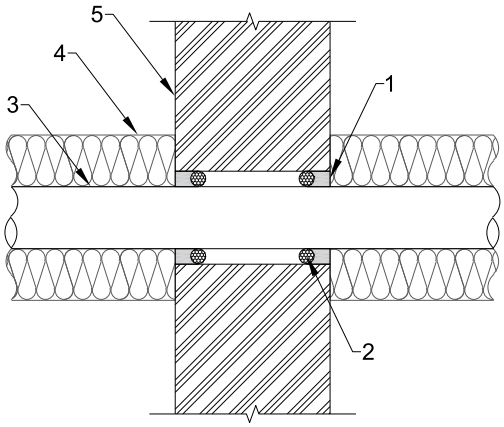
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Double sided penetration seal with stone wool insulated copper pipes (CI)

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥115 mm)

Pipe support ≤ 250mm from wall

Type of penetration	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	Mineral stone wool, ρ ≥ 100 kg/m³, thickness ≥ 50 mm*	≥10 mm	10 mm	PE backer rod	EI 240 – U/C, C/U, C/C
Copper pipe, max. Ø42 mm, min. 1.5 mm wall thickness					E 240 – U/C, C/U, C/C EI 180 – U/C, C/U, C/C

* CI = Continued Interrupted

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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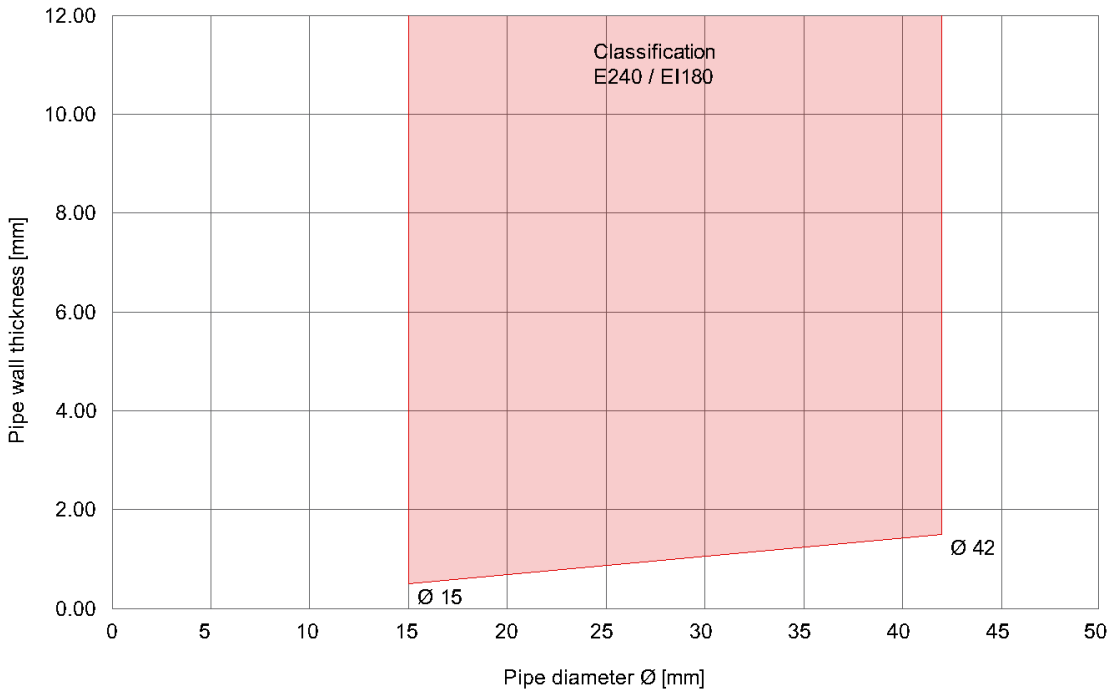
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with stone wool insulated copper pipes (CI)



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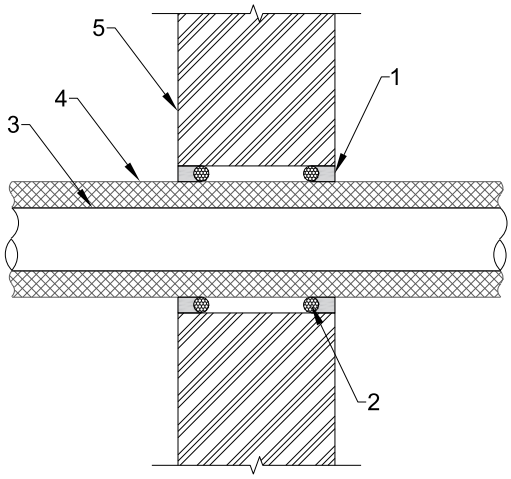
Double sided penetration seal with rubber type insulated copper pipes (CS)

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with both surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Wall (≥115 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	AF/ArmaFlex Evo, 13 mm thickness*	≥20 mm	20 mm	PE backer rod	EI 120 – C/U, C/C
Copper pipe, max. Ø42 mm, min. 1.5 mm wall thickness					E 120 – C/U, C/C EI 60 – C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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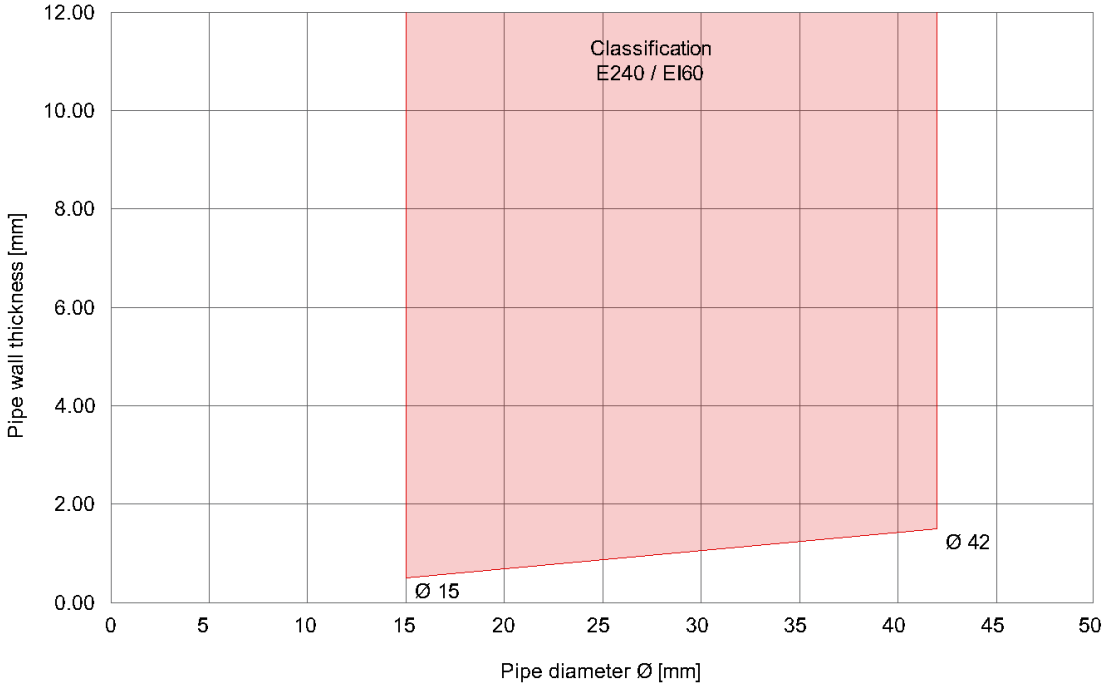
Penetration Seal: Pipe diameter and wall thickness interpolation for
Double sided penetration seal with rubber type insulated copper pipes (CS)



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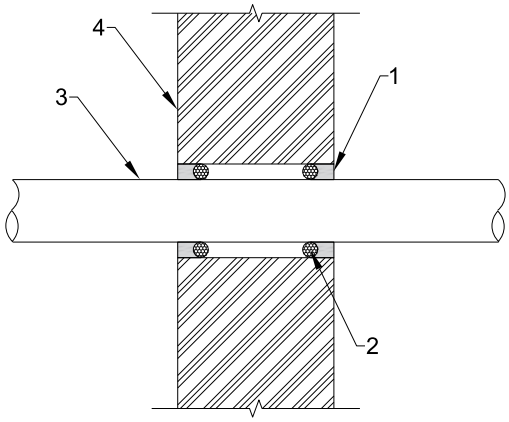
Appendix UL-EU CERTIFICATE UL-EU-01277-EN

Double sided penetration seal with combustible pipes

Penetration Seal:	Combustible pipes sealed with fischer FiAM Plus sealant to both sides of the wall, installed flush with bo surfaces of wall. Rigid wall thickness ≥115 mm (≥ 650 kg/m^3).
Construction details: 	Key: 1. fischer FiAM Plus 2. Backing material 3. Pipe 4. Wall (≥115 mm)

Pipe support ≤ 250mm from wall

Type of penetrant	Sealant thickness	Annular space	Backing material	Classification
PP pipe, max. Ø50 mm, 2.7 mm wall thickness	≥20 mm	20 mm	PE backer rod	EI 60 – U/C, C/C
PVC pipe, max. Ø50 mm, 3.7 mm wall thickness				EI 120 – U/C, C/C
PE pipe, max. Ø50 mm, 3.0 mm wall thickness				EI 90 – U/C, C/C

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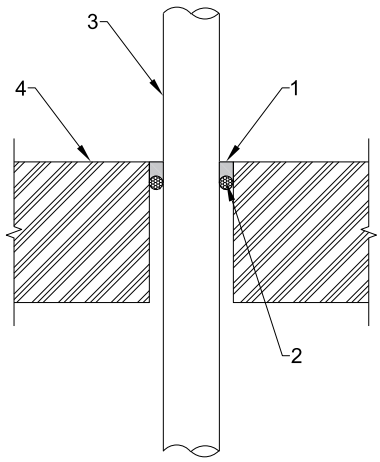
Rigid floor constructions with minimum floor thickness of 150 mm

One sided penetration seal with steel pipes

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to top side of the floor, installed flush with surface of floor. Rigid floor thickness ≥150 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Floor (≥150 mm)

Pipe support ≤ 250mm from top surface of floor

Type of penetrant	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	≥10 mm	10 mm	PE backer rod	E 240 – C/U, C/C EI 180 – C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness				E 240 – C/U, C/C EI 45 – C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness				E 240 – C/U, C/C EI 30 – C/U, C/C
Steel pipe, max. Ø355.6 mm, min. 10.0 mm wall thickness				E 180 – C/U, C/C EI 30 – C/U, C/C
				E 240 – C/U, C/C EI 30 – C/C

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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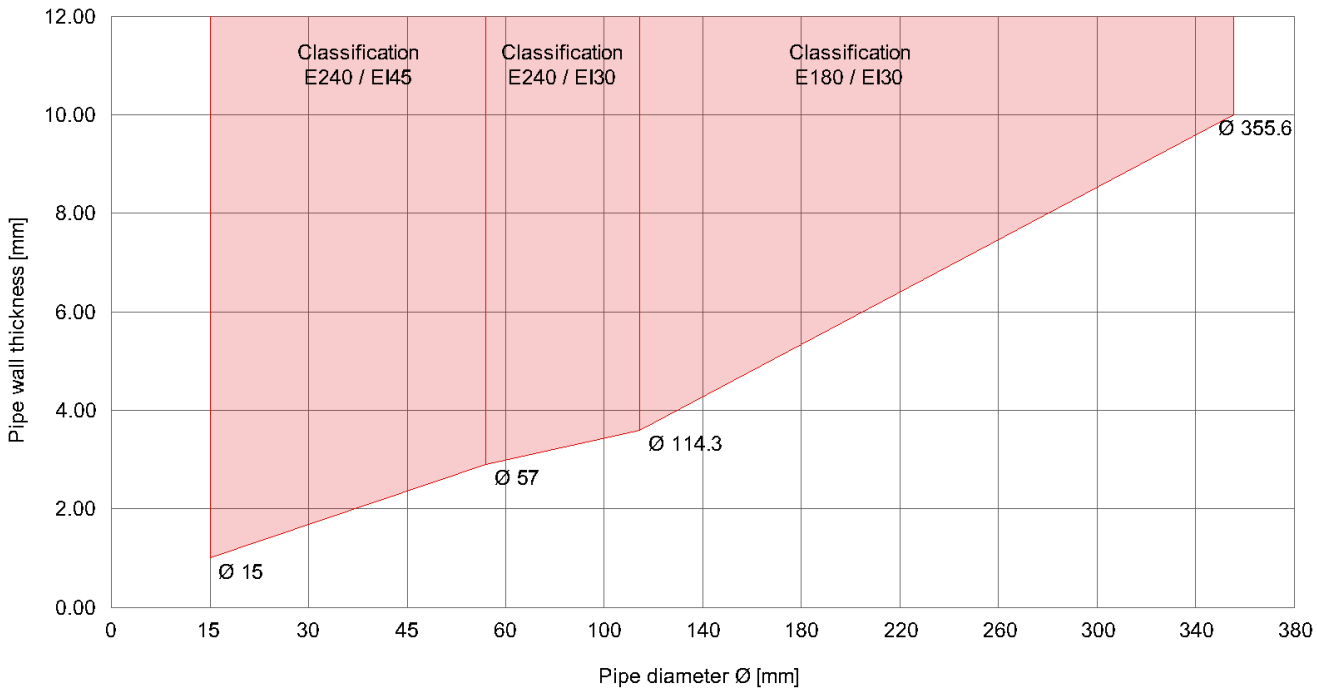
Penetration Seal: Pipe diameter and wall thickness interpolation for
One sided penetration seal with steel pipes



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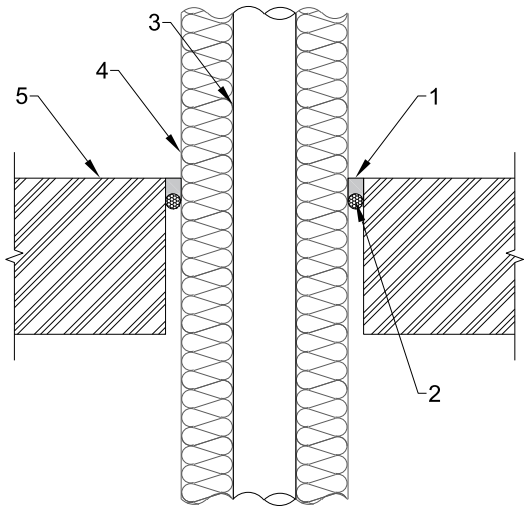
One sided penetration seal with stone wool insulated steel pipes (CS)

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to top side of the floor, installed flush with surface of floor. Rigid floor thickness ≥150 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Floor (≥150 mm)

Pipe support ≤ 250mm from top surface of floor

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	Stone wool, ρ ≥42 kg/m³, thickness ≥50 mm*	≥10 mm	10 mm	PE backer rod	E 240 – U/C, C/U, C/C EI 120 – U/C, C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness					E 240 – U/C, C/U, C/C EI 60 – U/C, C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness					E 240 – U/C, C/U, C/C EI 90 – U/C, C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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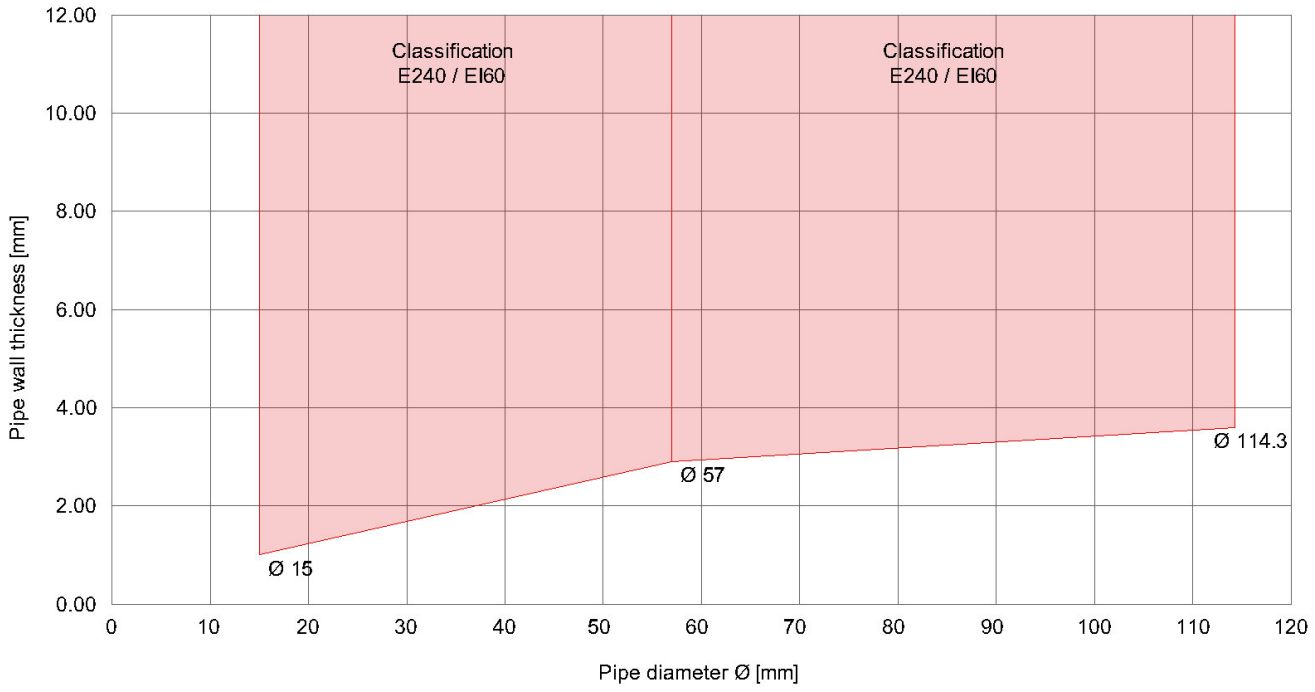
Penetration Seal: Pipe diameter and wall thickness interpolation for
One sided penetration seal with stone wool insulated steel pipes (CS)



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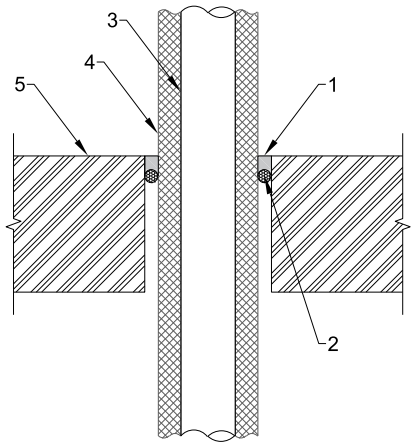
One sided penetration seal with rubber type insulated steel pipes (CS)

Penetration Seal:	Steel pipes sealed with fischer FiAM Plus sealant to top side of the floor, installed flush with surface of floor. Rigid floor thickness ≥150 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Floor (≥150 mm)

Pipe support ≤ 250mm from top surface of floor

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Steel pipe, max. Ø15 mm, min. 1.0 mm wall thickness	AF/ArmaFlex Evo, 13 -25 mm thickness*	≥25 mm	20 mm	PE backer rod	EI 120 – C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness					E 120 – C/U, C/C EI 90 – C/U, C/C
Steel pipe, max. Ø57 mm, min. 2.9 mm wall thickness	AF/ArmaFlex Evo, 25 mm thickness*				EI 120 – C/U, C/C
Steel pipe, max. Ø114.3 mm, min. 3.6 mm wall thickness					E 120 – C/U, C/C EI 90 – C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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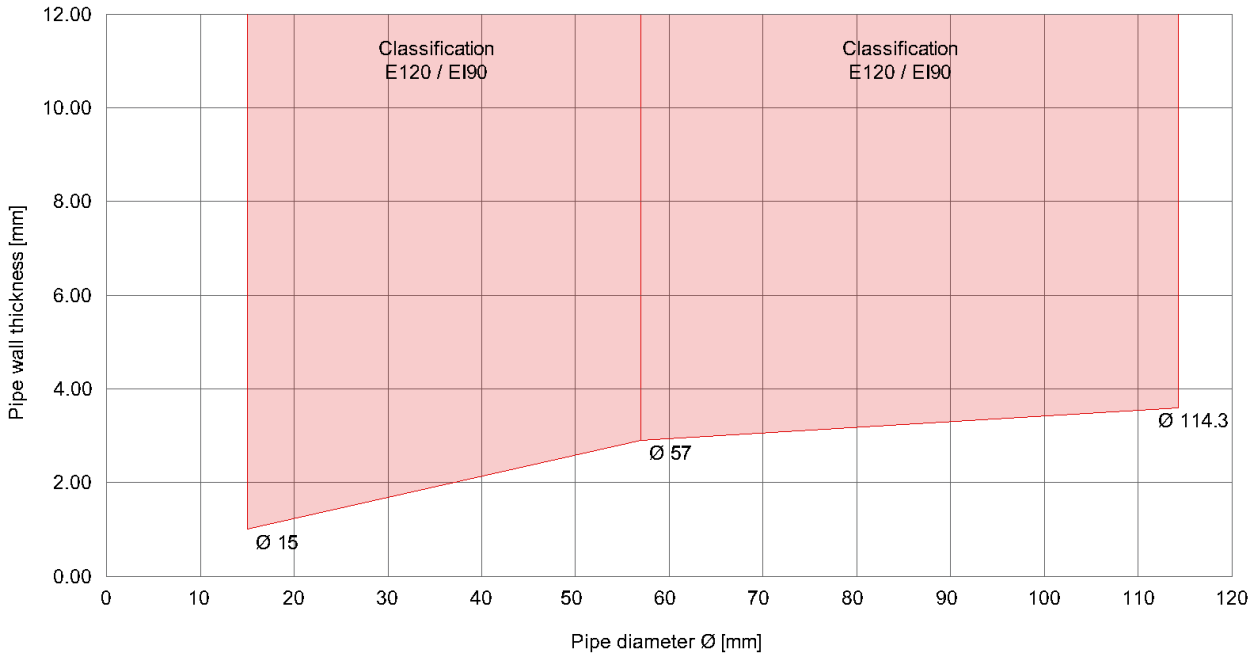
Penetration Seal: Pipe diameter and wall thickness interpolation for
One sided penetration seal with rubber type insulated steel pipes (CS)



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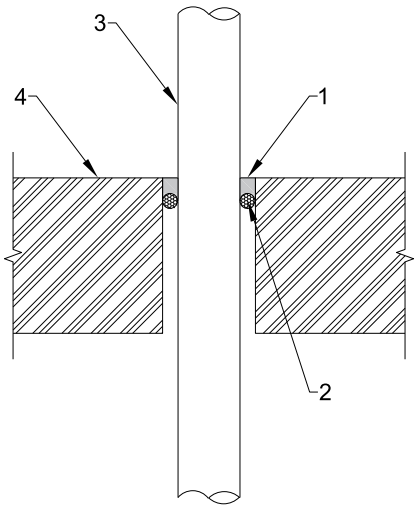
One sided penetration seal with copper pipes

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to top side of the floor, installed flush with surface of floor. Rigid floor thickness ≥150 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Floor (≥150 mm)

Pipe support ≤ 250mm from top surface of floor

Type of penetrant	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	≥10 mm	10 mm	PE backer rod	E 240 – C/U, C/C EI 15 – C/U, C/C
Copper pipe, max. Ø40 mm, min. 1.5 mm wall thickness				E 240 – C/U, C/C
Copper pipe, max. Ø159 mm, min. 3.0 mm wall thickness				E 240 – C/U, C/C EI 15 – C/U, C/C

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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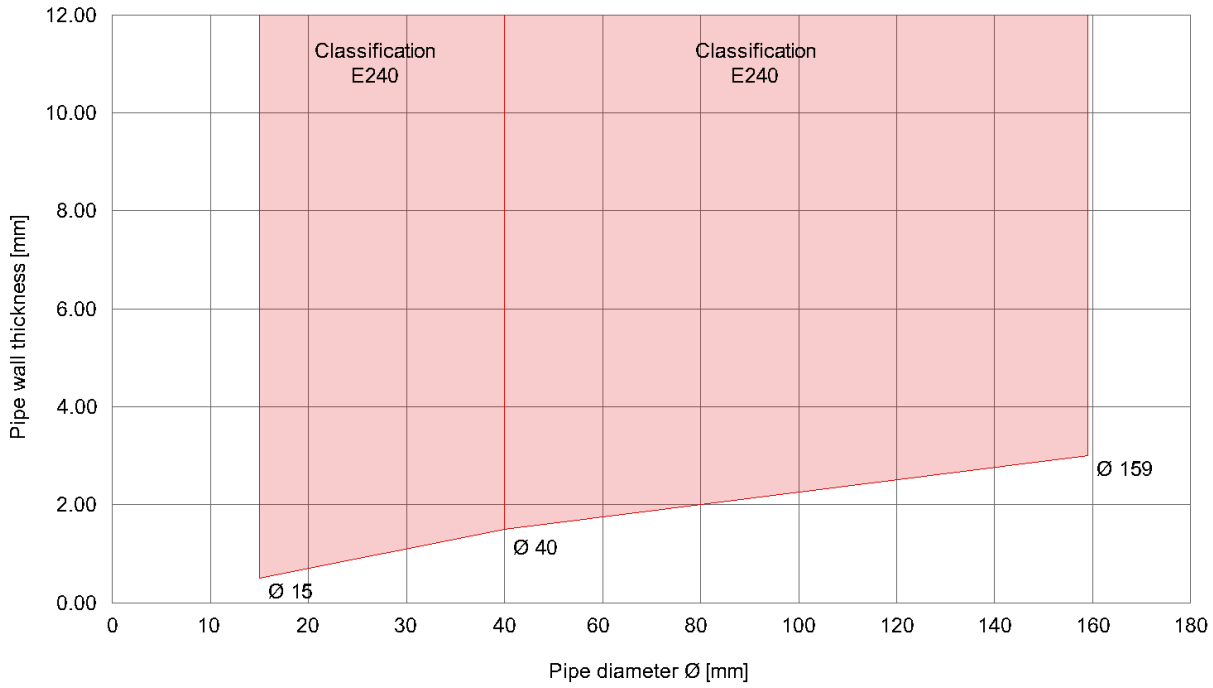
Penetration Seal: Pipe diameter and wall thickness interpolation for
One sided penetration seal with copper pipes



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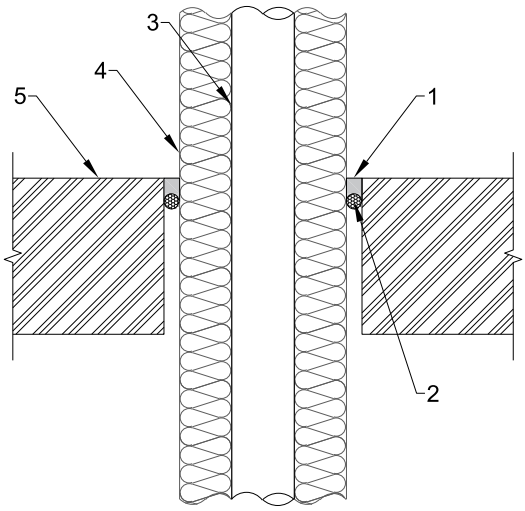
One sided penetration seal with stone wool insulated copper pipes (CS)

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to top side of the floor, installed flush with surface of floor. Rigid floor thickness ≥150 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Floor (≥150 mm)

Pipe support ≤ 250mm from top surface of floor

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	Stonel wool, ρ ≥ 42 kg/m³, thickness ≥ 50 mm*	≥10 mm	20 mm	PE backer rod	E 240 – U/C, C/U, C/C EI 30 – U/C, C/U, C/C
Copper pipe, max. Ø40 mm, min. 1.5 mm wall thickness					E 240 – U/C, C/U, C/C EI 45 – U/C, C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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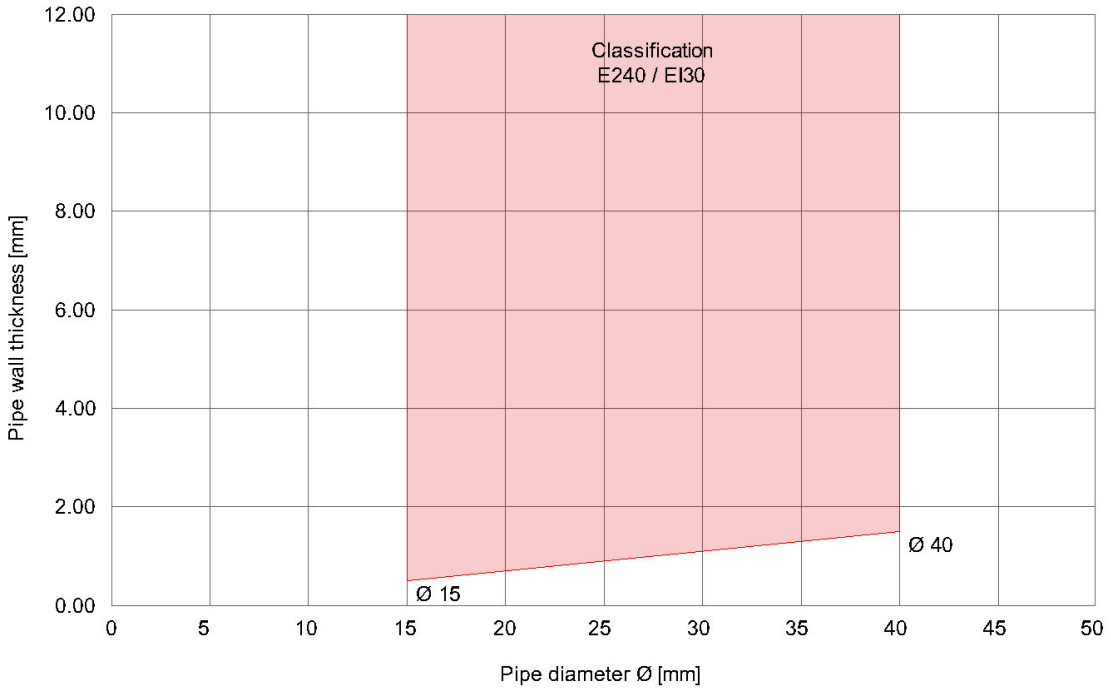
Penetration Seal: Pipe diameter and wall thickness interpolation for
One sided penetration seal with stone wool insulated copper pipes (CS)



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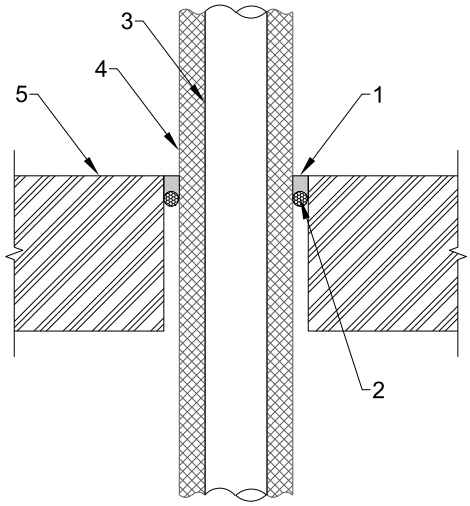
One sided penetration seal with rubber type insulated copper pipes (CS)

Penetration Seal:	Copper pipes sealed with fischer FiAM Plus sealant to top side of the floor, installed flush with surface of floor. Rigid floor thickness ≥150 mm (≥ 650 kg/m^3).

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Pipe
4. Pipe insulation
5. Floor (≥150 mm)

Pipe support ≤ 250mm from top surface of floor

Type of penetrant	Type of pipe insulation	Seal thickness	Annular space	Backing material	Classification
Copper pipe, max. Ø15 mm, min. 0.5 mm wall thickness	AF/ArmaFlex Evo, 13 mm thickness*	≥25 mm	20 mm	PE backer rod	EI120 – C/U, C/C
Copper pipe, max. Ø40 mm, min. 1.5 mm wall thickness					E120 – C/U, C/C EI60 – C/U, C/C

* CS = Continued Sustained

Note: for permitted interpolations between pipe sizes and pipe wall thickness and the corresponding classification diagram below

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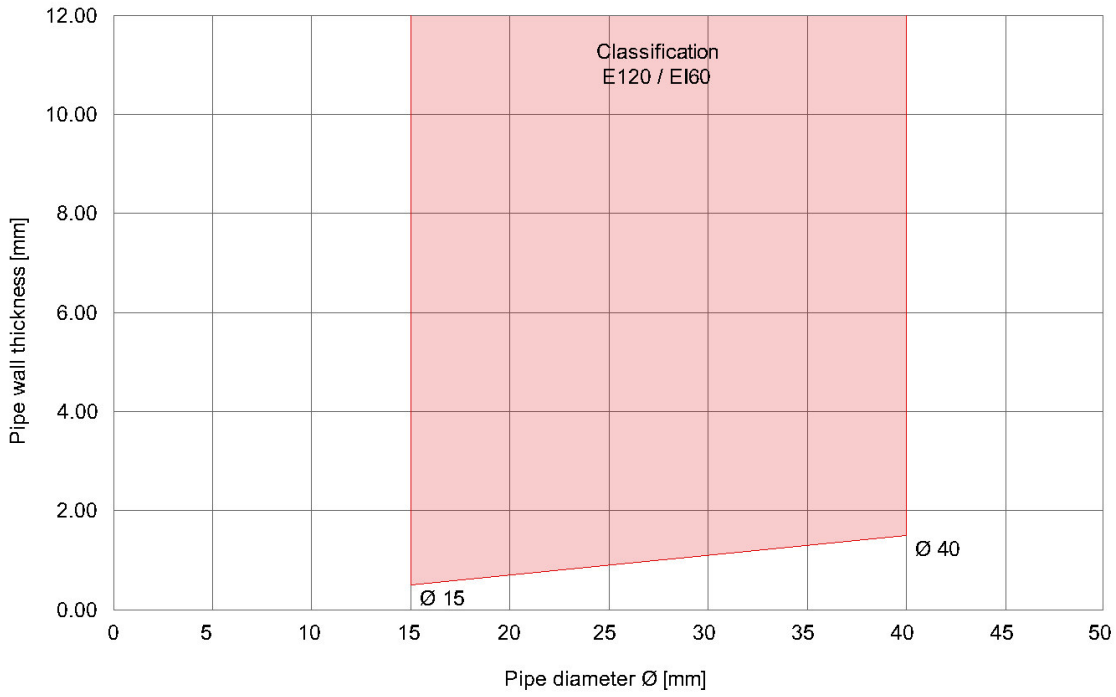
Penetration Seal: Pipe diameter and wall thickness interpolation for
One sided penetration seal with rubber type insulated copper pipes (CS)



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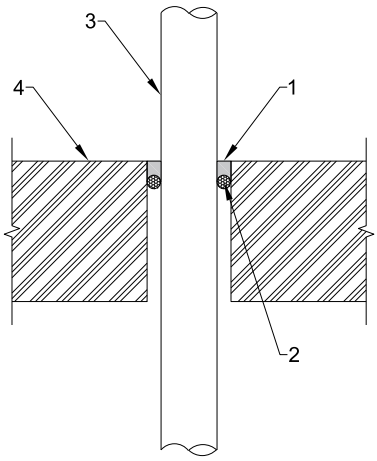
One sided penetration seal with combustible pipes

Penetration Seal:	Combustible pipes sealed with fischer FiAM Plus sealant to top side of the floor, installed flush with surfa of floor. Rigid floor thickness ≥150 mm (≥ 650 kg/m^3).
Construction details: 	Key: 1. fischer FiAM Plus 2. Backing material 3. Pipe 4. Floor (≥150 mm)

Pipe support ≤ 250mm from top surface of floor

Type of penetrant	Seal thickness	Annular space	Backing material	Classification
PP pipe, max. Ø50 mm, 1.8 mm wall thickness	≥20 mm	20 mm	PE backer rod	EI 30 – U/C, C/C
PP pipe, max. Ø50 mm, 2.7 mm wall thickness				EI 90 – U/C, C/C
PVC pipe, max. Ø50 mm, 3.7 mm wall thickness				E 120 – U/C, C/C EI60 – U/C, C/C
PE pipe, max. Ø50 mm, 3.0 mm wall thickness				E 45 – U/C, C/C EI30 – U/C, C/C

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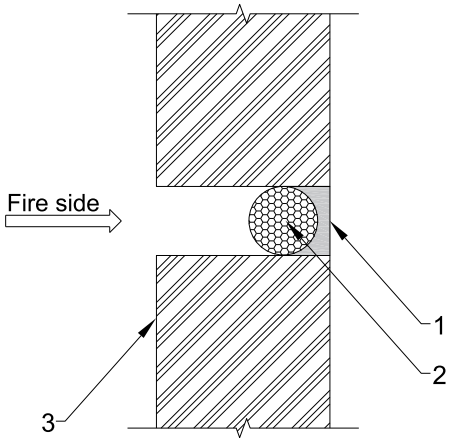
Rigid wall constructions with wall thickness of minimum 115 mm

Single sided linear joint seal, unexposed side

Joint Seal: fischer FiAM Plus sealant applied to non-fire side of the wall, installed flush with surface of wall

Construction details:



Key:

1. fischer FiAM Plus
2. Backing material
3. Wall (≥115 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid wall (≥650 kg/m³)	≥10 mm	PE backer rod	E 240–V–M_{lat}12.5-F–W 0 to W 20 EI 45–V–M_{lat}12.5–F–W 0 to W 20
	≥20 mm		E 240–V–M_{lat}12.5-F–W 0 to W 50 EI 60–V–M_{lat}12.5–F–W 0 to W 50

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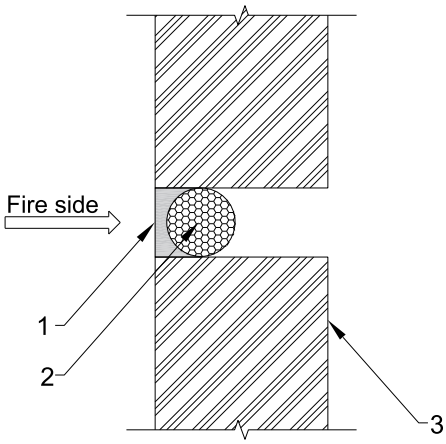
Basingstoke. RG24 8AH United Kingdom

Single sided linear joint seal, exposed side

Joint Seal: fischer FiAM Plus sealant applied to fire side of the wall, installed flush with surface of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Wall (≥115 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid wall (≥650 kg/m³)	≥10 mm	PE backer rod	E 240–V–M_{lat}12.5-F–W 0 to W 20 EI 30–V–M_{lat}12.5–F–W 0 to W 20
	≥20 mm		E 240–V–M_{lat}12.5-F–W 0 to W 50 EI 45–V–M_{lat}12.5–F–W 0 to W 50

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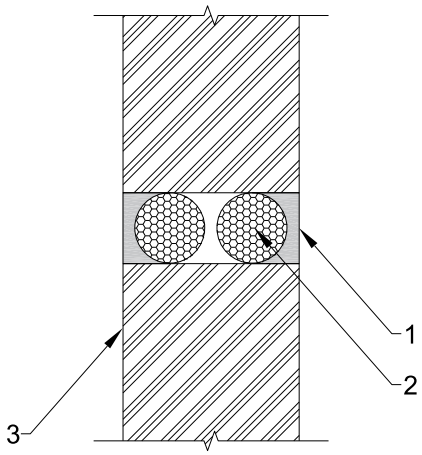
Rigid wall constructions with wall thickness of minimum 124 mm

Double sided linear joint seal

Joint Seal: fischer FiAM Plus sealant applied to both sides of the wall, installed flush with both surfaces of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Wall (≥124 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid wall (≥650 kg/m³)	≥10 mm	PE backer rod	E 240–V–M_{lat}25-F–W 0 to W 60 EI 120–V–M_{lat}25–F–W 0 to W 60

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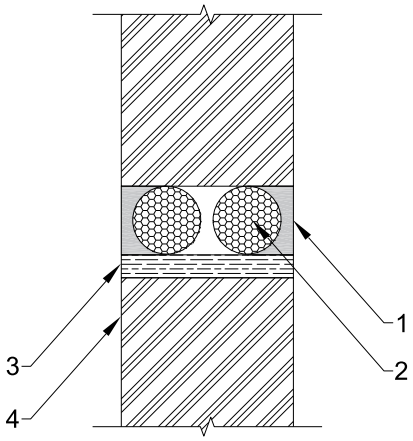
Double sided linear joint seal with timber substrate to one face

Joint Seal: fischer FiAM Plus sealant applied to both sides of the wall, installed flush with both surfaces of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Timber 4. Wall (≥124 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid wall (≥650 kg/m³) / timber	≥10 mm	PE backer rod	EI 90–V–X–F–W 0 to W 50

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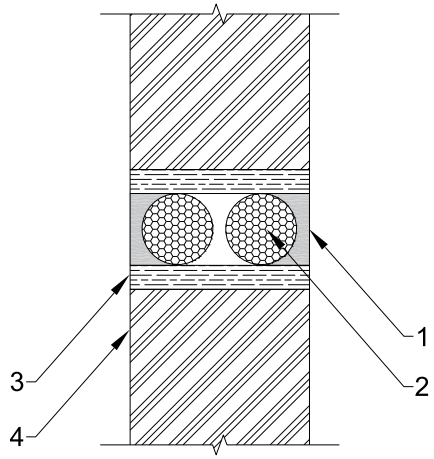
Double sided linear joint seal with timber substrate to both faces

Joint Seal: fischer FiAM Plus sealant applied to both sides of the wall, installed flush with both surfaces of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Timber 4. Wall (≥124 mm)

Substrate	Seal thickness	Backing material	Classification
Timber	≥10 mm	PE backer rod	EI 90–V–X–F–W 0 to W 50

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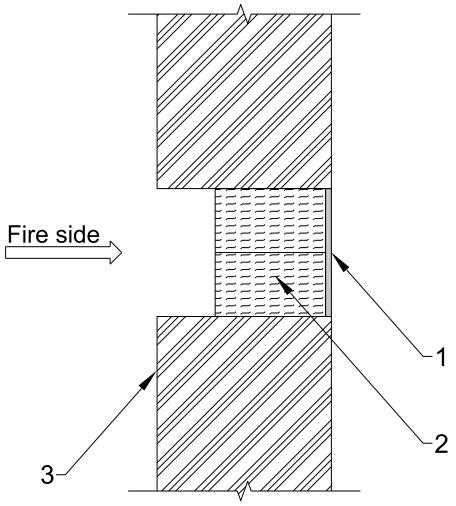
Single sided linear joint seal, unexposed side

Joint Seal: fischer FiAM Plus sealant applied to unexposed side of the wall, installed flush with surface of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Wall (≥124 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid wall (≥650 kg/m³)	≥5 mm	Stone wool, thickness ≥ 100mm ρ ≥60 kg/m³, compressed ≥30 %	E 240–V–M_{lat}25–F–W 5 to W 60 EI 180–V–M_{lat}25–F–W 5 to W 60

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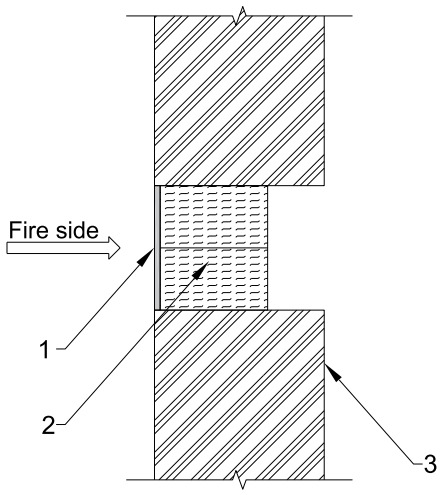
Single sided linear joint seal, exposed side

Joint Seal: fischer FiAM Plus sealant applied to exposed side of the wall, installed flush with surface of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Wall (≥124 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid wall (≥650 kg/m³)	≥5 mm	Stone wool, thickness ≥ 100mm ρ ≥60 kg/m³, compressed ≥30 %	E 240–V–M_{lat}25–F–W 5 to W 60 EI 120–V–M_{lat}25–F–W 5 to W 60

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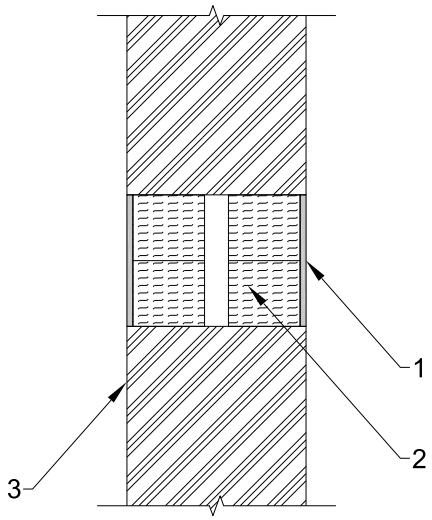
Double sided linear joint seal

Joint Seal: fischer FiAM Plus sealant applied to both sides of the wall, installed flush with both surfaces of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Wall (≥115 mm)

Substrate	Seal thickness	Backing material*	Classification
Rigid wall (≥650 kg/m³)	≥5 mm	Stone wool, thickness ≥50 mm on both sides*, ρ ≥60 kg/m³, compressed ≥30 %	EI 120–V–M_{lat}12.5–F–W 5 to W 100

* ≥5 mm air gap between layers of insulation

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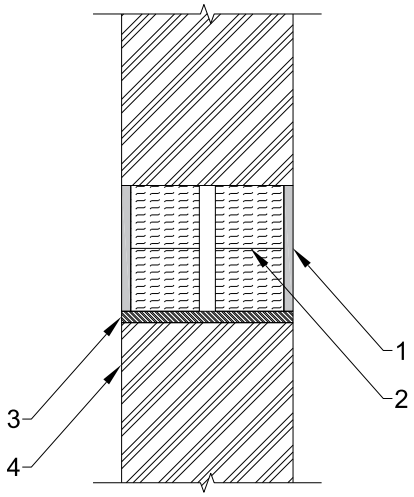
Double sided linear joint seal with steel substrate to one face

Joint Seal: fischer FiAM Plus sealant applied to both sides of the wall, installed flush with both surfaces of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Steel (≥ 10 mm) 4. Wall (≥124 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid wall (≥650 kg/m³) / steel	≥10 mm	Stone wool, thickness ≥50 mm on both sides*, ρ ≥60 kg/m³, compressed ≥30 %	E 240–V–X–F–W 5 to W 70 EI 45–V–X–F–W 5 to W 70

* ≥4 mm air gap between layers of insulation

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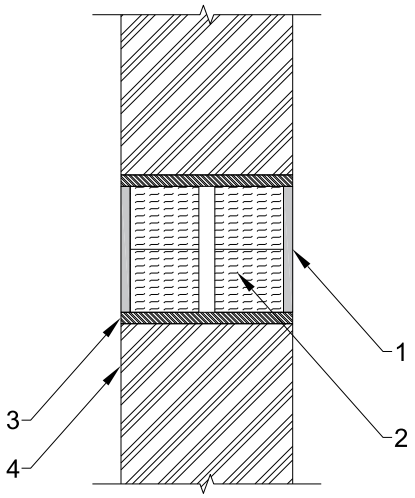
Double sided linear joint seal with steel substrate to both faces

Joint Seal: fischer FiAM Plus sealant applied to both sides of the wall, installed flush with both surfaces of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Steel (≥ 10 mm) 4. Wall (≥124 mm)

Substrate	Seal thickness	Backing material	Classification
Steel	≥10 mm	Stone wool, thickness ≥50 mm on both sides*, ρ ≥60 kg/m³, compressed ≥30 %	E 240–V–X–F–W 5 to W 70 EI 45–V–X–F–W 5 to W 70

* ≥4 mm air gap between layers of insulation

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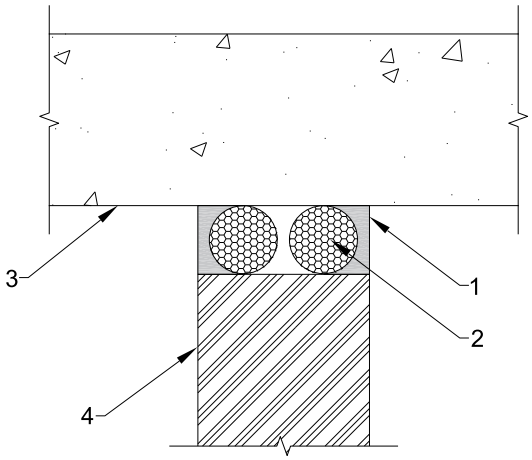
Head of wall construction with rigid wall and floor, minimum floor thickness 150mm

Double sided head of wall linear joint seal

Joint Seal: fischer FiAM Plus sealant applied to both sides of the wall as head of wall joint, installed flush with both surfaces of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Floor (≥150 mm) 4. Wall (≥115 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid floor (≥650 kg/m³) / Rigid wall (≥650 kg/m³)	≥10 mm	PE backer rod	E 240–T–M_{lat}25–F–W 0 to W 60 EI 180–T–M_{lat}25–F–W 0 to W 60

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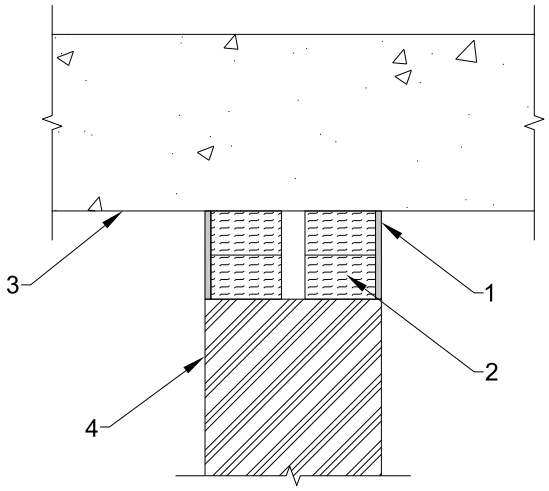
Double sided head of wall joint seal

Joint Seal: fischer FiAM Plus sealant applied to both sides of the wall as head of wall joint, installed flush with both surfaces of wall	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Floor (≥ 150 mm) 4. Wall (≥ 115 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid floor (≥650 kg/m³) / Rigid wall (≥650 kg/m³)	≥5 mm	Stone wool, thickness ≥50 mm on both sides*, ρ ≥60 kg/m³, compressed ≥30 %	EI 240–T–M_{lat}25–F–W 5 to W 60
	≥3 mm		EI 240–T–M_{lat}25–F–W 5 to W 40

* ≥5 mm air gap between layers of insulation

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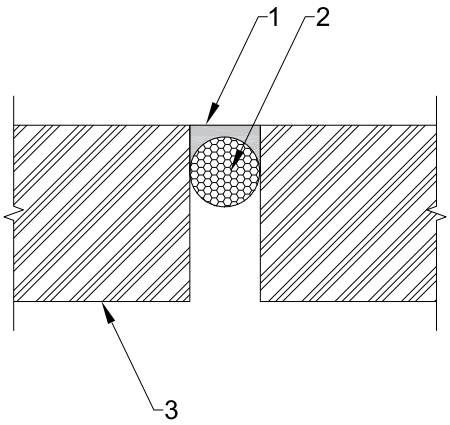
Rigid floor construction with minimum thickness of 150mm

Single sided linear joint seal

Joint Seal: fischer FiAM Plus sealant applied to top side of floor, installed flush with top surface of floor	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Floor (≥ 150 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid floor (≥650 kg/m³)	≥15 mm	PE backer rod	E 240–H–M_{lat}25–F–W 0 to W 40 EI 60–H–M_{lat}25–F–W 0 to W 40
	≥10 mm		E 180–H–M_{lat}20–F–W 0 to W 50 EI 20–H–M_{lat}20–F–W 0 to W 50
	≥8 mm		E 240–H–M_{lat}20–F–W 0 to W 20 EI 45–H–M_{lat}20–F–W 0 to W 20

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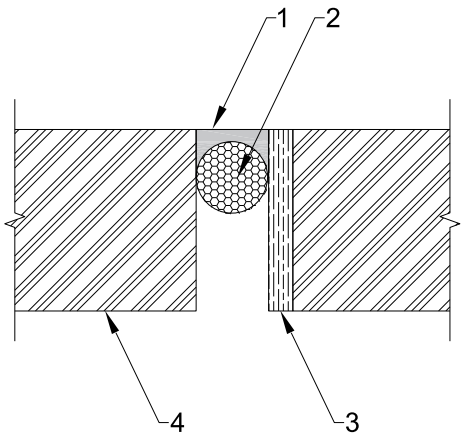
Single sided linear joint seal with timber substrate to one face

Joint Seal: fischer FiAM Plus sealant applied to top side of floor, installed flush with top surface of floor	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Timber 4. Floor (≥ 150 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid floor (≥650 kg/m³) / timber	≥12.5 mm	PE backer rod	EI 60–H–X–F–W 0 to W 50

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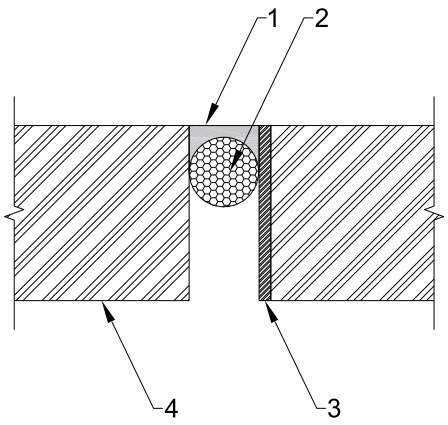
Single sided linear joint seal with steel substrate to one face

Joint Seal: fischer FiAM Plus sealant applied to top side of floor, installed flush with top surface of floor	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Steel (≥ 10 mm) 4. Floor (≥ 150 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid floor (≥650 kg/m³) / steel	≥10 mm	PE backer rod	E 240–H–X–F–W 0 to W 20 EI 30–H–X–F–W 0 to W 20

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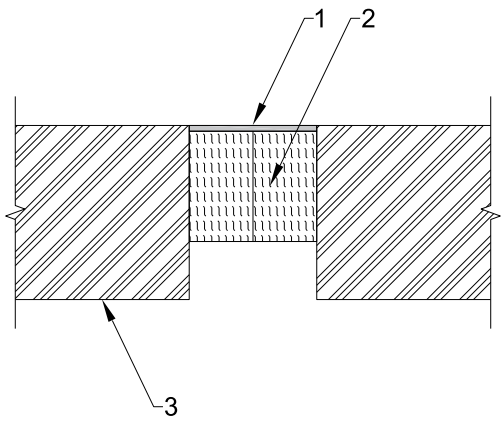
Single sided linear joint seal

Joint Seal: fischer FiAM Plus sealant applied to top side of floor, installed flush with top surface of floor	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Floor (≥ 150 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid floor (≥650 kg/m³)	≥5 mm	Stone wool, thickness ≥100 mm ρ ≥60 kg/m³, compressed ≥30 %	EI 240–H–M_{lat}25–F–W 5 to W 60
			EI 120–H–M_{lat}25–F–W 5 to W 100
			E 240–H–M_{lat}12.5–F–W 5 to W 100 EI 120–H–M_{lat}12.5–F–W 5 to W 100

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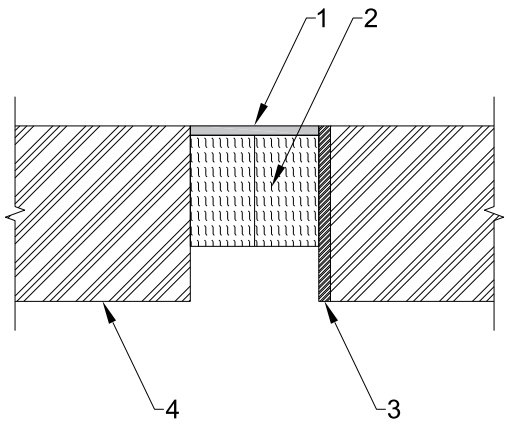
Single sided linear joint seal with steel substrate to one face

Joint Seal: fischer FiAM Plus sealant applied to top side of floor, installed flush with top surface of floor	
Construction details:  	Key: 1. fischer FiAM Plus 2. Backing material 3. Steel (≥ 10 mm) 4. Floor (≥ 150 mm)

Substrate	Seal thickness	Backing material	Classification
Rigid wall (≥650 kg/m³) / steel	≥10 mm	Stone wool, thickness ≥100 mm ρ ≥60 kg/m³, compressed ≥30 %	E 180–H–X–F–W 5 to W 60 EI 20–H–X–F–W 5 to W 60

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*Note: E12345 is an example of the UL file number.

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