

Schémas d'applications pour le bandage coupe-feu CFS-B



Applications pour réfrigération en dalle rigide épaisseur 150 mm

- | | |
|--|-----------------------|
| • Tube cuivre avec isolant type Armaflex | REFR-RF-MP-0022/26 |
| • Tube cuivre avec isolant type Armaflex et protection additionnelle | REFR-RF-MP-0023 |
| • Tube acier avec isolant type Armaflex | REFR-RF-MP-0048/52/53 |
| • Tube acier avec isolant type Armaflex et protection additionnelle | REFR-RF-MP-0049 |
| • Tube Al composite avec isolant type Armaflex | REFR-RF-AL-0074/75 |
| • Tube plastique PE HD sans isolant | REFR-RF-PP-0095 |

*) Tous les schémas sont également disponibles sur demande en format DWG pour faciliter l'insertion sur des plans.



CONTENTS

Metal pipe in a rigid floor

ID

REFR-RF-MP-0022

FIRESTOP BANDAGE

0022_01

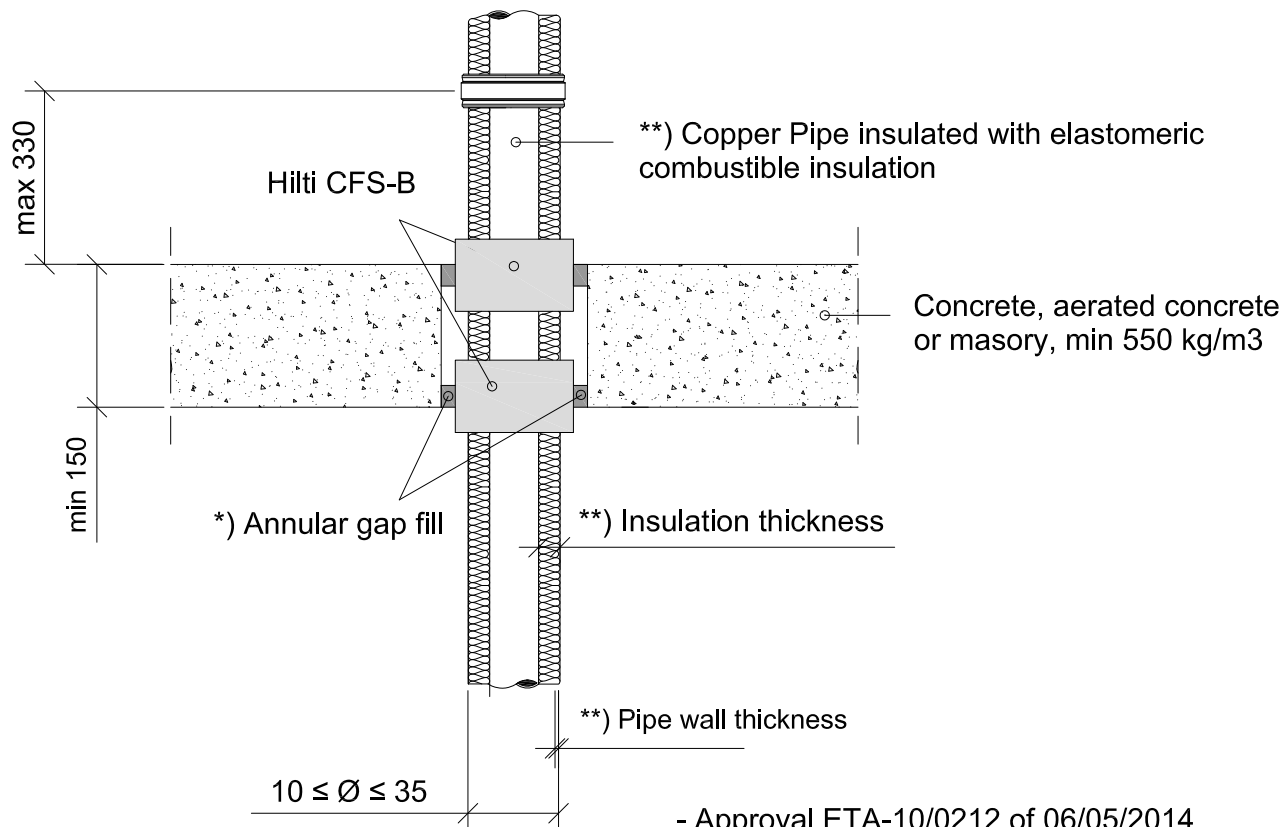
REV

00

No scale

All units are in millimetres

Fire Rating EI 120 U/C



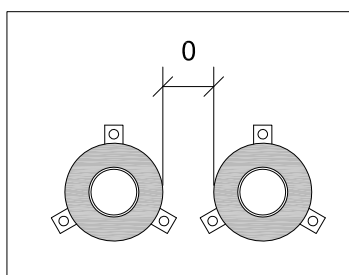
- Approval ETA-10/0212 of 06/05/2014
- Reaction to fire acc EN 13501-1
- Fire resistance test acc EN 1366-3
- Installation according to Hilti instructions

*) Annular gap fill material

Gap with (mm)	Annular Gap Fill
3-50	Cementious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

**) Pipe wall thickness and insulation

Pipe Ø	Pipe wall thickness	Insulation thickness			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
10-35	1-14.2	7.5	9.0	15.5	35.0



Zero distance between annular gap

**) List of approved elastomeric combustible insulation types

Product	Approved tpe of foamed elastomeric thermal insulation
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

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CONTENTS

Metal pipe in a rigid floor

ID

REFR-RF-MP-0023

FIRESTOP BANDAGE

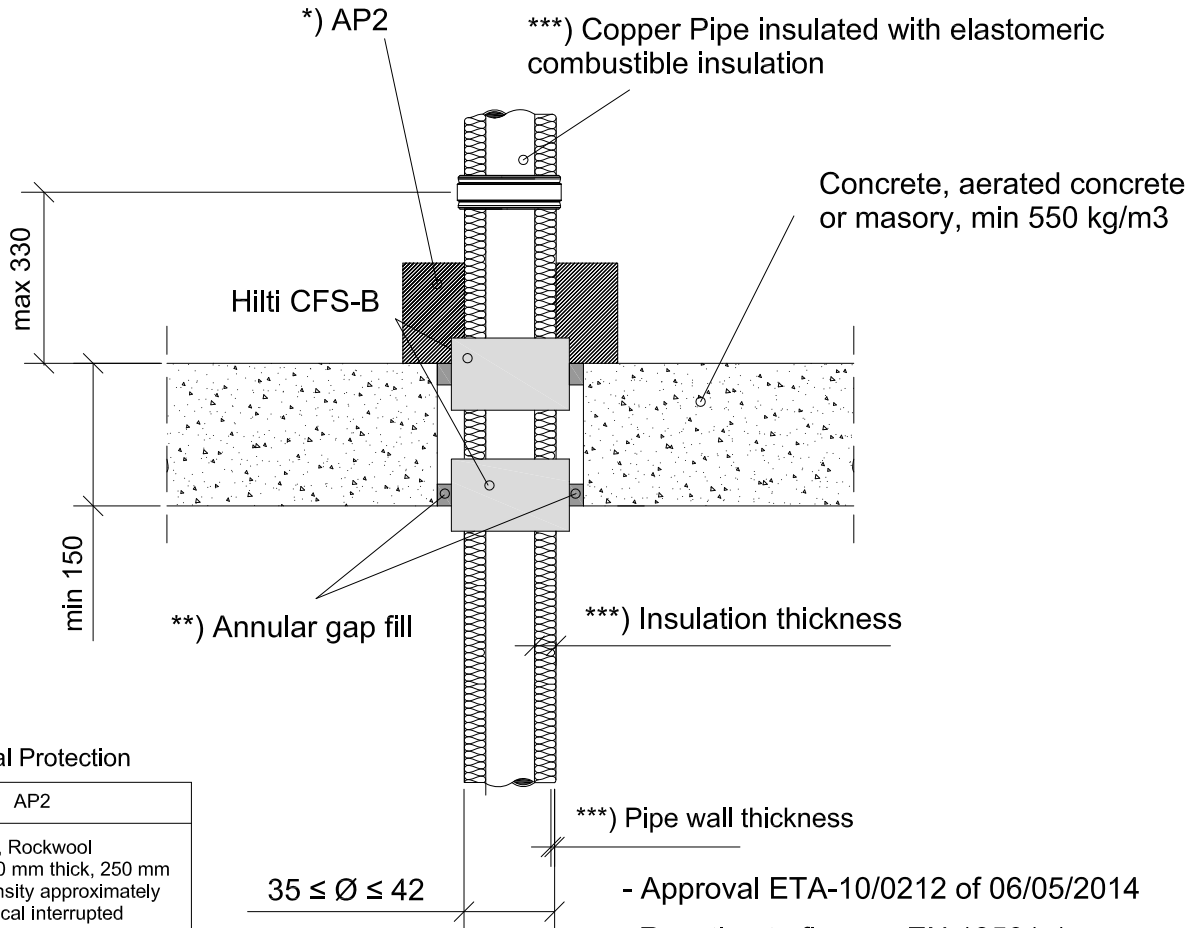
0023_01

REV
00

No scale

All units are in millimetres

Fire Rating EI 120 C/U



***) Additional Protection**

AP2
Mineral wool, Rockwool Klimarock, 40 mm thick, 250 mm in length; density approximately 40 kg/m ³ , local interrupted configuration

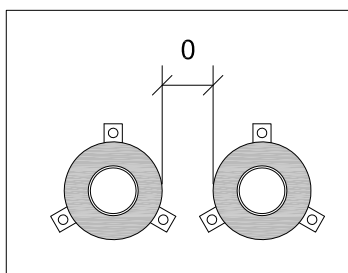
- Approval ETA-10/0212 of 06/05/2014
- Reaction to fire acc EN 13501-1
- Fire resistance test acc EN 1366-3
- Installation according to Hilti instructions

****) Annular gap fill material**

Gap with (mm)	Annular Gap Fill
3-50	Cementitious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

*****) Pipe wall thickness and insulation**

Pipe Ø	Pipe wall thickness	Insulation thickness t _{0e}			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
35-42	1-14.2	9.0	9.0	35.0	36.5



Zero distance between annular gap

*****) List of approved elastomeric combustible insulation types**

Product	Approved tpe of foamed elastomeric thermal insulation
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



CONTENTS

Metal pipe in a rigid floor

ID

REFR-RF-MP-0026

FIRESTOP BANDAGE

0026_01

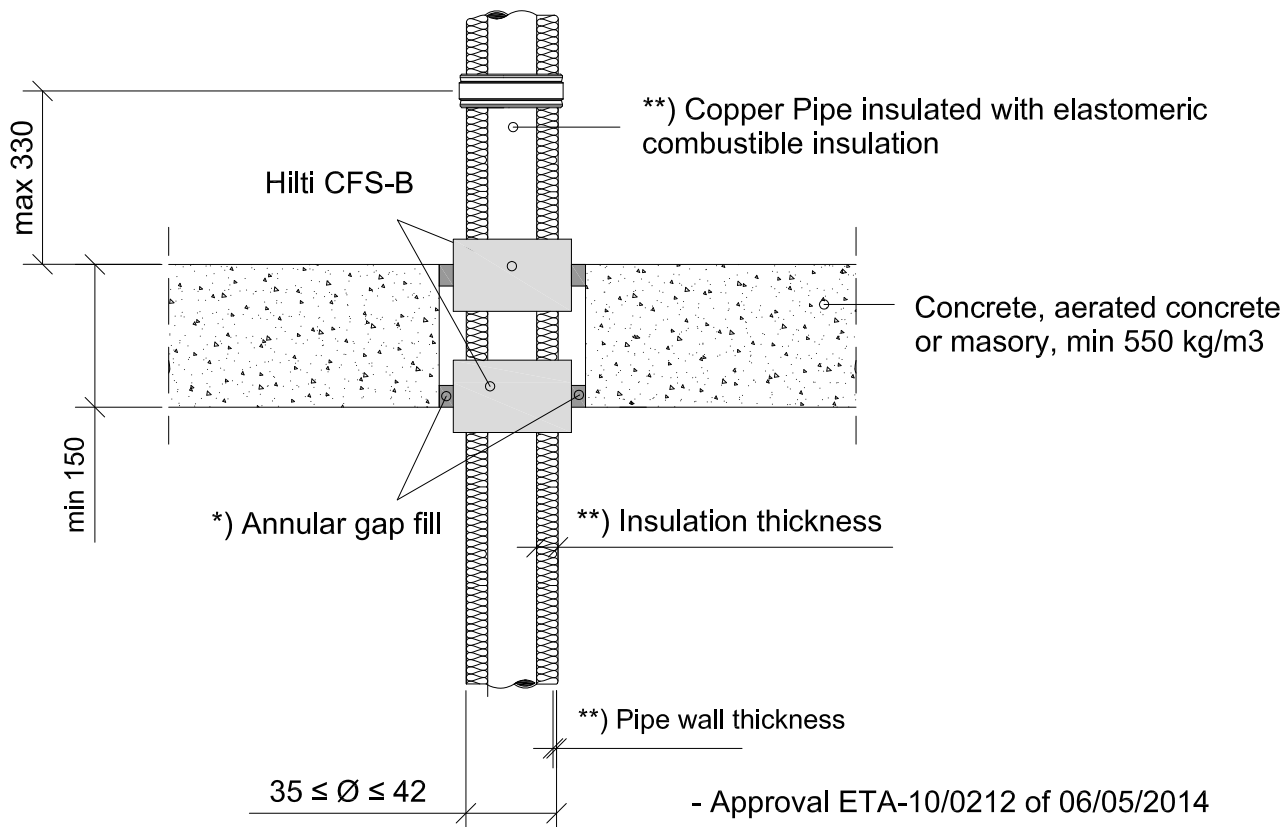
REV

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No scale

All units are in millimetres

Fire Rating EI 60 U/C

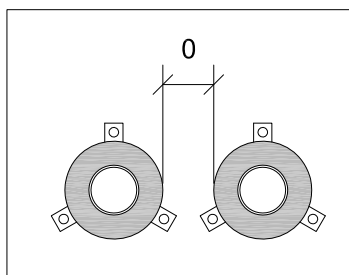


*) Annular gap fill material

Gap with (mm)	Annular Gap Fill
3-50	Cementitious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

**) Pipe wall thickness and insulation

Pipe Ø	Pipe wall thickness	Insulation thickness			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
35-42	1-14.2	9.0	9.0	35.0	36.5



Zero distance between annular gap

**) List of approved elastomeric combustible insulation types

Product	Approved tpe of foamed elastomeric thermal insulation
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

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Metal pipe in a rigid floor

ID

REFR-RF-MP-0048

FIRESTOP BANDAGE

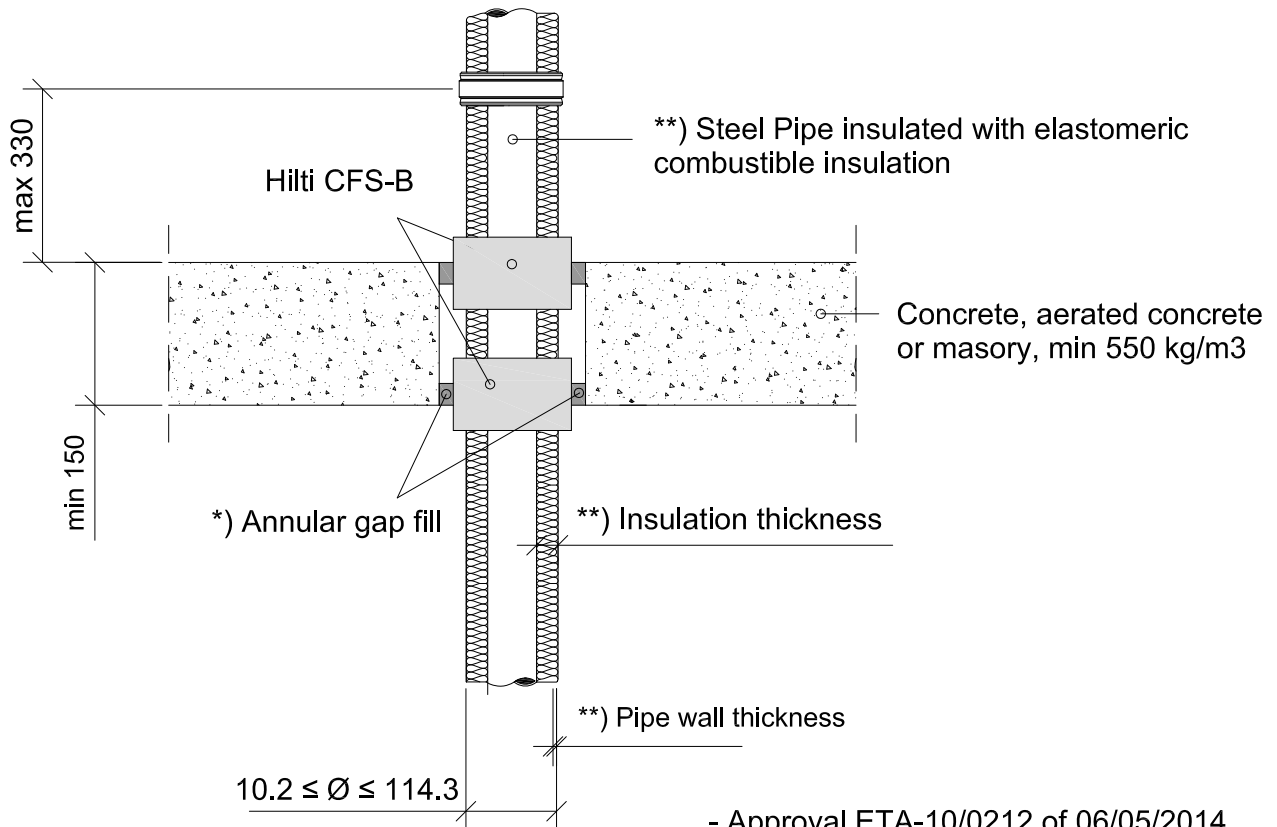
0048_01

REV
00

No scale

All units are in millimetres

Fire Rating EI 120 U/C



- Approval ETA-10/0212 of 06/05/2014
- Reaction to fire acc EN 13501-1
- Fire resistance test acc EN 1366-3
- Installation according to Hilti instructions

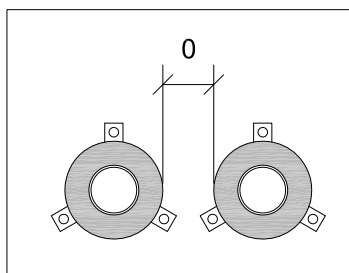
*) Annular gap fill material

Gap with (mm)	Annular Gap Fill
3-50	Cementitious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

**) Pipe wall thickness and insulation

Pipe Ø	Pipe wall thickness	Insulation thickness			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
10.2-60	1-14.2	7.5	9.0	15.5	39.0
10.2-114.3	1-14.2	15.5	42.5	15.5	42.5

Also valid for other metal pipes with lower heat conductivity than copper and a melting point of minimum 1050°C.



Zero distance between annular gap

**) List of approved elastomeric combustible insulation types

Product	Approved tpe of foamed elastomeric thermal insulation
Armocell 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



CONTENTS

Metal pipe in a rigid floor

ID

REFR-RF-MP-0049

FIRESTOP BANDAGE

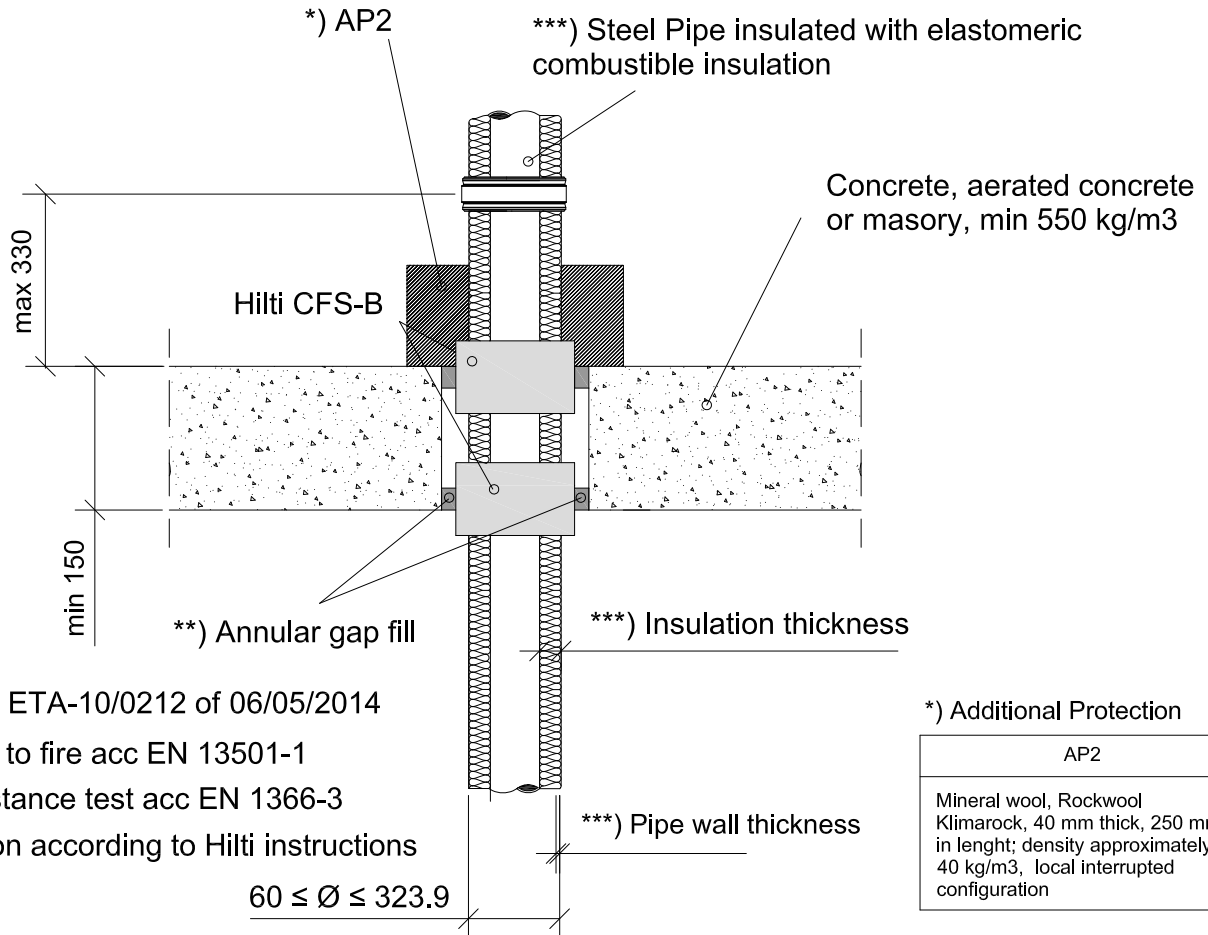
0049_01

REV
00

No scale

All units are in milimetres

Fire Rating EI 120 C/U



- Approval ETA-10/0212 of 06/05/2014
- Reaction to fire acc EN 13501-1
- Fire resistance test acc EN 1366-3
- Installation according to Hilti instructions

*) Additional Protection

AP2
Mineral wool, Rockwool Klimarock, 40 mm thick, 250 mm in length; density approximately 40 kg/m ³ , local interrupted configuration

$$60 \leq \varnothing \leq 323.9$$

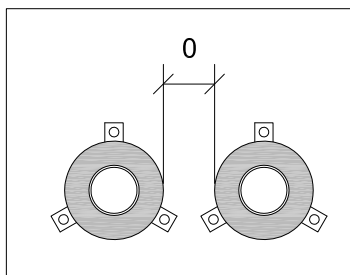
***) Pipe wall thickness and insulation

***) Annular gap fill material

Gap with (mm)	Annular Gap Fill
3-50	Cementitious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

Pipe Ø	Pipe wall thickness	Insulation thickness t _{DE}			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
60-76	1-14.2	9.0	9.5	39.0	40.5
76-323.9 (1)	1.8-14.2	9.5	25.0	39.0	25.0

Also valid for other metal pipes with lower heat conductivity than copper and a melting point of minimum 1050°C.
 (1) Ø up to 159mm tDE is up to 45 mm. for pipe Ø above this size insulation is 25mm.
 AP 2 Klimarock insulation (42.5mm) was applied to pipes with a Ø of 323.9 over a length of 500 mm.



Zero distance between annular gap

***) List of approved elastomeric combustible insulation types

Product	Approved tpe of foamed elastomeric thermal insulation
Armaceil 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



CONTENTS

Metal pipe in a rigid floor

ID

REFR-RF-MP-0052

FIRESTOP BANDAGE

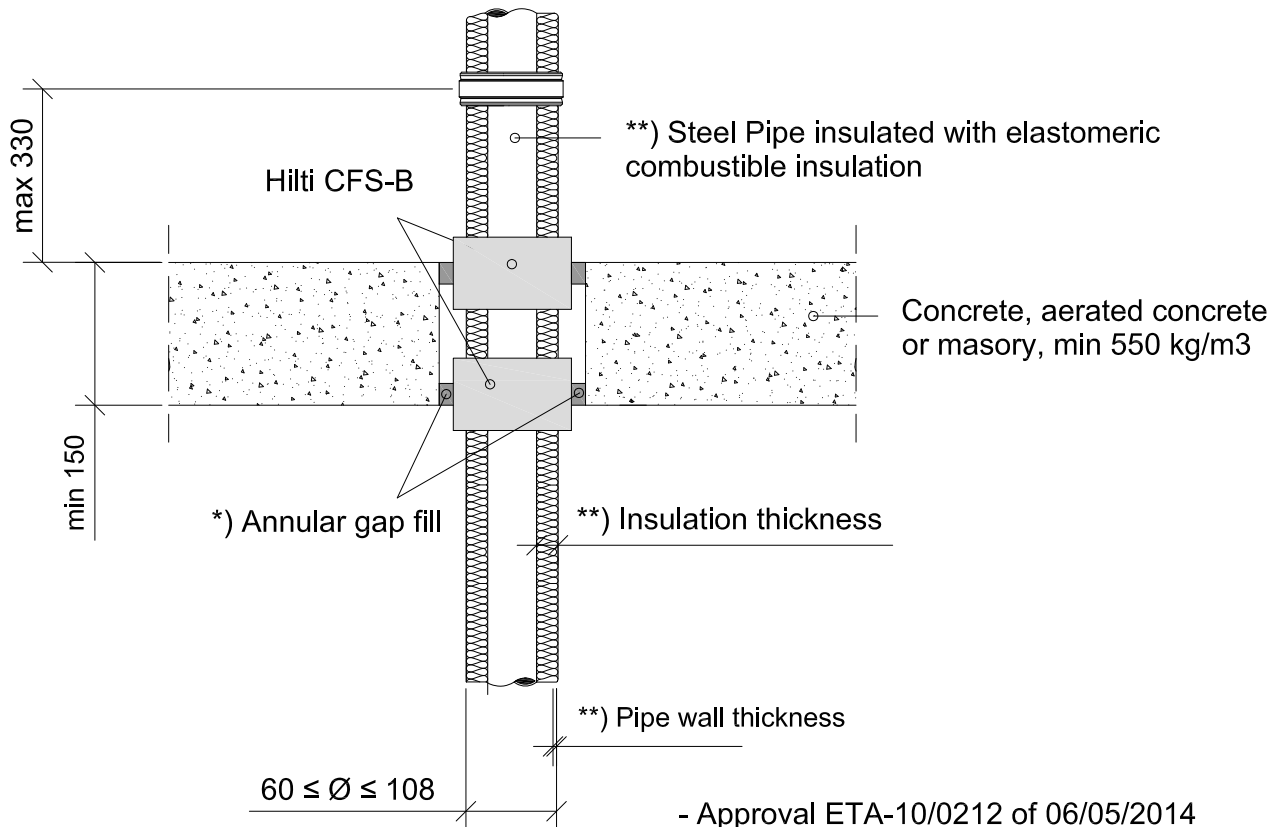
0052_01

REV
00

No scale

All units are in millimetres

Fire Rating EI 90 U/C



- Approval ETA-10/0212 of 06/05/2014
- Reaction to fire acc EN 13501-1
- Fire resistance test acc EN 1366-3
- Installation according to Hilti instructions

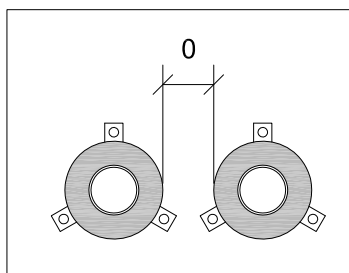
*) Annular gap fill material

Gap with (mm)	Annular Gap Fill
3-50	Cementious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

**) Pipe wall thickness and insulation

Pipe Ø	Pipe wall thickness	Insulation thickness			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
60-76	1-14.2	9.0	9.5	39.0	40.5
76-108	1.8-14.2	14.0	14.5	39.0	42.5

Also valid for other metal pipes with lower heat conductivity than copper and a melting point of minimum 1050°C.



Zero distance between annular gap

**) List of approved elastomeric combustible insulation types

Product	Approved tpe of foamed elastomeric thermal insulation
Armancell 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



CONTENTS

Metal pipe in a rigid floor

ID

REFR-RF-MP-0053

FIRESTOP BANDAGE

0053_01

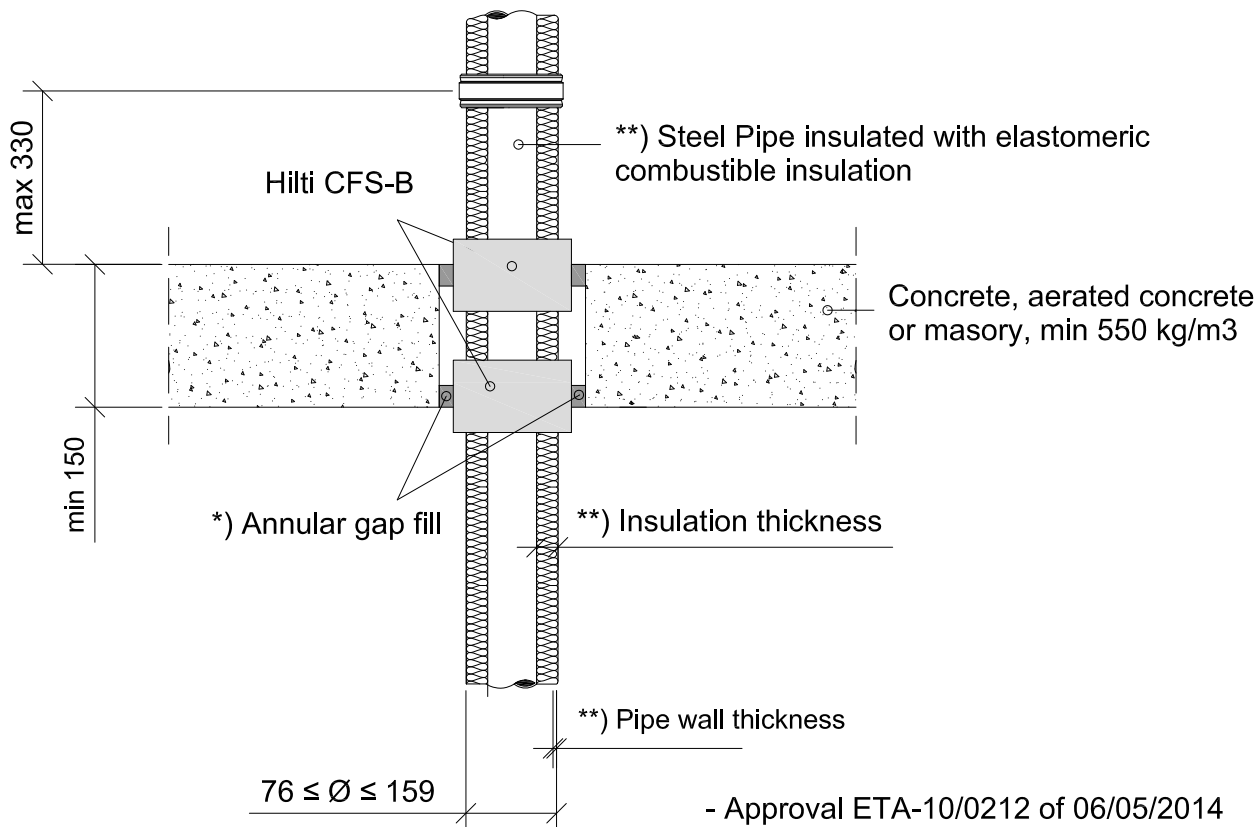
REV

00

No scale

All units are in milimetres

Fire Rating EI 60 U/C



- Approval ETA-10/0212 of 06/05/2014
- Reaction to fire acc EN 13501-1
- Fire resistance test acc EN 1366-3
- Installation according to Hilti instructions

***) Annular gap fill material**

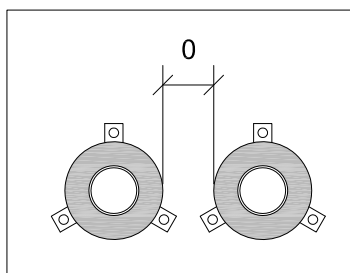
Gap with (mm)	Annular Gap Fill
3-50	Cementious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

****) Pipe wall thickness and insulation**

Pipe Ø	Pipe wall thickness	Insulation thickness			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
76-159	1.6-14.2	9.0	16.0 (1)	39.0	45.0

Also valid for other metal pipes with lower heat conductivity than copper and a melting point of minimum 1050°C.

(1) minimal insulation thickness above Ø 114.3 mm is increased to 16 mm



Zero distance between annular gap

****) List of approved elastomeric combustible insulation types**

Product	Approved tpe of foamed elastomeric thermal insulation
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



CONTENTS

Al composite pipe in a rigid floor

ID

REFR-RF-AL-0074

FIRESTOP BANDAGE

0074_01

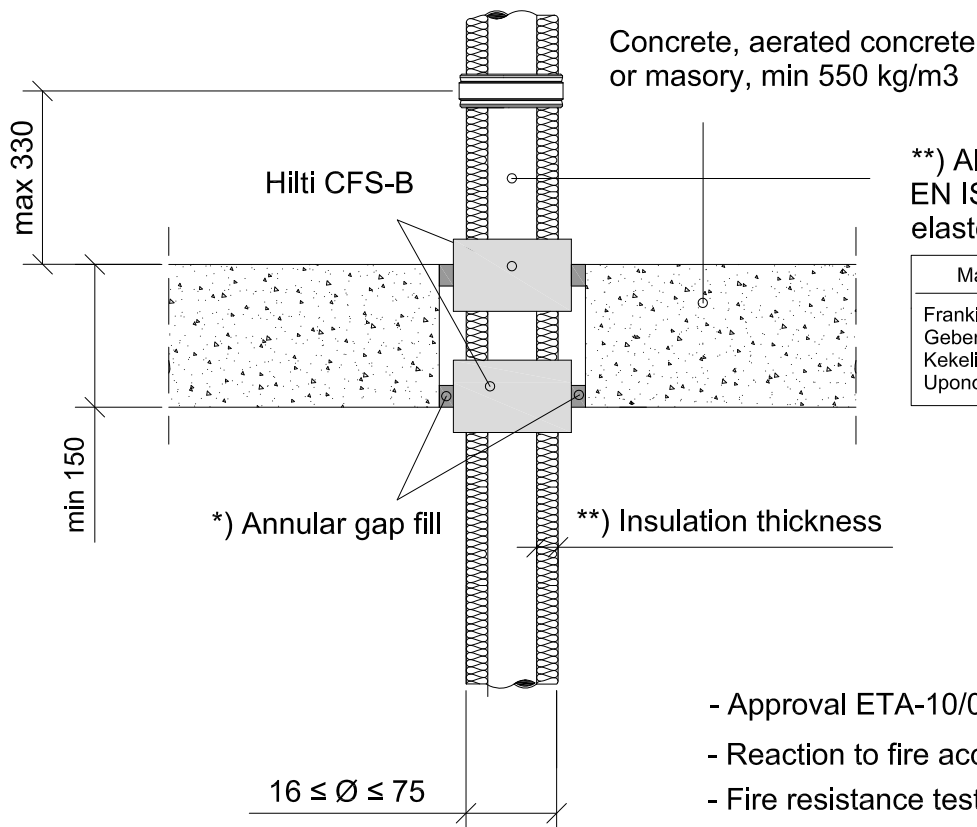
REV

00

No scale

All units are in millimetres

Fire Rating EI 180 U/C



**) Aluminium Composite Pipe acc EN ISO 21003 with flexible, elastomeric thermal insulation

Manufacturer	Product Name
Frankische Rohrwerke	Alpex F50 Profi
Geberit	Mepla
Kekelitt	KELOX KM 110
Uponor	Unipipe MLC

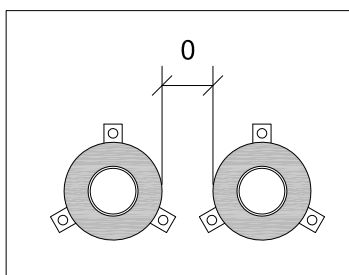
- Approval ETA-10/0212 of 06/05/2014
- Reaction to fire acc EN 13501-1
- Fire resistance test acc EN 1366-3
- Installation according to Hilti instructions

*) Annular gap fill material

Gap with (mm)	Annular Gap Fill
3-50	Cementious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

**) Insulation thickness

Product Name	Pipe Ø	Insulation thickness			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
Unipipe MLC	16-32	8.0	9.0	32.0	35.0
Alpex F50 Profi Mepla KELOX KM 110	75	40.5		40.5	



Zero distance between annular gap

**) List of approved elastomeric combustible insulation types

Product	Approved tpe of foamed elastomeric thermal insulation
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



CONTENTS

Al composite pipe in a rigid floor

ID

REFR-RF-AL-0075

FIRESTOP BANDAGE

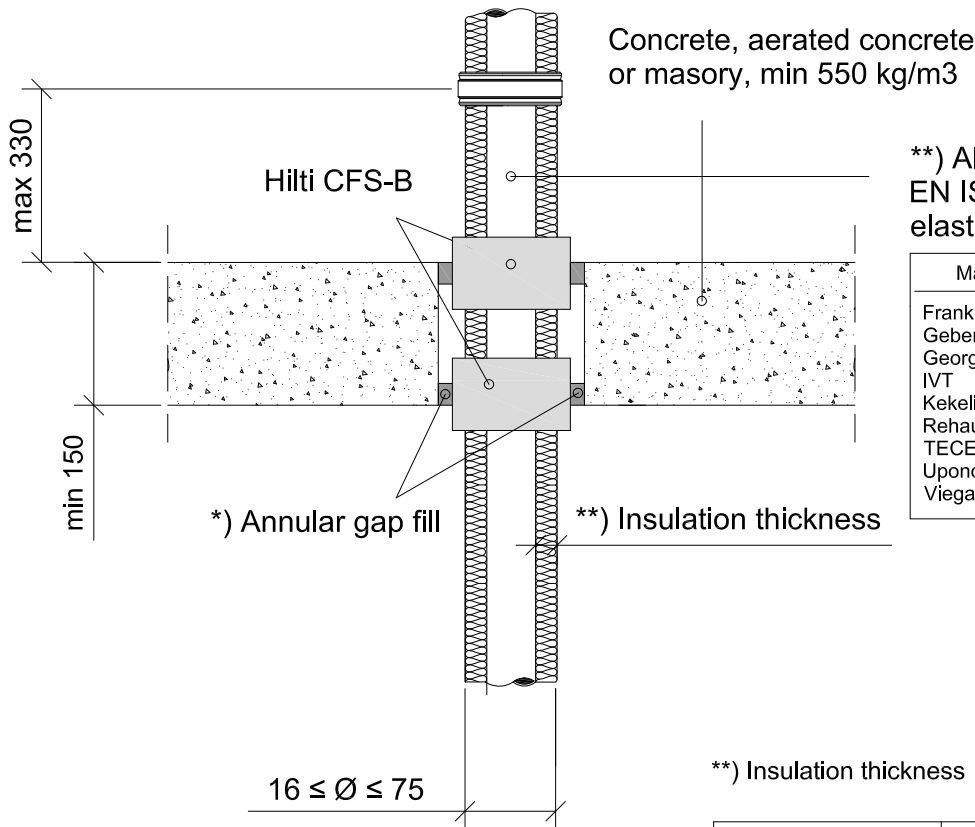
0075_01

REV
00

No scale

All units are in millimetres

Fire Rating EI 120 U/C



**) Aluminium Composite Pipe acc EN ISO 21003 with flexible, elastomeric thermal insulation

Manufacturer	Product Name
Frankische Rohrwerke	Alpex F50 Profi
Geberit	Mepla
Georg Fischer	Sanipex
IVT	PRINETO Stabilrohr
Kekelit	KELOX KM 110
Rehau	Rautitau stabil
TECE	TECEflex Verbundrohr
Uponor	Unipipe MLC
Viega	SANIFIX Fosta-Rohr

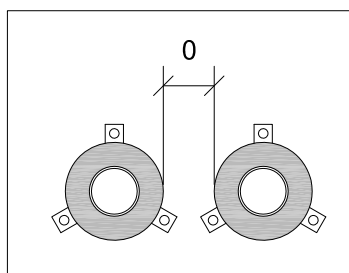
- Approval ETA-10/0212 of 06/05/2014
- Reaction to fire acc EN 13501-1
- Fire resistance test acc EN 1366-3
- Installation according to Hilti instructions

*) Annular gap fill material

Gap with (mm)	Annular Gap Fill
3-50	Cementitious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

**) Insulation thickness

Product Name	Pipe Ø	Insulation thickness			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
Alpex F50 Profi	16-40	8.0	9.0	32.0	36.5
Geberit Mepla	16-75	8.0	9.0	32.0	39.0
Sanipex	16-63	8.0	9.0	32.0	39.0
PRINETO Stabilrohr	17-63	8.0	9.0	32.0	39.0
KELOX KM 110 Rautitau stabil TECEflex Verbundrohr Unipipe MLC SANIFIX Fosta-Rohr	16-63	8.0	9.0	32.0	39.0



Zero distance between annular gap

**) List of approved elastomeric combustible insulation types

Product	Approved tpe of foamed elastomeric thermal insulation
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



CONTENTS

Plastic pipe in a rigid floor

ID

REFR-RF-PP-0095

FIRESTOP BANDAGE

0095_01

REV

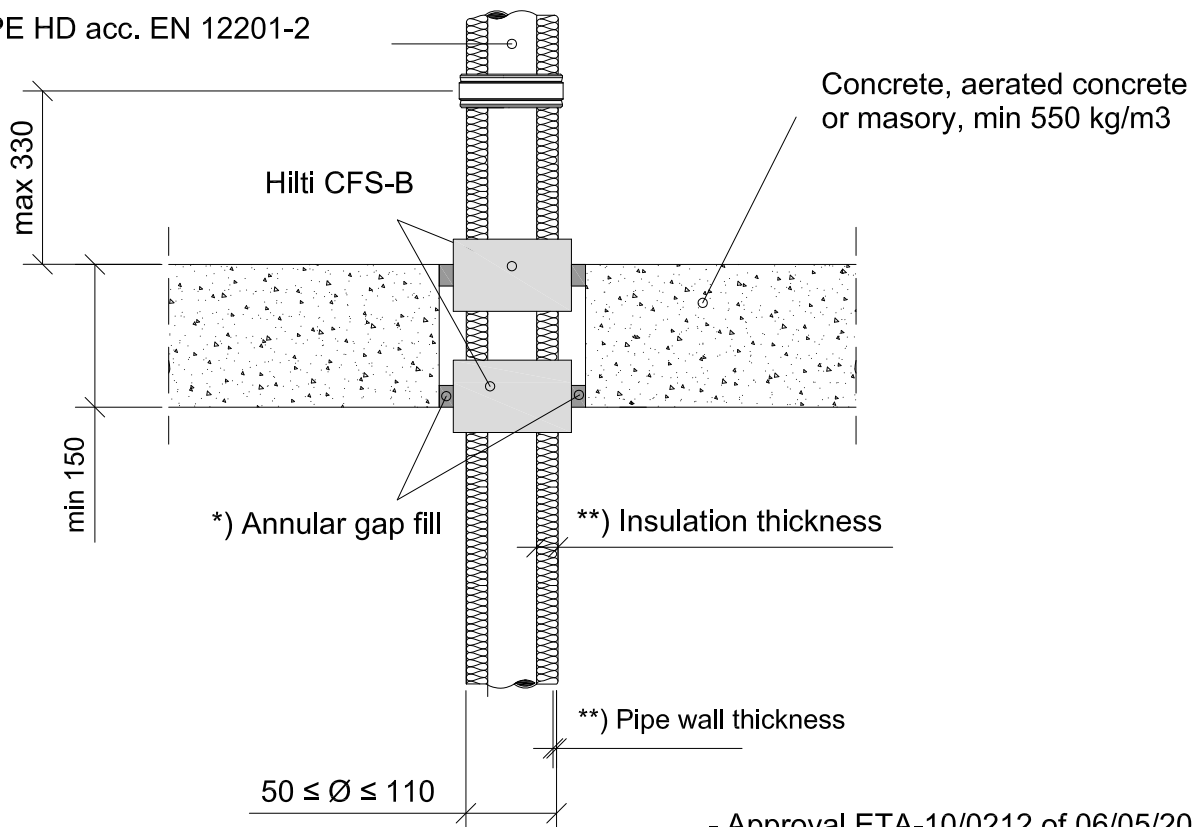
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No scale

All units are in millimetres

Fire Rating EI 180 U/C

**) PE HD acc. EN 12201-2



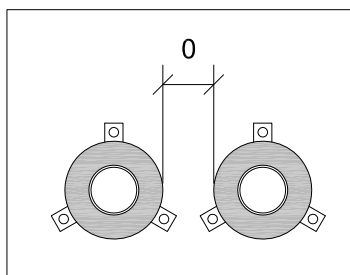
- Approval ETA-10/0212 of 06/05/2014
- Reaction to fire acc EN 13501-1
- Fire resistance test acc EN 1366-3
- Installation according to Hilti instructions

*) Annular gap fill material

Gap with (mm)	Annular Gap Fill
3-50	Cementious mortar acc EN 998-2, class M10 or gypsum over the entire thickness of the floor.

**) Pipe wall thickness and insulation

Pipe Ø	Pipe wall thickness	Insulation thickness			
		From		To	
		Small Ø	Large Ø	Small Ø	Large Ø
50-110	4.6-10	9.0	9.5	37.5	42.5



Zero distance between annular gap

**) List of approved elastomeric combustibile insulation types

Product	Approved tpe of foamed elastomeric thermal insulation
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