Institut für Brandschutztechnik und Sicherheitsforschung

CLASSIFICATION REPORT

in acc. with EN 13501-2:2016

Product name: "**Hilti CFS-B in timber building components**"

Classification Report No.: 319091602-B / B-en
Date: 13 October 2020
Date of translation: 02.03.2021
This Classification Report shall supersede report no. 319091602-A of 17.10.2019.
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Customer:	**Hilti Aktien Gesellschaft** Feldkirchner Strasse 100 FL-9494 Schaan Liechtenstein
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Notification No.:	1322

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1. Introduction

This Classification Report defines the fire resistance class assigned to the installation situations of Hilti CFS-B in timber building components in compliance with the procedures given in EN 13501-2:2016.

2. Details of classified building components and products

2.1. Function type

The function of the Hilti construction products listed in this Classification Report is to resist fire in horizontal and vertical orientations in cross laminated timber constructions in accordance with the characteristic product behaviour defined in section 5 of EN 13502-2:2016.

2.1.1. Hilti CFS-B

The firestop bandage Hilti CFS-B is defined as a pipe penetration sealing system. The Hilti CFS-B bandage is used in conjunction with combustible and non-combustible pipes with or without combustible insulation.

2.1.2. Hilti CFS-S ACR

The firestop acrylic sealant Hilti CFS-S ACR is defined as an annular gap seal.

2.2. Descriptions

The installation situations of “Hilti CFS-B in timber building components” are fully described in the test reports referred to in section 3 of this Classification Report.

2.2.1. Products

2.2.1.1. Hilti CFS-B

The building product Hilti CFS-B is a fire stopping bandage made from intumescent material.

Hilti CFS-B with a nominal thickness of 2 mm is assigned the following classification with regard to its reaction to fire in accordance with EN 13501-1:

Reaction to fire performance class E

(ETA-10/0212 of 06.05.2014, Warrington Certification Ltd.)

2.2.1.2. Hilti CFS-S ACR

The construction product Hilti CFS-S ACR is an acrylic based fire stopping sealant.

Hilti CFS-S ACR is assigned the following classification with regard to its reaction to fire in accordance with EN 13501-1:

Reaction to fire performance class E

(ETA-10/0292 of 31.01.2018, Austrian Institute of Construction Engineering (OIB))

2.2.2. Pipes

2.2.2.1. Metal pipes (hmp):

Copper	Heat conductivity λ ~ 380 W/(m*K)
Stainless steel	Heat conductivity λ ~ 15 W/(m*K)

2.2.2.2. Multilayer composite pipes:

Geberit Mepla	Application:	Potable water, heating
	Material:	PE-RT/aluminium/PE-RT

2.2.3. Insulations

Armacell AF/Armaflex®	Elastomeric insulation, Euroclass B/B_L-s3, d0

2.2.4. Test specimen description

2.2.4.1. Key

Test Report No. – Penetration sealant type – test specimen numbers of the current page																		
					Insulation Acc. to EN 1366-3:2009; Table 1					Pipe sealing system, as per EN 1366-3 3.12								
												Active components						
No.	Material	Dimensions (mm) Cable load	Orientation	Pipe-end configuration	Type	Set-up	Length [mm]	Insulation thickness [mm]	Mixed penetration seal / dimension l x w x h [mm]	Type	Inside diame-ter [mm]	Layers	Thick-ness [mm]	Length [mm]	Installation		Joint seal depth [mm]	Fastening
Test specimen no.	Plastic or metal type Manufacturer type designation Cable group acc. to EN 1366-3:2009 Table A.1/2	Amount x outside diameter / wall thickness Cable designation acc. to EN 1366-3:2009 Table A.1/2 Spec. designation of cables / coaxial cables or wave-guides deviating from EN 1366-3:2009 Deviating cables /coaxial cables or waveguides	Angle between test specimen and supporting structure	Pipe-end configuration acc. to EN 1366-3:2009 Table 2	Manufacturer type designation	Pipe insulation acc. to EN 1366-3:2009 Table 1	Length of insulation on both sides of penetration seal	Insulation thickness	Type designation / dimensions	Type designation of pipe sealing system	Inside diameter of pipe sealing system	Amount of active layers	Total thickness of active layers	Length of the active insert according to EN 1366-3:2009 Illustration H.3	E - Fire Exposed side U - Unexposed side 2S- Both sides CEN - Centred	- I – inside - O - outside	Type designation, filling depth	Type designation and dimensions

2.2.4.2. Floor constructions

2.2.4.2.1. Test Report No. 318092507-1,Rev2

Tested in:	80 mm thick cross laminated timber floor (Binderholz BBS XL) with 3-layer structure Lamella thickness per layer 20 / 40 / 20 mm

TR 318092507-1,Rev2

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN 1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components			Installation	Joint and gap sealing, depth [mm]	Fastening
											Layers	Thickness [mm]	Length [mm]			
P5	Copper	1 x ∅10 / 1	90°	C/U	AF/Armaflex	CS	∞	7.5	CFS-B	25	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P6	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	9	CFS-B	60	2	4	125	2S-I		secured by wire

TR 318092507-1,Rev2 – Pipe penetration seals – P7 – P12, P22 – P24																	
					Insulation Acc. to EN 1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12								
											Active components						
No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Layers	Thickness [mm]	Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P7	Copper	1 x ∅10 / 1	90°	C/U	AF/Armaflex	CS	∞	15.5	CFS-B	41	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P8	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	16.5	CFS-B	75	2	4	125	2S-I		secured by wire
P9	Geberit Mepla	1 x ∅16 / 2.25	90°	U/C	-	-	-	-	CFS-B	16	2	4	125	2S-I		secured by wire
P10	Geberit Mepla	1 x ∅40 / 3.5	90°	U/C	-	-	-	-	CFS-B	40	2	4	125	2S-I		secured by wire
P11	Geberit Mepla	1 x ∅16 / 2.25	90°	U/C	AF/Armaflex	CS	∞	14	CFS-B	44	2	4	125	2S-I		secured by wire
P12	Geberit Mepla	1 x ∅40 / 3.5	90°	U/C	AF/Armaflex	CS	∞	16.5	CFS-B	73	2	4	125	2S-I		secured by wire

2.2.4.2.2. Test Report No. 318092507-3,Rev2

Tested in:	100 mm thick cross laminated timber ceiling (Binderholz BBS XL) with 5-layer structure Lamella thickness per layer 20 / 20 / 20 / 20 / 20 mm

TR 318092507-3,Rev2

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components: Layers	Active components: Thickness [mm]	Active components: Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P5	Copper	1 x ∅10 / 1	90°	C/U	AF/Armaflex	CS	∞	9.5	CFS-B	107.9	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P6	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	9.5	CFS-B	95.1	2	4	125	2S-I		secured by wire

TR 318092507-3,Rev2

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN 1366-3:2009; Table 1				Pipe sealing system, acc. to EN1366-3: 3.12							
											Active components					
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Layers	Thickness [mm]	Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P7	Copper	1 x ∅88.9 / 2	90°	C/U	AF/Armaflex	CS	∞	18	CFS-B	124.9	2	4	125	2S-I	CFS-S ACR, 25	-
P8	Copper	1 x ∅76.1 / 1.5	90°	C/U	AF/Armaflex	CS	∞	17.5	CFS-B	111.1	2	4	125	2S-I		-
P9	Geberit Mepla	1 x ∅50 / 4.5	90°	U/C	-	-	-	-	CFS-B	50	2	4	125	2S-I		secured by wire
P10	Geberit Mepla	1 x ∅63 / 4.5	90°	U/C	-	-	-	-	CFS-B	63	2	4	125	2S-I		secured by wire
P11	Geberit Mepla	1 x ∅50 / 4.5	90°	U/C	AF/Armaflex	CS	∞	16.5	CFS-B	83	2	4	125	2S-I		secured by wire
P12	Geberit Mepla	1 x ∅63 / 4.5	90°	U/C	AF/Armaflex	CS	∞	17	CFS-B	97	2	4	125	2S-I		secured by wire

2.2.4.2.3. Test Report No. 318092507-5

Tested in:	100 mm thick cross laminated timber floor (Binderholz BBS XL) with five-layered structure Lamella thickness per layer 20 / 20 / 20 / 20 / 20 mm

TR 318092507-5

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components: Layers	Active components: Thickness [mm]	Active components: Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P42	Geberit Mepla	1 x ∅63 / 4.5	90°	U/C	AF/Armaflex	CS	∞	14.5	CFS-B	93	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P43	Geberit Mepla	1 x ∅50 / 4.0	90°	U/C	AF/Armaflex	CS	9	20.5	CFS-B	68	2	4	125	2S-I		secured by wire

2.2.4.2.4. Test Report No. 318092507-2,Rev2

Tested in:	140 mm thick cross laminated timber floor (Binderholz BBS XL) with 5-layer structure Lamella thickness per layer 40 / 20 / 20 / 20 / 40 mm

TR 318092507-2,Rev2

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN 1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components: Layers	Active components: Thickness [mm]	Active components: Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P5	Copper	1 x ∅10 / 1	90°	C/U	AF/Armaflex	CS	∞	7.5	CFS-B	25	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P6	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	9	CFS-B	60	2	4	125	2S-I		secured by wire

TR 318092507-2,Rev2

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN 1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components			Installation	Joint and gap sealing, depth [mm]	Fastening
											Layers	Thickness [mm]	Length [mm]			
P7	Copper	1 x ∅10 / 1	90°	C/U	AF/Armaflex	CS	∞	15.5	CFS-B	41	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P8	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	16.5	CFS-B	75	2	4	125	2S-I		secured by wire
P9	Geberit Mepla	1 x ∅16 / 2.25	90°	U/C	-	-	-	-	CFS-B	16	2	4	125	2S-I		secured by wire
P10	Geberit Mepla	1 x ∅40 / 3.5	90°	U/C	-	-	-	-	CFS-B	40	2	4	125	2S-I		secured by wire
P11	Geberit Mepla	1 x ∅16 / 2.25	90°	U/C	AF/Armaflex	CS	∞	14	CFS-B	44	2	4	125	2S-I		secured by wire
P12	Geberit Mepla	1 x ∅40 / 3.5	90°	U/C	AF/Armaflex	CS	∞	16.5	CFS-B	73	2	4	125	2S-I		secured by wire
P47	Stainless steel	1 x ∅35 / 1.5	90°	C/U	AF/Armaflex	CS	∞	13	CFS-B	61	2	4	125	2S-I		secured by wire

2.2.4.3. Wall constructions

2.2.4.3.1. Test Report No. 319091602-3,Rev1

Tested in:	80 mm thick cross laminated timber wall (Binderholz BBS XL) with 3-layer structure Lamella thickness per layer 20 / 40 / 20 mm

TR 319091602-3,Rev1

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components			Installation	Joint and gap sealing, depth [mm]	Fastening
											Layers	Thickness [mm]	Length [mm]			
P5	Copper	1 x ∅10 / 1	90°	C/U	AF/Armaflex	CS	∞	7.5	CFS-B	25	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P6	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	9	CFS-B	60	2	4	125	2S-I		secured by wire

TR 319091602-3,Rev1

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components: Layers	Active components: Thickness [mm]	Active components: Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P7	Copper	1 x ∅10 / 1	90°	C/U	AF/Armaflex	CS	∞	15.5	CFS-B	41	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
						LS	250	13								
P8	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	16.5	CFS-B	75	2	4	125	2S-I		secured by wire
						LS	250	13								
P9	Geberit Mepla	1 x ∅16 / 2.25	90°	U/C	-	-	-	-	CFS-B	16	2	4	125	2S-I		secured by wire
P10	Geberit Mepla	1 x ∅40 / 3.5	90°	U/C	-	-	-	-	CFS-B	40	2	4	125	2S-I		secured by wire
P11	Geberit Mepla	1 x ∅16 / 2.25	90°	U/C	AF/Armaflex	CS	∞	14	CFS-B	44	2	4	125	2S-I		secured by wire
P12	Geberit Mepla	1 x ∅40 / 3.5	90°	U/C	AF/Armaflex	CS	∞	16.5	CFS-B	73	2	4	125	2S-I		secured by wire

2.2.4.3.2. Test Report No. 319091602-4,Rev1

Tested in:	80 mm thick cross laminated timber floor (Binderholz BBS XL) with 3-layer structure Lamella thickness per layer 20 / 40 / 20 mm

TR 319091602-4,Rev1

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components: Layers	Active components: Thickness [mm]	Active components: Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P34	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	13.5	CFS-B	69	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P35	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	20.5	CFS-B	83	2	4	125	2S-I		secured by wire

2.2.4.3.3. Test Report No. 319091602-1,Rev1

Tested in:	100 mm thick cross laminated timber wall (Binderholz BBS XL) with 5-layer structure Lamella thickness per layer 20 / 20 / 20 / 20 / 20 mm

TR 319091602-1,Rev1

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components: Layers	Active components: Thickness [mm]	Active components: Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P5	Copper	1 x ∅54 / 1.5	90°	C/U	AF/Armaflex	CS	∞	9	CFS-B	72	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P6	Copper	1 x ∅54 / 1.5	90°	C/U	AF/Armaflex	CS	∞	17	CFS-B	84	2	4	125	2S-I		secured by wire
P7	Geberit Mepla	1 x ∅63 / 4.5	90°	U/C	AF/Armaflex	CS	∞	17	CFS-B	93	2	4	125	2S-I		secured by wire
P8	Geberit Mepla	1 x ∅63 / 4.5	90°	U/C	-	-	-	-	CFS-B	63	2	4	125	2S-I		secured by wire

2.2.4.3.4. Test Report No. 319091602-2,Rev1

Tested in:	100 mm thick cross laminated timber wall (Binderholz BBS XL) with 5-layer structure Lamella thickness per layer 20 / 20 / 20 / 20 / 20 mm

TR 319091602-2,Rev1

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Active components: Layers	Active components: Thickness [mm]	Active components: Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P5	Copper	1 x ∅10 / 1	90°	C/U	AF/Armaflex	CS	∞	7.5	CFS-B	25	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P6	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	9	CFS-B	60	2	4	125	2S-I		secured by wire

TR 319091602-2,Rev1																	
					Insulation Acc. to EN1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12								
											Active components						
No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Layers	Thickness [mm]	Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P7	Copper	1 x ∅10 / 1	90°	C/U	AF/Armaflex	CS	∞	15.5	CFS-B	41	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P8	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	16.5	CFS-B	75	2	4	125	2S-I		secured by wire
P9	Geberit Mepla	1 x ∅16 / 2.25	90°	U/C	-	-	-	-	CFS-B	16	2	4	125	2S-I		secured by wire
P10	Geberit Mepla	1 x ∅40 / 3.5	90°	U/C	-	-	-	-	CFS-B	40	2	4	125	2S-I		secured by wire
P11	Geberit Mepla	1 x ∅16 / 2.25	90°	U/C	AF/Armaflex	CS	∞	14	CFS-B	44	2	4	125	2S-I		secured by wire
P12	Geberit Mepla	1 x ∅40 / 3.5	90°	U/C	AF/Armaflex	CS	∞	16.5	CFS-B	73	2	4	125	2S-I		secured by wire

2.2.4.3.5. Test Report No. 319091602-5,Rev1

Tested in:	100 mm thick cross laminated timber wall (Binderholz BBS XL) with 5-layer structure Lamella thickness per layer 20 / 20 / 20 / 20 / 20 mm

TR 319091602-5,Rev1

No.	Material	Dimensions OD / wall thickness [mm]	Orientation	Pipe-end configuration	Insulation Acc. to EN1366-3:2009; Table 1				Pipe sealing system, as per EN 1366-3 3.12							
											Active components					
					Type	Set-up	Length [mm]	Insulation thickness [mm]	Type	Inside diameter [mm]	Layers	Thickness [mm]	Length [mm]	Installation	Joint and gap sealing, depth [mm]	Fastening
P40	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS LS	∞ 250	20.5 19	CFS-B	83	2	4	125	2S-I	CFS-S ACR, 25	secured by wire
P41	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS LS	∞ 250	9 19	CFS-B	80	2	4	125	2S-I		secured by wire
P42	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS	∞	13.5	CFS-B	69	2	4	125	2S-I		secured by wire
P43	Mepla	1 x ∅63 / 4.5	90°	U/C	AF/Armaflex	CS	∞	14.5	CFS-B	90	2	4	125	2S-I		secured by wire
P44	Copper	1 x ∅42 / 1.2	90°	C/U	AF/Armaflex	CS LS	∞ 250	13.5 19	CFS-B	69	2	4	125	2S-I		secured by wire

3. Test reports and results

3.1. Test reports

Name of testing laboratory	Customer	Test Report No.	Test method
IBS Linz Petzoldstr. 45, A-4020 Linz	**HILTI AG** Feldkircher Str. 100 FL-9494 Schaan	319091602-3,Rev1 of 24.07.2020 (CLT W 80mm)	EN 1363-1: 1999 EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	**HILTI AG** Feldkircher Str. 100 FL-9494 Schaan	319091602-2,Rev1 of 24.07.2020 (CLT W 100mm)	EN 1363-1: 1999 EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	**HILTI AG** Feldkircher Str. 100 FL-9494 Schaan	319091602-1,Rev1 of 24.07.2020 (CLT W 100mm)	EN 1363-1: 1999 EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	**HILTI AG** Feldkircher Str. 100 FL-9494 Schaan	318092507-3,Rev2 of 12.10.2020 (CLT C 100mm)	EN 1363-1: 1999 EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	**HILTI AG** Feldkircher Str. 100 FL-9494 Schaan	318092507-2,Rev2 of 12.10.2020 (CLT D 140mm)	EN 1363-1: 1999 EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	**HILTI AG** Feldkircher Str.100 FL-9494 Schaan	318092507-1,Rev2 of 12.10.2020 (CLT D 80mm)	EN 1363-1: 1999 EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	**HILTI AG** Feldkircher Str. 100 FL-9494 Schaan	319091602-4,Rev1 of 12.10.2020 (CLT W 80mm)	EN 1363-1: 1999 EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	**HILTI AG** Feldkircher Str. 100 FL-9494 Schaan	319091602-5,Rev1 of 12.10.2020 (CLT W 100mm)	EN 1363-1: 1999 EN 1366-3: 2009
IBS Linz Petzoldstr. 45, A-4020 Linz	**HILTI AG** Feldkircher Str. 100 FL-9494 Schaan	318092507-5 of 22.07.2020 (CLT C 100mm)	EN 1363-1: 1999 EN 1366-3: 2009

3.2. Resistance to fire performance

Table 1: Terms of loading

Temperature-time curve:	Standard temperature-time curve (STTC) as specified in subsection 5.1.1 of EN 1363-1:2000.
Fire load:	Horizontal penetration seal (floor) Vertical penetration seal (wall)

Table 2: Test results

Test Report No. 318092507-1,Rev2 of 10.10.2020 EN 1366-3: 2009 in connection with EN 1363-1: 1999					
No.	**Pipe-end configuration**	**E - Integrity**			**I - Thermal insulation**
		Time until cotton wool pad ignition	Time until failure of gap gauge criteria	Time until occurrence of sustained flaming	Time until the maximum temperature rise exceeds 180 K on cold side
		[min]			
P5 - P8	C/U	≥ 60	≥ 60	≥ 60	≥ 60
P9 - P12	U/C	≥ 60	≥ 60	≥ 60	≥ 60
Specific supporting structure according to the specifications of EN 1366-3:2009, subsection 7.2.1 Floor construction in cross laminated timber made from spruce with a total thickness of 80 mm					

Test Report No. 318092507-2,Rev2 of 10.10.2020 EN 1366-3: 2009 in connection with EN 1363-1: 1999					
No.	**Pipe-end configuration**	**E - Integrity**			**I - Thermal insulation**
		Time until cotton wool pad ignition	Time until failure of gap gauge criteria	Time until occurrence of sustained flaming	Time until the maximum temperature rise exceeds 180 K on cold side
		[min]			
P5	C/U	≥ 120	≥ 120	≥ 120	≥ 120
P6	C/U	≥ 120	≥ 120	≥ 120	≥ 90
P7 - P8	C/U	≥ 120	≥ 120	≥ 120	≥ 120
P9 - P12	U/C	≥ 120	≥ 120	≥ 120	≥ 120
P47	C/U	≥ 120	≥ 120	≥ 120	≥ 120
Specific supporting structure according to the specifications of EN 1366-3:2009, subsection 7.2.1 Floor construction in cross laminated timber made from spruce with a total thickness of 140 mm					

Test Report No. 318092507-3,Rev2 of 10.10.2020 EN 1366-3: 2009 in connection with EN 1363-1: 1999					
No.	**Pipe-end configuration**	**E - Integrity**			**I - Thermal insulation**
		Time until cotton wool pad ignition	Time until failure of gap gauge criteria	Time until occurrence of sustained flaming	Time until the maximum temperature rise exceeds 180 K on cold side
		[min]			
P5 - P6	C/U	≥ 90	≥ 90	≥ 90	≥ 30
P7 - P8	C/U	≥ 90	≥ 90	≥ 90	≥ 45
P9 - P10	U/C	≥ 90	≥ 90	≥ 90	≥ 60
P11 - P12	U/C	≥ 90	≥ 90	≥ 90	≥ 90
Specific supporting structure according to the specifications of EN 1366-3:2009, subsection 7.2.1 Floor construction in cross laminated timber made from spruce with a total thickness of 100 mm					

Test report 318092507-5 of 22.07.2020 EN 1366-3: 2009 in connection with EN 1363-1: 1999					
No.	**Pipe-end configuration**	**E - Integrity**			**I - Thermal insulation**
		Time until cotton wool pad ignition	Time until failure of gap gauge criteria	Time until occurrence of sustained flaming	Time until the maximum temperature rise exceeds 180 K on cold side
		[min]			
P42 - P43	U/C	≥ 90	≥ 90	≥ 90	≥ 60
Specific supporting structure according to the specifications of EN 1366-3:2009, subsection 7.2.1 Floor construction in cross laminated timber made from spruce with a total thickness of 100 mm					

Test Report No. 319091602-1,Rev1 of 24.07.2020 EN 1366-3: 2009 in connection with EN 1363-1: 1999					
No.	**Pipe-end configuration**	**E - Integrity**			**I - Thermal insulation**
		Time until cotton wool pad ignition	Time until failure of gap gauge criteria	Time until occurrence of sustained flaming	Time until the maximum temperature rise exceeds 180 K on cold side
		[min]			
P5	C/U	≥ 90	≥ 90	≥ 90	≥ 30
P6	C/U	≥ 90	≥ 90	≥ 90	≥ 45
P7	U/C	≥ 90	≥ 90	≥ 90	≥ 60
P8	U/C	≥ 90	≥ 90	≥ 90	≥ 45
Specific supporting structure according to the specifications of EN 1366-3:2009, subsection 7.2.1 Wall constructions in cross laminated timber made from spruce with a total thickness of 100 mm					

Test Report No. 319091602-2,Rev1 of 24.07.2020 EN 1366-3: 2009 in connection with EN 1363-1: 1999					
No.	**Pipe-end configuration**	**E - Integrity**			**I - Thermal insulation**
		Time until cotton wool pad ignition	Time until failure of gap gauge criteria	Time until occurrence of sustained flaming	Time until the maximum temperature rise exceeds 180 K on cold side
		[min]			
P5	C/U	≥ 90	≥ 90	≥ 90	≥ 90
P6	C/U	≥ 90	≥ 90	≥ 90	≥ 45
P7	C/U	≥ 90	≥ 90	≥ 90	≥ 90
P8	C/U	≥ 90	≥ 90	≥ 90	≥ 90
P9 - P12	U/C	≥ 90	≥ 90	≥ 90	≥ 90
Specific supporting structure according to the specifications of EN 1366-3:2009, subsection 7.2.1 Wall constructions in cross laminated timber made from spruce with a total thickness of 100 mm					

Test Report No. 319091602-3,Rev1 of 24.07.2020 EN 1366-3: 2009 in connection with EN 1363-1: 1999					
No.	**Pipe-end configuration**	**E - Integrity**			**I - Thermal insulation**
		Time until cotton wool pad ignition	Time until failure of gap gauge criteria	Time until occurrence of sustained flaming	Time until the maximum temperature rise exceeds 180 K on cold side
		[min]			
P5	C/U	≥ 60	≥ 60	≥ 60	≥ 60
P6	C/U	≥ 60	≥ 60	≥ 60	≥ 45
P7 - P8	C/U	≥ 60	≥ 60	≥ 60	≥ 60
P9 - P12	U/C	≥ 60	≥ 60	≥ 60	≥ 60
Specific supporting structure according to the specifications of EN 1366-3:2009, subsection 7.2.1 Wall constructions in cross laminated timber made from spruce with a total thickness of 80 mm					

Test Report No. 319091602-4,Rev1 of 12.10.2020 EN 1366-3: 2009 in connection with EN 1363-1: 1999					
No.	**Pipe-end configuration**	**E - Integrity**			**I - Thermal insulation**
		Time until cotton wool pad ignition	Time until failure of gap gauge criteria	Time until occurrence of sustained flaming	Time until the maximum temperature rise exceeds 180 K on cold side
		[min]			
P34	C/U	≥ 60	≥ 60	≥ 60	≥ 45
P35	C/U	≥ 60	≥ 60	≥ 60	≥ 60
Specific supporting structure according to the specifications of EN 1366-3:2009, subsection 7.2.1 Wall constructions in cross laminated timber made from spruce with a total thickness of 80 mm					

Test Report No. 319091602-5,Rev1 of 12.10.2020 EN 1366-3: 2009 in connection with EN 1363-1: 1999					
No.	**Pipe-end configuration**	**E - Integrity**			**I - Thermal insulation**
		Time until cotton wool pad ignition	Time until failure of gap gauge criteria	Time until occurrence of sustained flaming	Time until the maximum temperature rise exceeds 180 K on cold side
		[min]			
P40 - P41	C/U	≥ 90	≥ 90	≥ 90	≥ 90
P42	C/U	≥ 90	≥ 90	≥ 90	≥ 45
P43	C/U	≥ 90	≥ 90	≥ 90	≥ 60
P44	C/U	≥ 90	≥ 90	≥ 90	≥ 90
Specific supporting structure according to the specifications of EN 1366-3:2009, subsection 7.2.1 Wall constructions in cross laminated timber made from spruce with a total thickness of 100 mm					

4. Classification and field of application

4.1. Reference for classification

This Classification is based on the normative reference EN 13501-2: 2016, section 7.

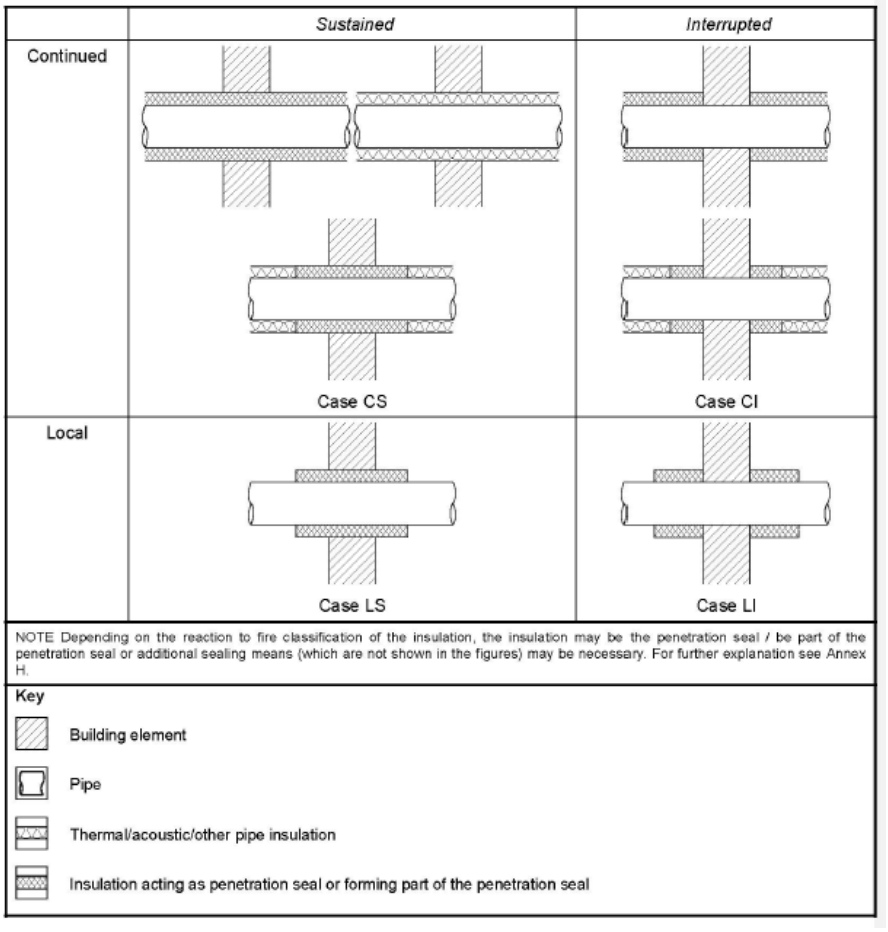
4.2. Reference for field of application

The field of direct application is based on the normative reference EN 1366-3:2009.

4.3. Definitions

4.3.1. Pipe insulation

This table contains terms that are used throughout the classification report for the various application fields of the pipe insulation.



4.3.2. Positioning of sectional insulations in the supporting structure

For both wall and floor application, the sectional insulation must be positioned symmetrically to the supporting structure.

4.3.3. Length of sectional insulation

The length of the local insulation may be increased but not decreased.

4.3.4. Pipe orientation

The pipes are mounted perpendicular to the supporting structure and are tested this way.

4.3.5. Pipe support

Pipes and cables must be supported on both sides of the wall constructions or on the surface of the ceiling constructions at a distance of ≤ 350 mm.

4.3.6. Pipe-end configuration

Tests performed with pipe-end configuration U/U shall also cover the configurations C/U, U/C and C/C.

Tests performed with pipe-end configuration C/U shall also cover the configurations U/C and C/C.

Tests performed with pipe-end configuration U/C shall also cover the configuration C/C.

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

4.3.7. Supporting structure (wall/floor)

Test results that include a specific supporting structure shall apply to separating building components made of the same material and with the same composition, at least with the same thickness and density, as the tested ones.

The covering of a horizontal supporting structure with inorganic materials (e.g. concrete covering) is acceptable.

Building components (supporting structures) shall be classified in relation to their fire resistance in compliance with EN 13501-2.

4.4. Hilti CFS-B

4.4.1. Mounting

The Hilti CFS-B firestop bandage is wrapped in 2 layers around the specimen on both sides of the wall or floor and secured against falling by means of wire. The bandage must project 60 mm from the wall or floor on both sides.

4.4.2. Annular gaps

Sealing of annular gap	Hilti CFS-S ACR
Maximum annular gap	≤ 15 mm
Filling depth	≥ 25 mm
Backfilling	none

4.4.3. Minimum distance (linear)

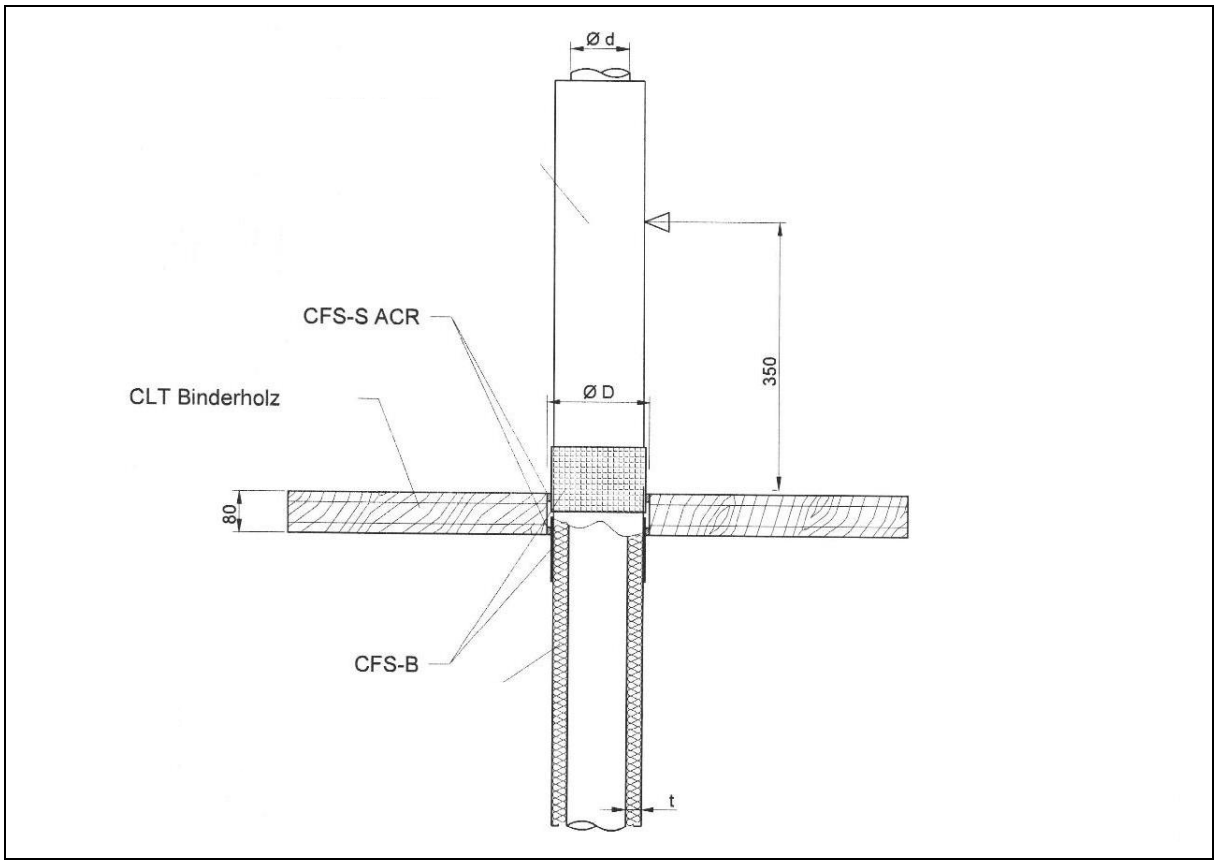
Hilti CFS-B +	Mineral wool insulation	50 mm
	Hilti CFS-C EL	
	Hilti CFS-CC	
All other distances		≥ 100 mm

4.4.4. Cross laminated timber floor ≥ 80 mm

4.4.4.1. Definition of supporting structure

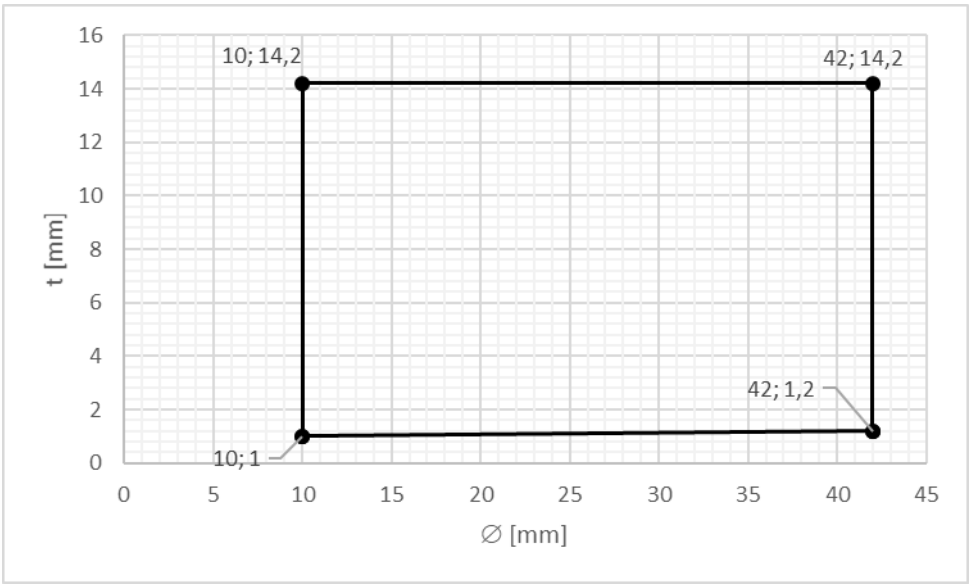
The floor must be ≥ 80 mm thick and have ≥ 3 layers of softwood, provided that each outer layer exhibits a thickness of ≥ 20 mm. Both PU and MUF adhesives are permitted. Edge glueing is not required.

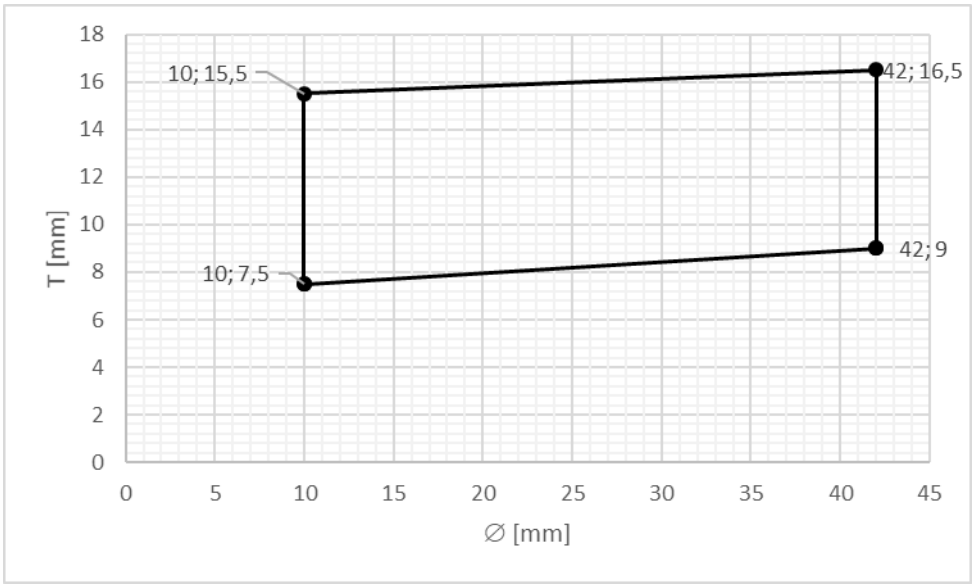
4.4.4.2. Detailed drawings



4.4.4.3. Metal pipes with combustible insulation

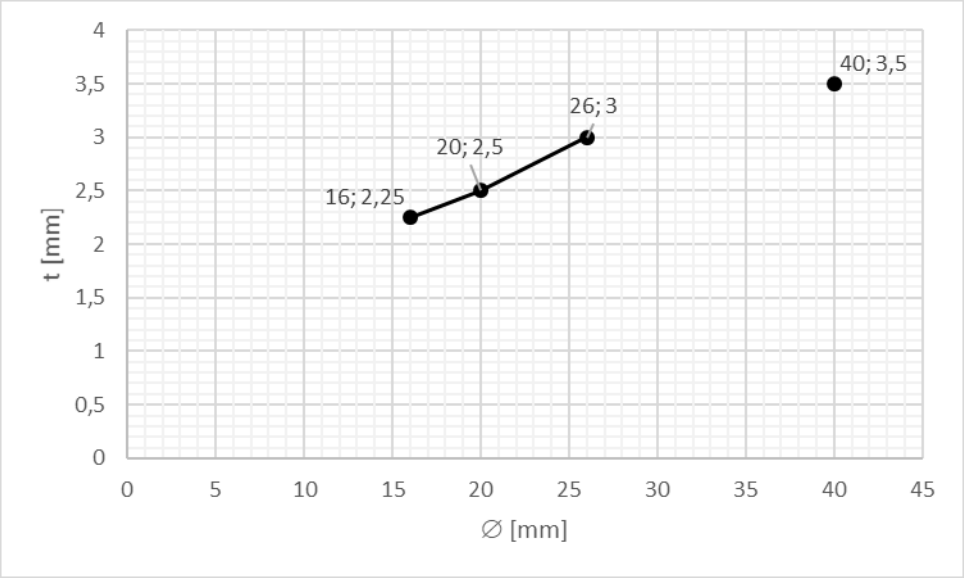
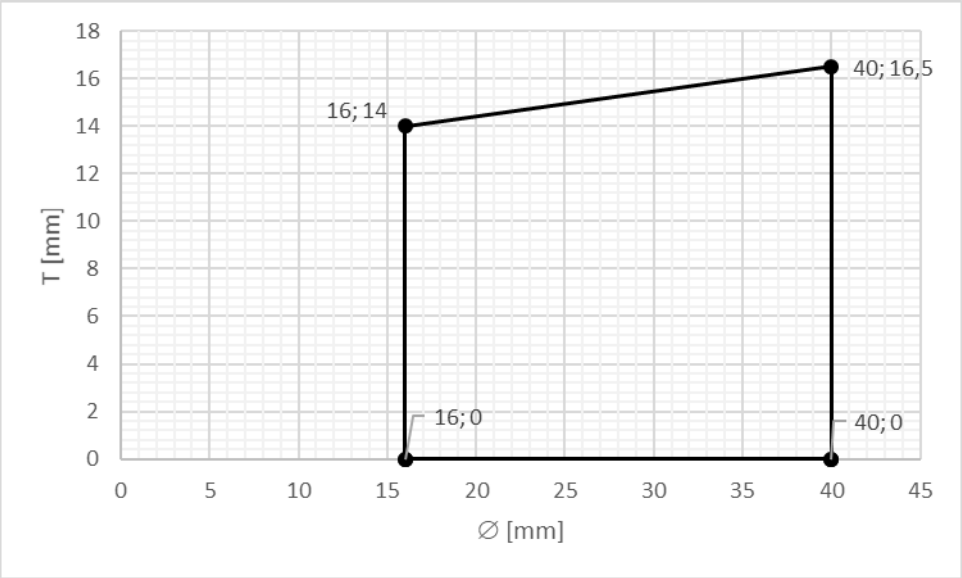
<table>
<tr><td rowspan="3">Copper pipe[5],
λ ≤ 380 W/mK

Insulation - CS</td><td>∅ = 10 - 42 mm</td><td rowspan="3">EI 60 – C/U</td></tr>
<tr><td>t = 1.0 – 14.2 mm</td></tr>
<tr><td>Elastomeric foam[6]
T = 7.5 – 20, 5.5mm</td></tr>
<tr><td colspan="3">Additional protective insulation made of elastomeric foam[6] case LI
Length of 250 mm on both sides and nudging on the supporting construction</td></tr>
<tr><td colspan="2"> 


</td><td>318092507-1,Rev2
P5 – P8</td></tr>
</table>

[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

4.4.4.4. Aluminium composite pipes with combustible insulation

Geberit Mepla (rod) Insulation - CS	∅ = 16 – 26, 40 mm t = 2.25 – 3, 3.5 mm Elastomeric foam[6] T = 0 - 16.5 mm	**EI 60 – U/C**
 		318092507-1,Rev2 P11 – P12

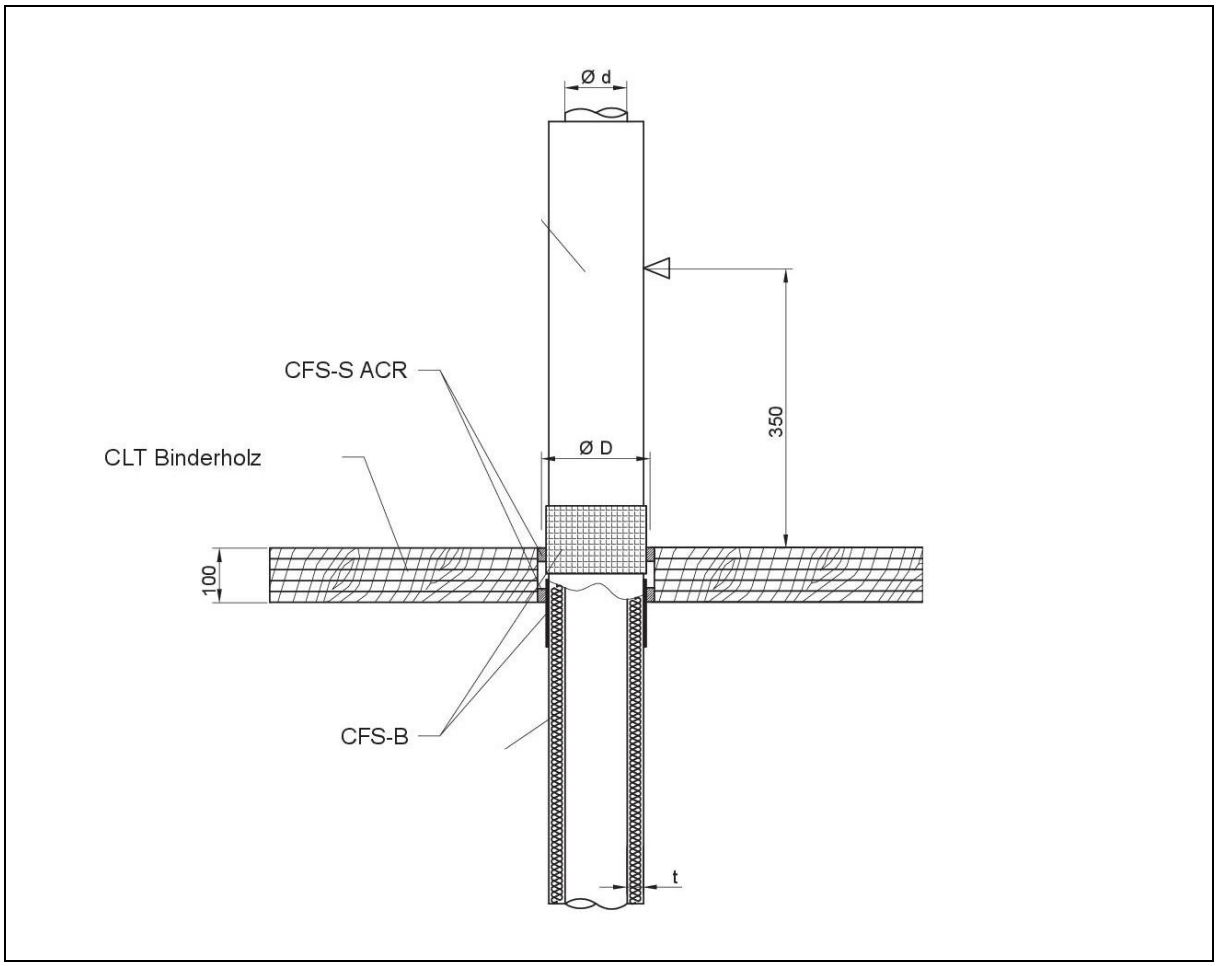
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

4.4.5. Cross laminated timber floor ≥ 100 mm

4.4.5.1. Definition of supporting structure

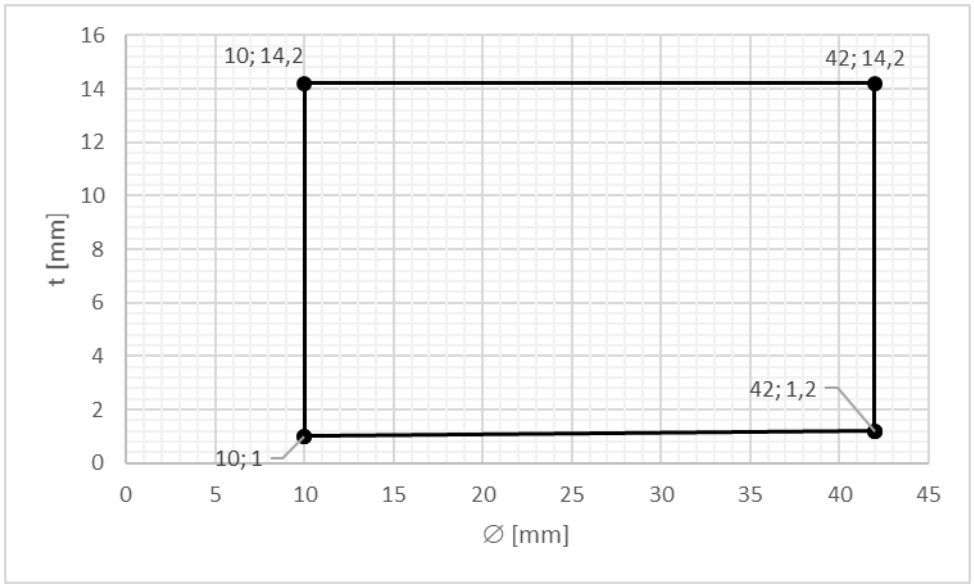
The floor must be ≥ 100 mm thick and have ≥ 3 layers of softwood, provided that each outer layer exhibits a thickness of ≥ 20 mm. Both PU and MUF adhesives are approved. Edge glueing is not required.

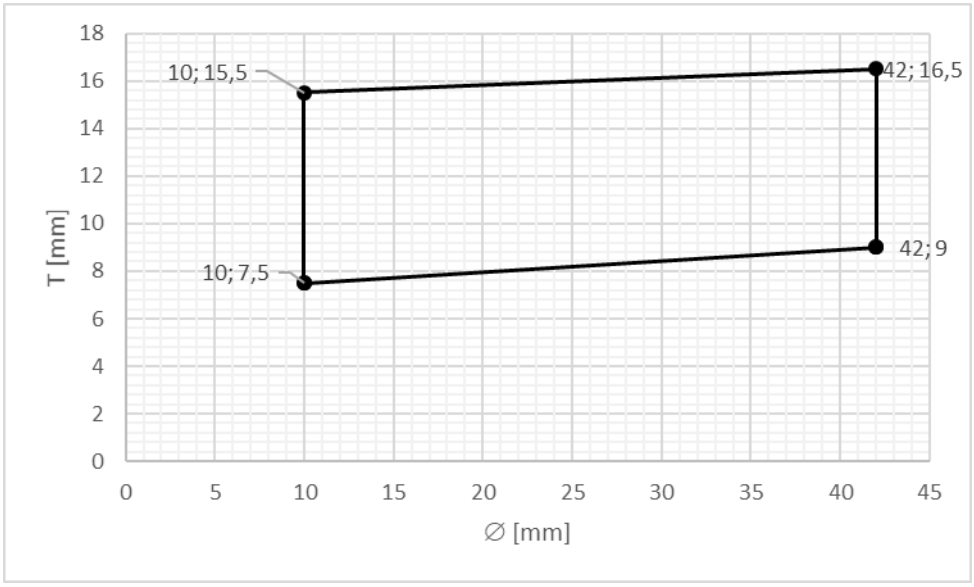
4.4.5.2. Detailed drawings



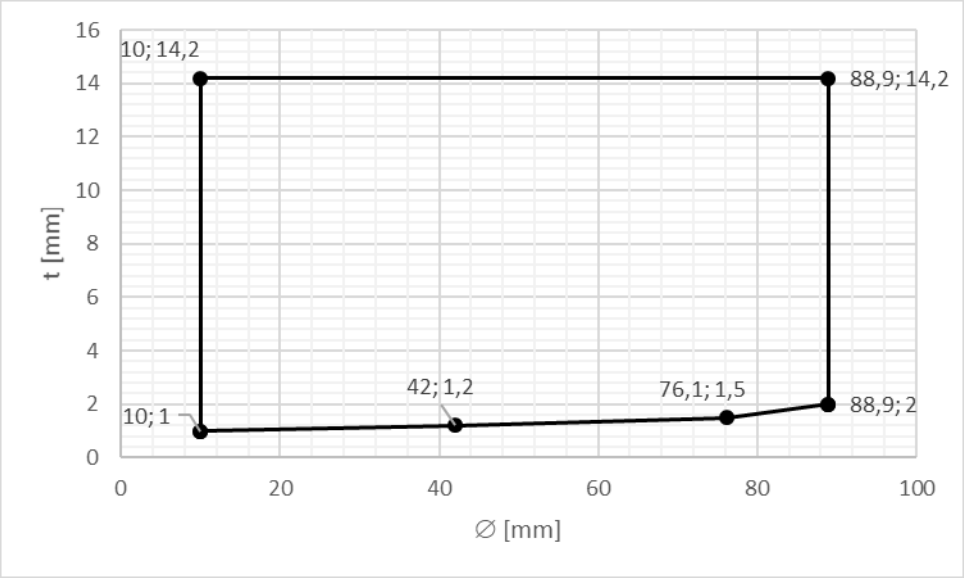
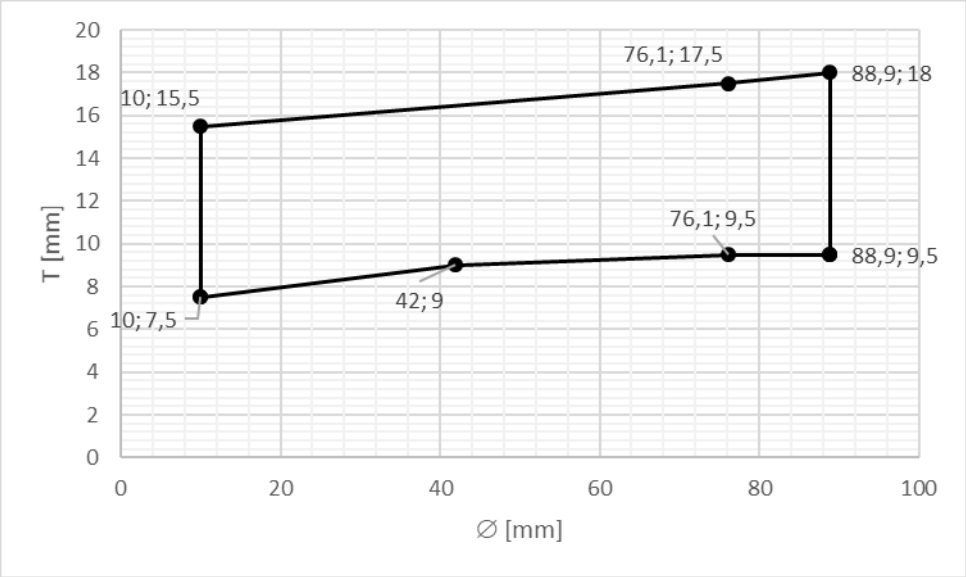
4.4.5.3. Metal pipes with combustible insulation

<table>
<tr><td rowspan="3">Copper pipe[5],
λ ≤ 380 W/mK

Insulation - CS</td><td>∅ = 10 - 42 mm</td><td rowspan="3">EI 60 – C/U</td></tr>
<tr><td>t = 1.0 – 14.2 mm</td></tr>
<tr><td>Elastomeric foam[6]
T = 7.5 – 16.5mm</td></tr>
<tr><td colspan="2"> 

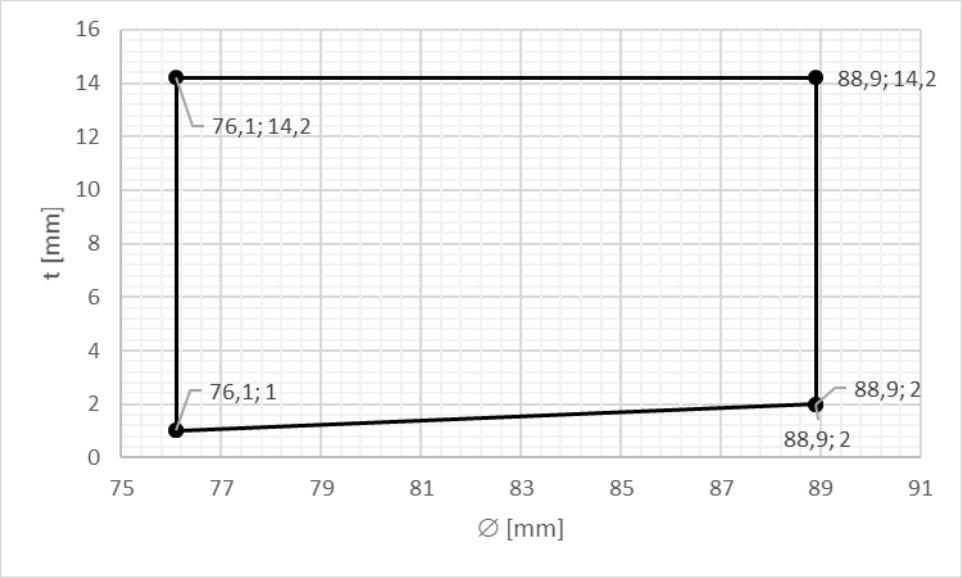

</td><td>318092507-1,Rev2
P5 – P8</td></tr>
</table>

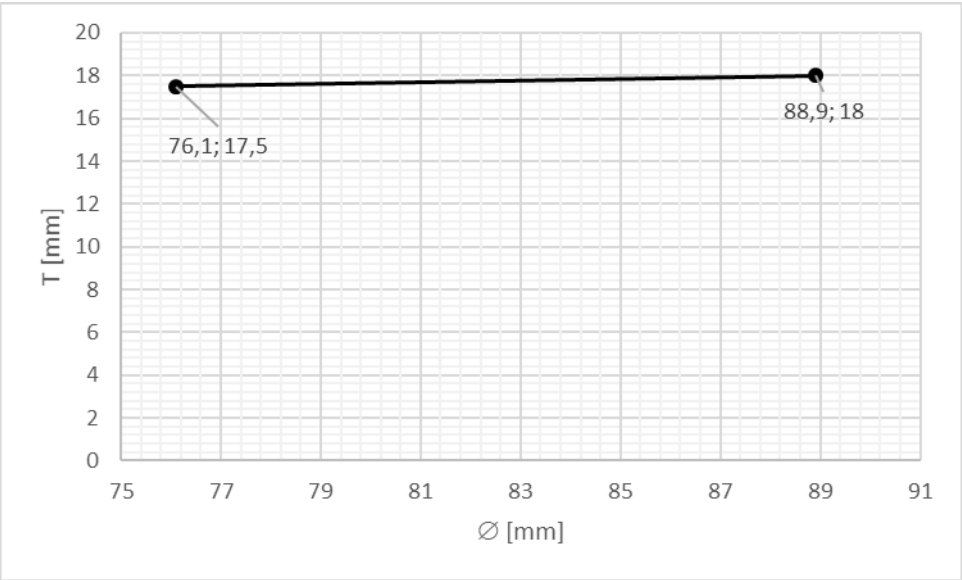
[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Armacell AF/Armaflex

Copper pipe[5], λ ≤ 380 W/mK Insulation - CS	∅ = 10 - 88.9 mm t = 1.0 – 14.2 mm Elastomeric foam[6] T = 7.5 – 18 mm	**EI 30 – C/U**
Protective insulation made of elastomeric foam[6] LI 250 mm Nudging on both sides oft he supporting construction		
 		P5 – P8 318092507-1,Rev2 318092507-3,Rev2

[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Armacell AF/Armaflex

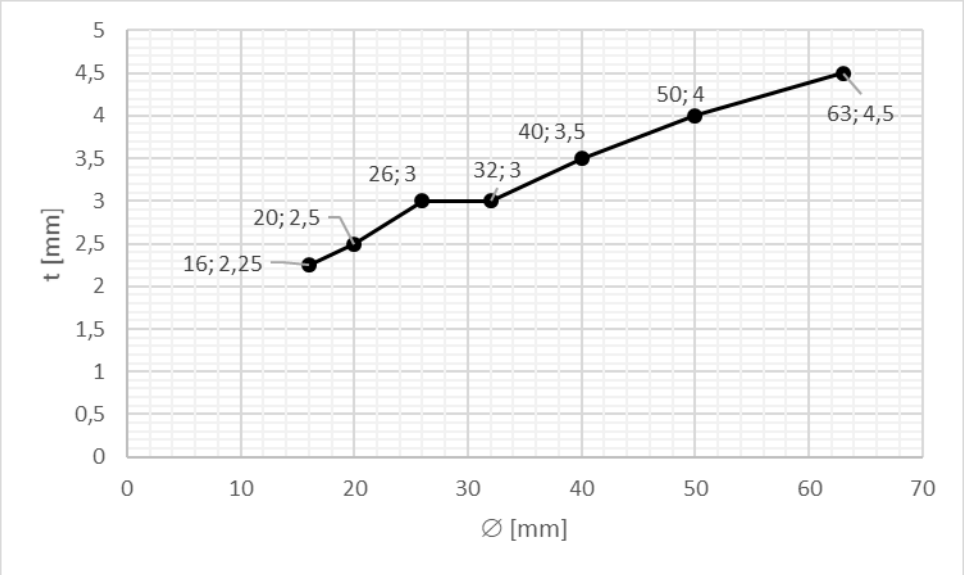
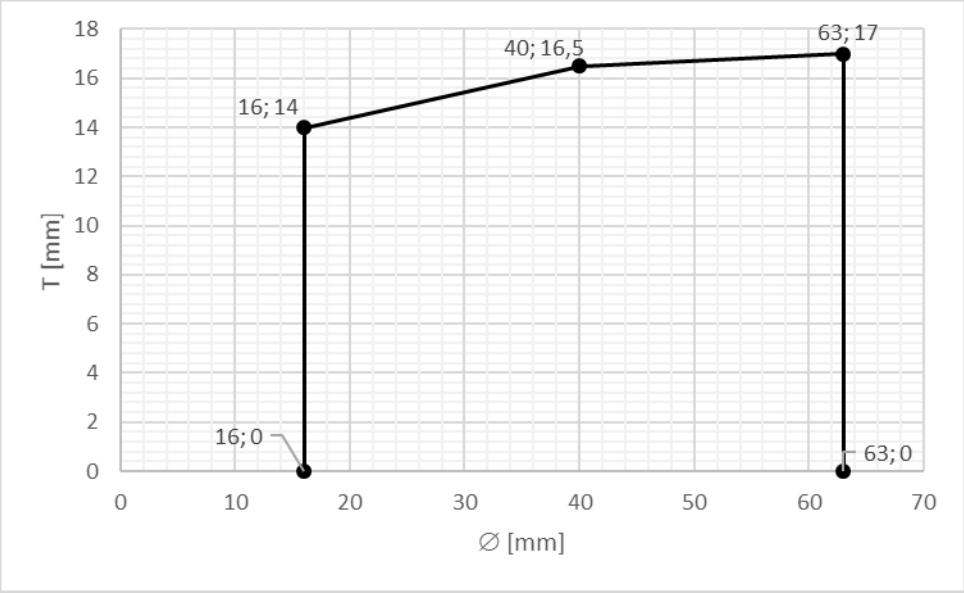
<table>
<tr><td rowspan="3">Copper pipe[5],
λ ≤ 380 W/mK

Insulation - CS</td><td>∅ = 76.1 - 88.9 mm</td><td rowspan="3">EI 45 – C/U</td></tr>
<tr><td>t = 1.5 – 14.2 mm</td></tr>
<tr><td>Elastomeric foam[6]
T = 9.5 – 17.5mm</td></tr>
<tr><td colspan="3">Protective insulation made of elastomeric foam[6] LI 250 mm
Nudging on both sides oft he supporting construction</td></tr>
<tr><td colspan="2"> 

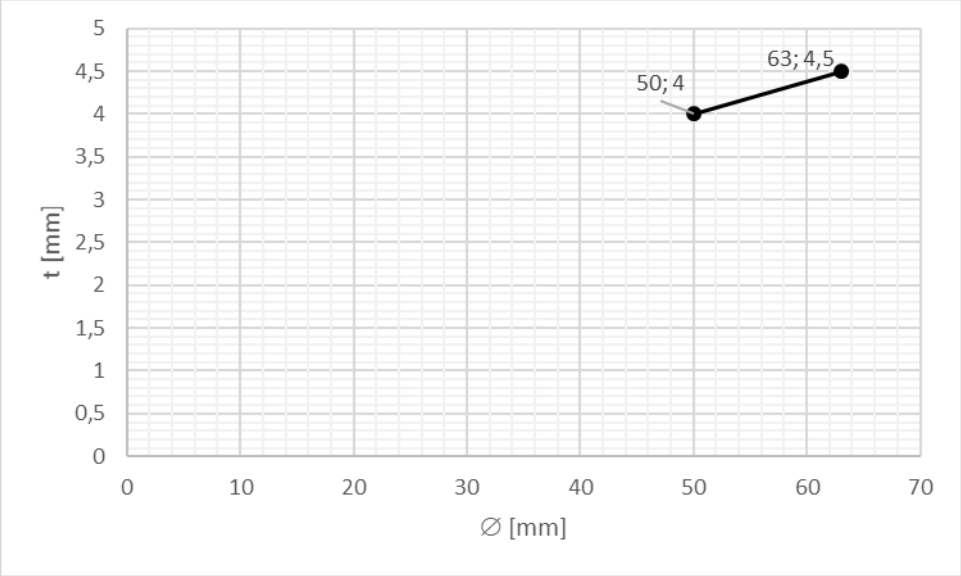
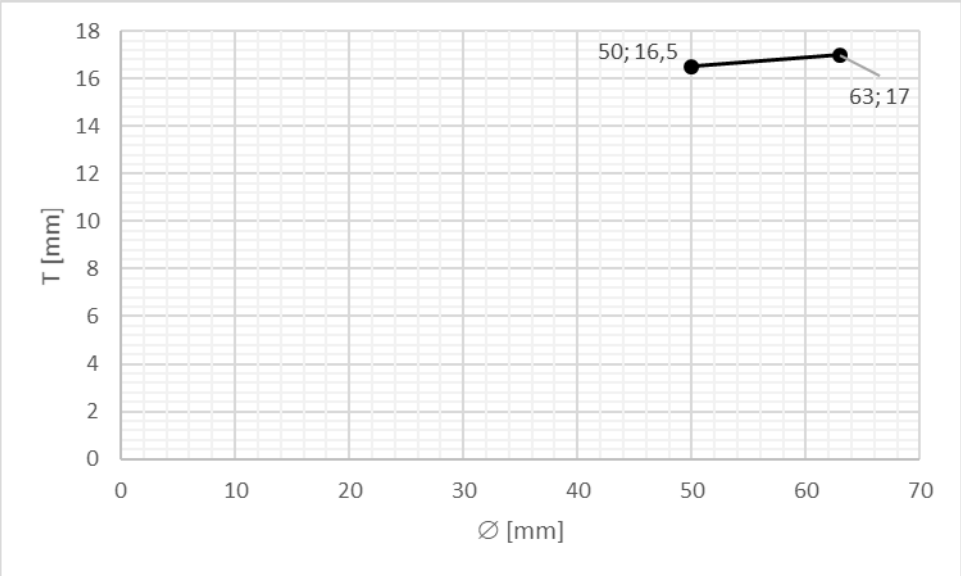

</td><td>318092507-3,Rev2
P7, P8</td></tr>
</table>

[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Armacell AF/Armaflex

4.4.5.4. Aluminium composite pipes with combustible insulation

Geberit Mepla (rod) Insulation - CS	∅ = 16 - 63 mm t = 2.25 - 4.5 mm Elastomeric foam[6] T = 0 - 17 mm	**EI 60 – U/C**
 		318092507-1,Rev2 P11 – P12 318092507-3,Rev2 P11 – P12

[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

Geberit Mepla Insulation - CS	∅ = 50 - 63 mm t = 4.5 mm Elastomeric foam[6] T = 16.5 - 17 mm	**EI 90 – U/C**
 		318092507-3,Rev2 P11 – P12

[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

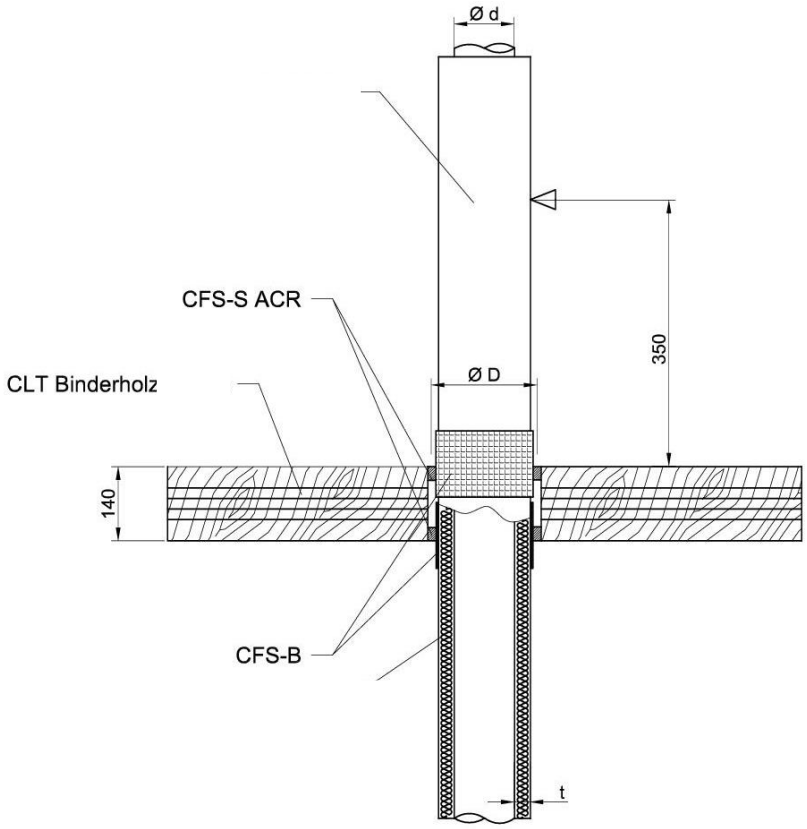
4.4.6. Cross laminated timber floor ≥ 140 mm

4.4.6.1. Definition of supporting structure

The floor must be ≥ 140 mm thick and have ≥ 3 layers of softwood, provided that each outer layer exhibits a thickness of ≥ 40 mm. Both PU and MUF adhesives are approved. Edge glueing is not required.

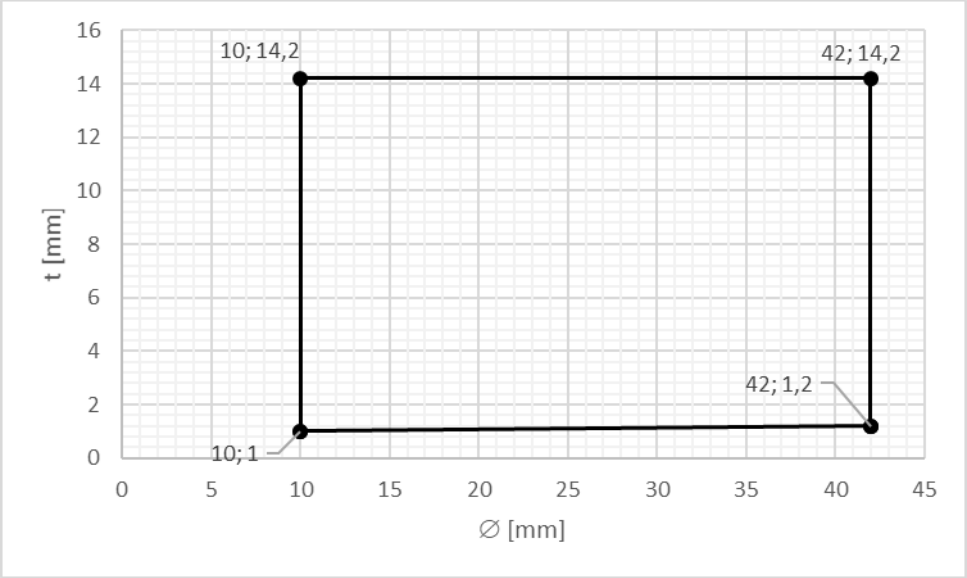
4.4.6.2. Detailed drawings

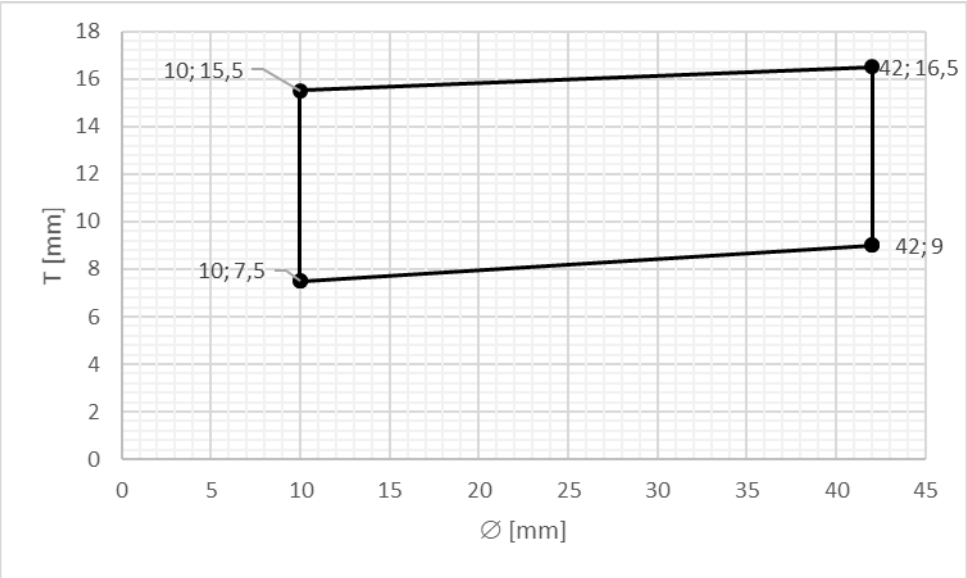
Detail Hilti CFS-B – Metal pipes with elastomeric insulation



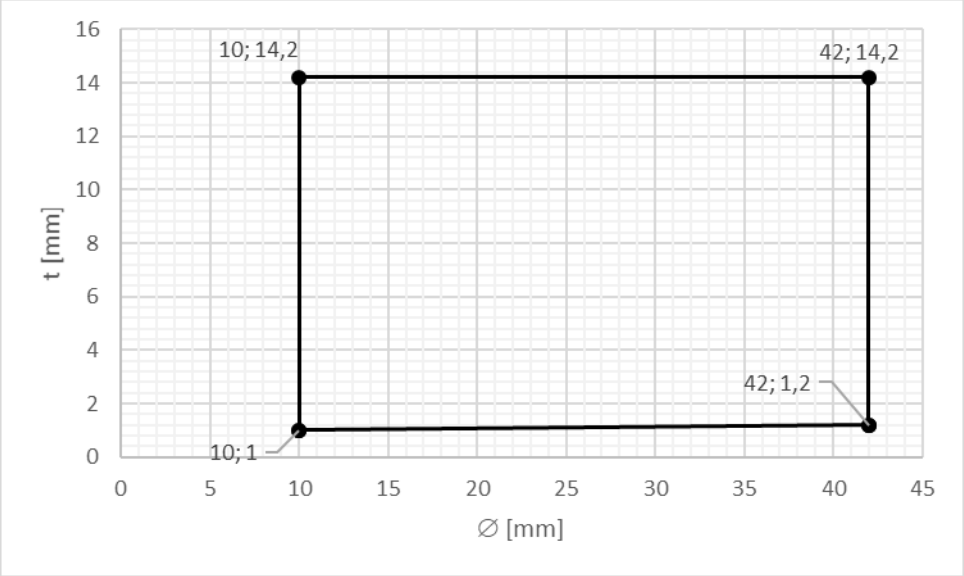
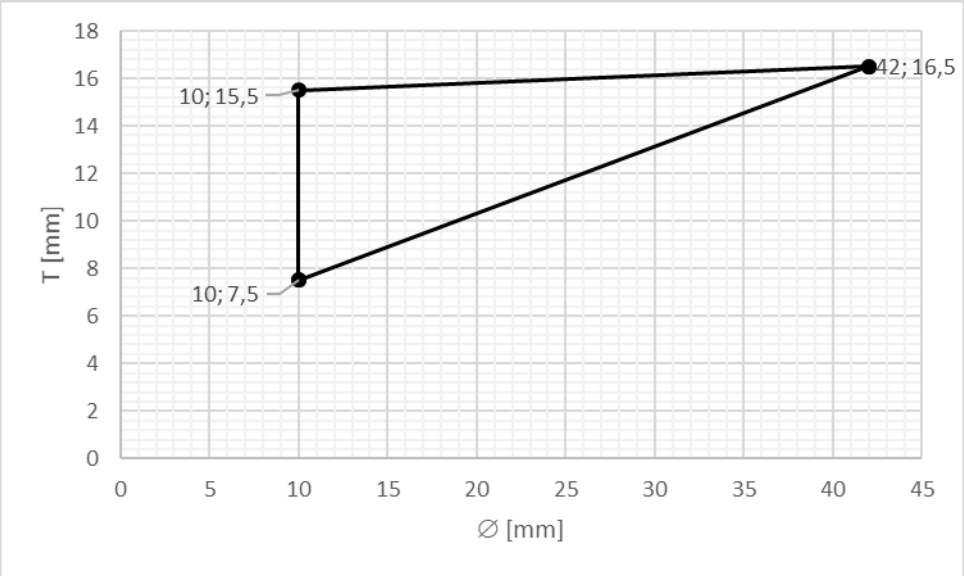
4.4.6.3. Metal pipes with combustible insulation

<table>
<tr><td rowspan="3">Copper pipe[5],
λ ≤ 380 W/mK

Insulation - CS</td><td>∅ = 10 - 42 mm</td><td rowspan="3">EI 90 – C/U
E 120 – C/U</td></tr>
<tr><td>t = 1.0 – 14.2 mm</td></tr>
<tr><td>Elastomeric foam[6]
T = 7.5 – 16.5mm</td></tr>
<tr><td colspan="2"> 

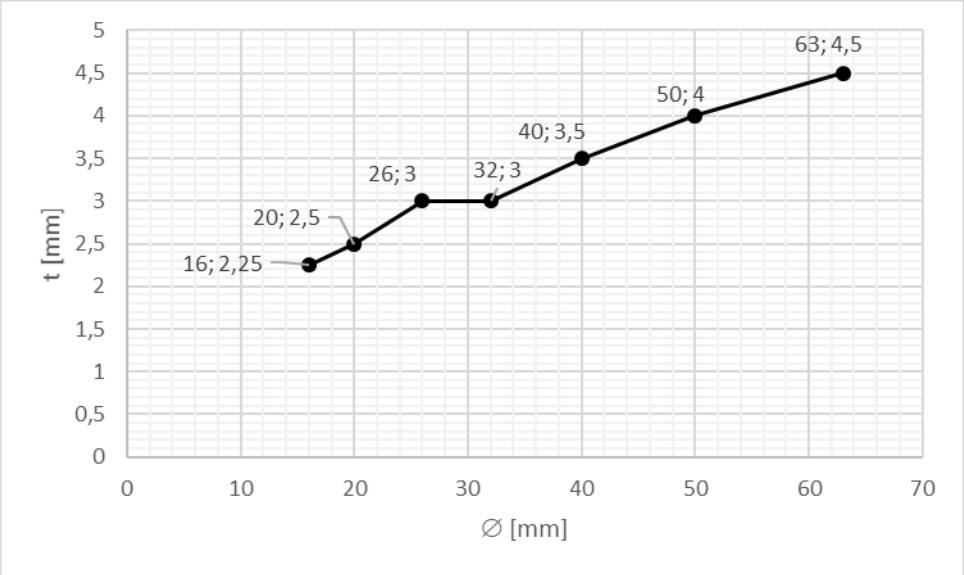
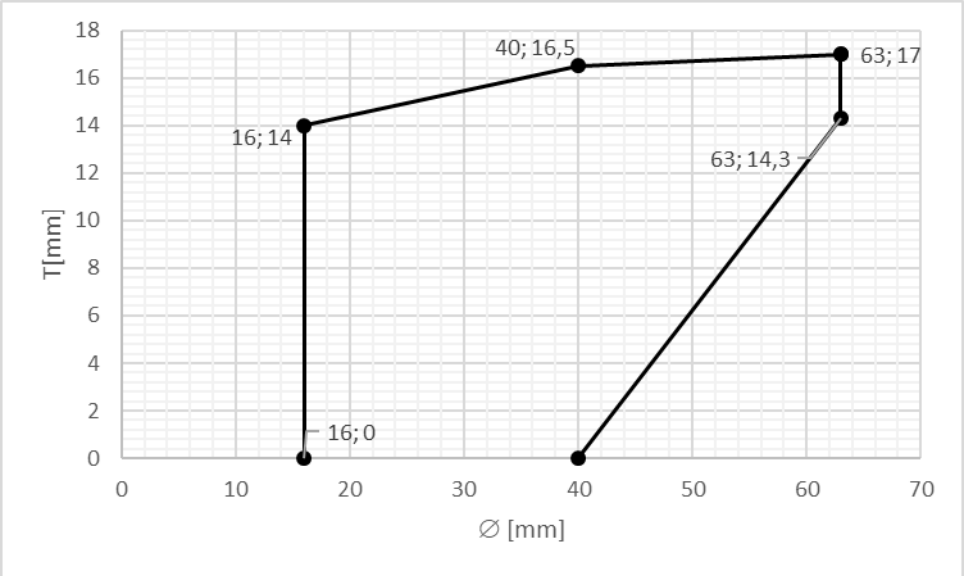

</td><td>318092507-2,Rev2
P5 – P8</td></tr>
</table>

[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

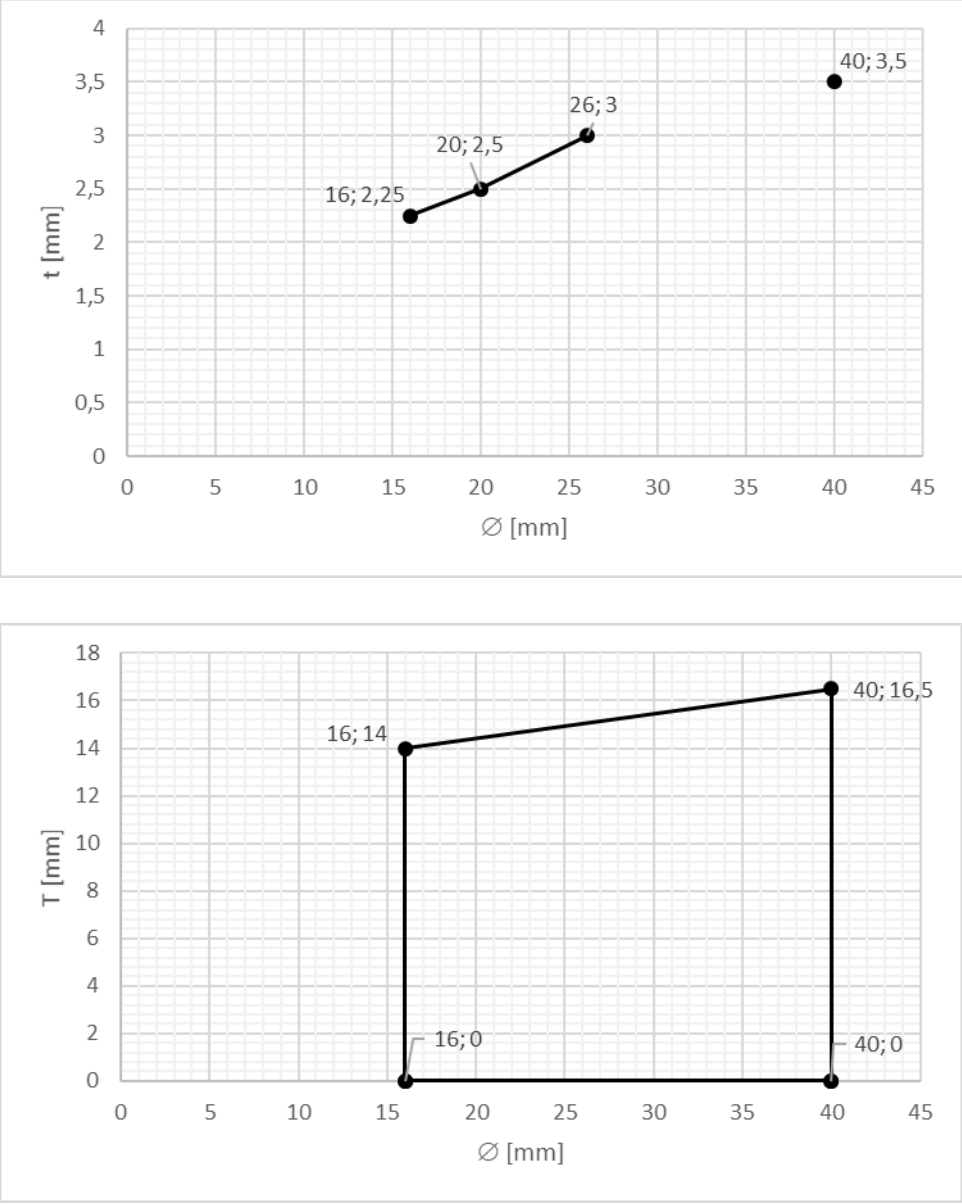
Copper pipe[5], λ ≤ 380 W/mK Insulation - CS	∅ = 10 - 42 mm t = 1.0 – 14.2 mm Elastomeric foam[6] T = 7.5 – 16.5mm	**EI 120 – C/U**
 		318092507-2,Rev2 P5, P7 – P8

[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

4.4.6.4. Aluminium composite pipes with combustible insulation

Geberit Mepla (rod) Insulation - CS	∅ = 16 - 63 mm t = 2.25 - 4.5 mm Elastomeric foam[6] T = 14 - 17 mm	**EI 90 – U/C**
 		318092507-2,Rev2 P11 – P12 318092507-3,Rev2 P11 – P12

[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

Geberit Mepla (rod) Insulation - CS	∅ = 16 – 26, 40 mm t = 2.25 – 3, 3.5 mm Elastomeric foam[6] T = 14 – 16.5 mm	**EI 120 – U/C**
		318092507-2,Rev2 P9 – P12

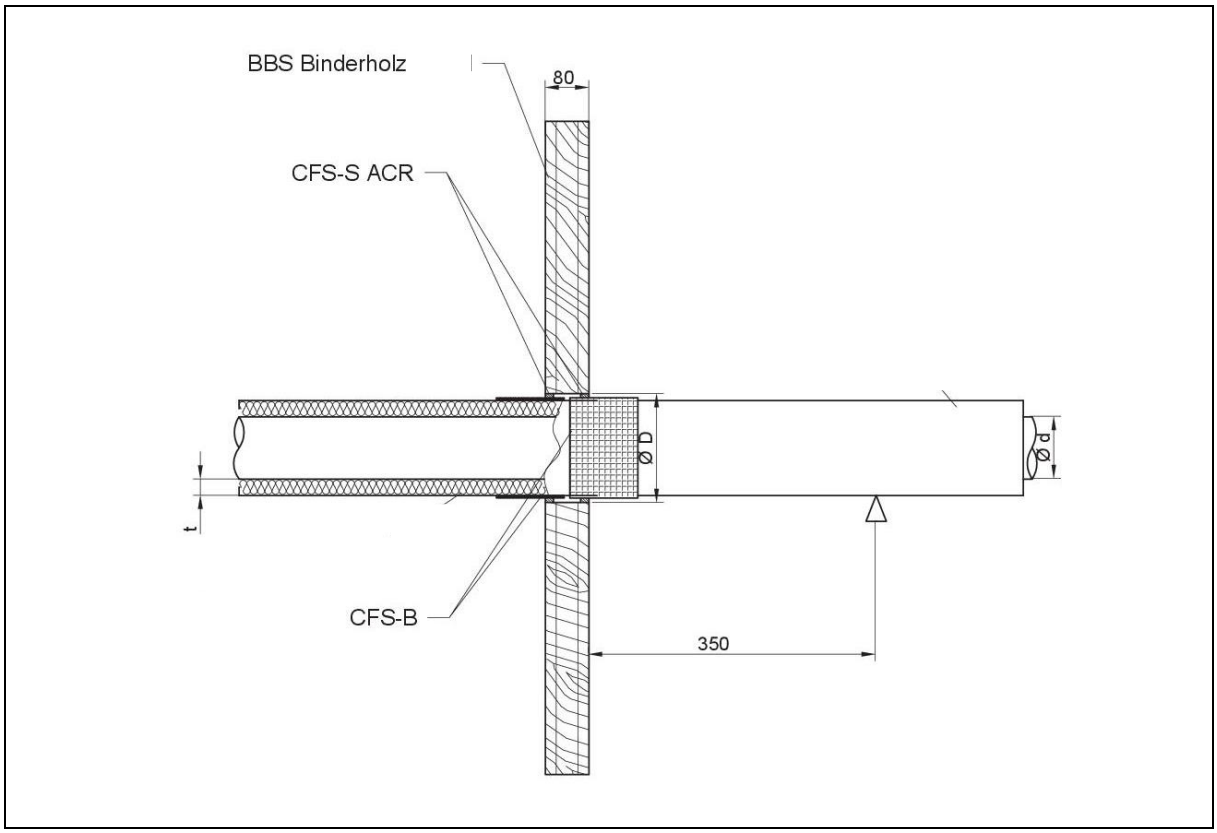
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

4.4.7. Cross laminated timber wall ≥ 80 mm

4.4.7.1. Definition of supporting structure

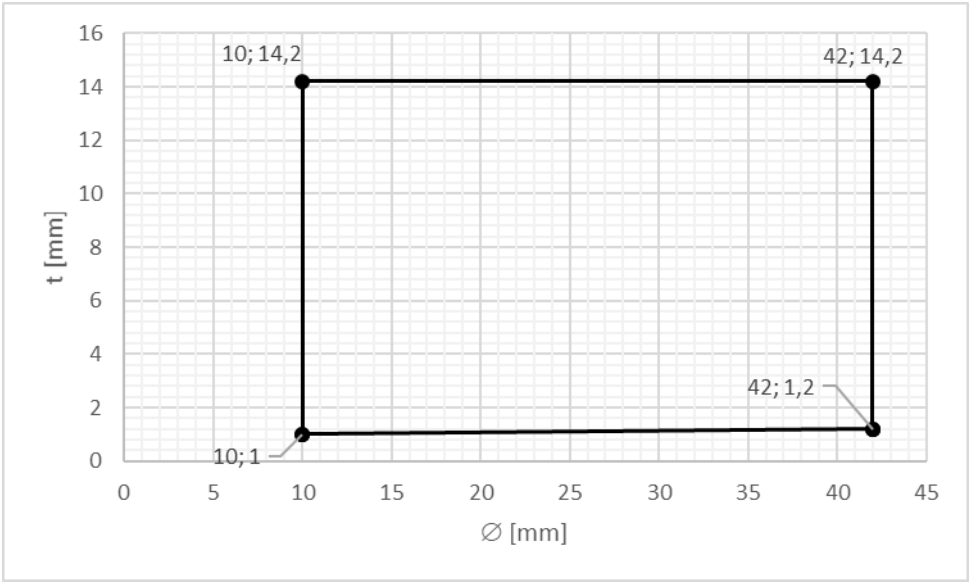
The wall must be ≥ 80 mm thick and have ≥ 3 layers of softwood, provided that each outer layer exhibits a thickness of ≥ 20 mm. Both PU and MUF adhesives are permitted. Edge glueing is not required.

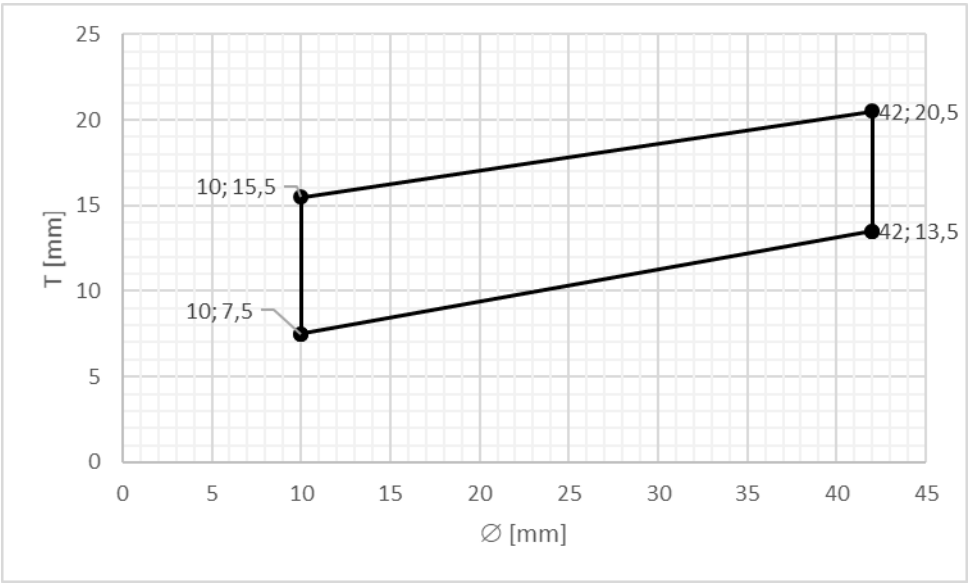
4.4.7.2. Detailed drawings



4.4.7.3. Metal pipes with combustible insulation

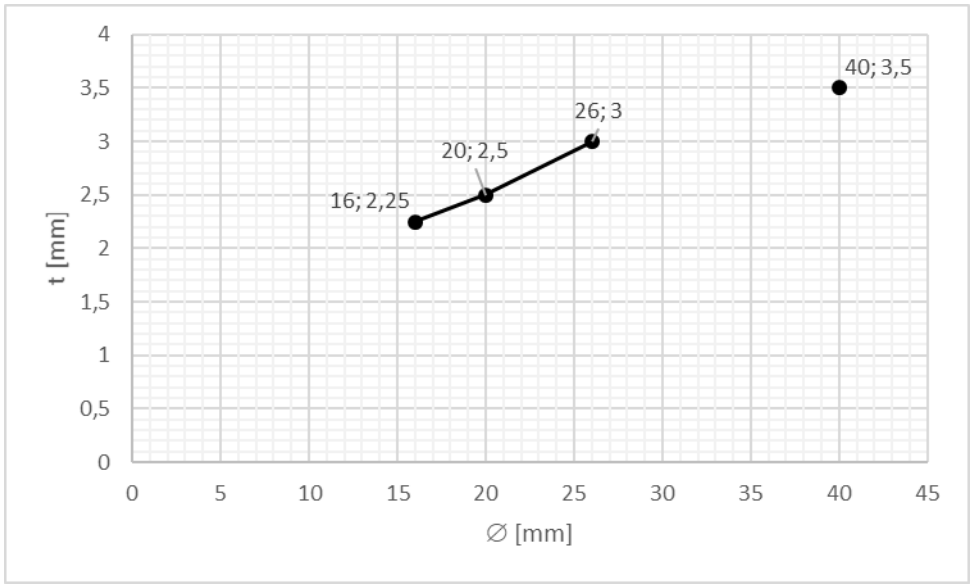
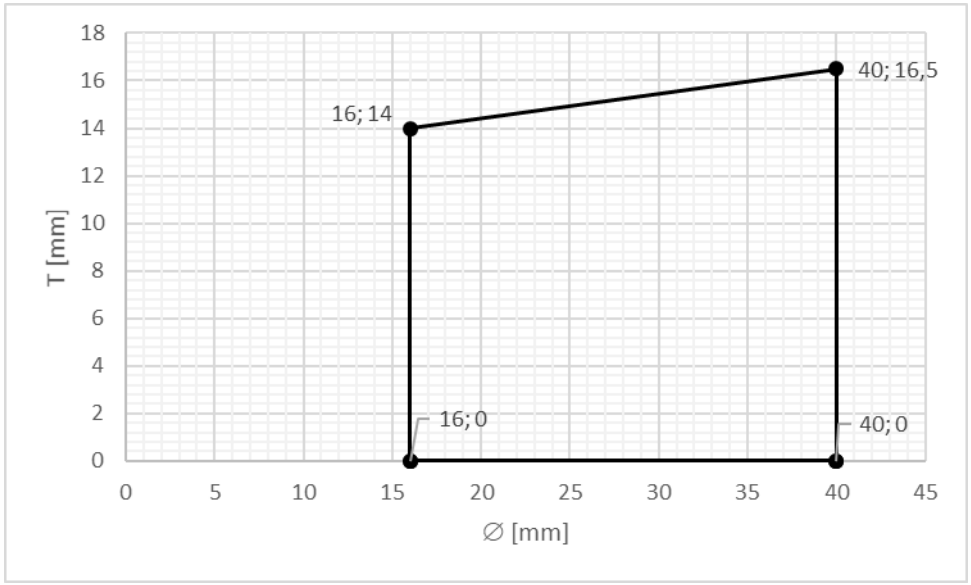
<table>
<tr><td rowspan="3">Copper pipe[5],
λ ≤ 380 W/mK

Insulation - CS</td><td>∅ = 10 - 42 mm</td><td rowspan="3">EI 45 – C/U</td></tr>
<tr><td>t = 1.0 – 14.2 mm</td></tr>
<tr><td>Elastomeric foam[6]
T = 7.5 – 20.5 mm</td></tr>
<tr><td colspan="3">Protective insulation made of elastomeric foam[6] LI 250 mm
Nudging on both sides oft he supporting construction</td></tr>
<tr><td colspan="2"> 


</td><td>319091602-3, Rev1
P5, P6
319091602-4, Rev1
P35</td></tr>
</table>

[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

4.4.7.4. Aluminium composite pipes with combustible insulation

Geberit Mepla (rod) Insulation - CS	∅ = 16 - 40 mm t = 2.25 - 3.5 mm Elastomeric foam[6] T = 0 – 16.5 mm	**EI 60 – U/C**
 		319091602-3, Rev1 P09 – P12

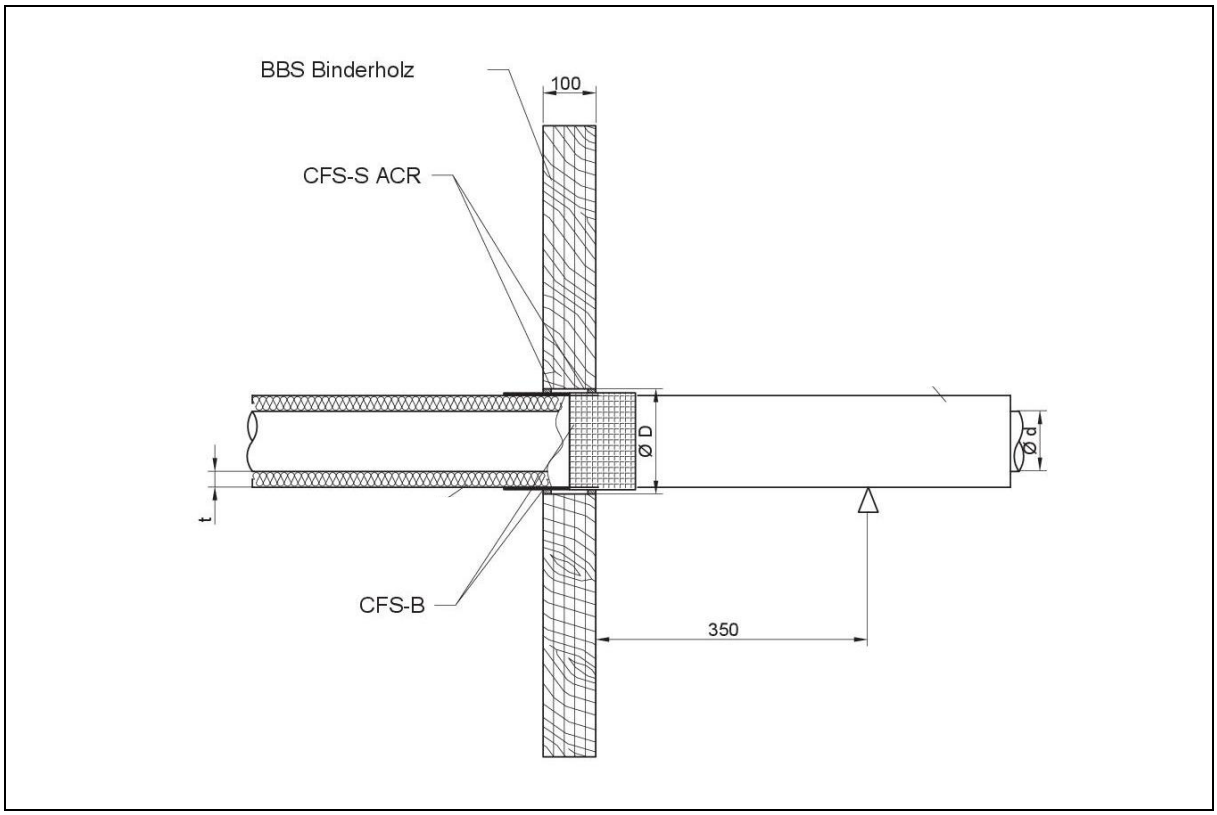
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

4.4.8. Cross laminated timber wall ≥ 100 mm

4.4.8.1. Definition of supporting structure

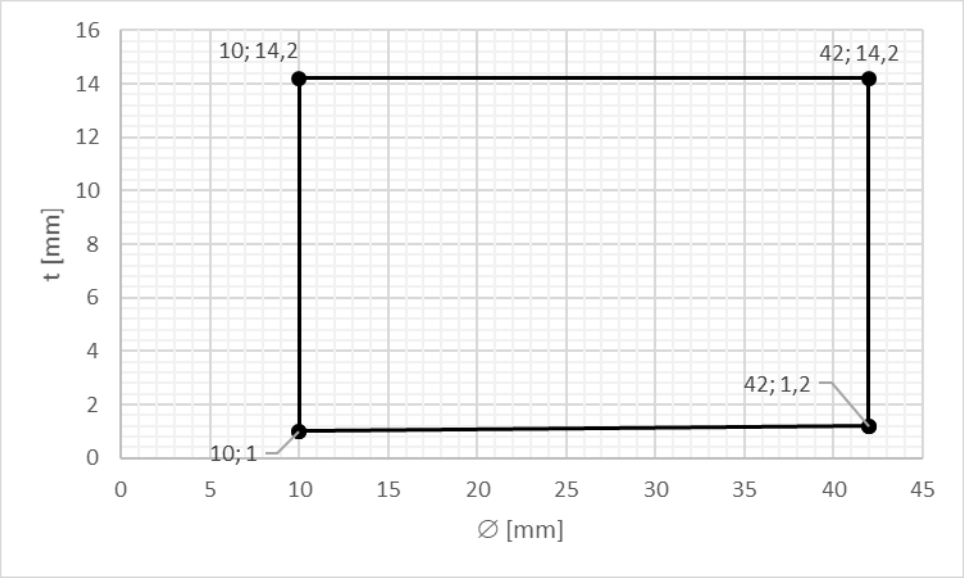
The wall must be ≥ 100 mm thick and have ≥ 3 layers of softwood, provided that each outer layer exhibits a thickness of ≥ 20 mm. Both PU and MUF adhesives are permitted. Edge glueing is not required.

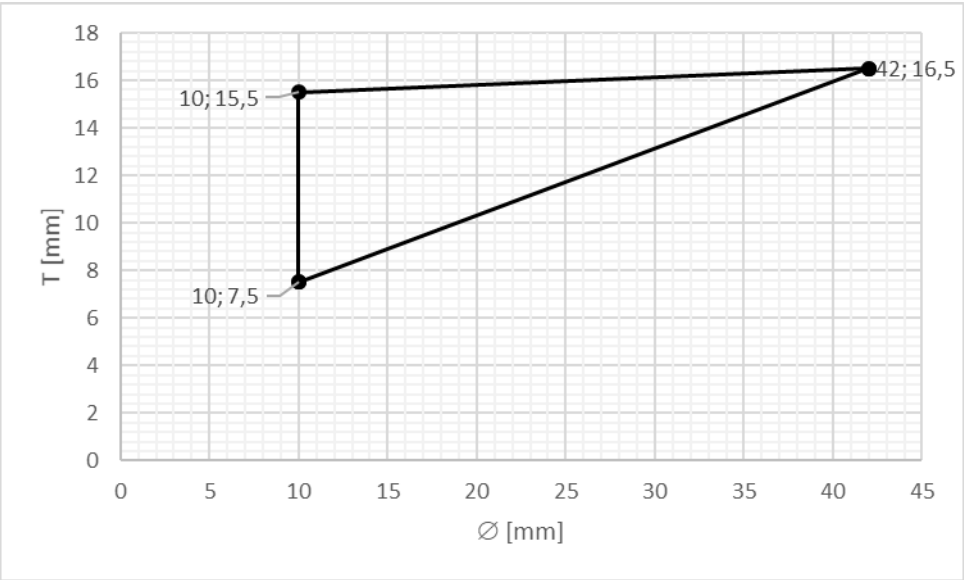
4.4.8.2. Detailed drawings



4.4.8.3. Metal pipes with combustible insulation

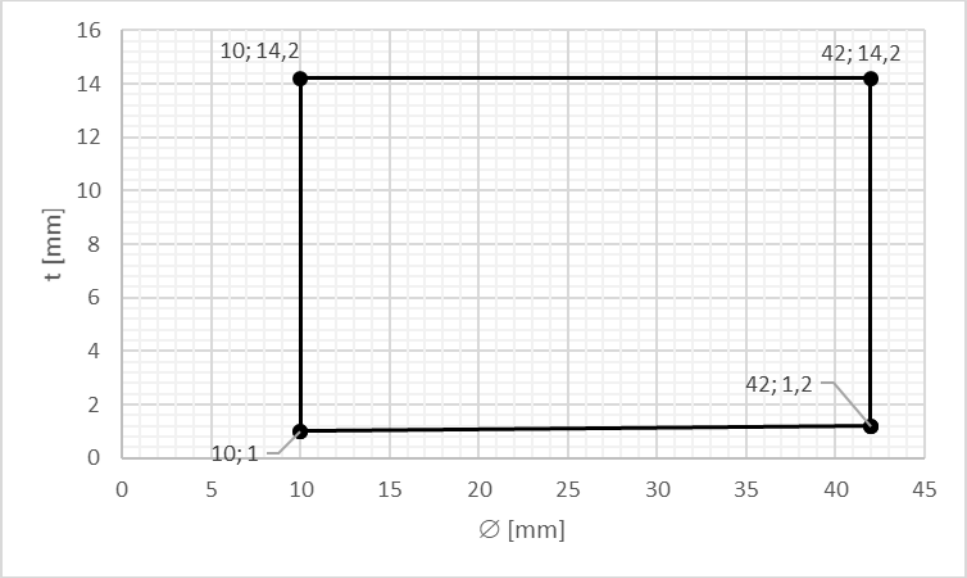
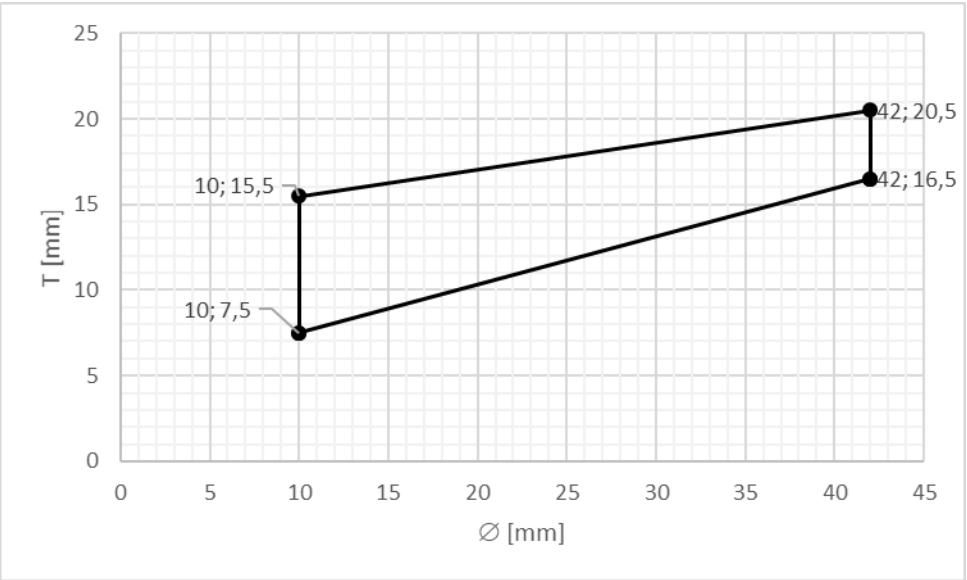
<table>
<tr><td rowspan="3">Copper pipe[5],
λ ≤ 380 W/mK

Insulation - CS</td><td>∅ = 10 - 42 mm</td><td rowspan="3">EI 90 – C/U</td></tr>
<tr><td>t = 1.0 – 14.2 mm</td></tr>
<tr><td>Elastomeric foam[6]
T = 7.5 – 16.5 mm</td></tr>
<tr><td colspan="2"> 

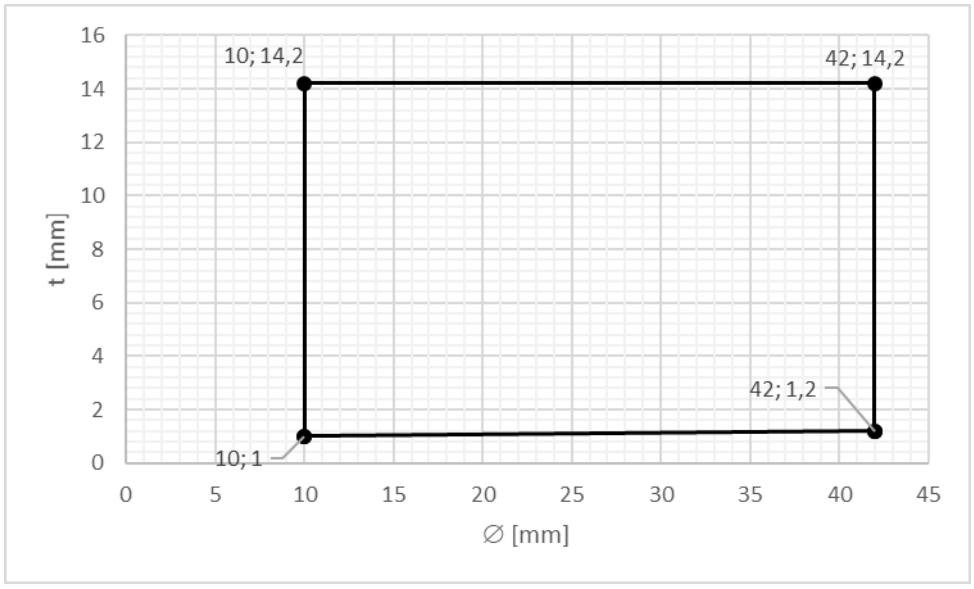
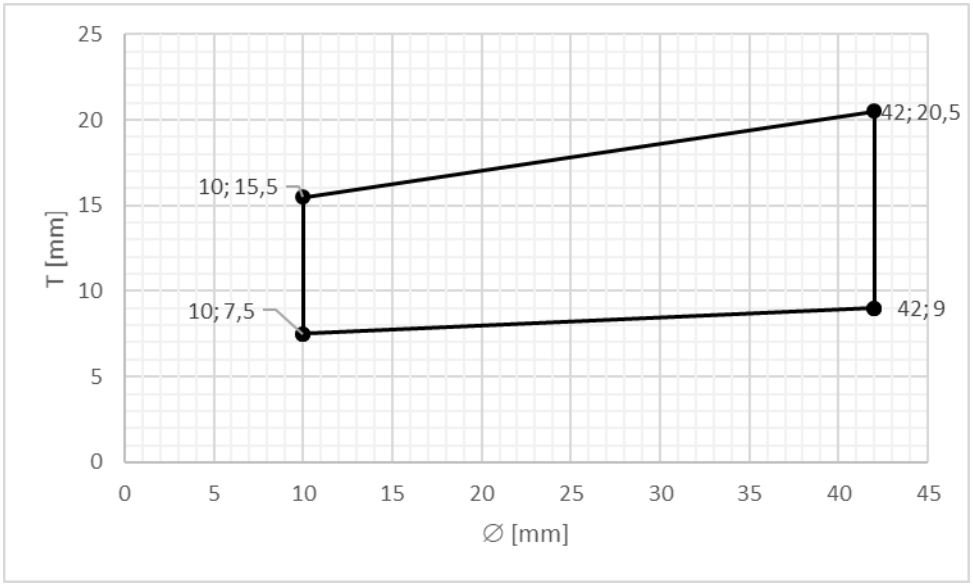

</td><td>319091602-2, Rev1
P5, P7, P8</td></tr>
</table>

[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

4.4.8.4. Metal pipes with combustible insulation

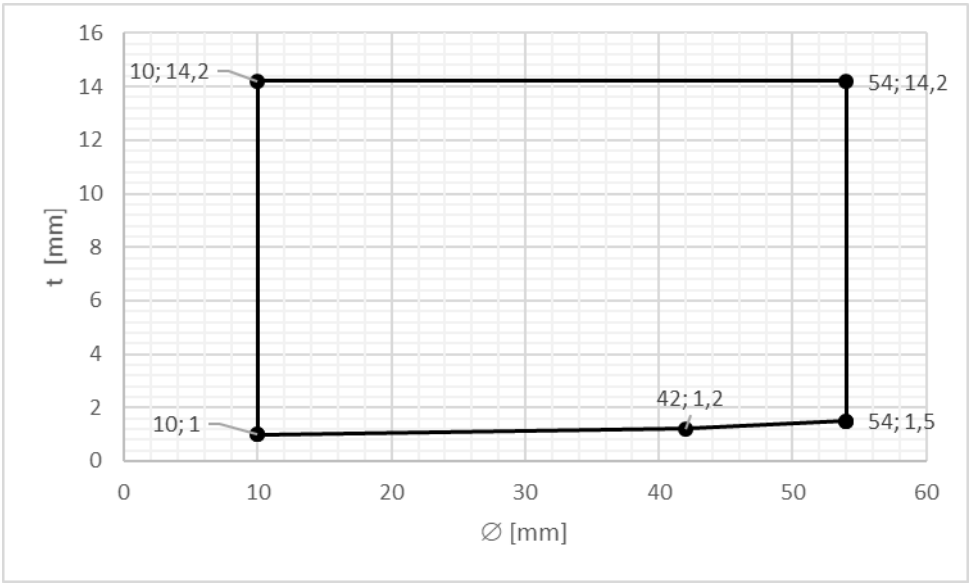
Copper pipe[5], λ ≤ 380 W/mK Insulation - CS	∅ = 10 - 42 mm t = 1.0 – 14.2 mm Elastomeric foam[6] T = 7.5 – 20.5 mm	**EI 60– C/U**
 		319091602-2, Rev1 P5, P7, P8 319091602-4, Rev1 P35

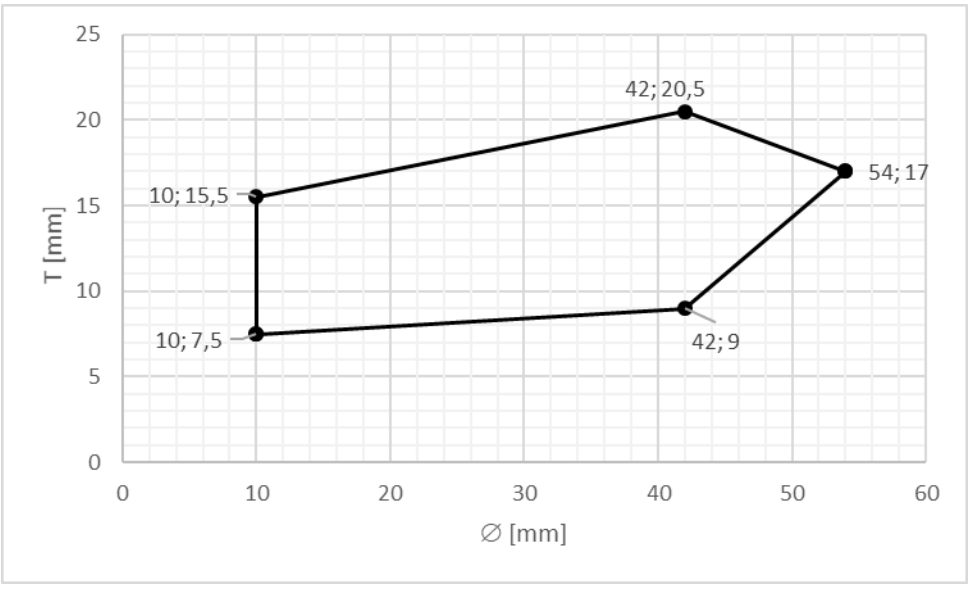
[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

Copper pipe[5], λ ≤ 380 W/mK Insulation - CS	∅ = 10 - 42 mm t = 1.0 – 14.2 mm Elastomeric foam[6] T = 7.5 – 20.5 mm	**EI 90 – C/U**
Protective insulation of elastomeric foam[6] LI 250 mm Adjacent and on both sides of the supporting structure		
 	319091602-2, Rev1 P5, P7, P8 319091602-5, Rev1 P40, P42, P44	

[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

Copper pipe[5], λ ≤ 380 W/mK Insulation - CS	∅ = 10 - 54 mm t = 1.0 – 14.2 mm Elastomeric foam[6] T = 7.5 – 17 mm	**EI 45 – C/U** **E 90 – C/U**





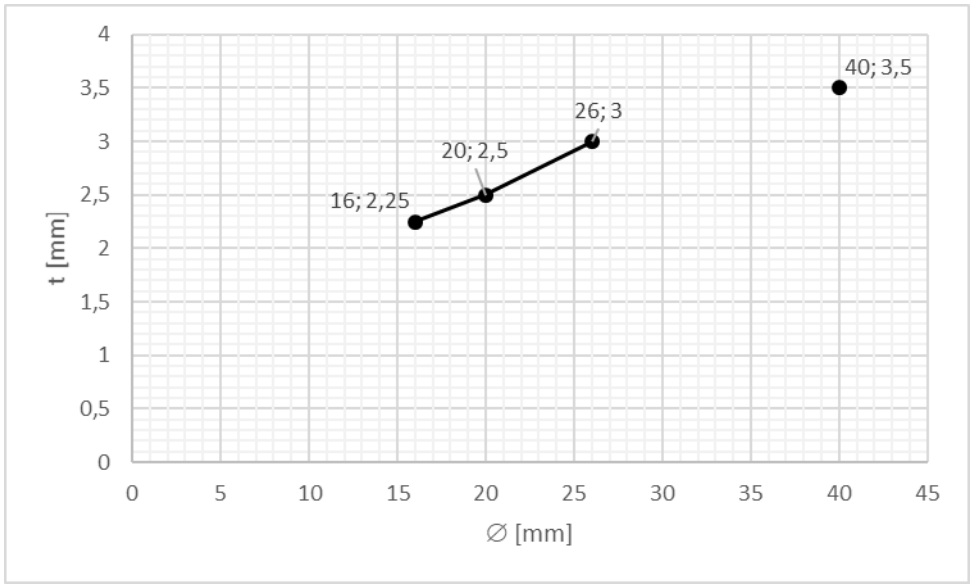
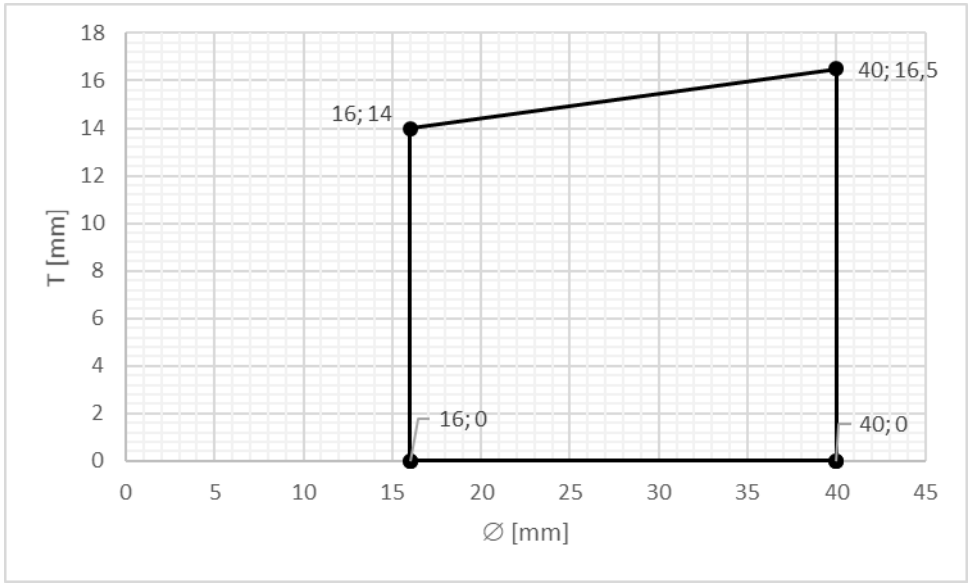
319091602-1, Rev1
P6

319091602-2, Rev1
P5, P6, P7, P8

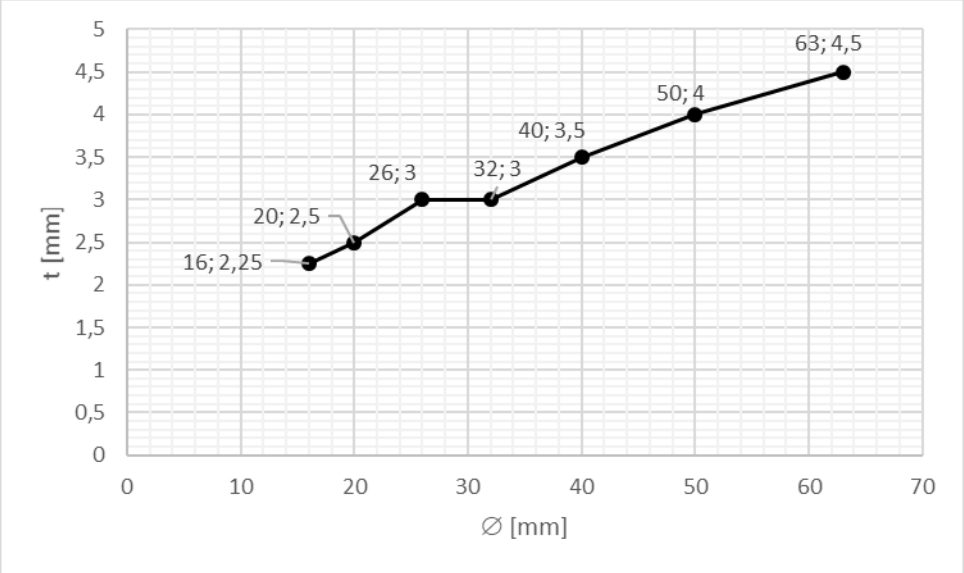
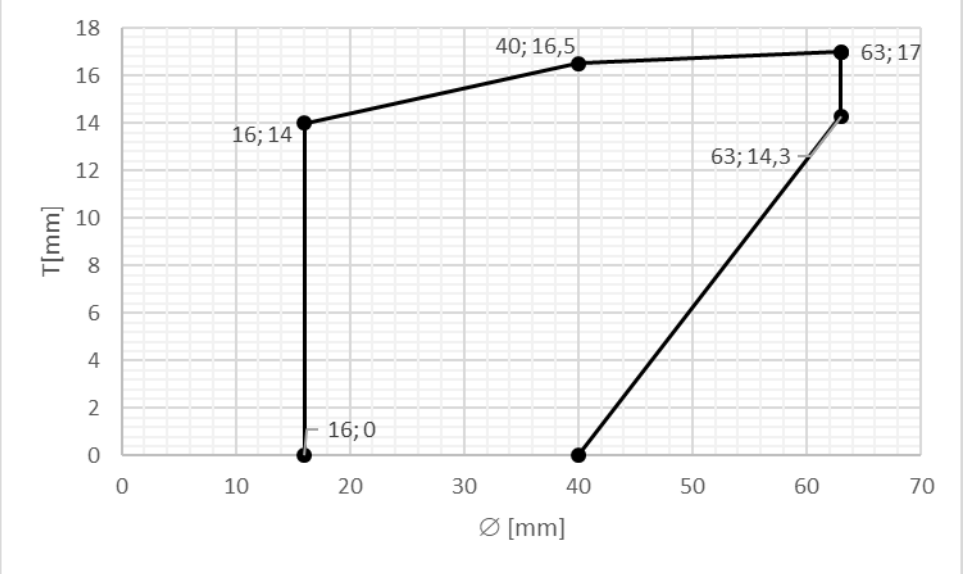
319091602-4, Rev1
P35

[5] Results on copper pipes also cover steel and stainless steel pipes
[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

4.4.8.5. Aluminium composite pipes with combustible insulation

Geberit Mepla Insulation - CS	∅ = 16 – 26, - 40 mm t = 2.25 – 3, 3.5 mm Elastomeric foam[6] T = 14 – 16.5 mm	**EI 90 – U/C**
 		319091602-2, Rev1 P11 – P12

[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

Geberit Mepla Insulation - CS	∅ = 16 - 63 mm t = 2.25 - 4.5 mm Elastomeric foam[6] T = 14 – 17 mm	**EI 60 – U/C** **E 90 – U/C**
 	319091602-2, Rev1 P7, P11, P12 319091602-5, Rev1 P43

[6] Elastomeric insulation of type Kaimann Kaiflex HT plus, Armacell AF/Armaflex or Armacell SH/Armaflex

5. Limitations

The classification given above result from the direct field of application according to EN 1366-3:2009-05 and from the extended field of application according to EN 13882-3:2009-05 for Hilti CFS-B in timber building components.

5.1. Warning

This report does not constitute any type approval or certification of the tested product.

IBS-INSTITUT FÜR BRANDSCHUTZTECHNIK UND SICHERHEITSFORSCHUNG GESELLSCHAFT M.B.H.
Akkreditierte Prüf-, Inspektions- und Zertifizierungsstelle

Unterzeichner	Manfred Eglauer
Datum/Zeit-UTC	2021-03-03T13:18:58+01:00
Prüfinformation	Informationen zur Prüfung der elektronischen Signatur finden Sie unter: https://www.signaturpruefung.gv.at

Mr Manfred EGLAUER
Engineer

Unterzeichner	Dipl.-Ing. Ulrich Stöckl
Datum/Zeit-UTC	2021-03-04T08:21:27+01:00
Prüfinformation	Informationen zur Prüfung der elektronischen Signatur finden Sie unter: https://www.signaturpruefung.gv.at

Mr Ulrich STÖCKL
Monitoring

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