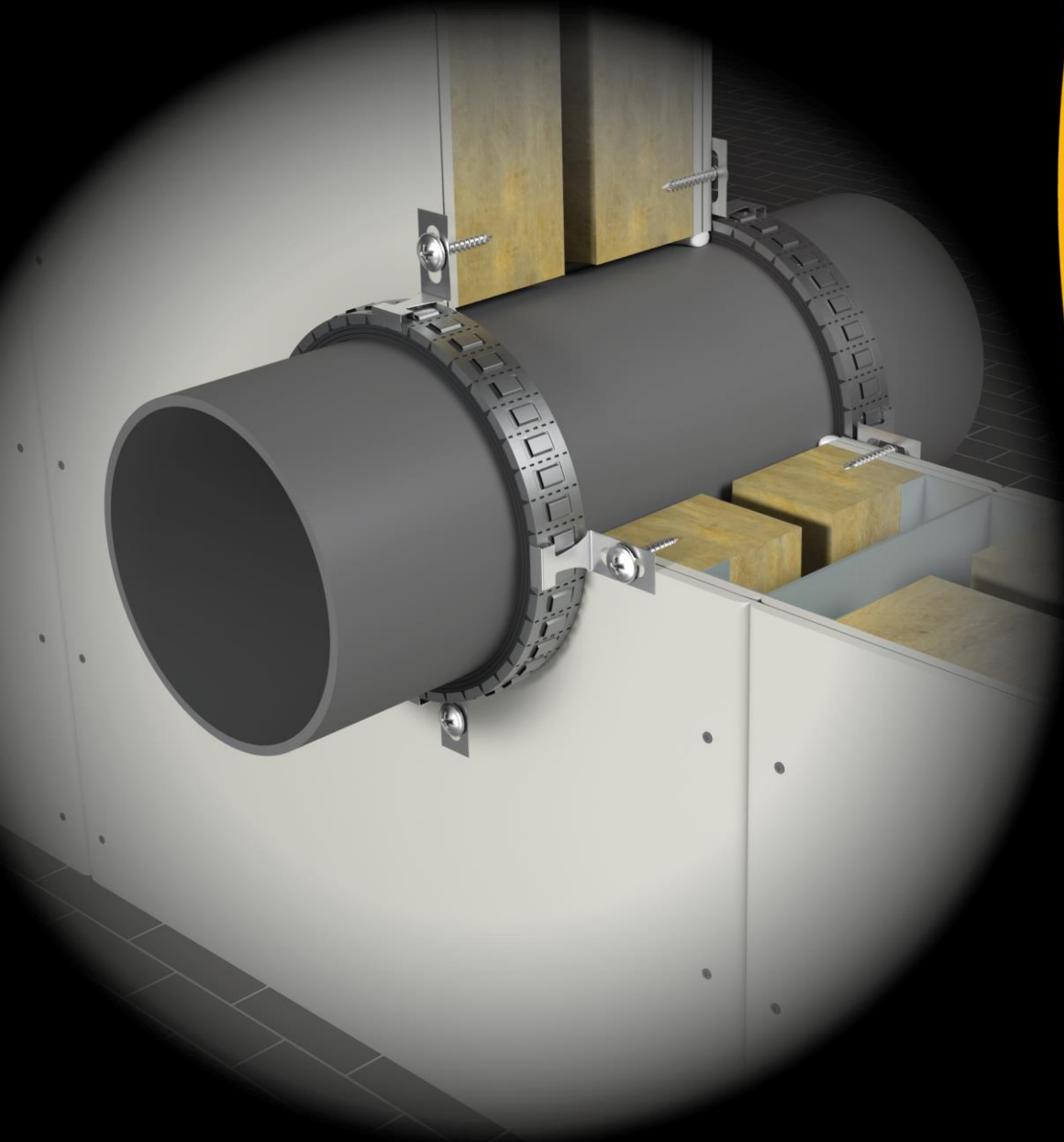


INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet



INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

INTUSEAL[®]
passive fire protection manufacturer

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→ PRODUCT DESCRIPTION

The expandable **INTU FR COLLAR L SLIM** fireproofing collar is universal fireproofing collar with a height 30mm, consisting outer casing made of stainless steel and an intumescent insert made of graphite with adhesive tape. Under the high temperature (about 140 °C), the mass swells and closes the opening, preventing the spread of fire. The steel flange housing equipped with mounting brackets (segments). In order to obtain the desired diameter of the flange, the segments can be easily separated.

- fire resistance up to **EI120**
- protection of combustible pipes $\varnothing \leq 315$ mm
- protection of non-flammable pipes in FEF insulation $\varnothing \leq 168,3$ mm
- SPLIT harness protection (air conditioning installation)
- bundle of AROT pipes with cables or empty

→ APPLICATION

The **INTU FR COLLAR L SLIM** collar is use for fire protection of passages of metal pipes in synthetic rubber insulation (FEF), combustible pipes without insulation and bundles of copper pipes for air conditioning in PE or FEF insulation passing through fire separation partitions. Protection of installations routed perpendicular to the partition or at an angle.

Flexible walls:

The wall must be minimum thickness 100 mm. Must have frame structure of steel or wooden sections covered on both sides with minimum 2 layers of panels with minimum thickness 12,5 mm.

Rigid walls:

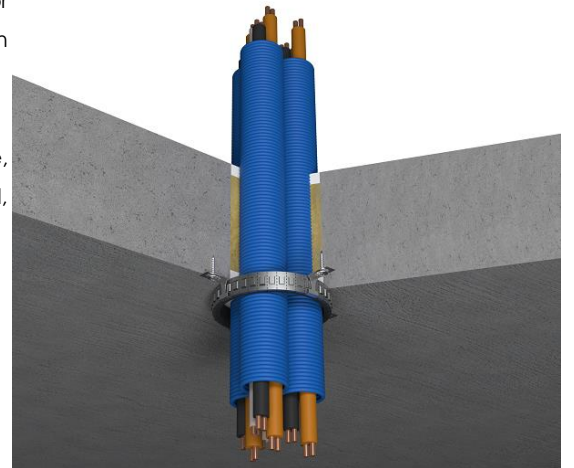
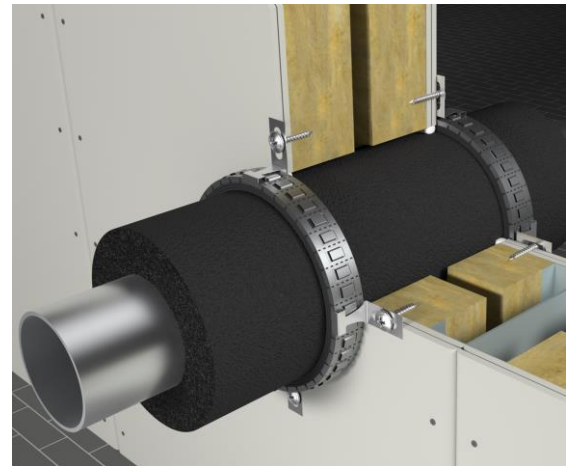
The wall must be minimum thickness 100 mm. Must be made of concrete, reinforced concrete, concrete blocks, cellular concrete, ceramic brick (solid, hollow or lattice) or silicate brick (solid or hollow) with minimum density 600 kg/m³.

Rigid floors:

The floor must be minimum thickness 150 mm. Must be made of concrete, reinforced concrete or cellular concrete with minimum density 550 kg/m³.

→ AVAILABILITY

Product	Contents	Packaging	Pallet	Article number
INTU FR COLLAR L SLIM	steel casing 2,52 m	1 box	375	INCOLS
	intumescent wrap 12 m			
	short fixings type S - 20 pcs.			
CLIP S	20 pcs.	1 foil	N/A	INCOLSCS
CLIP L	20 pcs.	1 foil	N/A	INCOLSCL



→ TRANSPORT AND STORAGE

Store in dry and cool conditions at temperatures between +5°C to +25°C.

→ COMPLIANCE

Reference standard:

- EN 1366-3 / EAD 350454-00-1104
- TDS

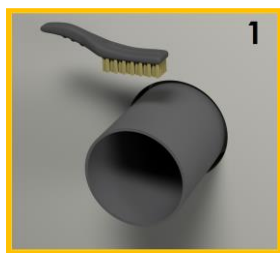
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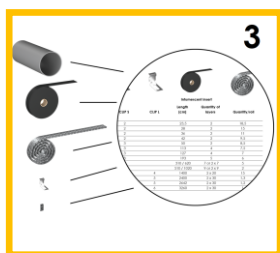
→ INSTALLATION METHOD



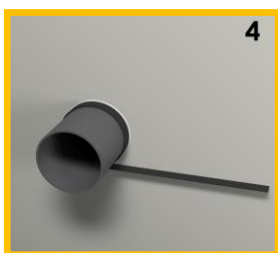
1 Clean the installations from dust, dirt and grease.



2 Fill the gaps between the installation and the partition with **INTU FR MASTIC** fireproofing mass.



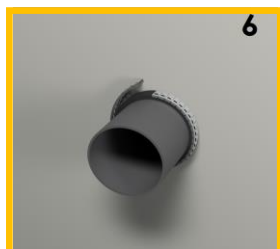
3 See the table below. Select and cut the appropriate length of the intumescent insert.



4 Wrap the intumescent insert on the pipe.



5 Select and cut the appropriate length of steel casing for the type of installation to be protected.



6 Put the casing on the intumescent insert.



7 Choose the appropriate clips with table below.



8 Attach the collar to the partition with steel screws.



9 Complete declaration and paste it next to the penetration.

→ APPROXIMATE CONSUMPTION of INTU FR COLLAR L SLIM



Max pipe diameter Ø [mm]



Quantity of segments



CLIP S



CLIP L



Intumescent insert



Quantity/roll



Collar height [mm]

Max pipe diameter Ø [mm]	Quantity of segments	CLIP S	CLIP L	Length [cm]	Quantity of layers	Quantity/roll	Collar height [mm]
32	9	2		23,5	2	18,5	30
40	11	2		28	2	15	30
50	15	2		36	2	11	30
63	17	2		42	2	9,5	30
75	19	3		50	2	8,5	30
82	22	3		113	4	7,5	30
90	23	3		127	4	7	30
110	28	3		193	5	6	30
125	1 x 33*	4		310	1 x 7*	5	30
	2 x 33	1	4	620	2 x 7	2,5	2 x 30
160	1 x 42*	4		510	1 x 9*	4	30
	2 x 42	1	4	1020	2 x 9	2	2 x 30
200	2 x 52	1	4	1400	2 x 10	1,5	2 x 30
225	2 x 61	1	5	2400	2 x 15	1,3	2 x 30
250	2 x 66	1	5	2642	2 x 15	1,2	2 x 30
315	2 x 80	1	6	3260	2 x 15	1	2 x 30

* Possible option is use to one row (1 x) of collars with a height of 30 mm. See results in the Table 1 below

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→ FIRE RESISTANCE CLASSIFICATION

Table 1 Penetration seal for pipes with diameter 110 mm < \varnothing ≤ 160 mm (possibility of use one row or two rows of flanges)

COMBUSTIBLE pipe in FLEXIBLE / RIGID WALLS / FLOORS							
Pipe type	Configuration	Max diameter \varnothing (mm)	Pipe wall thickness (mm)	Rows of collars	Thickness of intumescent insert (mm)	Partition type	El class
Magnaplast Ultra dB	U/C	160	4,9	1	1 x 18	FLOOR	30
				2	2 x 18	FLOOR	120
Geberit Silent DB 20	U/C	160	7,0	1	1 x 18	FLOOR	60
				2	2 x 18	WALL FLEXIBLE / RIGID	120
Raupiano Plus	U/C	160	4,0	1	1 x 18	FLOOR	30
				2	2 x 18	FLOOR	120
PP	U/C	160	3,9	1	1 x 18	FLOOR	120
				2	2 x 18	WALL FLEXIBLE / RIGID	120
				2	2 x 18	FLOOR	120
				2	2 x 18	WALL FLEXIBLE / RIGID	120
PE-HD	U/C	160	4,9	1	1 x 18	WALL FLEXIBLE / RIGID	30
				2	2 x 18	WALL FLEXIBLE / RIGID	120
				2	2 x 18	FLOOR	120
				1	1 x 18	WALL FLEXIBLE / RIGID	60
			9,5	2	2 x 18	FLOOR	120
				2	2 x 18	FLOOR	120
PP-HT	U/C	160	3,9	1	1 x 18	WALL FLEXIBLE / RIGID	60
PVC-U	U/C	160	3,2	1	1 x 18	WALL FLEXIBLE / RIGID	90
				2	2 x 18	WALL FLEXIBLE / RIGID	120
				2	2 x 18	FLOOR	120
			9,5	1	1 x 18	WALL FLEXIBLE / RIGID	90
				2	2 x 18	WALL FLEXIBLE / RIGID	120
				2	2 x 18	FLOOR	120

→ COMBUSIBLE pipes

COMBUSTIBLE pipe in FLEXIBLE / RIGID WALLS						
Pipe type	Configuration	Diameter \varnothing (mm)	Pipe wall thickness (mm)		Thickness of intumescent insert (mm)	El class
PE-HD	U/C	32	2,0		4	120
	U/C	50	2,4	4,6	4	120 120
	U/U	50	2,4	4,6	4	120 120
	U/C	75	3,0	6,8	4	120 120
	U/C	110	4,2	10	10	120 120
	U/U	110	4,2	10	10	60 15
	U/C	160	4,9	9,5	1 x 18*	30 60
	U/C	160	4,9	9,5	2 x 18	120 120
PP-R	U/C	200	11,9		2 x 20	90
	U/C	20	2,3	3,4	2	120 120
	U/C	75	6,8	12,5	4	120 120
PP-R/Al/PP-R	U/C	110	10,0	18,3	10	120 120
	U/C	20	2,8	3,4	4	120 120
	U/C	75	8,4	12,5	4	120 120
	U/C	110	12,3	18,3	10	120 120

* Use one row (1 x) of collars with a height of 30 mm

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COMBUSTIBLE pipe in FLEXIBLE / RIGID WALLS							
Pipe type	Configuration	Diameter Ø (mm)	Pipe wall thickness (mm)		Thickness of intumescent insert (mm)	EI class	
PP-R/PP-RGF/PP-R	U/C	20	2,8	3,4	4	120	120
	U/C	75	10,3	12,5	4	120	120
	U/C	110	15,1	18,3	10	120	120
PE-X / Al / PE-X	U/C	20	2,0		4	120	
	U/C	63	6,0		4	EI 30, E120	
PE-RT/Al/PE-RT	U/C	20	2,0		4	120	
	U/C	63	6,0		4	EI 30, E120	
	U/C	75	7,5		4	EI 30, E120	
PE-Xa	U/C	20	2,0		4	120	
	U/C	63	5,8		4	120	
PE-Xb/Al/PE-Xb	U/C	20	2,0		4	EI 90, E120	
	U/C	26	3,0		4	EI 90, E120	
PP	U/C	50	1,8	8,3	4	120	120
	U/U	50	1,8	8,3	4	120	120
	U/C	75	1,9	12,5	4	120	120
	U/C	110	2,7	18,3	10	120	120
	U/U	110	2,7	3,8	10	120	60
	U/C	160	4,0	14,6	2 x 18	120	120
	U/C	200	7,7		2 x 20	60	
PP-HT	U/C	50	1,8		4	120	
	U/C	75	1,9		4	120	
	U/C	110	2,7		10	60	
	U/C	160	3,9		1 x 18*	60	
PVC-U	U/C	50	1,2	5,6	4	120	120
	U/U	50	1,2	5,6	4	120	120
	U/C	75	1,8	5,6	4	120	120
	U/C	110	2,0	8,1	10	120	120
	U/U	110	2,0	8,1	10	30	60
	U/C	160	3,2	9,5	1 x 18*	90	90
	U/C	160	3,2	9,5	2 x 18	120	120
	U/C	200	7,7		2 x 20	120	
U/C	250	8,6		2 x 30	60		
COMBUSTIBLE pipe in RIGID WALLS							
GEBERIT MEPLA	U/C	20	2,5		4	120	
	U/C	32	3,0		4	120	
	U/C	40	3,5		4	EI 90, E 120	
	U/C	63	4,5		4	EI 30, E 120	

* Use one row (1 x) of collars with a height of 30 mm

Fire classification for combustible pipes in FLOORS					
Pipe type	Configuration	Diameter Ø (mm)	Pipe wall thickness (mm)	Thick. of intumescent insert (mm)	EI class
GEBERIT MEPLA	U/C	20	2,5	4	120
	U/C	32	3,0	4	120
	U/C	40	4,0	4	120
	U/C	63	4,5	4	120

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Fire classification for combustible pipes in FLOORS							
Pipe type	Configuration	Diameter Ø (mm)	Pipe wall thickness (mm)		Thick. of intumescent insert (mm)	EI class	
PP	U/C	50	1,8	8,3	4	120	120
	U/U	50	1,8	8,3	4	120	120
	U/C	75	1,9	12,5	4	120	120
	U/C	110	2,7	18,3	10	120	120
	U/U	110	3,8		10	120	
	U/C	160	3,9	9,5	2 x 18	120	120
	U/C	200	7,7		2 x 18	90	
PP-HT	U/C	50	1,8		4	120	
	U/C	75	1,9		4	120	
	U/C	110	2,7		10	120	
PVC-U	U/C	50	1,2	5,6	4	120	120
	U/U	50	1,2	5,6	4	120	120
	U/C	75	1,8	5,6	4	120	120
	U/C	110	2,0	8,1	10	120	120
	U/U	110	2,0	8,1	10	30	30
	U/C	110	3,2	8,1	10	EI 30, E 60*	120*
	U/C	160	3,2	9,5	2 x 18	120	120
	U/C	200	7,7		2 x 20	120	
PE-HD	U/C	32	1,9		4	120	
	U/U	32	2,0		4	120	
	U/C	50	2,4	4,6	4	120	120
	U/U	50	2,4	4,6	4	120	120
	U/C	75	3,0	6,8	4	90	90
	U/C	110	4,2	10,0	10	120	120
	U/U	110	4,2	10,0	10	30	60
	U/C	160	4,9	9,5	2 x 18	120	120
	U/C	200	11,3		2 x 18	120	
PP-R	U/C	20	2,3	3,4	4	120	120
	U/C	75	6,8	12,5	4	120	120
	U/C	110	10,0	18,3	10	120	120
PP-R/Al/PP-R	U/C	20	2,8	3,4	4	120	120
	U/C	75	8,4	12,5	4	120	120
	U/C	110	12,3	18,3	10	120	120
PP-R/PP-RGF/PP-R	U/C	20	2,8	3,4	4	120	120
	U/C	75	10,3	12,5	4	120	120
	U/C	110	15,1	18,3	10	120	120
PE-X / Al / PE-X	U/C	20	2,0		4	120	
	U/C	63	6,0		4	120	
PE-RT/Al/PE-RT	U/C	20	2,0		4	120	
	U/C	63	6,0		4	120	
	U/C	75	7,5		4	120	
PE-Xa	U/C	20	2,0		4	120	
	U/C	63	5,8		4	120	
PE-Xb/Al/PE-Xb	U/C	32	3,0		4	120	
	U/C	63	4,5		4	120	

*INTU FR COLLAR L SLIM installed on the top of the floor

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COMBUSTIBLE PIPE WITH ELBOW in WALLS and FLOORS						
Pipe type	Test configuration	Diameter Ø (mm)	Pipe wall thickness (mm)	Thickness of intumescent insert (mm)	RIGID WALL EI class	RIGID FLOOR EI class
PVC-U	U/C	110	3,2	10	120	120
PP	U/C	110	2,7	10	90*	90
PE-HD	U/C	110	4,2	10	60	120
COMBUSTIBLE PIPE at angle of 45° in WALLS						
PVC-U	U/C	110	3,2	10	120	-
PP	U/C	110	2,7	10	30*	
PE-HD	U/C	110	4,2	10	60	
COMBUSTIBLE PIPE CORNER OF WALLS in FLOORS						
PVC-U	U/C	110	3,2	10	-	120
PP	U/C	110	2,7	10		
PE-HD	U/C	110	4,2	10		

* for flexible and rigid wall

INTU FR COLLAR L SLIM ON ONE SIDE of the RIGID WALL						
Pipe type	Configuration	Diameter Ø (mm)	Pipe wall thickness (mm)	Thickness of intumescent	Partition side where the collar is installed	EI class
PP	U/C	50	1,8	4	Exposed side	120
					Unexposed side	
	U/C	110	2,7	10	Exposed side	90
					Unexposed side	60

➔ COMBUSIBLE pipes (low-noise)

LOW-NOISE pipe penetration seals in FLEXIBLE/RIGID WALLS					
Pipe type	Configuration	Diameter Ø (mm)	Pipe wall thickness (mm)	Thickness of intumescent insert (mm)	EI class
Geberit Silent DB 20	U/C	63	3,2	4	120
	U/C	75	3,6	4	120
	U/C	110	6,0	10	120
	U/C	160	7,0	2 x 18	120
Wavin SiTech+	U/C	50	1,8	4	120
	U/C	75	2,6	4	120
	U/C	110	3,4	10	120
	U/C	160	4,9	2 x 18	120
Magnaplast Ultra dB	U/C	50	2,0	4	120
	U/C	75	2,3	4	120
	U/C	110	3,4	10	90

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LOW-NOISE pipes in FLOORS					
Geberit Silent DB 20	U/C	Ø160	7,0	1 x 18*	60
Geberit Silent PP	U/C	Ø50	2,0	4	120
	U/C	Ø75	2,6	4	120
	U/C	Ø110	3,6	10	120
	U/C	Ø160	5,2	2 x 18	120
Raupiano Plus	U/C	Ø50	1,8	4	120
	U/C	Ø75	1,9	4	120
	U/C	Ø110	2,7	10	120
	U/C	Ø160	4,0	1 x 18*	30
	U/C	Ø160	4,0	2 x 18	120
Magnaplast Ultra dB	U/C	Ø50	2,0	4	120
	U/C	Ø75	2,3	4	120
	U/C	Ø110	3,4	10	120
	U/C	Ø160	4,9	1 x 18*	30
	U/C	Ø160	4,9	2 x 18	120
PP-ML TRIPLUS	U/C	Ø 50	1,8	4	120
	U/C	Ø 75	2,6	4	120
	U/C	Ø 110	3,4	10	120
	U/C	Ø 160	4,9	2 x 18	120
PP-MF SILERE	U/C	58	4,0	4	120
	U/C	110	5,4	10	120
	U/C	135	5,6	2 x 14	120

➔ COMBUSIBLE pipes (multiple or single penetration seal with UNIBOARD in partition)

COMBUSTIBLE pipe in FLEXIBLE / RIGID WALLS (partition filling by INTU FR UNIBOARD)						
Pipe material	Max pipe diameter Ø (mm)	Pipe wall thickness (mm)	Partition filling	Side of the partition with INTU FR UNIBOARD	Thickness of intumescent insert (mm)	El class Configuration U/C
PP-R	≤ 20	2,3 – 3,4	2 x INTU FR UNIBOARD 1S	Both sides	4	120
	≤ 75	6,8 – 12,5			4	
	≤ 110	10,0 – 18,3			10	
PP	≤ 75	1,9 – 12,5	2 x INTU FR UNIBOARD 1S	Both sides	4	120
	≤ 110	2,7 – 18,3			10	
PVC-U	≤ 75	1,8 – 5,6	2 x INTU FR UNIBOARD 1S	Both sides	4	120
	≤ 110	2,0 – 8,1			10	
PE-HD	≤ 75	3,0 – 6,8	2 x INTU FR UNIBOARD 1S	Both sides	4	120
		3,0	1 x INTU FR UNIBOARD 2S	Any*		60
		6,8		Any*		60
	≤ 110	4,2 – 10,0	2 x INTU FR UNIBOARD 1S	Both sides	10	120
		1 x INTU FR UNIBOARD 2S	Any*	60		

*One board INTU FR UNIBOARD 2S located anywhere in the partition thickness

INTU FR COLLAR L SLIM

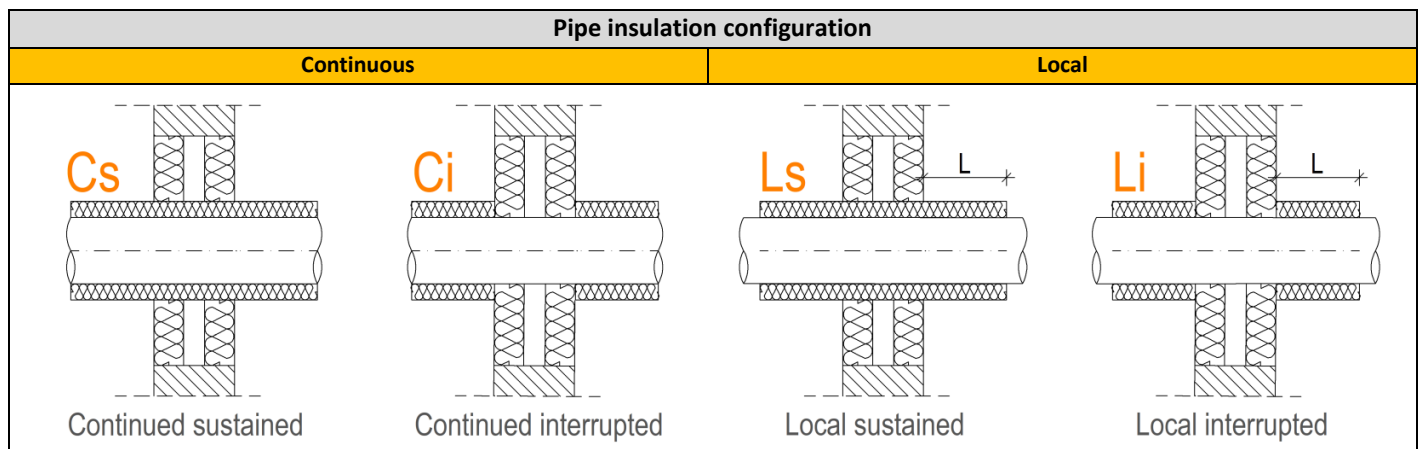
Intumescent pipe collar roll

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COMBUSTIBLE pipe in FLOORS (partition filling by INTU FR UNIBOARD)						
Pipe material	Max pipe diameter Ø (mm)	Pipe wall thickness (mm)	Partition filling	Side of the floor with use INTU FR UNIBOARD	Thickness of intumescent insert (mm)	El class Configuration U/C
PP-R	≤ 20	2,3 – 3,4	2 x INTU FR UNIBOARD 1S	Top and bottom	4	120
	≤ 75	6,8 – 12,5			4	
	≤ 110	10,0 – 18,3			10	
PP	≤ 75	1,9 – 12,5	2 x INTU FR UNIBOARD 1S	Top and bottom	4	120
	≤ 110	2,7 – 18,3			10	
	≤ 160	3,9			2 x 18	
PVC-U	≤ 75	1,5 – 5,6	2 x INTU FR UNIBOARD 1S	Top and bottom	4	120
	≤ 110	2,0 – 8,1			10	
PE-HD	≤ 75	3,0 - 6,8	2 x INTU FR UNIBOARD 1S	Top and bottom	4	90
			1 x INTU FR UNIBOARD 2S	Any*		
	≤ 110	4,2 – 10,0	2 x INTU FR UNIBOARD 1S	Top and bottom	10	90
			1 x INTU FR UNIBOARD 2S	Any*		
≤ 160	9,5	2 x INTU FR UNIBOARD 1S	Top and bottom	2 x 18	120	

*One board INTU FR UNIBOARD 2S located anywhere in the partition thickness

➔ COMBUSIBLE pipes with insulation



COMBUSTIBLE pipe with insulation in WALLS							
Pipe material	Pipe diameter Ø (mm)	Pipe wall thickness (mm)	PE* insulation thickness (mm)	Partition filling	Side of the partition with INTU FR UNIBOARD	Thickness of intumescent insert (mm)	FLEXIBLE / RIGID WALLS
							El class Configuration U/C
PP-R	75	6,8	25	2 x INTU FR UNIBOARD 1S	Both sides	10	30
	75	12,5	25	2 x INTU FR UNIBOARD 1S	Both sides	10	90

* TUBOLIT DG PLUS (PE) insulation, pipe insulation configuration Cs

INTU FR COLLAR L SLIM

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COMBUSTIBLE pipe with insulation and with / without heater cable in FLOORS					FLOORS
Pipe material	Pipe diameter Ø (mm)	Pipe wall thickness (mm)	Insulation thickness (mm)	Thickness of intumescent insert (mm)	El class Configuration U/C
PE-HD	110	4,2	13 ⁽¹⁾	2 x 14	120
Geberit DB 20	110	6,0	13 ⁽¹⁾	2 x 14	90
PP	110	2,7	9 ⁽²⁾	12	90
PVC-U	110	3,2	9 ⁽²⁾	12	90
PRE-ISOLATED COMBUSTIBLE pipe in FLEXIBLE / RIGID WALLS					FLEXIBLE / RIGID WALLS
COOL-FIT 2.0	d75/125	75 x 6,8 / 125 x 3,8		2 x 14	120
	d90/140	90 x 8,2 / 140 x 4,0		2 x 18	
PRE-ISOLATED COMBUSTIBLE pipe in FLOORS					FLOORS
COOL-FIT 2.0	d90/140	90 x 8,2 / 140 x 4,0		2 x 18	120

⁽¹⁾ Kaiflex ST (FEF) insulation, pipe insulation configuration Cs

⁽²⁾ ThermaCompact TF, pipe insulation configuration Ls

➔ NON-COMBUSIBLE pipes with insulation

STEEL/CAST IRON pipes in FEF penetration seals in FLEXIBLE/RIGID WALLS									
Pipe type	Test config.	Diameter Ø (mm)	Pipe wall thickness (mm)	FEF* insulation thickness (mm)/ thickness of intumescent insert (mm)			FLEXIBLE/RIGID WALLS El class		
Steel / Cast iron	C/U	≤ 18	≥ 1,2	9/4	25/6	-	120	120	-
	C/U	≤ 28	≥ 1,5	9/4	25/6	-	120	120	-
	C/U	≤ 66,7		9/4	32/6	-	90	120	-
	C/U	≤ 108	≥ 2,0	-	32/6	50/8	-	90, E120	90, E120
	C/U	≤ 114,3	≥ 3,6	-	32/6	50/8	-	90, E120	90, E120
	C/U	≤ 168,3	≥ 4,0	-	32/6	50/8	-	60, E120	90, E120

* Kaiflex ST (FEF) insulation, pipe insulation configuration Cs

STEEL/CAST IRON pipes in FEF penetration seals in FLOORS									
Pipe type	Test config.	Diameter Ø (mm)	Pipe wall thickness (mm)	FEF* insulation thickness (mm)/ thickness of intumescent insert (mm)			FLOORS El class		
Steel / Cast iron	C/U	≤ 18	≥ 1,2	9/4	25/6	-	120	120	-
		≤ 28	≥ 1,5	9/4	25/6	-	120	120	-
		≤ 66,7		9/4	32/6	-	120	120	-
		≤ 108	≥ 2,0	-	32/6	50/8	-	120	90
		≤ 114,3	≥ 3,6	-	32/6	50/8	-	120	120
		≤ 168,3	≥ 4,0	-	32/6	50/8	-	120	120

* Kaiflex ST (FEF) insulation, pipe insulation configuration Cs

INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

→ BUNDLE of pipes

AROT pipes / bundles of AROT pipes in FLEXIBLE / RIGID WALLS / FLOORS					
Bundle characteristics	No. of AROT pipe	Cable sign	Cable type	Thickness of intumescent insert (mm)	EI class Configuration U/U
					FLEXIBLE/RIGID WALLS/FLOORS
Maximum in one bundle (4 x AROT pipes)	AROT 1 Ø50 x 3,0	empty	-	10	120
	AROT 2 Ø50 x 3,0	1 x B	NY-Y-J 1x95		
	AROT 3 Ø50 x 3,0	6 x F	A-2Y(L)2Y 20X2X0,6		
	AROT 4 Ø50 x 3,0	3 x A1	NY-Y-J 5x1,5		
3 x A3		N2XH-O 5X1,5 0,6/1kV			

COMBUSTIBLE pipes / bundles of COMBUSTIBLE pipes in FLEXIBLE / RIGID WALLS					
Bundle characteristics	Type of pipe	Diameter Ø (mm)	Pipe wall thickness (mm)	Thickness of intumescent insert (mm)	EI class Configuration U/C
					FLEXIBLE/RIGID WALLS
Maximum in one bundle (3 x combustible pipes)	PVC-U	50	1,5	10	120
	PP-R	50	8,3		
	PP-R/PP-RGF/PP-R	50	6,9		

COPPER pipes / bundles of copper pipes in FLEXIBLE / RIGID WALLS / FLOORS								
Bundle characteristics	Pipe material	Diameter Ø (mm) / Cable cross-section	Pipe wall thickness (mm)	FEF/PE insulation thickness (mm)	Test config.	Thickness of intumescent insert (mm)	EI class	
							FLEXIBLE/RIGID WALLS	FLOOR
Maximum in one bundle (3 x pipes and 1 x cable)	Copper	≤ 12,7	0,8	9 ¹⁾	C/U	4	EI 60, E 120	120
	Copper	≤ 22,3	1,0	9 ¹⁾	C/U			
	PVC	≤ 25	1,0	-	U/U			
	Cable	4 x 1,5 mm ²	-	-	-			
Maximum in one bundle (3 x pipes and 1 x cable)	Copper	≤ 12,7	0,8	9 ²⁾	C/U	4	EI 60, E 120	120
	Copper	≤ 22,3	1,0	9 ²⁾	C/U			
	PVC	≤ 25	1,0	-	U/U			
	Cable	4 x 1,5 mm ²	-	-	-			

¹⁾ Kaiflex ST (FEF) insulation, pipe insulation configuration Cs

²⁾ TUBOLIT DG PLUS (PE) insulation, pipe insulation configuration Cs

COMBUSTIBLE pipe with insulation located in FLEXIBLE / RIGID WALLS (partition filling by INTU FR UNIBOARD)								
Bundle	Pipe material	Pipe diameter Ø (mm)	Pipe wall thickness (mm)	PE* insulation thickness (mm)	Partition filling	Side of the partition with INTU FR UNIBOARD	Thickness of intumescent insert (mm)	EI class Configuration U/C
								FLEXIBLE/RIGID WALLS
Max 2 x plastic pipe	PP-R	20	2,3	9	2 x INTU FR UNIBOARD 1S	Both sides	10	120
		50	6,9	25				

* TUBOLIT DG PLUS (PE) insulation, pipe insulation configuration Cs

INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

INTUSEAL[®]
passive fire protection manufacturer

➔ SOLUTION DETAILS

NON-COMBUSTIBLE PIPE pipe penetration seal in FLEXIBLE/RIGID WALLS

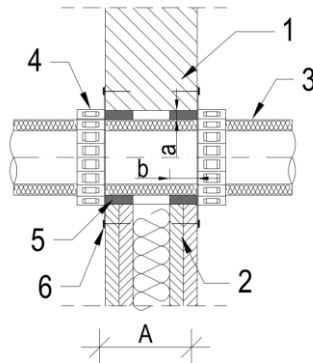
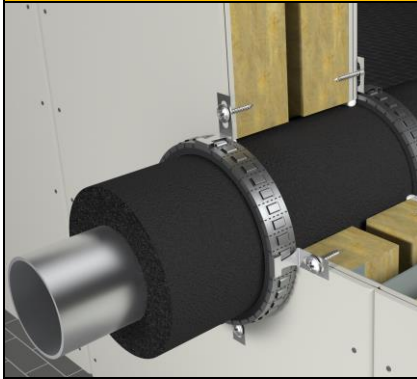


Fig. 1 Penetration seal in wall

- 1 – rigid wall with thickness $A \geq 100 \text{ mm}$
- 2 – flexible wall with thick. $A \geq 100 \text{ mm}$
- 3 – steel or cast iron pipe $\varnothing \leq 168,3 \text{ mm}$ in insulation of $9 \pm 50 \text{ mm}$ thickness
- 4 – INTU FR COLLAR L SLIM fire protection collars installed on both sides of the wall
- 5 – gap around pipe edge filled with INTU FR MASTIC intumescent acrylic mass: width $0 \leq a \leq 20 \text{ mm}$, depth $b = 25 \text{ mm}$
- 6 – screw $\varnothing 6 \times 50 \text{ mm}$

COMBUSTIBLE PIPE penetration seal in FLEXIBLE/RIGID WALLS

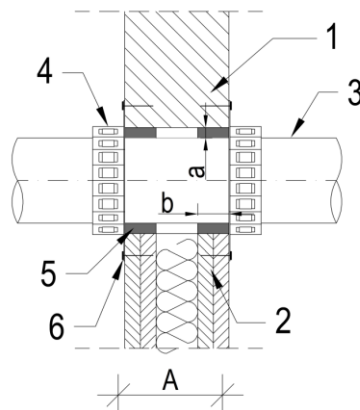
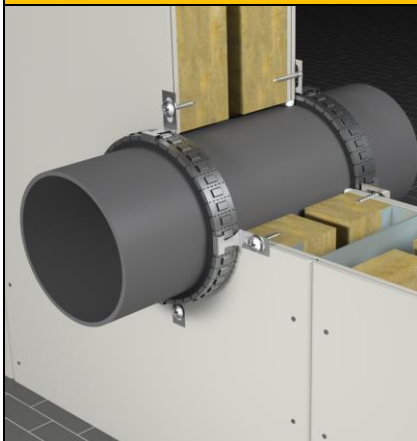


Fig.2a Penetration seal in wall (single collar)

- 1 – rigid wall with thickness $A \geq 100 \text{ mm}$
- 2 – flexible wall with thick. $A \geq 100 \text{ mm}$
- 3 – combustible pipe $\varnothing \leq 110 \text{ mm}$
- 4 – INTU FR COLLAR L SLIM single fire protection collars installed on both sides of the wall
- 5 – gap around pipe edge filled with INTU FR MASTIC intumescent acrylic mass: width $0 \leq a \leq 20 \text{ mm}$, depth $b = 25 \text{ mm}$
- 6 – screw $\varnothing 6 \times 50 \text{ mm}$

COMBUSTIBLE PIPE penetration seal in FLEXIBLE/RIGID WALLS

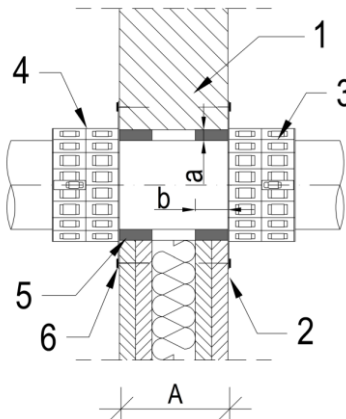
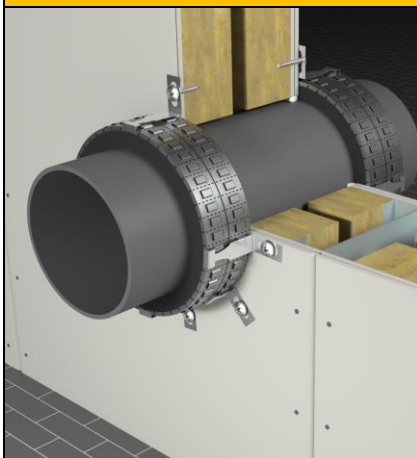


Fig.2b Penetration seal in wall (double collar)

- 1 – rigid wall with thickness $A \geq 100 \text{ mm}$
- 2 – flexible wall with thick. $A \geq 100 \text{ mm}$
- 3 – combustible pipe $\varnothing > 110 \text{ mm}$ and pre-insulated combustible pipes
- 4 – INTU FR COLLAR L SLIM double (2 rows) fire protection collars installed on both sides of the wall
- 5 – gap around pipe edge filled with INTU FR MASTIC intumescent acrylic mass: width $0 \leq a \leq 20 \text{ mm}$, depth $b = 25 \text{ mm}$
- 6 – screw $\varnothing 6 \times 50 \text{ mm}$

INTU FR COLLAR L SLIM

Intumescent pipe collar roll

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COMBUSTIBLE PIPE WITH ELBOW penetration seal in FLEXIBLE/RIGID WALLS

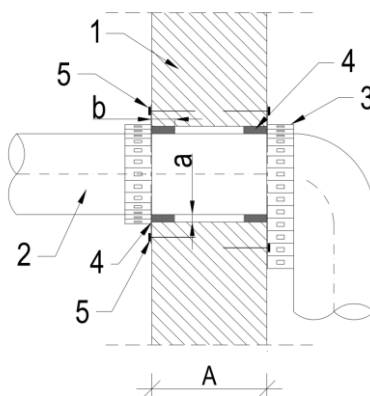
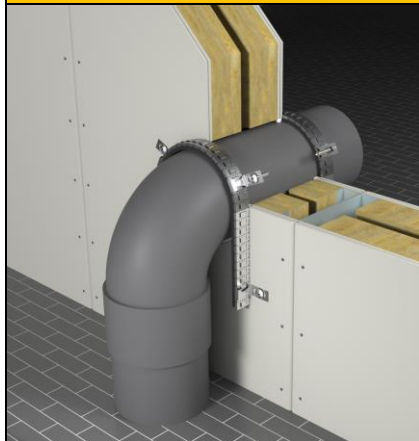


Fig. 3a Penetration seal in wall

- 1 – rigid wall $A \geq 100\text{ mm}$
- 2 – combustible pipe $\varnothing \leq 110\text{ mm}$
- 3 – INTU FR COLLAR L SLIM fire protection collars installed on both sides of the wall
- 4 – gap around pipe edge filled with INTU FR MASTIC intumescent acrylic mass: width $0 \leq a \leq 20\text{ mm}$ depth $b = 25\text{ mm}$
- 5 - screw $\varnothing 6 \times 50\text{ mm}$

COMBUSTIBLE PIPE at an angle of 45° penetration seal in FLEXIBLE/RIGID WALLS

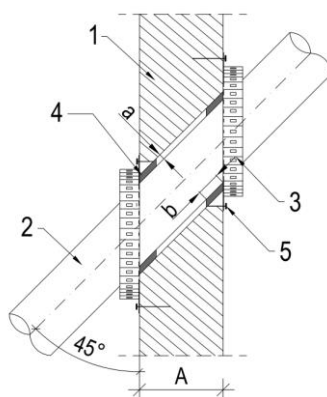
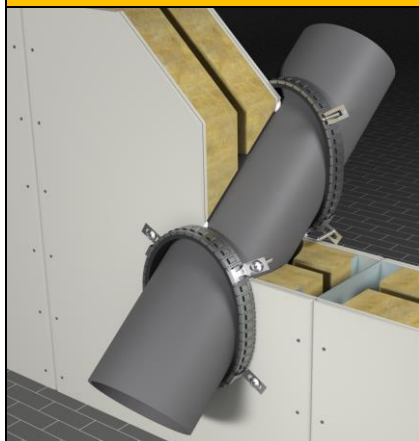


Fig. 3b Penetration seal in wall

- 1 – rigid wall $A \geq 100\text{ mm}$
- 2 – combustible pipe $\varnothing \leq 110\text{ mm}$
- 3 – INTU FR COLLAR L SLIM fire protection collars installed on both sides of the wall
- 4 – gap around pipe edge filled with INTU FR MASTIC intumescent acrylic mass: width $0 \leq a \leq 20\text{ mm}$ depth $b = 25\text{ mm}$
- 5 - screw $\varnothing 6 \times 50\text{ mm}$

COMBUSTIBLE PIPE penetration seal in FLEXIBLE/RIGID WALLS with use 2 x UNIBOARD

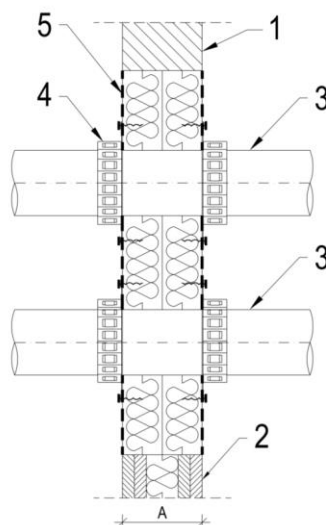
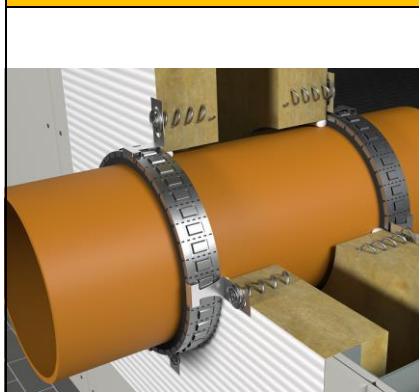


Fig. 4 Penetration seal in wall (2 x INTU FR UNIBOARD 1-S)

- 1 – rigid wall with thickness $A \geq 100\text{ mm}$
- 2 – flexible wall with thickness $A \geq 100\text{ mm}$
- 3 – combustible pipe
- 4 – INTU FR COLLAR L SLIM fire protection collars installed on both sides of the wall (by wires to mineral wool)
- 5 – 2 x INTU FR UNIBOARD 1-S thickness of 2 x 50 mm or mineral wool with density min. 150 kg/m³, thickness min. 2 x 50 mm coated with INTU FR UNICOAT P paint with a dry film minimum thickness 0,5 mm

Fill the gaps with fireproof INTU FR MASTIC acrylic mass

INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

COMBUSTIBLE pipe in FLEXIBLE / RIGID WALLS (partition filing by INTU FR UNIBOARD)

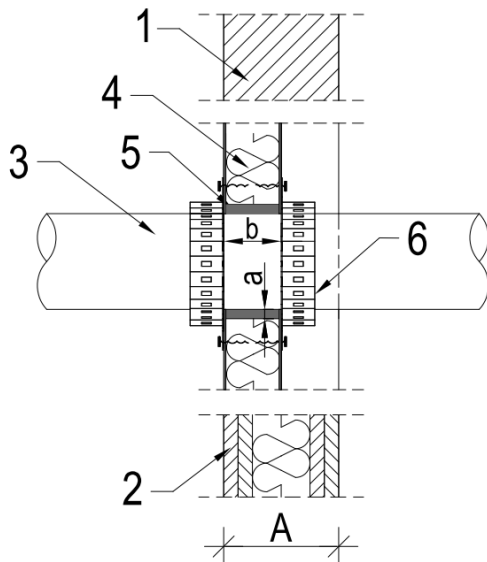


Fig. 5 Penetration seal in wall (1 x INTU FR UNIBOARD 2-S)

- 1 – rigid wall with thickness $A \geq 100$ mm
- 2 – flexible wall with thickness $A \geq 100$ mm
- 3 – combustibles pipe $\varnothing \leq 110$ mm
- 4 – 1 x INTU FR UNIBOARD 1-S thickness of 50 mm or mineral wool with density min. 150 kg/m^3 , thickness min. 50 mm coated with INTU FR UNICOAT P paint with a dry film minimum thickness 0,5 mm on both sides. Board located anywhere in the partition thickness.
- 5 – gap around pipe edge filled with INTU FR MASTIC intumescent acrylic mass: width $0 \leq a \leq 20$ mm depth $b = 50$ mm
- 6 – INTU FR COLLAR L SLIM fire protection collars installed on both side of the INTU FR UNIBOARD board (mounted by wires to mineral wool)

Fill the gaps with fireproof INTU FR MASTIC acrylic mass

AROT pipes / bundles of AROT pipes in FLEXIBLE / RIGID WALLS

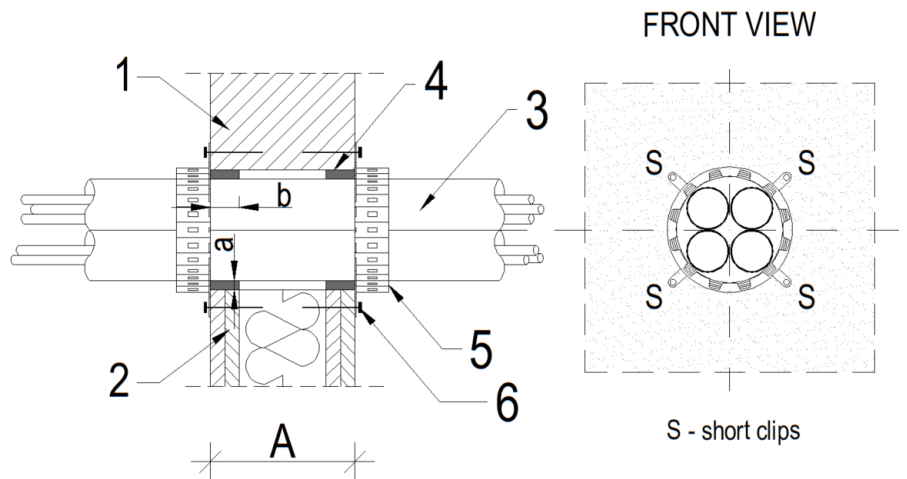
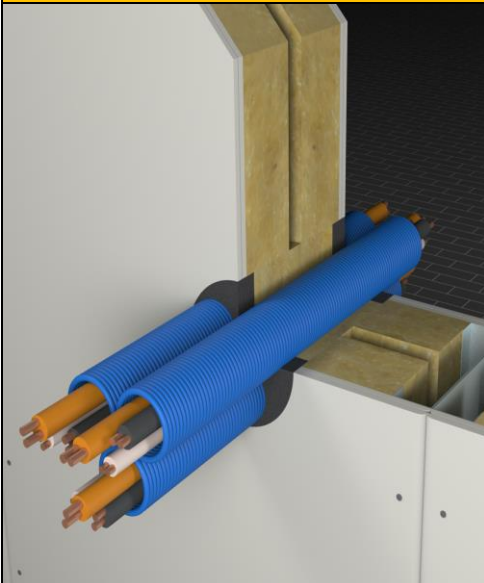


Fig. 6 AROT pipes / bundles of AROT pipes in FLEXIBLE / RIGID WALLS

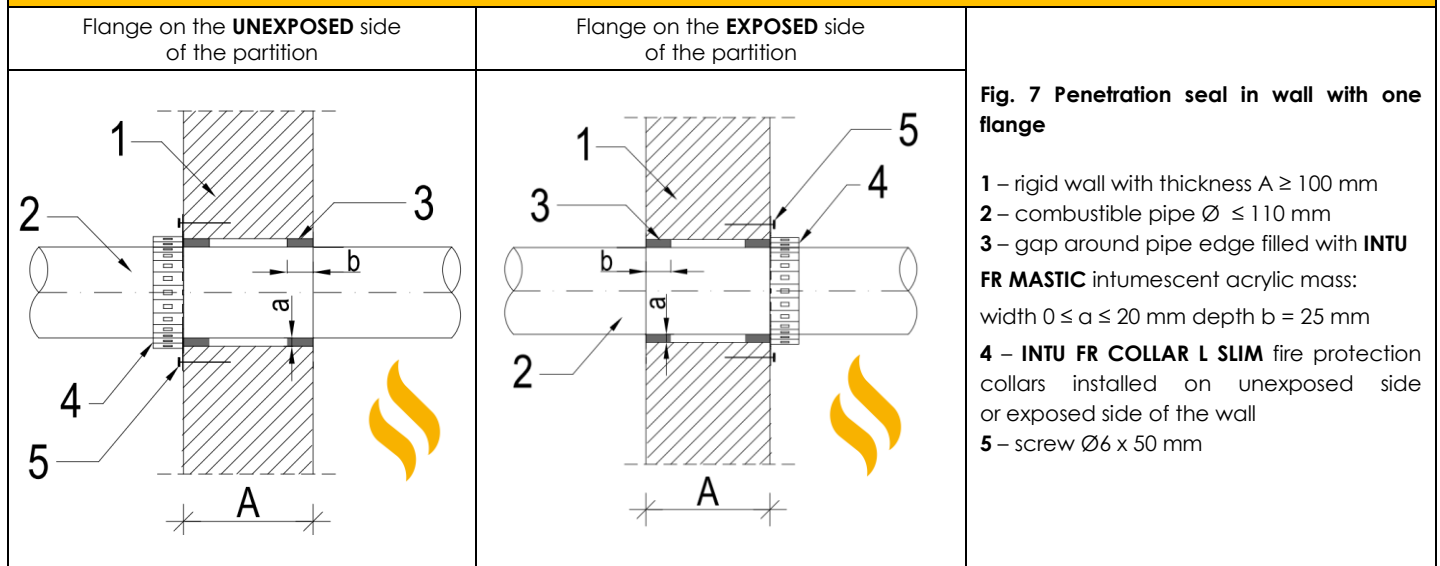
- 1 – rigid wall with thickness $A \geq 100$ mm
- 2 – flexible wall with thickness $A \geq 100$ mm
- 3 – AROT pipes (max 4 AROT pipes in one penetration) empty or with single/ bundles of cables
- 4 – gap around pipe edge filled with INTU FR MASTIC intumescent acrylic mass:
width $0 \leq a \leq 20$ mm depth $b = 25$ mm
- 5 – INTU FR COLLAR L SLIM fire protection collars installed on both sides of the wall
- 6 – screw $\varnothing 6 \times 50$ mm

INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

INTU FR COLLAR L SLIM ON ONE SIDE of the RIGID WALL



COMBUSTIBLE pipe with insulation located on the floor (partition filling by INTU FR UNIBOARD)

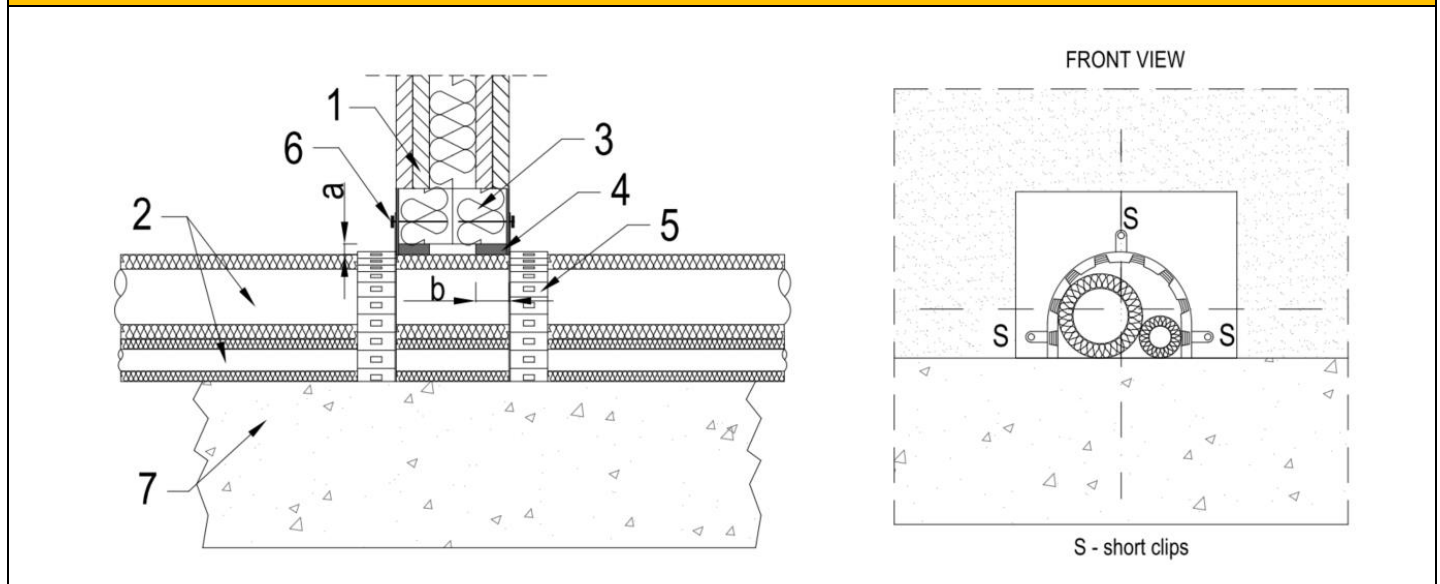


Fig. 8 Penetration seal in flexible wall (2 x INTU FR UNIBOARD 1-S)

- 1 – rigid wall with thickness $A \geq 100$ mm
- 2 – two combustible pipes laid side by side
- 3 – 2 x **INTU FR UNIBOARD 1-S** thickness of 2 x 50 mm or mineral wool with density min. 150 kg/m³, thickness min. 2 x 50 mm coated with **INTU FR UNICOAT P** paint with a dry film minimum thickness 0,5 mm
- 4 – gap filled with **INTU FR MASTIC** intumescent acrylic mass: width $0 \leq a \leq 20$ mm depth $b = 25$ mm
- 5 – **INTU FR COLLAR L SLIM** fire protection collars installed on both sides of the wall
- 6 – screw $\varnothing 6 \times 50$ mm
- 7 – rigid floor

INTU FR COLLAR L SLIM

Intumescent pipe collar roll

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COMBUSTIBLE PIPE penetration seal in FLOORS

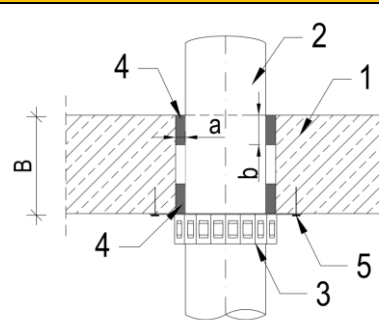
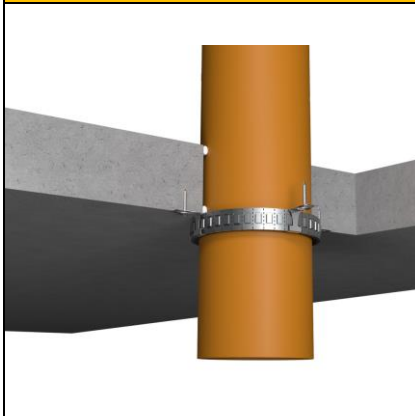


Fig.9 Penetration seal in floor (single collar)

- 1 – rigid floor $B \geq 150$ mm
- 2 – combustible pipe $\varnothing \leq 110$ mm
- 3 – **INTU FR COLLAR L SLIM** fire protection collar installed from below of the floor
- 4 – gap around pipe edge filled with **INTU FR MASTIC** intumescent acrylic mass: width $0 \leq a \leq 20$ mm depth $b = 25$ mm
- 5 - screw $\varnothing 6 \times 50$ mm

COMBUSTIBLE PIPE penetration seal in FLOORS

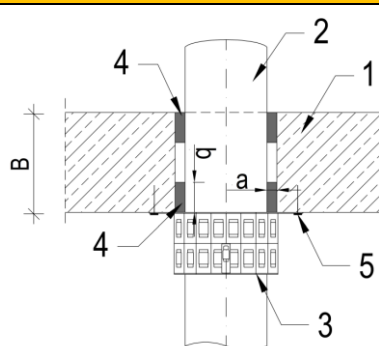
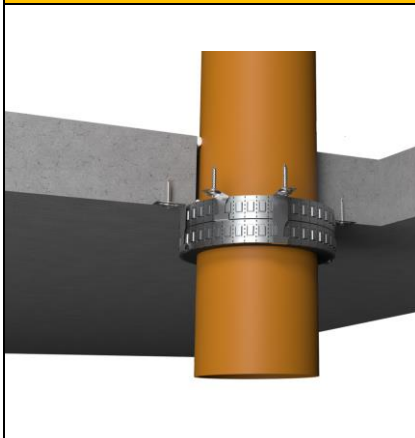


Fig.10 Penetration seal in floor (double collar)

- 1 – rigid floor $B \geq 150$ mm
- 2 – combustible pipe $\varnothing > 110$ mm
- 3 – **INTU FR COLLAR L SLIM** double (2 rows) fire protection collars installed from below of the floor
- 4 – gap around pipe edge filled with **INTU FR MASTIC** acrylic mass: width $0 \leq a \leq 20$ mm, depth $b = 25$ mm
- 5 - screw $\varnothing 6 \times 50$ mm

COMBUSTIBLE PIPE pipe penetration seals in FLOORS

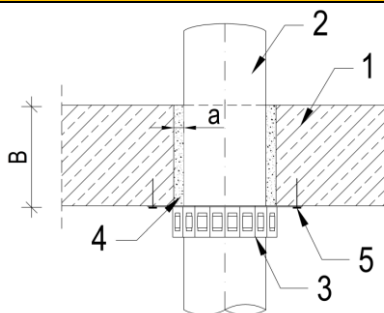


Fig.11 Penetration seal in floor (single collar) with cement mortar

- 1 – rigid floor $B \geq 150$ mm
- 2 – combustible pipe $\varnothing \leq 110$ mm
- 3 – **INTU FR COLLAR L SLIM** fire protection collar installed from below of the floor
- 4 – gap around pipe edge filled with **ceMENT morar**: width $0 \leq a \leq 30$ mm
- 5 - screw $\varnothing 6 \times 50$ mm

NON-COMBUSTIBLE PIPE pipe penetration seals in FLOORS

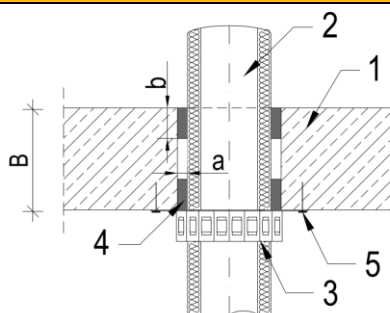


Fig.12 Penetration seal in floor

- 1 – rigid floor $B \geq 150$ mm
- 2 – steel / cast iron pipe in FEF insulated
- 3 – **INTU FR COLLAR L SLIM** fire protection collar installed from below of the floor
- 4 – gap around pipe edge filled with **INTU FR MASTIC** acrylic mass: width $0 \leq a \leq 20$ mm, depth $b = 25$ mm
- 5 - screw $\varnothing 6 \times 50$ mm

INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

COMBUSTIBLE pipe with insulation and with / without heater cable in FLOORS

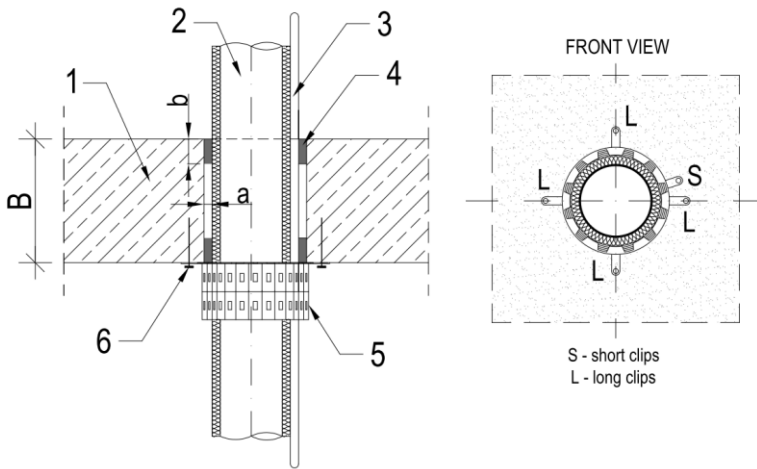


Fig. 13 Combustible pipe with FEF (Kaiflex ST) insulation penetration seal in floor

- 1 – rigid floor $B \geq 150$ mm
- 2 – combustable pipe with FEF insulation
- 3 – heater cable
- 4 – gap around pipe edge filled with **INTU FR MASTIC** intumescent acrylic mass: width $0 \leq a \leq 20$ mm depth $b = 25$ mm
- 5 – **INTU FR COLLAR L SLIM** double (2 rows) fire protection collars installed from below of the floor
- 6 – screw $\varnothing 6 \times 50$ mm

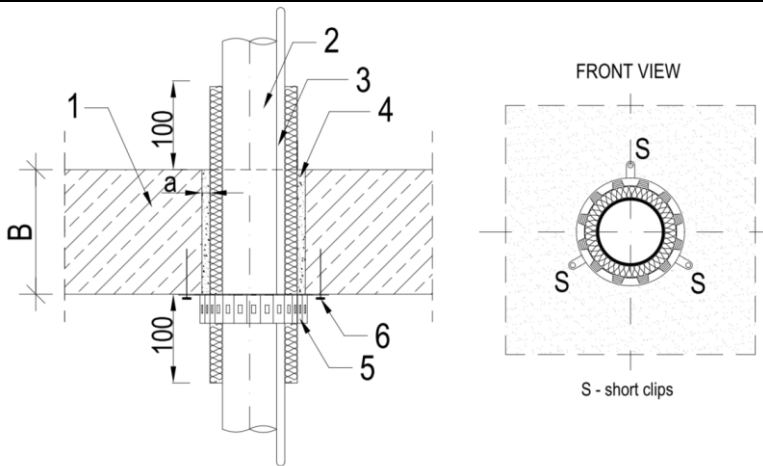


Fig. 14 Combustible pipe with ThermaCompact TF insulation

- 1 – rigid floor $B \geq 150$ mm
- 2 – combustable pipe with ThermaCompact TF insulation on length 100 mm from top and bottom of the floor
- 3 – heater cable
- 4 – gap around pipe edge filled with **cement mortar**: width $0 \leq a \leq 30$ mm
- 5 – **INTU FR COLLAR L SLIM** fire protection collar installed from below of the floor
- 6 – screw $\varnothing 6 \times 50$ mm

AROT pipes / bundles of AROT pipes in FLOORS

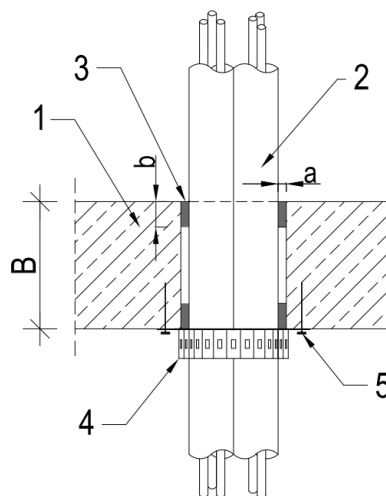
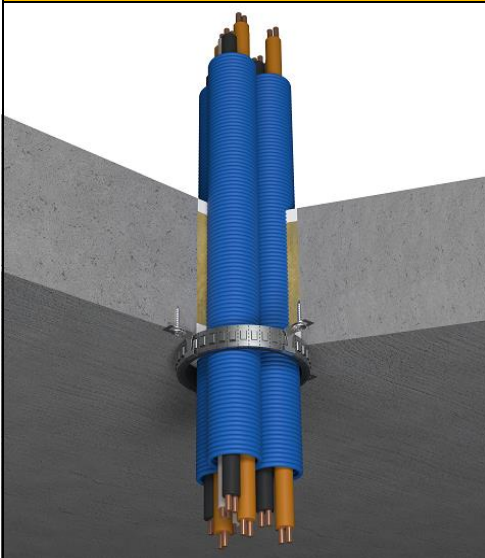


Fig. 15 AROT pipes / bundles of AROT pipes in FLOORS

- 1 – rigid floor with thickness $B \geq 150$ mm
- 2 – AROT pipes (max 4 AROT pipes in one penetration) empty or with single/ bundles of cables
- 3 – gap around pipe edge filled with **INTU FR MASTIC** intumescent acrylic mass: width $0 \leq a \leq 20$ mm depth $b = 25$ mm
- 4 – **INTU FR COLLAR L SLIM** fire protection collar installed from the floor bottom
- 5 – screw $\varnothing 6 \times 50$ mm

INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

INTU FR COLLAR L SLIM installed on the top of the floor

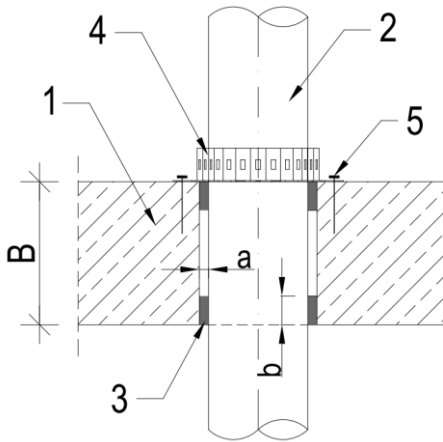


Fig.16 Penetration seal in floor (single collar)

- 1 – rigid floor $B \geq 150$ mm
- 2 – combustible pipe PVC-U $\varnothing \leq 110$ mm
- 3 – gap around pipe edge filled with **INTU FR MASTIC** intumescent acrylic mass: width $0 \leq a \leq 20$ mm depth $b = 25$ mm
- 4 – **INTU FR COLLAR L SLIM** fire protection collar installed from the top of the floor
- 5 – screw $\varnothing 6 \times 50$ mm

COMBUSTIBLE PIPE WITH ELBOW in FLOOR

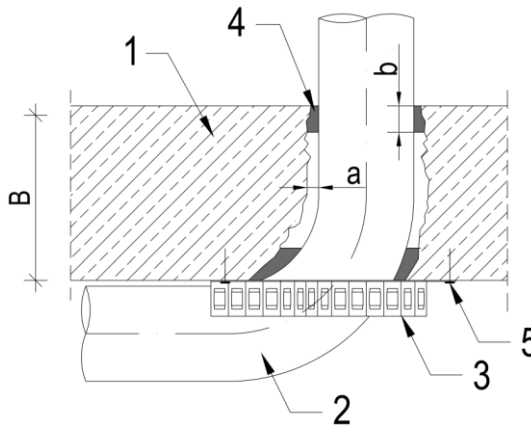
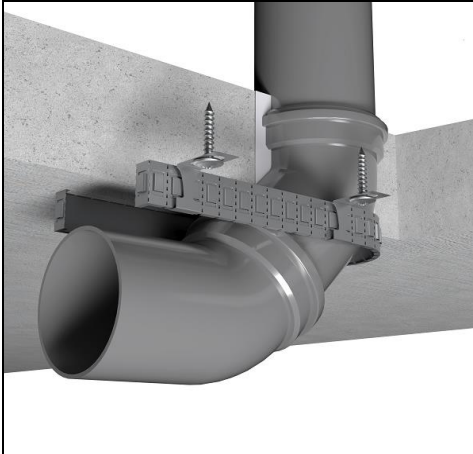


Fig. 17 Combustible pipe with elbow penetration seal in floor

- 1 – rigid floor $B \geq 150$ mm
- 2 – combustible pipe $\varnothing \leq 110$ mm
- 3 – **INTU FR COLLAR L SLIM** fire protection collar installed from below of the floor
- 4 – gap around pipe edge filled with **INTU FR MASTIC** acrylic mass: width $0 \leq a \leq 20$ mm, depth $b = 25$ mm
- 5 - screw $\varnothing 6 \times 50$ mm

COMBUSTIBLE PIPE CORNER OF WALLS in FLOOR

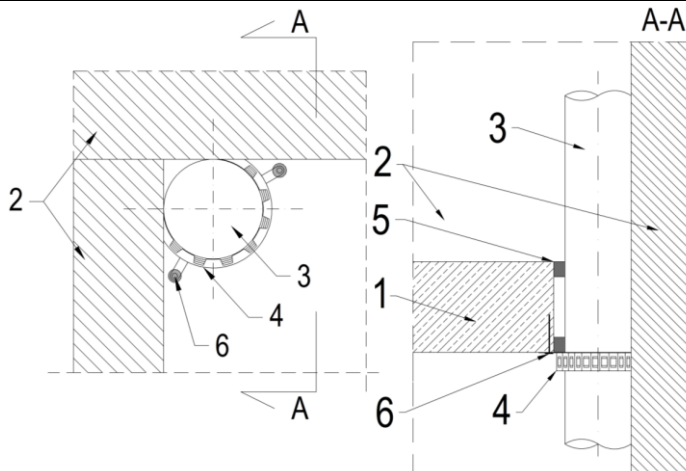


Fig. 18 Combustible pipe with elbow penetration seal in wall

- 1 – rigid floor $B \geq 150$ mm
- 2 – flexible / rigid wall with thickness $A \geq 100$ mm
- 3 – combustible pipe $\varnothing \leq 110$ mm
- 4 – **INTU FR COLLAR L SLIM** fire protection collar installed from the bottom of the floor
- 5 – gap around pipe edge filled with **INTU FR MASTIC** acrylic mass: width $0 \leq a \leq 20$ mm, depth $b = 25$ mm
- 6 - screw $\varnothing 6 \times 50$ mm

INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

COMBUSTIBLE pipe in FLOORS (partition filing by 2 x INTU FR UNIBOARD 1-S)

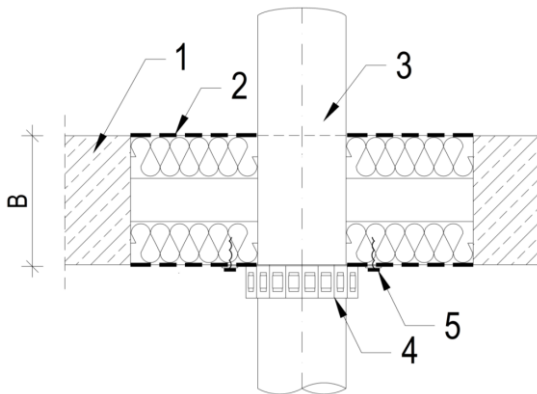


Fig. 19 Combustible pipe penetration seal in floor (2 x INTU FR UNIBOARD 1-S)

- 1 – rigid floor $B \geq 150$ mm
- 2 – 2 x INTU FR UNIBOARD 1-S thickness of 2 x 50 mm or mineral wool with density min. 150 kg/m³, thickness min. 2 x 50 mm coated with INTU FR UNICOAT P paint with a dry film minimum thickness 0,5 mm
- 3 – combustibility pipe $\varnothing \leq 110$ mm
- 4 – INTU FR COLLAR L SLIM fire protection collar installed from the bottom of the floor
- 5 – wires to mineral wool

Fill the gaps with fireproof INTU FR MASTIC acrylic mass

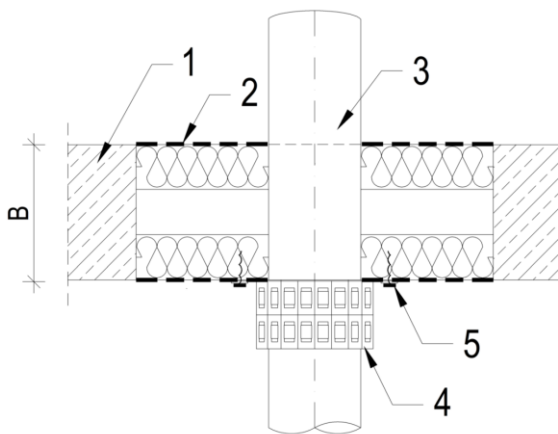


Fig. 20 Combustible pipe penetration seal in floor (2 x INTU FR UNIBOARD 1-S)

- 1 – rigid floor $B \geq 150$ mm
- 2 – 2 x INTU FR UNIBOARD 1-S thickness of 2 x 50 mm or mineral wool with density min. 150 kg/m³, thickness min. 2 x 50 mm coated with INTU FR UNICOAT P paint with a dry film minimum thickness 0,5 mm
- 3 – combustibility pipe $\varnothing > 110$ mm
- 4 – double (two rows) INTU FR COLLAR L SLIM fire protection collars installed from the bottom of the floor
- 5 – wires to mineral wool

Fill the gaps with fireproof INTU FR MASTIC acrylic mass

COMBUSTIBLE pipe in FLOORS (partition filing by INTU FR UNIBOARD 2-S)

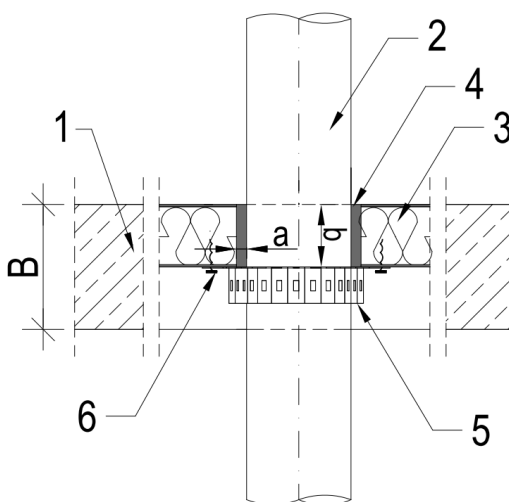


Fig. 21 Penetration seal in floor (1 x INTU FR UNIBOARD 2-S)

- 1 – rigid floor $B \geq 150$ mm
- 2 – combustibility pipe $\varnothing \leq 110$ mm
- 3 – 1 x INTU FR UNIBOARD 1-S thickness of 50 mm or mineral wool with density min. 150 kg/m³, thickness min. 50 mm coated with INTU FR UNICOAT P paint with a dry film minimum thickness 0,5 mm on both sides. Board located anywhere in the partition thickness.
- 4 – gap around pipe edge filled with INTU FR MASTIC intumescent acrylic mass:
width $0 \leq a \leq 20$ mm depth $b = 50$ mm
- 5 – INTU FR COLLAR L SLIM fire protection collar installed on unexposed side or exposed side of the floor
- 6 – wires to mineral wool

Fill the gaps with fireproof INTU FR MASTIC acrylic mass