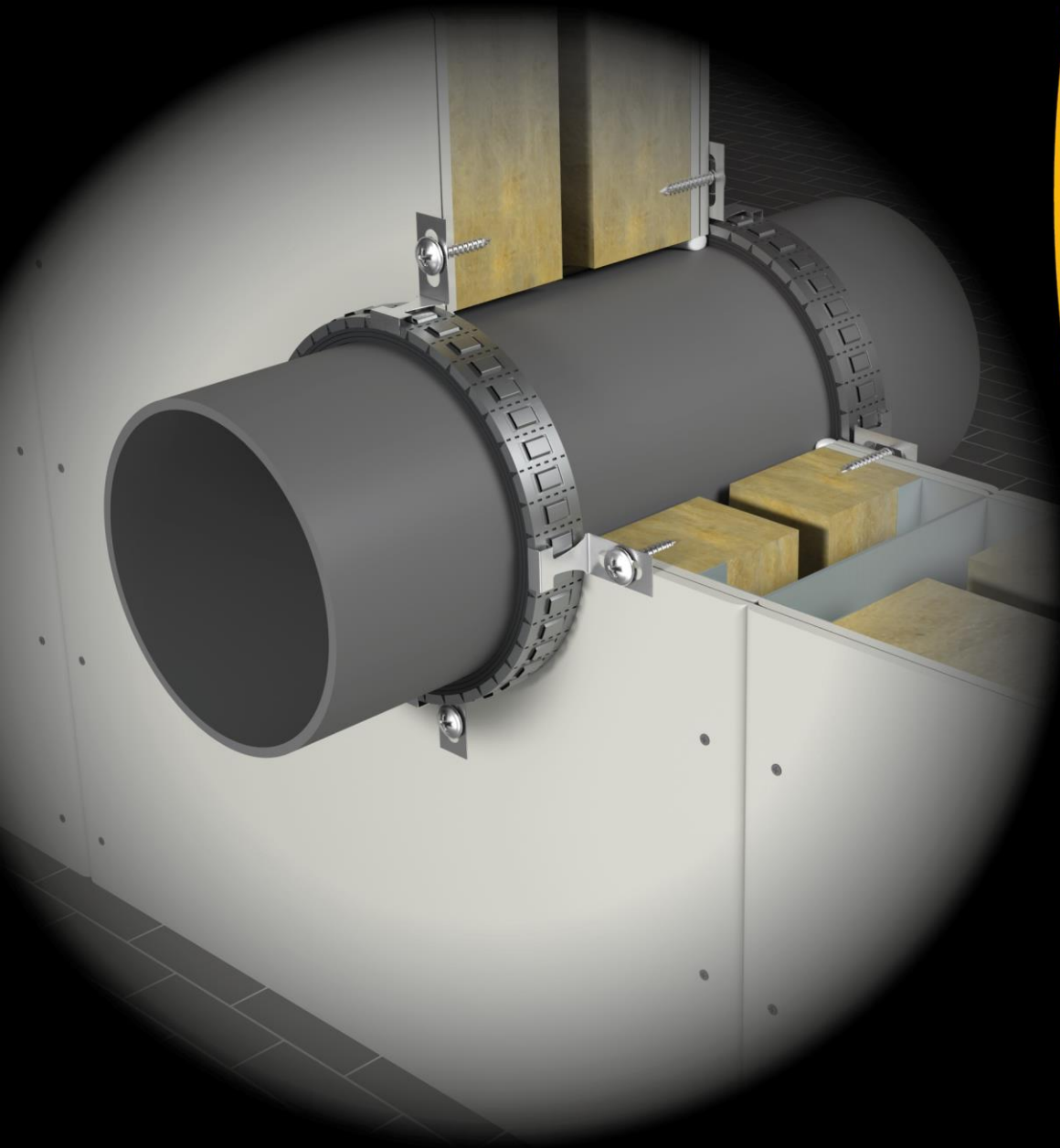


# INTU FR COLLAR L SLIM

*Intumescent pipe collar roll*

TDS Technical Data Sheet



## Content

|                                                           |           |
|-----------------------------------------------------------|-----------|
| <b>Product Specification</b>                              | <b>3</b>  |
| ➔ PRODUCT DESCRIPTION                                     |           |
| ➔ APPLICATION                                             |           |
| ➔ AVAILABILITY                                            |           |
| ➔ TRANSPORT AND STORAGE                                   |           |
| ➔ COMPLIANCE                                              |           |
| <b>Consumption Tables</b>                                 | <b>4</b>  |
| ➔ INSTALLATION METHOD                                     |           |
| ➔ APPROXIMATE CONSUMPTION                                 |           |
| <b>Fire Resistance Classification</b>                     | <b>5</b>  |
| ➔ COMBUSIBLE pipes                                        | 5         |
| ➔ COMBUSIBLE pipes with insulation and PRE-ISOLATED pipes | 10        |
| ➔ NON-COMBUSIBLE pipes with insulation                    | 11        |
| ➔ BUNDLE of pipes                                         | 12        |
| <b>Solution Details</b>                                   | <b>13</b> |



# INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

**INTUSEAL®**  
passive fire protection manufacturer

## ➔ 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:

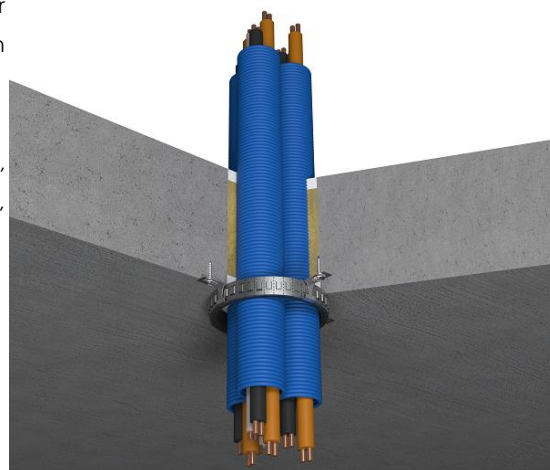
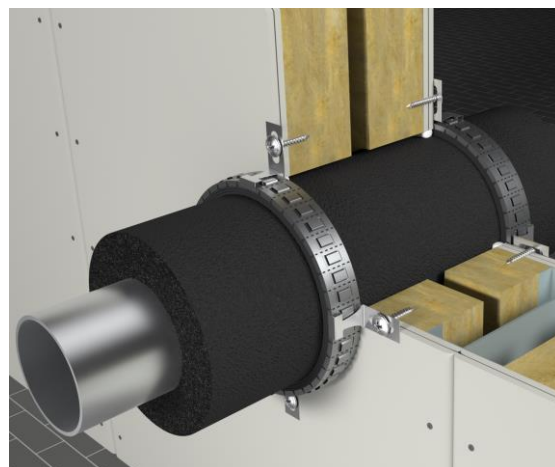
The wall must be minimum thickness 100 mm. Must be made of concrete, reinforced concrete, concrete blocks, cellular concrete, ceramic brick (solid, hollow or lattice) or silicate brick (solid or hollow) with minimum density 600 kg/m<sup>3</sup>.

### 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/m<sup>3</sup>.

## ➔ 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

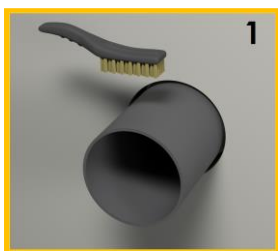
# INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

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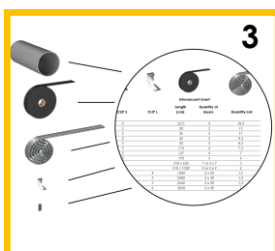
## → INSTALLATION METHOD



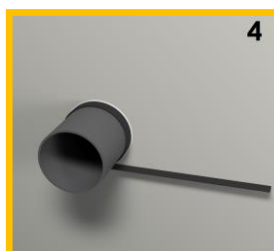
Clean the installations from dust, dirt and grease.



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



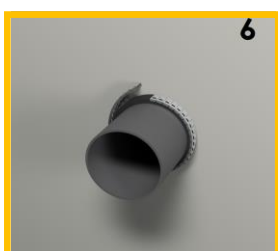
See the table below. Select and cut the appropriate length of the intumescent insert.



Wrap the intumescent insert on the pipe.



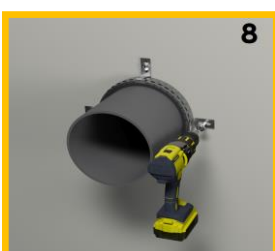
Select and cut the appropriate length of steel casing for the type of installation to be protected.



Put the casing on the intumescent insert.



Choose the appropriate clips with table below.



Attach the collar to the partition with steel screws.



Complete declaration and paste it next to the penetration.

## → APPROXIMATE CONSUMPTION of INTU FR COLLAR L SLIM



Intumescent insert



| 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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Intumescent pipe collar roll

TDS Technical Data Sheet

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## → FIRE RESISTANCE CLASSIFICATION

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

| COMBUSTIBLE pipe in FLEXIBLE / RIGID WALLS / FLOORS |               |                     |                          |                 |                                      |                       |          |
|-----------------------------------------------------|---------------|---------------------|--------------------------|-----------------|--------------------------------------|-----------------------|----------|
| Pipe type                                           | Configuration | Max diameter Ø (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      |
|                                                     |               |                     | 4,0                      | 2               | 2 x 18                               | WALL FLEXIBLE / RIGID | 120      |
|                                                     |               |                     | 9,5                      | 2               | 2 x 18                               | FLOOR                 | 120      |
|                                                     |               |                     | 14,6                     | 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      |
|                                                     |               |                     | 9,5                      | 1               | 1 x 18                               | WALL FLEXIBLE / RIGID | 60       |
|                                                     |               |                     |                          | 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 Ø (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 |
|                                            | U/C           | 200             | 11,9                     |      | 2 x 20                               | 90       |     |
| PP-R                                       | U/C           | 20              | 2,3                      | 3,4  | 2                                    | 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 |

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

# INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

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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 / AI / PE-X                           | U/C           | 20              | 2,0                      |      | 4                                    | 120          |     |
|                                            | U/C           | 63              | 6,0                      |      | 4                                    | EI 30, EI20  |     |
| PE-RT/AI/PE-RT                             | U/C           | 20              | 2,0                      |      | 4                                    | 120          |     |
|                                            | U/C           | 63              | 6,0                      |      | 4                                    | EI 30, EI20  |     |
|                                            | U/C           | 75              | 7,5                      |      | 4                                    | EI 30, EI20  |     |
| PE-Xa                                      | U/C           | 20              | 2,0                      |      | 4                                    | 120          |     |
|                                            | U/C           | 63              | 5,8                      |      | 4                                    | 120          |     |
| PE-Xb/AI/PE-Xb                             | U/C           | 20              | 2,0                      |      | 4                                    | EI 90, EI20  |     |
|                                            | U/C           | 26              | 3,0                      |      | 4                                    | EI 90, EI20  |     |
| 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      |

# INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

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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          |      |
|                                                     | U/C           | 315             | 7,7                      |      | 2 x 30                            | 30           |      |
| 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

# INTU FR COLLAR L SLIM

Intumescent pipe collar roll

TDS Technical Data Sheet

**INTUSEAL®**  
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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       |  |



# INTU FR COLLAR L SLIM

Intumescent pipe collar roll

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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                        |
|                                                                                    |                          |                          | 1 x INTU FR UNIBOARD 2S | 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

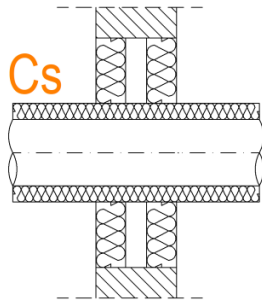
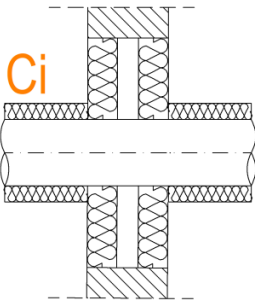
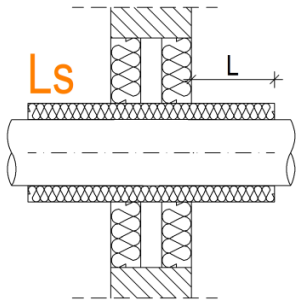
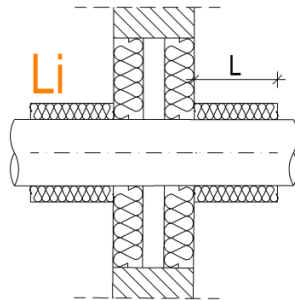
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| COMBUSTIBLE pipe in FLOORS (partition filling by INTU FR UNIBOARD) |                          |                          |                         |                                             |                                      |                            |
|--------------------------------------------------------------------|--------------------------|--------------------------|-------------------------|---------------------------------------------|--------------------------------------|----------------------------|
| 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                                    | 120                        |
|                                                                    |                          |                          | 1 x INTU FR UNIBOARD 2S | Any*                                        |                                      | 90                         |
|                                                                    | ≤ 110                    | 4,2 – 10,0               | 2 x INTU FR UNIBOARD 1S | Top and bottom                              | 10                                   | 120                        |
|                                                                    |                          |                          | 1 x INTU FR UNIBOARD 2S | Any*                                        |                                      | 90                         |
|                                                                    | ≤ 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

| Pipe insulation configuration                                                                                            |                                                                                                                            |                                                                                                                       |                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Continuous                                                                                                               |                                                                                                                            | Local                                                                                                                 |                                                                                                                          |
|  <p>Cs</p> <p>Continued sustained</p> |  <p>Ci</p> <p>Continued interrupted</p> |  <p>Ls</p> <p>Local sustained</p> |  <p>Li</p> <p>Local interrupted</p> |

| 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

Intumescent pipe collar roll

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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 <sup>(1)</sup>         | 2 x 14                               | 120                        |
| Geberit DB 20                                                              | 110                  | 6,0                      | 13 <sup>(1)</sup>         | 2 x 14                               | 90                         |
| PP                                                                         | 110                  | 2,7                      | 9 <sup>(2)</sup>          | 12                                   | 90                         |
| PVC-U                                                                      | 110                  | 3,2                      | 9 <sup>(2)</sup>          | 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                        |

<sup>(1)</sup> Kaiflex ST (FEF) insulation, pipe insulation configuration Cs

<sup>(2)</sup> 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

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## → 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) | El 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) | El 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) | El class             |       |
|                                                                           |               |                                       |                          |                                  |              |                                      | FLEXIBLE/RIGID WALLS | FLOOR |
| Maximum in one bundle (3 x pipes and 1 x cable)                           | Copper        | ≤ 12,7                                | 0,8                      | 9 <sup>1)</sup>                  | C/U          | 4                                    | El 60, E 120         | 120   |
|                                                                           | Copper        | ≤ 22,3                                | 1,0                      | 9 <sup>1)</sup>                  | C/U          |                                      |                      |       |
|                                                                           | PVC           | ≤ 25                                  | 1,0                      | -                                | U/U          |                                      |                      |       |
|                                                                           | Cable         | 4 x 1,5 mm <sup>2</sup>               | -                        | -                                | -            |                                      |                      |       |
| Maximum in one bundle (3 x pipes and 1 x cable)                           | Copper        | ≤ 12,7                                | 0,8                      | 9 <sup>2)</sup>                  | C/U          | 4                                    | El 60, E 120         | 120   |
|                                                                           | Copper        | ≤ 22,3                                | 1,0                      | 9 <sup>2)</sup>                  | C/U          |                                      |                      |       |
|                                                                           | PVC           | ≤ 25                                  | 1,0                      | -                                | U/U          |                                      |                      |       |
|                                                                           | Cable         | 4 x 1,5 mm <sup>2</sup>               | -                        | -                                | -            |                                      |                      |       |

<sup>1)</sup> Kaiflex ST (FEF) insulation, pipe insulation configuration Cs

<sup>2)</sup> 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) | El 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

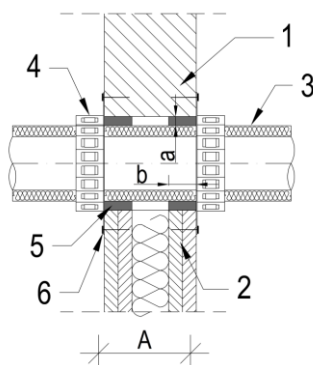
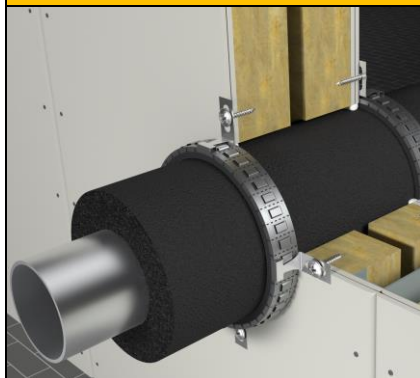
Intumescent pipe collar roll

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## ➔ SOLUTION DETAILS

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



**Fig. 1 Penetration seal in wall**

1 – rigid wall with thickness  $A \geq 100$  mm

2 – flexible wall with thick.  $A \geq 100$  mm

3 – steel or cast iron pipe  $\varnothing \leq 168,3$  mm in insulation of  $9 \pm 50$  mm thickness

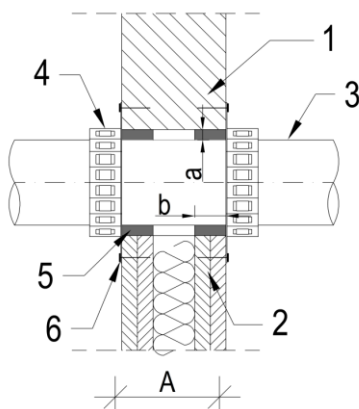
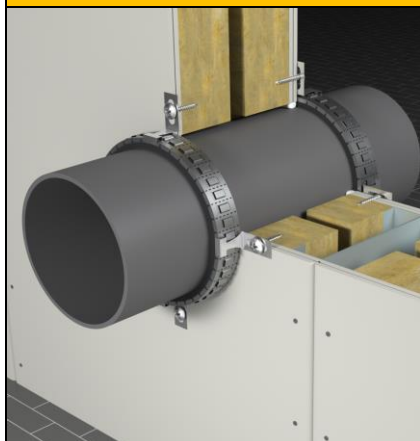
4 – INTU FR COLLAR L SLIM fire protection collars installed on both sides of the wall

5 – gap around pipe edge filled with INTU FR MASTIC intumescent acrylic mass:

width  $0 \leq a \leq 20$  mm, depth  $b = 25$  mm

6 – screw  $\varnothing 6 \times 50$  mm

### COMBUSTIBLE PIPE penetration seal in FLEXIBLE/RIGID WALLS



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

1 – rigid wall with thickness  $A \geq 100$  mm

2 – flexible wall with thick.  $A \geq 100$  mm

3 – combustible pipe  $\varnothing \leq 110$  mm

4 – INTU FR COLLAR L SLIM

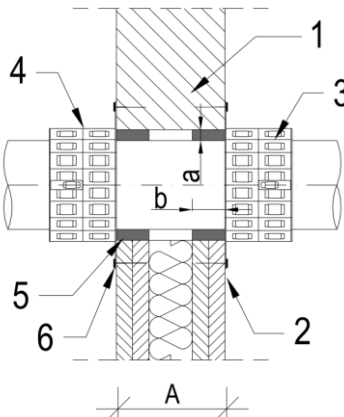
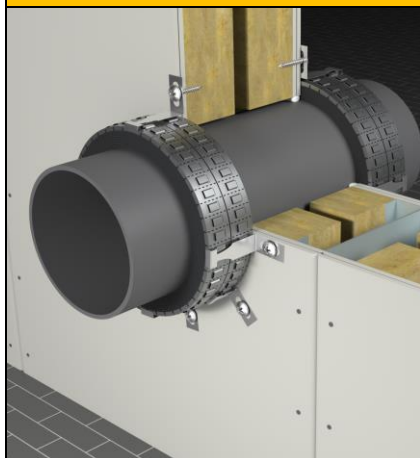
single fire protection collars installed on both sides of the wall

5 – gap around pipe edge filled with

INTU FR MASTIC intumescent acrylic mass: width  $0 \leq a \leq 20$  mm, depth  $b = 25$  mm

6 – screw  $\varnothing 6 \times 50$  mm

### COMBUSTIBLE PIPE penetration seal in FLEXIBLE/RIGID WALLS



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

1 – rigid wall with thickness  $A \geq 100$  mm

2 – flexible wall with thick.  $A \geq 100$  mm

3 – combustible pipe  $\varnothing > 110$  mm and pre-isolated 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  $0 \leq a \leq 20$  mm, depth  $b = 25$  mm

6 – screw  $\varnothing 6 \times 50$  mm



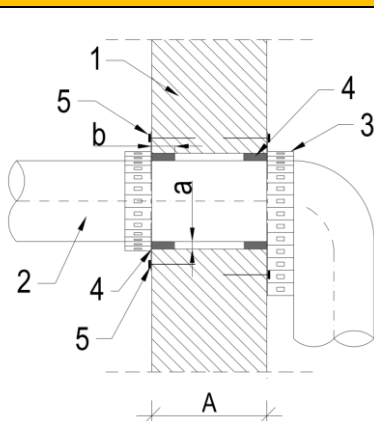
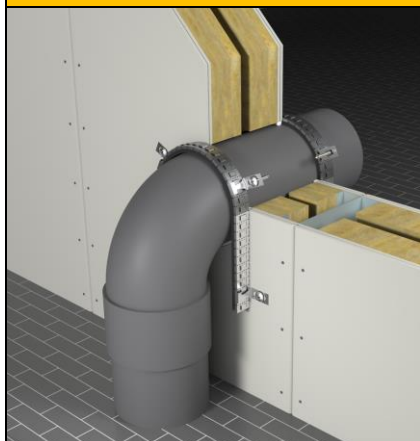
# INTU FR COLLAR L SLIM

Intumescent pipe collar roll

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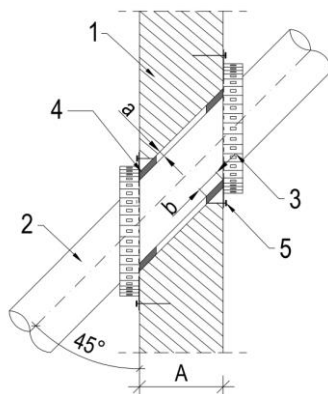
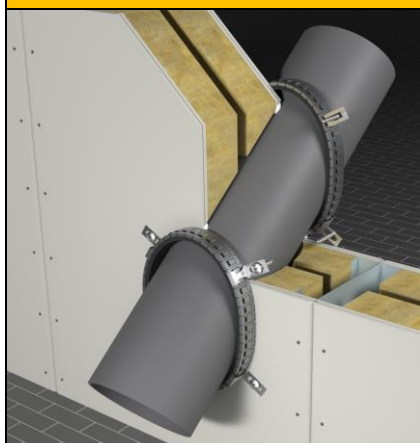
## COMBUSTIBLE PIPE WITH ELBOW penetration seal in FLEXIBLE/RIGID WALLS



**Fig. 3a Penetration seal in wall**

- 1 – rigid wall  $A \geq 100$  mm
- 2 – combustible pipe  $\varnothing \leq 110$  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  $0 \leq a \leq 20$  mm depth  $b = 25$  mm
- 5 – screw  $\varnothing 6 \times 50$  mm

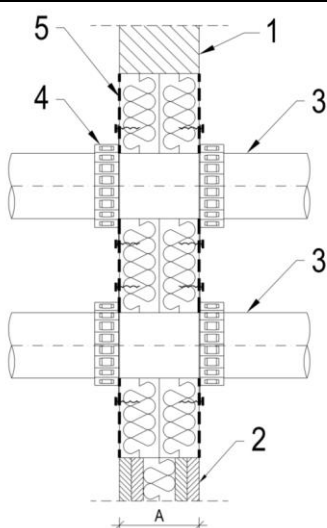
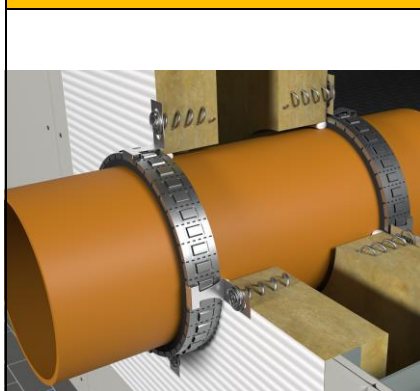
## COMBUSTIBLE PIPE at an angle of 45° penetration seal in FLEXIBLE/RIGID WALLS



**Fig. 3b Penetration seal in wall**

- 1 – rigid wall  $A \geq 100$  mm
- 2 – combustible pipe  $\varnothing \leq 110$  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  $0 \leq a \leq 20$  mm depth  $b = 25$  mm
- 5 – screw  $\varnothing 6 \times 50$  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  $A \geq 100$  mm
- 2 – flexible wall with thickness  $A \geq 100$  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.  $150 \text{ kg/m}^3$ , 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

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

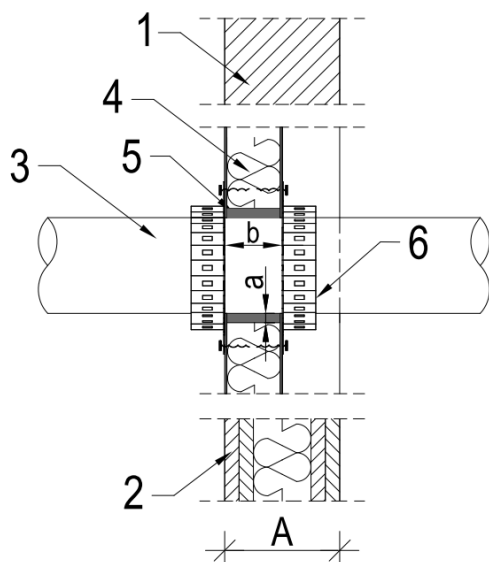


Fig. 5 Penetration seal in wall (1 x INTU FR UNIBOARD 2-S)

1 – rigid wall with thickness  $A \geq 100$  mm

2 – flexible wall with thickness  $A \geq 100$  mm

3 – combustible pipe  $\varnothing \leq 110$  mm

4 – 1 x INTU FR UNIBOARD 1-S thickness of 50 mm or mineral wool with density min.  $150 \text{ kg/m}^3$ , 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

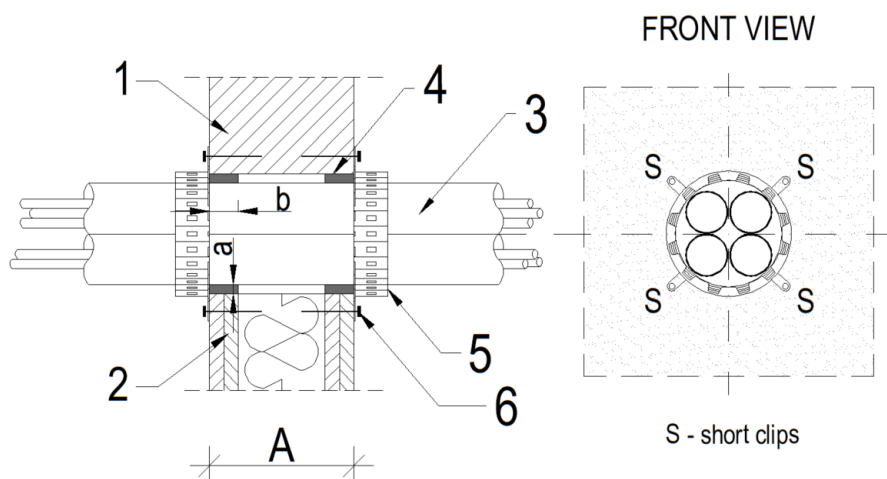
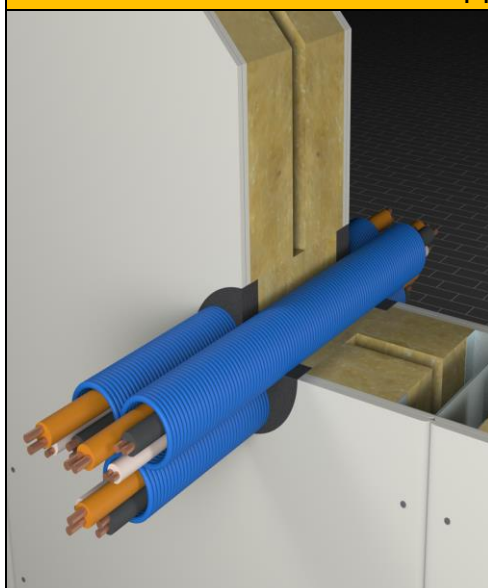


Fig. 6 AROT pipes / bundles of AROT pipes in FLEXIBLE / RIGID WALLS

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

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

| Flange on the <b>UNEXPOSED</b> side of the partition | Flange on the <b>EXPOSED</b> side of the partition |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                      |                                                    | <p><b>Fig. 7 Penetration seal in wall with one flange</b></p> <p>1 – rigid wall with thickness <math>A \geq 100</math> mm<br/>                 2 – combustible pipe <math>\varnothing \leq 110</math> mm<br/>                 3 – gap around pipe edge filled with <b>INTU FR MASTIC</b> intumescent acrylic mass: width <math>0 \leq a \leq 20</math> mm depth <math>b = 25</math> mm<br/>                 4 – <b>INTU FR COLLAR L SLIM</b> fire protection collars installed on unexposed side or exposed side of the wall<br/>                 5 – screw <math>\varnothing 6 \times 50</math> mm</p> |

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

|  |                                          |
|--|------------------------------------------|
|  | <p>FRONT VIEW</p> <p>S - short clips</p> |
|--|------------------------------------------|

**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/m<sup>3</sup>, 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

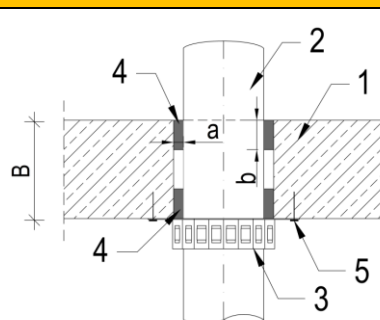
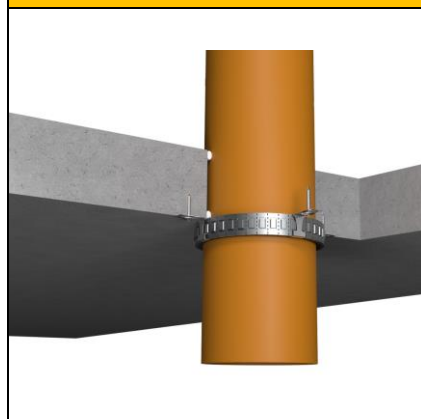


Fig.9 Penetration seal in floor (single collar)

- 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

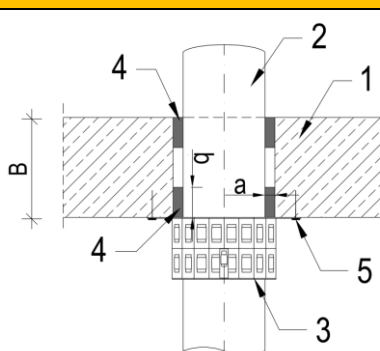
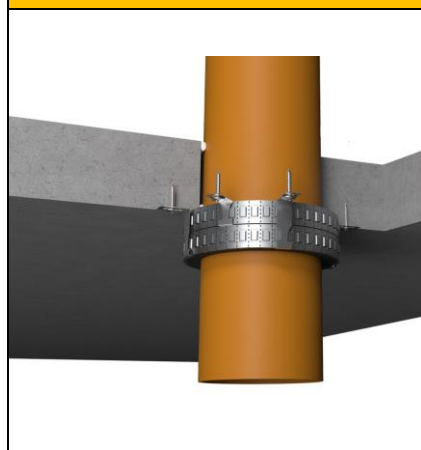


Fig.10 Penetration seal in floor (double collar)

- 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

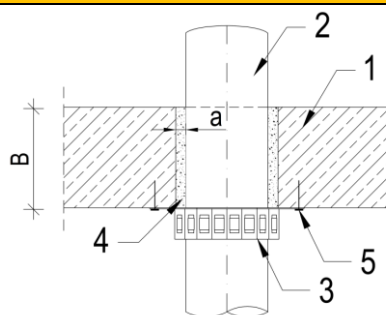


Fig.11 Penetration seal in floor (single collar) with cement mortar

- 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 mortar**: width  $0 \leq a \leq 30$  mm
- 5 - screw  $\varnothing 6 \times 50$  mm

## NON-COMBUSTIBLE PIPE pipe penetration seals in FLOORS

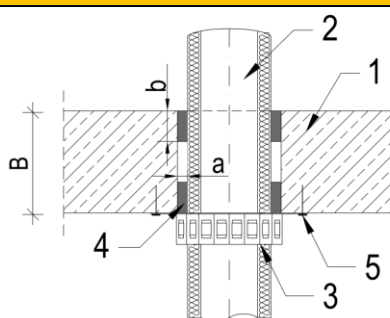


Fig.12 Penetration seal in floor

- 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

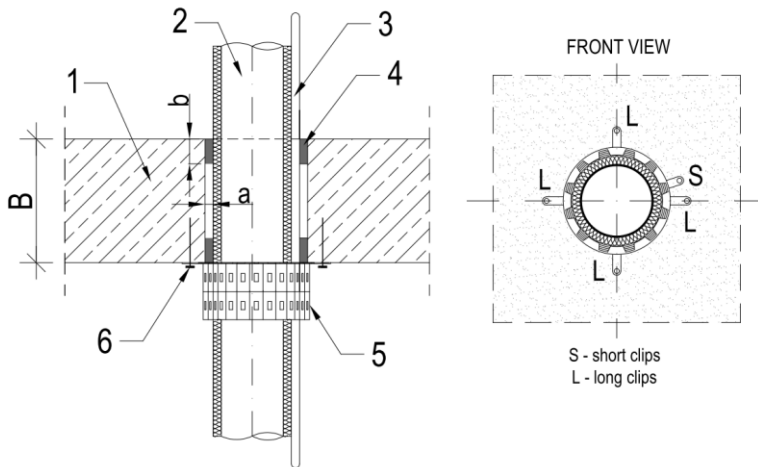
# INTU FR COLLAR L SLIM

Intumescent pipe collar roll

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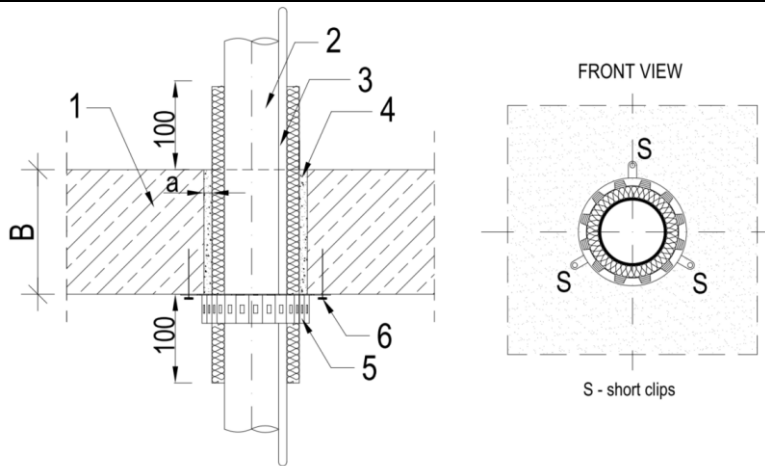
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## COMBUSTIBLE pipe with insulation and with / without heater cable in FLOORS



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

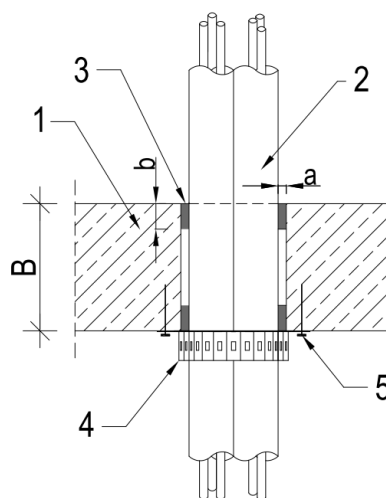
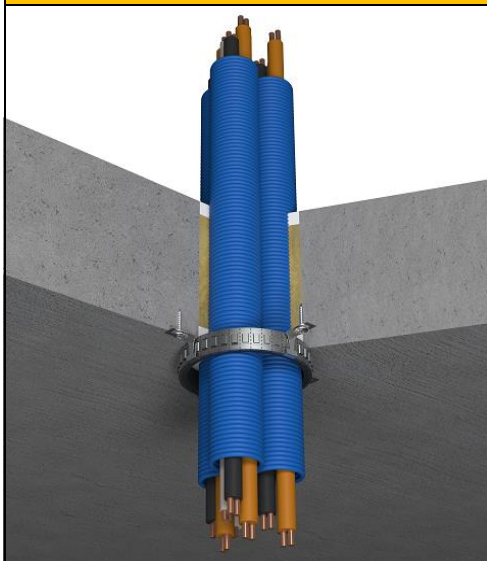
- 1 – rigid floor  $B \geq 150$  mm
- 2 – combustible pipe with FEF insulation
- 3 – heater cable
- 4 – gap around pipe edge filled with **INTU FR MASTIC** intumescent acrylic mass: width  $0 \leq a \leq 20$  mm depth  $b = 25$  mm
- 5 – **INTU FR COLLAR L SLIM** double (2 rows) fire protection collars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

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

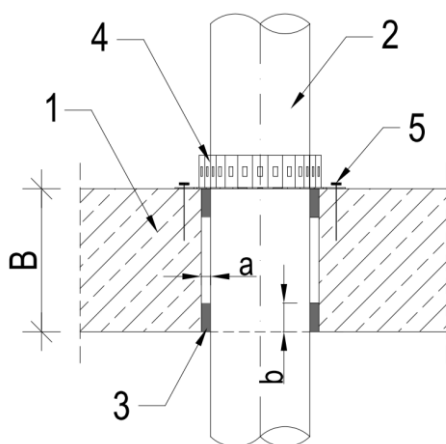


Fig.16 Penetration seal in floor (single collar)

- 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

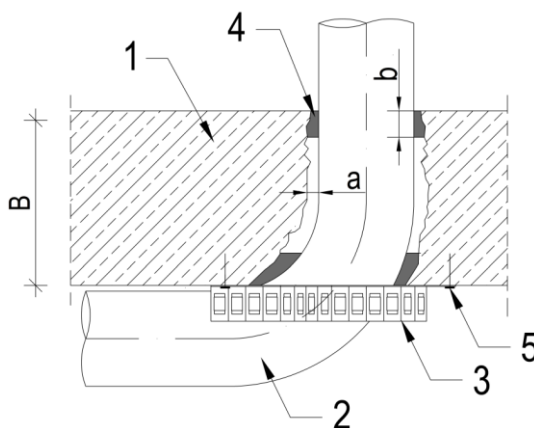
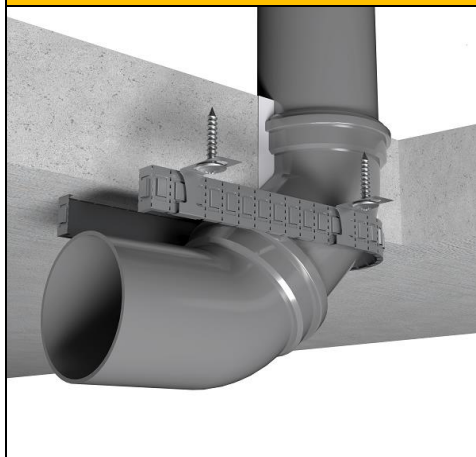


Fig. 17 Combustible pipe with elbow penetration seal in floor

- 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

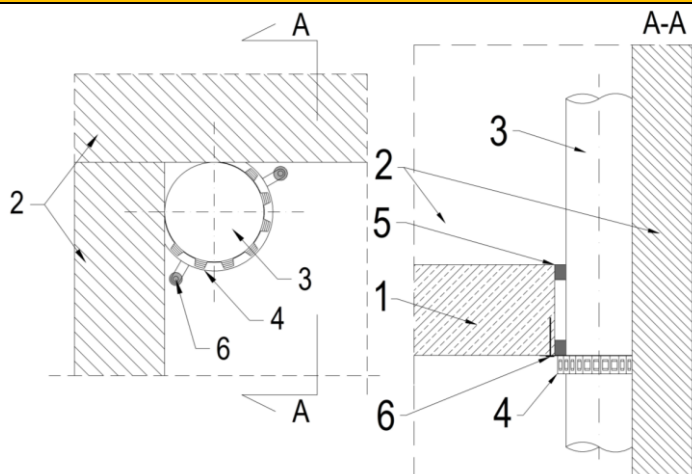


Fig. 18 Combustible pipe with elbow penetration seal in wall

- 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

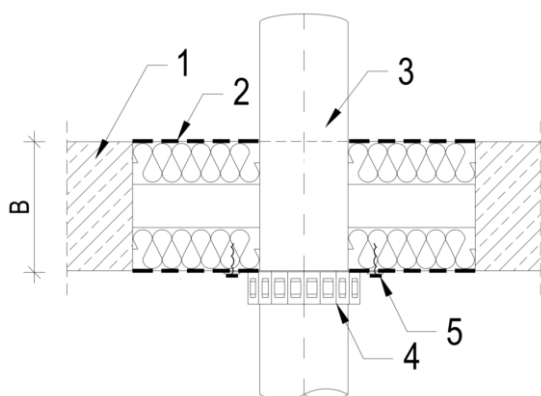
# INTU FR COLLAR L SLIM

Intumescent pipe collar roll

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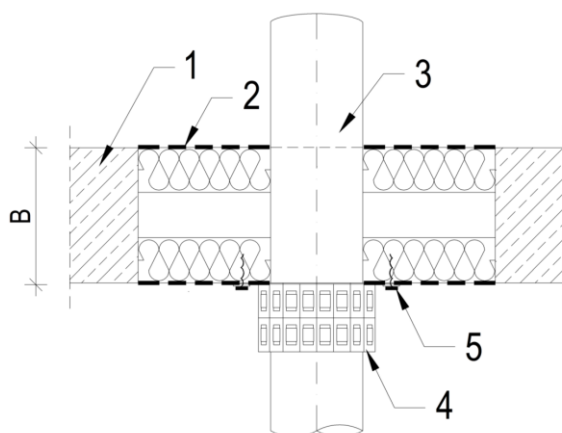
## COMBUSTIBLE pipe in FLOORS (partition filing by 2 x INTU FR UNIBOARD 1-S)



**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/m<sup>3</sup>, thickness min. 2 x 50 mm coated with INTU FR UNICOAT P paint with a dry film minimum thickness 0,5 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 – wires to mineral wool

Fill the gaps with fireproof **INTU FR MASTIC** acrylic mass

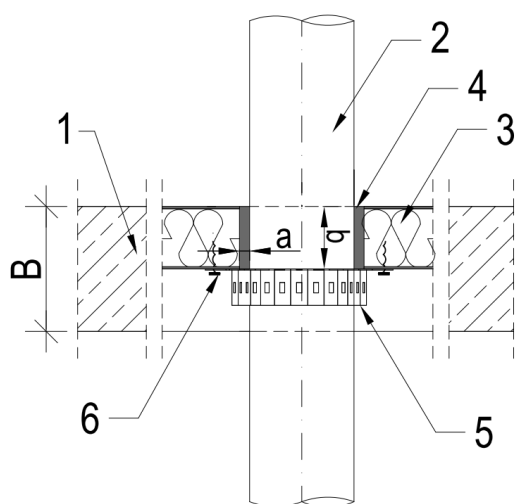


**Fig. 20 Combustible pipe penetration seal in floor (2 x INTU FR UNIBOARD 1-S)**

- 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/m<sup>3</sup>, thickness min. 2 x 50 mm coated with INTU FR UNICOAT P paint with a dry film minimum thickness 0,5 mm
- 3 – combustible 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 – combustible pipe  $\varnothing \leq 110$  mm
- 3 – 1 x INTU FR UNIBOARD 2-S thickness of 50 mm or mineral wool with density min. 150 kg/m<sup>3</sup>, 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