System Cable Tube ML

Cable penetration seal

System Cable Tube ML – designed to seal cables and electrical installation conduits in raised floors. Also for penetrations in classified walls, under fire doors and in plasterboard walls.

Maximum fire resistance class EI 120 in accordance with EN 13501-2 and ETA-16/0016

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1. Preliminary remarks / overview

1.1 Target group

The installation instructions are intended solely for personnel trained in fire protection.

1.2 Use of the instructions

Before starting work, read through these installation instructions completely once. Pay particular attention to the following safety instructions.

The authorisation holder assumes no liability for damage caused by failure to comply with these instructions.

Pictorial representations serve as examples only. Installation results may differ in appearance.

Unless stated otherwise, all lengths are specified in mm.

All information in this document represents the state of the art at the time of writing or the current version of the standard.

Upon request, flamro will be pleased to provide the relevant legal and technical framework and manufacturer specifications for each individual case.

1.2.1 Safety instructions

The safety data sheets must be consulted when processing the penetration seal components.

Personal protective equipment:

	Wear protective clothing and non-slip shoes.
	Use safety goggles, safety glasses.
	Use protective mask with P2 particle filter in case of short-term or low level exposure. For intensive or prolonged exposure use a breathing apparatus with independent air supply. Use breathing protection in compliance with international/national standards.
	Use chemically resistant gloves. Recommended materials: butyl rubber, nitrile rubber, fluorinated rubber, PVC.

These installation instructions are based on:

ETA-16/0016 product for cable penetration seals in conjunction with

Novasit COMBI 90 in accordance with Z-19.53-2482

Flammotect COMBI 90 in accordance with Z-19.53-2329

An extension is applied for:

GZ III 29.1.19.15-48/18 PYRO-SAFE Novasit COMBI 90

GZ III 28.1.19.15-9/15 PYRO-SAFE Flammotect/Sibralit COMBI 90

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1.3 Field of application

The suitability for use of the System Cable Tube ML has been assessed in accordance with ETAG 026-2 in terms of the „Reaction to fire“, „Fire resistance“, „Release of dangerous substances“ and „Durability and serviceability“ product characteristics.

Reaction to fire

The ablative component FLAMMOTECT-A and the intumescent material DG-CR 1.5 SK meet class E for reaction to fire in accordance with EN 13501-1. The mineral fibre boards Hardrock 040 meet class A1 for reaction to fire in accordance with EN 13501-1.

Fire resistance

System Cable Tube ML meets the maximum requirements of Class EI 120. When installed in walls with a lower fire resistance rating, the fire resistance rating of the penetration is also reduced to that of the fire resistance rating of the wall.

Release of dangerous substances

The ablative component FLAMMOTECT-A and the intumescent fire protection fabric DG-CR SK do not contain any substances identified as dangerous in the list of the European Commission. The mineral fibre board Hardrock 040 does not contain any dangerous substances listed in Directive 67/548/EC or Regulation (EC) No. 1272/2008 or the Indicative List on Dangerous Substances.

Durability and serviceability

The ablative component FLAMMOTECT-A and the intumescent fire protection fabric DG-CR SK meet the requirements of type X for durability in accordance with EOTA TR 024.

System Cable Tube ML can be subjected to the conditions of interior rooms with and without exposure to moisture, with no substantial changes to the fire protection characteristics to be expected.

1.4 Building elements

Plasterboard walls with steel substructure

In stud design and double-sided cladding with at least 2 layers of 12.5 mm cement or gypsum-bound building boards with a reaction to fire of Class A1 or A2 according to EN 13501-1.

The walls must be classified for the required fire resistance rating in accordance with EN 13501-2.

Applicability of DIN 4102

Ratings in accordance with DIN 4102-2 and in accordance with DIN EN 13501-2, DIN EN 13501-3 and DIN EN 13501-5 may alternatively be used as proof of the required fire resistance rating (Building Rules List A Part 1 Amendment 0.1).

Solid walls

made of masonry, concrete, reinforced concrete or aerated concrete with a density of ≥ 450 kg/m³.

The walls must be classified for the required fire resistance rating a in accordance with EN 13501-2.

1.4.1 Raised floors

- Installation is possible in classified walls, also under fire doors.
- No requirements regarding the fire resistance rating of the raised floor. Only the floor panels are required to be non-combustible.
- Required height below the raised floor: 8 cm to 15 cm.

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2. Fire resistance classes

2.1 Walls

Installation in walls			
Service	**Measure**	**Fire resistance class**	**Source***
Cables, cable bundles			
Cables Ø ≤ 21 mm		**EI 120**	1
Cables Ø ≤ 50 mm		**EI 90 / E 120**	1
Cable bundles with cables Ø ≤ 21 mm, up to 100 % occupation		**EI 120**	1
Electrical installation conduits (EIC), flexible, made of plastic			
EIC bundles with EIC Ø ≥ 16 mm – ≤ 32 mm with/without cables Ø ≤ 21 mm, up to 100 % occupation		**EI 120**	1

*Classification report no..: 1 → KB-210006707

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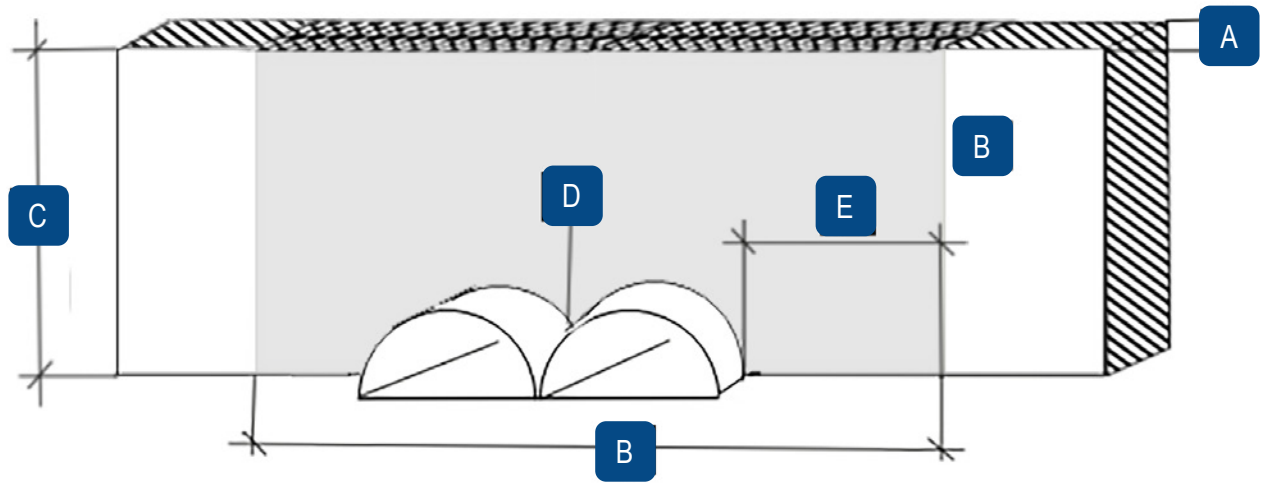
3. Thicknesses / penetration seal distances

Dimensions for individual configuration		
Pos.		**Wall [mm]**
A	Thickness of building element	≥ 100*
B	Maximum dimension of opening (W × H)	2000 × 80 – 2000 × 150
C	Distance from base floor to lower edge of raised floor	80–150
D	Horizontal spacing for grouped installations	0
E	Distance to reveal	≥ 15

* Minimum strength of raised floor panels ≥ 40 mm



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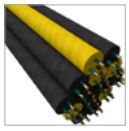
4. Allowed services

4.1 Cables / cable bundles / electrical installation conduits

Electrical cables and lines of all types (including fibre optic cables)

The maximum size of the overall cross-section of the individual cables depends on the required fire resistance rating.



Cable bundles

with individual cables Ø ≤ 21 mm.

Electrical installation conduits, single, made of plastic

Ø ≤ 32, cable Ø ≤ 21 mm

Electrical installation conduits, bundled, made of plastic

bundled up to 100% occupation of the tube Ø, with or without cables, cable Ø ≤ 21 mm

5. Spacing distances

- The Cable Tubes can be completely occupied with cables, cable bundles or electrical installation conduits.
- Cables, cable bundles and electrical installation conduits may adjoin each other as well as the inside wall of the CT ML Cable Tube.

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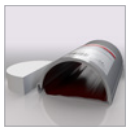
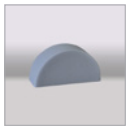
6. Featured products



Cable Tube CT ML

Ø 120 mm
length 200 mm
Art. no. 01272201



Melamine resin stopper set, spare stoppers
Ø 120 mm
1/20 pcs. – Art. no. 01272996

FLAMMOTECT- A Coating
12.5 kg pail – Art. no. 01155131

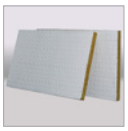
FLAMMOTECT- A Solid emulsion
5 kg pail – Art. no. 01155121
12.5 kg pail – Art. no. 01155136

FLAMMOTECT- A Filler
12.5 kg pail – Art. no. 01155134
310 ml cartridge – Art. no. 01155115

NOVASIT BM Fire protection mortar
20 kg bag – Art. no.: 01161000
10 kg pail – Art. no.: 01161010

NOVASIT K2 Fire protection mortar
25 kg bag – Art. no. 01163000

GFM Fire protection mortar
25 kg bag – Art. no. 01167000



Mineral fibre board

Pre-coated on one side with FLAMMOTECT-A
Dimensions 1000 × 600 × 50 mm
Box with 4 pcs. – Art. no. 01181155

Mineral wool A1

Reaction to fire class A1 in acc. with EN 13501:1
Melting point ≥ 1000 °C
10 kg bag – Art. no. 01183000

Recommended tools for mineral fibre board seals
filler, brush, masking tape,
mineral wool knife and saw,
if required: plastic film, folding ladder,
lock wire pliers, steel wire (galvanised)

Recommended tools for mortar seals

Mixing container – mortar cask
Mixing paddle
Cover sheeting
Masonry tools (round dippers)
Wire binding pliers, size 10 key or ratchet
steel wire

6.1 Declarations of Performance

The Declarations of Performance for the featured products are available for download on our website:
https://svt-global.com/downloads

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7. Design variants

- The cable tube may be used to close openings without installations (reserve penetration for subsequent configurations).
- When installing in plasterboard walls, it may be necessary to clad the reveal.
- When installing in building elements with a lower fire resistance rating, the minimum thicknesses specified in these instructions must nonetheless be observed. If required, the penetration seal must be labelled with the reduced fire resistance rating.
- For further specifications the European Technical Assessment ETA-16/0016 is binding.

Design variants in plasterboard walls

Design variants in solid walls

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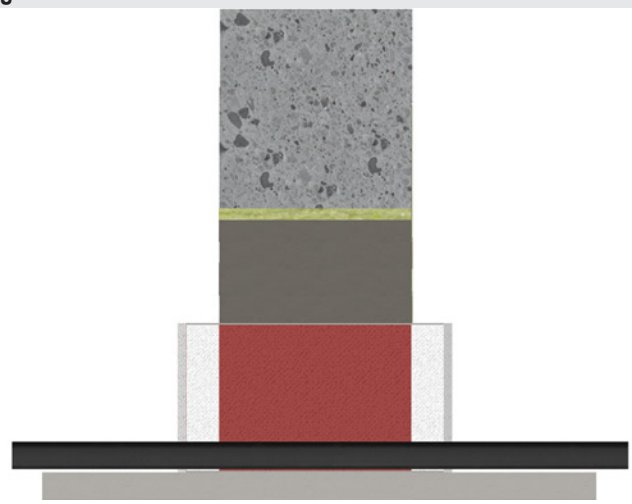
8. Fire protection measures

8.1 Cables / cable bundles / electrical installation conduits (EIC)

Design for wall installations



Specifications in mm

Service	Measure	Fire resistance class
Cables, cable bundles		
Cables Ø ≤ 21 mm	–	**EI 120**
Cables Ø ≤ 50 mm	–	**EI 90 / E 120**
Cable bundles, up to 100 % occupation, with cables Ø ≤ 21 mm	–	**EI 120**
EIC, flexible, made of plastic		
EIC bundles, up to 100 % occupation, with EIC Ø ≥ 16 mm – Ø ≤ 32 mm with/without cables Ø ≤ 21 mm	–	**EI 120**

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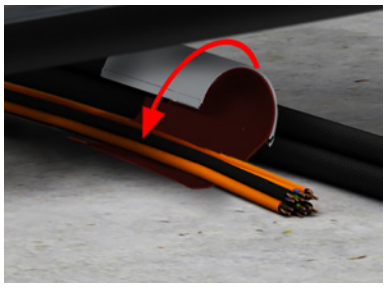
9. Installation steps

9.1 Installation in solid walls

1. Install Cable Tube CT ML. The bottom flap must be placed below the cables/pipes. To secure the cable tube in position we recommend to attach it with perforated metal tape on the floor.

2. Lift the cables/pipes slightly and place the flap below them. Remove the masking paper from the flap.

3. Fold the Cable Tube CT ML carefully over the cables/pipes. Make sure that all of the cables/pipes are completely underneath the half shell.



4. The residual gap can be completely filled with NOVASIT BM, NOVASIT K2 or GFM.

5. Prepare the mortar as specified on the packaging and apply it in such a way that it connects tightly and firmly to the sides of the building element. On the top, approx. 2 cm distance to the raised floor must remain as an expansion joint.

6. After appropriately bonding the expansion joint, stuff it firmly with mineral wool.

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7. Cut the stoppers to size.

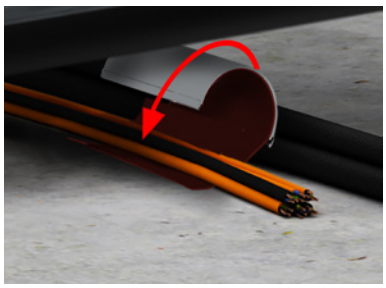
8. Insert stopper on one side and seal it with FLAMMOTECT-A. Fill EIC openings with mineral wool and seal them with FLAMMOTECT-A.

9.2 Installation in plasterboard walls

1. Reveal cladding is necessary. To secure the cable tube in position we recommend to attach it with perforated metal tape on the floor.

2. Lift the cables/pipes slightly and place the flap below them. Remove the masking paper from the flap.

3. Fold the Cable Tube CT ML carefully over the cables/pipes. Make sure that all of the cables/pipes are completely underneath the half shell.



4. Install Cable Tube CT ML with the bottom flap underneath the cables/pipes.

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5. Cut the mineral fibre board to size. On top approx. 2 cm distance to the raised floor can remain as an expansion joint.

6. Coat the edges of the mineral fibre board with FLAMMOTECT-A and place the board tightly into position. Ensure that the coated sides of the board are facing outside.

7. If necessary fill the residual gap and the expansion joint tightly with mineral wool. Cut the stoppers to size and insert them on one side.

8. Seal the stoppers with FLAMMOTECT-A. Fill EIC openings with mineral wool and seal them with FLAMMOTECT-A (dry film thickness ≥ 1 mm).

9. Final coating with FLAMMOTECT-A.