Cable Trunking System Installation and Operation Manual

Contents

1. General

Cable trunking installation is to comply with the standard SFS 6000.

INSTAL cable trunkings are intended for the installation of power supply, telecommunications, and data cables, as well as for installation of the related mounting boxes.

The IP rating of cable trunkings (with covers closed) is IP 41. The cable trunkings can also be installed in humid premises (see page 10). Products complying with valid installation regulations and standards must be used for the cables and mounting boxes. The conduits and cables are installed in the trunking interior. Mounting boxes are installed to the trunking cover opening. After the installation, the trunking is closed using covers provided for the system.

Where applicable, other piping and components related to building service and other systems can also be installed in the trunkings. The compatibility of other than electrical products with cable trunking installation must be checked with the suppliers of the relevant systems and with Meka Pro Oy.

2. Technical specifications

2.1 Materials used:

- Aluminium components: extruded aluminium
- Plastic components: injection moulded plastic
- Steel components (joint): hot-dip galvanized sheet steel
- Painted products: powder-coated (electrostatic powder-coating); standard colour: white, RAL9010
- Anodized products: natural colour anodized (EN 000)

2.2 Electrical specifications:

- Nominal voltage 230/400 V
- Protection class IP41 (with covers installed)
- Longitudinal impedance
    - Trunking frames 0.018 mΩ/m (1.36 mV, I=25A)
    - Trunking frames, across joint 0.232 mΩ (5.80 mV, I=25A)
    - From earthing coupler to trunking/cover 0.672 mΩ (16.8 mV, I=25A)

2.3 Approvals:

- The product complies with the standard EN 50085-2-1
- The product complies with the ROHS (Restriction of Hazardous Substances) Directive 2002/95/EC
- The product complies with the safety requirements of the Low Voltage Directive 2006/95/EC
- FI certificate
- S certificate
- N certificate
- Demko certificate
- CE marking

2.4 Installation and operating temperatures

- storage and transport temperature -45°C...+50°C
- installation temperature -25°C...+50°C
- maximum operating temperature +90°C

2.5. Cable capacity

The space available for the cables out of the total cross-sectional area of the cable trunking:

| Trunking type	Dimensions (ext.)	Cable area (empty frame)	Cable space reduced by BASIC MB mounting box
INSTAL 100	65x100 mm	5700 mm²	2900 mm²
INSTAL 108	65x108mm	6 300 mm²	3 500 mm²
INSTAL 108-45	65x108mm	6 300 mm²	For 45 mm outlets
INSTAL 130	65x130 mm	7440 mm²	4640 mm²
INSTAL 144	65x144mm	8 390 mm²	5 590 mm²
INSTAL 144-2-45	65x144mm	8 390 mm²	For 45 mm outlets
INSTAL 170-1	65x170mm	9 915 mm²	7 115 mm²
INSTAL 170-2	65x170mm	9 765 mm²	6 965 mm²
INSTAL 170-2-45	65x170mm	9 780 mm²	6 980 mm²
INSTAL 210-2	65x210mm	12 120 mm²	9 320 mm²
INSTAL 170-2/90	90x170mm	13 870 mm²	11 070 mm²

Standard length, all trunking types: 3m
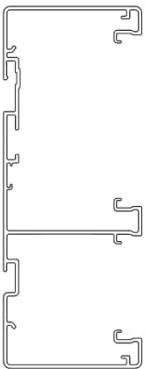
Empty frame
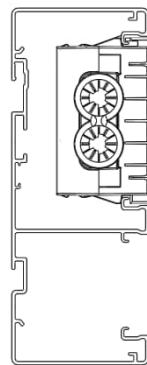
Mounting box installed

3. System components
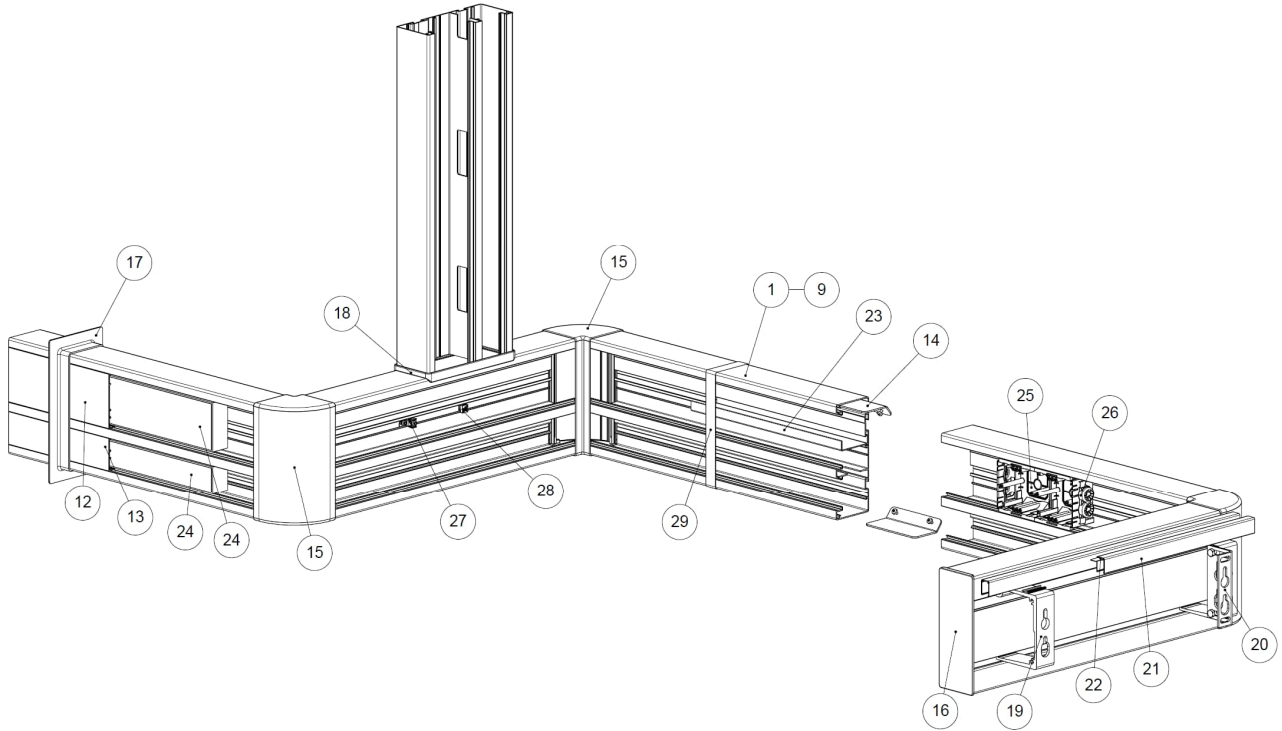
Part No.	Product	Product name
1.	cable trunking	INSTAL 100
2.	cable trunking	INSTAL 108
3.	cable trunking	INSTAL 108-45
4.	cable trunking	INSTAL 130
5.	cable trunking	INSTAL 144
6.	cable trunking	INSTAL 144-2-45
7.	cable trunking	INSTAL 170-1
8.	cable trunking	INSTAL 170-2
9.	cable trunking	INSTAL 170-2-45
10.	cable trunking	INSTAL 210-2
11.	cable trunking	INSTAL 170-2/90
12.	cover	INSTAL K80
13.	cover	INSTAL K48
13.	cover	INSTAL K45
14.	extension piece	INSTAL J
15.	corner	INSTAL KU
16.	end cover	INSTAL P

Part No.	Product	Product name
17.	wall collar	INSTAL LVK
18.	trunking collar	INSTAL LK
19.	wall bracket	INSTAL SK
20.	adjusting piece	INSTAL SL
21.	ventilation rib	INSTAL PS
22.	ventilation rib extension piece	INSTAL PS J
23.	cable shelf	INSTAL VS
24.	isolation piece	INSTAL LIS
25.	mounting box	BASIC MB
26.	strain relief	BASIC EC
27.	earthing connector	INSTAL ML
28.	cable holder	INSTAL CH

In product type marking:

M = white, RAL 9010 (e.g., INSTAL 108 M PW)

AD = anodized (e.g., INSTAL 108 AD)

4. Cable trunking fixation to wall surface

When installing the cable trunking on even wall/ceiling surface, drill approx. ⌀ 7.5mm holes in the trunking bottom, following the dimensions indicated in Figure 1. Mounting screw ⌀: approx. 6mm. To prevent damaging the cables installed in the trunking, the heads of mounting screws may not have sharp edges.

Do not overtighten the mounting screws to prevent trunking deformations. This is especially important when installing the trunking on an uneven surface. To prevent trunking deformations, we also recommend using stop ends upon trunking installation.

 In case of Instal 170-1 and larger trunking sizes, we recommend using two mounting screws per mounting point.

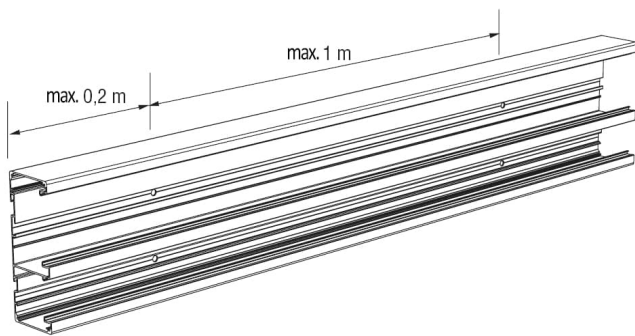Minimum installation height from the floor is 10mm.

Figure 1. Trunking installation on wall surface.

5. Cable trunking installation by wall brackets

The cable trunking can also be mounted on wall surface using wall brackets.

The maximum distance of the wall brackets from the trunking end is 0.2 metres and the maximum distance between the brackets is 1 metre. Attach the bracket to the wall by two ⌀ 6mm screws. Lift the cable trunking onto the wall brackets and press into place. The trunking locks to the wall bracket when pressed all the way to its bottom.

The Instal 170-2-45 trunking can be installed using wall brackets with either the 80 mm or 45 mm trunking opening on top.

Note! The wall brackets cannot be used with Instal 100 and 108 cable trunkings.
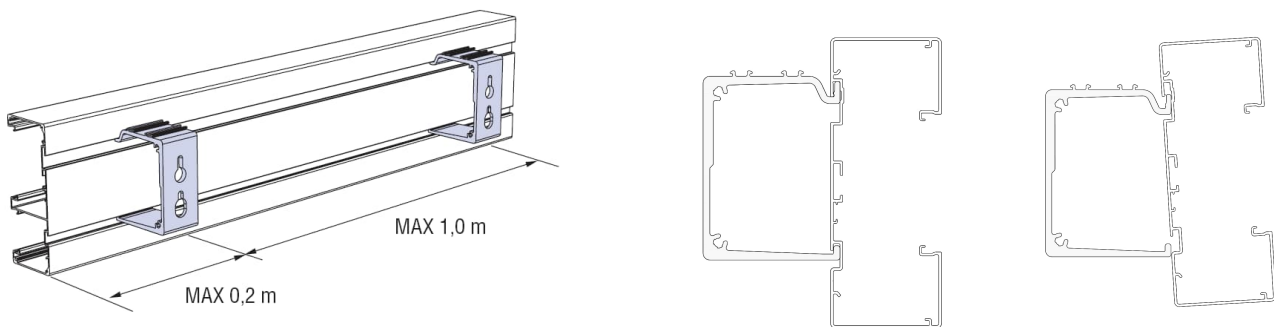

Figure 2. Trunking installation using wall brackets.

Note! Other loads may not installed/suspended on the cable trunking and wall brackets.

6. Adjustment of the distance between the cable trunking and the wall

In case of the wall brackets Instal SK, the distance between the cable trunking and the wall can be adjusted using the adjusting piece Instal SL or SL2. The adjustment allows compensating for wall unevenness. Attach the adjustment piece Instal SL to the wall bracket using the screws included (Figure 3).
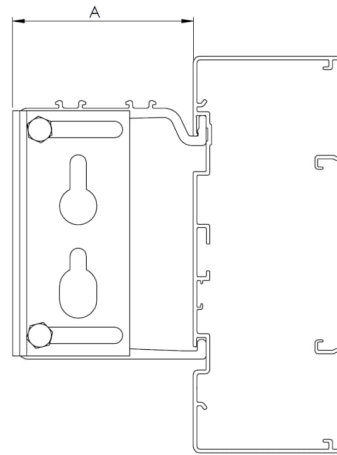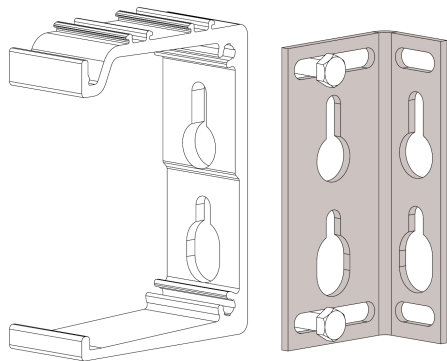

Figure 3. Adjustment piece fixation to wall bracket.   Figure 4. Dim A can be adjusted. 0-24 mm (SL) or 3-34 mm (SL2).

7. Ventilation rib installation to wall bracket

The ventilation rib Instal PS is used for covering the gap between the trunking and the wall in case of wall bracket installation. Attach the ventilation rib to the wall bracket by snap-on installation. Depending on the wall bracket type, from 1 to 4 ventilation ribs are used. If necessary, the ventilation rib joint Instal PSJ is used for ventilation rib extension.
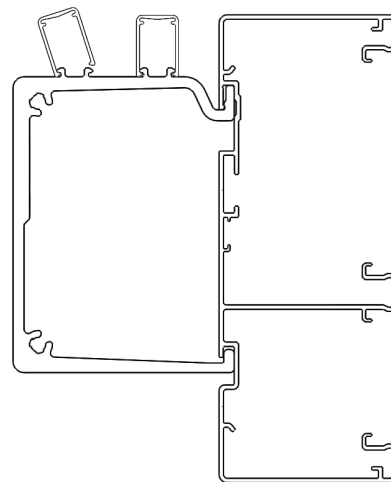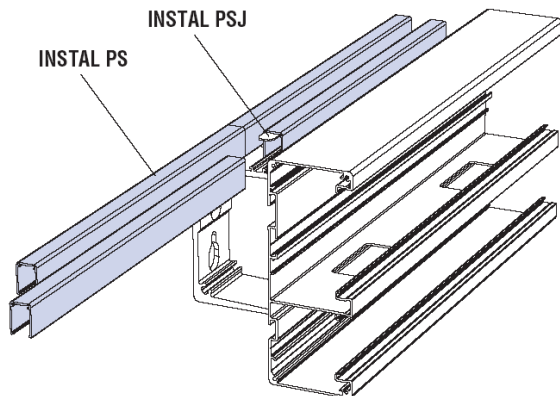

Figure 5. Ventilation rib attachment to wall bracket

8. Cable trunking extension

The standard cable trunking delivery length is 3m. The joints Instal J are used for extension. Before joint installation, make sure the trunking ends cut on-site are free of burr preventing joint installation.

Attach one of the cable trunkings to the wall. Fully insert the joints into the grooves at the top and bottom of the trunking. Lift the other cable trunking onto the wall and push the joints in place. Tighten the joints in place.
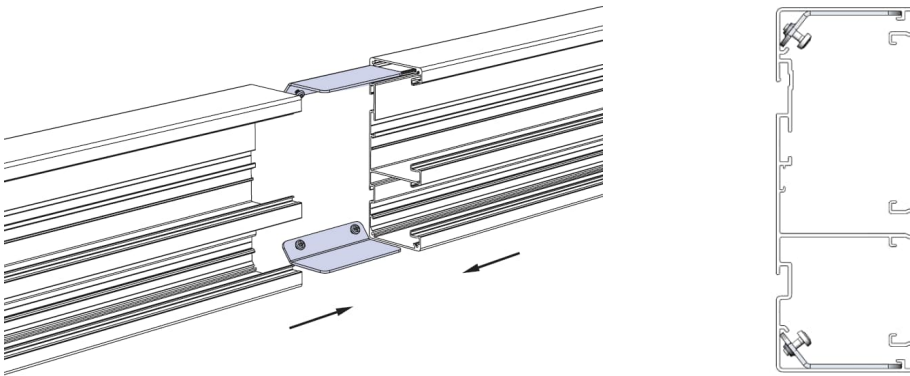

Figure 6. Joint installation.

9. Cable trunking cover installation

Instal K80, Instal K48 and Instal K45 covers are used as cable trunking covers. The Instal K80 cover can be used with all Instal trunking models. The Instal K48 and K45 covers are only used as second cover for the Instal 170-2 or 170-2-45 trunking.

Upon installation, press the cover in place, starting with one of the ends. Press the cover against the trunking in a perpendicular manner. Release the cover from one of the ends. Pull the cover out of the trunking in a perpendicular manner.
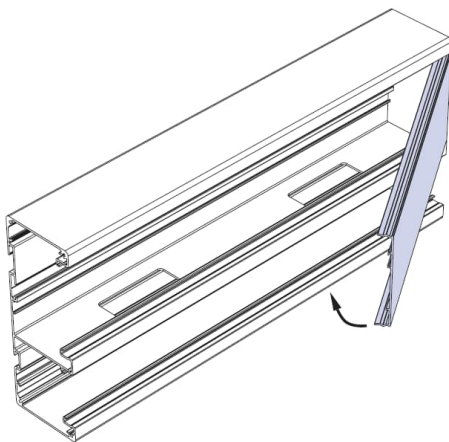
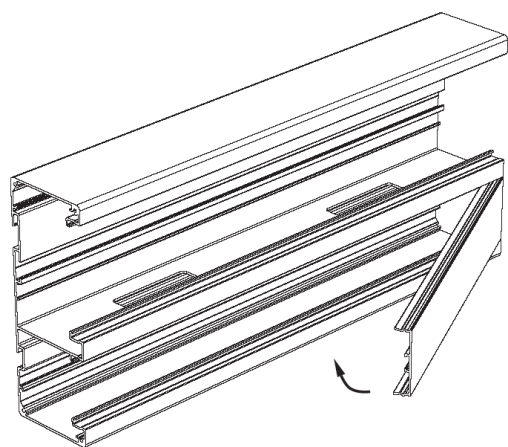

Figure 7. Instal K80 cover installation.

Figure 8. Instal K48 cover installation.

10. Cable trunking corner installation

10.1 Trunking types Instal 100 and Instal 108 / 108-45, Instal 130, Instal 144/144-2-45, Instal 170-1, Instal 170-2, Instal 170-2-45, and Instal 210-2

The cable trunking corner pieces are used for making 90° corners upon trunking installation. The Instal KU corner is used for this purpose. The same corner piece is used for both inside and outside corner installation.

When installing the corner, leave a 10-15 mm gap between the trunking ends. Slide the corner onto the trunking and fasten the bottom end piece by screws. If the corner edge does not fit easily between the trunking and the wall, loosen the wall mounting screw closest to the trunking end and re-tighten it after the corner installation. The adjustment range of the corner allows approx. 10° deviations in wall corner straightness.
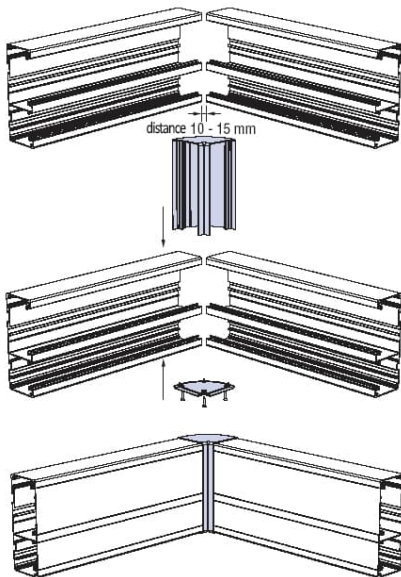
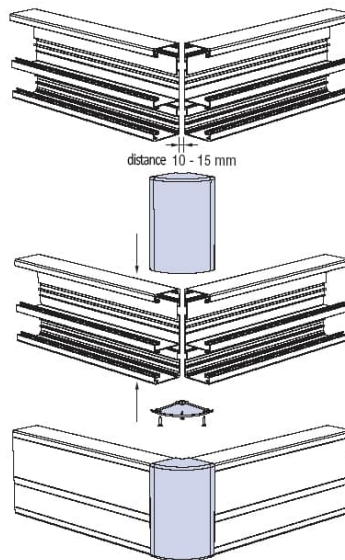Figure 9. Inside corner installation.   Figure 10. Outside corner installation.

10.2 Trunking type Instal 170-2/90 (90mm deep cable trunking)

In case of the Instal 170-2/90 cable trunking, the inside corner SKU 170/90 and outside corner UKU 170/90 are used for corner pieces. The corner is attached to the trunking frame using the joint Instal J. Four joints are required for the installation of a corner. Install the corner in a manner similar to cable trunking extension.
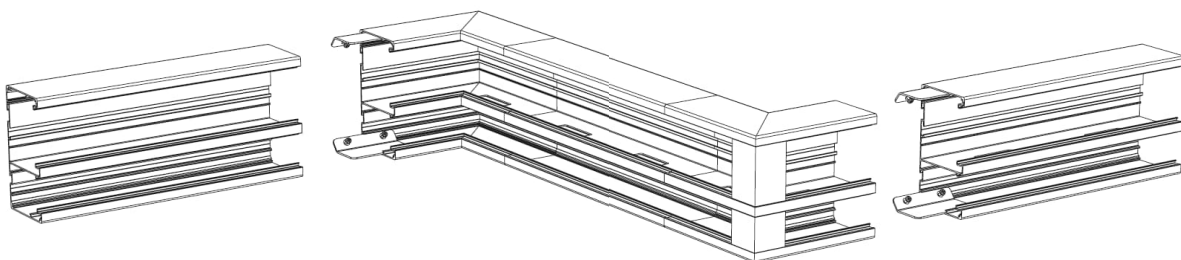
Figure 11. Inside corner installation.   Figure 12. Outside corner installation.

11. End Cover installation

End covers Instal P are used to close open cable trunking ends.

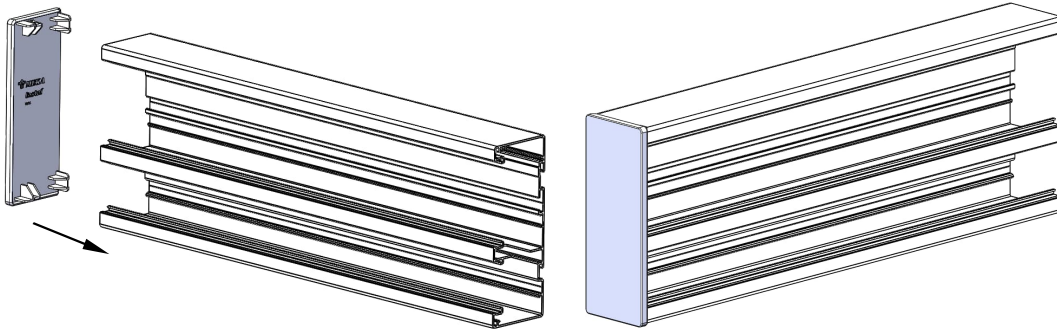To install a stop end, press it in place into the cable trunking.

Figure 13. Install the stop end by pressing it in place.

12. Cable shelf installation

If necessary, the cable trunking's cable space can be divided into several parts by using cable shelves Instal VS and Instal VS 2. Slip the cable shelves into the groove in trunking bottom as shown in Figure 15.
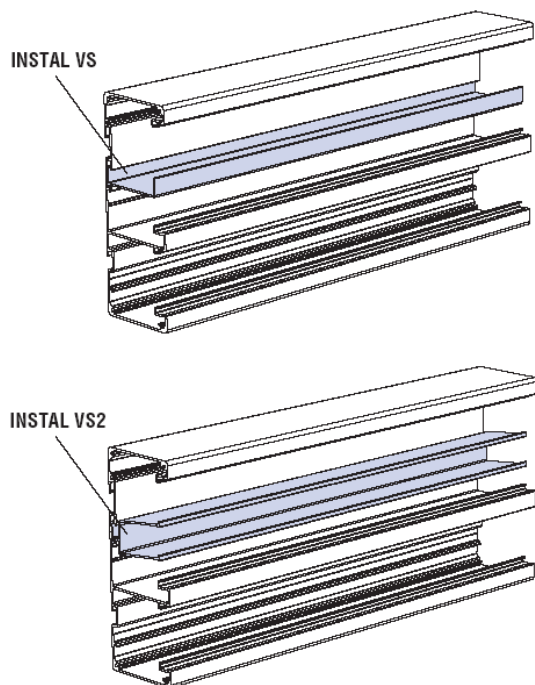
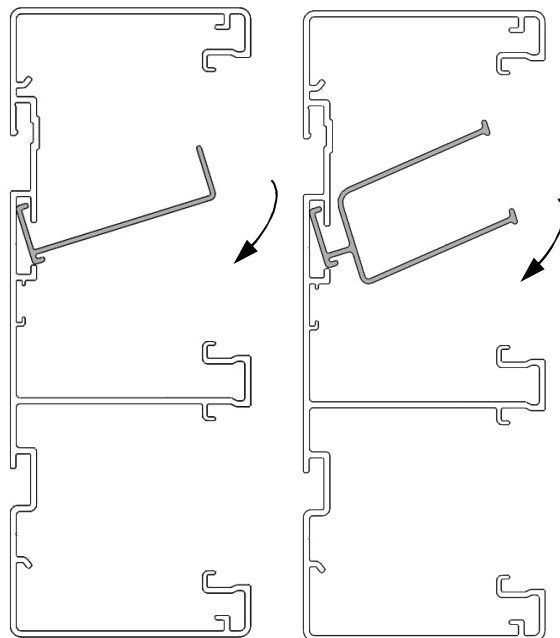Figure 14. Cable shelves divide the cable space into parts.   Figure 15. Cable shelf installation into trunking frame.

13. Cable trunking wall penetration

The wall collar Instal LVK is used for clean and protected wall penetration.

When mounting the cable trunking to wall surface, cut the rear side of the wall collar off. When mounting the cable trunking on wall brackets, slide the collar in place in the course of trunking installation. Attach the collar to the wall by glue or silicone. Wall penetrations can also be made without the wall collar.
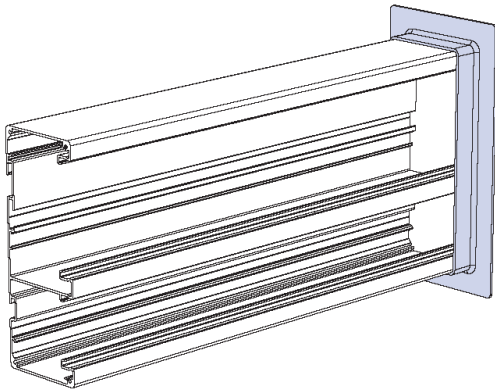
Figure 16. Installed wall collar.

14. Trunking collar installation

The cable trunking collar Instal LK is used when joining vertical and horizontal trunkings.

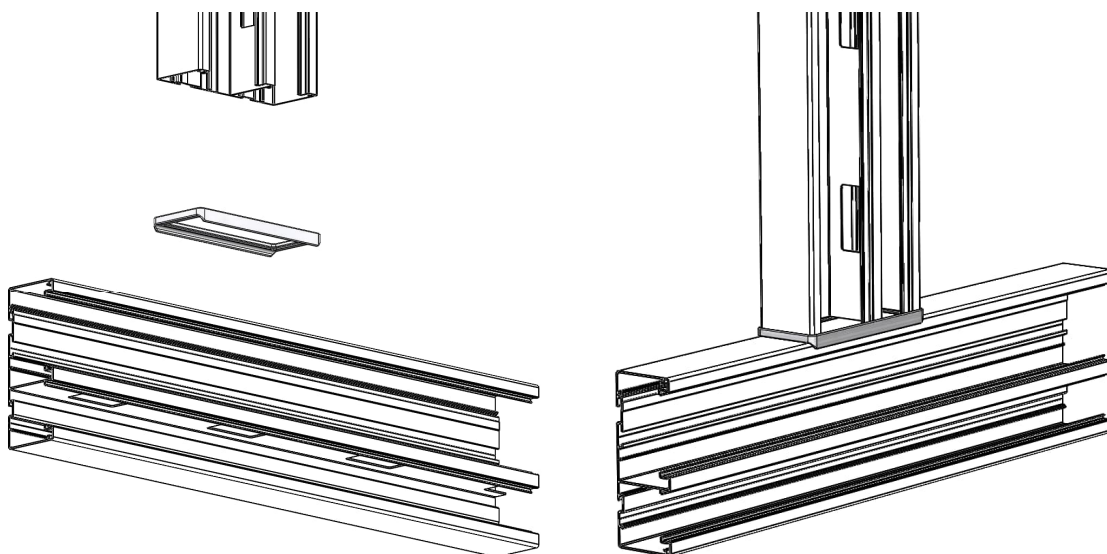Vertical branching is also possible without the trunking collar.

Figure 17. Trunking collar installation to vertical trunking.   Figure 18. Trunking collar installed.

15. Cable trunking sound isolation in case of wall penetrations

The noise transferred from one room to another via cable trunking is suppressed using sound isolation pieces Instal LIS-80 and Instal LIS-48.

Attach the sound isolation pieces to the cable trunking covers on both sides of a wall penetration. Remove the protective film from the glue on the sound isolation piece and press the piece to the cover.

In case of wall penetrations, the sound isolation can be improved considerably by cutting the trunking frame at a partition.
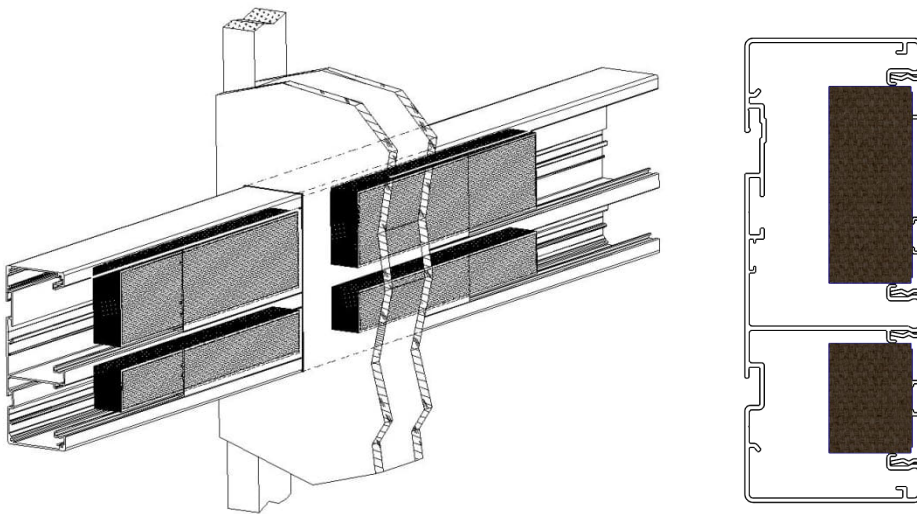
Figure 19. The sound isolation pieces are attached to the trunking covers on both sides of a wall penetration.

16. Cable trunking installation to humid premises

The cable trunking can also be installed to humid premises or outdoors.

A precondition to this is that the cables and accessories to be installed in the cable trunking are approved for such installation (splash proof or the like). In addition, Ø 5mm water discharge holes must be drilled in the bottom of the cable trunking with approx. 1 m intervals.
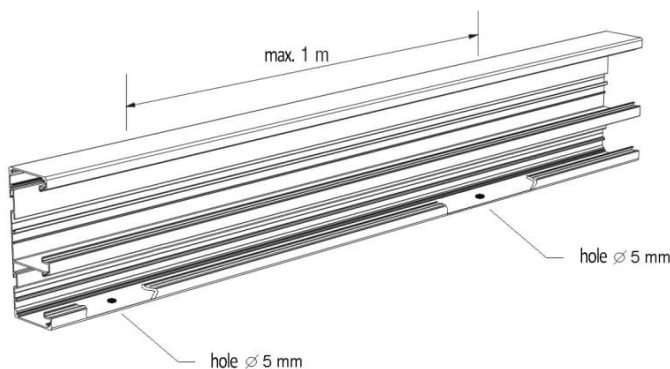
17. Cable trunking earthing and potential equalization

Cable trunking earthing and potential equalization must always comply with valid local standards and norms.

In general, the cable trunking system does not need protective earthing or connection to a potential equalization conductor. Examples of possible exceptions can be hospital environments and potentially explosive atmospheres and in some customer-specific cases, protective earthing or potential equalisation of metal components may also be required.

Earthing of cable trunking frame: Attach the earthing coupler Instal ML to the earthing groove on trunking bottom. Connect the earthing conductor to the earthing terminal. Trunking frame parts are electrically interconnected across joints if the joint Instal J is used.

Corner earthing: Attach the earthing coupler Instal ML to the earthing groove on corner bottom and connect the corner to the trunking frame by an earthing conductor.

Cover earthing: Attach the earthing coupler Instal ML to the earthing groove on the cover and connect the cover to the trunking frame by an earthing conductor. Connect every cover element to the trunking frame this way.

Two 6mm² conductors of the type MK or MKEM can be connected to the earthing coupler Instal ML.
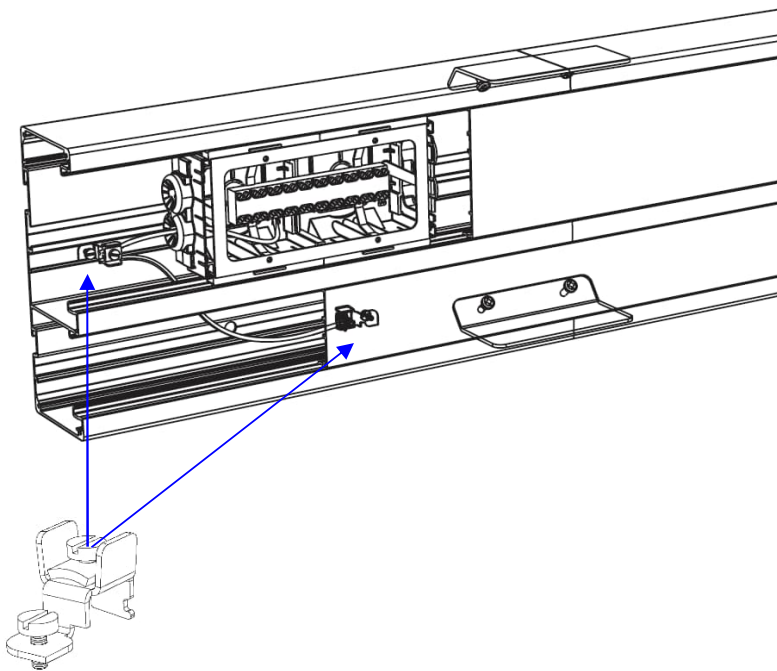
Figure 20. Earthing coupler Instal ML.

18. Instal mounting box

A mounting box package (1 to 5 parts) of the desired size can be assembled from BASIC MB mounting boxes. Terminate the mounting box package with an end piece BASIC EC, which also includes a strain relief for the input cable to the box. After this, press the mounting box package into the cable trunking's cover opening, fastening it based on the snap-on principle.
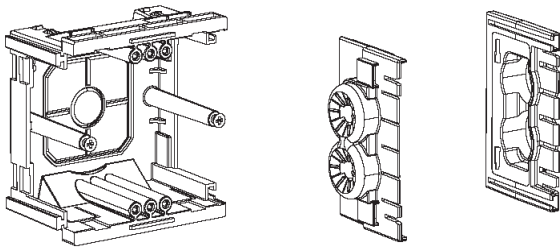

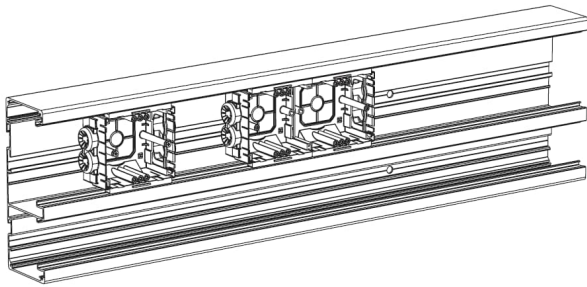Figure 21. Mounting box BASIC MB and end piece BASIC EC.

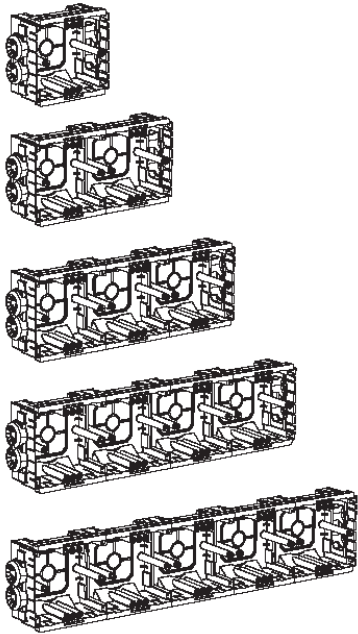Figure 22. Press the mounting box in place in the trunking.

Figure 24. A combination of the desired size can be assembled from mounting boxes before trunking installation
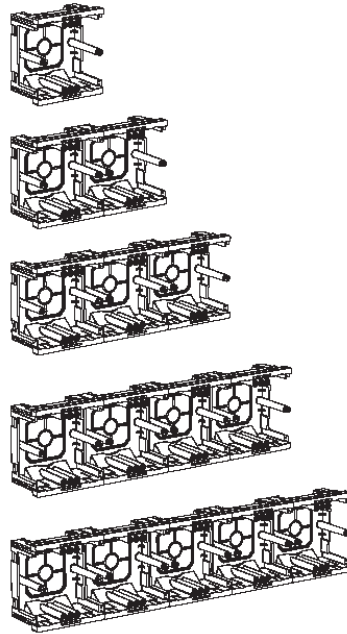
Figure 25. The end piece can be omitted if strain relief is not required (telecommunications/data cables)

19. Mounting boxes and accessories compatible with the cable trunking

Almost all most common socket and telecommunications/data accessory product series can be installed in the INSTAL cable trunkings.

Quick-installation accessory series (of the type ABB ProDuct) do not require a separate mounting box. When installing traditional accessory series intended for flush installation (of the type ABB Jussi), a separate mounting box BASIC MB is required.

Up to date listing of suitable outlets can be found from Meka Pro www-page: www.meka.eu

In case of cable trunking installations in humid premises, IP44 versions of the socket outlets series must be used.

Note: Compatibility of all devices, mounting boxes etc must be tested before installation

VERSION HISTORY

Version	Date	Change	Author
1	1 Jan 2007	Instruction created	
2	22 Oct 2013	Updated to comply with current cable trunkings	Aki Lamponen / Jari Aho
3	29 May 2015	Updated to comply with current cable trunkings	Aki Lamponen
4	15th March 2017	108-45 and 144-45 added to instructions	Aki Lamponen
5	10th February 2022	System picture updated	Aki Lamponen
6	10th June 2022	Paragraph 17 updated	Aki Lamponen
7	16th September 2022	Instal 100 and 130 added	Aki Lamponen