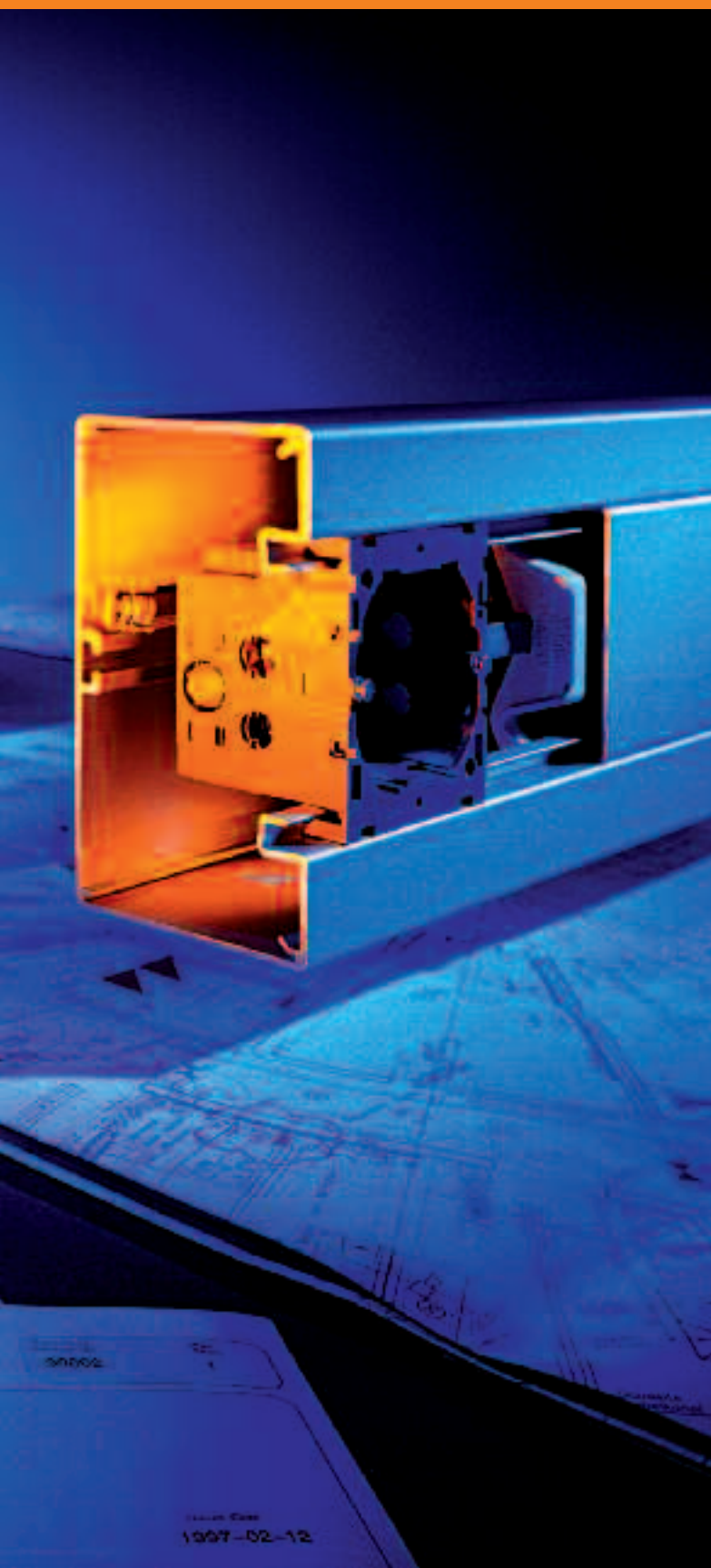


The OBO GEK device installation trunking made of PVC, robust sheet steel or aluminium helps to create modern installations for office areas and is used in companies, schools or universities. The broad product range can fulfil the most challenging requirements regarding technology and aesthetics. Thanks to the many different sizes, materials and colours, the planner, architect or installation engineer has a product range which can be integrated into any office landscape. This means that any customer requirements can be fulfilled.



System-specific planning and installation information

Useful information on the GEK device installation trunking



Protective measures and equipotential bonding

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Protective measures for the covers

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Separation of strong and weak currents

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Device installation trunking Rapid 45

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System-specific planning and installation information

Protective measures, equipotential bonding

Device installation trunking systems and service pole systems

Device installation trunking systems, service poles and accessories made of conductive material must be included in a protective measure against indirect contact according to DIN VDE 0100 (see DIN VDE 0604 Part 1 Paragraph 12).

Sheet steel trunking bases

The inserted trunking couplings create an electrical connection between the trunking bases. Connect a trunking base via an earth conductor clamp 8AWR to the in-fed PE connection cable. To do this, push the earth conductor clamp into the earthing strap, C mounting rail or fastening groove, and screw it tight.

Use the following as a PE connection cable:

- ▶ For protected routing:
2.5 mm²
- ▶ For unprotected routing:
4.0 mm²



System-specific planning and installation information

Protective measures for the covers

Installing the accessories and covers – inclusion in the protection measure

Covers, made either in whole or in part of metal, must be included in one of the measures for protection on indirect contact, according to DIN VDE 0100. The effectiveness of the protection measure must be checked and proofed according to DIN VDE 0100, on completion of an electrical system.

Sheet steel and aluminium covers

The sprung steel locking brackets make an electrically conductive connection between the covers and the trunking base. The contact points of the locking brackets are in the form of bezels. This ensures sufficient contact, even in the case of painted trunking bases.

Locking brackets

The covers are supplied with the locking brackets already inserted. Even after the covers have been cut to size, there must still be sufficient locking brackets available. Thus it may be necessary to add locking brackets at a later time.

OBO recommends using the following number of locking brackets for the lengths listed:

| | |
|----------------------|---|
| L = 1,000 mm | 4 |
| L = 1,000 – 2,000 mm | 6 |
| L = 2,000 mm | 8 |



Danger

If there is a fault, metallic parts will carry voltage.

- ▶ Comply with the prescribed number of locking brackets
- ▶ Check the contact between the trunking covers and bases, especially in the case of re-painting.

System-specific planning and installation information

Separation of power cables and weak currents

Very important!

Combined connection units such as individual devices or combinations of power supply and telecommunications must be mounted under separate cover plates. They can be covered together if, when the cover is removed, at least the power section is protected against indirect contact.

Separation is considered as:

- ▶ Accessory sockets, which offer a closed-off connection compartment for each current type
- ▶ Partition within the accessory sockets



Sheet steel partitions

The sheet steel partitions for GEK-S device installation trunking with 80 mm covers are self-contacting. The sheet steel partitions for the GEK-S device installation trunking with 110 mm cover must be included in the equipotential bonding through their earth conductor clamps, using a continuous PE connection cable.



System-specific planning and installation information

Decentral protection

Standard protection

Up to now, office installations had all the circuits protected “centrally” with cable safety switches in the distributor of each storey, and from there, they were run to the individual workstations. Each circuit needs its “own” cable from the distributor to the consumer. This procedure has two decisive disadvantages. On the one hand, the device installation trunking is extremely full and, on the other, the sockets cannot usually be charged with the protected capacity.



Decentral protection – IKR in-trunking installation unit

With decentral protection, a single cable with a large cross-section ($5 \times 10 \text{ mm}^2$) is run as the supply cable from the distributor through the entire storey. The circuits are then tapped at suitable points, the cross-section reduced (to $5 \times 4 \text{ mm}^2$) and “decentrally” protected using triple cable safety switches. From there, it then continues with the standard small cross-section (e.g. $3 \times 1.5 \text{ mm}^2$) to the consumers. The IKR in-trunking installation unit is suitable for any GEK device installation trunking from Ackermann with 80 mm and 110 mm covers.

You hold the advantages in your hand

There are less cables in the device installation trunking and the larger cross-sections up to the cable protection switches gives a higher current load capacity in the sockets. The IKR in-trunking installation units contain everything in a single housing which is required for decentralised protection. Besides three mini circuit-breakers or one error current protection switch (narrow design), either the same number of fuses again can be installed or a clamping unit can be installed:

- ▶ Branch off the feed cables from the supply cable
- ▶ Reduce the cross-section of the branch cables from 10 mm^2 to 4 mm^2
- ▶ Connect the supply cable to the next “tapping point”

System-specific planning and installation information

Usable cross-section and quantity of cables

Usable cross-section with installed accessory mounting boxes

The number of cables and the cable types are of key importance for the correct selection of trunking size. Even during the selection of the trunking system, it must be taken into account that the installation of accessory mounting boxes or service outlets means the “loss” of part of the usable cross-section. Refer to the tables for the usable cross-sections, which will help you select the correct device installation trunking.



gross



net 1



net 2

Trunking without accessory mounting box

The usable cross-section of the device installation trunking is not restricted by device installation. The entire interior can be used for cable routing.

(The value “gross” in the table indicates this usable trunking cross-section).

Trunking with accessory mounting box

The installation of an accessory mounting box reduces the usable cross-section available for cable routing.

(The value “net 1” in the table indicates this usable trunking cross-section).

Trunking with installed IKR

The installation of the IKR in-trunking installation unit reduces the usable cross-section of the device installation trunking system.

(The value “net 2” in the table indicates this usable trunking cross-section).

Usable trunking cross-section in mm²

| | | Trunking depth ST = 63.5 / Alu = 70 | | | Trunking depth ST = 80 / Alu = 90 | | | Trunking depth ST = 100 / Alu = 100 | | |
|---------------|---------------------------|-------------------------------------|-------|-------|-----------------------------------|--------|--------|-------------------------------------|--------|-------|
| Nominal size | | gross | net 1 | net 2 | gross | net 1 | net 2 | gross | net 1 | net 2 |
| Sheet steel | 98 | 5,030 | 2,400 | - | 6,640 | 4,010 | - | 8,300 | 5,670 | - |
| | 133 | 7,060 | 4,420 | 3,445 | 9,220 | 6,580 | - | 11,540 | 8,900 | - |
| | 173 | 9,520 | 6,880 | 5,905 | 12,340 | 9,700 | - | 15,460 | 12,820 | - |
| | 173 D top | 4,860 | 2,230 | 1,255 | 6,360 | 3,720 | - | 8,020 | 5,390 | - |
| | 173 D bottom | 4,240 | 4,240 | 4,240 | 5,550 | 5,550 | - | 6,990 | 6,990 | - |
| | 173 D total | 9,100 | 6,470 | 5,495 | 11,910 | 9,270 | - | 15,010 | 12,380 | - |
| | 213 | 11,980 | 9,340 | 8,365 | 15,460 | 12,820 | - | 19,380 | 16,740 | - |
| | 213 D top | 6,200 | 3,570 | 2,595 | 8,060 | 5,420 | - | 10,160 | 7,520 | - |
| | 213 D ² bottom | 5,220 | 2,580 | 2,580 | 6,810 | 4,170 | - | 8,590 | 5,950 | - |
| | 213 D ¹ total | 13,420 | 6,150 | 5,175 | 14,870 | 9,590 | - | 18,750 | 13,470 | - |
| Desk trunking | 9,950 | 7,310 | - | - | - | - | - | - | - | - |
| Aluminium | 110 | 4,715 | 1,920 | 1,277 | 6,400 | 3,605 | 2,962 | - | - | - |
| | 133 | 6,480 | 3,660 | 3,042 | 6,480 | 3,685 | 5,386 | - | - | - |
| | 173 | 8,620 | 6,090 | 5,182 | 11,756 | 8,961 | 8,318 | - | - | - |
| | 173 D top | 4,725 | 1,939 | 1,287 | 6,650 | 3,855 | 3,212 | - | - | - |
| | 173 D bottom | 3,410 | 3,410 | 3,410 | 4,790 | 4,790 | 4,790 | - | - | - |
| | 173 D total | 8,135 | 5,340 | 4,697 | 11,440 | 8,645 | 8,002 | - | - | - |
| | 213 | 10,760 | 7,965 | 7,322 | 14,688 | 11,893 | 11,250 | - | - | - |
| | 213 D top | 5,110 | 2,315 | - | - | - | - | 8,050 | 5,255 | - |
| | 213 D bottom | 5,110 | 2,315 | - | - | - | - | 8,050 | 5,255 | - |
| | 213 D ¹ total | 10,220 | 4,630 | - | - | - | - | 16,100 | 10,510 | - |

gross = trunking without accessory mounting box, net 1 = trunking with accessory mounting box, net 2 = trunking with installed IKR,
¹⁾ Accessory mounting box in both compartments, ²⁾ IKR installation (fill factor = 975 mm²) only possible in top compartment.

Number of cables to be laid in device installation trunking

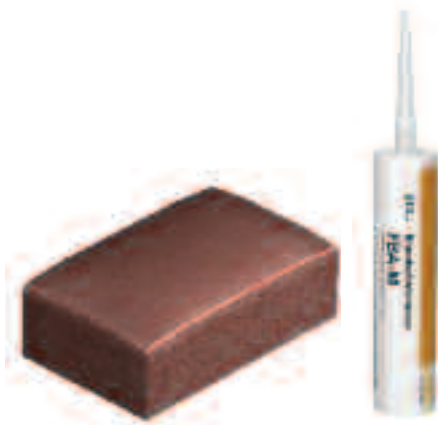
| | | Filling factor 50% | | Trunking depth ST = 63.5 / Alu = 70 | | | | Trunking depth ST = 80 / Alu = 90 | | | | Trunking depth ST = 100 / Alu = 100 | | | |
|-------------------------|---------------------------|--------------------|---------------|-------------------------------------|----------------|---------------|---------------|-----------------------------------|----------------|---------------|---------------|-------------------------------------|----------------|--|--|
| Cable Ø Nominal size | | 9 mm gross | 9 mm net 1 | 11 mm gross | 11 mm net 1 | 9 mm gross | 9 mm net 1 | 11 mm gross | 11 mm net 1 | 9 mm gross | 9 mm net 1 | 11 mm gross | 11 mm net 1 | | |
| Sheet steel | 98 | 31 | 15 | 21 | 10 | 41 | 25 | 27 | 17 | 51 | 35 | 34 | 23 | | |
| | 133 | 44 | 27 | 29 | 18 | 57 | 41 | 38 | 27 | 71 | 55 | 48 | 37 | | |
| | 173 | 59 | 42 | 39 | 28 | 76 | 60 | 51 | 40 | 95 | 79 | 64 | 53 | | |
| | 173 D top | 30 | 14 | 20 | 9 | 39 | 23 | 26 | 15 | 50 | 33 | 33 | 22 | | |
| | 173 D bottom | 26 | 26 | 18 | 18 | 34 | 34 | 23 | 23 | 43 | 43 | 29 | 29 | | |
| | 173 D total | 56 | 40 | 38 | 27 | 74 | 57 | 49 | 38 | 93 | 76 | 62 | 51 | | |
| | 213 | 74 | 58 | 50 | 39 | 95 | 79 | 64 | 53 | 120 | 103 | 80 | 69 | | |
| | 213 D top | 38 | 22 | 26 | 15 | 50 | 33 | 33 | 22 | 63 | 46 | 42 | 31 | | |
| | 213 D ² bottom | 32 | 16 | 22 | 11 | 42 | 26 | 28 | 17 | 53 | 37 | 35 | 25 | | |
| | 213 D ¹ total | 83 | 38 | 55 | 25 | 92 | 59 | 61 | 40 | 116 | 83 | 77 | 56 | | |
| Desk trunking | 61 | 45 | 41 | 30 | - | - | - | - | - | - | - | - | - | | |
| Aluminium | 110 | 29 | 12 | 19 | 8 | 40 | 22 | 26 | 15 | - | - | - | - | | |
| | 133 | 40 | 23 | 27 | 15 | 40 | 23 | 27 | 15 | - | - | - | - | | |
| | 173 | 53 | 36 | 36 | 25 | 73 | 55 | 49 | 37 | - | - | - | - | | |
| | 173 D top | 29 | 12 | 20 | 8 | 41 | 24 | 27 | 16 | - | - | - | - | | |
| | 173 D bottom | 21 | 21 | 14 | 14 | 30 | 30 | 20 | 20 | - | - | - | - | | |
| | 173 D total | 50 | 33 | 34 | 22 | 71 | 53 | 47 | 36 | - | - | - | - | | |
| | 213 | 66 | 49 | 44 | 33 | 91 | 73 | 61 | 49 | - | - | - | - | | |
| | 213 D top | 32 | 14 | 21 | 10 | - | - | - | - | 50 | 32 | 33 | 22 | | |
| | 213 D bottom | 32 | 14 | 21 | 10 | - | - | - | - | 50 | 32 | 33 | 22 | | |
| | 213 D ¹ total | 66 | 29 | 44 | 19 | - | - | - | - | 99 | 65 | 67 | 43 | | |

System-specific planning and installation information

Fire protected

OBO can offer flexibility and variety

Additional requirements regarding the variable use of buildings and office space require complex solutions. Mobile partitions mean that it is possible to modify areas very quickly. Plastic or metal device installation trunking allow rapid adaptation of installations. However, if the partitions fulfil fire protection functions or if two fire sections are separated, then the electrical installation must be fireproof. OBO Bettermann can offer various cable installation systems for such applications.



The little brother and the system components

OBO can offer various cable insulation systems for these applications: to protect against the spread of fire and smoke, there are the new fire protection foam blocks of type FBA-BK. The “little” brother of the FBA-B version is tailor-made for the requirements in the device installation trunking – both for metal and plastic trunking. All the fire insulation is tested according to DIN 4102 Part 9 and approved for the applications. The fire resistance period is 90 minutes. Simple retro-installation is possible at any time.



Handling

Device installation trunking running through partition walls should be installed in such a way as to prevent the spread of fire and smoke. The trunking base can be run through uncut. A cover, with a thickness at least equal to that of the fire wall, but ideally with an overhang of 20 mm on each side of the wall, should be plastered in so that it is fire-proof in accordance with the requirements of Accompanying Sheet 1 of DIN VDE 0108 Part 1, in order to create a closed trunking interior. After cabling work has been completed, this interior should be filled with a fire protection material (e.g. trunking fire insulation) with construction approval.

System-specific planning and installation information

Noise protected

When walls whisper

Device installation trunking mounted directly or indirectly on the wall, can form noise bridges between rooms. A difference is made between structural conduction of noise and air conduction of noise. Using the appropriate OBO accessories correctly can ensure that no noise can escape.



Structural conduction of noise

Impact noise can be created through mechanical impacts on the trunking. A measure against impact noise is the interruption of the connection between construction units by placing an air gap in the area of the wall penetrations. In so doing, care should be taken to ensure that the equipotential bonding cable is continued as protection against indirect contact.

Air conduction of noise

To prevent air conduction of noise, the free cross-section of the trunking remaining after cabling must be filled with a noise-reducing material, e.g. air noise barrier 7 LSB. The same applies to any gaps between the trunking and the adjoining wall.

Air noise barrier (tresses) 7 LSB

For filling the free trunking cross-section.

Asbestos-free. Possible attenuation approx. 40 dB.

Required number of mineral fibre tresses for GEK-S/GEK-A.

| | | Trunking depth | | |
|----------------|-----|----------------|----|-----|
| | | 63.5 | 80 | 100 |
| Trunking width | 98 | 10 | 13 | 16 |
| | 133 | 13 | 16 | 19 |
| | 173 | 15 | 19 | 23 |
| | 213 | 18 | 22 | 26 |

System-specific planning and installation information

Component surfaces

Colour and shine

The metal device installation trunking is always painted or anodised. Just as with the trunking, plastic fittings and covers, OBO's colours are taken from the RAL 840 HR colour chart. If the same colour is required everywhere, then both the paint and the plastic injection moulding compound are selected with the same RAL shade. However, differences in colours cannot be avoided due to the different levels of gloss of different surfaces. According to DIN 6174, a colour distance (deviation) of $\Delta E 1.5$ is permitted for colour-intensive shades and $\Delta E 1.0$ for less intensive shades. The OBO device installation trunking is made from sheet steel, which is strip galvanised and then powder coated.

Anodisation of aluminium components (anodic oxidation)

Anodic oxidation creates a layer of oxide on the surface, causing increased resistance to corrosion. Depending on the method used, the thickness of the oxide layer may be less in material recesses, e.g. grooves and the like, than on a flat surface. In our standard shade, the profiles are treated and anodised according to abbreviation E6 (DIN 17 611). Coloured oxidation can only be agreed using limit samples (light/dark limit). Light differences in colour comes from material and process-dependent scatter and cannot be avoided.



Colour changes on plastic components

The cause of colour differences are the different levels of gloss of the various surfaces. They only absorb a part of the light. “Silky matt” painted surfaces and “matted” surfaces on moulded parts have different structures and thus different levels of gloss. Complete evenness is impossible. With a shiny surface, a colour appears lighter (greater reflection) and, with a matt surface, darker (greater absorption). Therefore, it is very difficult to measure the differences.



Painting steel and aluminium components

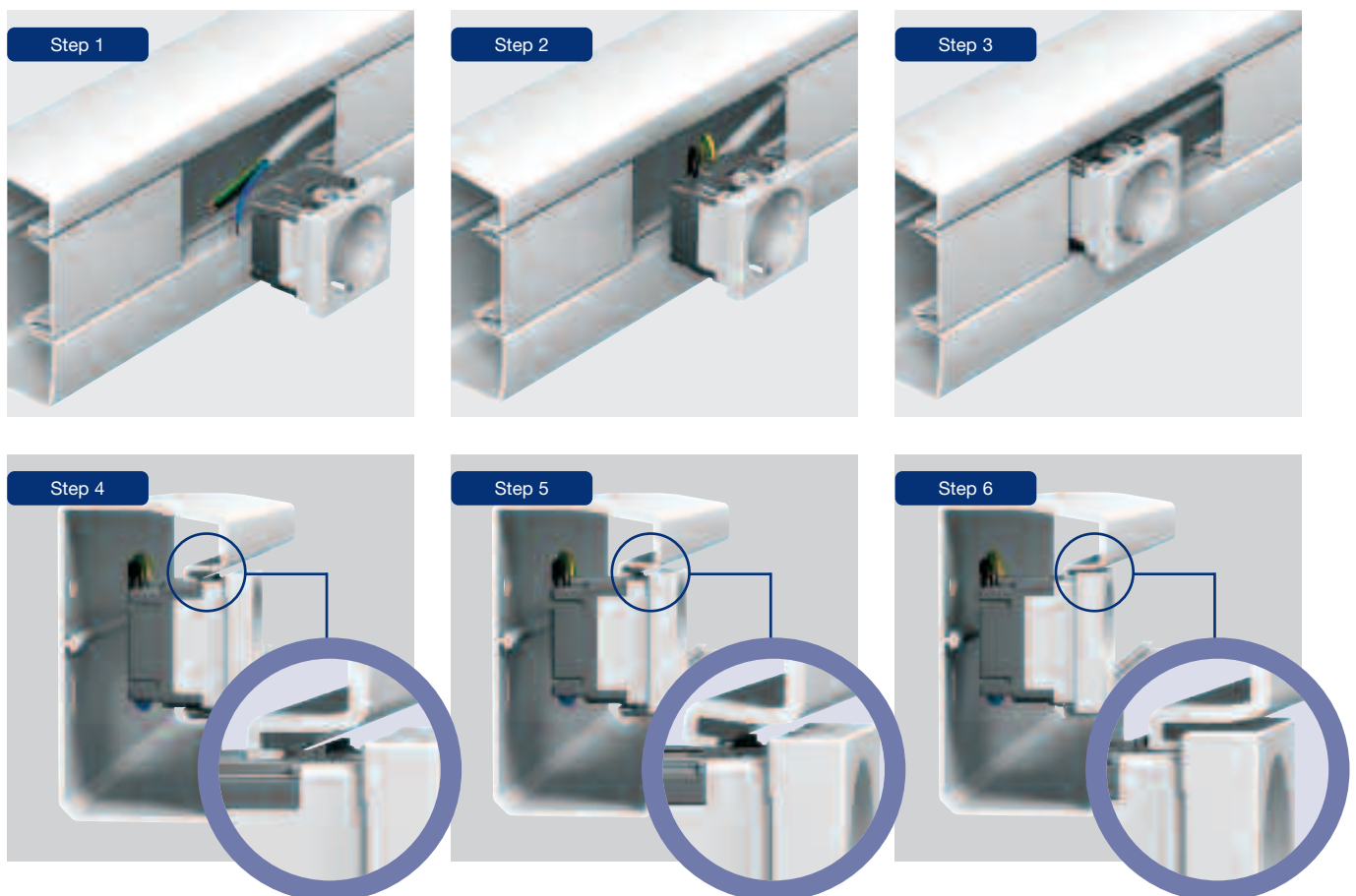
The high-quality polyester epoxy-based powder coating is free of solvents, heavy metals and formaldehyde, with good resistance to knocks and friction and good adherence and good resistance to yellowing and chemical resistance. For this, the resistance against standard cleaning agents was particularly tested. The surface is “silky matt”, the level of gloss $20\% \pm 5\%$ at a 60° angle of incidence, according to DIN 67 530 or ISO 2813 (exception: RAL 8014 with 35% level of gloss $\pm 5\%$). The paint layer is at least $50 \mu\text{m}$ thick (exception: RAL 9010 with at least $70 \mu\text{m}$). Internal component surfaces and material recesses such as grooves have smaller layer thicknesses on account of the process.

System-specific planning and installation information

Providing flexibility right to the end – Rapid 45

Problem-free adaptation to all spatial conditions

The universal system offers plenty of space for a clean separation – between energy and data cables, for instance. Practical fittings allow ideal installation solutions both in housing and in all industrial and commercial locations. The decisive advantage: switches, sockets and the like are simply snapped into the trunking profile by hand. The Rapid 45 device installation trunking is available in plastic or aluminium versions and can be used in any location requiring flexible installation solutions. The installation can be modified at any time. Quick and safe, tidy and precise. The result is always a perfect, aesthetic and practical installation.



Click in and you're done!

No fidgety parts and no special tools are required: switches and sockets are simply clicked into the trunking profile. And that's it.

| |  |  | |  |  | |
|---|---|---|--|---|---|--------------------------------------|
| GEK-K 53100 GEA-A 53100 | without accessory socket | with accessory socket | | GEK-K 53160 GEA-A 53160 | without accessory socket | with accessory socket |
| Trunking cross-section | 4,080 mm ² | 2,596 mm ² | | Trunking cross-section | 6,480 mm ² | 3,696 mm ² |
| NYM 3 x 1.5 mm d = 10.5 mm | 23 | 15 | | NYM 3 x 1.5 mm d = 10.5 mm | 36 | 20 |
| NYM 5 x 1.5 mm d = 12 mm | 18 | 11 | | NYM 5 x 1.5 mm d = 12 mm | 28 | 15 |
| Telecommunication line J-Y(St.)Y 2 x 2 x 0.6 d = 5 mm | 104 | 66 | | Telecommunication line J-Y(St.)Y 2 x 2 x 0.6 d = 5 mm | 156 | 96 |
| Filling factor: 0.5 – the capacity reserve is 50%. | | | | Filling factor: 0.5 – the capacity reserve is 50%. | | |

Calculation formula for cable routing in trunking:

Trunking cross-section: D · H in mm
 Realistic space requirements of the cables: (2r)²
 Max. filling factor (recommended): 0.5

$$\text{Usable cross-section for cable routing} = \frac{\text{Trunking cross-section}}{(2r)^2} \cdot 0.5$$

A lot of space for a lot of cables

Both the mono and the duo trunking are extremely spacious and offer ample room for cable routing. The trunking depth of 53 mm and the compact design of the EGS devices enable the cables to be installed either above, below or behind the switches and sockets.

Standards-compliant

The Rapid 45 device installation trunking naturally fulfils all the current specifications and standards. The system achieves IP 40 protection without extra equipment or covers.