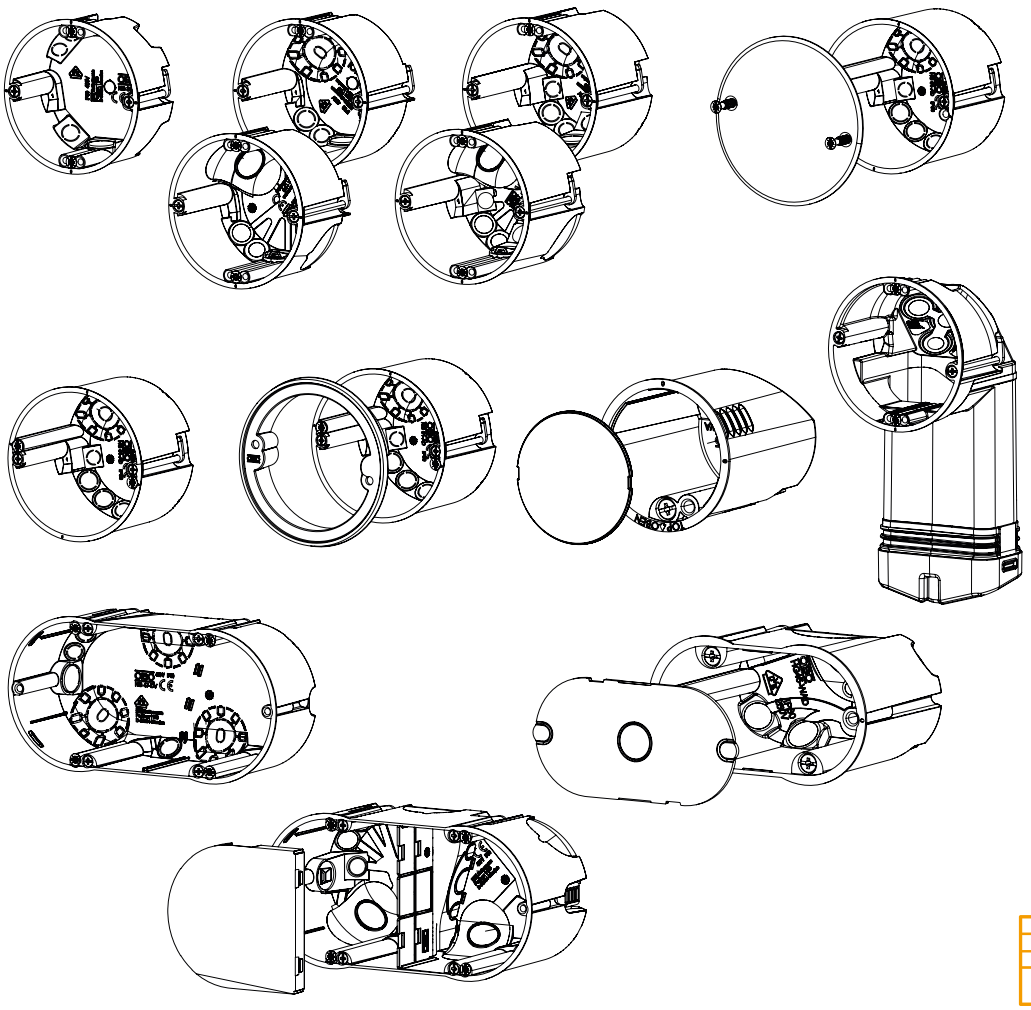

Mounting instructions

HW Cavity wall boxes

OBO BETTERMANN

OBO Bettermann Holding GmbH & Co. KG

HW Cavity wall boxes
Mounting instructions

Table of contents

1 About these instructions

1.1 Target group

These mounting instructions are intended for the following target group:

– Engineers and architects charged with the planning of cavity wall box systems.

– Specialists trained in electrical engineering and charged with the mounting of cavity wall box systems.

1.2 Relevance of these instructions

Follow the instructions given in this manual to ensure correct, safe use. Keep it handy for future reference.

Any images are intended merely as examples. Mounting results may look different.

1.3 Types of warning information

WARNING

Type of risk!
Shows a risky situation. If the safety instruction is not observed, then serious or fatal injuries may occur.

CAUTION

Type of risk!
Shows a risky situation. If the safety instruction is not observed, then medium or minor injuries may occur.

ATTENTION

Type of risk!
Shows a hazardous situation. If the safety instruction is not observed, then damage to the product or the surroundings may occur.

Note! *Indicates important information or assistance.*

1.4 Depiction conventions

Correct design

Incorrect design

Audible or tangible engagement

1.5 Basic standards and regulations

The cavity wall device boxes, as well as the cavity wall electronic boxes, fulfil the requirements of IEC 60670 – Boxes and enclosures for electrical accessories for household and similar fixed electrical installations.

1.6 Applicable documents

– For the declaration of conformity, see https://www.obo.global/service/downloads/declarations-of-conformity/connection-and-fastening-systems/

– VDE symbol approval

2 Correct use

The cavity wall boxes are used in dry construction walls (stand-off construction, panelling with plasterboard, fibre-glass plasterboard or OSB plates) or in container or ship construction. The cavity wall boxes are used for the acceptance/installation of, for example, sockets, switches, dimmers, thermostats, telephone or aerial sockets, or for branches and cable relays, as well as terminal sockets for connections possibly required at a later date.

The cavity wall boxes are not designed for any purpose other than that described here. If the cavity wall boxes are used for another purpose, then this shall render all liability, warranty and replacement claims null and void.

3 Safety

3.1 General safety information

Observe the following general safety information:

– Only have electrical work carried out by specialist personnel with electrical training.

3.2 Personal protective equipment

Overview of the personal protective equipment to be used:

Wear hearing protection

Wear a mask

Wear eye protection

4 Necessary tools

List of required tools:

- Folding measuring stick
- Pencil
- Drilling template
- Spirit level
- Slotted and Philips screwdrivers
- Drill with drill bit/hole grinder Ø 35, 68 or 74 mm
- Compass saw

5 System description

The range of cavity wall boxes comprises cavity wall device boxes, cavity wall device boxes for additional terminal space and electronic device boxes for the installation of additional electronic components or cable reserves. The cavity wall boxes are available in standard and airtight versions. The product range is supplemented by matching accessories such as covers, connectors, compensation rings, sealing inserts or fastening elements for thin planking.

5.1 System overview, cavity wall boxes

The cavity wall boxes are available with depths of 35, 47 and 61 mm.

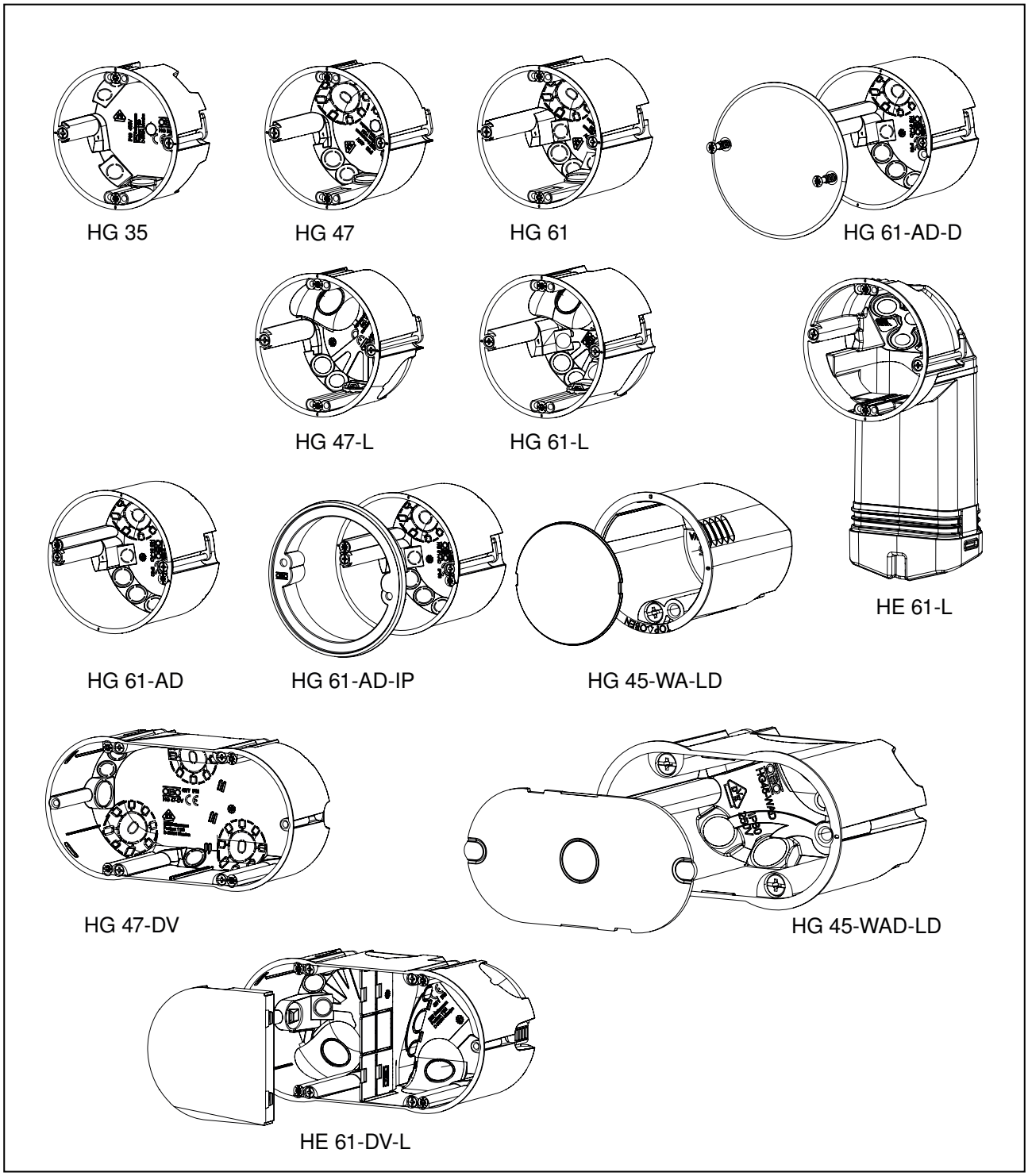

Fig. 1: Overview, cavity wall boxes product range

Type	Designation	Air-tight	Number of screw domes	Number of entries			
					NYM cables mm²		
				Ø **20**/ **25**	3x 1.5	3x 2.5 or 5x 1.5	5x 2.5 or 7x 1.5
HG 35	HW Cavity wall device box	-	2x 3	0	4	2	0
HG 47	HW Cavity wall device box	-	2x 3	2	2	2	0
HG 61	HW Cavity wall device box	-	2x 3	2	4	2	2
HG 61-AD-D	HW Cavity wall device box with cover	-	2	3	1	3	2
HG 47-L	HW Cavity wall device box, airtight	X	2x 3	2	2	2	0
HG 61-L	HW Cavity wall device box, airtight	X	2x 3	2	4	2	0
HE 61-L	HW Electronic box, airtight	X	2x 3	2	2	2	2
HG 61-AD	HW Cavity wall device box for CEE/PERILEX	-	2	3	1	3	2
HG 61-AD-IP	HW Cavity wall device box for CEE/PERILEX with seal	-	2	3	1	3	2
HG 45-WA-LD	HW Cavity wall outlet box, airtight, with cover	X	1	0	1	1	0
HG 47-DV	HW Cavity wall device box, double combination	-	6	4	4	2	2
HG 45-WAD-LD	HW Cavity wall outlet box, airtight, double combination	X	2	1	2	1	0
HE 61-DV-L	HW Cavity wall electronic box, airtight, double combination	X	6	4	4	2	2

Tab. 1: Product features, cavity wall boxes product range

5.2 Accessories, cavity wall boxes

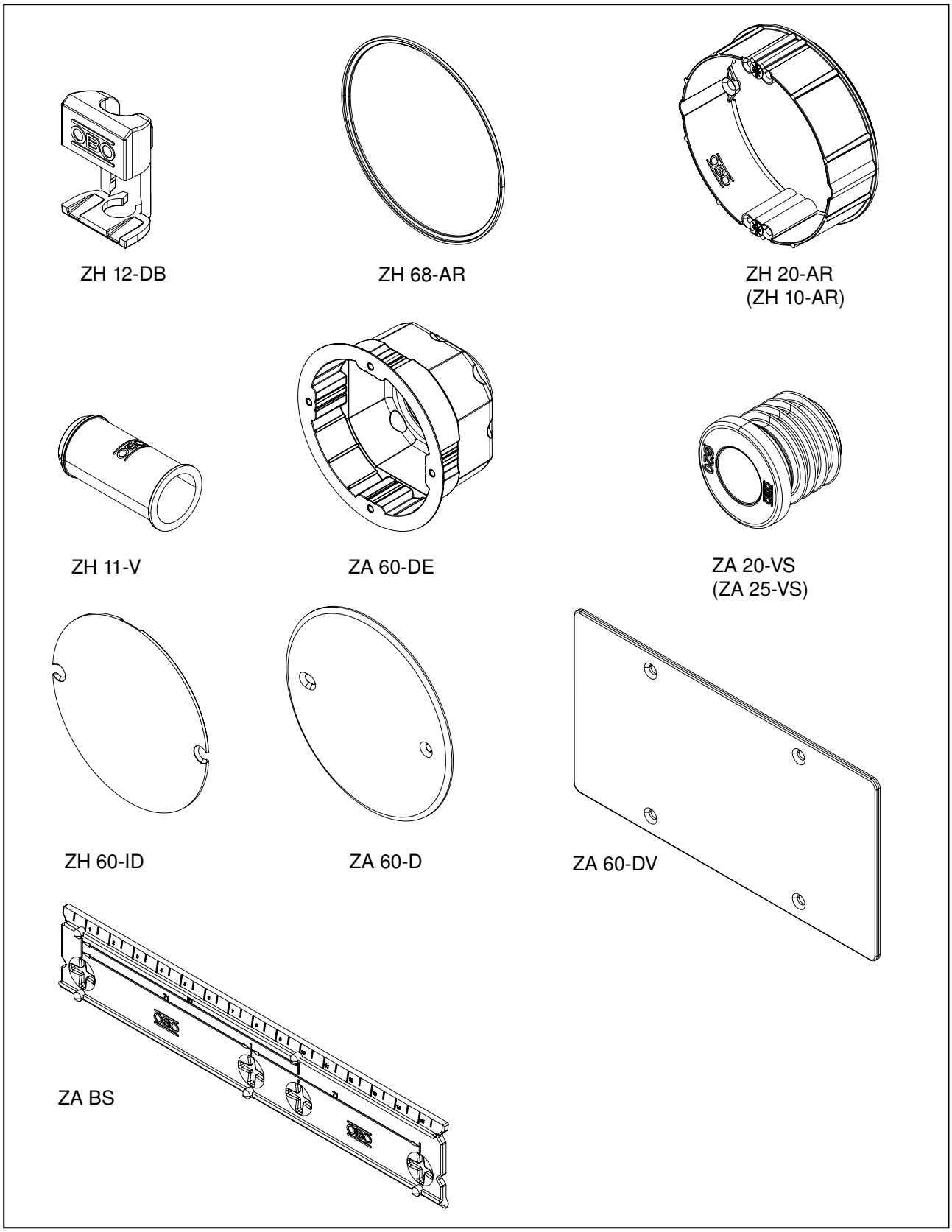

Fig. 2: Accessories, cavity wall boxes

Type	Designation	Function
ZH 12-DB	HW Fastening element for thin planking	Compensation of gaps between the cavity wall box and wall for thin planking of 0.2 mm or more
ZH 68-AR	HW Compensation ring, cavity wall device box Ø 68 mm	Compensation of drill holes which are too large or not round
ZH 20-AR/ ZH 10-AR	HW Compensation ring, for cavity wall device box (Ø 20/10 mm)	Compensation of offset between top edge of cavity wall box and wall surface
ZH 11-V	HW Connector for cavity wall device box	Connection of multiple cavity wall boxes for cable penetration, airtight in conjunction with airtight cavity wall boxes
ZA 60-DE	Sealing insert for device box	Airtight insert for standard cavity wall box
ZA 20-VS/ ZA 25-VS	Sealing plug for M20/M25, airtight	Closure of empty corrugated pipes
ZH 60-ID	Inner fitting cover for cavity wall device box	Closure of empty box, protection during plastering or papering
ZA 60-D	Universal cover	Closure of empty box, protection during plastering or papering
ZA 60-DV	UP/HW cover, double combination	Closure of empty box, protection during plastering or papering
ZA BS	Drilling template	Template for drawing on the fastening spacings of 71 or 91 mm.

Tab. 2: Overview of accessories

5.3 Details, cavity wall boxes

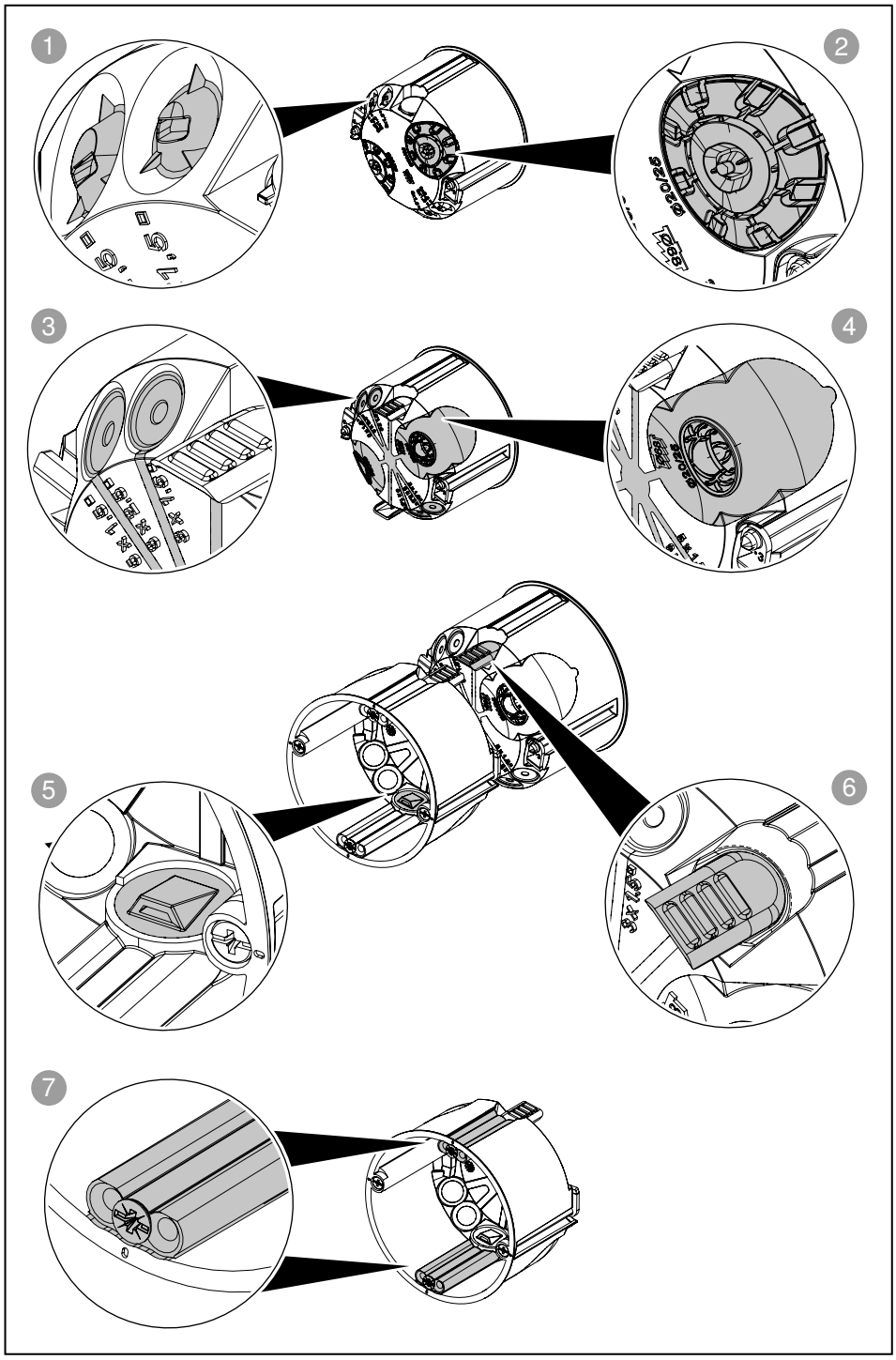

Fig. 3: Details, cavity wall boxes

No.	Designation	Function
1	Cable entries	Entries for cables, with opening contour for screwdriver blades – to be broken out
2	Combination entry up to M20/25	Entry for cables and corrugated pipes – to be broken out – with locking lugs against unintentional pulling out
3	Airtight membrane entries	Entries for cables – for piercing – tear stop guarantees airtightness
4	Airtight membrane entry up to M20/25	Entry for cables and corrugated pipes – to be penetrated – tear stop guarantees airtightness
5	Airtight membrane for HW connector, internal	Connection of 2 or more cavity wall boxes for penetration of cables, airtight connection for airtight cavity wall boxes
6	Airtight membrane for HW connector, external	
7	3 screw domes with device screw	Flexible fastening of devices guarantees a straight alignment of the devices, spacing corresponds to standard spacing of 60 mm

Tab. 3: Details, cavity wall boxes

6 Installation

6.1 Observing preconditions

Maintaining installation zones

To prevent damage to cables, e.g. through drilling, cables routed in a concealed manner according to DIN 18015-3:2016-09 may only be routed vertically or horizontally and, if possible, only in the pre-specified installation zones.

Spacings and installation zones according to DIN 18015-3:2016-09

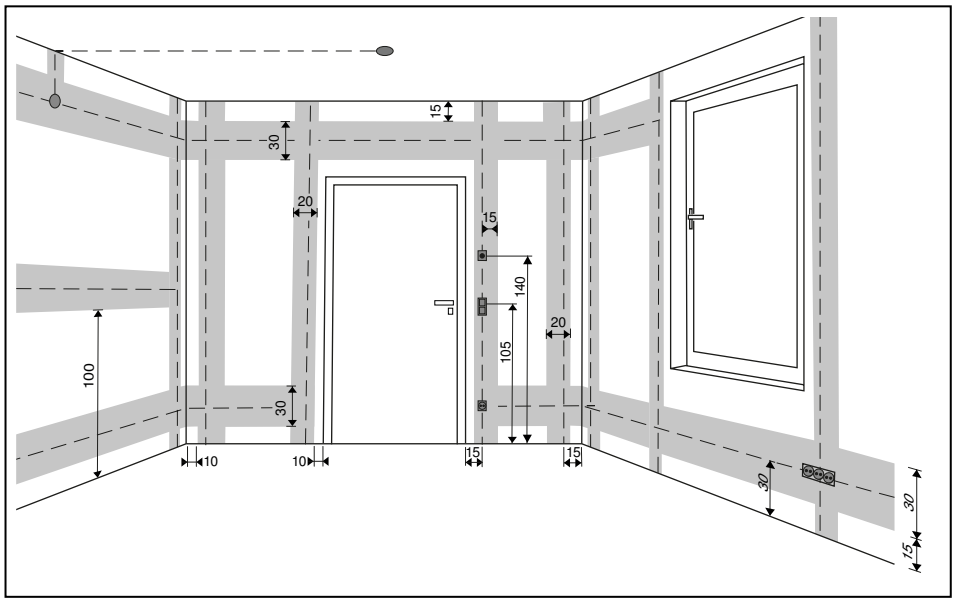

Fig. 4: Installation zones, dimensions in cm

Horizontal installation zones, maximum width 30 cm	
Upper installation zone	15 cm from ceiling
Middle installation zone (for work surfaces in kitchens and work-shops)	100 cm from floor
Lower installation zone	15 cm from floor
Vertical installation zones, maximum width 20 cm	
Windows and doors	10 cm at the side from raw structure edge
Corners and edges	10 cm at the side from raw structure edge

Tab. 4: Installation zones

Installation height, devices and switches	
Centre of sockets	30 cm from floor
Centre of switches	105 cm from floor
Centre of thermostats	140 cm from floor

Tab. 5: Installation heights

Observing other preconditions

– Cables must be routed before the wall is sealed.

– Always install cavity wall boxes for data and extra-low-voltage devices separately from cavity wall boxes for low-voltage devices.

– Install cavity wall boxes for devices with different circuits separately from one another.

6.2 Creating drill holes

The holes for the cavity wall boxes are created using an appropriate drill bit/hole grinder for the panelling material to be drilled through. A centring tip must be used for better guidance. The drilling diameters are Ø 35 mm for cavity wall outlet boxes, Ø 68 mm for single standard boxes and Ø 74 mm for CEE/PERILEX boxes. For double boxes, two holes with Ø 68 mm are drilled next to each other and the cavity sawn out.

Note! *The centre distance between two standard cavity wall boxes, which are either placed next to or above each other and have a diameter of 68 mmm, must be 71 mm so that devices and cover frames can be mounted correctly.*

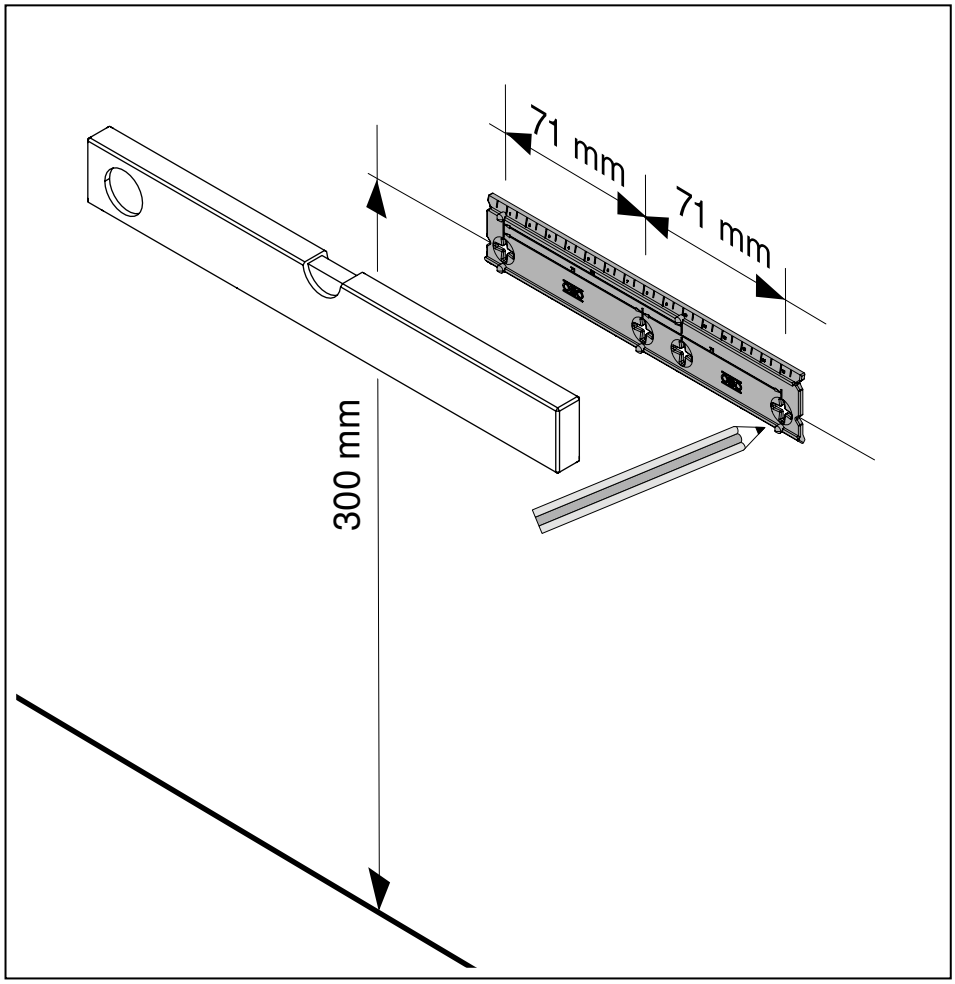

Fig. 5: Drawing on the drill hole

1. Draw on the drill holes, ensuring a standardised horizontal or vertical alignment.

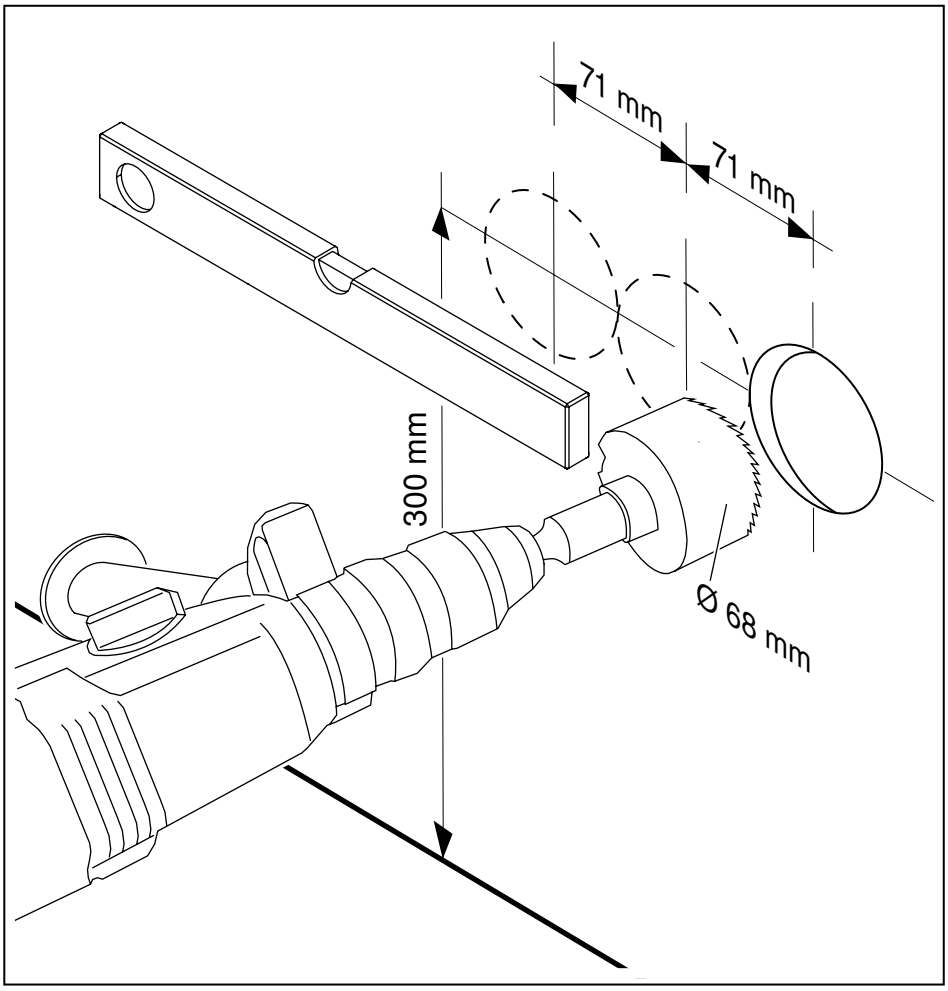

Fig. 6: Creating drill holes

2. Drill the hole for the cavity wall box.
3. If necessary, chip out the drilling core from the hole using a hammer and chisel.

6.3 Inserting cables and pipes

Note! *The cables or pipes must be inserted into the cavity wall boxes before insertion into the wall. The break-out openings are labelled with dimensional data, guaranteeing the right selection for the appropriate cable.*

With the standard boxes, the pre-marked break-out openings are broken out with a screwdriver. With the airtight cavity wall boxes, cables and pipes are simply pushed through the membrane.

CAUTION

Risk of injury!
When piercing the insertion openings with the screwdriver, it is possible to hit and injure your hand. When holding the box, do not place your hand over the box opening.

Insertion into the standard cavity wall box

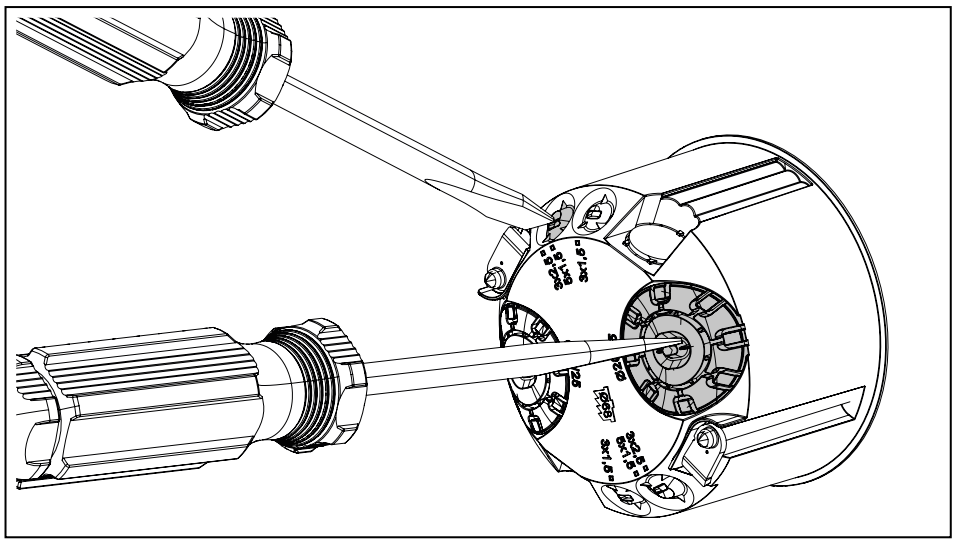

Fig. 7: Breaking out the break-out openings

1. With the standard boxes, break out the break-out openings with a screwdriver.

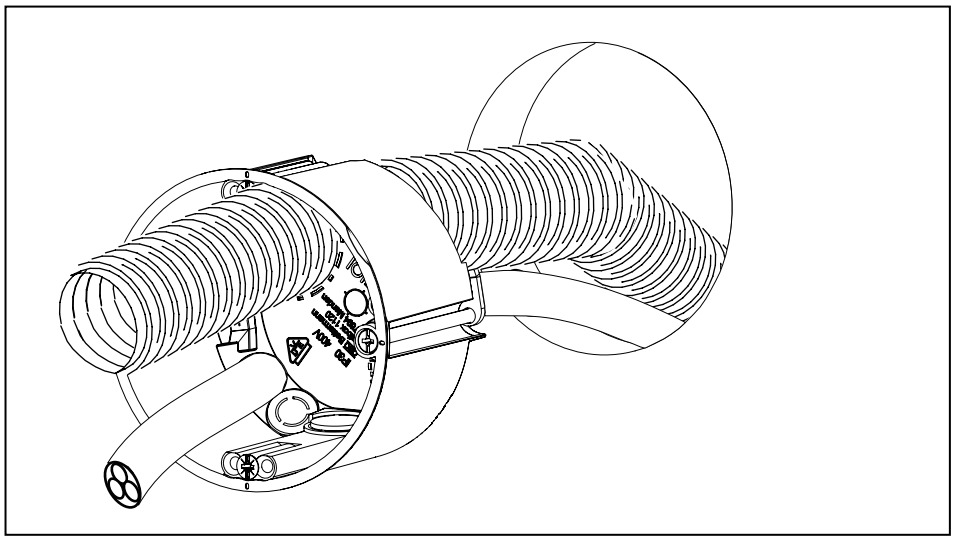

Fig. 8: Inserting the cable and corrugated pipe into the cavity wall box

2. Insert the cable and/or corrugated pipe.

Note! *It is possible to pull the corrugated pipes out of the break-out openings, although this is hindered by locking lugs on the openings.*

Insertion into the airtight cavity wall box

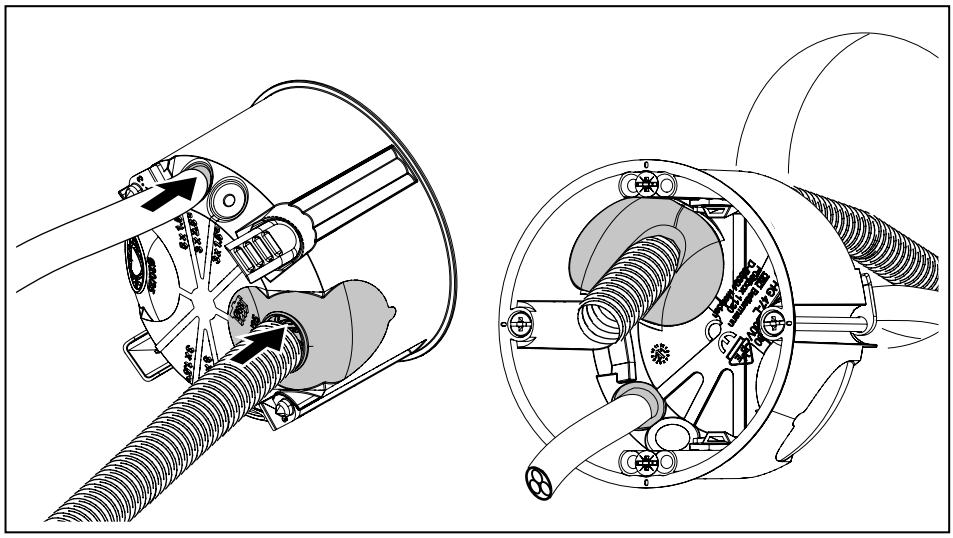

Fig. 9: Inserting the cable and corrugated pipe into the airtight cavity wall box

1. Pierce the airtight opening with the cable or corrugated pipe.

Note! *A tear stop on the airtight TPE membrane entry prevents the membrane from tearing open more after penetration with a cable or corrugated pipe, thus guaranteeing the airtightness of the cavity wall box.*

6.4 Fixing cavity wall boxes in the wall

Cavity wall boxes are fixed to the panelling using clamping lugs.

Note! *The cables must be inserted in the boxes before the cavity wall boxes are inserted in the wall.*

Note! *If a number of cavity wall boxes are installed either next to or above each other, the boxes have to be turned in such way that the screws for the fastening points sit either vertically above each other or horizontally next to each other, so that the clamping plates have material to fasten to.*

ATTENTION

Danger of damage to property!
If the clamping lugs are tightened too tightly, the panelling may burst.
Only tighten the clamping lugs until a slight resistance can be felt.

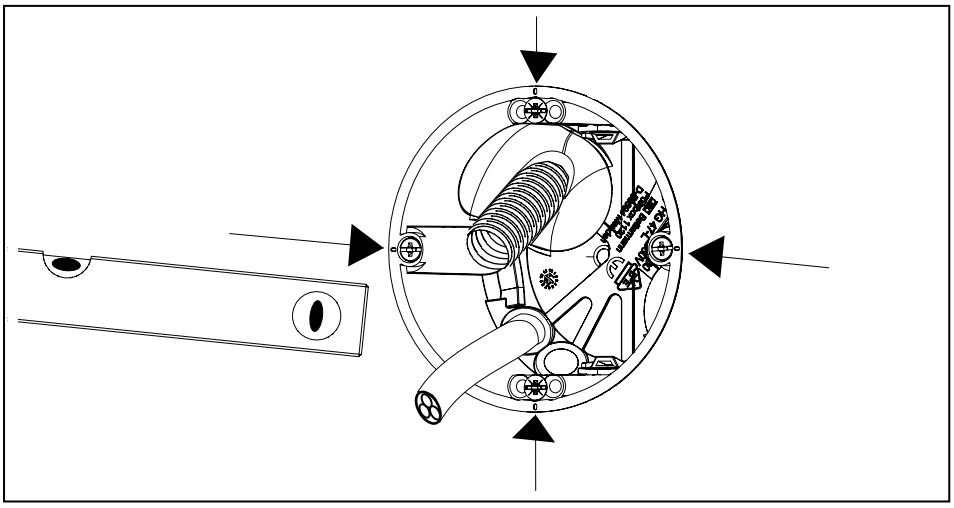

Fig. 10: Aligning the cavity wall box

1. Insert the box in the drill hole and align it.

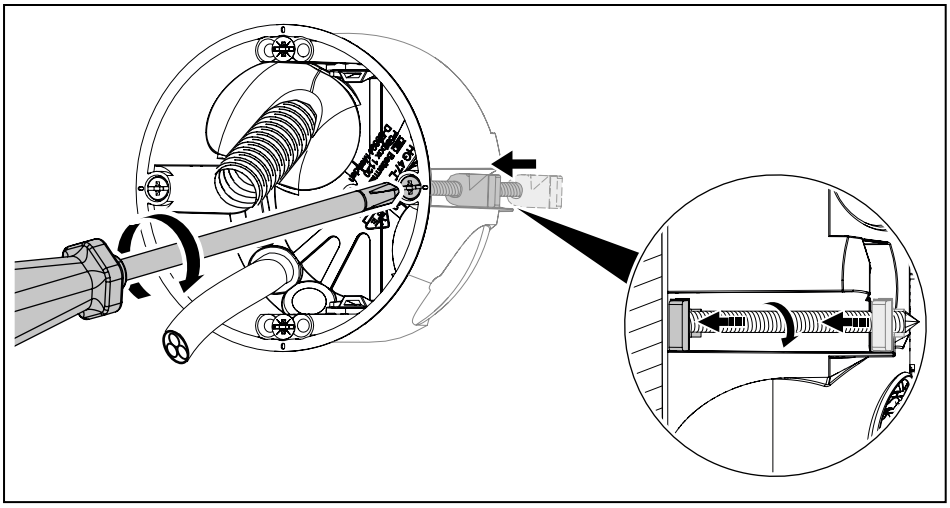

Fig. 11: Fixing the cavity wall box

2. Tighten the screws until the clamping lugs clamp to the planking.

6.5 Connecting device boxes with connector

Multiple device boxes can be connected with the connector, in order to pull cables from one box into another. Airtight boxes can be connected in an airtight manner using the connector.

6.5.1 Inserting connector with standard boxes

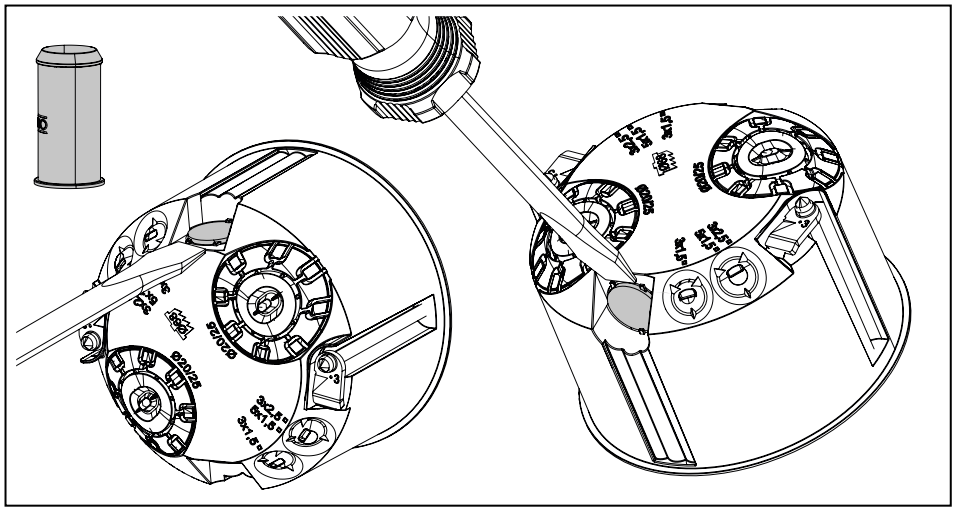

Fig. 12: Creating an opening for the connector on the standard box

1. Break out an opening for the connector on the boxes to be connected.

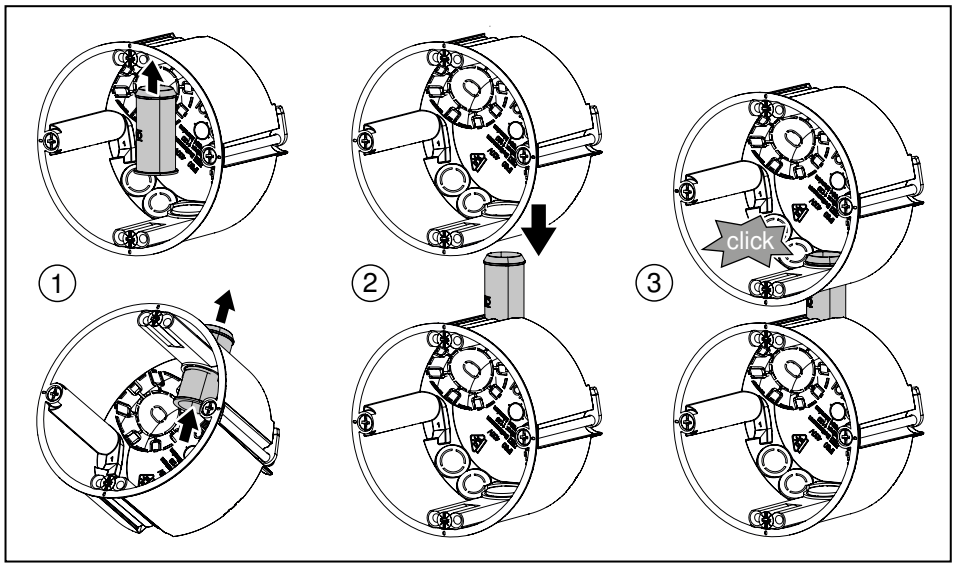

Fig. 13: Inserting and connecting connectors

2. Push the connector through the opening with the fibre side on the box interior (①).
3. From the outside, push the connector through the opening of the second box (②) until it engages (③).

6.5.2 Inserting connector with airtight boxes

With airtight cavity boxes, a strap is torn off on the outside of the box, in order to create the opening for the connector. If the cavity wall box has already been installed, then the opening can be created at a later time by levering the strap out from the inside using a screwdriver.

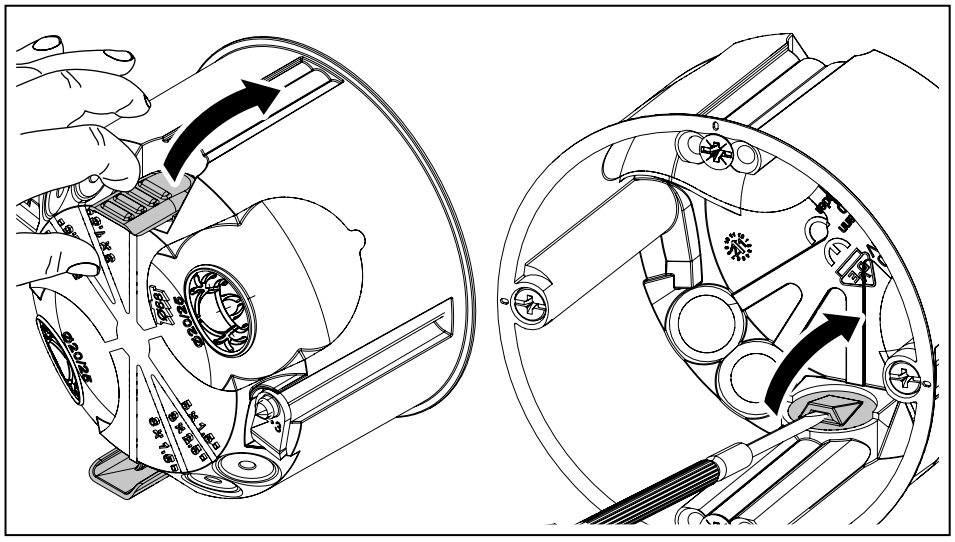

Fig. 14: Creating an opening for the connectors on an airtight box

1. Tear off the strap or lever out using a slotted screwdriver.

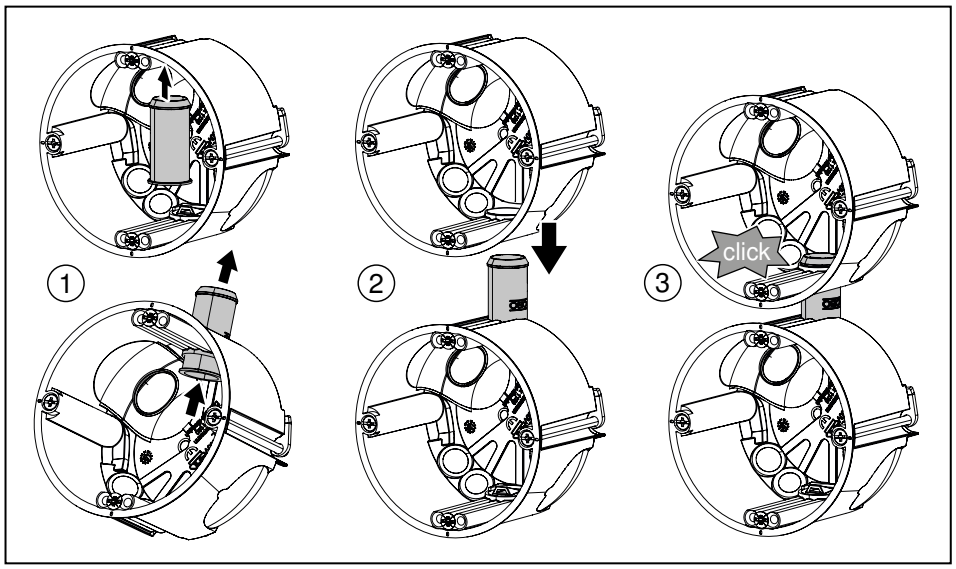

Fig. 15: Insert the connector

2. Push the connector through the opening with the fibre side on the box interior (①).
3. From the outside, push the connector through the opening of the second box (②) until it engages (③).

6.5.3 Mounting cavity wall boxes with fastening element

Cavity wall boxes can be fastened to thin planking using fastening elements, which compensate for the missing thickness between the panelling surface and clamping lug.

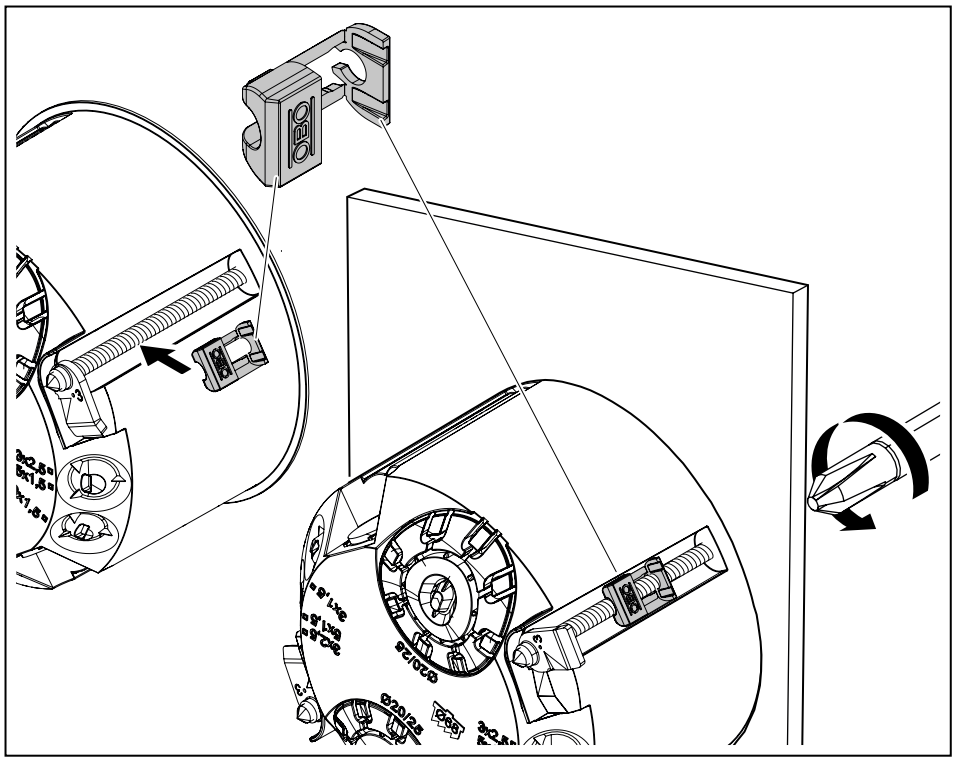

Fig. 16: Applying the fastening element

1. Place the fastening element on the clamping lug screw.

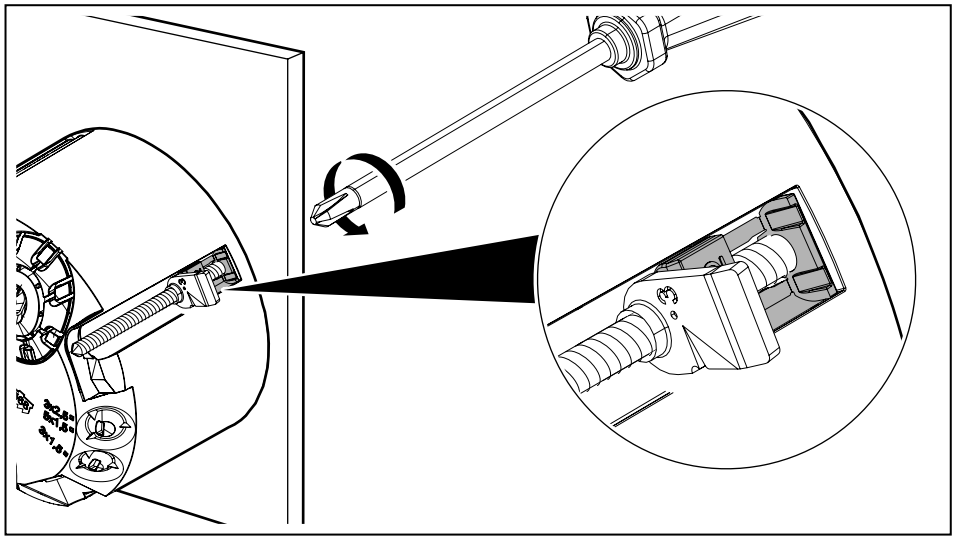

Fig. 17: Tightening the clamping lug

2. Tighten the clamping lug with the screwdriver.

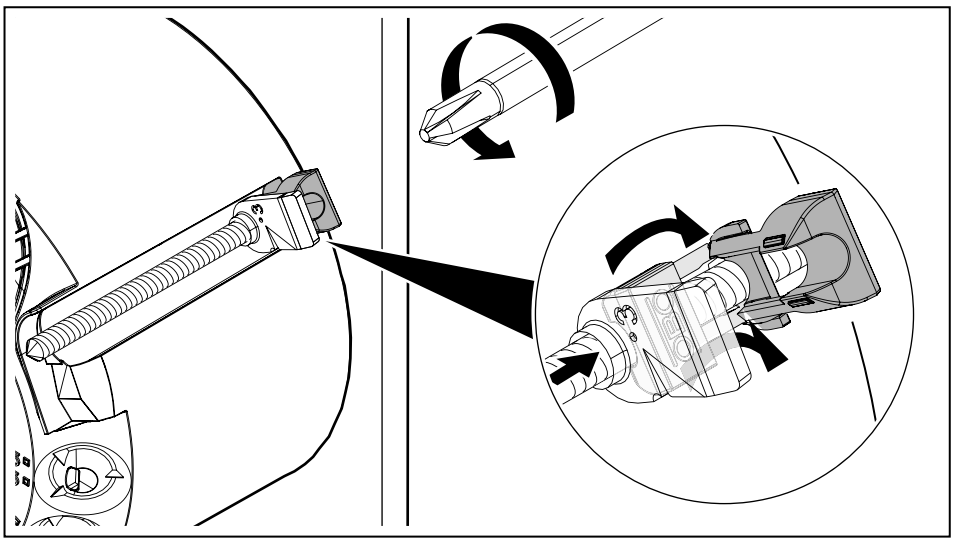

Fig. 18: Clamping the fastening element

3. Tighten the clamping lug until the fastening element folds over and clamps between the clamping screw and panelling.

6.6 Inserting devices

The devices can be used after papering or painting/plastering. The 4 x 3 screw domes allow exact alignment of the devices.

WARNING

Danger to life!
Work in and on electrical systems poses the risk of electrical accidents with lethal injuries. To prevent this, apply the 5 safety rules: Before starting work, disconnect the system, secure it against switch-on, ensure de-energisation, earth it and short-circuit it, cover or restrict any adjacent energised parts.

ATTENTION

Danger of damage to property!
Spreading clamps of switches and sockets may not be tightened, as they can damage the cavity wall box or insulation of cables. Only fasten the switches and sockets within the cavity wall box using device screws.

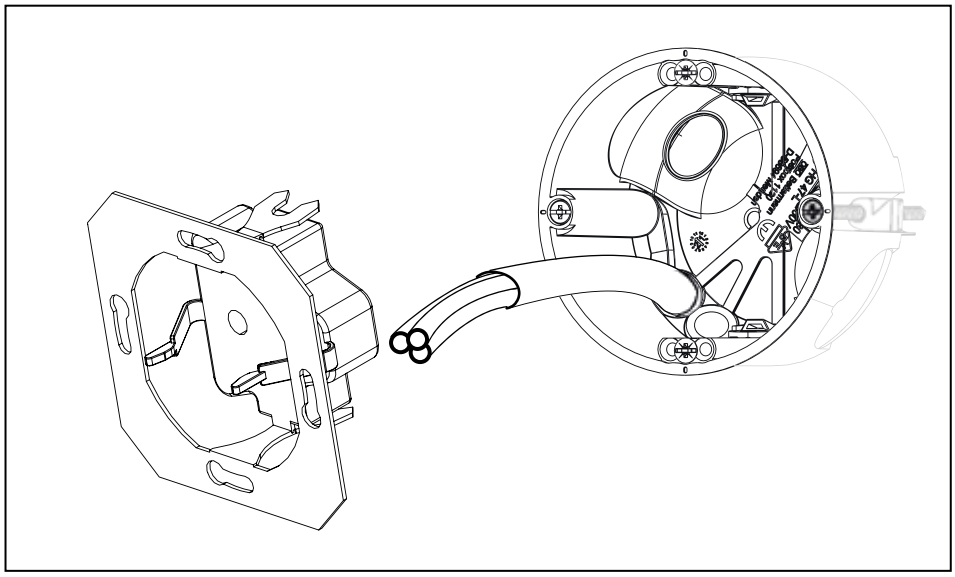

Fig. 19: Connect the device with cables

1. Connect the device with cables.

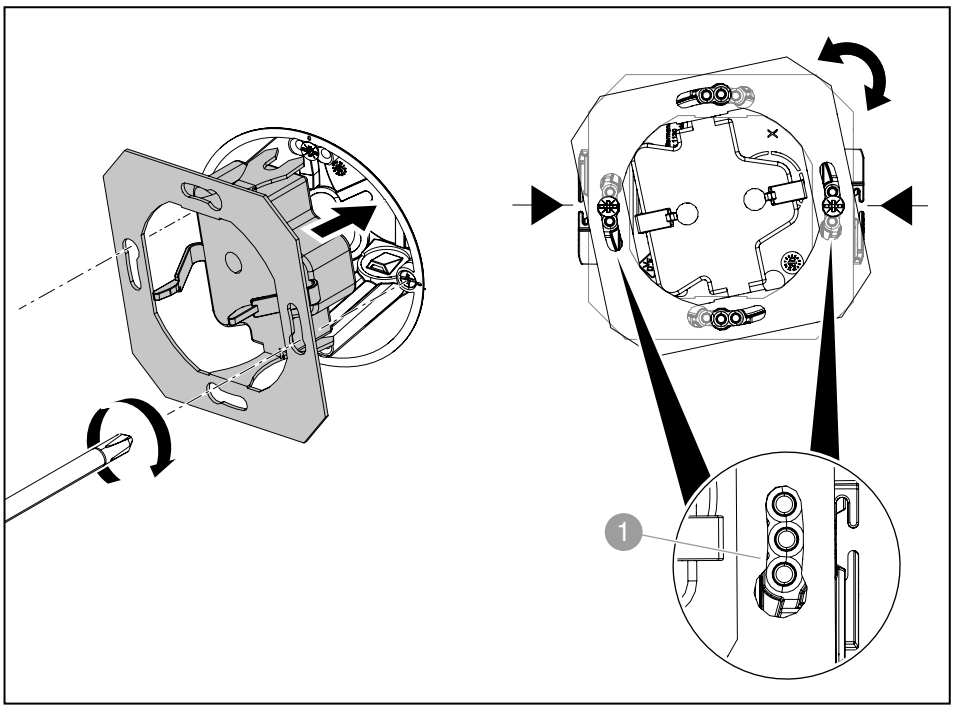

Fig. 20: Inserting a device

2. Insert the device and align it horizontally/vertically.
3. Fasten the device in the matching screw domes 1 with device screws.

Aligning multiple devices

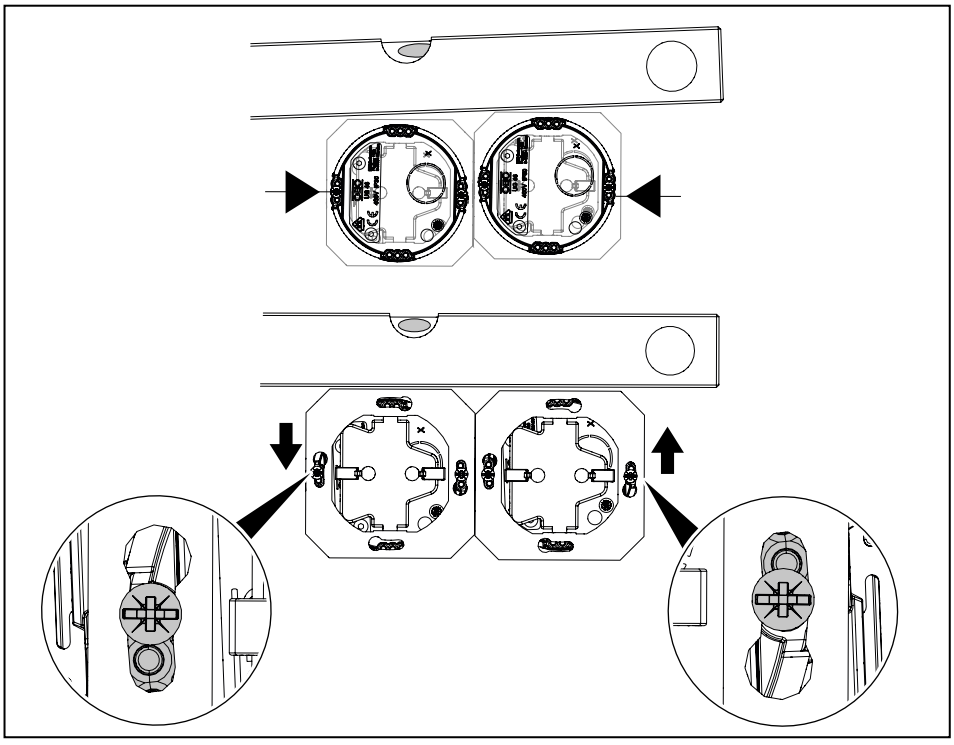

Fig. 21: Aligning multiple devices

1. Align the devices horizontally.
2. Fasten the devices in the matching screw domes with device screws.

6.7 Mounting accessories

6.7.1 Inserting a sealing insert

Using a sealing insert, the standard cavity wall boxes can be made air-tight at a later stage when mounting the devices.

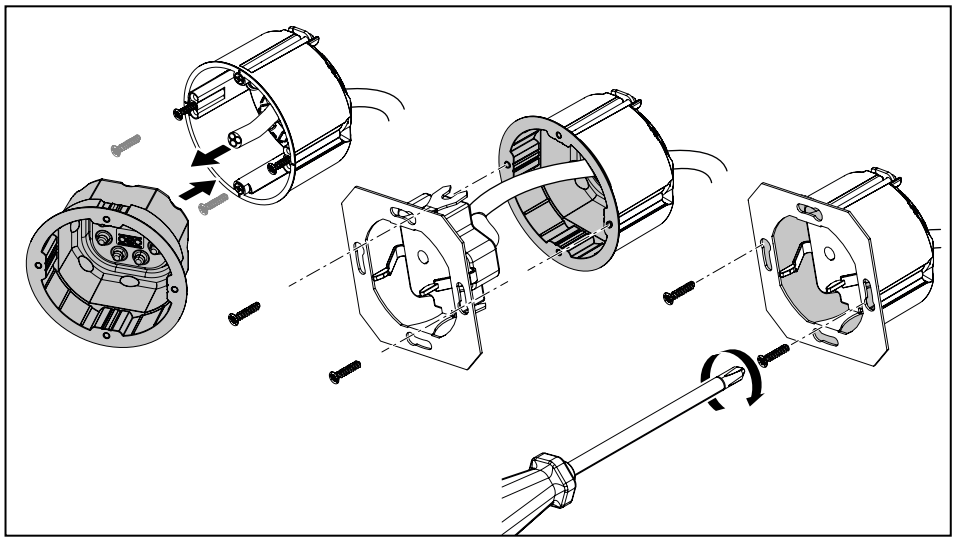

Fig. 22: Inserting a sealing insert with a device

1. Screw the device screws out of the cavity wall box.
2. Pierce the sealing insert with the cables.
3. Insert the sealing insert in the cavity wall box.
4. Connect the device with cables and insert it in the sealing insert.
5. Fasten the sealing insert and the device using the device screws.

6.7.2 Mounting a compensation ring

The compensation ring can be used to compensate for an offset of 10 or 20 mm between the top edge of the cavity wall box and the surface of the panelling.

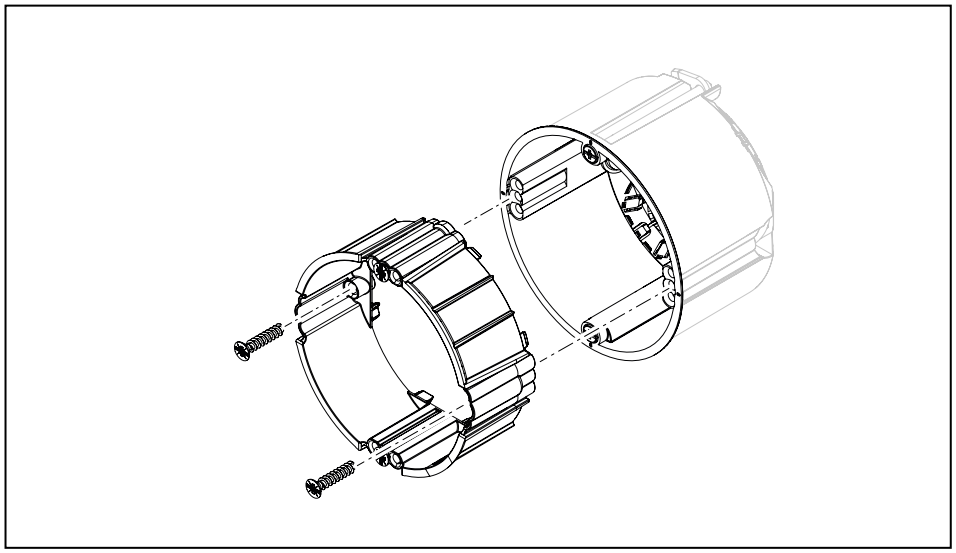

Fig. 23: Mounting a compensation ring

1. Screw the device screws out of the cavity wall box.
2. Place the screw domes of the compensation ring on the screw domes of the cavity wall box.
3. Screw on the compensation ring with the device screws.

6.7.3 Inserting a compensation ring

The compensation ring can be used to compensate for tolerances in drill holes.

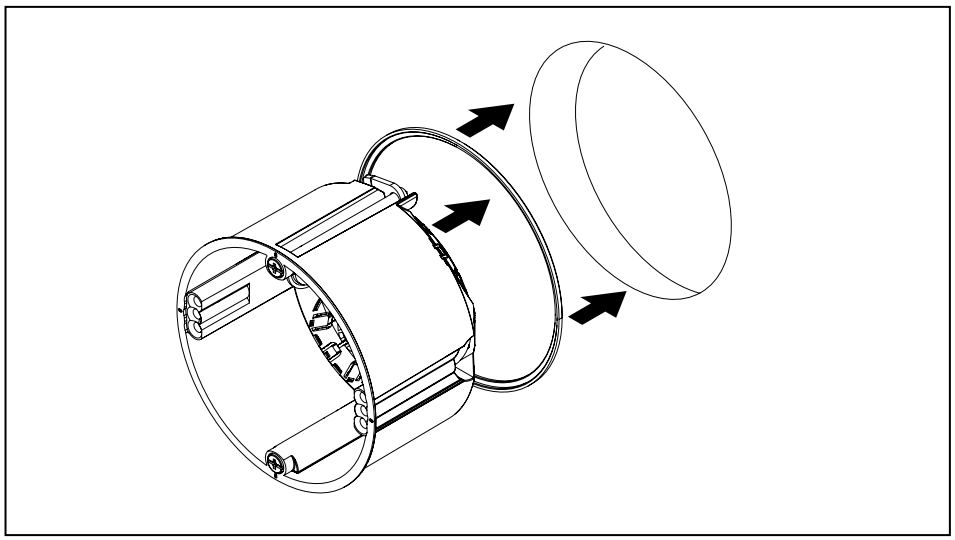

Fig. 24: Inserting the compensation ring

1. Push the cavity wall box onto the compensation ring and push it into the drill hole.

6.7.4 Inserting a sealing plug

The screw plug can be used to close empty corrugated pipes or pipes with cables airtight. Cables laying in the pipe can be pushed airtight through the screw plug.

Inserting the sealing plug in an empty pipe

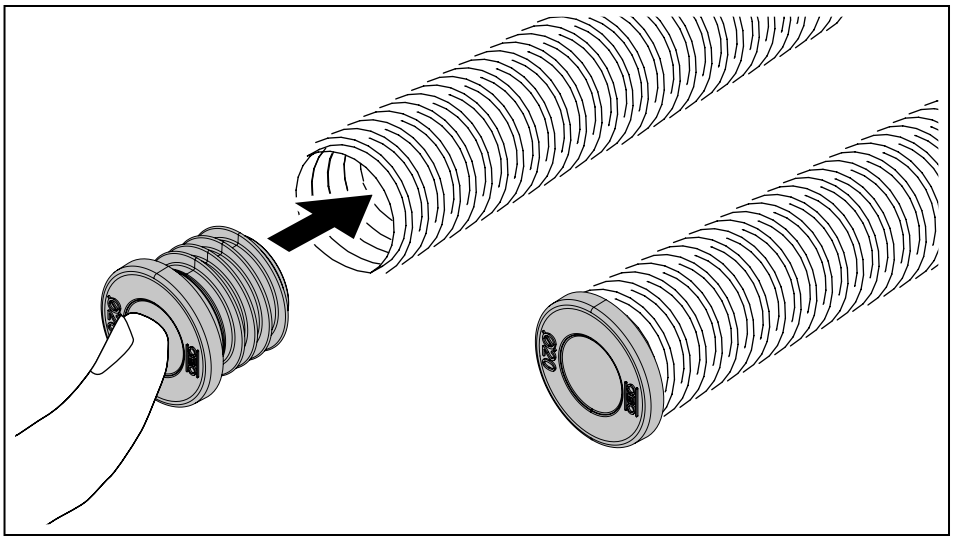

Fig. 25: Inserting the sealing plug

1. Push the sealing plug into the corrugated pipe up to the stop.

Inserting the sealing plug in a pipe with cable

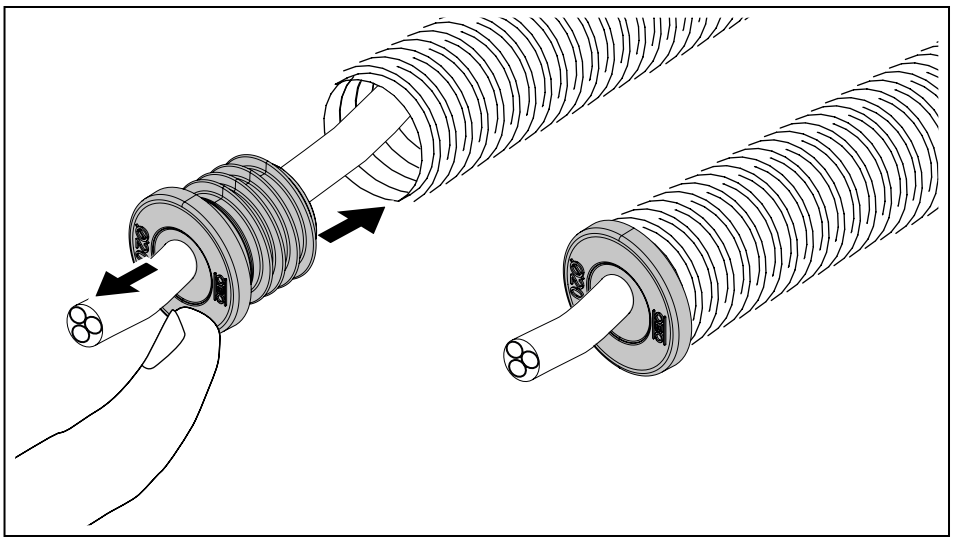

Fig. 26: Inserting sealing plug with cable

1. Pierce the sealing plug with the cable.
2. Push the sealing plug into the corrugated pipe up to the stop.

6.7.5 Mounting the cover

The different covers can cover empty boxes, e.g. to paper them.

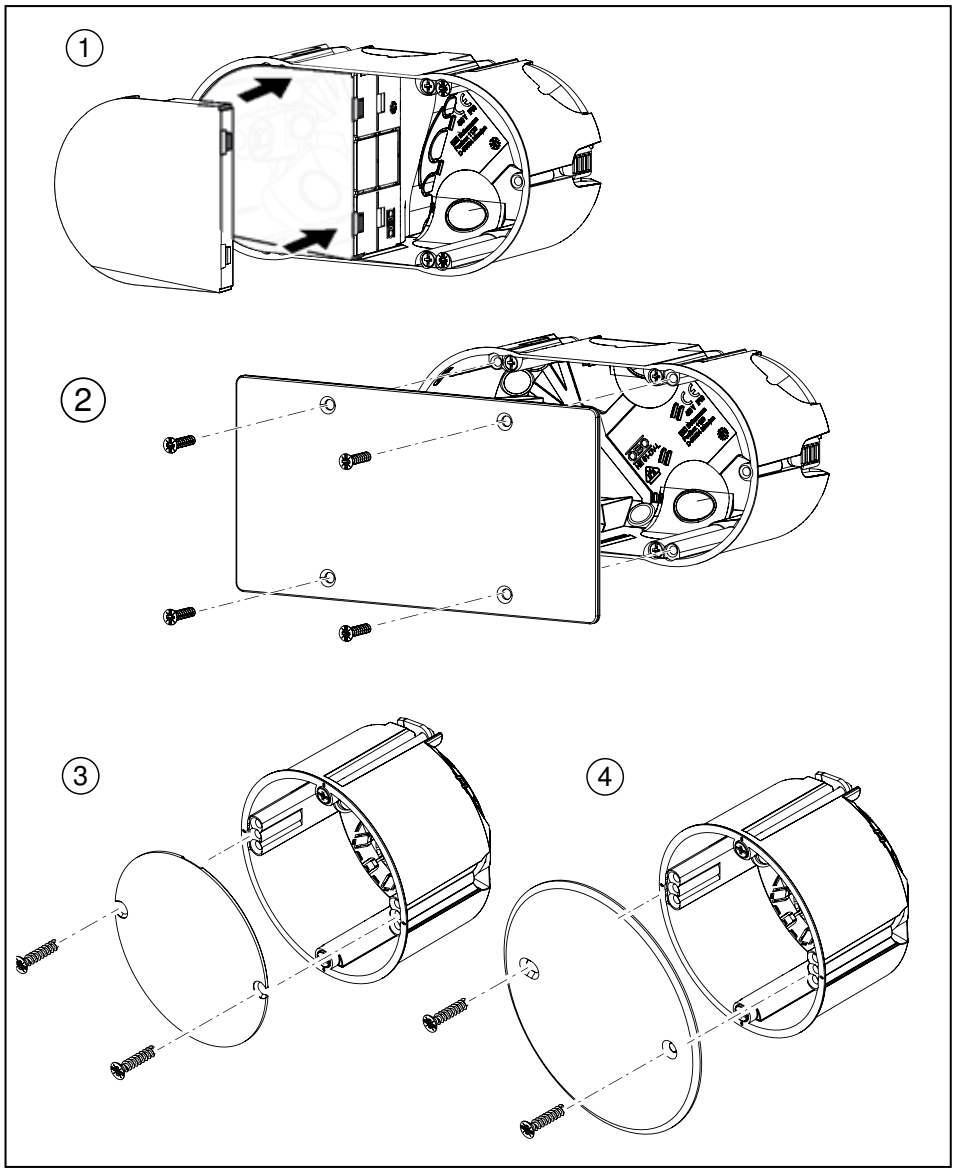

Fig. 27: Mounting the cover

1	Half cover for double electronic box with partition	Place the cover on the box.
2	Cover for double electronic box	Screw the cover to the box.
3	Internal cover for single cavity wall box	Screw the cover to the box.
4	Universal cover for single cavity wall box	Screw the cover to the box.

6.7.6 Using partitions

The partition can be used to wire cables with different voltages in double electronic boxes. In addition, the partition has 4 break-out openings so cables can be pulled from one side to the other.

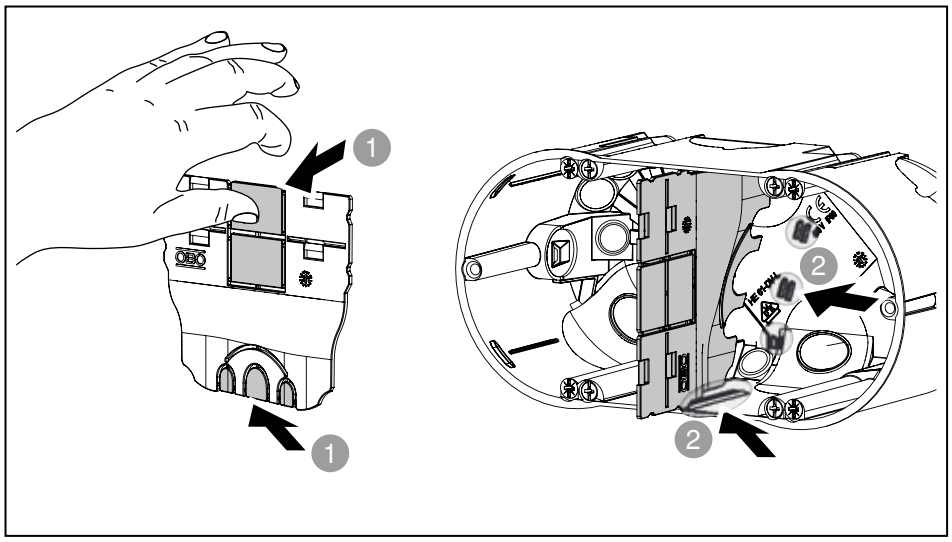

Fig. 28: Using partitions

1. Break out the required number of break-out openings 1 from the partition.
2. Insert the partition into the guides 2 of the box.

7 Maintaining cavity wall boxes

Cavity wall boxes do not require maintenance.

8 Dismantling cavity wall boxes

Loosen the clamping lugs with a screwdriver and pull the cavity wall box out of the drill hole.

9 Disposing of the system

Comply with the local waste disposal regulations.

– Metal: As scrap metal
– Plastic parts: As plastic
– Packaging: As household waste/as metal (depending on packaging type)

10 Technical data

PP = Polypropylene
TPE = Thermoplastic elastomer
PC = Polycarbonate
ABS = Acrylonitrile butadiene-styrene
PE = Polyethylene
PS = Polystyrene

HW Cavity wall boxes

Designation	Type	Dimensions mm Ø x depth	Material	Item no.
HW Cavity wall device box, flat design	HG 35	Ø 68 x 35	PP	2003800
HW Cavity wall device box	HG 47	Ø 68 x 47	PP	2003802
HW Cavity wall device box, airtight	HG 47-L	Ø 68 x 47	PP and TPE	2003806
HW Cavity wall device box	HG 61	Ø 68 x 61	PP	2003804
HW Cavity wall device box, airtight	HG 61-L	Ø 68 x 61	PP and TPE	2003808
HW Cavity wall device box, double version	HG 47-DV	2 x Ø 68 x 47	PP	2003822
Cavity wall electronic box, airtight	HE 61-L	Ø 68 x 75	PP and TPE	2003828
Cavity wall electronic box, double version, airtight	HE 61-DV-L	2 x Ø 68 x 61	PP and TPE	2003826
HW Cavity wall outlet box, airtight, with cover	HG 45-WA-LD	Ø 35 x 45	PP and TPE	2003832
HW Cavity wall outlet box, airtight, double combination	HG 45-WAD-LD	2 x Ø 35 x 45	PP and TPE	2003834

Accessories

Designation	Type	Dimensions mm	Material	Item no.
Sealing insert for device boxes	ZA 60-DE	Ø 61 x 40	TPE	2003719
HW Connector for cavity wall device box	ZH 11-V	Ø 12.9 x 28	PP	2003846
HW Compensation ring for cavity wall device box (depth 10 and 20 mm)	ZH 10-AR/ ZH 20-AR	Ø 68 x 10 Ø 68 x 20	PP PP	2003842 2003844
HW Compensation ring, cavity wall device box ø 68 mm	ZH 68-AR	Ø 68 x 2	PP	2003840
HW Fastening element for thin planking	ZH 12-DB	12 x 8 x 5	PP	2003854
Sealing foil for cavity wall device box	ZH 68-DF			2003850
Inner fitting cover for cavity wall device box	ZH 60-ID	Ø 65	PC/ABS	2003848
Universal cover	ZH 60-D	Ø 84	PC/ABS	2003748
UP/HW cover, double combination	ZA 60-DV	145 x 75 x 2	PC/ABS	2003823
Sealing plug for M20/M25, airtight	ZA 20-VS/ ZA 25-VS	Ø 20 Ø 25	TPE	2003737 2003738

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