

Installation instructions

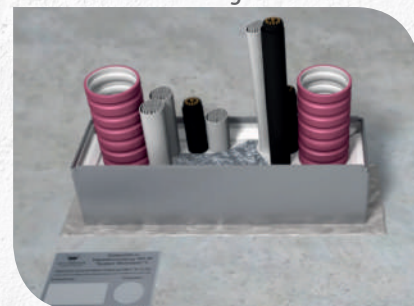
EI90 cable boxes “System Wichmann”[®]

ceiling 350 mm depth, rectangular

ETA 13/0902

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Installation in ceilings



Installation in walls



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Installation in walls

Conditions of installation and possible cable configurations:
technical datasheet 13/0902-02



Installation



1. A layer of gypsum or mortar must be set into the opening of the wall. In plaster-board walls an additional embrasure for the opening is necessary.



2. Place the box in the wall opening. The box must not stick out more than 12,5 cm on no side of the wall.



3. The entire space around the box must be filled with mortar for the entire depth of the wall.



4. Installed and cleaned box.



5. As a physical provision for later cabling, the box may also remain empty. Only the EasyFoam - stoppers must be placed in the box opening and the remaining openings must be sealed e.g. with silicone.



6. The inner space may be used 100% for cable laying. If there are large numbers of cables, it may be necessary to seal the gaps between the cables beforehand.



7. If the cables are already run, the box can be opened by bending the corner latches and so can be put around the cables.



8. The disassembled boxes must be reassembled around the cables and grouted as described above.



9. After running the cables, cut the EasyFoam stopper a few mm less than required so that it is a little compressed after putting it into the opening.



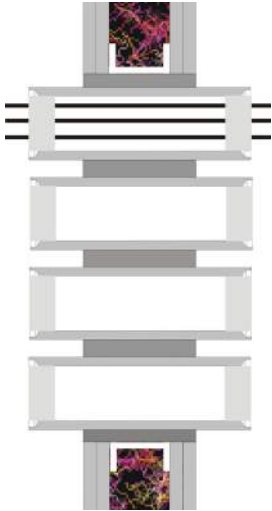
10. The stopper (with the foil on the outside) must be put in the remaining opening. Offcut may be used to seal conduits.



11. Finally, all remaining openings must be sealed smoke-proof with a permanently flexible sealant such as silicone.

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Installation



12. Groups of boxes in plasterboard walls must be fitted with a c-profile above and below.

13. Open ends of conduits have to be sealed smoke-proof as well, which can be done with EasyFoam stoppers, mineral wool with silicone or plastic caps and a permanently flexible sealant such as silicone or acrylic.

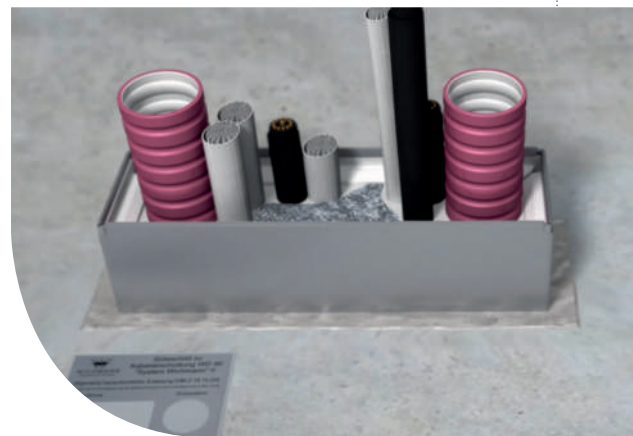
14. Subsequent installation:
For subsequent installation or removal of cables follow point 9 to 11.

15. Damages
To ensure the permanent function of the cable box, the inner packages of the boxes must not be damaged. It is not allowed to bore holes in the boxes and the boxes may not be cut to size. If the boxes are damaged, contact Wichmann Brandschutzsysteme to determine if the inner packages can be repaired or have to be replaced. Please send a short description of the installation situation and photos of the damaged boxes to info@wichmann.biz.

If you have any questions about installation, please do not hesitate to contact us by telephone +49 2722 6382-0 or by email info@wichmann.biz.

Installation in ceilings

Conditions of installation and possible cable configurations:
technical datasheet 13/0902-02



Installation



1. First you clamp a slab under the ceiling using for example a wood lath.



2. Place the cable box in the opening so that the gap around the box can be filled completely with mortar. The box must not stick out more than 10 cm on no side of the ceiling. You can use a trowel or a mortar syringe for an easy filling of the mortar.



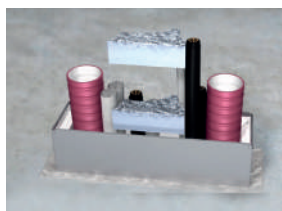
3. As soon as the mortar is hardened you can lay cables and plastic tubes according to the data sheet 13/0902-02 through the cable box. The inner space of the cable box can be used 100 % for cable laying without any distances.



4. The stopper (with the foil on the outside) must be put in the remaining opening. Offcut may be used to seal conduits.



5. Finally, all remaining openings must be sealed smoke-proof with a permanently flexible sealant such as silicone or acrylic.



6. If it is not possible to seal the cable box from both sides, it is sufficient to seal the box from one side with three EasyFoam stoppers one behind the other or with mineral wool and one EasyFoam stopper using a permanently flexible sealant such as silicone or acrylic (see point 5).



7. If the cables are already run, the box can be opened by bending the corner latches and so can be put around the cables.



8. The disassembled boxes must be reassembled around the cables and grouted as described above.

9. Open ends of conduits have to be sealed smoke-proof as well, which can be done with EasyFoam stoppers, mineral wool with silicone or plastic caps and a permanently flexible sealant such as silicone or acrylic.

10. Subsequent installation:

For subsequent installation or removal of cables follow point 4 to 8.

Installation

11. Damages

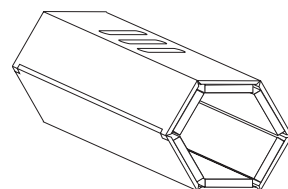
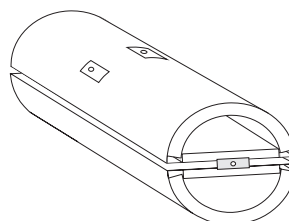
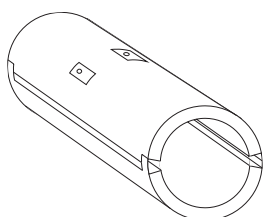
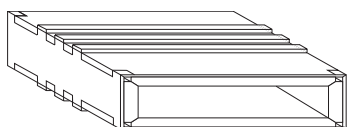
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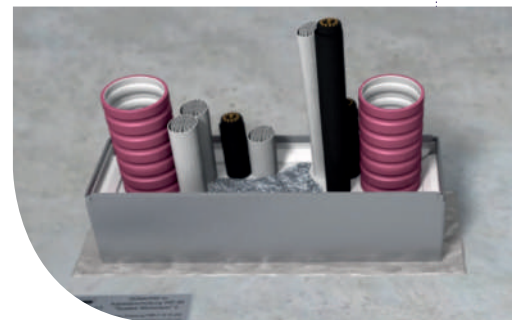
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Technical datasheet 13/0902-02

EI90 cable box „System Wichmann“[®] ceiling

All types, depth 350 mm
according to ETA 13/0902, effective 06/2013





Field of application

Single and group installation in massive walls

- » of masonry, concrete, reinforced concrete or aerated concrete with a density $\geq 630 \text{ kg/m}^3$
- » Thickness $\geq 100 \text{ mm}$
- » The walls must be classified according to EN 13501-2 (maximum EI 90) corresponding to the required fire resistance.

Single and group installation in plasterboard walls

- » Plasterboard walls with a steel substructure and a lining on both sides made from minimum 2 layers of 12,5 mm thick cement or gypsum based slabs with a fire reaction class A1 or A2 according to EN 13501-1.
- » The opening reveal shall be cladded as described below.
- » Plasterboard walls with a wooden substructure and a lining on both sides made from minimum 2 layers of 12,5 mm thick cement or gypsum based boards with a fire reaction class A1 or A2 according to EN 13501-1.
- » The distance between the wooden substructure and the seal shall be $\geq 100 \text{ mm}$ and the cavity between the linings of the wall and the wooden substructure / the seal shall be tightly clogged with mineral wool of fire reaction class A1 or A2 according to EN 13501-1 in a depth of minimum 100 mm.
- » The opening reveal shall be cladded as described below.
- » Thickness $\geq 100 \text{ mm}$
- » The walls shall be classified according to EN 13501-2 (maximum EI 90) corresponding to the required fire resistance.
- » Cladding of the opening reveal: A surrounding reveal (frame flush with the wall surface) of minimum 20 mm thick cement or gypsum based boards with a fire reaction class A1 or A2 according to EN 13501-1 (e.g. gypsum fibre or calcium silicate plates) shall be fitted in the opening and be fixed with a steel stud substructure.

Single and group installation in ceilings

- » Of masonry, concrete, reinforced concrete or aerated concrete
- » Density $\geq 550 \text{ kg/m}^3$
- » Thickness $\geq 150 \text{ mm}$
- » The ceilings must be classified according to EN 13501-2 (maximum EI 90) corresponding to the required fire resistance.

Group installation in walls

- » In walls cables boxes can be installed in groups with up to 3 boxes next to each other and 7 boxes on top of each other. The dimension of the group may be maximum 610 x 640 mm (HxB).
- » The minimum distance between cable box groups is 10 cm. If the length and/or breadth of one group next to another are bigger than 40 cm, the minimum distance is 20 cm.
- » The minimum distance between cable boxes is 1,5 cm.

Group installation in ceilings

- » In ceilings cable boxes can be installed in groups with up to 3 boxes in front of one another and unlimited boxes next to each other or boxes in one row in front of one another without any limitation.
- » The minimum distance between cable box groups is 10 cm. If the length and/or breadth of one group next to another is bigger than 40 cm, the minimum distance is 20 cm.
- » The minimum distance between cable boxes within the groups is 1,5 cm. For an easier installation in ceilings we recommend a distance of 3 cm between the boxes.
- » If more than 2 boxes are installed in front of one another in ceilings, they must be screwed together with distance anchors.

Distances

The minimum distance between cable boxes and openings for other installations is 10 cm. If the length and/or breadth of either the other opening or the box are bigger than 40 cm, the minimum distance is 20 cm.

Type of installations

Type	Description
Cables	<ul style="list-style-type: none"> » All types of sheathed cables (according to ETA 13/0902) currently and commonly used in buildings in Europe (e.g. power cables, data cables, telecommunication cables, fibre-optic cables, coaxial cables) $\varnothing \leq 80$ mm, design 4 $\varnothing \leq 50$ mm » The cables may be grouped as layers and laid on cable support constructions (see annex 2 to 8) » Cable bundles (consisting of parallel cables, densely packed and tightly bound, stitched or welded to one another) may pass through the opening provided that the external diameter of the individual cables in the bundle does not exceed 21 mm and the overall diameter of the cable bundle does not exceed 100 mm
Small tubes	» Small tubes made of steel or plastic with an external diameter ≤ 16 mm
Electrical installation conduits	<ul style="list-style-type: none"> » Flexible and inflexible electrical installation conduits according to EN 61386 with a diameter ≤ 63 mm » Electrical installation conduits may adjoin each other

* see ETA 13/0902 annex 13

- » The inner space of the cable box may be used 100 percent with cables, tubes and conduits.
- » Cables and electrical installation conduits may adjoin each other.

Airborne sound insulation

Cable box with	Sound reduction index according to DIN EN ISO 104-3	Norm sound level difference according to DIN EN 20140-10
EasyFoam stoppers	$R_w = 27$ dB	$D_{n,e,w} = 52$ dB
SoniFoam stoppers	$R_w = 37$ dB	$D_{n,e,w} = 59$ dB

Climatic conditions

Category of use Z1. In-house use with high humidity but without temperatures below 0 °C.



Scope of delivery

- » 1 Wichmann cable box ceiling
- » 2 EasyFoam stoppers or 2 SoniFoam stoppers
- » 1 set of installation instructions

Additionally required materials

Installation:

- » Dimensionally stable, non-combustible (class A1 or A2-s1,d0 according to EN 13501-1) materials, such as concrete, cement mortar or gypsum mortar or – when installing in walls – optional also mineral wool (fire performance class A1 or A2 according to EN 13501-1) with a melting point > 1000 °C according to DIN 4102-17 (vendor independent).

Sealing:

- » Permanently flexible sealant such as silicone or acrylic (vendor independent)
- » To maintain the cable box after further cable installations you may need new EasyFoam or SoniFoam stoppers.

Working distances

For the installation of rectangular boxes, because of the stiffening corrugations on the long sides of the box, we recommend a gap around the cable box of at least 2 cm to ensure that the space can be filled with mortar for the entire depth of the ceiling. For the installation of other forms of boxes depending to the mortar consistency a smaller gap may also be sufficient.

Depending on the situation and how much space is left around the cable box, the cable trays should end at least 5 cm in front of the cable box so that it is still possible to seal the boxes against smoke.

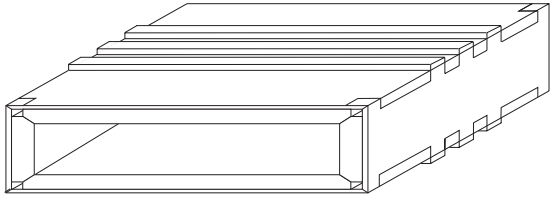
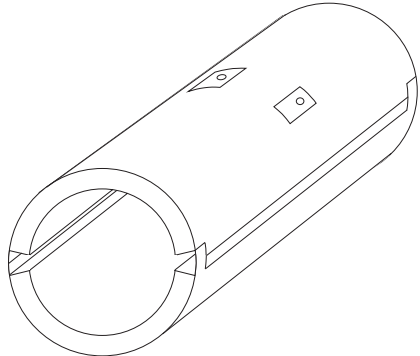
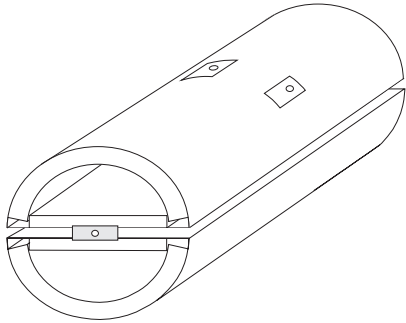
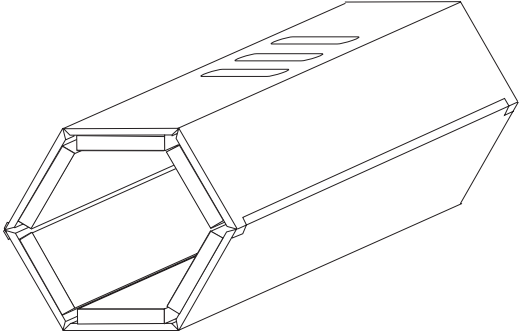
Construction of the cables boxes

The cable boxes consist of a sheet steel box with inner packages of intumescent material which expand in case of fire at around 100 °C. The interior of the box stays open and has to be sealed after the installation with melamine resin stoppers and a dimensionally stable sealant at both fronts.

Damages

To ensure the permanent function of the cable box, the inner packages of the boxes must not be damaged. It is not allowed to bore holes in the boxes and the boxes may not be cut to size. If the boxes are damaged, contact Wichmann Brandschutzsysteme to determine if the inner packages can be repaired or have to be replaced. Please send a short description of the installation situation and photos of the damaged boxes to info@wichmann.biz.

Types and sizes

Type	Sizes	Sketch
1-3	<p>maximum height 110 mm maximum breadth 640 mm depth 350 mm</p>	
round	<p>maximum diameter 110 mm depth 350 mm</p>	
half-round	<p>maximum diameter 235 mm depth 350 mm</p>	
hexagonal	<p>maximum diameter 110 mm (parallel surface) 128 mm (opposite corners) depth 350 mm</p>	



Declaration of performance

According to appendix III of EU Regulation No. 305/2011

for the building product cable box "System Wichmann"®

No. ETA 13/0902

1. Unique identification code of the product-type:

Kabelbox ETA 13/0902 – 6-2013-1

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):

Order number: on delivery note

3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:

EI 90 cable penetration seal for wall and ceiling duct of cables and plastic tubes (details see ETA 13/0902)

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

Wichmann Brandschutzsysteme GmbH & Co. KG
Siemensstr. 7, D-57439 Attendorn

5. Where applicable, name and contact address of the authorized representative whose mandate covers the tasks specified in Article 12(2):

N/A

6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:

System 1

7. In case of the declaration of performance concerning a construction product covered by a harmonised standard:

N/A

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:

The European Technical Approval ETA 13/0902 is issued by Deutsches Institut für Bautechnik in accordance with ETAG 026 part 2.

Based on the European Technical Approval ETA 13/0902 the Material Testing Office North Rhine-Westphalia (Notified Body No. 0432) has determined the product-type on the basis of an initial type testing, an inspection of the factory and its factory production control as well as the permanent control and evaluation of the plant's own production control.

The Material Testing Office North Rhine-Westphalia has issued:

EC-Certificate of conformity 0432-CPD-210006272

9. Declared performance:

Essential characteristics	Performance	Harmonised technical specification
Fire resistance Wichmann cable box wall Wichmann cable box ceiling	EI90	<p>ETA 13/0902 vom 28.08.2013</p>
Durability and serviceability	Category of use Z1	
Release of dangerous substances	none	
Reaction to fire of the intumescent materials	E	
Reaction to fire of the foam stoppers	Cs,d ₀	
Reaction to fire of the sheet steel boxes	A1	
Air permeability	NPD	
Water permeability	NPD	
Mechanical solidity	NPD	
Solidity against impacts/movements	NPD	
Adhesive strength	NPD	
Water vapour permeability	NPD	
Technical characteristics of heat protection	NPD	
Airborne sound insulation of a cable box with EasyFoam stoppers	$R_w = 27 \text{ dB}$ $D_{n,e,w} = 52 \text{ dB}$	Test report 1282-005-10 according to ISO 20140-10, ISO 140-3, ISO 717-1 (according to ETAG 026 part 2 – 2.4.9)
Airborne sound insulation of a cable box with SoniFoam stoppers	$R_w = 37 \text{ dB}$ $D_{n,e,w} = 59 \text{ dB}$	Test report 1075-001-07 according to ISO 20140-10, ISO 140-3, ISO 717-1 (according to ETAG 026 part 2 – 2.4.9)

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.
This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.
Signed for and on behalf of the manufacturer by:

Georg Wichmann, Managing Director

Attendorn, 3rd of December, 2013



(Signature)