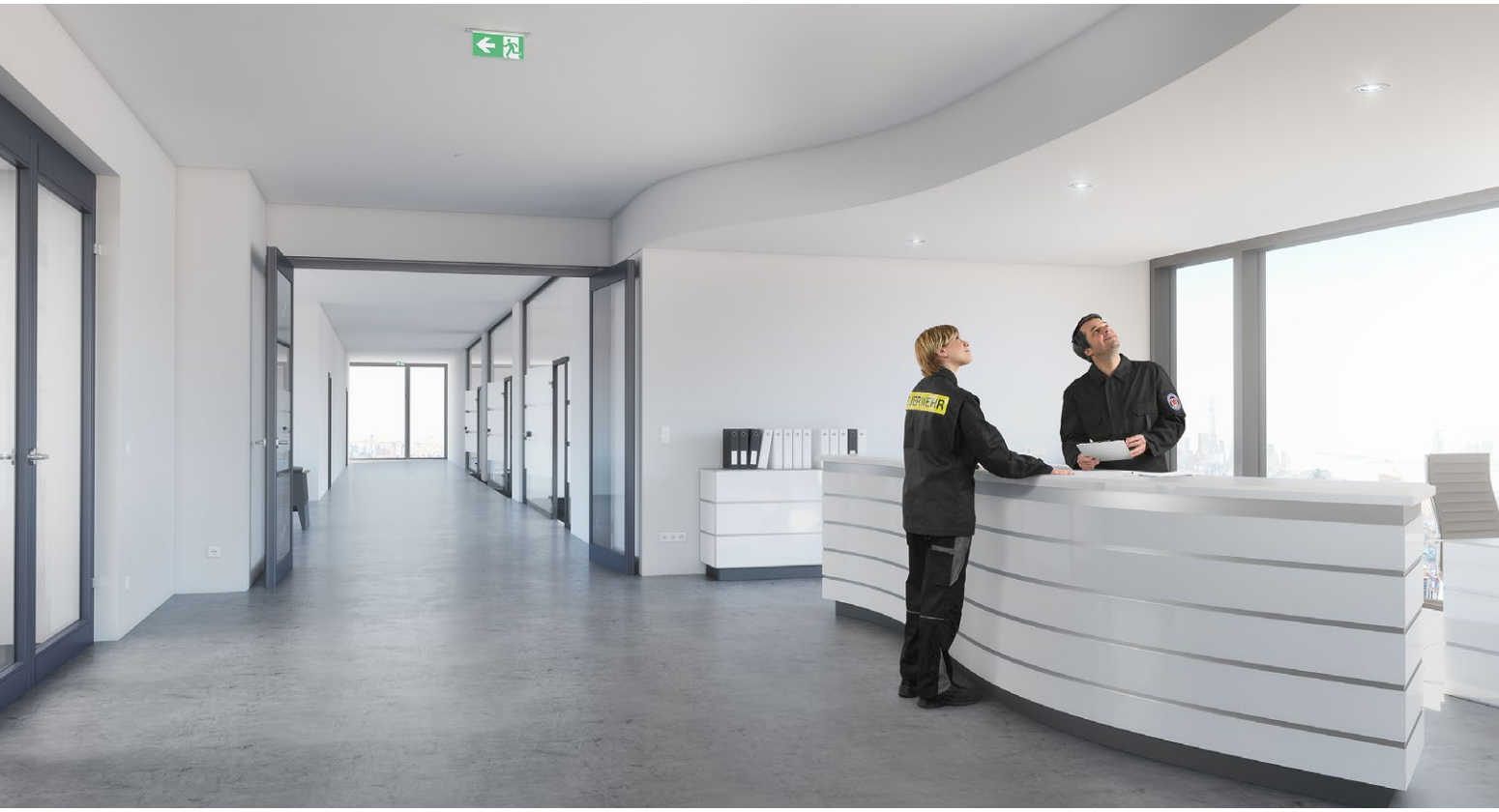
Fire protection.

Box, housing and sealing systems for fire protection walls and ceilings.



KAISER
Member of KAISER GROUP

For safe functions, rooms and escape routes. **Fire protection engineering.**

When it comes to structural fire protection, building technology planners and installers face particular challenges. Experience shows that a fire can start anytime, anywhere. Even strict fire regulations offer no guarantee in this respect. The greatest potential danger is not the building itself, but the technical and electrical systems.

For 90% of fire victims and around 70% of property damage, it was not the fire itself but dangerous, toxic smoke that was the decisive factor. In addition to preventing and fighting fire, it is therefore essential to prevent the formation and spread of smoke.

The most important goals of preventive fire protection are to save human lives and minimise damage to property. To this end, functional integrity of fire protection equipment, usability of escape routes and access for rescue services must be guaranteed.

KAISER fire protection systems have been providing you with reliable solutions for electrical installations in fire protection walls and ceilings for over 10 years, ensuring required fire resistance classes, even in the event of fire. Intelligent products for active, preventive fire protection made of fire-resistant, halogen-free materials that meet current legal and technical requirements. Products for walls and ceilings in buildings and for shipbuilding walls. Products that can save lives and prevent disasters with their reliability.

Requirements	Product solutions	
Installation in walls		
Professional and standardised.	**Flush-mounting fire protection box.**	10
For fire protection walls up to **EI120** or **F60-B**, installation shafts and ducts.	**HWD 90 fire protection box.**	12
Safe in cavity walls.	**HWD 68+ fire protection box.**	16
Installation for walls. Wall feed-throughs and entries		
For installation in solid wood walls.	**PROTECT® fire protection box.**	18
Feed-throughs and entries in cavity walls, masonry and concrete.	**Fire sealings.**	19
Safe wall feed-throughs and entries. Also for retrofitting.	**LS 90 cable sealing systems. RS 90 conduit sealing systems.**	21
Installation also in concrete and masonry.	**LS 90 / RS 90 cable and conduit sealing systems.**	21
Bundles inserted throughout every wall. Safe and available as a retrofit.	**DS 90 and DS 90 / 74 mm box sealing system.**	22
Installation also in concrete and masonry.	**DS 90 and DS 90 / 120 mm box sealing system.**	23
Easy closure. Permanently sealed.	**Sealing plugs.**	24
Installation in ceilings		
For EI30 – EI90 fire protection ceilings.	**HWD 30 fire protection boxes.**	26
For luminaires and loudspeakers.	**FlamoX® fire protection housing.**	28
Sealings in fire protection ceilings.	**DS 90/74 mm and DS 90/120 mm ceiling seal system.**	30
Protection against latent fire hazards.	**ThermoX® installation housing.**	34
Air-tight installation and preventive fire protection.	**ThermoX® LED installation housing.**	36

You can find corresponding product videos at www.youtube.de/kaiserelektro.

Legal requirements.
Fire protection engineering.

Building law in Germany falls under the jurisdiction of the federal states due to federalism. As part of a joint working group (ARGEBAU), the state ministries responsible for construction develop draft model laws, which can then be implemented as laws, ordinances or guidelines that are valid in the individual state with varying degrees of modification, depending on the respective federal state. Section 14* of the Model Building Code (MBO) defines the basis for fire protection:

***Section 14 MBO Fire protection** Nov. 2002

Structures shall be arranged, erected, altered and maintained in such a way that the development of fire and the spread of fire and smoke (fire spread) is prevented and, in the event of fire, the rescue of people and animals as well as effective extinguishing work are possible.

The requirements of the regional building law (BauO) and state building regulations (LBO) are supplemented by various decrees, implementing regulations, technical building regulations and building authority standards. In addition, defective fire protection is considered to be a deliberately concealed defect with a 30-year liability period. Planners and contractors even have a duty of care over the entire service life of a building. In the event of personal injury (death), Section 319 (construction hazard) of the German Penal Code (StGB) takes effect and threatens those responsible with large fines or even imprisonment.

The state building codes (LBO) differentiate buildings into:

- Buildings of normal type or use
  (residential buildings and buildings of comparable use)
- Buildings of a special type or use
  (industrial buildings, places of assembly or hospitals, etc.)

Building class 1
- Freestanding buildings up to 7 m height max. 2 usable units (max. 400 m²)

and
- Freestanding agricultural or forestry buildings

Building class 2
- Building up to 7 m height max. 2 usable units (max. 400 m²)

Building class 3
- Other buildings up to 7 m height

Building class 4
- Building up to 13 m height Usable units each max. 400 m²

Building class 5
- Other buildings including underground buildings

DIN 4102 defines the requirements of the wall and ceiling properties for the fire resistance classes. The prescribed fire resistance class depends on the building use and the building class (see table below).

For "buildings of a special type or use", supplementary ordinances apply, such as the Ordinance on Places of Assembly (MVSTättV), the Ordinance on Sales Premises (MvkVO), the Hospital Construction Ordinance (KhBauVO), the School Construction Directive (MschulbauR) or the Industrial Construction Directive (MidBauRL).

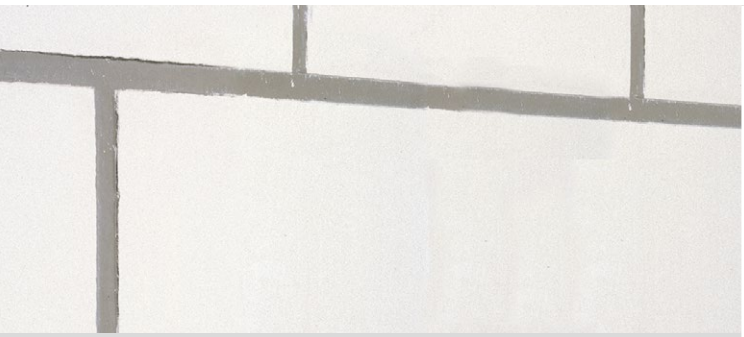
The regional building law (BauO) regulates the conditions that must be observed for every building project. The requirements relate to the property as well as its development. Requirements include:
- Observance of distances
- Statics
- Provisions for escape routes
- Protection against moisture
- Fire protection and thermal insulation

Fire protection requirements according to the MBO

Assignment of fire protection and fire resistance classes in building construction

Component	Section of the MBO	Building class				
	Section 2	1	2	3	4	5
	1)	h ≤ 7 m			h ≤ 13 m	h ≤ 22 m
Load-bearing walls, columns	Section 27	F0	F30	F30	F60	F90
Load-bearing walls, columns in the basement floor		F30	F30	F90	F90	F90
Load-bearing walls, columns in the top floor if there are living rooms above it		F0	F30	F30	F 60	F90
Non-load bearing exterior walls	Section 28	none			A or F30	A or F30
Partition walls	Section 29	F0	F30[2)]	F30	F60	F90
Ceilings	Section 31	F0	F30	F30	F60	F90
Ceilings in the top floor if there are spaces for interior use above them		F0	F30	F30	F60	F90
Basement ceilings		F30	F30	F90	F90	F90

1) The height refers to the upper edge of the floor of the uppermost storey above ground level 2) Does not apply to residential buildings
In special buildings (e.g. under the high-rise building directive) or fire and composite walls (VdS 2234), the fire resistance class can be up to F180.



A1 non-combustible building materials without organic components

A2 non-combustible building materials with organic components

B1 combustible building materials flame resistant

B2 combustible building materials normal flammability

Building material classes and fire resistance classes. **DIN 4102.**

The fire behaviour of building materials for walls or ceilings is influenced by the type, shape, surface, mass, material joints and processing technique. Building materials are classified according to fire classes **A** or **B**:

Building material class A – non-combustible building materials
A1 – without organic components
A2 – with organic components

Building material class B – combustible building materials
B1 – flame retardant building materials
B2 – normally flammable building materials
B3 – highly flammable building material

The fire resistance duration is the minimum duration in minutes during which a building component may not exceed a temperature increase of 140 K on average (max. 180 K at certain points) on the side facing away from the fire (according to DIN 4102-2).

The fire resistance duration is divided into the following classes:

F0/30	Fire retardant
F60	Highly fire retardant
F90/120/180	Fire resistant / highly fire resistant

Examples for **fire resistance classes**:

Walls, ceilings, columns	**F30/60/...**
Fire walls	**F90/120/...**
FS closures (doors, etc.)	**T30/60/...**
Cable sealings	**S30/60/90/...**
Installation ducts	**I30/60/90/...**
Conduit entries	**R30/60/90/...**
Function maintenance	
Electr. cables	**E 30/60/90/...**

Examples for **naming**:

F30-A	Fire-retardant / non-combustible building materials
F30-B	Fire retardant / combustible building materials
F90-A	Fire-resistant / non-combustible building materials
F30-AB	Fire retardant / non-combustible and combustible building materials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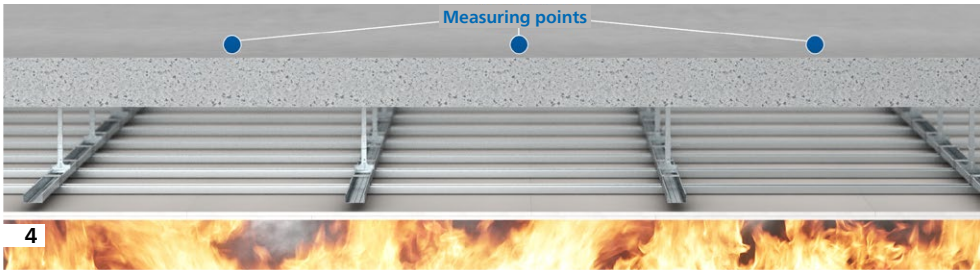

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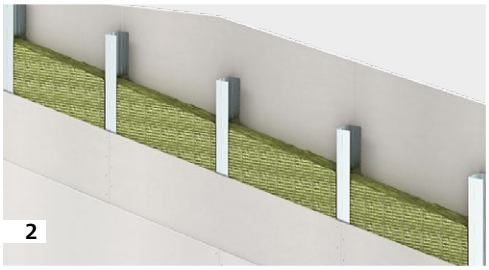
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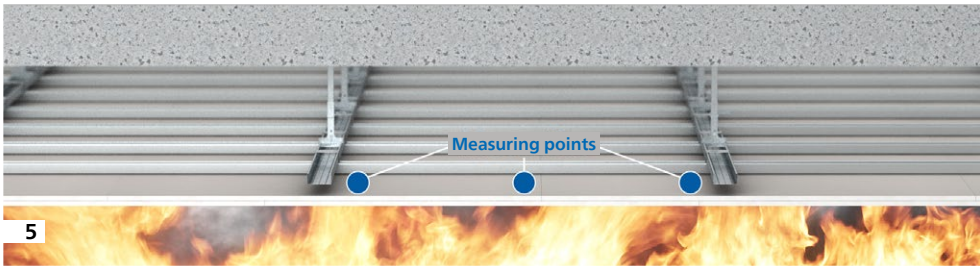

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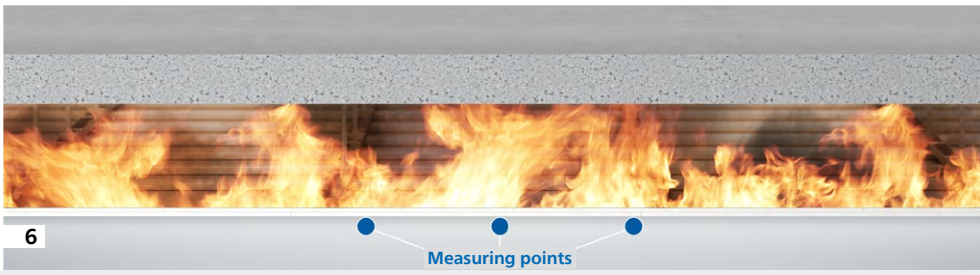

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1 + 2 Installation of F90 metal stud walling in compliance with DIN 4102, Part 4.
3 Structure of an EI90 solid wall.
4 Sub-ceilings under rough ceilings according to DIN 4102-4 of construction type I, II, III. Ceiling constructions consisting of rough ceilings and sub-ceilings provide the required fire resistance.
5 Self-supporting sub-ceilings. Self-supporting sub-ceilings provide the required fire resistance independently of rough ceilings.
6 Fire load from the ceiling cavity.

Walls and ceilings. **DIN 4102.**

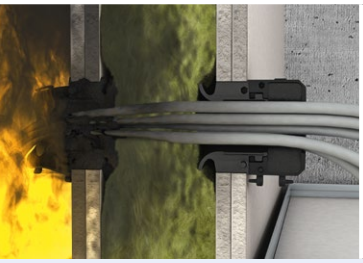
Fire protection walls or ceilings must not contain any openings. However, if it is necessary for the use of the building, closures for windows, ducts or installations must be carried out with a fire resistance of at least 30 to 90 minutes (e.g. F30–F90 / EI30–EI90). Incorrectly designed openings would significantly weaken the fire compartment separation.

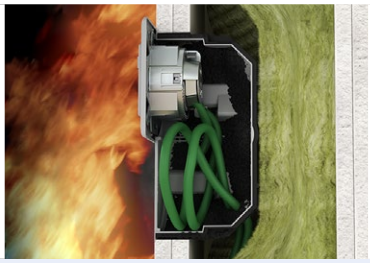
Fire protection walls of fire resistance class F30–F180 according to DIN 4102-4 are 1- or 2-shell, non-load-bearing, internal partition walls with wall thicknesses from 100 mm, insulation material according to 4102-17 and 2 x 12.5 mm plasterboard. According to DIN 4102, installation of opposing cavity wall boxes is not permitted and installation of individual boxes is only permissible with restrictions. This means that on-site sheathing is required, e.g. with plaster, fibre silicate or similar.

KAISER fire protection boxes and housings fully meet these requirements.

Fire protection ceilings according to DIN 4102 are either self-supporting ceiling constructions or suspended ceilings connected to ceilings of construction type I, II, or III (concrete ceilings, brick ceilings). From fire resistance class F30, DIN 4102 stipulates a closed visible surface. Openings, e.g. for luminaires, are to be appropriately sealed.

FlamoX® fire protection housings from KAISER (see page 26) have been specially developed for F30 ceilings.



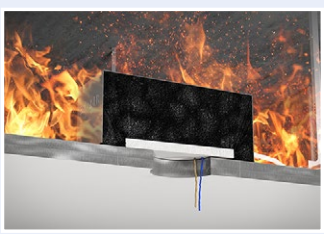


Keeps the way clear in an emergency. **KAISER AFS TECHNOLOGY**.

AFS - Active Fire Stop - guarantees preventive fire protection. Whether the fire load comes from above, below, from the front or the back: the quick-active, fire-retardant coating in boxes, housings and bulkheads reacts immediately in the event of fire and safely fills the installation opening with foam. The fire resistance class for the wall of F30–F120 or for the ceiling of F30–F90 remains unchanged. The transmission of fire and smoke is thus safely prevented.

In the event of fire, **KAISER AFS technology** maintains the fire protection class in walls and ceilings even when installed opposite each other without encasing. The ready-to-install systems with AFS technology guarantee certified safety and smooth installation.

The high standard and reliability of AFS technology ensure that people's lives are saved and disasters are prevented – both in buildings and on ships. In cavity walls, flush-mounting and ceiling boxes, in installation housings and in sealings, this intelligent technology is already the KAISER standard.



The effect of the heat causes the fire-retardant coating to intumesce, which prevents the fire and smoke from spreading.

KAISER fire sealing systems – Europe-wide certified quality!

The innovative fire sealings from KAISER stand for Europe-wide certified quality that you can rely on! All KAISER fire sealing systems are ideally suited for professional electrical installations in fire protection walls and in concrete or cellular concrete ceilings. Box and ceiling seals from KAISER for both cables and conduits comply with fire resistance classes and do not release any hazardous substances. This means that KAISER fire sealings allow fast, professional and – in every respect – safe sealing for fire protection sealing. All certificates can be found in the download area at www.kaiser- elektro.de

KAISER – The basis for good installation. **Simple, safe and spotless.**

KAISER fire protection products can be installed easily, safely and cleanly. Because the fire protection products can be installed with standard tools – no greasing or filling is required – your installation requires minimal labour – and no training!

You can find informative product demonstrations for installation and function at www.kaiser-elektro.de and on our YouTube channel www.youtube.de/kaiserelektro.

Glow wire resistant and halogen-free.

halogen free

The glow-wire resistance of cavity wall boxes and casings is tested using a glow wire test, i.e. without an open flame, at 850 °C. This test must demonstrate that a fire cannot start in the cavity wall boxes if a fault occurs in the electrical installation. In addition, compliance with the current fire prevention measures for wall constructions is always ensured.

For cavity wall boxes with the VDE test mark, glow wire resistance is tested and confirmed according to VDE 0471/EN 60695-T. 2-10**.**

Halogen-free cavity wall boxes

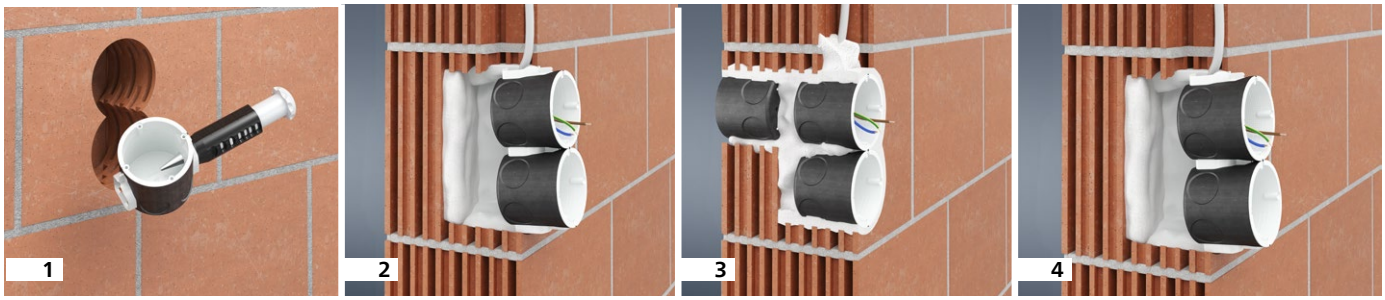
In addition to halogen-free fire protection products, all KAISER boxes and casings for cavity wall mounting, as well as several accessory parts, are available as halogen-free products. The identifying feature of these products is that they are available in white.

Professional and standardised.
Flush-mounting fire protection box.

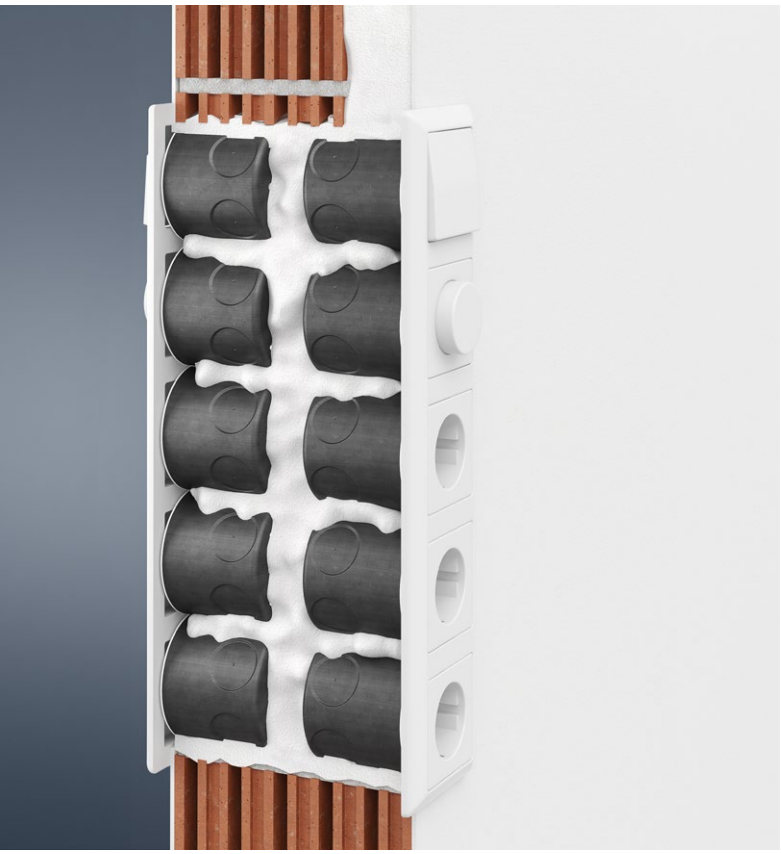
Sound insulation value R'_w to 56 dB

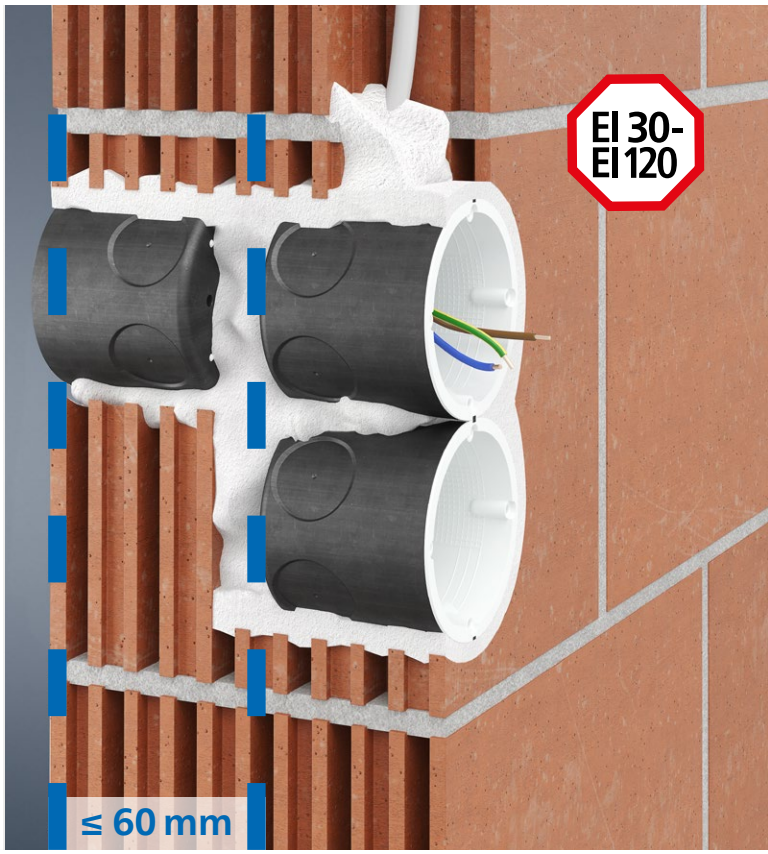
The **innovative fire protection box** for flush-mounting installation in solidly built fire protection walls maintains the fire resistance duration of the fire protection wall from F30 – F120 (EI30 – EI120) despite the electrical installation embedded in it.

The **flush-mounting fire protection box** ensures a safe, smokeproof closure of the fire protection wall, even if the opposing or single-sided installation falls below the **residual wall thickness of 60 mm required by DIN 4102-4**. This is made possible by AFS technology. This is a sheathing fire-retardant coating that intumesces up within a very short time in the event of a fire. In this way, it automatically closes the installation openings and maintains the wall's fire resistance. The spread of smoke and fire through the installation openings is thus reliably prevented.



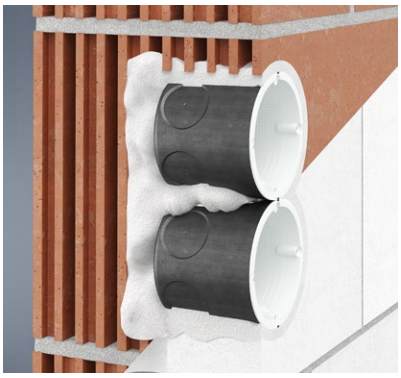
1 Make exact electric cable and conduit entries with the universal opening cutter (Art. No. 1085-80).
2 Fixing is simply carried out with plaster or mortar. Special fire protection mortar is not necessary.
3 For one-sided (minimum remaining wall thicknesses ≤ 60 mm) and for direct installation to the opposing side.
4 For F30-F120 (EI30 – EI120) fire protection walls.



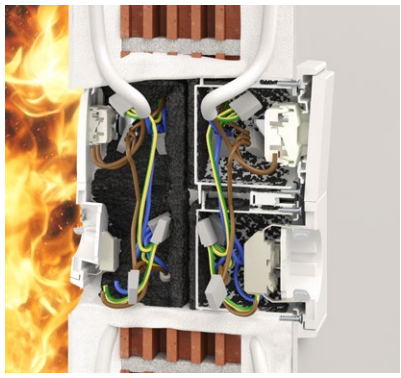


- For EI30 – EI120 fire protection walls
- For minimum remaining wall thicknesses ≤ 60 mm
- Also for directly opposing installation
- Installation up to 5-unit combinations
- Variable combination connection piece for conduits up to M25
- With a fire protection cover, it can be used as a junction box

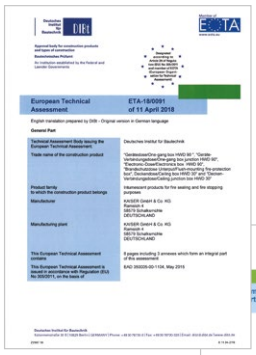
KAISER's new flush-mounting fire protection boxes are the first of their kind to prevent the spread of fire and smoke through installation openings in solid fire protection walls. Effective fire protection is provided even when the remaining wall thickness is less than 60 mm.



Minimum remaining wall thickness ≤ 60 mm



The AFS technology ensures that fire protection is maintained.



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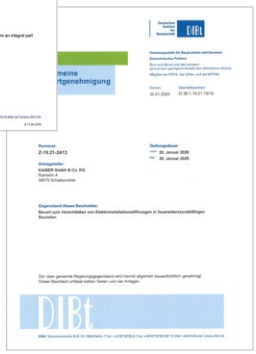


Type approval Z-19.21-2413

EI30 – EI120

Flush-mounting fire protection box
Art. no. 1564-01

Fire protection cover
Art. no. 1184-94

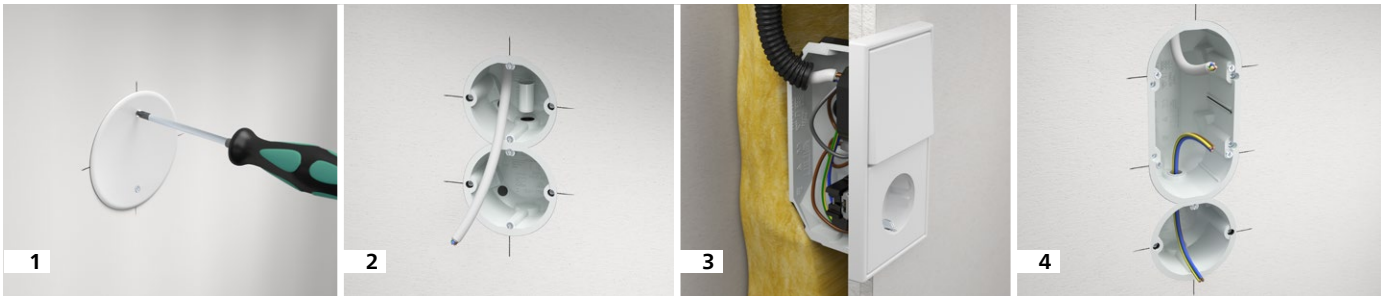
Suitable tools, such as the universal opening cutter (Art. no. 1085-80) and diamond grinding head (Art. no. 1088-02) can be found on page 38

For fire protection walls up to EI120. **HWD 90 fire protection box.**

Since the introduction of the first fire protection box for fire protection walls in 2006, the range of applications has been continually expanded. The further development of AFS technology has resulted in fire protection boxes now withstanding a fire resistance duration of up to 120 min. In addition, the German Institute for Building Technology (DIBt) has now extended the approval of the fire protection boxes to wooden walls in timber frame and timber panel construction to F60-B.

The **usual simple assembly** has not changed. Even directly opposing installation up to a 5-unit combination maintains a fire resistance class of up to EI120 (max. 3-unit combination with F60-B). All boxes of type HWD 90 maintain the sound insulation function completely up to a sound insulation level of 77 dB.

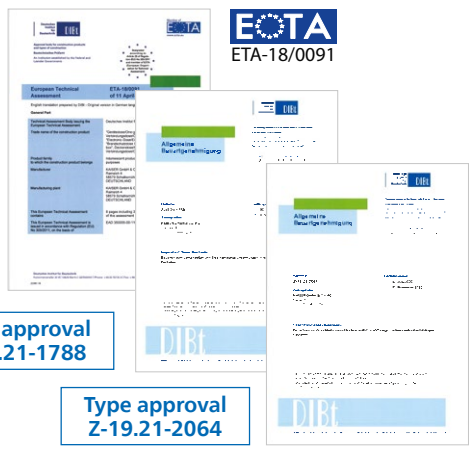
- For EI30 – EI120, F30-B/F60-B fire protection walls
- Maintains the wall's sound insulation function
- Also suitable for retrofitting
- With a fire protection cover, it can be used as a junction box
- Also for directly opposing installation



1 With a fire protection cover, it can be used as a junction box.
2 The fully-insulated through-wiring of one-gang junction boxes with each other is created using the straight coupling (Art. no. 9060-78).
3 The electronics box creates sufficient space for the cable reserve when communications and network boxes are installed.
4 Electronics boxes can be combined with each other or with the one-gang junction box.

The HWD 90 electronics box has the necessary installation space for electronic switch devices, communication outlets, cables and terminals. It enables population with electric cables and also with installation conduits up to M25.

- Also for use as a double box
- Extra-large terminal compartment for communications and network technology
- Additional space for electronic components (KNX actuators, relays, radio modules, communications technology)

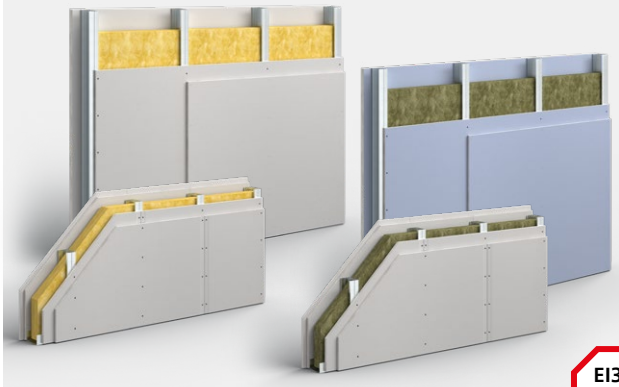


ETA-18/0091

Type approval Z-19.21-1788

Type approval Z-19.21-2064

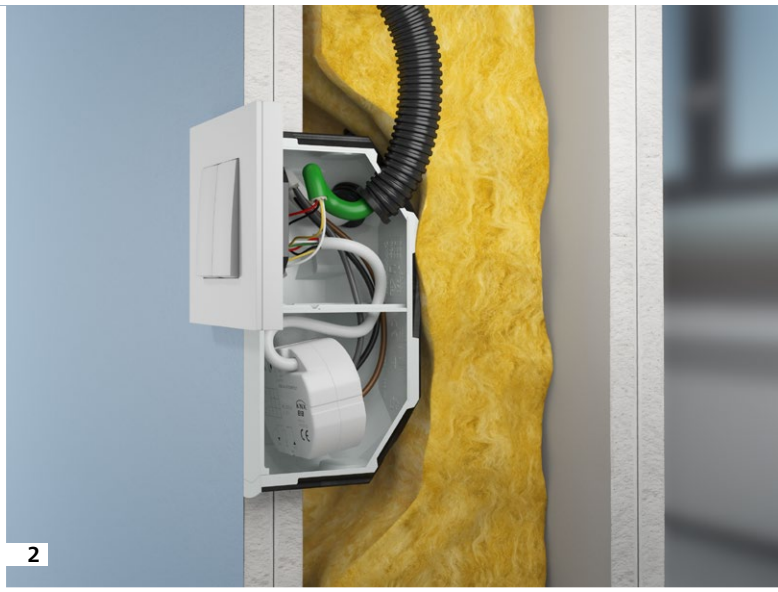
Plasterboard drywall

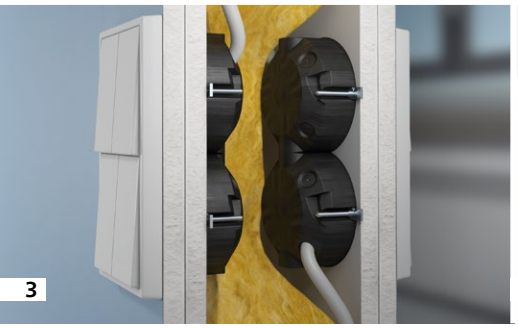


EI30 - EI120

- Minimum wall thickness: 100 mm
- Boarding on both sides with
  - min. 12.5 mm mineral non-combustible structural panels (e.g. plasterboard, cement-bonded fibre boards)
  - min. 40 mm thick non-combustible mineral wool (e.g. glass wool, rock wool, etc.)
- Gross density min. 40 kg/m³

The matching Ø 74 mm cutter (Art. no. 1081-20) can be found on page 38.





1-2 HWD 90 electronics box: Additional space for electronic components (KMX actuators, relays, radio module, communications technology).
3 Direct opposing installation possible.
4 Fully insulated through-wiring.
5 Use in installation shafts and ducts

EI30 – EI120, F30-B, F60-B

HWD 90 one-gang box
Art. no. 9463-01

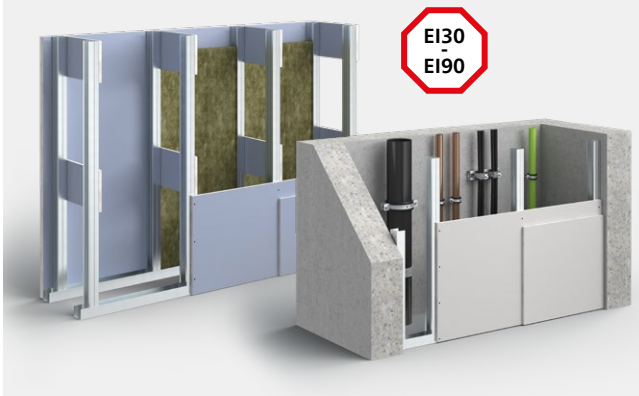
HWD 90 one-gang junction box
Art. no. 9464-01

HWD 90 electronics box
Art. no. 9462-94

Fire protection cover
Art. no. 1184-94

Straight coupling
Art. no. 9060-78

Installation shafts and ducts



- Steel stand
- Double-sided boarding with non-combustible mineral plaster or cement-bonded building panel
  - 20 mm (when using the one-gang box)
  - 25 mm (when using the one-gang junction box)
- I30 - no insulation
- I60 - 40 mm / 100 kg/m³, 60 mm / 50 kg/m³, 80 mm / 30 kg/m³
- I90 - 40 mm / 100 kg/m³ Termarock 100

The use of the HWD 90 in shaft walls is only approved in Germany by the general type approval. If the device is to be used in other countries, the applicable certificates, standards, guidelines or regulations must be observed.

1 For **F30-B** and **F60-B** timber panel construction or timber frame construction walls with glass/rock wool or wood fibre insulation.
2 In an F60-B wall, combinations of up to 3 units each are possible. With an F30-B wall, combinations up to 5 units each are possible.
3 The HWD 90 electronics box is also approved for the above mentioned wall constructions.

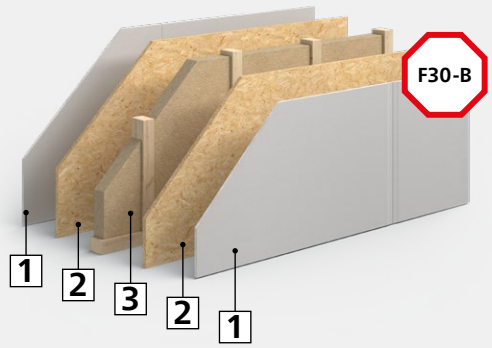
Drywall in timber construction

- For timber frame or timber panel construction walls
- Also for wall systems with wood fibre insulation
- Minimum wall thickness: 109 mm
- Boarding on both sides

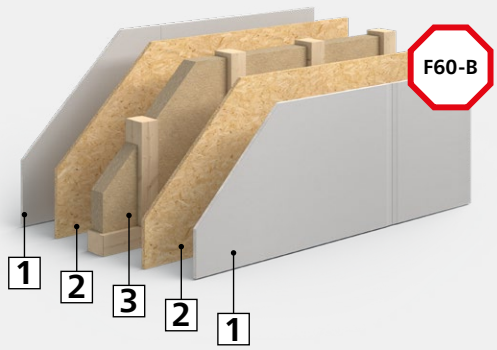
NEW

Information material "HWD 90 fire protection boxes for timber panel and timber frame construction"

Product video



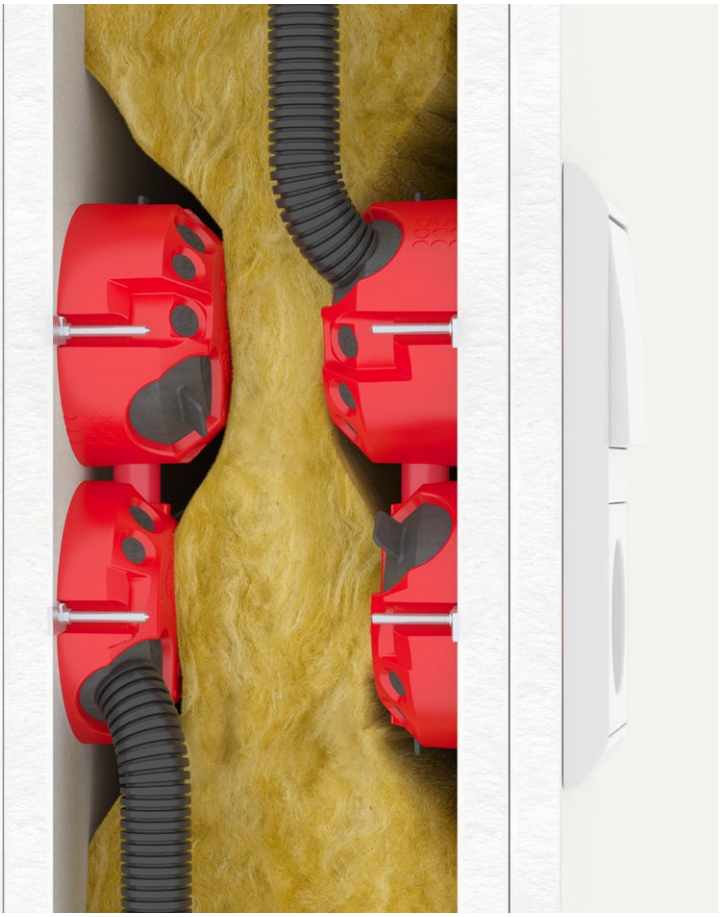
1 **9.5 mm GKB** plasterboard **structural panel**
2 15 mm OSB/MDF, plywood or plywood panels
3 **40 mm** wood fibre insulation, glass or rock wool
60x40 wooden beams



1 **12.5 mm gypsum** plaster **fire protection board**
2 15 mm OSB/MDF, plywood or plywood panels
3 **60 mm** wood fibre insulation, glass or rock wool
40x80 wooden beams

68/74 centering insert: For the extension of existing installation openings from Ø 68 mm to Ø 74 mm exact guidance for the MULTI 4000 cavity wall cutter.

The matching Ø 74 mm cutter can be found on page 38.

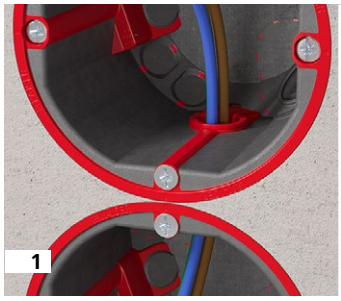


Sound insulation value R'_w to 69 dB

Safe in cavity walls.
HWD 68+ fire protection box.

The new generation of KAISER fire protection boxes combine all the features of the HWD 68 and HWD 90. Furthermore, with the conduit entries, they cover all possible applications that occur in practice. **HWD 68+ fire protection boxes** form the basis of good fire protection and convince with their quick and easy installation. Both the device and the one-gang junction box are installed in a 68 mm cut opening and can be easily combined by means of straight couplings.

HWD 68+ fire protection boxes are equipped with AFS technology – a fire-retardant coating – which automatically closes the installation opening in the event of a fire, thus preventing fire and smoke from spreading.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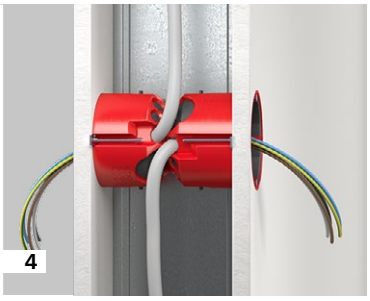

4

1 Fully-insulated through-wiring of one-gang boxes and one-gang junction boxes with the straight coupling (Art. no. 9060-68).
2 Break-out wire entry with cable retention according to DIN EN 60670.
3 6 wire entries up to Ø 13 mm and two conduit entries up to M25.
4 The **HWD 68+** is suitable for fire protection walls F30 – F90.
The fire protection function is maintained even when boxes are installed directly opposite each other.

- For fire protection walls F30-F90 or EI30-EI90, F30-B to F90-B
- Maintains the wall's sound insulation function
- Toolless cable and conduit entry
- For Ø 68 mm installation openings
- For direct installation to the opposing side
- With a fire protection cover, it can be used as a junction box

EI30 – EI90

HWD 68+ one-gang box
Art. no. 9463-03

Ø 68 mm

One-gang junction box HWD 68+
Art. no. 9464-03

Ø 68 mm

Straight coupling
Art. no. 9060-68

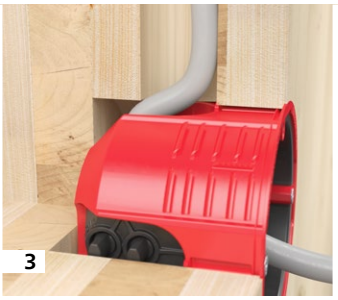
Fire protection cover
Art. no. 1184-94

The corresponding cutter (Art. no. 1081-10) can be found on page 38.

For installation in solid wood walls. **PROTECT® One-gang junction box.**

The new PROTECT® solid wood one-gang junction box has been specially developed to meet the requirements of installation in solid wood elements. The fixing by means of ribs and the innovative wire entries ensure optimum and standardised installation in a solid wood element in exposed wood quality without additional cutting or effort. Thanks to their arrangement and design, the innovative wire entries ensure flexible wire entry and thus compensate for the installation tolerances that occur during cable routing in the solid wood element. In addition, the PROTECT® solid wood fire protection one-gang junction box maintains the fire resistance duration of the solid wood element from F30-B to F120-B without the need for additional encapsulation.

- Maintains the F30-B to F120-B fire resistance duration
- For direct installation to the opposing side
- Toolless installation thanks to rib fixing
- Innovative wire entry enables tolerance compensation of the cable route
- Simple and toolless wire entries up to Ø 11.5 mm
- For Ø 74 mm installation openings
- Preserves the sound insulation properties of the solid wood elements



1 Toolless wire entries.
2 The box is simply pressed into the Ø 74 mm installation opening of the solid wood wall using the setting tool (Art. No. 1090-12).
3 The innovative wire entry ideally compensates for cable routing tolerances.
4 Allows up to 3-way combinations. Fully insulated through-wiring for combinations with the straight coupling (Art. no. 9060-68).

PROTECT® cable sealing and multiple sealing.

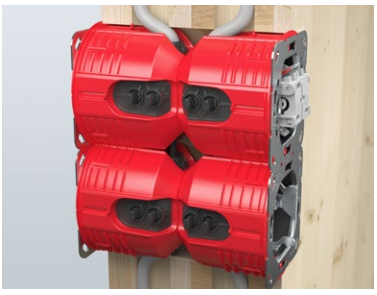
Sealings in fire protection walls or ceilings are required as soon as electric cables are routed through walls or ceilings with a certain protection class. In order to obtain the protection class, the opening must be professionally sealed off to prevent the spread of fire and smoke and to ensure room separation.

The PROTECT® cable and multiple seals have 4 sturdy snap-in hooks that lock together into openings in sandwich panels with a panel thickness of up to 1 mm (e.g. shipbuilding with protection class B15) or wedge into cross-laminated wood (timber construction F30-B to F120-B).

Thanks to its separable design, the PROTECT® cable sealing can also be retrofitted around the electric cable. The separable design of the PROTECT® multiple sealing allows easy insertion of up to four electric cables. Non-destructive refitting in the installed state is possible. In addition to the fire protection class, the sealing is also provided with the sound insulation class of the wall.

The **PROTECT® one-gang junction box** maintains the fire resistance duration F30-B to F120-B, even when installed directly opposite solid wood elements from 120 mm.

F30-B
-
F120-B



EI30 – EI90

PROTECT® one-gang junction box
Art. no. 9464-05

Ø 74 mm

Fire protection cover
Art. no. 1184-94

Straight coupling
Art. no. 9060-68

Setting tool
Art. no. 1090-12

PROTECT® cable sealing
Art. no. 9459-14

PROTECT® multiple sealing
Art. no. 9459-15

Feed-throughs, entries and electric cable exits in cavity walls, masonry and concrete. **Fire sealings.**

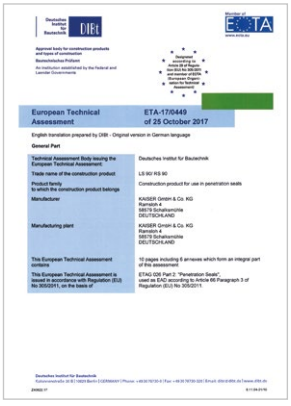
Sealings in fire protection walls are needed when electric cables or conduits must be fed through walls with a specific fire resistance class. To maintain the fire resistance class, the opening must be professionally sealed off to prevent fire or smoke from spreading.

KAISER solutions guarantee fast and, above all, absolutely safe and reliable partitioning in the event of fire. The time-consuming and messy processing of fire protection putty, foam, mortar or a fire protection coating is completely eliminated. Installation is as simple as that of a KAISER cavity wall box.

Furthermore, the **LS 90 electric cable sealing** and **RS 90 conduit sealing** are the ideal products for sealing off electric cable and conduit exits in terms of fire protection to allow electrical accessories to be connected. The fire resistance duration of the wall is therefore maintained even if it is weakened on one side.

- Secure, visible, certified fire sealing
- For wall feed-throughs, entries and cable exits
- Without filling and smoothing
- Self-supporting sealing of joints and gaps between cables
- Non-destructive retrofitting
- For cable bundles or individual installation conduits
- Also for mixed population of electric cable and conduit bundles

The LS 90 cable penetration seal and the RS 90 conduit penetration seal can be easily installed in just a few steps. The installation opening is created using an appropriate cutter or drill and the flexible sealing is inserted. For retrofitting, the sealing can be opened and slid over the existing electric cable or conduit. The electric cable and conduit sealings can be arranged as a group.



European Technical Assessment ETA-17/0449 of 25 October 2017

ETA-17/0449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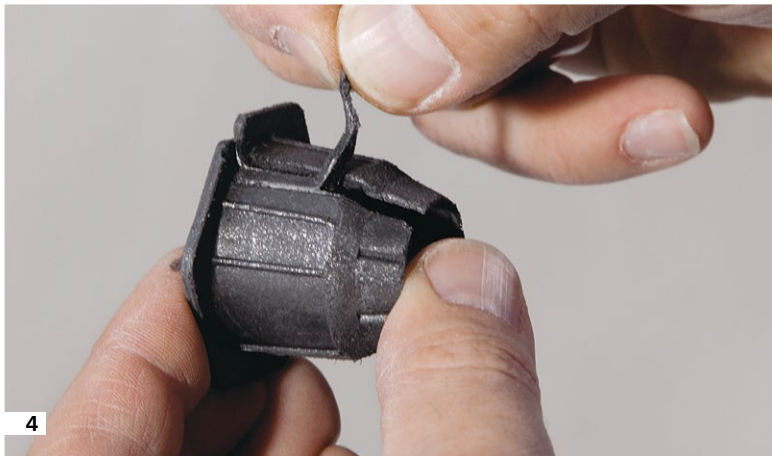
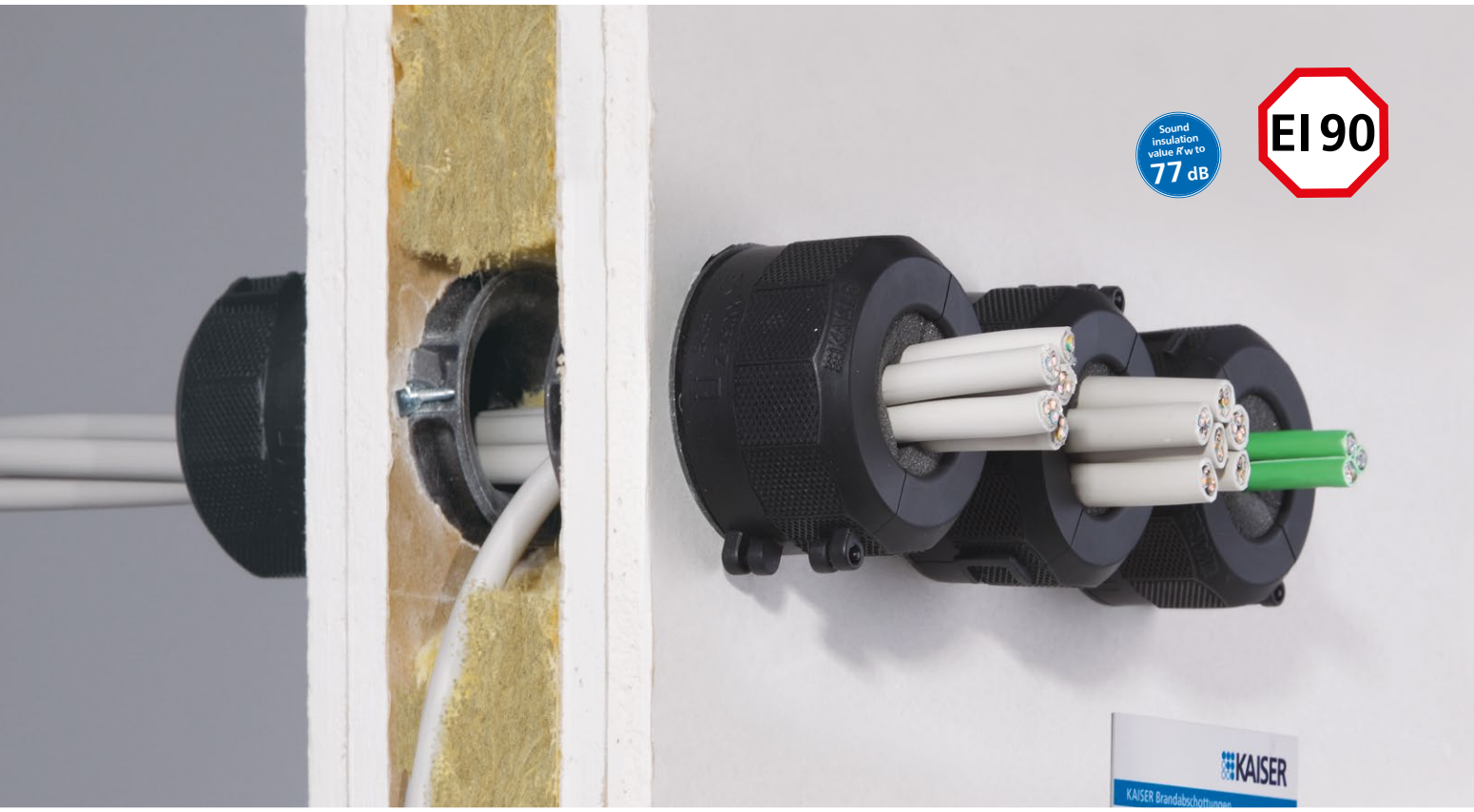
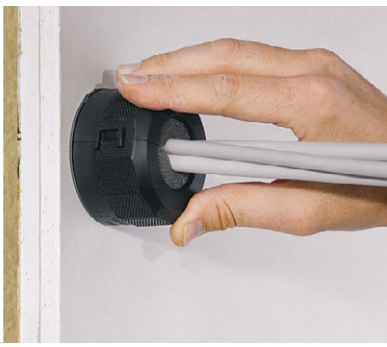

4

1 By unfolding the electric cable and conduit sealing, it can be easily placed around electric cables and conduits.
2 Feed-through passing through a solid masonry wall according to DIN 1053.
3 Wall feed-through passing through a concrete wall according to DIN 1054.
4 For component openings smaller than Ø 35 mm, remove the lateral pull-off lug on the RS90.





The **DS 90 / 74 mm** and **DS 90 / 120 m box sealing systems** consist of two parts that are simply plugged onto each other and locked in place. The sealing cylinder, which closes the wall with AFS technology, is inserted into a Ø 74 mm or Ø 120 mm cut opening and fixed into place simply in the same way as a KAISER cavity wall box. Then the sealing element is placed around the electric cables, pushed onto the sealing cylinder and closed by means of a bayonet fitting by turning to the right with an audible click. This ensures a safe room separation. The sealing element can be opened for non-destructive reinsertion and additional electric cables can be fed through in no time. The box sealing can be closed again without additional sealing.

Maximum cable population

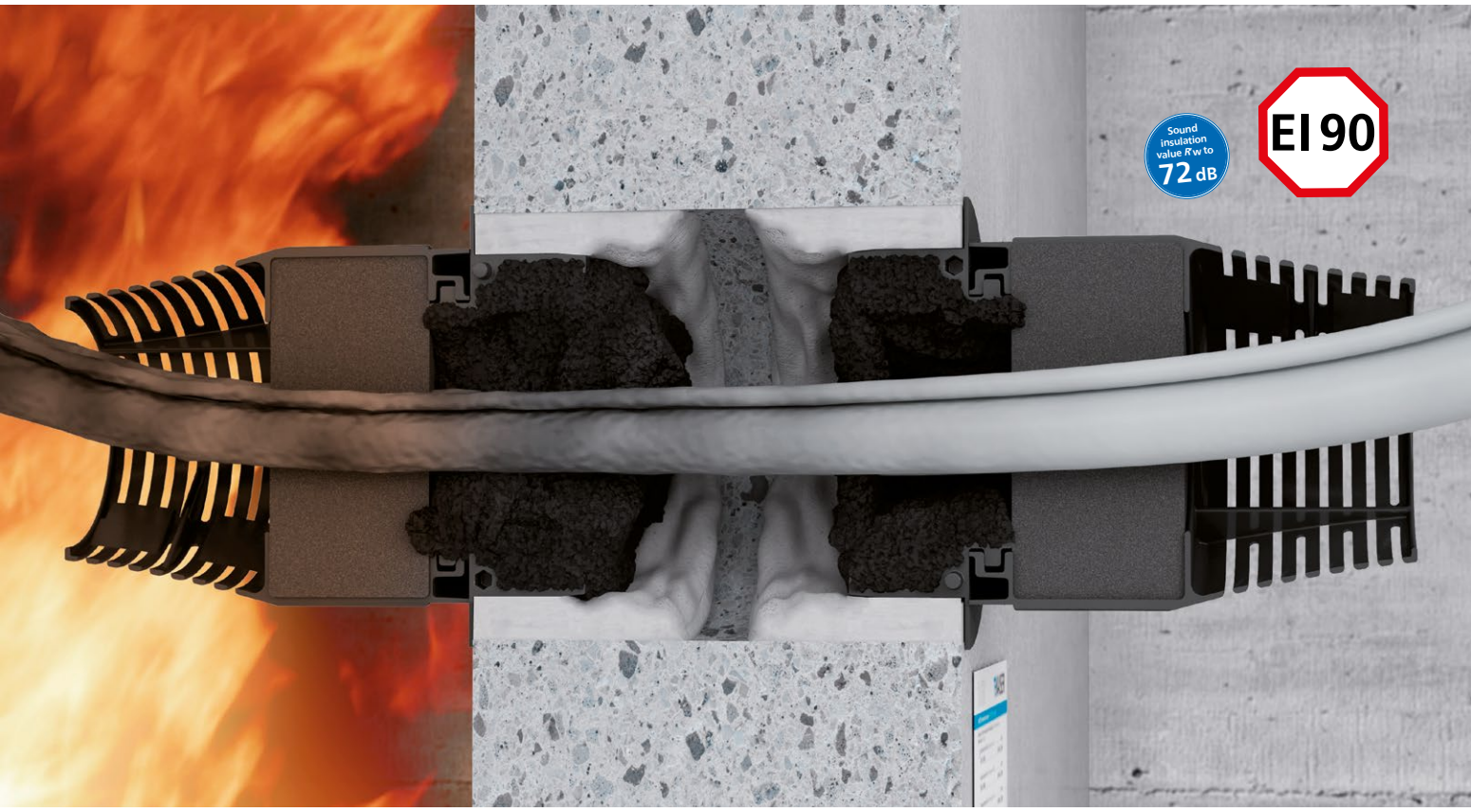
DS 90 / 74 mm

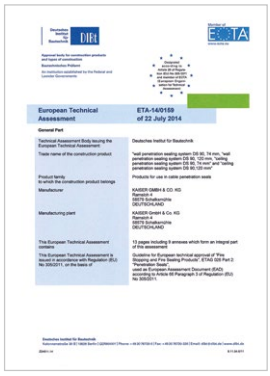
- Cable bundle Ø ≤ 40 mm (full population)
- Largest single cable in bundle Ø ≤ 15 mm
- Largest single cable Ø ≤ 21 mm
- Electrical installation conduits Ø ≤ 40 mm

DS 90 / 120 mm

- Full population up to Ø 74 mm with electric cable and/or conduit bundle
- Largest cable diameter 29 mm
- Electrical installation conduits up to M63

Both DS 90 / 74 mm and DS 90 / 120 mm box sealing systems enable safe, visible and certified fire protection sealing of electric cable and conduit entries in fire protection walls (EI90) in lightweight construction as well as in solid walls made of concrete and masonry. They enable sealing of individual cables and cable bundles as well as individual electrical installation conduits and conduit bundles. The two-part sealing cylinder and the hinged sealing element also allow installation on existing electric cables or conduits. By extending the sealing element with the cooling ribs, orderly bundling and thus optimal sealing for smokeproof room separation is achieved and ensured by the special foam inserts. The extra large sealing collar ensures smokeproof room separation even in the case of unclean openings. The installation of the box sealing systems in concrete and masonry walls is carried out without the use of special fire protection materials. Core drill holes of Ø 82 mm or Ø 150 mm and commercially available materials for fixing, such as plaster, mortar or quick cement, are sufficient for installation.





ETA-14/0159

DIBt-Zulassung
Für Bauteile der Feuerwiderstandsklasse F90 nach DIN 4102-2

The DIBt approval proves the reliable quality of KAISER DS 90 / 74 mm and 120 mm box sealing systems.

LS 90
cable sealing system
Art. no. 9459-01

RS 90
conduit sealing system
Art. no. 9459-02

DS 90 / 74 mm
box sealing system
Art. no. 9459-03

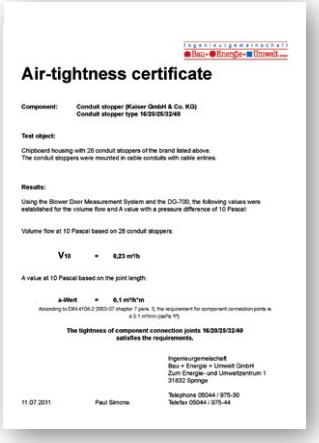
DS 90 / 120 mm
box sealing system
Art. no. 9459-04

Suitable tools and identification labels can be found on page 38.

Easy closure.
Permanently sealed. **Sealing plugs.**

Sealing plugs with ECON® technology for sealing all common electrical installation conduits in one-gang boxes or at cable exits. The long sealing plug with three sealing lips and different widths adapts to the respective installation conduit and ensures an airtight, smokeproof closure even for conduits cut at an angle. From conduit size M25 upwards, the membrane surfaces are reinforced with separators. These prevent damage and ensure air tightness for safe cable routing.

- For empty conduit installations in an air-tight design or in fire protection areas
- Three sealing lips with different distances optimally adapt to the installation conduit
- Guaranteed air tightness
- Toolless wire feed-through
- Avoidance of tangled cables
- For all installation conduits M16–M40, Pg9–Pg36, 3/4" and 5/8"



Ingenieurgemeinschaft
Bau • Energie • Umwelt

Air-tightness certificate

Component: Conduit stopper (Kaiser GmbH & Co. KG)
Conduit stopper type 16/20/25/32/40

Test object:

Chipboard housing with 26 conduit stoppers of the brand listed above.
The conduit stoppers were mounted in cable conduits with cable entries.

Results:

Using the Blower Door Measurement System and the DG-700, the following values were established for the volume flow and A value with a pressure difference of 10 Pascal:

Volume flow at 10 Pascal based on 26 conduit stoppers:

V_{10} = 0,23 m³/h

A value at 10 Pascal based on the joint length:

a-Wert = 0,1 m³/h*m

According to DIN 4108-2 2003-07 chapter 7 para. 3, the requirement for component connection joints is ≤ 0.1 m³/(m·h) (at Pa 10).

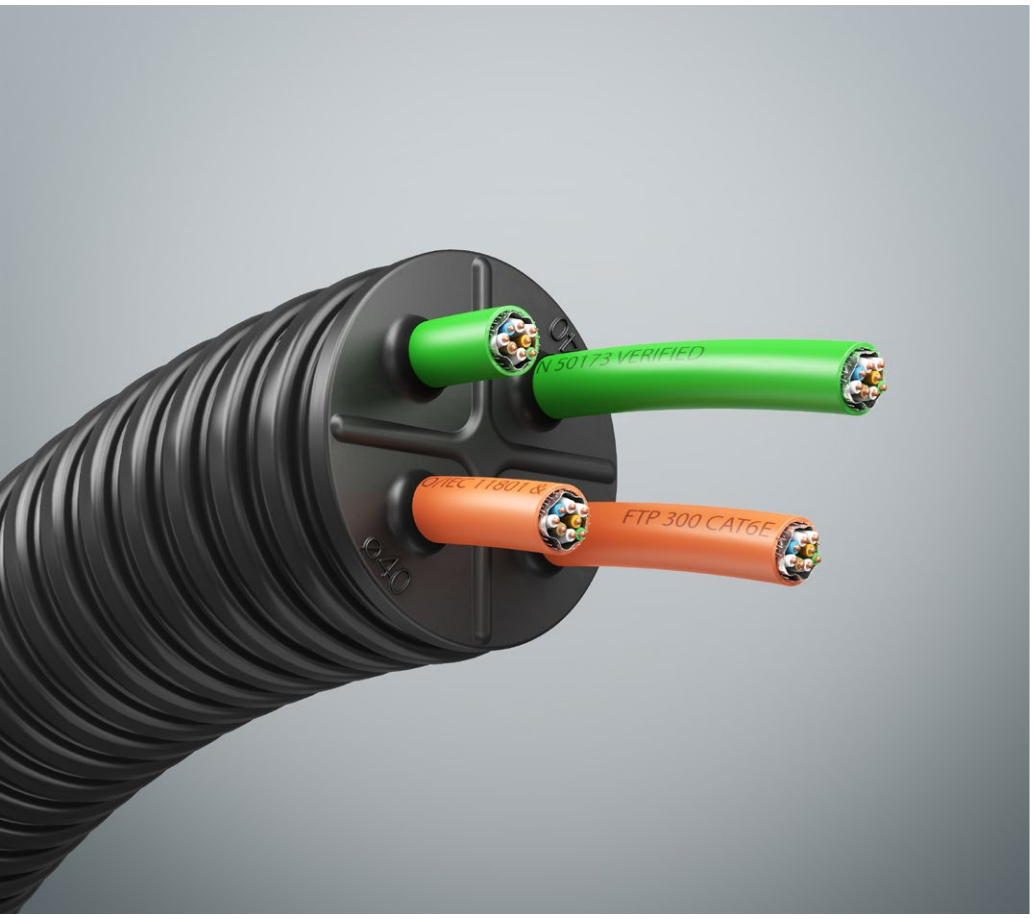
The tightness of component connection joints 16/20/25/32/40 satisfies the requirements.

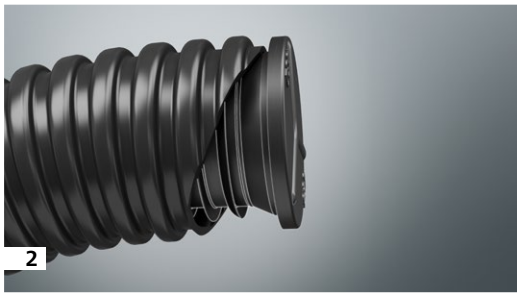
Ingenieurgemeinschaft
Bau + Energie + Umwelt GmbH
Zum Energie- und Umweltzentrum 1
31832 Springe

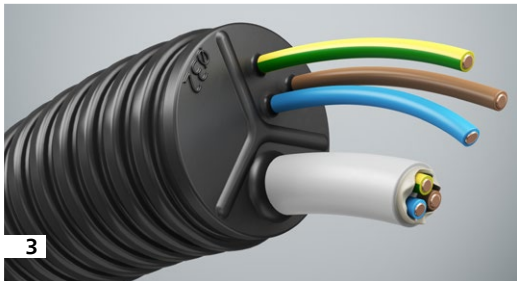
Telephone 05044 / 975-30
Telefax 05044 / 975-44

11.07.2011 Paul Simons

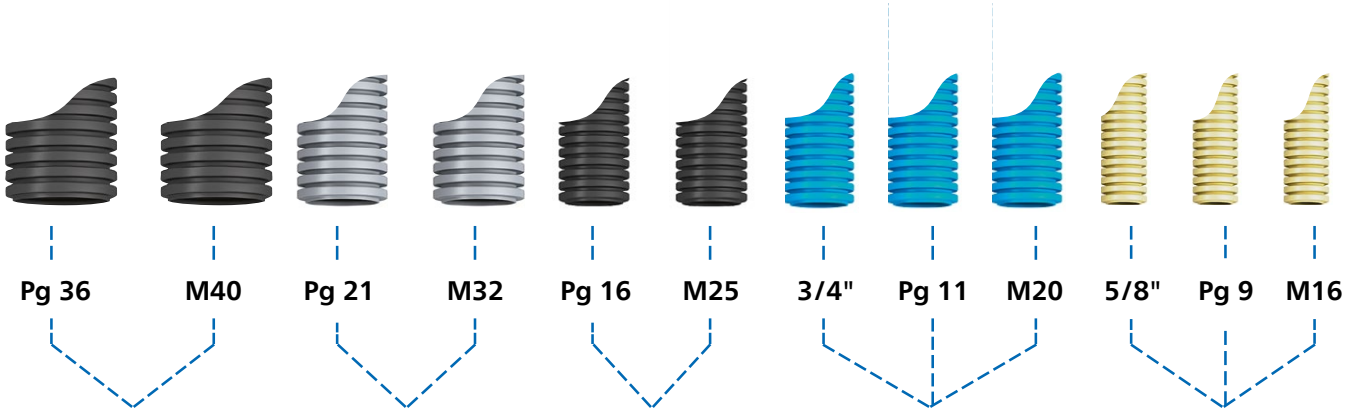
Air tightness certificate
In comprehensive blower-door tests, a neutral institute tested and confirmed the air tightness of the M16–M40 sealing plugs.







1 The long sealing plug with three sealing lips and different widths adapts itself perfectly to the installation conduit.
2 Even with diagonally shortened conduits, an air-tight closure is created.
3 Separators in the membrane surface ensure safe cable routing.



M40 sealing plug
Art. no. 1040-40

M32 sealing plug
Art. no. 1040-32

M25 sealing plug
Art. no. 1040-25

M20 sealing plug
Art. no. 1040-20

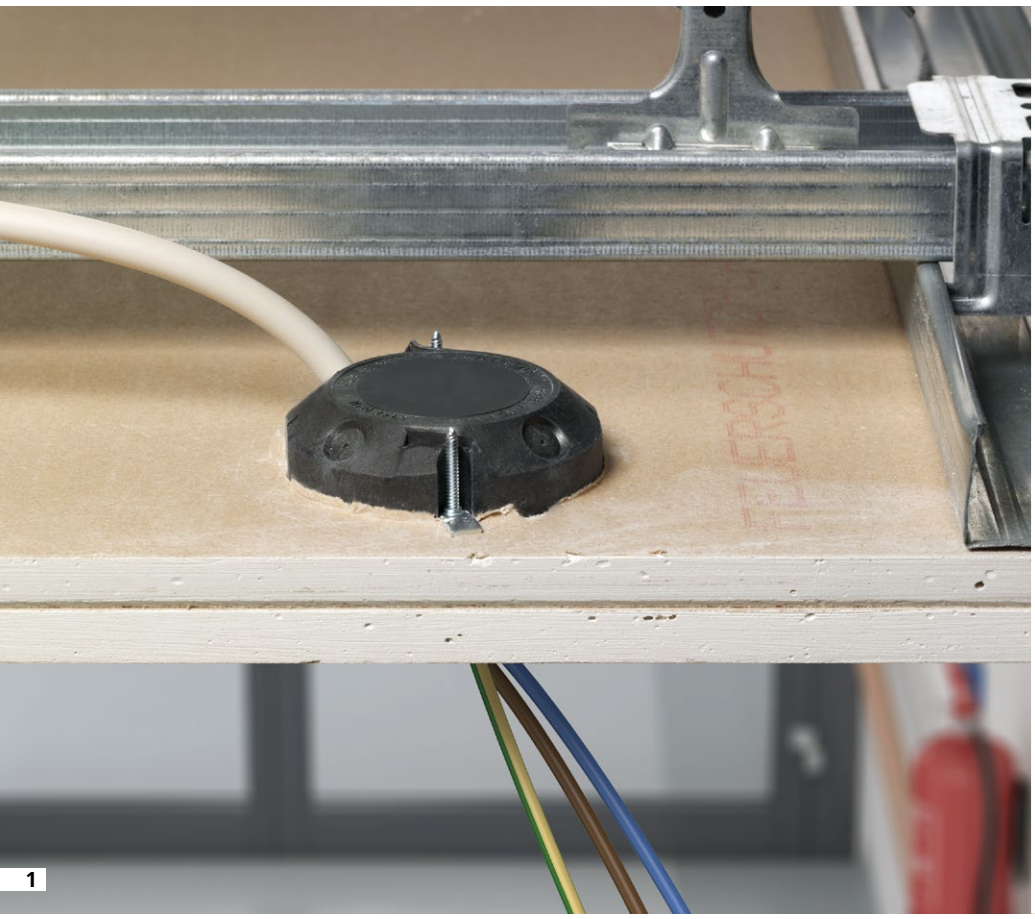
M16 sealing plug
Art. no. 1040-16

For EI30 – EI90 fire protection ceilings. **HWD 30 ceiling boxes.**

HWD 30 installation boxes for fire protection ceilings guarantee reliable fire protection of EI30–EI90. The KAISER AFS technology integrated fire-retardant coating intumesces immediately in the event of fire and closes the opening in the ceiling. The HWD30 ceiling box also provides protection when retrofitted.

- For EI30 – EI90 fire protection ceilings
- No encasing is required
- For installation of e.g. smoke detectors, luminaires, motion detectors, etc.
- With a fire protection cover, it can also be used as a junction box
- Also suitable for retrofitting

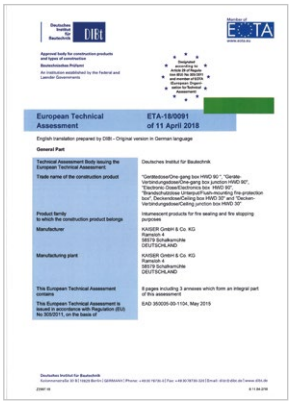
Application examples
The HWD 30 ceiling box can be used to install, e.g., presence and smoke detectors or LED emergency route lighting in fire protection ceilings without compromising the fire resistance class.



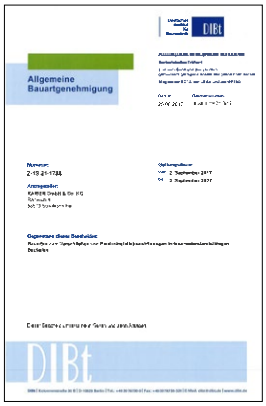
1 Installation of the HWD 30 ceiling box without mineral wool complies with fire resistance class EI30.

2 Installation of the HWD 30 ceiling box with mineral wool complies with fire resistance class EI60.

3 Installation of the HWD 30 ceiling box with Rockwool Termarock 100 complies with fire resistance class EI90.


European Technical Assessment ETA-18/0091 of 11 April 2018

ETA-18/0091


Allgemeine Bauartgenehmigung

Type approval Z-19.21-1788

EI30 – EI90

HWD 30 ceiling box
Art. no. 9463-50

Ø 74 mm

HWD 30 ceiling junction box
Art. no. 9464-50

Ø 74 mm

Fire protection cover
Art. no. 1184-94

The matching Ø 74 mm cutter (Art. no. 1081-20) can be found on page 39.

For luminaires and loudspeakers.
FlamoX® fire protection housing.

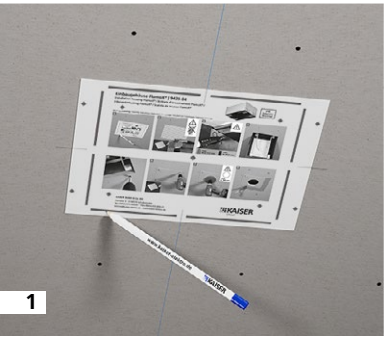
FlamoX® fire protection housings are the new generation of tried-and-tested housings for installing accessories, such as luminaires, loudspeakers or other devices in suspended fire protection ceilings.

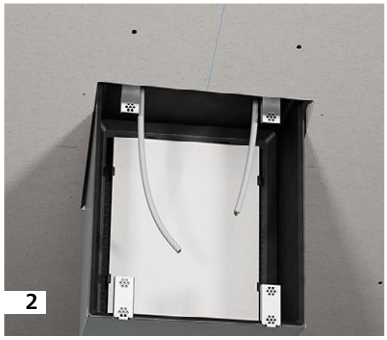
These **new generation housings** have been dimensioned to suit the needs of modern lighting systems, making them universally suitable for use. The installation housings may now also be used to install LED luminaires, compact fluorescent lights, low-voltage and high-voltage halogen luminaires, loudspeakers and other such devices, including any necessary operating units, etc. Each housing can be easily installed in fire protection ceilings from below, through the installation opening that is created for it. Thanks to their low weight, even when luminaires or loudspeakers are fitted, a permitted additional weight load of 5 kg/m² is not exceeded. As a result, no additional suspension devices are needed.

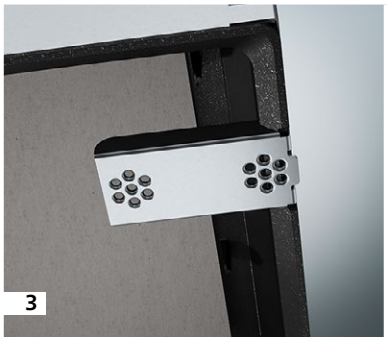
FlamoX® housings comply with fire resistance class F30 (EI30) and withstand fire loads from above and below. This enables electrical installation companies to optimise the constructional fire protection effectiveness of fire protection ceilings.

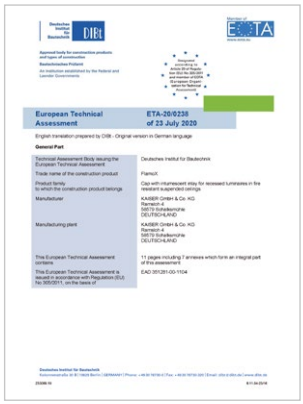
With the "BAKA Praxis Altbau award for product innovation", the German Federal Ministry of the Environment, Nature Conservation, Construction and Nuclear Safety, the BAKA Bundesverband Altbauerneuerung e. V. (German association for the renovation of old buildings) and Messe München (Munich trade fair) honour pioneering product ideas and system solutions especially for applications in the field of refurbishing.

Functioning of the fire-retardant coating in the event of fire (fire load from below or above)
The effect of the heat causes the fire-retardant coating to intumesce, which prevents the fire and smoke from spreading.



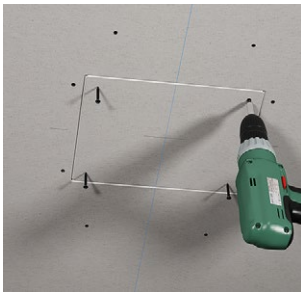


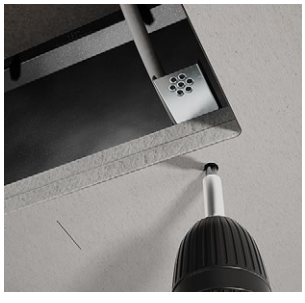




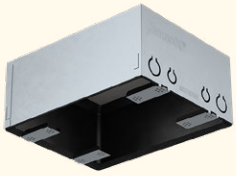
ETA-20/0238

1 After determining the position of the luminaire, use the template to mark the screw positions and the cut-out
2 Insert the housing into the component opening and align
3 Fixing lugs with hole structure for quick, easy screw fastening to the fire protection ceiling
4 Interior consisting of a fire protection material acting as a fire-retardant coating and, in the event of a fire, an automatically closing panel

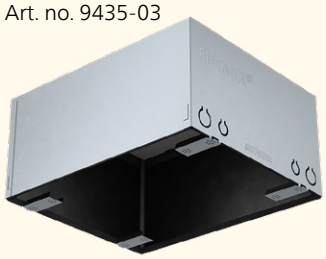




Fire protection housings FlamoX®
Art. no. 9435-04



Fire protection housings FlamoX®
Art. no. 9435-03

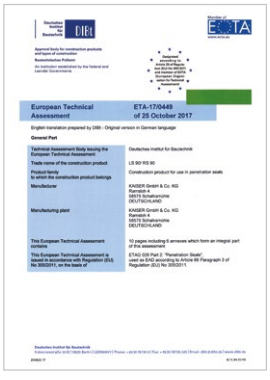


The corresponding cutter assortment for installing luminaires and loudspeakers can be found on page 39.

Sealings in fire protection ceilings. **DS 90 / 74 mm and 90 / 120 mm ceiling seal systems.**

KAISER DS 90 / 74 mm and DS 90 / 120 mm ceiling seal systems ensure that the ceiling maintains fire resistance class EI90. To efficiently prevent the spread of fire and smoke gases through electric cable feed-throughs and electrical installation conduits running through concrete or cellular concrete ceilings, their fire sealing must have the same fire resistance class as the ceiling. The DS 90 ceiling seal system accomplishes this easily, quickly and reliably.

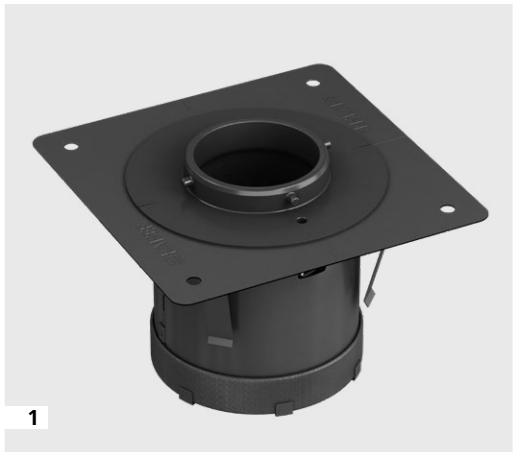
- Secure, visible, certified fire sealing
- Sealing especially for ceiling feed-throughs
- Self-supporting sealing without filling and smoothing
- Non-destructive retrofitting
- Also for mixed population of electric cable and conduit bundles
- Easy, quick installation from above



ETA-14/0159

DIBt-Zulassung
Für Bauteile der Feuerwiderstandsklasse F90 nach DIN 4102-2

The DIBt approval proves the reliable quality of KAISER DS 90 / 74 mm and 120 mm box sealing systems.

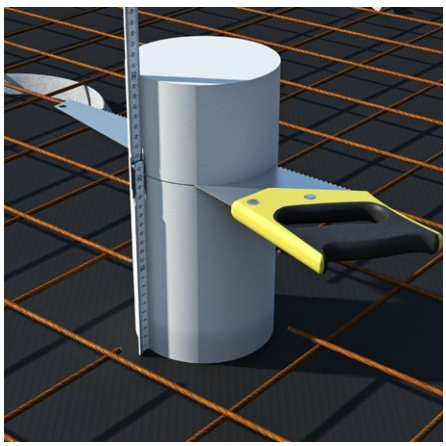


Separable mounting sleeve for retrofitting of existing electric cables and conduits.

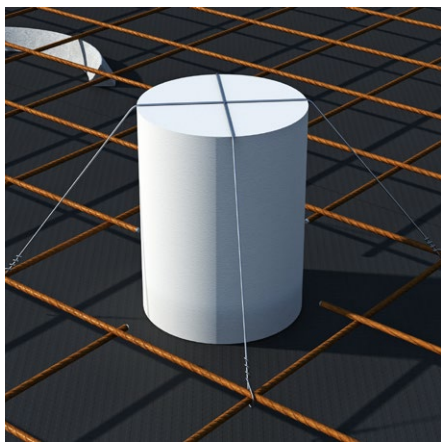
1 Separable mounting sleeve with edge protection made of material with a fire-retardant coating.
2 Retaining springs for quick, secure installation from above.
3 Punchings for receiving the straps and for fixing the box sealing system. Making for the positioning of the screws.
4 Sealing flange ensures a clean, smokeproof room separation of the component opening.

Formwork unit

For preparation of installation in concrete ceilings, KAISER provides a formwork unit for matching openings.

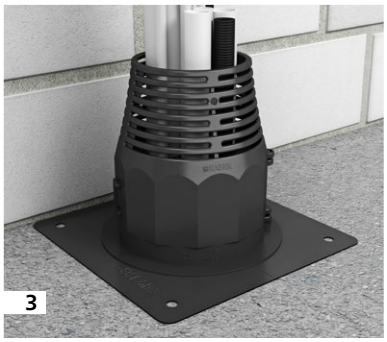


Adapt formwork unit to the ceiling thickness by cutting it to length.



Fix formwork unit with tie wire to the reinforcement.

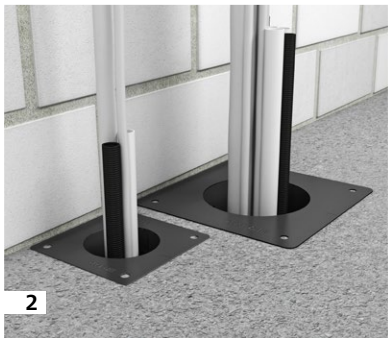
After formwork removal, remove the formwork unit from the component opening without leaving any residues.

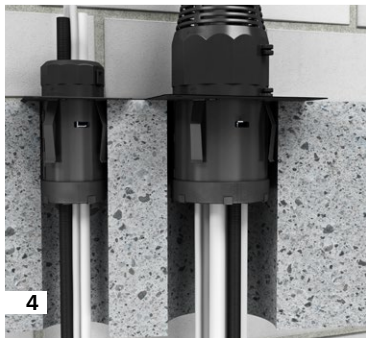


1 Mixed population of sheathed cables and conduits.
2 Can also be used as an empty seal.
3 Maximum population with sheathed cables Ø 29 mm and conduits up to M63.
4 Maximum population with sheathed cables Ø 15 mm and conduits up to M40.

Simple, fast and secure.
Ceiling seal systems for the upper ceiling surface.

KAISER DS 90 / 74 mm and DS 90 / 120 mm ceiling seal systems are ideally suited to fire protection sealing of sheathed cables and electrical installation conduits. Through them, electric cables and conduits may be run as pure electric cable or conduit bundles up to full population, but mixed population is also possible. The ceiling seal system can be installed quickly, easily and completely from one side of the upper ceiling surface without the need for lots of tools. The use of additional fire protection materials is not necessary. The sealing flange on the mounting sleeve ensures smokeproof, clean room separation. As with the box sealing systems, non-destructive retrofitting is also possible at any time with the ceiling seal systems.





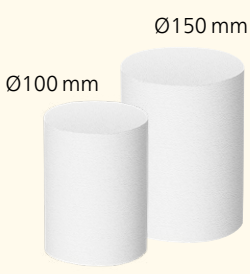
The installation is completed with simple, quick mounting from the upper ceiling surface. The ceiling seal system can also be retrofitted around existing electric cables and conduits. Non-destructive retrofitting is possible at any time up to full population.

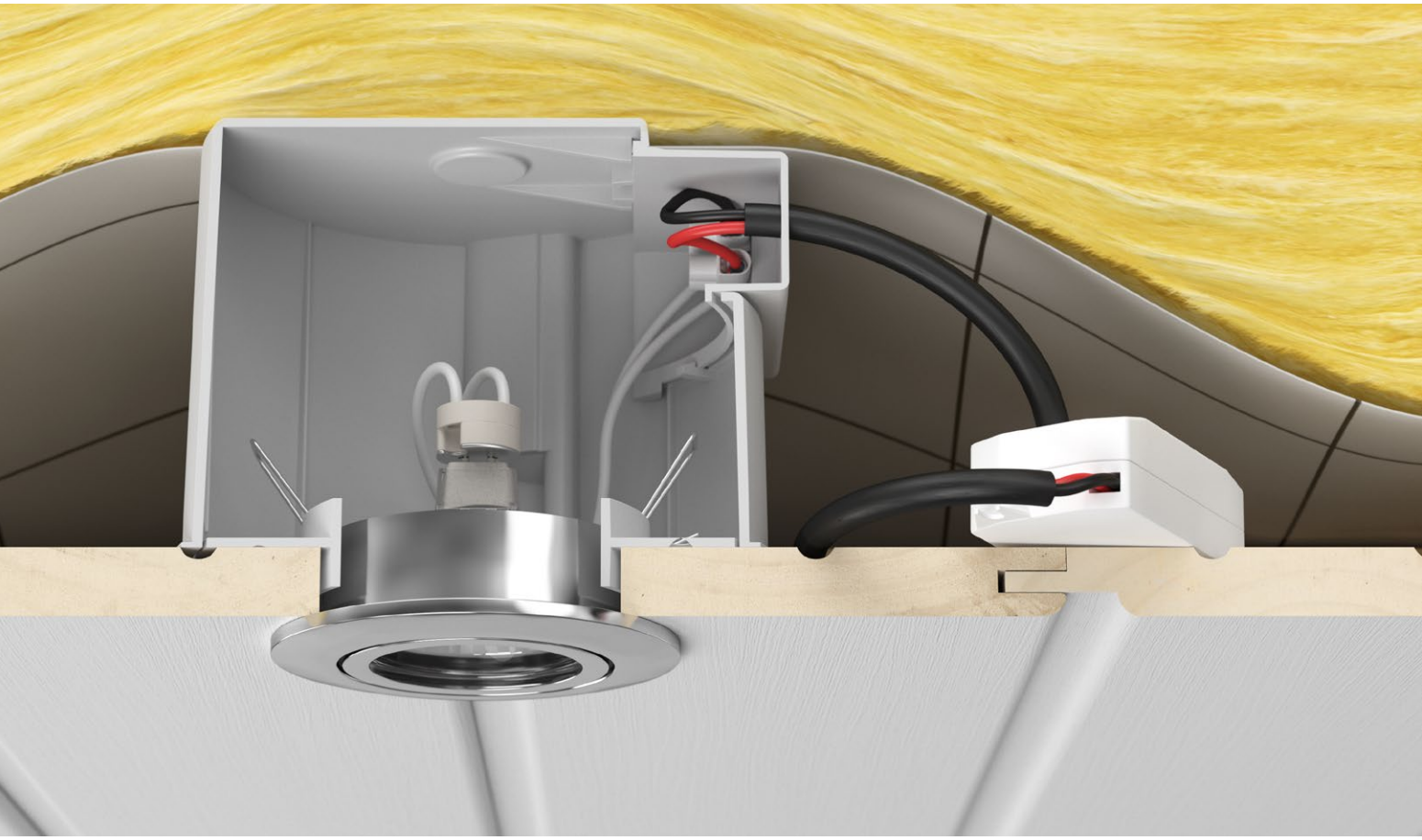
1 Insert the mounting sleeve into core drill holes Ø 100 mm or Ø 150 mm from the upper ceiling surface.
2 Feed sheathed cables and/or conduits through the mounting sleeve.
3 Place the sealing cylinder around the electric cables or conduits and insert into the mounting sleeve. Then lock together the sealing element with the sealing cylinder.
4 Approved for concrete or cellular concrete ceilings from 150 - 300 mm ceiling thickness.

DS 90 / 74 mm ceiling sealing system
Art. no. 9459-05

DS 90 / 120 mm ceiling sealing system
Art. no. 9459-06

Formwork unit
Art. no. 9473-95/96



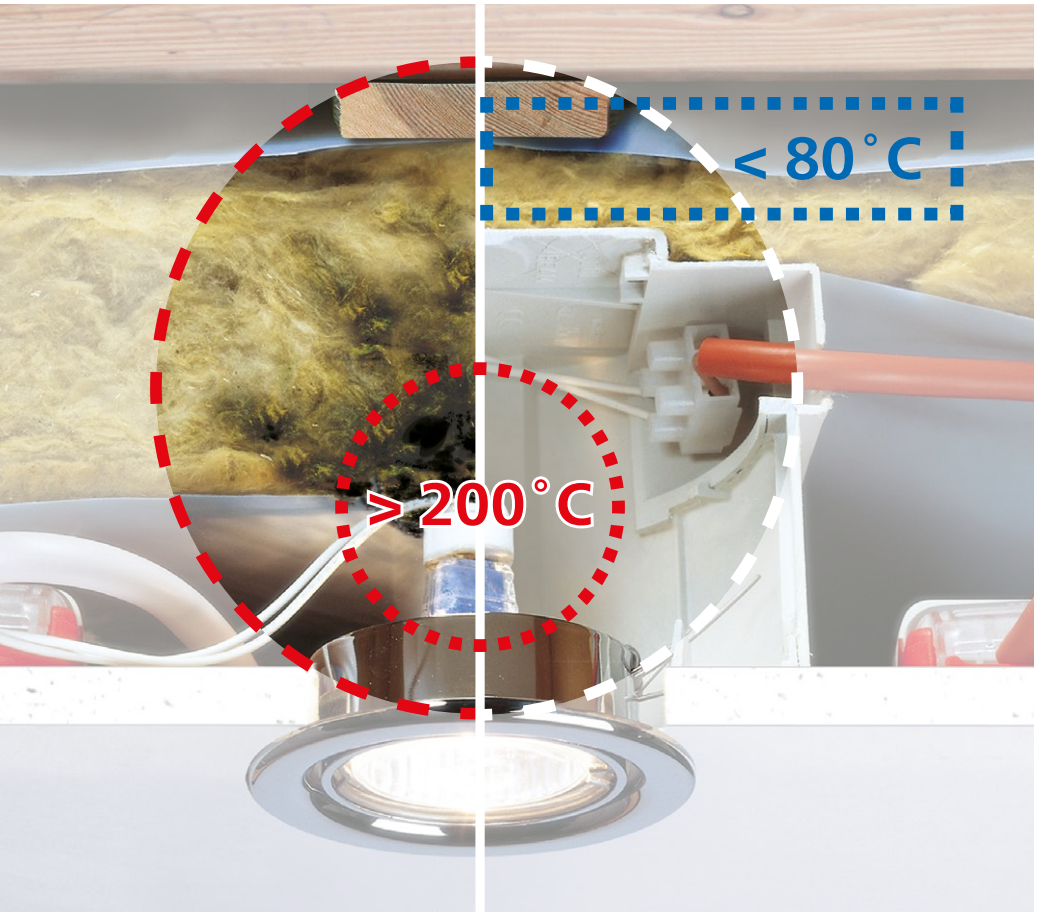


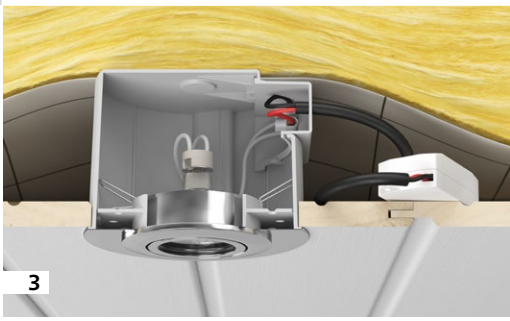
Protection against latent fire hazards. **ThermoX® installation housing.**

The **intelligent housing system ThermoX®** provides protection against the latent fire hazard caused by the extreme heat of some lamp types. ThermoX® protects the moisture retardant foil and other surrounding materials in false ceilings and in the roof area from heat-generating halogen and LED lamps.

The housing prevents the latent fire hazard and ensures that the air tightness is maintained.

- Fire-preventing and air-tight electrical installation
- Ceiling exit up to Ø 86 mm
- Installation either from above or below
- Also for retrofitting

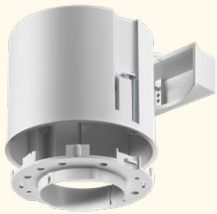




Latent fire hazard due to hot halogen lamps over 200°C already exists after a short burning time. The ThermoX® installation housing prevents the transfer of the extreme heat development to all surrounding materials.

1 The ThermoX® housing is installed during ceiling mounting.
2 The ThermoX® housing is retrofitted from below into a plasterboard ceiling.
3 The ThermoX® housing is retrofitted into a panel ceiling from below.

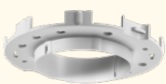
ThermoX® housing for halogen and swivelling LED luminaires
Art. no. 9300-01/02/03



ThermoX® universal housing with mineral fibreboard
Art. no. 9300-22

ThermoX® decorative panels
Art. no. 9301-...

ThermoX® front rings
Art. no. 9300-41/42/43



ThermoX® universal front part
Art. no. 9300-01/02/03

The corresponding Ø 120 mm cutter (Art. no. 1084-20) can be found on page 39.

Protection against latent fire hazards. **ThermoX® LED installation housing.**

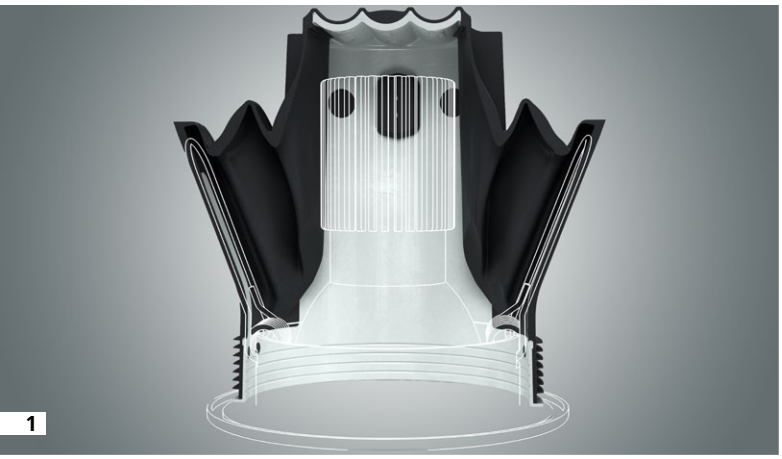
ThermoX® LED installation housing for air-tight installation of rigid and swivelling built-in LED luminaires in different ceiling constructions. The housing protects the surrounding material (moisture barrier foil, insulation, etc.) against the high operating temperatures and the LED luminaires themselves from contamination.

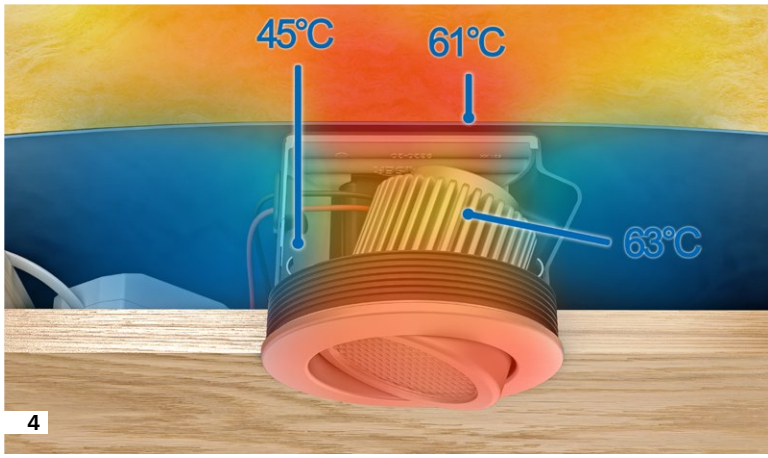
- Fire-preventing and air-tight
- For installation in insulated hollow ceilings
- Retrofitting from below
- Toolless installation of the housing
- Rear surface structure ensures optimal heat management
- Permanent, reliable support of the luminaire inside the housing

DESIGN PLUS
powered by: light+building

GERMAN DESIGN AWARD SPECIAL 2017

Air tightness certificate
Guaranteed air-tight housing for energy-efficient electrical installation of built-in luminaires. The appropriate certificate can be obtained from us or downloaded from our website.





1 Guaranteed air tightness even with expanded fixing springs, thanks to flexible expanding pockets
2 The swivel pocket permits targeted alignment of the installation spotlight.
3 Flat housings enable use in low ceiling constructions, e.g. wooden slat construction.
4 LED installation spotlight temperature profile: The rear surface structure minimises pressure on the vapour barrier and ensures optimal heat dissipation.

The **ThermoX® LED** installation housing also provides other advantages. Its completely air-tight design ensures that dust and dirt cannot penetrate the false ceiling or affect the heat sink function. This, together with the thermal separation between the luminaire and operating unit, enables the maximum service life to be achieved.

ThermoX® LED
Art. no. 9320-10

Ø 74 mm
D: 70 mm

ThermoX® LED
Art. no. 9320-11

Ø 74 mm
D: 95 mm

ThermoX® LED
Art. no. 9320-20

Ø 86 mm
D: 70 mm

ThermoX® LED
Art. no. 9320-21

Ø 86 mm
D: 95 mm

(D: Depth)

Suitable cutters for Ø 74 mm and Ø 86 mm cutter with a countersink hole cutter can be found on page 39.

KAISER fire protection systems. **At a glance.**

www.kaiser-elektro.de/en_DE/service/project-lists/fire-protection/

Installation in walls.

Flush-mounting fire protection box | EI30 – EI120

Flush-mounting fire protection box
1564-01 | Pg. 10

HWD 90 fire protection boxes | EI30 – EI120, F30-B, F60-B

HWD 90 one-gang box
9463-01 | Pg. 12

HWD 90 one-gang junction box
9464-01 | Pg. 12

HWD 90 electronics box
9462-94 | Pg. 12

HWD 68 fire protection boxes | EI30 – EI90

HWD 68+ one-gang box
9463-03 | Pg. 16

HWD 68+ one-gang junction box+
9464-03 | Pg. 16

Solid wood-mounting fire protection box | F30-B – F120-B

PROTECT® one-gang junction box
9464-05 | Pg. 18

Setting tool
1090-12 | Pg. 18

Tools / accessories for HWD 90, HWD 68 and flush-mounting fire protection box

Universal opening cutter
1085-80

PROFI cutter
1081-20

PROFI cutter
1081-10

68/74 centering insert
1083-99

AMZ 2 stripping pliers
1190-02

Diamond grinding head
1088-02

HWD 30-120 fire protection cover
1184-94

Straight coupling
9060-78

Straight coupling
9060-68

Installation for walls. Feed-throughs and entries.

Electric cable, conduit and multiple seals

PROTECT® cable sealing
9459-14 | Pg. 19

PROTECT® multiple sealing
9459-15 | Pg. 19

LS 90 cable sealing system
9459-01 | Pg. 20

RS 90 conduit sealing system
9459-02 | Pg. 20

DS 90 / 74 mm box sealing system
9459- 03 | Pg. 20

DS 90 / 120 mm box sealing system
9459-04 | Pg. 20

Tools for sealing systems

ETICS SPECIAL cutter
1088-06

BASIC cutter
1084-35

PROFI cutter
1081-20

MDF BASIC cutter
1085-68

BASIC cutter
1084-20

Accessories for sealing systems

Sealing identification label
9473-91

Sealing identification label
9473-92

Sealing plug

M16
1040-16 | Pg. 24

M20
1040-20 | Pg. 24

M25
1040-25 | Pg. 24

M32
1040-32 | Pg. 24

M40
1040-40 | Pg. 24

Installation in ceilings.

HWD 30 fire protection ceiling boxes | EI30 - EI90

Ø 74 mm

HWD 30 ceiling box
9463-50 | Pg. 26

Ø 74 mm

HWD 30 ceiling junction box
9464-50 | Pg. 26

HWD 30-120 fire protection cover
1184-94 | Pg. 26

Fire protection housing | EI30

Ø 100 mm

FlamoX® fire protection housing
9435-04 | Pg. 28

Ø 180 mm

FlamoX® fire protection housing
9435-03 | Pg. 28

FlamoX® fire protection putty
9400-05

Ceiling seal | EI90

DS 90 / 74 mm ceiling sealing system
9459-05 | Pg. 30

DS 90 / 120 mm ceiling sealing system
9459-06 | Pg.30

Ø 100 / Ø 150

Formwork unit
9473-95/96 | Pg. 30

Accessories for sealing systems

DE / GB / F / I

Sealing identification label
9473-91

DE / GB / F / NL

Sealing identification label
9473-92

Preventive fire protection

ThermoX® housing for halogen luminaires and swivelling LED luminaires
9300-01/02/03 | Pg. 34

ThermoX® universal housing with mineral fibre board
9300-22 | Pg. 34

Ø 74 mm

Installation housing ThermoX® LED
9320-10 | Pg. 36

Ø 74 mm

Installation housing ThermoX® LED
9320-11 | Pg. 36

Ø 86 mm

Installation housing ThermoX® LED
9320-20 | Pg. 36

Ø 86 mm

Installation housing ThermoX® LED
9320-21 | Pg. 36

Tools for HWD 30 and fire protection housing

Universal opening cutter
1085-80

Ø 68 mm

PROFI cutter
1081-10

Ø 74 mm

PROFI cutter
1081-20

Ø 86 mm

BASIC cutter
1084-86

Ø 120 mm

BASIC cutter
1084-20

Variocut
1089-00

68/74 centering insert
1083-99

Stripping pliers AMZ 2
1190-02

Installation in shipbuilding walls.

HWD B15 fire protection box

PT: 7–40 mm
D: 40 mm

HWD B15 one-gang box
9461-15

PT: 7–40 mm
D: 44 mm

HWD B15 one-gang box
9463-15

PT: 7–40 mm
D: 54.5 mm

HWD B15 one-gang junction box
9464-15

PT:0.2 - 40 mm
D:40 mm

HWD B15 one-gang box
9461-14

PT:0.2 - 40 mm
D:44 mm

HWD B15 one-gang box
9463-14

PT:0.2 - 40 mm
D:54.5 mm

HWD B15 one-gang junction box
9464-14

Tools for HWD B15

Ø 74 mm

METAL SPECIAL cutter
1086-74

Universal opening cutter
1085-80

Ø 30 mm

PROTECT® cable sealing
9459-14 | Pg. 19

Ø 50 mm

PROTECT® multiple sealing
9459-15 | Pg. 19

(**PT**: panel thickness | **D**: Depth)

You can find the complete range with all technical information in the KAISER catalogue and online at www.kaiser-elektro.de

Systems and solutions for professional electrical installation work.

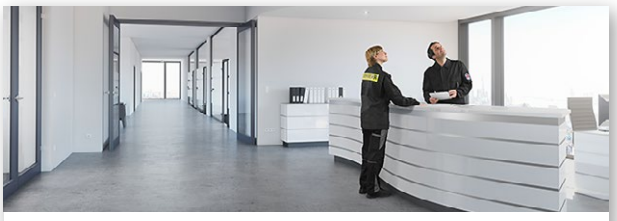
KAISER has been developing and producing systems and products as the basis for professional installation work since 1904. Planners and fitters all over the world use our practice-oriented solutions for their daily work in all installation areas.

Energy efficiency.

Innovative KAISER products help you to ensure compliance with the requirements of EU Directives and national regulations, such as the German Energy Act for Buildings (GEG, formerly EnEV).

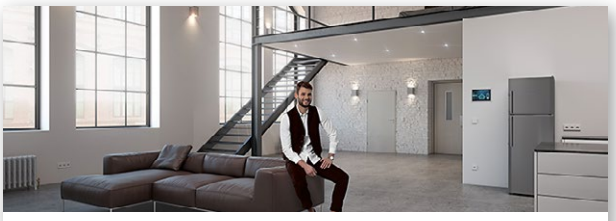
Radiation protection.

The use of the new radiation-protection one-gang boxes allows the radiation protection of the wall to be maintained without additional shielding measures.



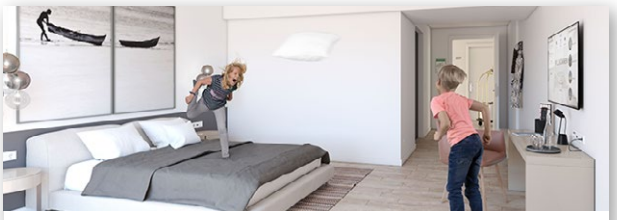
Fire protection.

KAISER fire protection systems provide reliable solutions for electrical installations in fire protection walls and ceilings.



Construction.

KAISER has corresponding product system solutions for safe, durable and practical use in redevelopment, renovation and modernisation projects.



Sound insulation.

KAISER's innovative sound insulation boxes ensure compliance with the construction requirements for sound insulation walls, as well as for built-in installations.

Concrete construction

Complete systems for on-site mixed and precast concrete. Fully optimised to professional electrical installation work.

Technical information and advice

All current further information on products, system solutions and communication media can be found on our website at **www.kaiser-elektro.de**

For additional questions or information, our team of technical consultants will be happy to assist you and look forward to talking to you: **+49 (0) 23 55 / 809-61 · technik@kaiser-elektro.de**

KAISER GmbH & Co. KG
Ramsloh 4 · 58579 Schalksmühle
GERMANY
Phone +49 (0)2355 / 809-0
www.kaiser-elektro.de · info@kaiser-elektro.de

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