

Electrical installation in shipbuilding.

Versatile, safe and certified.





Safe from experience!

KAISER was founded more than 120 years ago. Today the young firm would be called a start-up, because even in those days, the founders put their faith in what was then a technology still in its infancy, namely the production of components for electrical installation work in buildings. After all, electrification in Germany had only just started, and suitable installation solutions for its implementation still had to be invented.

To date, due to their continuous range of new product developments, KAISER has played a crucial role in the history of electrical installation and has set the standards for the entire sector.

KAISER has also had products for the shipbuilding market segment in its range for years. New standards, the requirements of the market and the constant further development in the marine & offshore sector have prompted us to further expand this product range.

Under the KAISER Marine brand, we are now starting to build up a new product range that guarantees simple, fast and, above all, safe installation at the shipyard or in cabin construction.

In addition to special cavity wall boxes of our O-range® series for use in sandwich panels or furniture, pluggable electrical installation plays a major role in shipbuilding and industrial cabin construction.

Our new B15 PROTECT® series, which offers a simple and certified option for installations and feed-throughs in B15 walls or ceilings, sets new standards for electrical installation in this area.

These products, our innovative centrepieces, make the crucial difference when it comes to making professional installations even more efficient and economical at the shipyard both and in industrial production.

But it's not just products that make the crucial difference – it's also our wide range of **services**: our application advisors, films in the media library, BIM data for proper planning, project lists or simply all the product data and product downloads in our online catalogue that make your day-to-day work easier and save a lot of time.

Let yourself be inspired by the many innovations and solutions that are just waiting to be discovered and processed by you!

*Best regards
Burkard and Ulrich Kaiser*



KAISER Marine - versatile, safe and certified Product solutions for all ship types		4 6
B15 PROTECT® With the B15 PROTECT® series, KAISER offers products specially developed for shipbuilding and installation in fire protection walls / ceilings.	B15 PROTECT® cable sealing B15 PROTECT® multiple sealing	8 10
Electrical installation boxes The diversity of our range in the field of electrical installation-boxes offers the right solution for every situation in ship or cabin construction.	Assembly procedure for a cavity wall box B15 PROTECT® fire-protection box KAISER cavity wall boxes O-range® Pluggable electrical installations Other solutions	12 14 16 18 20
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Media library:
**KAISER Marine -
Solutions for ship and
cabin construction.**
<http://www.kaiser-elektro.org/gb137>

Industry & Transport

Solutions for liquefied
gas tankers, cargo
and special ships.

Naval vessels

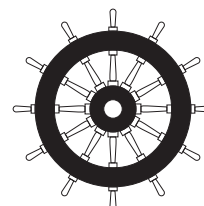
In corvettes, frigates, supply
ships or even aircraft carriers.
Our solutions offer security.

Yachts

Our product solutions
also play a major role in
high-quality yacht building.
Safety, comfort and
aesthetics intertwine here.

Product solutions for all ship types **Versatile, safe and certified.**

KAISER Marine has a product range ready for a wide variety of ship types. Thus, our range offers solutions for use in passenger ships, such as cruise liners, passenger and car ferries or yachts, but also for cargo ships, such as LNG tankers and container ships, as well as for a wide variety of special ships up to naval frigates or even aircraft carriers.

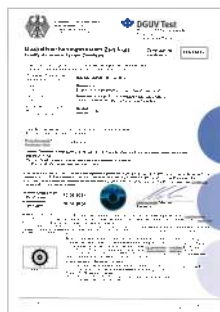


Passenger ships

From huge cruise ships to expedition vessels and ferries to small passenger ships.



For all of these and other maritime areas, we develop and offer systems for safe electrical installation: from the classic cavity wall box to the possibilities of pluggable electrical installation to product applications for installation in B15 fire protection walls and ceilings. These products are not new, but have been offered by KAISER for many years and are used in shipbuilding worldwide.



Module D Quality assurance certificate



Module B DNV certificate



Sound insulation certificate

Our products for use in safety-relevant areas such as B15 walls are certified by DNV



KAISER Marine Product solutions.

The developments of the KAISER GROUP are used in various production areas of shipbuilding. In this way, our **installation solutions can be used both for processing at the shipyard and for externally prefabricated elements such as cabins, furniture, control cabinets or machines.** The subsequent assembly of the elements can be further simplified, e.g. by pluggable electrical

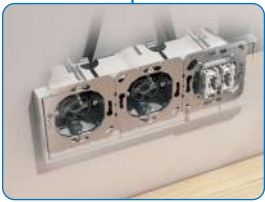
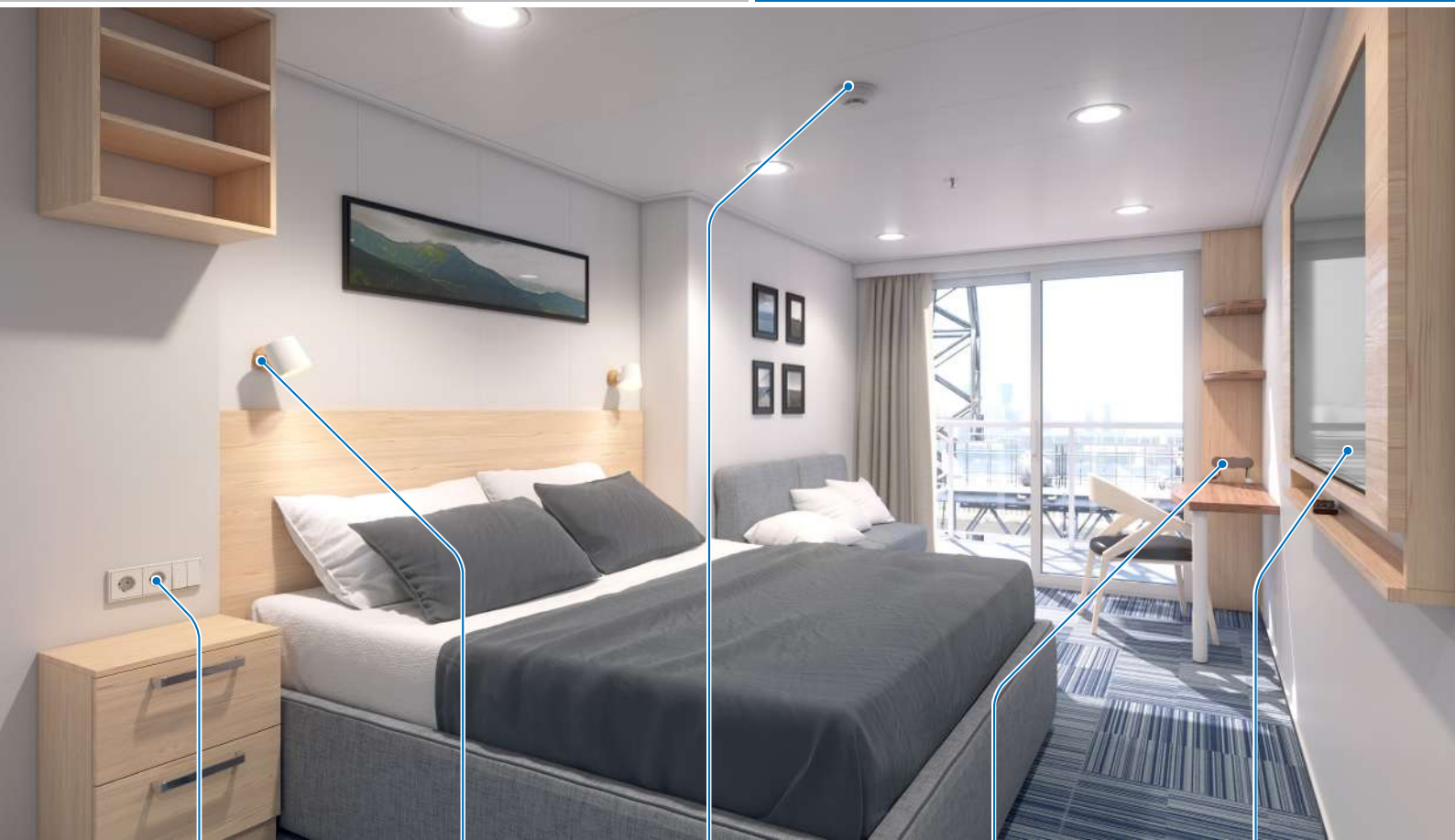
installations. With kilometres of cables that have to be routed and sealed in a modern ship, electrical installation plays a central role in almost every stage of production. The cables are the "veins" through which the energy flows that "brings the ship to life" at a later time and provides a home for its passengers or crew. Our solutions are a part of it.

- B15 PROTECT® sealing system
- B15 PROTECT® fire-protection boxes
- Halogen-free cavity wall boxes
- Pluggable electrical installations
- Cable glands
- Pressure balance elements

The Kaiser AFS technology

The fast-acting fire-retardant coating in boxes, housings and sealing systems for use in B15 walls and ceilings reacts immediately and safely foams out the installation opening. With this technology, KAISER products have been providing safety in buildings since 2006 and in shipbuilding since 2010.





Cabin construction plays a central role in shipbuilding. The cabin modules produced externally in series offer passengers a place of retreat during the ship's voyage, which is also intended to set new standards time and again in terms of comfort. This applies both to the well-known cruise ships with a wide variety of cabin types up to individually manufactured suites, as well as to crew cabins on freighters, naval vessels or yachts.

Here, electrical installation and security play a joint role. In this way, KAISER offers installation products for easy installation, e.g. in

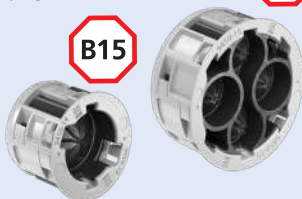
furniture, but also the necessary B15 feed-throughs to lead the cables into the interior of the cabins.

The installation and connection of custom-made furniture, such as TV cabinets, can be simplified with the help of the pluggable electrical installation.

With our systems, we enable freedom within the scope of cabin production and design, as existing barriers such as B15 walls are also suitable for electrical installation thanks to our innovations.

B15 PROTECT® cable sealing / multiple sealing
from page 8

B15



Fire-protection boxes
from page 14

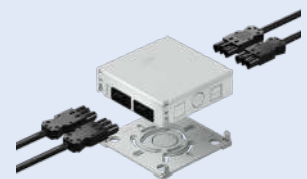
B15



Cavity wall boxes, halogen-free
from page 16



Pluggable installation
on page 18





B15 PROTECT® cable sealing. For walls and ceilings.

halogen
free



Sealings in fire protection walls or ceilings are required as soon as cables are routed through walls or ceilings with a certain protection class. In order to obtain the protection class such as B15, the opening must be professionally sealed off to prevent the spread of fire and smoke and to ensure room separation.

The B15 PROTECT® cable sealing is used for fire protection sealing of feed-throughs in sandwich panels with protection class B15. The certified sealing system is quick and easy to install and, due to its separable design, can also be retrofitted around the cable. Like all products of the B15 PROTECT® series, the cable sealing system receives the fire protection class as well as the sound insulation class of the wall.

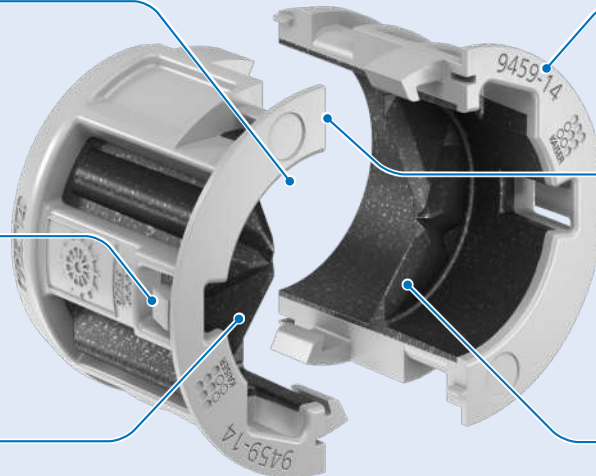
- For B15 fire protection walls and ceilings
- Safe, certified fire protection solution
- For wall and ceiling feed-throughs
- Without use of fire protection kit
- For cables from 4 – 12.5 mm
- Secure latching in sheet thicknesses up to 1 mm



Installation opening 30 mm

4 stabile snap-in hooks for a secure hold in the wall panel

Versatile for cables with a diameter of 4 mm up to 12.5 mm diameter.



Innovative design and discreet in light grey

Separable structure for retrofitting or for use with pre-assembled cables

Insulation-forming material for the independent room separation of the installation opening in case of fire

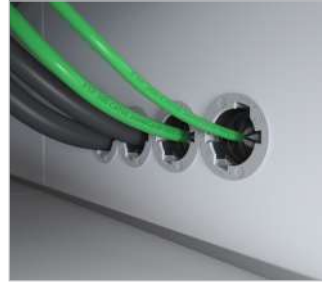
Examples of use



Suitable for cables from 4 mm ...



... up to a diameter of 12.5 mm.



Assembly in group arrangement possible.



Suitable for wall & ceiling.

Installation



Create an installation opening of 30 mm.



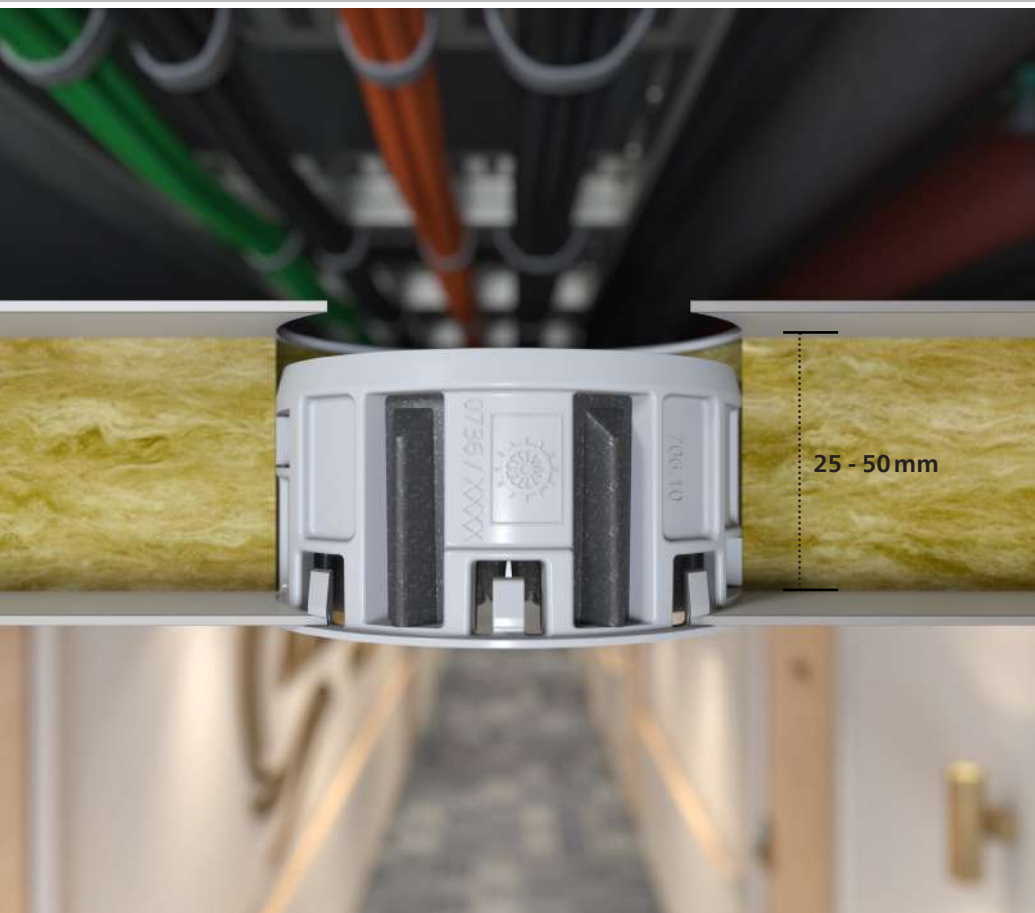
Guide the cable through.



Place the two-part B15 PROTECT® cable sealing around the cable and lock in place.



Press the cable sealing into the opening in the component and let it click into place audibly.



B15 PROTECT® multiple sealing. Retrofitting is possible.

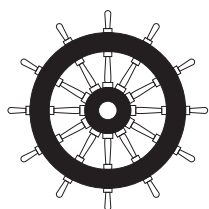
halogen
free

B15

Like the B15 PROTECT® cable sealing, the multi cable entry of the B15 PROTECT® series offers the simplest way to feed through cables in walls of protection class B15.

The separable design allows easy insertion of up to four cables. The size of the required wall feed-through of 50 mm has been chosen deliberately and enables the feed-through of pre-assembled cables with connectors from e.g. WAGO GST or Wieland GESIS. Even when installed, the multiple sealing system offers the possibility of non-destructive retrofitting with further individual cables.

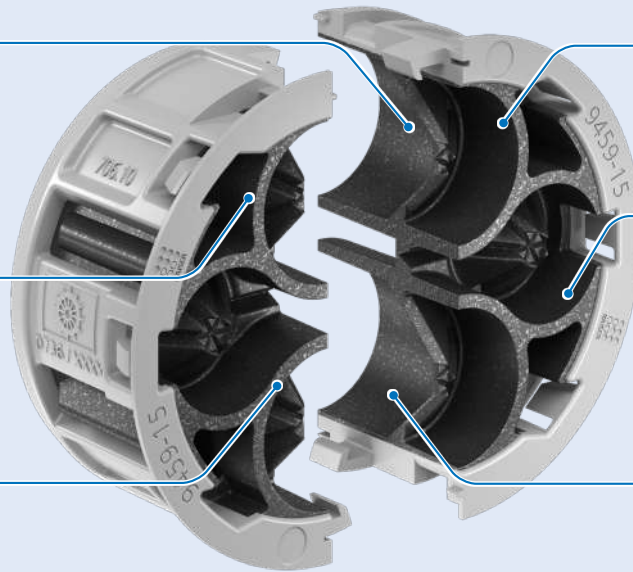
- For B15 fire protection walls and ceilings
- Safe, certified fire protection solution
- For wall and ceiling feed-throughs
- Without use of fire protection kit
- For cables from 4 – 12,5 mm
- Secure latching in sheet thicknesses up to 1 mm



Installation opening 50 mm
for simple feed-through of
pre-assembled cables

**6 stable snap-in
hooks**
for a secure hold in
the wall panel

Versatile
for up to 4 cables with a
diameter of 4 – 12.5 mm
diameter



Innovative design
and discreet in light
grey

Separable structure
for retrofitting
or for use with
pre-assembled
cables

**Insulation-forming
material**
for the independent room
separation of the installation
opening in case of fire

Examples of use



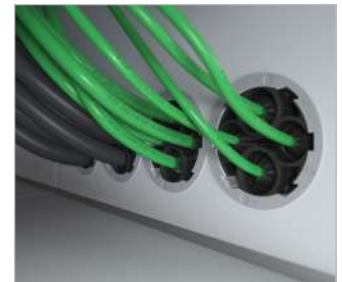
Multi cable entry for up to 4
cables from 4 mm



... up to a diameter of
12.5 mm.



Can also be used as a ceiling
exit.



Assembly in group
arrangement possible.

Installation



Create an installation opening
of 50 mm in diameter.



Feed the cables through the
opening in the component.



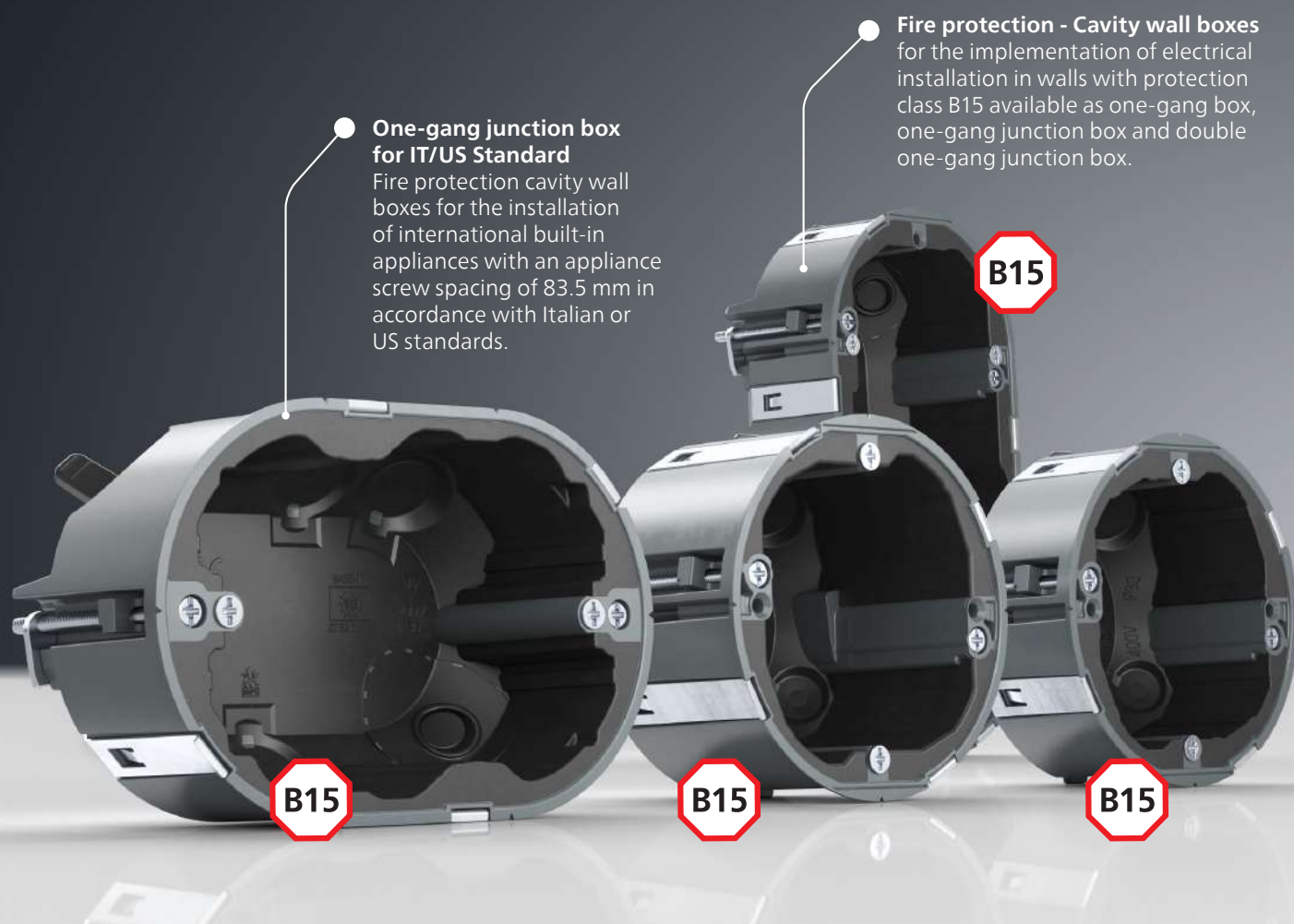
Place the two-part B15
PROTECT® multiple sealing
around the cables and snap it
into place.



Press the multiple sealing into
the component opening and
snap it into place.

Solution program - Electrical installation boxes.

The diversity of our range in the field of electrical installation boxes offers the right solution for every situation in ship or cabin construction. Generally, our products here can be divided into two different categories: boxes without special protective properties and fire protection products for use in B15 walls. The latter additionally receive the sound insulation class of the wall.



Assembly procedure for a cavity wall box

The installation of KAISER cavity wall boxes always follows the same sequence. Regardless of the required protection class of the wall, we at KAISER have developed a uniform installation sequence for all our cavity wall boxes.



Create the component opening. This is 68 or 74 mm depending on the box used.



Insert the cable into the box without using any tools.



The box is inserted into the component opening and fastened with the screws.



When installing combinations, always choose a centre distance of 71 mm.



Cavity wall boxes for installation in thin boarding
available in various installation depths and versions.

Installation in wall elements without protection class with a wall thickness of < 7 mm.

Multi-boxes

Cavity wall boxes with large installation opening without central bridge for wiring several devices together or for the use of pre-wired installation accessories.

Standard cavity wall boxes

available in various installation depths and versions.

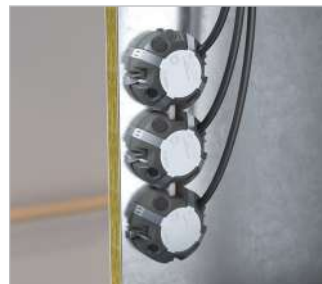
Installation in walls without protection class and furniture.



For boxes with a diameter of 74 mm, the holding ring must be cut off at the marked point.



A connecting piece must always be used for fully insulated through-wiring.



Up to 3-way combinations are possible.



New: B15 PROTECT® double one-gang junction box 9452-17 and one-gang junction box Italian Standard 9466-17



B15 PROTECT® fire-protection box.

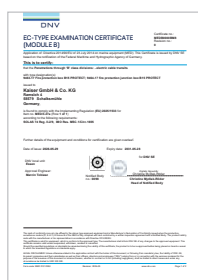
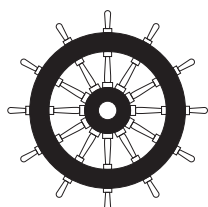
Fire-protection boxes for use in ship and cabin walls.

halogen
free



Without the need for costly encasing, our B15 PROTECT® fire protection boxes provide the necessary protection for installation in shipbuilding walls with protection class B15. Cavity wall boxes of the B15 PROTECT® series for category B15 partitions react in the shortest possible time in the event of a fire. The integrated fire-retardant coating generates foam and reliably seals the installation opening. The B15 PROTECT® cavity wall boxes protect against fire and smoke in the fire-protection zone and preserve the B15 function of the fire-protection wall for at least 30 minutes of flames.

- Installation in component opening 74 mm
- Can be combined with support connectors, smokeproof and fully-insulated
- Available as one-gang box and one-gang junction box
- Retrofitting is possible
- With fire-protection cover, can be used as a junction box
- No encasing necessary



Module B DNV certificate for 9463-17 and 9464-17

**B15 PROTECT®
one-gang box**
9463-17



**B15 PROTECT®
one-gang junction box**
9464-17





Also for thin boarding. With the KAISER zero-tension technology.

halogen
free

B15

All B15 PROTECT® fire protection boxes are suitable for wall thicknesses of 0.2–40 mm. The special KAISER zero-tension technology ensures a firm and twist-proof hold in a wide variety of wall structures.

The new **B15 PROTECT® fire protection double one-gang junction box** combines all the features of our new generation in a double box and has 4 tool-free cable entries and 2 tool-free tube entries.

With the **B15 PROTECT® Italian Standard one-gang junction box** for 3 modules, we are expanding the range with a solution for international applications. Switch series with a device screw spacing of 83.5 mm, such as the 3-module IT standard or the US standard, which are frequently used in shipbuilding, can be securely installed in B0/B15 partition walls and fire protection walls.

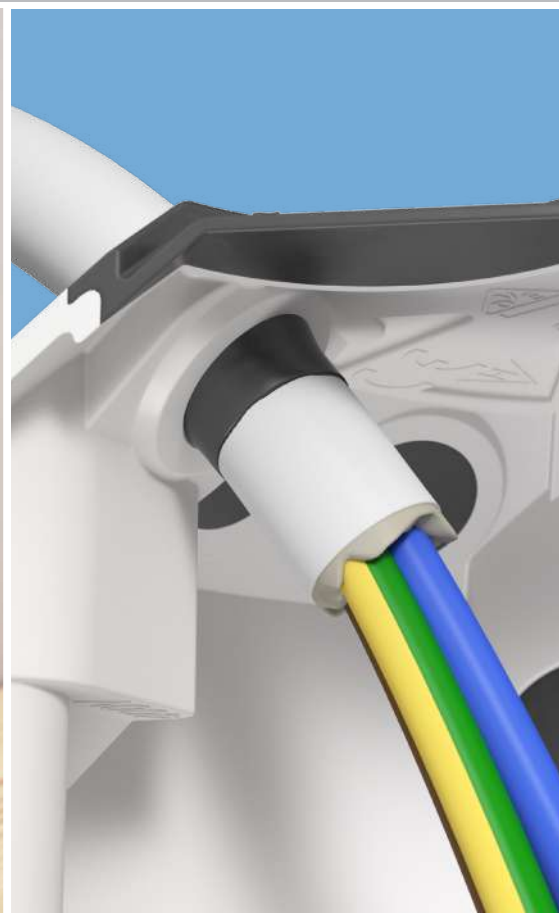
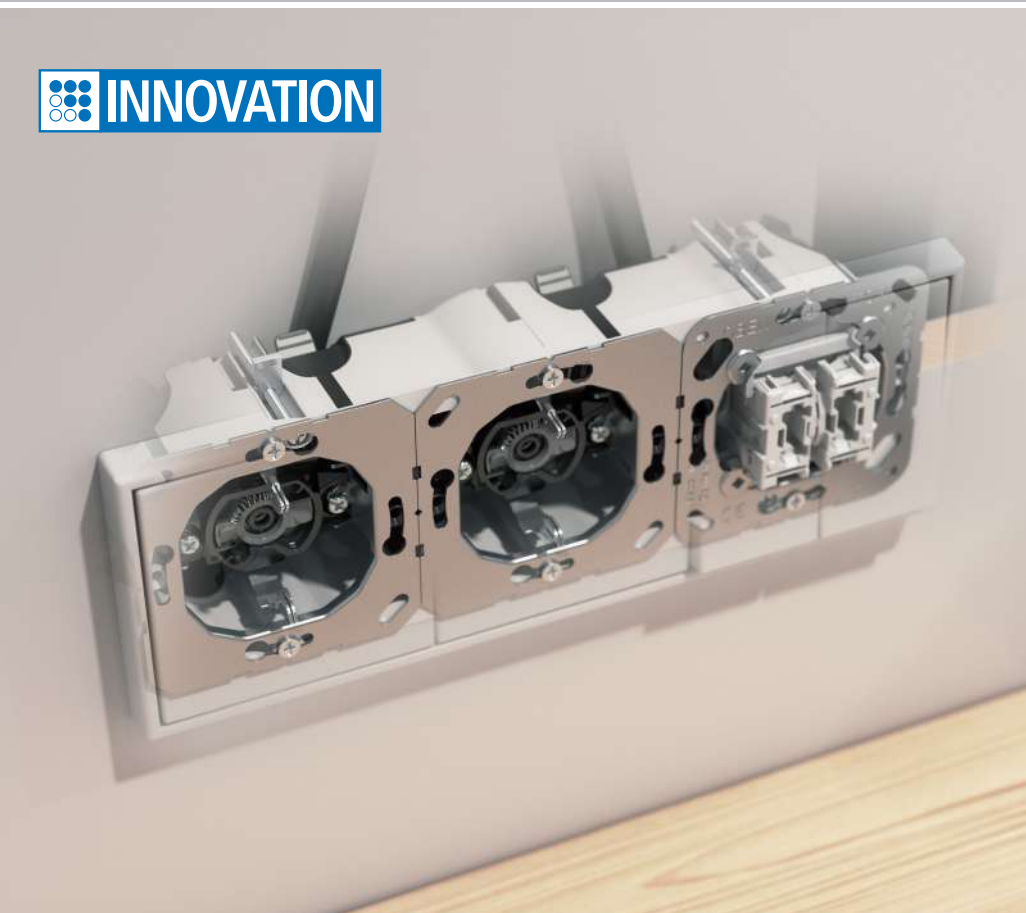
**B15 PROTECT®
double one-gang junction box**
9452-17



**B15 PROTECT® Italian Standard
one-gang junction box**
9466-17



Expensive and time-consuming encasing, i.e. metal, is avoided with the B15 PROTECT® cavity wall box. The user is guaranteed a testified and fast installation.



KAISER **O-range**®

One series with multiple options.

halogen
free

KAISER cavity wall boxes have been the standard in electrical installations since their invention in 1968. We offer a wide range of halogen-free products for use in shipbuilding. You will find the right product solution for every installation situation in our range. Whether small, large, shallow, deep, air-tight or with additional storage space. KAISER always offers the right product.

Excerpt from the KAISER cavity wall programme:

One-gang box,
depth 35 mm, halogen-free
9061-77



O-range® one-gang box,
depth 49 mm, halogen-free
9063-78



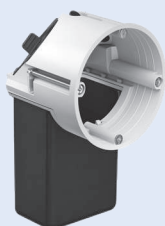
**O-range® one-gang
junction box, depth 62 mm,**
halogen-free
9064-78



**Double one-gang
junction box, depth 47 mm,**
halogen-free
9062-77



**O-range ECON® Flex
electronics box**
9268-74

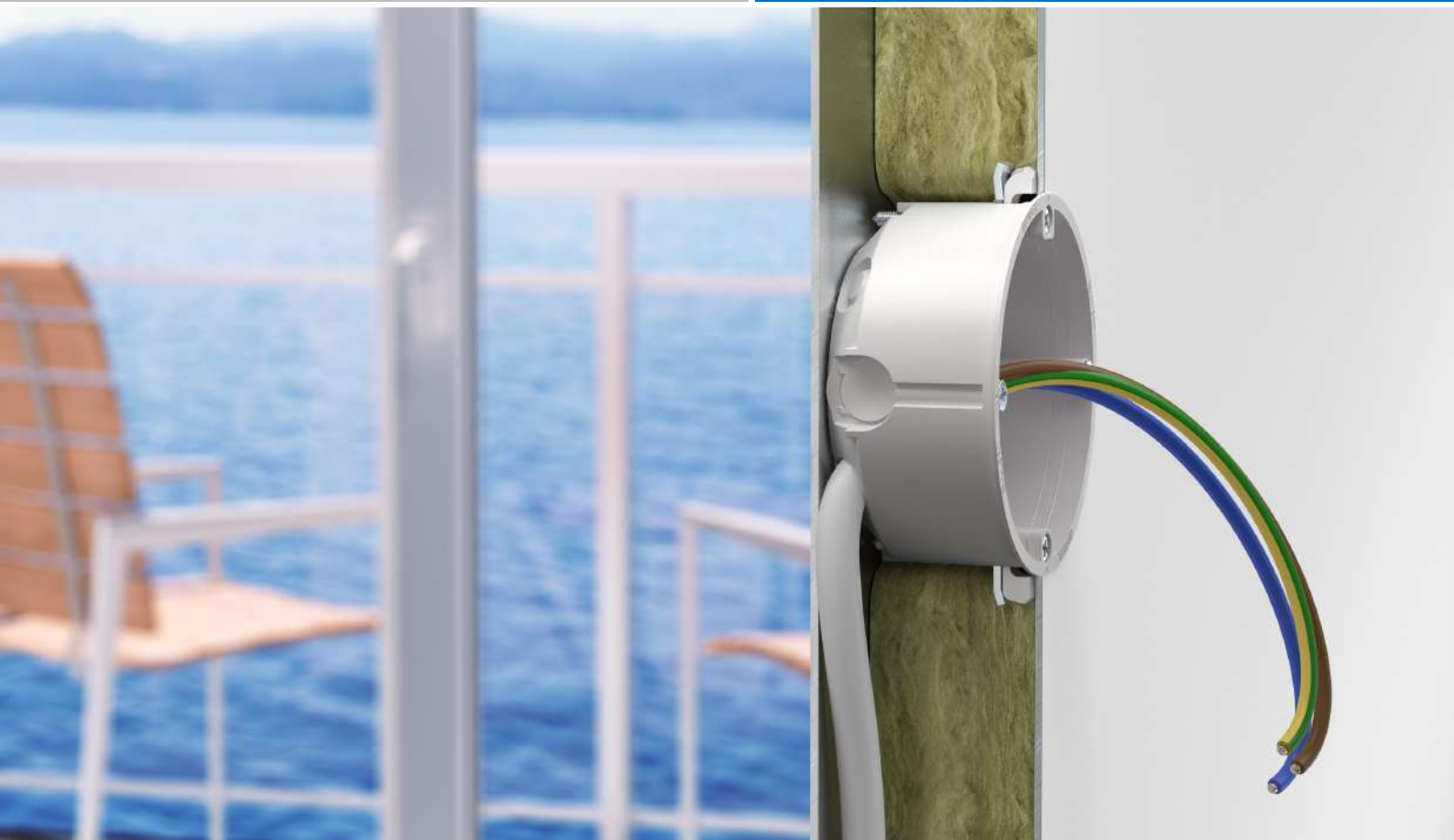


**Wall light connection box
with cover, air-tight,
depth 45 mm, halogen-free**
9248-77



**O-range ECON® 3 one-gang
junction box**
9253-78





KAISER O-range® For thin boarding.

halogen
free

Specially developed for wall thicknesses below 7 mm, our product range for thin boarding is the right solution for use in typical shipbuilding panels. With a clamping range starting at just 0.2 mm, our products in the O-range® series for thin boarding always sit firmly and twist-proof in the wall, thus conforming to standards, and are waiting to be fitted with installation accessories.

- Toolless cable and conduit entries
- Device screws with plus-minus drive
- Halogen-free
- Can be combined using support connectors
- KAISER FX⁴ screws



For thin boarding

**O-range® one-gang box,
depth 35 mm, halogen-
free**
9061-78



**One-gang box,
depth 41 mm, halogen-
free**
9068-74



**One-gang junction box,
depth 61 mm, halogen-
free**
9068-76



**One-gang box
9068-79**





The future, pluggable.

Simple, fast, secure and plannable.

It is often the case that only a narrow time window is available for the electrical installation, which also has to be shared with other trades. Especially when it comes to building efficiently and on schedule, prefabricated components and systems are in demand as a solution for planning and installation. In such cases, the prefabrication of pluggable assemblies is an option, which then only need to be plugged together and fixed in place at the shipyard or in cabin production. Thus, a time-consuming and cost-intensive electrical installation can be economically optimized by pre-assembled, pluggable systems.

The specialist planner or electrical installer plans the installation using modular components and cables that are individually pre-assembled in their own workshop or at the manufacturer's premises. During cabin production, these only have to be plugged together for commissioning according to the specified planning. This enables a time saving of up to 70%. Pluggable installation increases safety, freedom from errors and clarity of the sub-assemblies at the same time.

For cabin walls and furniture

O-range ECON® one-gang junction boxes are the best solution for electrical installations in cabin walls or furniture. In the 2-, 3-, and 4-plug versions, these boxes offer a large installation opening for the quick installation of pre-wired accessories without spatial separation.

Well-known manufacturers with products in the areas of classic electrical installation, such as switches and sockets, but also intelligent building control, already offer ready-made sub-assemblies. These are then only connected via the prefabricated plug-in connection and the entire assembly is fixed in the wall with the lug screws for the cavity wall box.



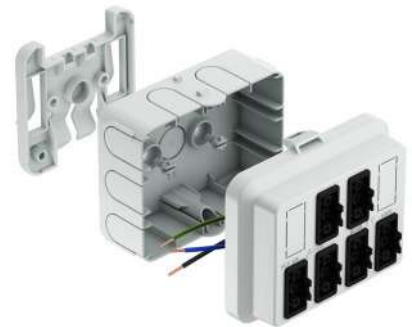


When things get tight. Compact PD and multi-PD distribution box.

AK2 modular system

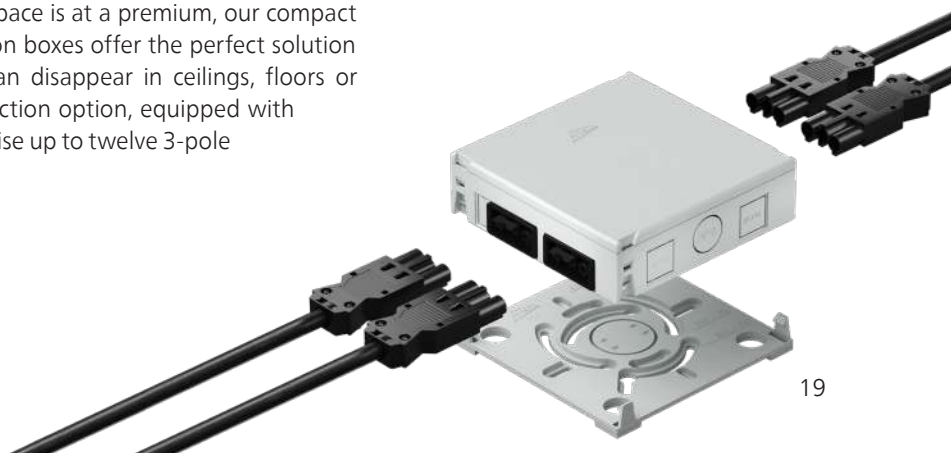
The AK2 modular system can cover a wide range of applications, as it offers the right solution for all installation tasks. The universal attachment solution is for hole pattern and clamp attachments on all common cable support systems (such as Niedax, OBO, PUK, Legrand, van Geel, Stago, Vergokan, Rico, Cablofil, etc.)

The AK2 modular system consists of a basic box, front part and attachment accessories in numerous variants. This allows individually configured boxes to be put together for normal or pluggable electrical installation. With connectors from WAGO, Wieland or even normal SCHUKO plugs, the possibilities are almost unlimited. With the AK2 Data System, the AK2 series can also be used excellently as a distribution box for data networks. For this purpose, the AK2 boxes are equipped with special cable entries for data lines and the special AK2 data covers can accommodate up to six Keystone modules.



Flatbox Multi PD

For connecting pluggable solutions in areas where space is at a premium, our compact solutions from the Compact PD and Multi-PD junction boxes offer the perfect solution approach. Space-saving, the flat designed boxes can disappear in ceilings, floors or behind furniture elements and offer a simple connection option, equipped with the plugs of common suppliers. We can easily customise up to twelve 3-pole plug connections with the Multi-PD system.





KAISER installation. Other solutions for shipbuilding and cabin construction.

Our product range for electrical installation is very broad and covers the most diverse areas of application. Various solutions from building technology can also be used very well in shipbuilding and cabin construction. Examples of this are our sound insulation products and our FlamoX® fire protection housing, which has already been used in some projects with special project approval from DNV.



Sound insulation

Good sound insulation is an important aspect of living and working quality and thus a value criterion for ship cabins. Being accustomed to hotel construction, the expectations of passenger ship guests are also very high.

KAISER sound insulation solutions help to fully maintain sound insulation even with electrical installation in the cabin walls - and up to a sound insulation class of 78 dB.



FlamoX® fire-protection housing

FlamoX® installation housings for lights and loudspeakers protect lives and property in case of a fire. In luminaire and loudspeaker installations in fire protection ceilings, the integrated fire-retardant coating enables the boxes to achieve the fire-protection rating F30 (EI30) of a ceiling of that category. They prevent the spread of fire and smoke gases, protecting escape routes. FlamoX® fire protection boxes offer certified safety and reliability.





AGRO cable glands and industrial products.

AGRO has been part of the KAISER family of companies since 2002. We offer an international industrial customers innovative product solutions for laying, inserting and protecting cables in ships, machines, vehicles, apparatus and plants. Our high-quality cable glands and cable entries prove themselves in particularly demanding applications. In addition to a wide range of cable glands, which are also available as EMC or Ex-protected variants, the broad product

range includes pressure compensation elements and special developments such as our MCE Pro und MCE Syntec® multi cable entry. Special designs can also be easily created at our production site in Switzerland. For years, our products have been the high-quality standard in projects in mechanical engineering, the automotive, railway and maritime industries.



Media Library:
To the cable gland
catalogue

Cable glands

**Pressure balance
element steel A4
with membrane**
2460.12.97.34



**Cable gland Progress®
EMC easyCONNECT
brass with contact
spring**
1183.20



**Multi cable entry MCE
CR flat seal**
1908.88.08.010



**Cable glands
Progress® FGR synthetic**
1520.20.080



Competence

We are characterised by many years of experience in working with a wide variety of companies in the shipbuilding industry, such as shipyards, cabin builders, subcontractors or suppliers. Our certified product solutions are trusted by many fabricators and are already used in a wide variety of ship types, from cruise liners to car ferries, LPG tankers and naval vessels to superyachts.

KAISER Marine now stands for a further development of our competence and will expand it so that we will continue to be a part of the implementation of the most diverse shipbuilding and offshore projects with our solutions for electrical installation, fire protection as well as our cable glands.



Have we aroused your interest in our innovations? It has always been the goal of the KAISER GROUP to be closely networked with the users and fitters of our product solutions in order to be able to identify and solve the actual needs and problems. We are happy to answer your questions and are always open to your suggestions.



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Shipbuilding electrical installation

At a glance.

B15 Sealing systems



B15 PROTECT®
cable sealing
9459-14 | P. 8



B15 PROTECT®
multi cable entry
9459-15 | P. 10



B15 PROTECT®
one-gang box
9463-17 | P. 14



B15 PROTECT®
one-gang junction box
9464-17 | P. 14



B15 PROTECT®
double one-gang
junction box
9452-17 | P. 15



B15 PROTECT®
Italian Standard
one-gang junction box
9466-17 | P. 15

Cavity wall boxes normal, halogen-free



O-range®
one-gang box,
depth 49 mm
9063-78 | P. 16



O-range®
one-gang junction box,
depth 62 mm
9064-78 | P. 16



One-gang box,
depth 35 mm
9061-77 | P. 16



Double one-gang
junction box,
depth 47 mm
9062-77 | P. 16



Wall light connection
box-with air-tight
cover, depth 45 mm
9X-74 | P. 16



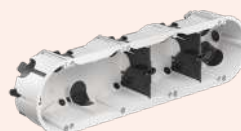
O-range ECON® Flex
electronics box
9268-74 | S. 16



O-range Econ® 2 one-
gang junction box
9252-78



O-range Econ® 3 one-
gang junction box
9253-78 | P. 16



O-range ECON® 4 one-
gang junction box
9254-78

For thin boarding, halogen-free



O-range® one-gang box,
depth 35 mm
9061-78 | P. 17



One-gang box, depth
41 mm
9068-74 | P. 17



One-gang junction box,
depth 61 mm
9068-76 | P. 17



One-gang box
9068-79 | P. 17

Pluggable system



AK2-S/MK cable
box cable tray
AT2216 | P. 19



Pluggable front
part AK2
AT7706 | P. 19



100% pluggable
PD box
AT3218 | P. 19

Cable glands



Pressure balance
element steel A4
with membrane
2460.12.97.34 |
P. 21



Multi cable entry
MCE CR flat seal
1908.88.08.010
| P. 21



Cable glands
Progress® EMC
easyCONNECT brass
with contact spring
1083.20 | P. 21



Synthetic cable
glands Progress®
GFK
1520.20.080 | P. 21



Basic housing AK2
Data with flat
mounting plate
AT1960 | P. 19



Front part AK2
Data for max. 6
modules
AT1964 | P. 19

Tools



EXPERT carbide
cutter Ø 68 mm
1082-30



EXPERT carbide
cutter Ø 74 mm
1082-40



SPECIAL cutter
MDF Ø 68 mm
1085-68



AMZ 2 stripping
pliers
1190-02

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).



Radiation protection.

The use of the new radiation protection 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 matching 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 concrete, factory production and prefabricated room modules. Fully optimised to professional electrical installation work.

Technical information and advice

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

For any additional questions or information, please do not hesitate to contact our technical support team who will be happy to assist you: **+49 2355 / 809-61 · technik@kaiser-elektro.de**

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