Energy efficiency.
Electrical installation for energy-saving buildings.

KAISER

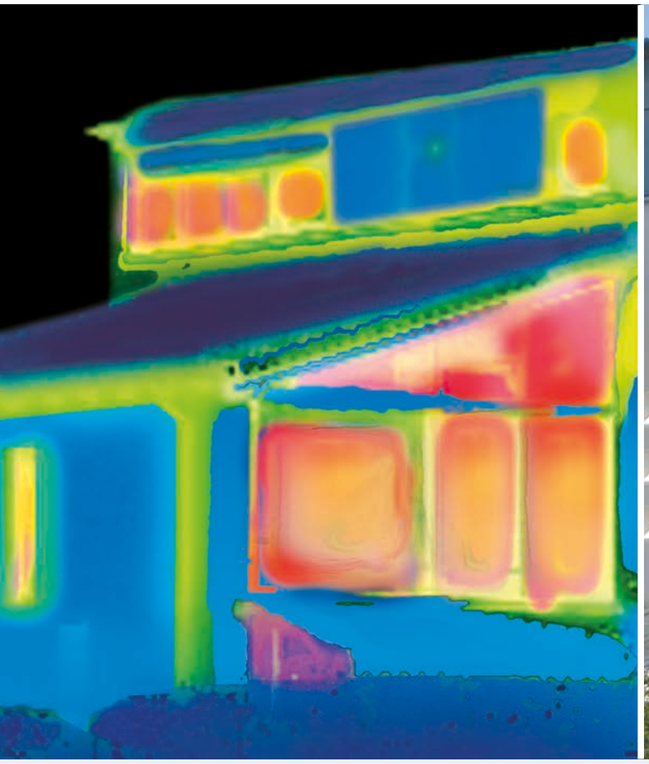
For energy-efficient buildings.
Intelligent installation systems.

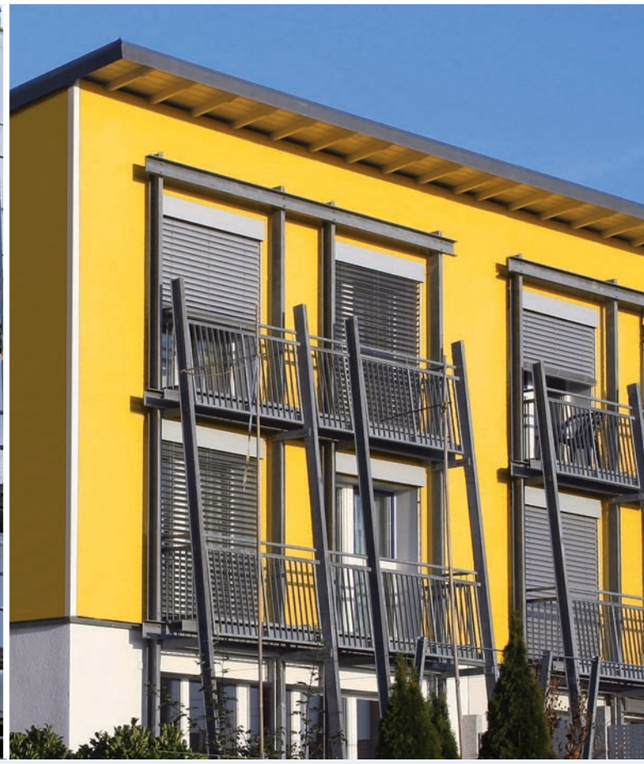
In addition to the users' needs in respect of architecture and function, sustainable and **future-oriented building technology** must, above all, satisfy very specific building construction requirements. These define, among others, the energy standard, in which the aim is to reduce energy consumption through increased efficiency.

With forward-looking planning, intelligent technology and suitable materials, it is possible to make use of previously unrealised energy-saving potential – and this is entirely within the meaning of the EU guidelines on building efficiency and the national regulations. Increased comfort in the home, improved quality of work, and the potential for making savings – these are all positive side effects.

Innovative KAISER products help you to meet the stricter requirements of the EU guidelines, in particular those of the EnEV, the Energy-Saving Directive. In this way you can easily and reliably create the required air-tight building shell – for example, by using ECON® technology, which is used in air-tight cavity wall boxes, flush-mounted boxes, and installation housings.

You will also find our suitable products for installing and fixing **heat bridge-free electrical installation** in or on the facades of buildings. Of course, these products can also be installed at a later date.
For the retrofitting of internal insulation, there is an internal insulation box which, in addition to ensuring air tightness and the lack of heat bridges, regulates the air moisture from the interior.





Basics.

Laws and technology.

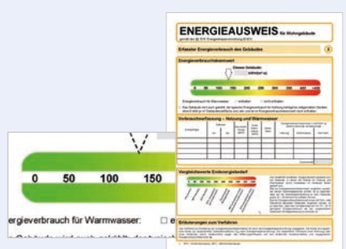
Energy costs rise, and **energy efficiency** is becoming more and more important for assessing the value of a building. This applies to both new build projects and to renovation work (refurbishing). In addition, the requirements in respect of overall energy efficiency in residential and non-residential buildings were increased by 25% on January 1, 2016. Accordingly, heat insulation work must be improved by about 20%. The top floor ceiling in existing buildings must be insulated if the roof above is not insulated, or if it does not comply with minimal thermal insulation requirements.

Building air tightness is defined not only in the EnEV, but also in DIN 4108-7. The "Directive on the Energy Performance of Buildings" formulates, on a European level, guidelines which with the amendment to the 2005 Energy-Saving Law became national law in Germany.

The basis for the new Energy-Saving Directive (EnEV) is the Energy Saving Law, which came into force on October 1, 2007. With the 2009 and 2014 amendments to the EnEV, there was a further increase in the requirements relating to efficiency and sustainability. In Austria, the EU directive has been part of national law since August 2007, and in Switzerland the "Aktionsplan Effizienz" (Efficiency Action Plan) prescribes appropriate measures based on the EU directive.

The energy certificate is the central component of the EnEV and is binding for the sale, renting or leasing of all buildings. It evaluates the energy losses through the building shell, and provides purchasers and tenants with more transparency in respect of a property's energy efficiency.

In Germany the energy certificate has been compulsory for residential buildings since January 2009, and for non-residential buildings since July 2009. In Austria this has applied to new buildings since January 2008, and to existing stock since 2009. Switzerland, basing its regulations on the EU directives, introduced the building energy certificate (GEAK) for the cantons in October 2009.

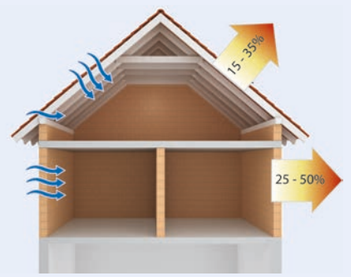


An air-tight building shell and heat bridge-free external insulation are important factors for meeting the requirements of the EnEV in respect of new building and renovation work. DIN 18015-5 (air-tight and heat bridge-free electrical installation) defines the basics of planning and execution for penetration of the air tightness layer and for connections in this field, and also in or on the windproof layer.

The energy efficiency of a building is determined by the optimal usage of existing sources of energy and the minimising of energy losses. In addition to the heating and ventilation technology which is already in use, the thoroughly well-insulated building shell is the most important component for providing protection against heat losses.

The thermal building shell area is formed primarily by the outer walls, where 25% to 50% of the heat transmission losses occur. These are followed by 15% to 35% losses through roof areas and heat bridges such as contact areas and leaks through the building's shell. In order to prevent building damage, it is also necessary to maintain the air-tight building shell and to keep the external insulation free of heat bridges. This applies especially to the electrical installations.

Strict energy standards can reduce heating energy consumption – in comparison with normal consumption in existing stocks of houses – to as much as about 40%, and in passive houses to around 8%. In order to achieve substantive saving effects by refurbishing buildings, the most important thing is to optimise the heat insulation



Average heating energy consumption shown on houses with a floor space of 100 m²

House type	„Normal House" (existing building)	Energy saving house	Passiv-house	Zero energy house	Energy self-sufficient house
Energy consumption	187 kw h/m² a	73 kw h/m² a	15 kw h/m² a	8,3 kw h/m² a	0 kw h/m² a

More information on "Electrical installation in energy-saving buildings" is available on the internet, or direct from KAISER (see also last page of this catalogue).
For technical advice:: Telephone +49(0)2355.809.61

Air-tight and heat bridge-free.

Electrical installation.

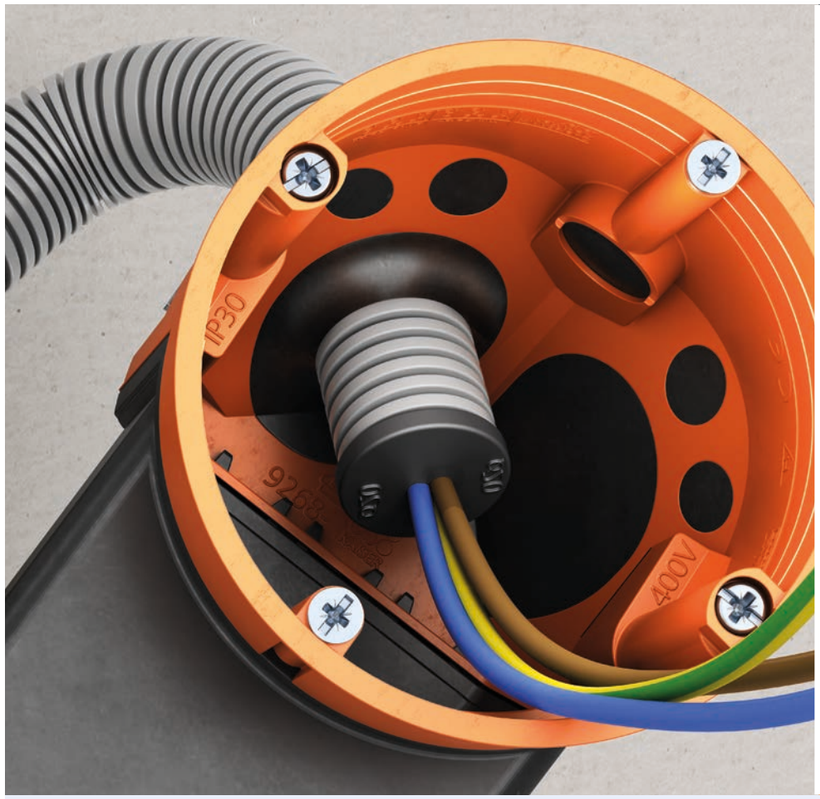
A heat-insulating, air-tight building shell as specified by DIN 4108 is necessary in order to comply with the requirements of the current regulations. In addition to the energy-related factors, the air-tight building shell also provides an important protective function for the basic structure of a building. This is because if warm air inside the construction comes into contact with colder surfaces, condensation forms. This can result in moisture damage and even mould.

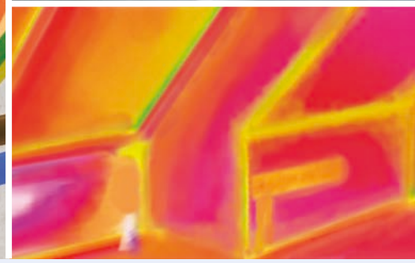
In lightweight or cavity wall constructions, it is often moisture retardant foils or OSB panels which form the air-tight layer to walls or ceilings. These must not be damaged by the electrical installation – neither by installation boxes or cable penetrations or excessively hot equipment which is very close. In particular, always ensure that only cable or conduit entries with appropriate retention as specified by DIN 60670-1 are used, because if not, strain on the cable during the installation of, for example, switches or sockets could cause leaks. In solid construction building, the plaster on the inside wall creates the air tightness. Cavities and butt joints which are affected by the electrical installation, and also penetrations which are inadequately carried out, are weak spots which can create a leak to the heated interior.

For interior insulation work which is carried out at a later date, the space required for the installation of switches and sockets makes it necessary to carry out installation work in the existing masonry. In such cases, in addition to air tightness and lack of heat bridges, moisture control must also be taken into consideration.

Air-tight electrical installation products for cavity wall or flush-mounting installation are the only correct way of maintaining air tightness. The planning and implementation regulations for air-tight and heat bridge-free electrical installation are specified in DIN 18015-5.

For installation through, in or on the air tightness layer, KAISER provides suitable solutions for cavity wall and flush-mounting installation and also for the retrofitting of interior insulation.





ECON® technology.

Air-tight installation in cavity walls and masonry.

Guaranteed air-tight installation in accordance with DIN 18015-5 in cavity wall or flush-mounting installation is made possible with KAISER ECON® technology products.

The elasticity of the sealing membrane ensures that during penetration it wraps itself tightly around the cable or conduit. This safely prevents uncontrolled airflows and also heat losses and building damage as a result of the formation of condensation

The toolless cable and conduit entry makes installation much easier and reduces the amount of work – another advantage of ECON®technology.

The integrated cable retention of the new clamp technology meets all the requirements for cavity wall boxes as specified by DIN VDE 0100-520 or DIN EN 60670-1 and guarantees certified safety.

Products with ECON® technology are air-tight and ensure that unwanted ventilation heat losses are prevented. In this way, ECON® plays an important role in meeting the requirements of the EU directive on energy efficiency and also in its implementation within national law and the EnEV (Energy-Saving Directive) .

Guaranteed air-tight and easy-to-install ECON® technology is KAISER's standard for building installation work. You will find this technology in various KAISER cavity wall and flush-mounting boxes, one-gang junction boxes for composite thermal insulation systems, and also in installation housings for air-tight electrical installation in the insulation level.

KAISERTECHNIK. For your future.

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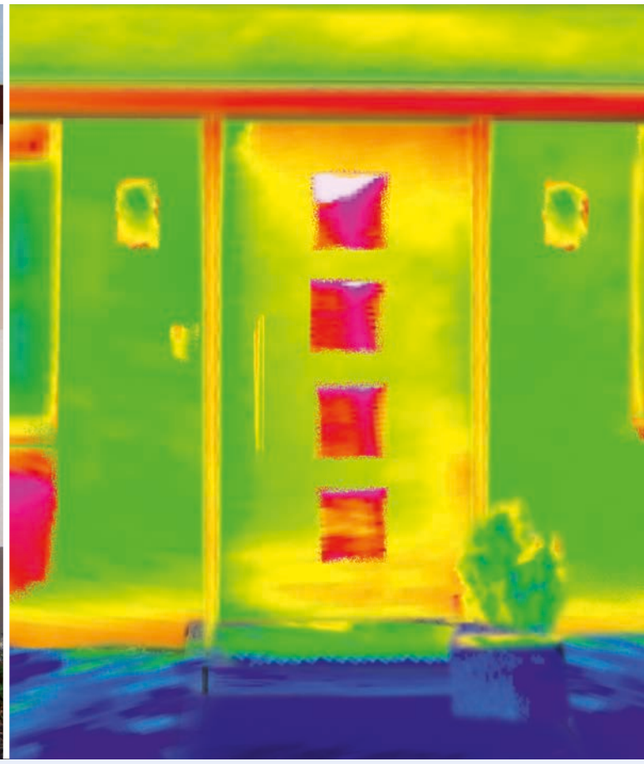
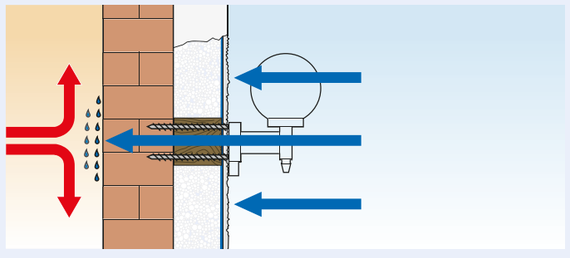


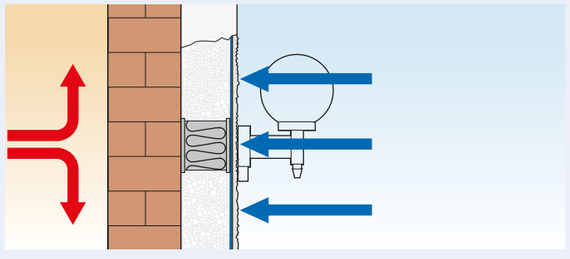
Installation without heat bridges.

Secure accessory fixing to or on the external wall insulation.

The quality of external wall insulation depends primarily on the uniformity of the insulation and the prevention of heat bridges. Balconies or external installations such as sockets, outdoor switches and luminaires, motion detectors, intercoms or letter boxes are a special risk. In addition to considerable heat losses, heat bridges can also cause structural damage as a result of condensation or even mould, which can be harmful to health.

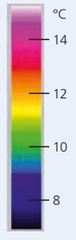
The purpose of mechanically secure and heat bridge-free fixing to the insulated facade is to create a stable fit, while at the same time not destroying the insulation layer. To ensure this, KAISER offers a comprehensive programme for the secure and optimal energy-saving fitting of electrical devices and components etc., both for retrofitting in or on the insulated facade.



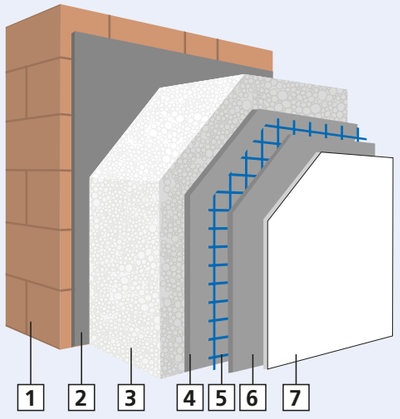


Composite thermal insulation systems (WDVS) are multi-layer facade devices which nowadays are mostly used for building insulation. These KAISER products have been developed especially for the composite thermal insulation systems and for other standard commercial systems. They create an optimal and permanent fit in these facades, without having any effect on the insulation.

Thermographic images can very quickly make heat bridges visible on existing facades. A colour chart shows the surface temperature. The yellow and red areas show where a lot of heat is lost. The thermographic external image above shows good insulation with external installation without heat bridges. In the interior images, the cold spots – the blue and dark colours - show the weak spots of the building's insulation.

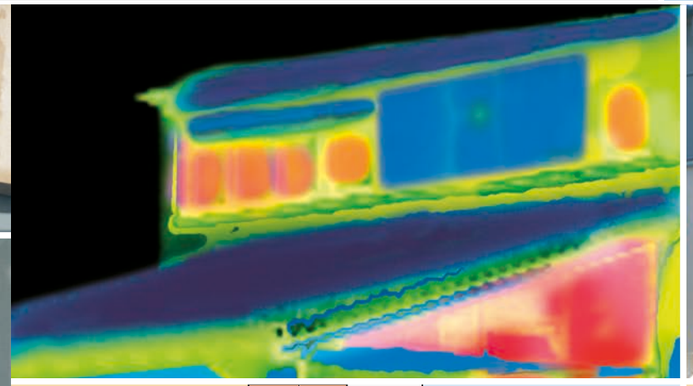


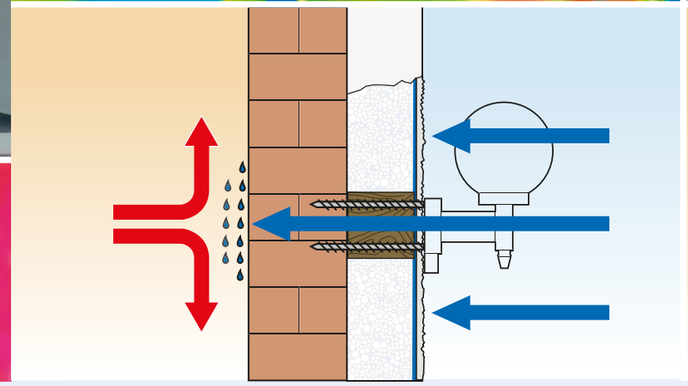
Construction of an organic composite thermal insulation system.

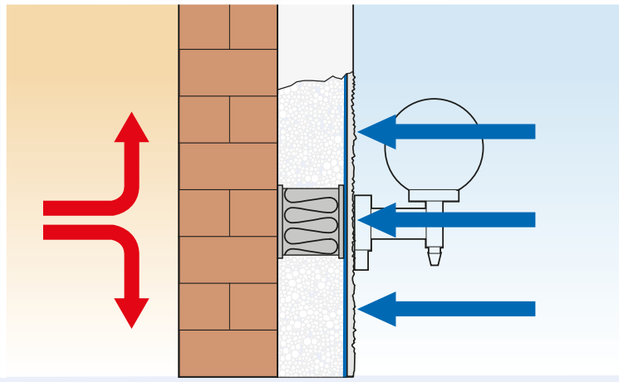


1 Masonry wall | **2** Adhesive | **3** Insulating board | **4** Reinforcement plaster | **5** Reinforcement fabric | **6** Reinforcement plaster | **7** Finish coat of plaster, decorative plaster

Heat bridges are weak spots in the housing shell. Here, heat loss is much greater than in the surrounding part of the building. The thicker the heat insulation is, the more important the heat bridges are.







Proofs. **Air tightness and prevention of heat bridges.**

The Energy Saving Directive (EnEV) came into effect in Germany in 2002 and replaced the previously valid “Wärmeschutzverordnung” (Heat insulation ordinance) and the “Heizungsanlagenverordnung (HeizAnlV)” (Heating systems ordinance). The EnEV defines minimum standards for new and existing buildings in respect of the standards of insulation and the quality of the systems technology.

Both the Energy Savings Directive and DIN 4108 require a permanently air-tight building shell in order to prevent energy losses and the through-flow and transfer of room air moisture. The through-flow can result in condensation, the formation of mould, and even structural damage. The rules in respect of both planning and implementation of air-tight and heat bridge-free electrical installation are defined in DIN 18015-5.


Zertifikat
über die Qualität der Luftdichtheit


PASSIV HAUS INSTITUT
Dr. Wolfgang Feist

Wärmebrückenberechnung zur Ermittlung der punktförmigen Wärmebrückenverlustkoeffizienten einer Teleskop-Gerätedose und eines Teleskop-Geräteträgers im Wärmedämmverbundsystem

Kurzgutachten

Im Auftrag der Firma

Kaiser GmbH & Co. KG
Remdorf 4
D-58579 Schalksmühle

August 2011


TECHNISCHE UNIVERSITÄT DRESDEN

Bauteilprüfung „Innendämmungsbox“

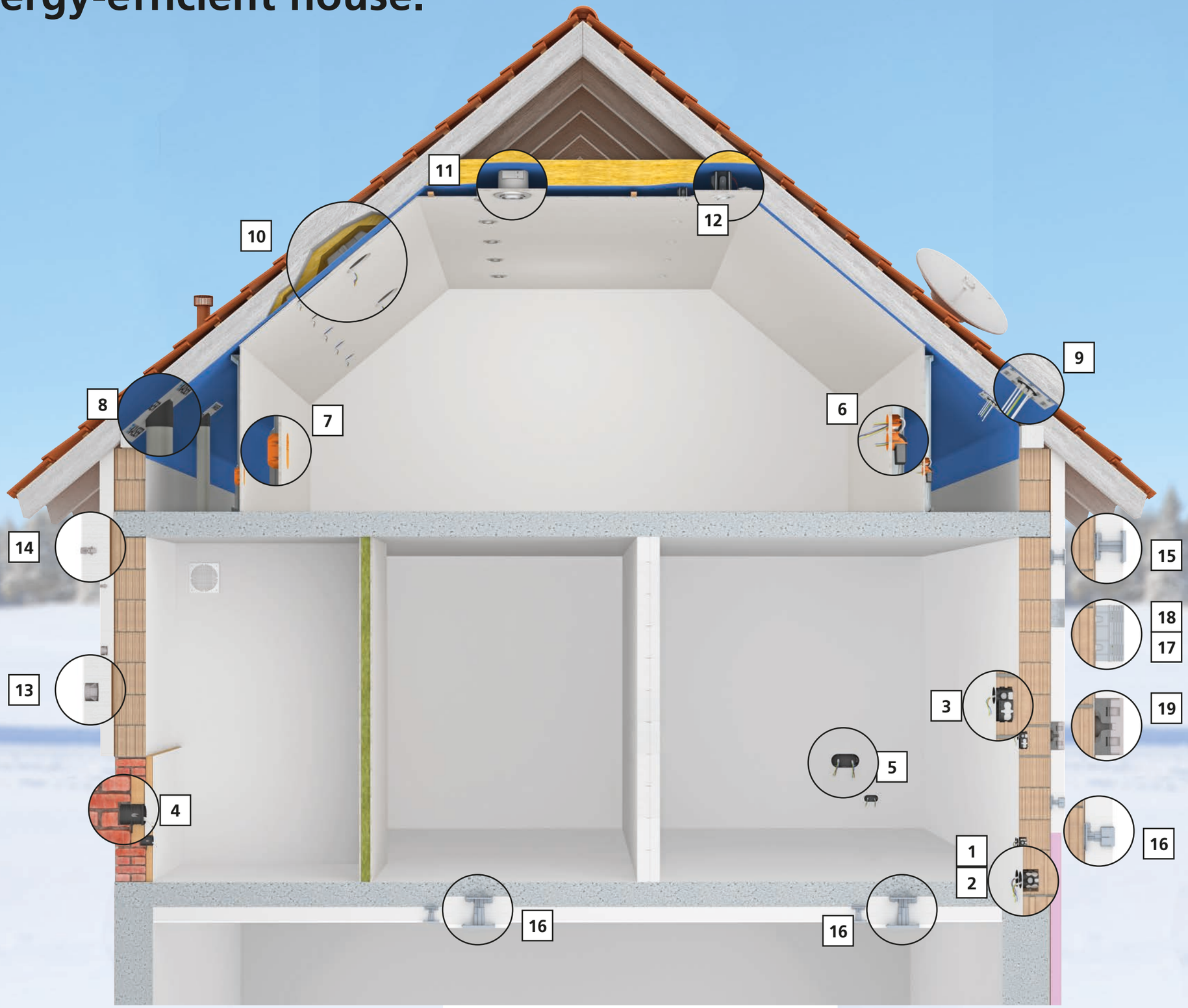
In assessments of the air tightness of a building, the differential pressure process (e.g. the blower door method) is often used. When it is necessary to localise any existing leaks, thermographic photos help, or the use of anemometers. Heat bridges must be avoided during the fixing of equipment in or to the facade.

In order to ensure the **air tightness**, as specified by DIN 4108-2, air-tight electrical installation products are subjected to a differential pressure test with the cable or conduit entry which is used for the intended purpose. They must not exceed the permitted air permeability. When internal insulation is retrofitted, convection is also tested in addition to air tightness.

For electrical installation products which are suitable for mounting in or to a facade, heat bridge calculations are carried out which guarantee demonstrably that there are no air bridges.

Air-tight and heat bridge-free electrical installation products from KAISER are comprehensively tested and comply demonstrably with the requirements which are specified by DIN 18015-5 for air-tight and heat bridge-free electrical installations.

The energy-efficient house.



In masonry:

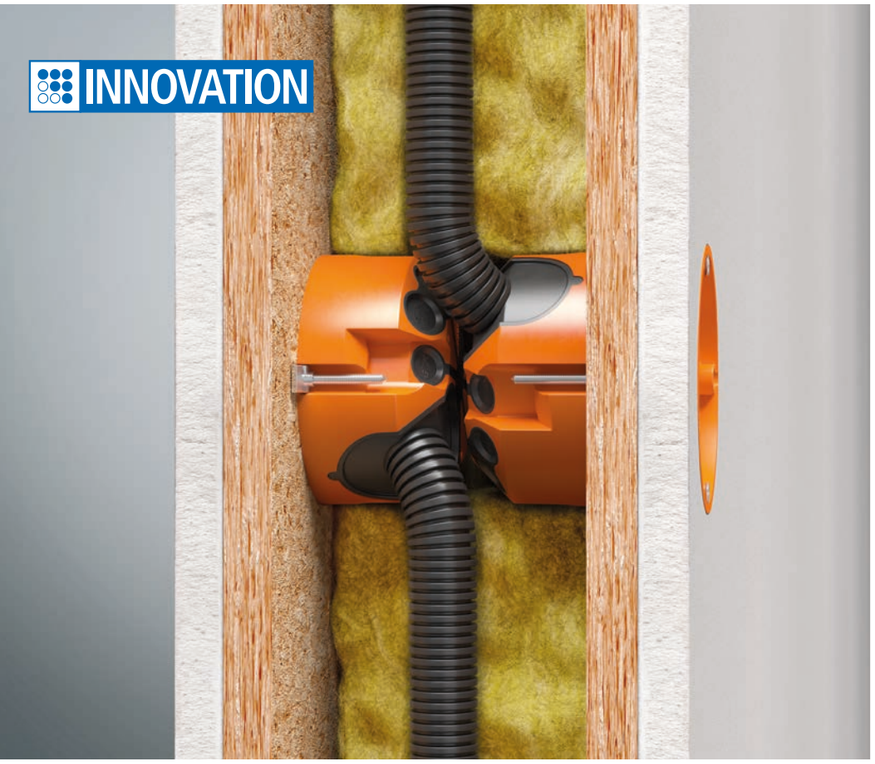
1. One-gang box ECON® 10
2. One-gang junction box ECON® 15
3. Electronics box ECON®
4. Internal insulation box
5. Two-gang junction box ECON®

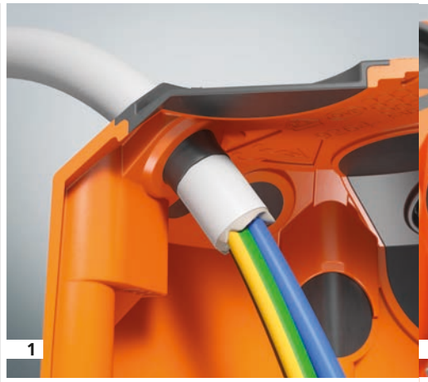
In lightweight walls:

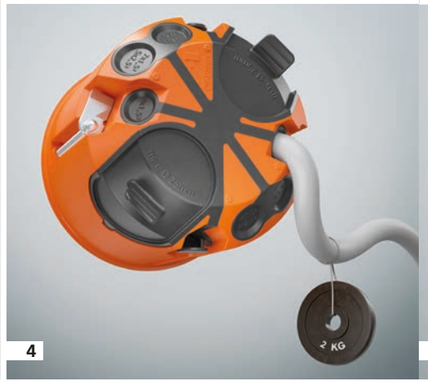
6. One-gang box O-range ECON® 63 with electronics box ECON® Flex
7. Electronics box
8. Air-tight sleeve
9. Multiple air-tight sleeve ECON®
10. EnoX® luminaire and loudspeaker housing
11. Installation housing ThermoX®
12. Installation housing ThermoX® LED

Heat bridge-free installation:

13. One-gang junction box ECON® Styro55
14. Mini equipment carrier
15. Telescope equipment carrier
16. Telescope switch box
17. Universal equipment carrier
18. Universal equipment carrier with combination insert
19. Equipment carrier







Air-tight cavity wall installation with **ECON®** technology.

air-tight ECON TECHNIK FX4

Products which use ECON® technology are air-tight and ensure that there are no unwanted losses of ventilation heat. In this way, ECON® technology makes an important contribution towards satisfying the requirements of the EU directive on energy efficiency and also the relevant national implementations, for example the EnEV.

In addition, ECON® products from KAISER can be used for installation under clean room and hygiene conditions in which an uncontrolled exchange of air and bacteria must be prevented. In addition, ECON® products from KAISER can be used for installation under clean room and hygiene conditions in which an uncontrolled exchange of air and bacteria must be prevented. Comprehensive blower door tests which were carried out by an independent institute confirmed the air tightness of the cavity wall boxes with ECON® technology.

- Elastic sealing membrane for guaranteed air tightness
- Toolless cable and conduit entry
- Integrated strain relief as specified by DIN EN 60670
- Air-tight combinations with support connectors

1 The ECON® technology elastic sealing membrane fits itself around the conduit or cable during piercing. This prevents uncontrolled air flows.
2 Pre-defined opening tab ensures easy opening of the conduit entry – no tearing of the membrane.
3 Permanently air-tight conduit entry up to conduit size M25.
4 Even under tensile load, cable and conduit entries remain guaranteed air-tight.
5 The marking of the entry openings simplifies the correct choice of opening size.
6 The support connector ensures the air-tight combination of the cavity wall boxes and is inserted via the removable metal plates without the use of tools.

O-range ECON®

New brand name: With the new **O-range®** brand name, the cavity wall box product families for standard electrical installation and air-tight electrical installation have now been brought together. The circular "O" symbolises the installation opening for the box in the cavity wall, while "range" stands for the range which at present consists of a total of eight cavity wall boxes. They stand out thanks to their new, powerful colour, and show at the first glance that a box with brand name quality and built to the latest installation standard has been fitted in the wall.

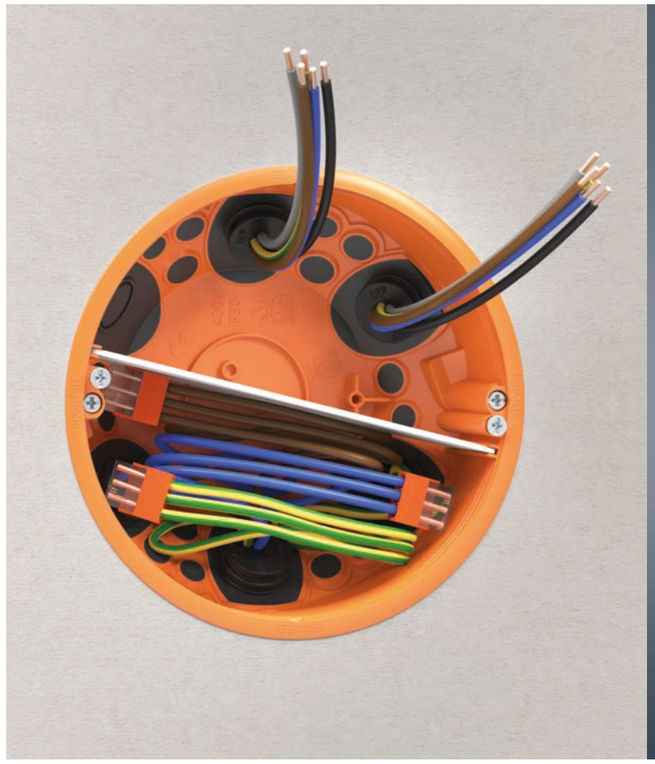
Innovative technical improvements: Lastly, the new generation of cavity wall boxes is also a pioneer in technical terms, and this ensures that electrical installation work now takes place even quicker and more easily. The **O-range ECON®** cavity wall one-gang and one-gang junction boxes for air-tight electrical installation have innovative opening tabs. These make possible the defined toolless opening of the conduit membrane and, after the conduit entry – possible up to 90° –, permanent air tightness. In addition, all **ECON®** boxes, including the one-gang boxes, are now fitted with conduit entries up to M25. The one-gang junction box has been fitted with two more cable entries, so now it is even more flexible

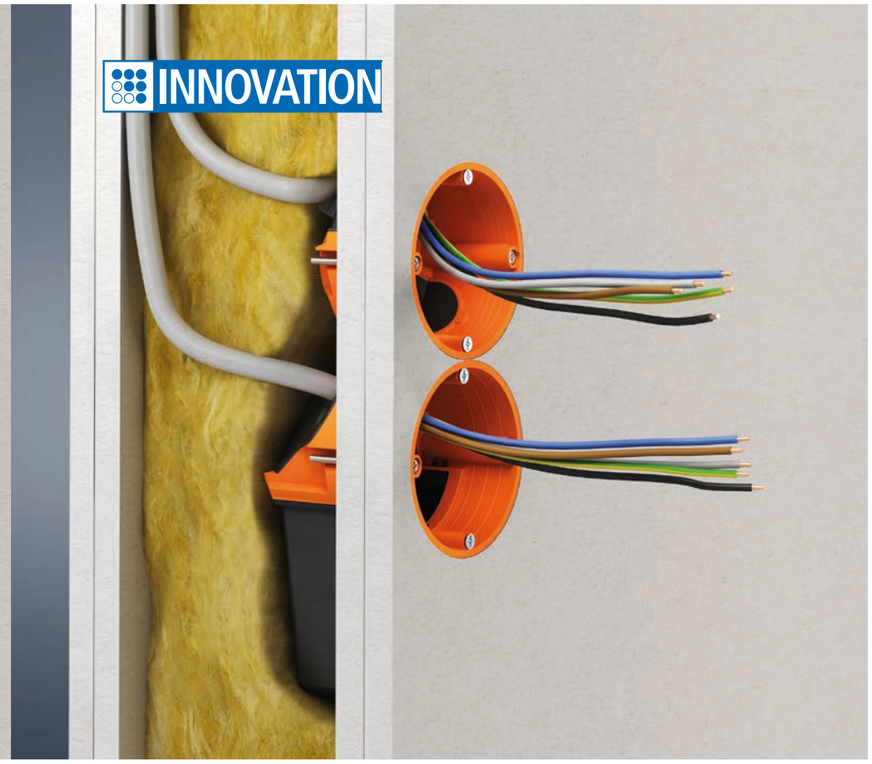
One-gang box
O-range ECON® 63
Art. No. 9263-22

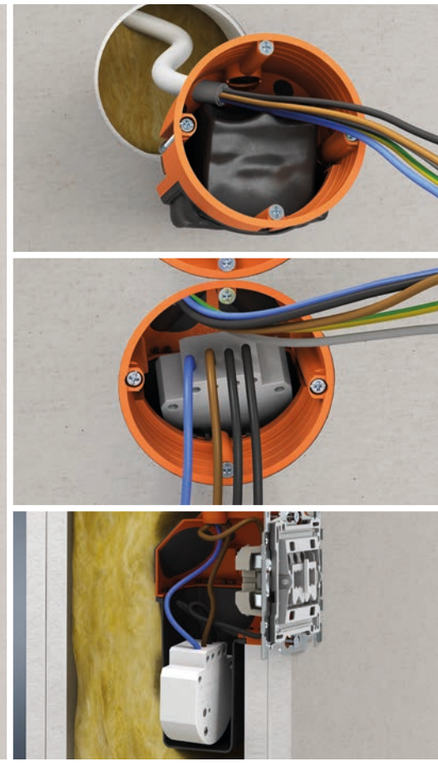
One-gang box
O-range ECON® 63
halogen-free
Art. No. 9263-78

One-gang junction box
O-range ECON® 64
Art. No. 9264-22

One-gang junction box
O-range ECON® 64
halogen-free
Art. No. 9264-78







O·range ECON® conduit one-gang junction box, junction box Ø 120 mm.

Air-tight **conduit one-gang junction box** with **ECON®** technology especially for installation with electrical installation conduit. The box is VDE-certified and suitable for energy-efficient electrical installation acc. to EnEV. 4 entries are optimal for continuous conduit installation e.g. in prefabricated house construction or with data networks. Extremely easy fitting thanks to toolless conduit insertion with opening tab.

- Installation in Ø 68 mm cut hole
- Elastic sealing membrane for guaranteed air-tightness
- Toolless conduit entry
- Can be combined with support connectors, air-tight and fully-insulated

Air-tight **Ø 120 mm junction box** with **ECON®** technology for an energy-efficient electrical installation in accordance with EnEV. Extremely easy fitting thanks to toolless cable and conduit entry. The sealing membranes guarantee permanent air-tightness and at the same time retention of the cable or conduit. The large box volume provides plenty of installation space for various cable connections.

- Installation in Ø 120 mm cut hole
- Elastic sealing membrane for guaranteed air-tightness
- Tool-free cable and conduit entry

Conduit one-gang junction box O-range ECON®
Art. No. 9266-22

Conduit one-gang junction box O-range ECON® halogen-free
Art. No. 9266-77

Junction box Ø 120 mm O-range ECON®
Art. No. 9273-91

Junction box Ø 120 mm O-range ECON®, halogen-free
Art. No. 9273-77

Air-tight installation with additional installation space. **Electronics box ECON® Flex.**

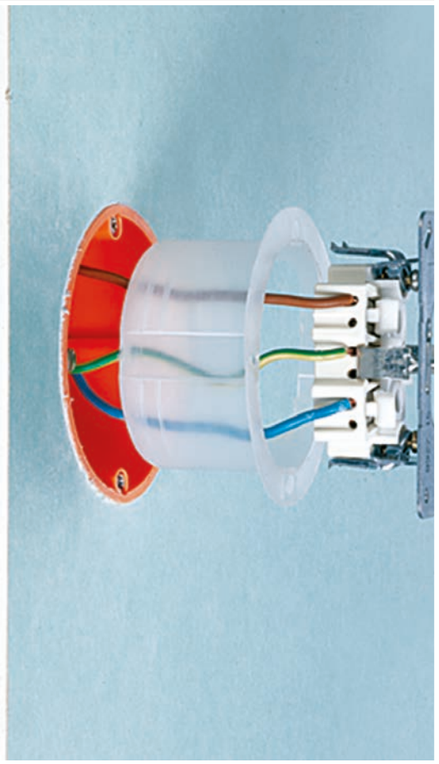
Because the air-tight **electronics box with ECON® technology** can be installed very quickly, it is ideal for use in modernising or expanding existing installations. The flexible tunnel ensures easy fitting and creates space for electronic components, cable reserves and terminals.

- Additional side terminal compartment for communications and network technology.
- Elastic membrane for guaranteed air tightness
- Toolless cable and conduit entry
- Integrated cable retention
- Can be combined air-tight and fully-insulated with support connectors

In addition to this system's guaranteed air tightness, toolless cable and conduit entry and the integrated cable retention are just some of the clear advantages which everyday installation work using ECON® makes efficient and safe. A support connector makes possible the continuous air-tight combination with ECON® cavity wall boxes.

Electronics box ECON® Flex
Art. No. 9268-94

Electronics box ECON® Flex
Art. No. 9268-74



Air-tight cavity wall installation.

air-tight FX4

Air-tight retrofitting.

air-tight

The KAISER installation system.

The comprehensive KAISER installation system with accessories and tools lets you make professional air-tight installations in buildings in accordance with EnEV, and it offers the perfect solution for many tasks. From the one-gang box to the electronics box to the wall light connection box, many tried-and-tested products are available for you.

In addition to the air-tight products with KAISER ECON® technology which can be opened without the use of tools, here we offer you one more system for air-tight installations.

For the **air-tight installation product** without a sealing membrane for conduits or cables, simply make the opening by using the practical **KAISER universal opening cutter**. The opening is so precise that air-flows are prevented, and the exact fit ensures professional retention of the cables or conduits.

Sealing insert and sealing foil.

The sealing insert makes it extremely easy to convert conventional one-gang boxes into air-tight boxes. The inserts for flush-mounting or cavity wall boxes can be retrofitted at any time, and without the need to remove the existing boxes.

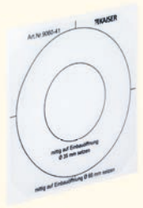
Simply fit the sealing insert into existing one-gang boxes or one-gang junction boxes. Feed the individual cables from the rear through the base and push the insert with the connected installation accessory back into the box

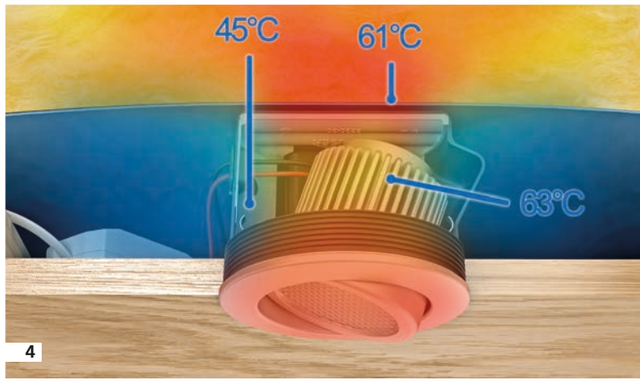
- For all one-gang boxes and one-gang junction boxes
- Easy retrofitting
- No disassembly of the old boxes
- Permanently-elastic plastic

The **KAISER sealing foil** creates an air-tight closure between the edge of the box and the boarding. Untidy or oversized installation openings and broken edges can quickly be sealed air-tight.

Sealing insert
Art. No.1040-01

Sealing foil
Art. No. 9060-41





Air-tight installation compartment for installation LED spotlights.

Installation housing ThermoX® LED.

air-tight LED

1 Guaranteed air tightness even with expanded fixing springs, thanks to flexible expanded pockets
2 Swivelling hollow allows targeted alignment of the installation spotlight.
3 Flat housings allow use in low ceiling constructions, e.g. wooden slat construction
4 Temperature profile for installation LED spotlights: The rear surface structure ensures minimal contact of the vapour barrier and optimal heat dissipation.

ThermoX® LED is the ideal housing for the air-tight installation of rigid and swivelling LED spotlights in various ceiling constructions. The housing protects the surrounding material (moisture barrier foil, insulation etc.) against the high operating temperatures and creates an air-tight closure. This not only prevents uncontrolled air exchange, but also any possible resulting long-term damage such as mould formation in the ceiling insulation.

- For air-tight installation in insulated hollow ceilings
- Retrofitting from below
- Toolless installation of the housing
- Guaranteed air-tight installation
- Rear surface structure ensures optimal heat management
- Permanent and secure fit of the luminaire in the housing

Certificate of quality of air tightness
Guaranteed air-tight housing for the energy-efficient electrical installation of built-in luminaires. The relevant certificate can be obtained from us or downloaded directly from our website.

In addition, the **ThermoX® LED installation housing** has other advantages. Its completely air-tight design ensures that neither dust nor dirt from the intermediate ceiling can penetrate and affect the function of the heat sink. Together with the thermic separation between the luminaire and the operating device, this guarantees maximum operating life.

ThermoX® LED
Art. No. 9320-10

Ø 74 mm
T: 70 mm

ThermoX® LED
Art. No. 9320-11

DESIGN PLUS powered by: light+building
GERMAN DESIGN AWARD SPECIAL 2017

Ø 74 mm
T: 95 mm

ThermoX® LED
Art. No. 9320-20

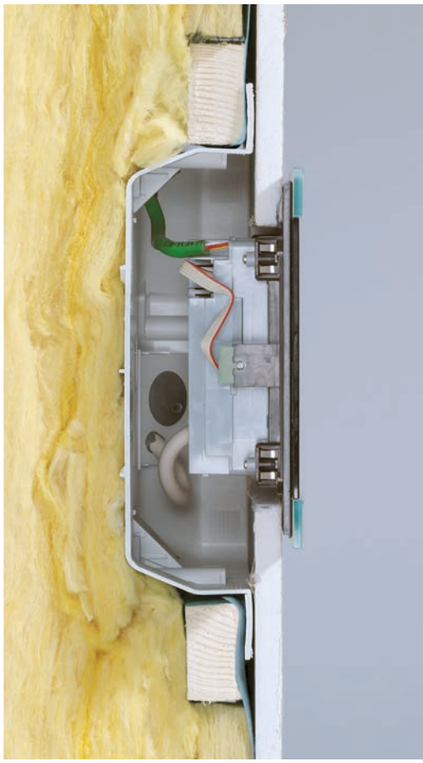
Ø 86 mm
T: 70 mm

ThermoX® LED
Art. No. 9320-21

Ø 86 mm
T: 95 mm

(T: Tiefe)

Suitable cutters with Ø 74 mm and Ø 86 mm countersink hole cutters are shown on page 43.



Air-tight installation compartment for built-in halogen and LED luminaires. **ThermoX® installation housings.**

The **intelligent housing system provides protection against the latent** fire risk which can occur as a result of the extremely hot halogen luminaires but also from heat sinks on LED luminaires in intermediate ceilings and roof areas. The installation housing also protects the moisture retardant foil which is an important component of the air-tight building shell. In addition, the installation housing prevents the dust edges which are often found around the built-in luminaire.

The ThermoX® housing is ideal for the installation of built-in luminaires in wooden panelled and tiled ceilings, and also for seamless sub-ceiling constructions made of plasterboard, mineral fibreboard, MdF and plywood with cross-battening and insulation on top. Irrespective of installation in new building construction or for refurbishing work, the housing is suitable for both low voltage and high luminaires. Optional decorative rings cover the housings in the case of retrofitting, and provide an attractive and aesthetic appearance.

- Maintains the air-tight level and provides protection against fire
- Ceiling exits up to Ø 86 mm
- Installation is possible from above or below
- Retrofitting is also possible

ThermoX® housing for LV and HV luminaires
Art. No. 9300-01/02/03

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

ThermoX® decorative coverings
Art. No. 9301-...

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

ThermoX® universal front part
Art. No. 9300-93

Air-tight installation in the insulation level. **EnoX® installation housing.**

The **EnoX® installation housing** is used in lightweight walls and ceilings which form part of an air-tight building shell as specified by the EnEV. The housing provides installation space which can be used in various ways and is integrated in the insulation level. This prevents uncontrolled air exchange, and luminaires, loudspeakers, displays and electronic components (e.g. actuators and power packs) can be installed both air-tight and protected against dust.

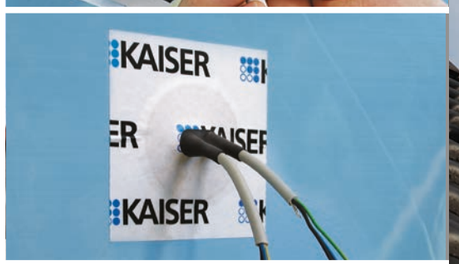
Toolless entry and ECON® technology's integrated cable retention guarantee fast, safe and secure installation.

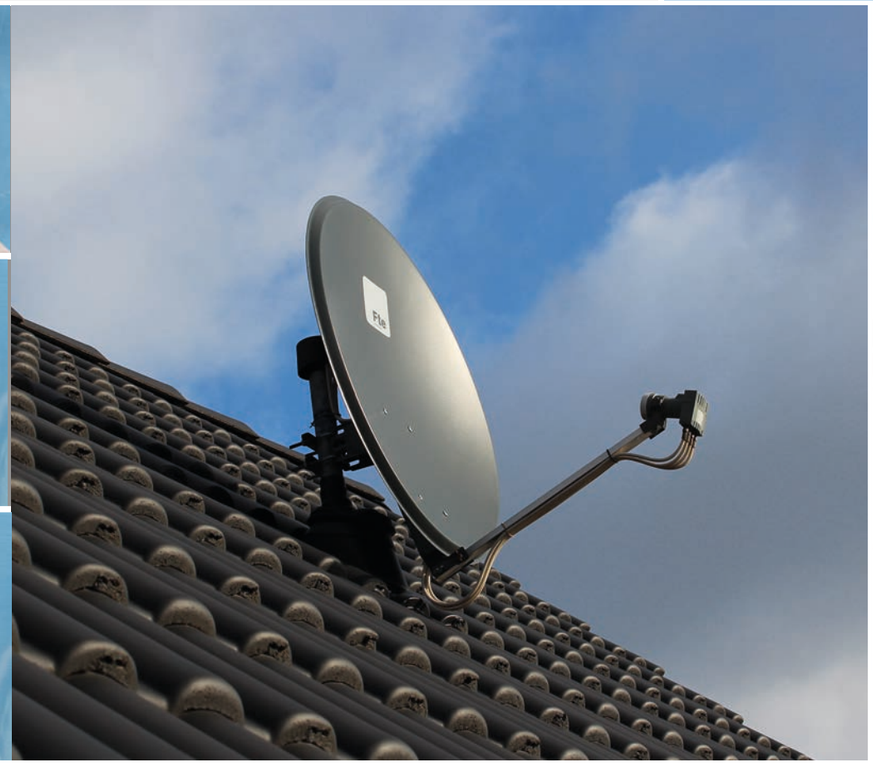
- No installation level necessary
- For walls and ceilings for new buildings and renovation
- Thermically-protected installation space of 300 x 200 x 55 mm
- ECON® technology for air-tight and toolless entry

Installation takes place in or on the rafters, directly onto OSB boards in both ceilings and walls. Simply screw the housing in the same way as with cavity wall boxes. The connection to the moisture retardant foil is made air-tight again by using the **EnoX® sealing frame**. After the boarding has been fitted, you have an insulated and thermically-protected installation space for luminaires, loudspeakers, displays and much more.

EnoX® installation housing
Art. No. 9350-21

EnoX® sealing frame
Art. No. 9350-99





For air-tight conduit and cable feed-throughs.

Air-tight sleeves.

KAISER air-tight sleeves are ageing-resistant and can be used in many temperature ranges. The extremely powerful adhesion ensures a good fit on many surfaces, and also permanent air tightness. The cable or conduit is fed through the elastic sealing plug, which adapts itself to the relevant diameter.

- Large contact area to cables and conduits
- Sealing even when cables are severely kinked
- Guaranteed air-tight entries (especially in the attic)
- Extremely powerful adhesion
- 10 variants for different cable and conduit diameters
- Suitable for moisture retards foils, sarking membranes, OSB boards*

* If fibreboard is used, we recommend an initial coat of primer.

Thanks to their anti-kink sleeve, the **ECON® multi air-tight sleeves for cables and conduits** ensure reliable sealing for from one to six cables up to Ø 11 mm or conduits up to Ø 25 mm. Even in the case of sharp angles in the installation place, permanent and reliable sealing is guaranteed.

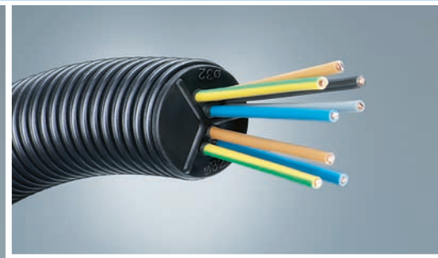
- Flexible sealing for 1 to 6 cables or conduits
- Elastic sealing membrane for guaranteed air tightness
- Anti-kink sleeves provides permanent sealing even when the cables are kinked
- Completely toolless installation
- Unused entries as reserves for future installations

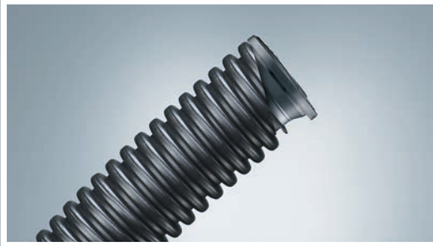
Air-tight sleeves for cable
Art. No. 9059-...

Air-tight sleeves for conduits
Art. No. 9059-...

ECON® multi cable sleeves
Art. No. 9059-61

ECON® multi conduit sleeves
Art. No. 9059-62





Outdoor air-tight feed-throughs.

air-tight

Aluminium / fleece butyl sealing sleeves.

The highly-elastic sleeves with maximum adhesion are suitable for the optimal secure sealing of installation penetrations through, for example, masonry, concrete or wood materials.

Sleeves with fleece butyl adhesive collars can be plastered over, which makes an ideal "join" to the masonry. The tear-resistant **aluminium butyl adhesive collar** provides an ageingresistant and UV resistant sealing with a smooth foil surface.

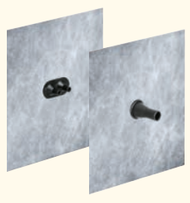
A pre-coating with KAISER primer optimises the adhesion for all sealing sleeves on absorbent surfaces.

- Large contact area to cables and conduits
- Permanently moisture-resistant for use indoors and outdoors
- Water-sealing effect with non-pressing water

Aluminium butyl sealing sleeves for cables
Art. No.9079-...

Aluminium butyl sealing sleeves for conduits
Art. No. 9079-...

Fleece butyl sealing sleeves for cables
Art. No. 9089-...



Fleece butyl sealing sleeves for conduits
Art. No. 9089-...

KAISER primer
Art. No. 9000-02

Permanent air-tight closing of electrical installation conduits.

air-tight

Sealing plugs.

KAISER sealing plugs are ideal for sealing all standard electrical installation conduits in one-gang boxes or at cable exits. The long sealing plug with three lips adapts itself to the installation conduit and guarantees an air-tight closure.

- For empty conduit installations (air-tight version)
- Elastic sealing membrane for guaranteed air tightness
- Bridges in the membrane prevent gaps between cables
- For all installation conduits M16 - M40, Pg 9 – Pg 36, 3/4" and 5/8"

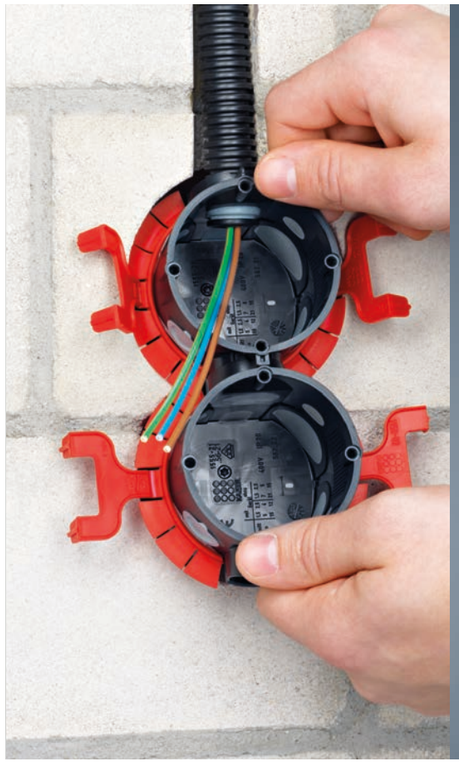
Sealing plug M16
Art. No. 1040-16

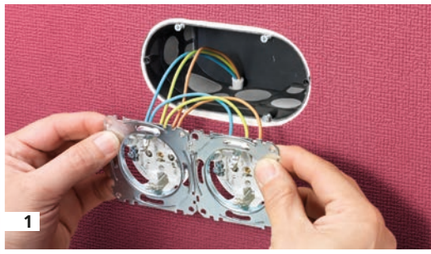
Sealing plug M20
Art. No. 1040-20

Sealing plug M25
Art. No. 1040-25

Sealing plug M32
Art. No. 1040-32

Sealing plug M40
Art. No. 1040-40





Air-tight flush-mounting installation with ECON® technology.

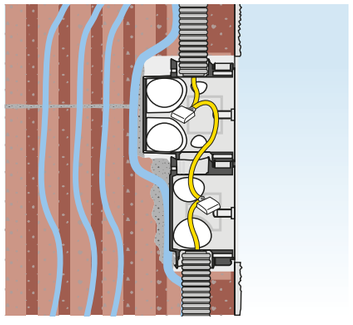
Flush-mounting boxes with ECON® technology are especially suitable for use in masonry walls in which the plaster on the internal walls forms an air-tight closure on the inside. They ensure that with fitted sockets and switches, no air flows take place between the chambers in the masonry and the interior of the residence, which guarantees an air-tight installation.

ECON® flush-mounting boxes provide a wide range of opportunities for air-tight conduit and cable entries and can be plastered in or processed using **KLEMMFIX®**.

- Air-tight version with sealing membrane
- Prevents leaks in external walls made of hollow chamber blocks
- Variable and toolless cable and conduit entries
- Torsion-proof guaranteed standardised combination distance of 71 mm with combinations

Toolless cable and conduit entries using ECON® technology make installation work much easier and faster. When boxes are already plastered in, retrofitting cables and conduits is very easy

The elasticity of the sealing membrane guarantees that during penetration the membrane wraps itself round the conduit or cable, and that there can be no airflows.



1 Thanks to the large installation opening without a central bridge, the two-gang junction box allows the use of wired devices and pre-wired block inserts.

2 The ECON® technology's permanently elastic sealing membrane guarantees the air-tight connection of cables. Even duplex cables can be installed securely and air-tight without an installation conduit.

3 Installation conduits up to M25 can be inserted toolless and air-tight through the membrane.

The **electronics box ECON®** provides a large accessory installation space and additional space for the installation of small switch actuators etc.. In the case of network connection boxes, maintaining the cable bending radii permits optimal data transfer. The separator wall which belongs to it permits the standardised installation of bus and operating voltages in a box.

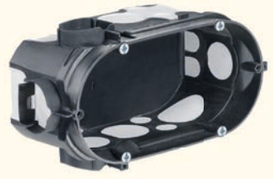
The **two-gang junction box ECON®** creates previously unknown ease of work for the installation of special accessories. The large installation opening provides a lot of installation space and allows the installation of, for example, block and pre-wired accessories. In addition it provides space for the making up of cables for multimedia connections. There is also plenty of space for cable reserves and connection plugs

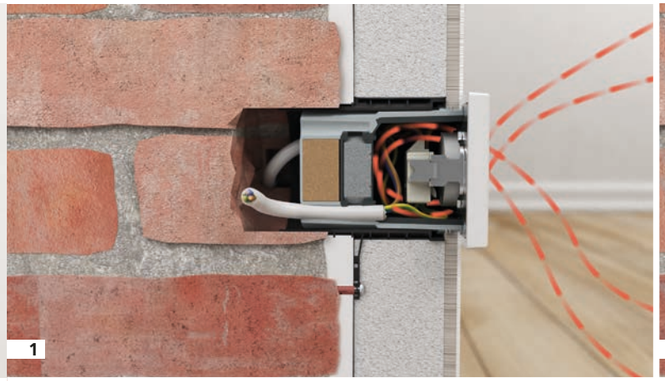
One-gang box
ECON® 10
Art. No. 1055-21

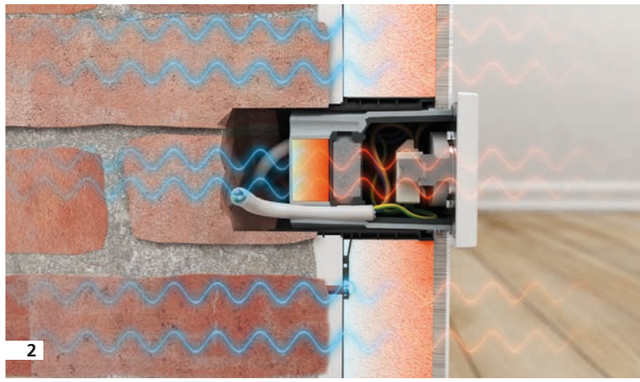
One-gang junction box
ECON® 15
Art. No. 1555-21

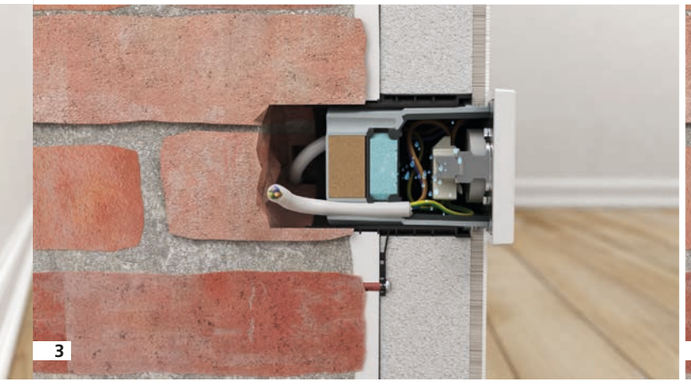
Electronics box ECON®
Art. No. 1068-21

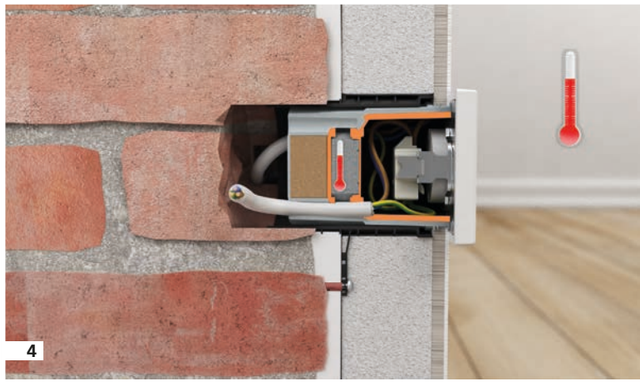
Two-gang junction box
ECON®
Art. No. 1656-21











Installation in internal insulation systems.

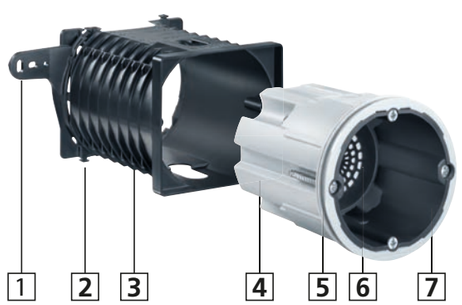
Internal insulation box.

One-gang junction box for electrical installations in internal insulation systems. For the permanently secure and heat bridge-free fixing of switches, sockets and other devices in external walls which are insulated on the inside. For an optimal indoor climate with proven protection against moisture damage.

The internal insulation box is suitable for use in permeable insulation systems consisting of mineral or organic insulation materials with different insulation thicknesses.

- Guarantees heat bridge-free installation
- Regulates moisture, insulates
- Prevents building damage caused by moisture
- For use in many insulation systems
- For insulation thicknesses from 30 to 100 mm
- Installation on the masonry without the use of plaster

The internal insulation box gives the fitter an easy-to-use solution for the professional fitting of electrical installation systems in internal insulation systems. The ease of installation and the many opportunities for applications are impressive. After installation they are proven to play their part in the insulation system's function.



1 Fixing lug | **2** Snap-in connector for combinations | **3** Insulation thickness scale | **4** High-performance insulating components | **5** Sealing lips | **6** Moisture-controlling components | **7** Heat-conductive internal components

1 Air tightness
The air-tight level is maintained, so there is neither any airflow behind the insulation system nor any convection.

2 Heat insulation
The insulating components maintain the function of the insulation system, and no heat bridges can occur. Heat enters the box, but not the cold wall.

3 Moisture control
Moisture inside the room (poor ventilation, many people in the room) is stored and released in a targeted way. The material is designed in such a way that the device terminals cannot corrode.

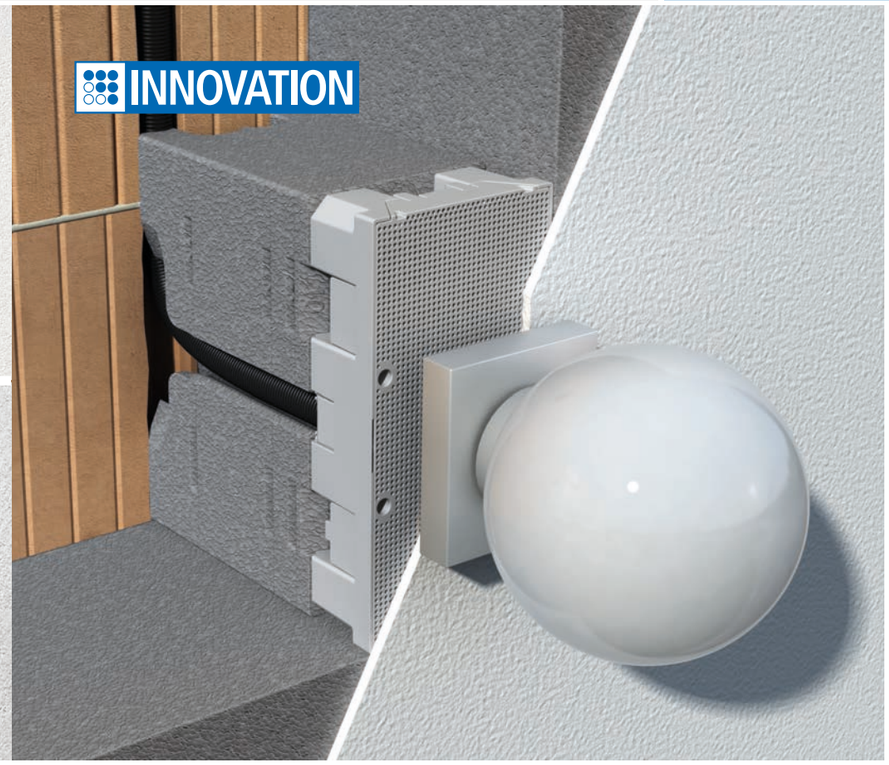
4 Heat conductivity
Thanks to the use of highly heat conductive plastic in the internal box, the room heat is conducted into the box. The increased surface temperature prevents condensation from forming.

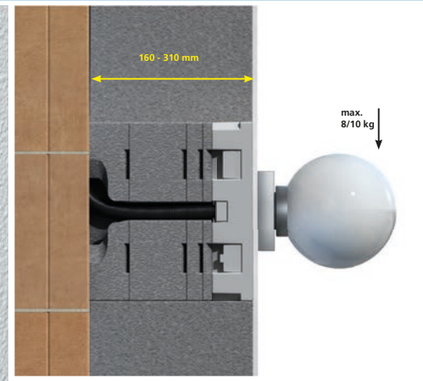
Proof of functionality
A comprehensive test of components carried out by the TU Dresden - Institut für Bauklimatik – confirms demonstrably the functionality of the **KAISER internal insulation box**.


TECHNISCHE UNIVERSITÄT DRESDEN

Bauteilprüfung „Innendämmungsdose"

Internal insulation box
Art. No. 1159-90





Secure fit without a heat bridge.

Equipment carrier.

The **telescope equipment carrier and the universal equipment carrier** make possible the installation of various accessories such as external luminaires and motion detectors on the insulated facade. Fixing both equipment carriers to the masonry takes place mechanically so that the weight of the accessories can be supported on a permanent basis.

The **universal equipment carrier** adapts easily, with the use of extension elements, to insulation elements up to 360 mm. The **telescope equipment carrier** is infinitely adjustable to insulation thicknesses of 80-200 mm. The large-area, universal screw-on surfaces can be plastered over and are used for flexible accessory fixing.

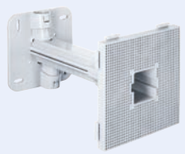
- Secure mechanical fixing to the masonry
- Prevention of heat bridges
- Flexible adaptation to the insulation thickness
- Universal screw-on surface for accessory fixing

The **telescope equipment carrier** is also suitable for ceiling installation, e.g. for the safe and secure fixing of luminaires to the insulated cellar ceiling.

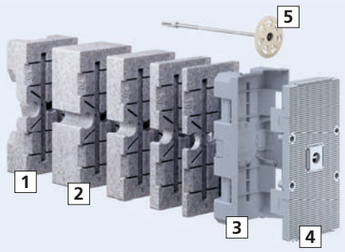
The choice of two front panels and the modular construction for insulation thicknesses from 160-310 mm make the **system equipment carrier** a product which has a large number of uses. Because of the combinability of the individual elements, adaptation to the insulation is possible in 10 mm steps, and there is no need for time-consuming and difficult cutting-to-shape. Fast, easy fixing using the screw dowels (included in scope of delivery) anchors the equipment carrier permanently and securely on many surfaces. Accessories can then be fitted as required to the large-area universal screw-on surface.

Universal equipment carrier
Art. No. 1159-24

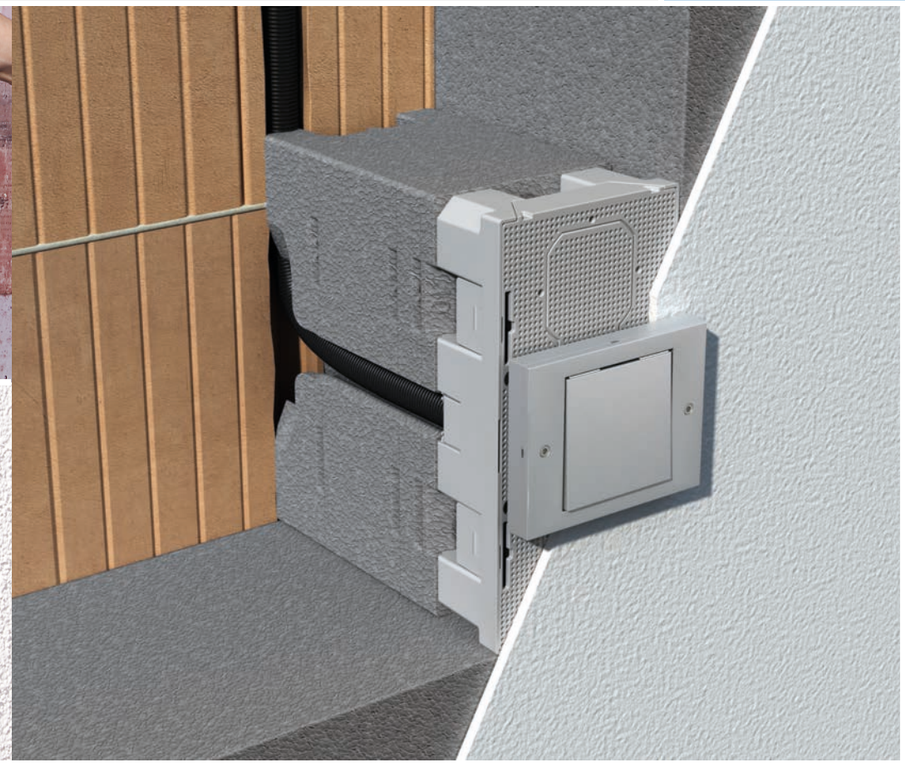
Telescope equipment carrier
Art. No. 1159-60

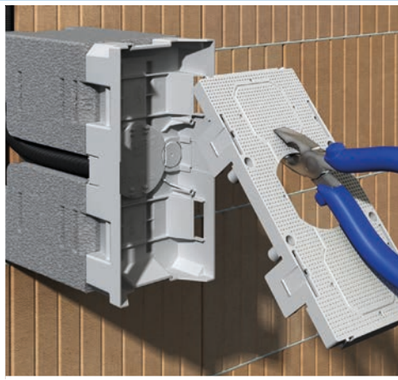


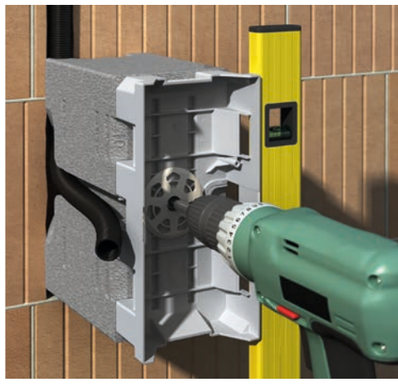
System equipment carrier with universal mounting plate
Art. No. 9966.21 / 22



1 Basic element | **2** Intermediate elements
3 Housing base | **4** Front panel | **5** Screw dowel







Secure fit and a stable base.

One-gang box in external facades.

The **telescope one-gang box and universal equipment carrier with combination insert** make possible the installation of various accessories such as entryphones, switches and sockets in the insulated facade. Fixing both equipment carriers takes place mechanically to the masonry so that the weight of the accessories can be supported on a permanent basis.

The **universal equipment carrier with combination insert** adapts easily, with the use of extension elements, to insulation thicknesses up to 360 mm. The **telescope equipment carrier** is infinitely adjustable to insulation thicknesses of 80-200 mm. This can be done using the dimensions indicated on the carrier arm.

Both products are also suitable for box combinations up to 3-way. The **universal equipment carrier with combination insert** has a front panel which can be broken out for the relevant combination and then expanded at a later date. As an option, **combination one-gang boxes** are available for the **telescope one-gang box**.

- Safe and secure mechanical fixing to the masonry
- Prevention of heat bridges
- Flexible adaptation to the insulation thickness
- Combinations possible up to 3-way

The telescope one-gang boxes provide more opportunities for installations, and can easily be connected to create multiple combinations.

The **system equipment carrier with multi accessory insert** is suitable for insulation thicknesses from 160-310 mm. The modular construction and the assembly of the individual elements in 10 mm steps make possible flexible adaptation to the insulation system.

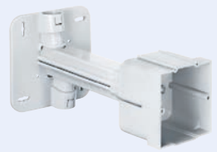
Fast, easy fixing using the screw dowels (included in scope of delivery) anchors the equipment carrier permanently and securely on many surfaces.

The **multi accessory insert** makes possible the installation of single accessories, but also permits the combination of 2-way or 3-way inserts.

- Fast, mechanically-secure fixing to the masonry
- Modular adaptation to the insulation thickness
- Combinations up to 3-way are possible
- Two product types make many applications possible

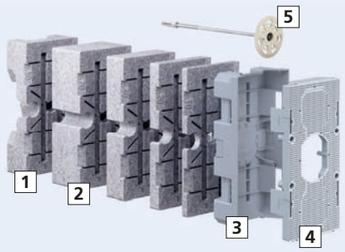
Universal equipment carrier with combination insert
Art. No. 1159-26

Telescope one-gang box
Art. No. 1159-61



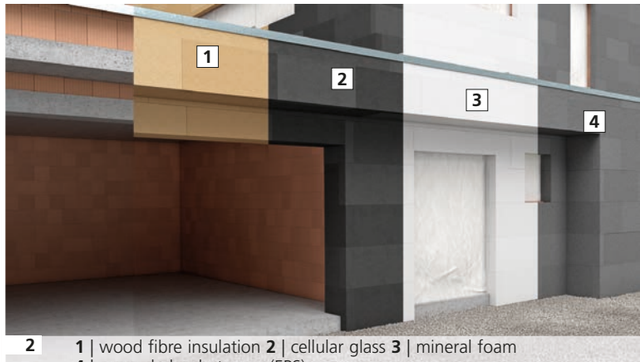
Combination one-gang box
Art. No. 1159-62

System equipment carrier with multi accessory insert
Art. No. 9966.31 / 32

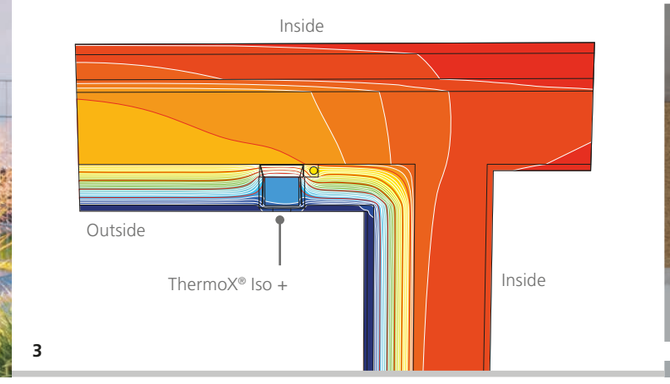


1 Basic element | **2** Intermediate elements | **3** Housing base | **4** Front panel | **5** Screw dowel

1



2 **1** | wood fibre insulation **2** | cellular glass **3** | mineral foam **4** | expanded polystyrene (EPS).



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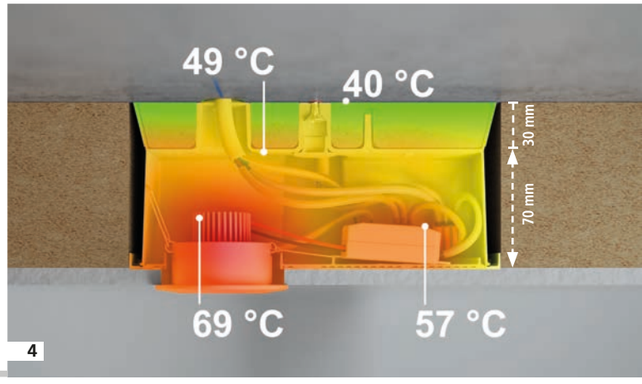


4

For built-in LED luminaires and installation accessories in insulated ceilings. **Installation housing ThermoX® Iso +.**

The installation housing ThermoX® Iso + is the optimal solution for the installation of LED luminaires and installation accessories in external ceilings using the WDVS composite thermal insulation system. LED luminaires up to 8 Watt and the ballast device have a secure space here. The installation housing is suitable for all standard insulating materials, for example fibreboard insulation, foam glass, mineral foam or expanded polystyrene.

It provides the secure and heat-bridge-free installation in insulated ceilings of rigid and swivelling built-in LED luminaires and installation accessories. The housing protects the surrounding insulation material against the high operating temperatures of the LED luminaire and protects the LED luminaire itself against dirt.

The integrated insulation element reliably prevents heat bridges. Insulation thicknesses can easily be set in 10 mm steps simply by cutting the housing. Depending on the set insulation thickness, the installation thickness for the LED luminaire or any other installation accessory is between 70 mm and 130 mm. For insulation thicknesses from 170 mm to 350 mm, simply fit the extension element behind the installation housing. The extension element can also be adapted in 10 mm steps.

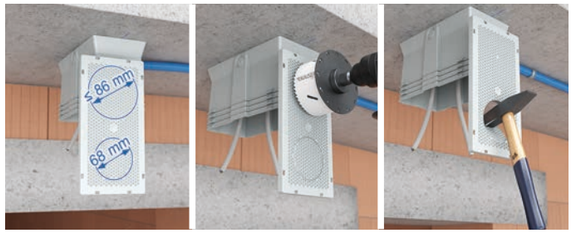
halogenfree available

LED

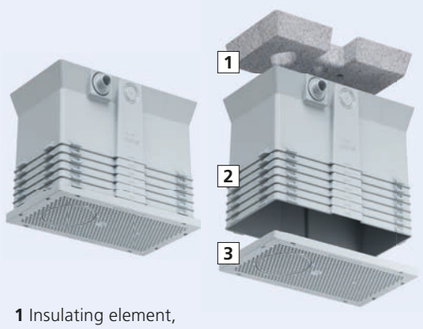
The installation housing ThermoX® Iso + is suitable for insulation thicknesses from 100 - 160 mm, and even up to 350 mm with an extension element.

1 Installation housing ThermoX® Iso + can be used singly or in a group. Many options for inserting conduits and cables.
2 Suitable for all standard insulation materials such as fibreboard insulation, foam glass, mineral foam or expanded polystyrene.
3 A heat bridge calculation by the Passivhaus Institut, Darmstadt, showed that the additional heat losses can be compensated for by the constructional heat bridge in the energetically high-quality new building sector. The installation housing is also suitable for use in passive houses.
4 Temperature profile: Installation housing ThermoX® Iso + for external insulation (ambient temperature 25°C) with 8 Watt LED illumination.

Fixed installation diameter of 68 mm for knocking in, or individual shape possible for cutting out up to Ø 86 mm.

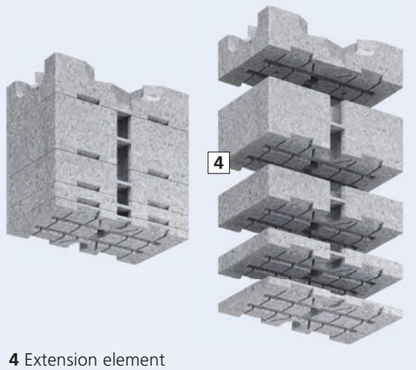


The installation housing ThermoX® Iso +
Art. No. 1159-70



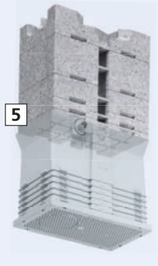
1 Insulating element,
2 ThermoX® Iso +
3 Front panel (Art. No. 1159-70)

Extension element
Art. No. 1159-71



4 Extension element (Art. No. 1159-71)

Combination
Art. No. 1159-70 +
Art. No. 1159-71



5 ThermoX® Iso + with extension element

You can see our cutters in various diameters on p. 43.

Flush fit without heat bridge. **Mini equipment carrier.**

The **mini equipment carrier** is ideal for the safe, secure, flush-fitting installation of accessories such as luminaires, cameras, motion detectors, letterboxes and many other systems which are to be fitted to existing composite thermal insulation systems.

- For retrofitting in insulated facades
- 4 swivels for secure anchoring
- Exact, flush alignment of accessories
- Guarantees heat bridge-free installation
- No penetration by moisture

The **mini equipment carrier** consists of two parts and can be firmly anchored, easily and quickly, in the composite thermal insulation system (WDVS). The special screw-on surface allows precise adjustment – a big advantage compared to conventional fixing elements, especially in the case of multiple fixations.

The **KAISER hardened metal cutter** (Ø 20 mm) opens the WDVS for exact matching. The anchor sleeve is knocked in, and then the attachment core is pressed in. The swivels anchor themselves in the insulating material and create a secure, safe fit for the mini equipment carrier.

Mini equipment carrier
Art. No. 1159-50

Later installation

Securely anchored without heat bridges. **ECON® Styro55.**

The **ECON® Styro55 one-gang junction box** makes possible the retrofitting of accessories such as sockets and switches in organic composite thermal insulation systems (WDVS) - fast, securely, and without heat bridges. The box is easily and quickly inserted and fixed in position.

- For retrofitting in insulated facades
- Cutting system prevents cable damage
- Guarantees heat bridge-free installation
- 4 swivels for safe, secure anchoring
- No penetration by moisture

ECON® technology with its toolless, air-tight entry prevents cold draughts from getting to the masonry when cables are fed directly.

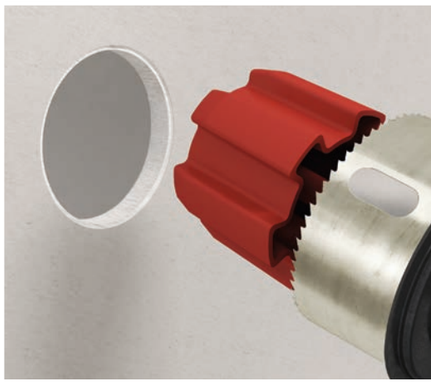
After pressing into the WDVS, fix the box in position by using the **KAISER setting tool**. The swivels cut themselves firmly into the insulation material, which ensures a permanently secure fit for the box.

By using the **KAISER hardened metal cutter 180** (Ø 68 mm) and the centering aid, the composite thermal insulation system is given a secure fit and only opened as deeply as necessary. There is no damage to existing cables.

One-gang junction box
Econ® Styro55
Art. No. 1555-51

Later installation

The setting tool and the centering aid are shown on p. 43



For professional installation.
KAISER system tools.

These high-quality system tools for professional electrical installation are perfect for processing and installing KAISER installation systems. The tried-and-tested quality and technology guarantee impressive savings of time and also the long operating life of the tools. The comprehensive range of accessories completes the product range.

The **exact-matching wall opening** is the first important detail when it comes to air-tight electrical installations. For the installation diameters and materials which are found in practice, the **KAISER cutter range** provides the correct tool, whether for cavity wall or composite thermal insulation systems.

The **VARIOCUT universal hole cutter** is variably adjustable and makes exact circular cut-outs in cavity wall materials. The high-quality hardened metal cutter inserts for various materials cut reliably to a depth of 45 mm and diameters of 24 - 120 mm.

Diamond grinding heads with with dust extraction are ideal for the precise, fast cutting of installation openings in masonry. An optional dust extraction system allows the fitter to carry out clean work with very low dust levels.

The **drilling template** is ideal for the precise marking of drill holes and positioning of the boxes.

The **universal opening cutter** is a special KAISER tool used for air-tight installation. An exact opening is made, quickly and with reproducible accuracy, for any conduit or cable entry.

PROFIX, the electric drill accessory, is used for the precise cutting of installation openings at the standardised combination distance. With an adjustable clearance of 71 mm or 91 mm, **PROFIX** can be used in cut openings or in existing cavity wall boxes.

Energy-efficient electrical installation.
At a glance.

Air-tight installation.

www.kaiser-elektro.org/enevairtight

Cavity wall | ECON® technology

Ø 68 mm
One-gang box Econ® 63
9263-22 | p.14

Ø 68 mm
One-gang junction box Econ® 64
9264-22 | p.14

Ø 68 mm
Conduit one-gang junction box O-range ECON®
9266-22 | p.16
Available from 3rd quarter 2018

Ø 120 mm
Junction box Ø 120 mm O-range ECON®
9273-91 | p.16
Available from 3rd quarter 2018

Electronics box ECON® Flex
9268-94 | p.16

Hohlwand | luftdichte Produkte

Ø 68 mm
One-gang junction box
9066-01| p.18

Ø 68 mm
One-gang junction box for solid wood ceilings
9066-12 | p.18

Ø 68 mm
One-gang box for thin boarding
9068-01 | p.18

Ø 74 mm
One-gang box CEE
9075-12 | p.18

2 x Ø 68 mm
Electronics box
9062-94 | p.18

Ø 35 mm
Wall light connection box
9248-01 | p.18

Support connector
9060-98 | p.18

Sealing insert
1040-01 | p.19

Sealing foil
9060-41 | p.19

All KAISER boxes and casings for cavity wall installation and many accessory parts are available as halogen-free articles. They are also available in white for individual identification.

Cavity wall | Installation housings

Ø 74 mm
ThermoX® LED
9320-10 | p.21

Ø 74 mm
ThermoX® LED
9320-11 | p.21

Ø 86 mm
ThermoX® LED
9320-20 | p.21

Ø 86 mm
ThermoX® LED
9320-21 | p.21

EnoX® installation housing
9350-21 | p.23

EnoX®-sealing frame
9350-99 | p.23

Ø 120 mm
ThermoX® housing for LV and HV luminaires
9300-01/02/03 | p.22

Ø 120 mm
ThermoX® universal housing with mineral fibreboard
9300-22 | p.22

ThermoX® decorative coverings
9301-... | p.22

ThermoX® front rings
9300-41/42/43 | p.22

ThermoX® universal front part
9300-93 | p.22

Sealing sleeves

Air-tight sleeves for cables
9059- | p.25

Air-tight sleeves for conduits
9059- | p.25

ECON® multi cable sleeves
9059-61| p.25

ECON® multi conduit sleeves
9059-62 | p.25

Aluminium butyl sealing sleeves for cables
9079- | p. 26

Aluminium butyl sealing sleeves for conduits
9079- | p. 26

Fleece butyl sealing sleeves for cables
9089- | p. 26

Fleece butyl sealing sleeves for conduits
9089- | p. 26

KAISER primer
9000-02 | p. 26

Air-tight installation.

Sealing plugs

M16
1040-16 | p.27

M20
1040-20 | p.27

M25
1040-25 | p.27

M32
1040-32 | p.27

M40
1040-40 | p.27

Flush-mounting | air-tight boxes

One-gang box ECON® 10
1055-21 | p.29

One-gang junction box ECON® 15
1555-21 | p.29

Electronics box ECON®
1068-21 | p.29

Two-gang junction box ECON®
1656-21 | p.29

Tools

www.kaiser-elektro.org/enevtools

Ø 68 mm
Ø 74 mm
Turbo cutter MULTI 4000
1083-10 / 1084-10

Ø 68 mm
Ø 74 mm
Hardened metal cutter MULTI 2000 HM
1083-70 / 1084-70

Ø 86 mm
Bi-metallic cutter Ø 86 mm
1087-86

Centering insert 68/74
1083-99

Ø 24 - 68 mm
Ø 65 - 120 mm
VARIOCUT
1089-00/10

Universal opening cutter
1085-80

Dust extraction
1088-16/21/41

Ø 68 mm
Ø 82 mm
Diamond grinding head with dust extractor
1088-02/03

Drilling template
1190-65

Spacing cutter Profix
1083-25

Spacing cutter Profix with dust extraction
1083-27

Distance supports
1159-34

Tunnel connector
1159-36

KLEMMFIX®
1159-02

Signal cover
1181-60

Universal VDE cover
1184-90

www.kaiser-elektro.org/enevex

Installation in insulation systems.

Internal insulation

Internal insulation box
1159-90 | p.30

External insulation | Equipment carriers

Universal equipment carrier
1159-24 | p.32

Extension element
1159-27 | p.32

Telescope equipment carrier
1159-60 | p.32

System equipment carrier 160 - 240 mm
9966.21| p.32

External insulation | Installation housings

Installation housing ThermoX® Iso + | Extension element
1159-70 | 1159-71 | p.36

External insulation | One-gang boxes

Universal equipment carrier with combination insert
1159-26 | p.34

Telescope one-gang box
1159-61 | p.34

Combination one-gang box
1159-62 | p.34

System equipment carrier 160 - 240 mm
9966.31 | p.34

Ø 20 mm
Mini equipment carrier
1159-50 | p.36

Ø 68 mm
One-gang junction box Econ® Styro55
1555-51 | p.36

Tools

ISO box set
1155-03

UP extension ring
1155-02

Ø 20 mm
Hardened metal cutter 20 mm
1088-06

Ø 68 mm
Hardened metal cutter 180
1088-07

Styro55 setting tool
1090-21

Centering aid Ø 68 mm
1090-68

You can find more information about our range of tools on the internet, in our catalogue or direct from KAISER (see also other side). Technical advice | Telephone: +49(0)2355/809-61

Systems and solutions for the professional electrical installation.

Since 1904, KAISER has developed and manufactured systems and products as a basis for good installation.
Planners and users benefit internationally from the practical solutions for their daily operations in all areas of installation.

Energy efficiency.

Innovative KAISER products support you in satisfying the requirements of the EU guidelines and the national regulations such as the Energy Conservation Regulations (EnEV).

Fire protection.

KAISER fire protection systems offer you reliable protection for electrical installations in fire protection walls and ceilings.

Sound insulation.

KAISER's innovative sound insulation boxes ensure the structural requirements for sound insulation walls, even with pre-fitted installations.

Radiation protection.

The use of the new radiation protection boxes maintains the wall's radiation protection without the need for any additional screening measures.

Building.

KAISER has matching product system solutions which are used safely, consistently and in accordance with building-site practices for redeveloping, renovating and modernising work.

Technical information and advice
You will find more information about products, system solutions and communication media on our website:
www.kaiser-elektro.de

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