



safe.inspiring.green.

CATALOGUE

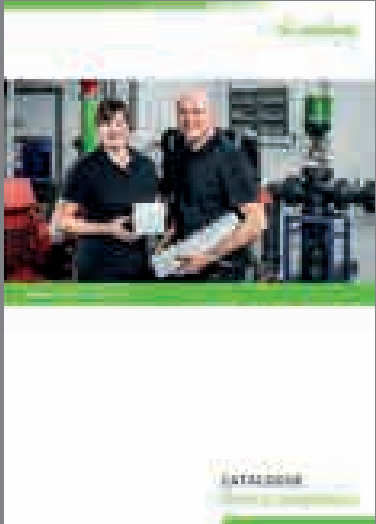
Switchgear and
control engineering

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Switchgear and Control Engineering

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Additional product catalogues are available free of charge at:
www.spelsberg.com/service/info-request



Electric installation



Concrete installation

Illustration are non-binding, particularly as regards the design, size and colour of the products. We reserve the right to make modifications in price, technology and design. Errors in this catalogue are due to printing errors and no right to reductions or similar may be derived from them.



Innovation meets tradition – Spelsberg throughout the years

When you trust in Spelsberg, you trust in the best. Here you will find enclosure expertise combined with more than a century of experience.

The high innovative capacity of this business has resulted in numerous patents and provides solutions that are quick and easy to install, and that are impressive thanks to their long service life and ease of maintenance.

The developers not only have an eye on the latest status of standards, but also on new markets and trends within energy and building technology. The result is products and systems that are always ahead of the game, and that impress due to their clever details and fair price. We are continuously setting new standards, particularly with respect to safety. In the past it was new products such as the fire-resistant WKE junction boxes with preserved functionality or the Red Range of halogen-free junction boxes with which Spelsberg forged new

paths as an innovative pioneer, driving the development of installation technology one step further into the future. Following a survey of craft businesses, 90% of all processors know and use Spelsberg products, and are satisfied with them. Spelsberg sells its product all over the world via its own subsidiaries and distribution partners, manufacturing its products in a consistent manner in Germany and employing a total of approximately 600 employees at its various sites and in its subsidiaries.



Managing director
Thorsten Schwippert

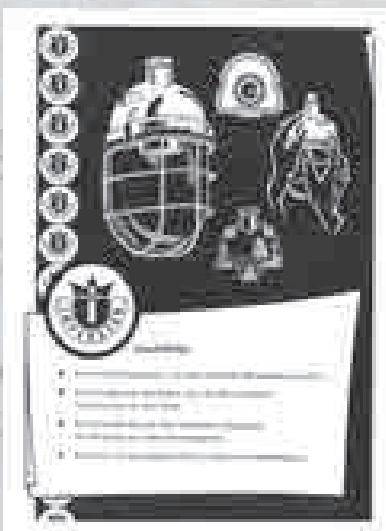
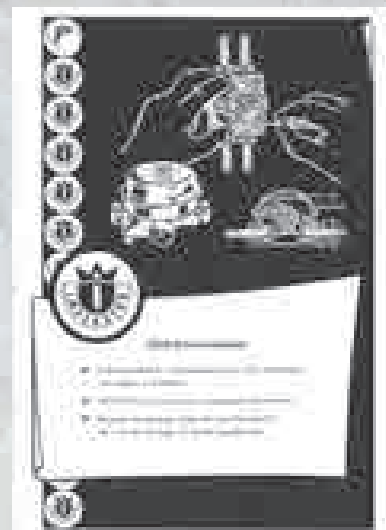
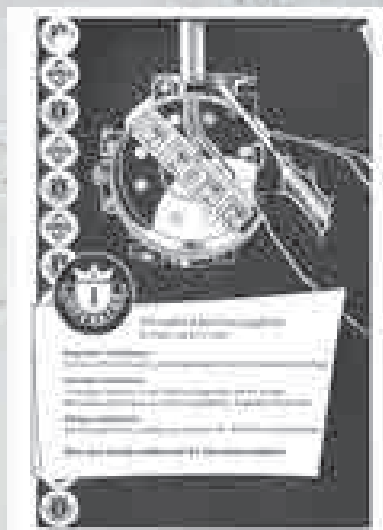
At present, Spelsberg offers more than 5000 widely available products, including junction boxes, small distributors, terminal block enclosures, meter housings and industrial enclosures. Customers also appreciate Spelsberg as an expert consultant for demanding questions involving the enclosures. Spelsberg bundles all of the required expertise under one roof and conducts all of the various stages itself, from the prototype development to the individual customization, right through to the electronic development and assembly of customer-specific turnkey systems.



Spelsberg has over 100 patents registered. In Germany, Europe and worldwide.



Spelsberg is represented in more than 50 countries through own subsidiaries and distribution partners.



From day one, it has been our mission to make everyday life easier for our customers. Above all, in the area of safety we continue to set new standards. New products have included fireproofed WKE junction boxes with functional integrity, and halogen-free junction boxes in the Red Range, with which Spelsberg, as a driver of innovation, has demonstrated new approaches and taken installation technology one step further.

Our founder Ernst Spelsberg would be proud that four generations later his values continue to be applied and that our staff still enthusiastically maintain the pioneering spirit of the early years.

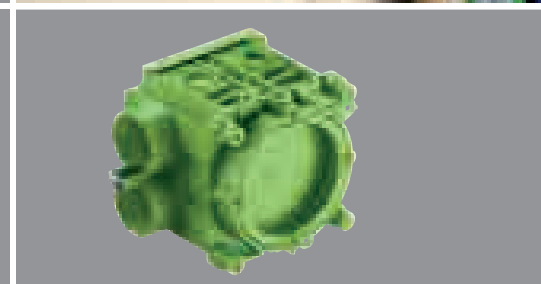
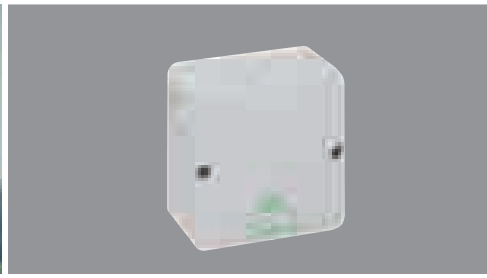


Founding father **Ernst Spelsberg**



Gave his name **Günther Spelsberg**

Our eyes are firmly on the future



Today, Spelsberg is not simply regarded as a supplier of more than 5,000 catalogue products, but also as a developer of connection-ready overall systems and as an expert advisor where challenging issues around enclosures arise.

Spelsberg itself brings together under one roof all the know-how required for this and undertakes all steps from prototype construction, through individual customisation to electrotechnical development and equipping of bespoke complete systems.

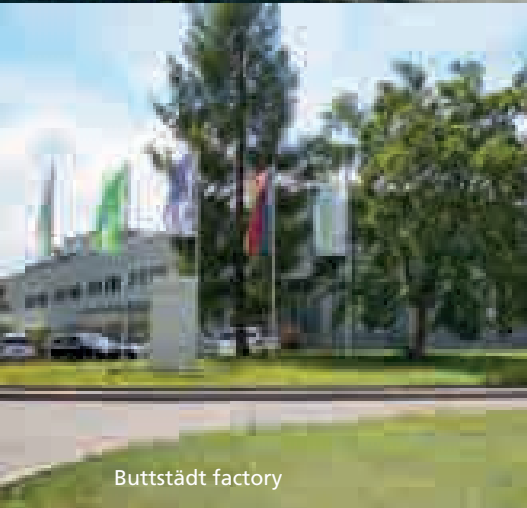
Because even the tests that accompany development are performed in-house, it is possible right from the design phase to perform iterative testing and adaptations until all characteristics conform to the standards. Methods such as Building Information Modeling (BIM) are already supported by us with correspondingly prepared product data.

Spelsberg | Schalksmühle + Buttstädt factory (Thuringia)

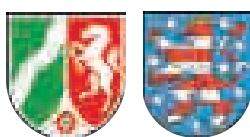
Headquarters Schalksmühle



Buttstädt factory



Made in Germany



Schalksmühle - the town in which as early as 1904 the first insulating tubes were developed and manufactured, is also where Spelsberg still has its home. The company continued to grow and constantly expanded its production facilities, until it reached its capacity limits in the centre of the town.

This prompted the move in the 1990s to an industrial area, where completely new administration and production facilities were built. All areas of expertise and departments work closely together here in an interdisciplinary and integrated manner. Not only does this drive innovation, it also results in short response times.

This makes it easy to stay one step ahead of the industry. At **Buttstädt** more than 100 people are employed in producing the best-selling products from Spelsberg, such as AK distribution boards, the Red Range and the popular Abox series. The modern equipment, including more than 50 injection moulding machines with a clamping force of up to 900 tons, ensures efficient processes and optimum results.



■ IK level impact testing



■ Enclosure customisation



■ Tool making



■ Small distribution board production



■ Silos for raw materials



■ Automation Abox junction boxes

Approximately five million items of the i12 junction boxes alone are manufactured in Buttstädt each year, and more than a million Abox junction boxes also find their way from Thuringia to all parts of the globe.

Buttstädt has never been just a production facility, however. The plant is also an important cornerstone of Spelsberg for the training of mechatronics engineers, process engineers, and experts in warehouse logistics .



Individual solutions with know how

The flexible automated assembly and production with almost 50,000 material movements per week and approximately 1,000 production orders, allows large volume production, but also one piece flow.

Spelsberg supplies many components that are optionally pre-assembled, part-wired, or ready for connection. If necessary, these can be equipped, for example, with electronic modules, optical components, operating elements or communication modules.

When applied appropriately, automation ensures competitive pricing. A large team of qualified employees also provides maximum flexibility and the know-how required to quickly and expertly perform even the most complex tasks.



■ Assemblies



■ TK enclosure line



■ CNC milling centre



■ Tool development



■ 3D printer/ Prototype construction



■ Sealing foams

This means that Spelsberg is able to not only offer mass production, but also individual low-volume solutions. Using one-piece-flow conveyors a number of assembly tasks can be performed consecutively.





Certified in Schalksmühle

When you are looking for tested safety and brand-name quality, Spelsberg is the answer. We only use high-quality brand-name European raw materials for the more than 100 million injection-moulded parts that we produce each year.

We use a total of 400 raw material types – 95 per cent of which are produced according to our own recipe. Our products with especially high durability bear the iQ mark for industrial quality.

Spelsberg operates an in-house test laboratory at its headquarters in Schalksmühle for certification purposes. The laboratory and devices are not just VDE-certified, they are also UL-certified, thus enabling all of the necessary testings for the international use of series products and special solutions to be executed in-house.



■ impact testing UL Impact



■ impact testing IK Level



■ Climate test



■ Dust protection testing



■ Water protection testing



■ Cover pull-off testing

This possibility is especially important when developing tailor-made solutions together with our partners. The aim here is to help our customers get their products to market readiness as rapidly as possible.

The test laboratory is equipped to state-of-the-art standards and is the subject of ongoing further development. UL conducts annual audit as part of the Client Test Data Program to assure that work continues to be carried out at a consistently high standard.



Robustness, reliability, flexibility

These are the watchwords of the Spelsberg industrial products range. These specially developed enclosures, distributors and junction boxes carry the company's iQ logo for industrial quality. This seal is a guarantee of the best material properties, tested safety, and optimum functioning and integrity at extreme conditions. Glass fibre reinforced polycarbonate ensures that the industrial products are even more resistant than

the popular standard products of the famous manufacturer of enclosures and electrical installation products. They are unaffected by moisture, cold or heat, or similarly by UV radiation, oil, grease or mechanical stress. In machinery and plant engineering these characteristics allow them to reliably protect the electrical installation from lubricants, impacts or shocks.

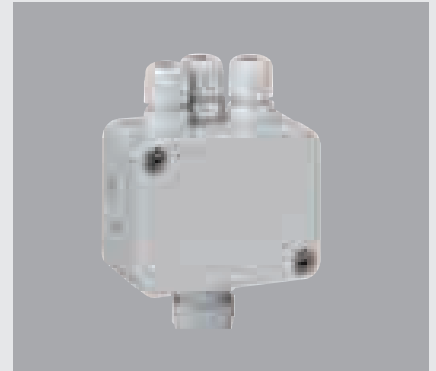




■ TK enclosure with command and signalling devices



■ TK enclosure with display



■ TK enclosure with cable glands



■ TK enclosure with emergency stop button



■ TK enclosure with industrial plug connectors



■ GEOS enclosure with measurement devices for monitoring a power supply





Machining service

- Through-holes
- Threads
- Engravings
- Individual fastening points (ultrasonic welding)
- EMC coatings

Print Service

- Design films
- Membrane keyboards
- Screen printing, pad, digital, laser printing
- Hot embossing

Special colours

- Finishing: dyed or coated
- RAL, HKS and pantone colours are possible



■ CNC milling centres



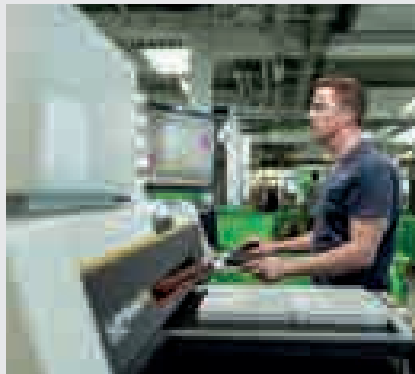
■ Hot embossing



■ Design films



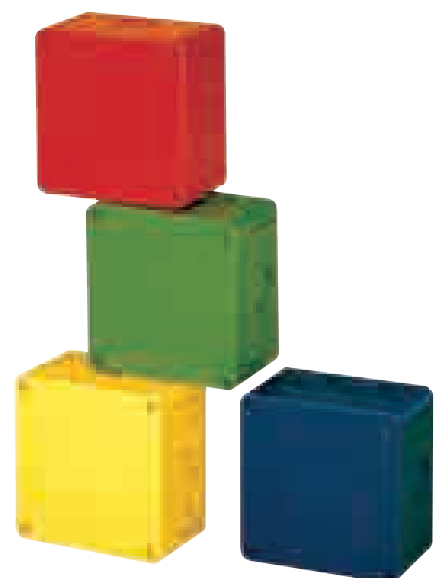
■ Laser printing



■ Digital printing



■ Tampon printing





Standard quality

- Polystyrene, plastic
- ABS, plastic
- Duroplast, plastic

Industrial quality

- For high material requirements
- Polycarbonate, glass fibre reinforced, c UL us approval (American and Canadian approval)
- Aluminium (with American and Canadian approval upon request)

Material

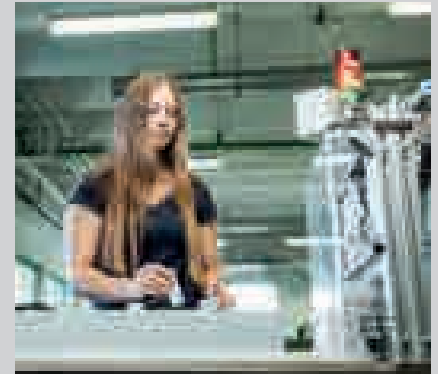
- The same enclosure sizes are available in different qualities / materials so they are always suitable for the demands on-site



■ Tailoring
small-scale assembly



■ Packagings



■ Special assembly



■ Routine testing



■ Customised
fixing solutions



■ Special solutions such as
snap fastenings

Assembly service

- Equipping
- Wiring
- Testing

Special accessories

- Terminal bracket
- Mast clamps
- Latches
- PCB holders

Packing service

- Production-orientated
 - Loose and separate
- Ready for sending
 - Tailored goods
 - Shrink-wrapped and individually labelled upon customer request

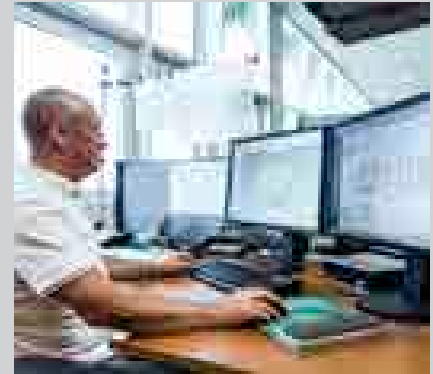
Competence chain | For a tailor-made customer experience



■ Advice / support



■ Project Management



■ Development / design engineering



■ Testing / certification

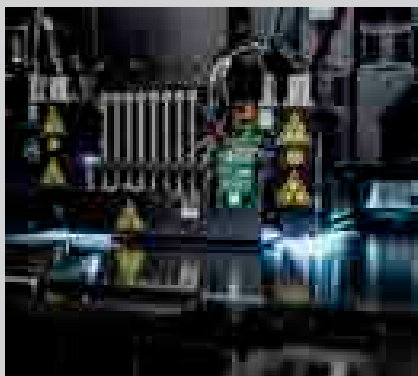


The most up-to-date methods for a perfect result

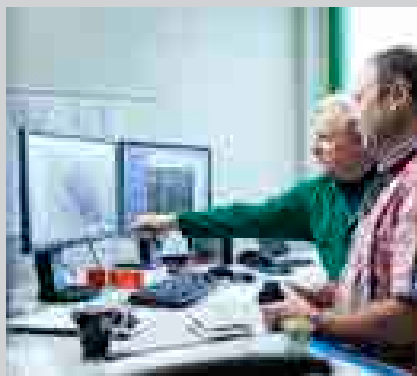
Several processes within a company combine with each other like the single parts of a chain. A strong connection between the individual components is necessary for the stability of the chain as a whole. Each link in the chain makes a significant contribution to its success.

This is why Spelsberg attach great importance to each link, however small, in our process chain and through modern methods, the newest plant engineering, and highly qualified employees, ensure that finally every detail is just right.

In order to leave nothing to coincidence we bundle all know-how in our house which is needed for the development and manufacturing of our premium enclosures.



■ Project planning



■ Tool design



■ Tool construction



■ Production



■ Enclosure modification



■ Delivery

Whether it is tool construction, prototype manufacture or printing, only when you do everything yourself can you control all the parameters. It is precisely because we turn out thousands of injection-moulded parts every day with our fully-automated production, that we can deliver manufacturing in which we are able to respond quickly to customer wishes.

Although we have more than 5,000 products in our range, in recent years we have significantly expanded our services and customisation offerings, enabling us to respond to individual wishes even better and faster. In this way we have established ourselves within the industry as an experienced advisor, with great experience and a passion for dealing with housing tasks.

Our departments interact like the links in a chain and, in close consultation with the customer, swiftly come up with creative solutions. From advice, through to development and manufacture, and then testing and certification, we offer everything that our customers need.

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Piktograms

IP68	IP68	Class of protection (IP-Code) acc. to DIN EN 60529 (VDE 0470-1) as per respective product standard
		Maximum number of modules
E30	E30	Electrical functional integrity acc. to DIN 4102-12 "E" stands for functional integrity, "30-90" stands for the duration in minutes.
10 ²	10 ²	Nominal cross section The biggest permissible wire cross-section that can be connected acc. to DIN EN 60998 (VDE 0613) and DIN EN 60999 (VDE 0609)
IK09	IK09	Level of protection (IK code) to mechanical impact acc. to DIN EN 50102 (VDE 0470-100)
		Protection class II operating materials with protective insulation acc. to DIN VDE 0100-410
1000V DC	1000V DC	Maximum voltage DC (DC voltage) as per product standard (system voltage in the PV sector)
690V AC	690V AC	Nominal AC voltage (AC voltage). Highest permissible voltage on the junction as per product standard
15A	15A	Rated current (maximum current in continuous operation) as per product standard



The **VDE symbol** stands for the tested safety of the product with regard to electrical, mechanical, thermal and other hazards.



Products with the **c UL us** approval mark have been independently certified by UL (Underwriters Laboratories Inc.). Representative samples of this product have been assessed by UL and comply with the applicable national standards of USA and Canada.



Products with the **UL EU** approval mark have been independently certified by UL (Underwriters Laboratories Inc.). Representative samples of this product have been assessed by UL and comply with the applicable European (EN) or global (IEC) standards.



DNV

The approved products are from the DNV-GL for installation on all classified ships



DLG focus test: Ammonia resistance (stable air)



AK Air Ventilation elements to prevent accumulation of condensate while maintaining protection class IP65.



Suitable for the installation of an **electronic domestic supply meter**



Halogen-free enclosure, without halogens such as fluorine, chlorine and bromine



Industrial quality



**Standard
quality**



**Industrial
quality**

Industrial and Outdoor Enclosures

GEOS

Now DNV approved!



GEOS products

High quality materials and an innovative design make the new GEOS series a universal solution and longlasting enclosure for indoor and outdoor applications. The UV and weather resistance of the high-quality polycarbonate and the new and innovative „Drain Protect“ seal system guarantees optimal protection against most environmental influences, as well as rain, cold and heat. Even in tough conditions caused by aggressive atmospheres, oils, greases or mechanical stresses, you can rely on the GEOS enclosures and cabinets. Certifications for the most varied applications give the user confidence at all times.

GEOS variety

- More than 60 variants
- 3 base sizes
- 2 enclosure heights
- Cover and doors grey or transparent
- Now also black enclosures and cabinets with black and transparent covers or doors available
- Different cover closure systems

NEW!

GEOS applications

- Renewable energies
- Monitoring and access technology
- Agricultural operating facilities
- Traffic engineering
- Construction of control systems
- Electric mobility / infrastructure

Your GEOS control cabinets and housings as desired!
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Industrial and Outdoor Enclosures GEOS

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Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets | Case study



Indoor applications



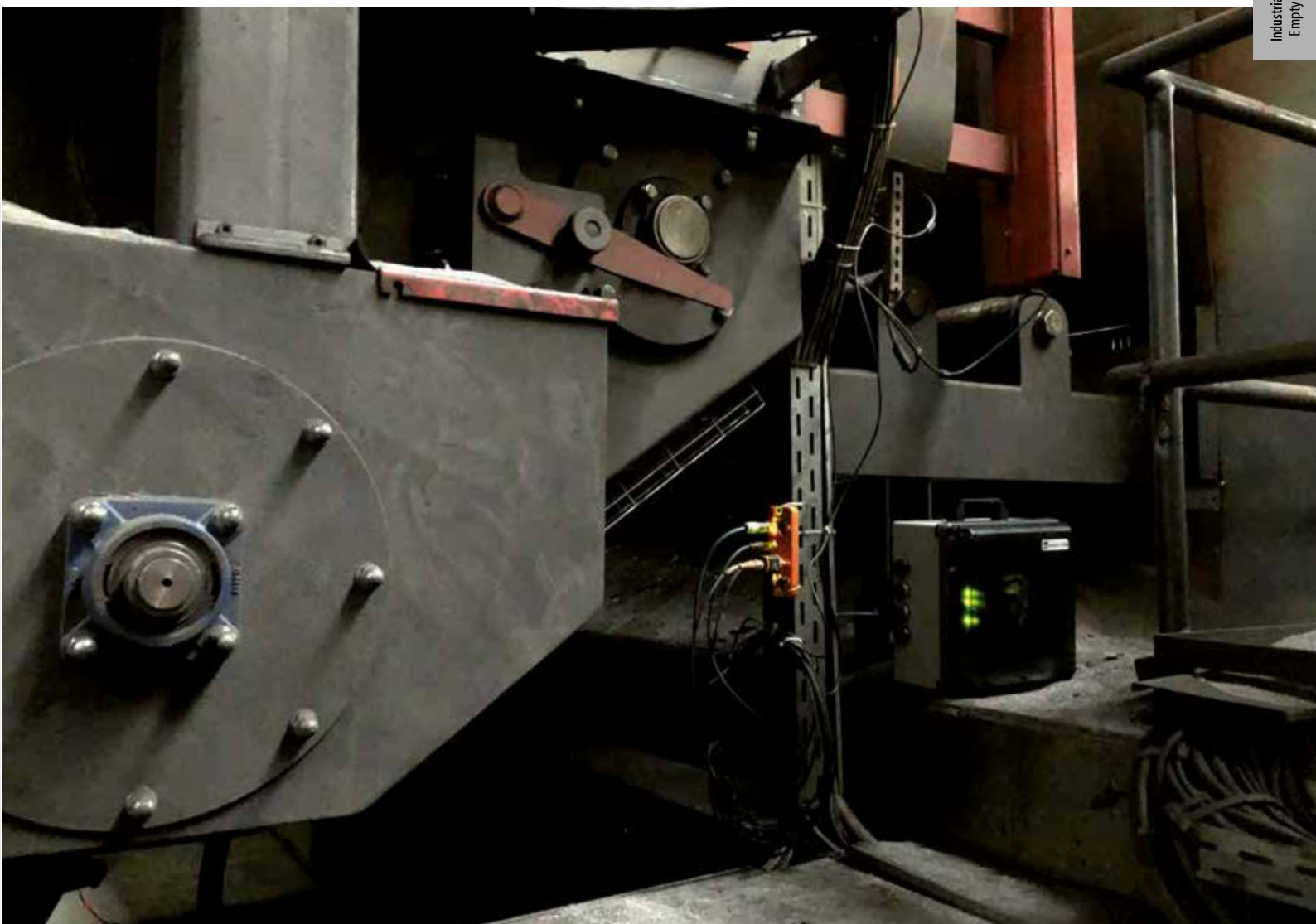
UMH Systems GmbH | GEOS Plug & Play solution

These were the requirements that UMH Systems GmbH gave us when they needed enclosure for the hardware for their innovative United Manufacturing Hub. The open-source solution from the Aachen-based company is used to extract and analyse data from production facilities. The hub comprises both software components and also the so-called United Factory Cube which can be connected by means of plug and play to all commercially available IoT

systems as well as systems from the production and processing industry. The data gathered there are displayed in a dashboard and can be evaluated in real time. In that respect there is also an urgent requirement in the industrial environment: a lot of companies are pushing ahead in the short term with pilot projects relating to Industry 4.0 and also require a reliable infrastructure.

To remain competitive in the future too, switching to networked production, as offered by the United Manufacturing Hub, is essential. It enables companies to optimise their production processes, carry out predictive maintenance by means of state analyses and significantly improve the quality of their processes.





The areas of application of the huge range from hygiene applications in the pharmaceutical industry through filling systems in the food industry to the extremely harsh environments in heavy industry such as steel machining. After carrying out comprehensive research into suitable solutions via the Internet, the persons tasked with this came across our robust GEOS industrial and outdoor enclosure the characteristics of which allow them to withstand the weather, temperature, chemicals, or application of

force without problems and therefore make them perfect for the company's requirements. The corrosion-proof outdoor enclosures have a high impact strength of IK 09 and conform to protection IP 66/IP 67. In addition, the wealth of models and numerous customisation options are impressive. Together with our customer, we developed a customised GEOS enclosure with drilled holes, recesses and individual printing.



„During the development phase in particular, the team from Spelsberg helped us by providing expert advice. They delivered best practices as well as appropriate ideas for processing the enclosures based on our preferences. So we are now able to offer our customers a robust and reliable hardware solution, without the need for compromises on the technical level“, is how Alexander Krüger, Executive Director of Operations at UMH Systems GmbH, assesses the collaboration.“



Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets | Case study



Unprotected
outdoor areas



AixACCT | GEOS as wallbox enclosure

Founded in 1999, today aix ACCT is active in three areas of business at the same time. While the company initially focused on test systems and components for the automotive industry as well as micro-system technology, in 2015 the course was set for specialisation in the field of electromobility with the development of the company's own charging systems. And with great success: some six years later, e-mobility under the umbrella of aixACCT charging solutions, now makes

up a large part of the group's business. The functional solutions for sustainable mobility are aimed at key customers looking to supply their vehicle fleet with power via a range of charging points up to entire charging parks. In connection with these, aixACCT charging solutions operates across Europe. In order to protect the sensitive components, the responsables set clear requirements for the enclosures: „When it came to choosing the right enclosure, it was very

important to us that it should not only comply with protection class IP44 but also offers our customers various solutions that could permanently withstand heavy rain and storms“, explains Dr Stephan Tiedke, co-CEO of the „aixACCT Group“. In addition, impact resistance should also be guaranteed in order to be able to provide a constantly functioning charging infrastructure in both non-public and public areas. It quickly became clear that Spelsberg could meet all of the





requirements specified with its GEOS outdoor enclosures and that it also offered numerous customisation options. Taking the GEOS enclosures as a basis, the Spelsberg team worked with aixACCT charging solutions to find the right solution to accommodate all the components for the charging systems. The GEOS product series has impressive robustness, flexibility and maximum safety. Durability is mainly ensured by the high-quality material polycarbonate (PC).

It is UV-stable as well as being weather-resistant and protects internal fittings against very high or low temperatures and effects of oil or grease. There is also a special design based on the GEOS sealing principle „Drain Protect“ which makes the enclosures permanently resistant to the ingress of moisture. All products comply with protection class IP66/IP67, are certified to IEC 62208, UL 50, UL 50E and CSA 22.2 and tested in accordance with IEC 61439.



„It is essential for us to have a partner who can respond to different requirements at any time. With Spelsberg, we can always rely on fast and flexible solutions – from individual drilled holes, through special sealing variants, to the use of the in-house test laboratory for inspection and test purposes.“

Jochen Olivier, Head of Electromobility
aixACCT Group



Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets



GEOS 
Tough. Flexible. Safe.

TOUGH

UV and weather resistant

Corrosion resistant

Temperature resistant

Rugged

High impact resistance - IK 09

FLEXIBLE

Enclosure variety

Variable internal fit-out

Easy processing

SAFE

Drain protect seal system

Protection against dust, rain,
snow, sprayed water

Air ventilation elements

Protection class II and rated
insulation voltage

1000 V AC and 1500 V DC

High protection rating

IP66 / IP67 / IP69

Your GEOS control cabinets
and housings as desired!
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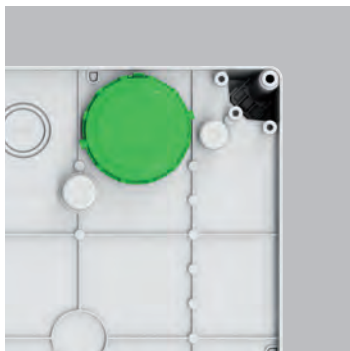
Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets



ALL-ROUND PROTECTION THROUGH „DRAIN PROTECT“

- + Long-lasting protection against moisture
- + High protection class IP 66 / IP 67 / IP 69



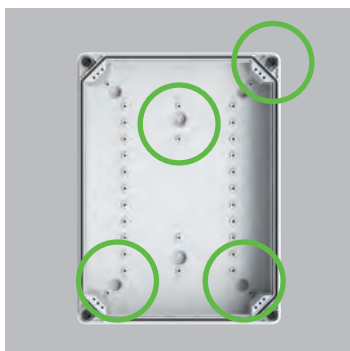
PROTECTION AGAINST CONDENSATE WATER

- + Preparation for BEL Air M40 ventilation elements
- + Protection class IP 65



SOLID PLASTIC ENCLOSURE

- + Fast and easy machining with low weight
- + Extremely durable: No corrosion after mechanical processing
- + Always protection class II
- + High impact resistance - IK 09



SEVERAL MOUNTING OPTIONS

- + Easy installation via keyhole mounting
- + Mounting outside the sealing area
- + UL-compliant installation
- + Installation of preassembled enclosure



OPTIONAL EXTERNAL FASTENING

- + Installation of assembled enclosures
- + Available in 2 heights (10 mm or 40 mm)
- + Distance from wall for optimum laying of cables
- + Mast clamp mounting





VARIANTS



- + Grey enclosures with door and cover variants in grey or transparent
- + Black enclosures with lid variants in black or transparent

DIFFERENT CLOSURE SYSTEMS



- + Choice between screw closure and quick-release closure or triangle-head screws
- + Doors with cam lock and pivoted lever

EXTREMELY FLEXIBLE



- + Lids and doors can be used for enclosures and cabinets
- + Modular installation system
- + Toolfree and fast assembly

OPTIMISED BOX DIMENSIONS



- + Flexible assembly of the enclosures with flange plates and heavy-duty industrial plug-in connectors
- + For universal use in different applications

CUSTOMISED SOLUTIONS



- + Drilling and milling
- + Customised printing
- + Wiring
- + Testing
- + Customised packaging

Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets | Material + Design

TOUGH



For the use in
harsh environments



Internal fittings are
safely protected

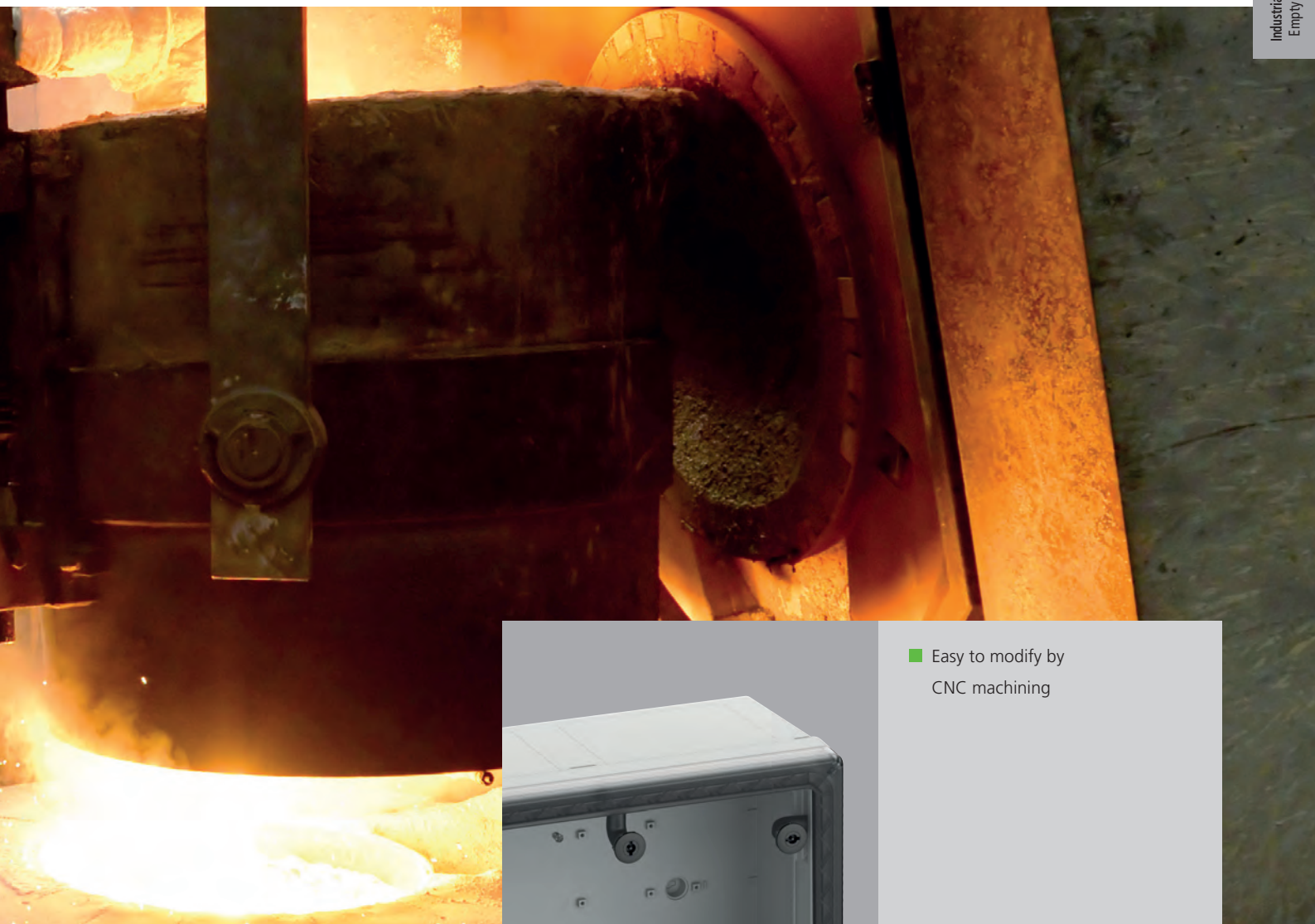


Material Polycarbonate

- Can be customised easily and cleanly
- UV-resistant
- Weather resistant
- Corrosion resistant
- High impact resistance

IK09

-35°C
-
+80°C



Robust enclosure design

- Solid design of box and cover / door
- High impact resistance (IK 09) despite the low enclosure weight



- Easy to modify by CNC machining



- Robust design of enclosure



- Solid design

Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets | System

FLEXIBLE



Modular design system

- No processing for installation of windows
- Uniform design
- Grey enclosure with door and lid variants in grey or transparent
- Black enclosure with lid variants in black or transparent
- Flexible use of components
- Small stock keeping capacity required
- Can be extended easily
- Standardised external dimensions
- Identical approvals
- Universal use in various applications
- **Installation system**
Tool-free and fast installation within the 25 mm grid
- **Mounting domes**
possible in box, lid and door for direct mounting of DIN profile rails or wiring bases
- **Quick-release closure - thread inserts**
 - ¼-rotation with defined end position
 - Can be replaced easily



EMPTY ENCLOSURE

Grey enclosure with grey
or transparent cover
Black enclosure with black
or transparent cover



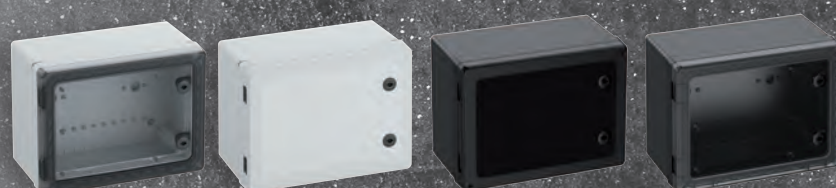
CABINET

Grey cabinet with grey
or transparent door
Black cabinet with black
or transparent door



CABINET

Grey cabinet with grey
or transparent door
Black cabinet with black
or transparent door



CABINET (horizontal)

Grey cabinet with grey
or transparent door
Black cabinet with black
or transparent door

- Smooth side walls (-o / -to / -tzo)
- Each surface to be machined is „marked“ with an indentation
- Knockouts for mounting of Bel-Air ventilation elements



Standard-type
overall image



Can easily be replaced
at any time



Without any restriction
of technical
properties

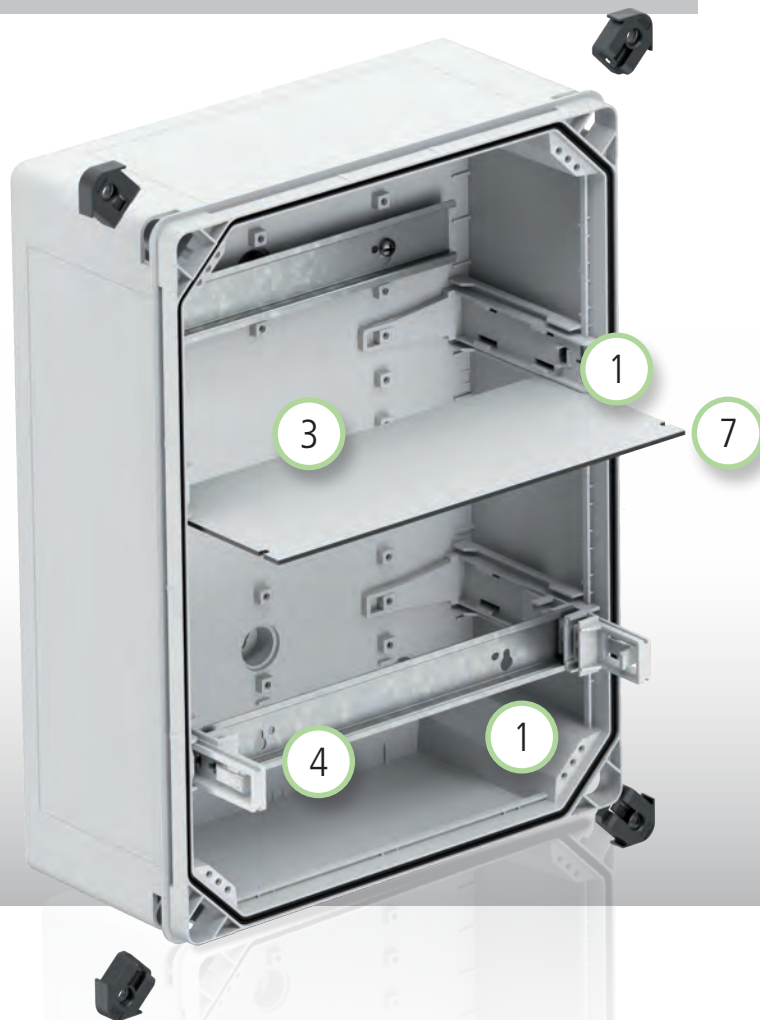
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Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets | System

FLEXIBLE



Built-in system

- Functional installation system with mountingholder (1)
- Tool-free installation of mounting holder (2)
- Universally usable for assembly plates (3), standard rails (4) and carrying frame (8)
- Different installation heights possible in the mounting holder (5)
- Subsequent insertion of pre-assembled assembly plates or devices (6)



- Slide-in partition walls (7)
- Protective cover (9)

Your GEOS control cabinets
and housings as desired!
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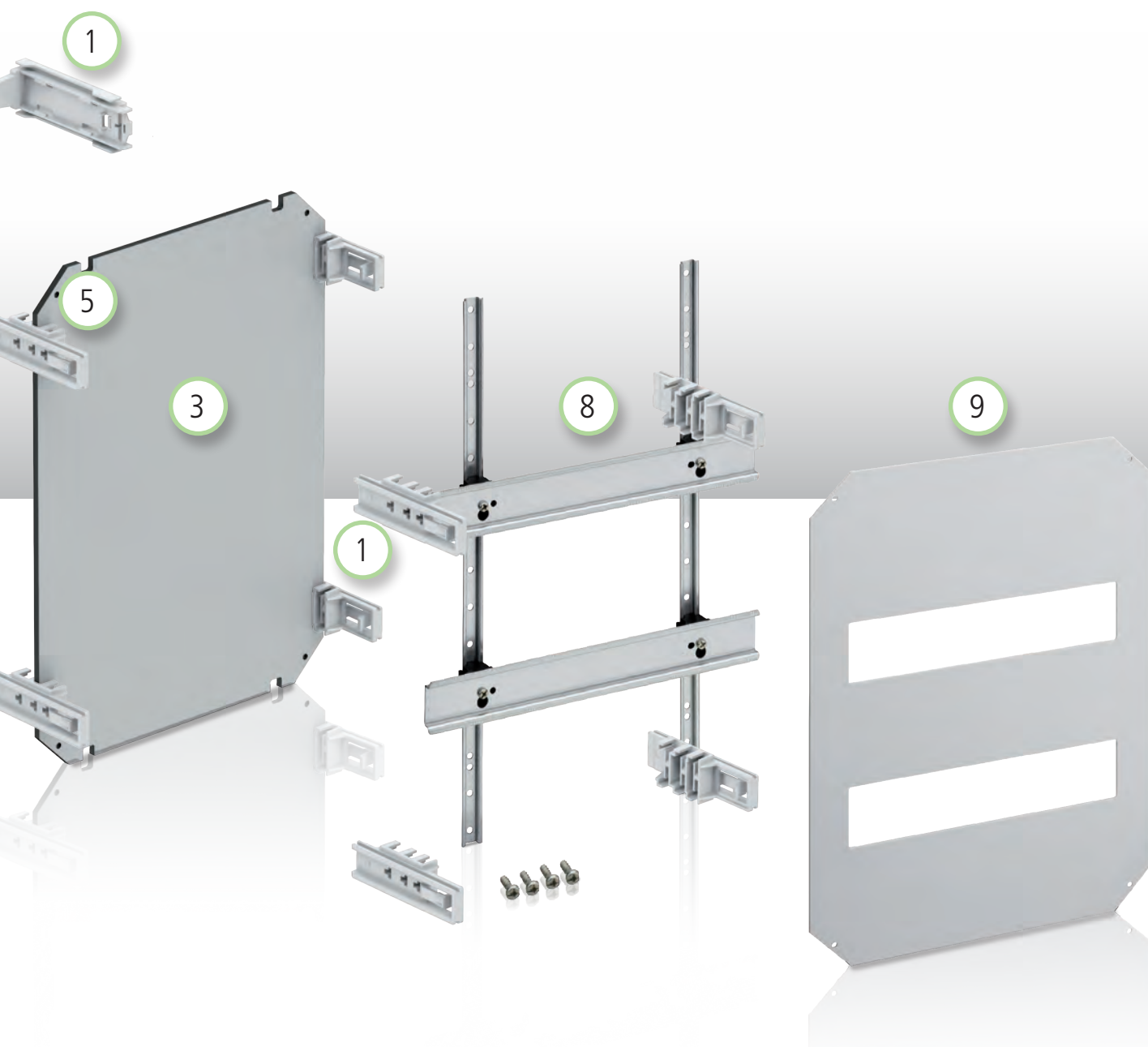




Flexible use
of components



Can be extended easily



Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets | Safety

Now DNV approved!



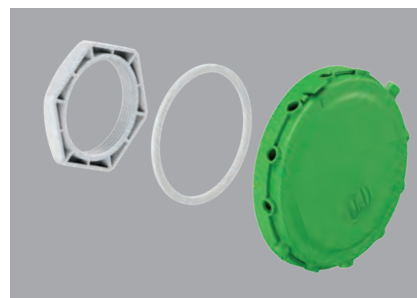
(except GEOS with swivel lever)

SAFE



GEOS Safety

- Empty enclosures tested according to IEC 61439 with comprehensive certifications according to IEC 62208
 - UL 50
 - UL 50E
 - CSA 22.2
- DNV approved
(except GEOS with swivel lever)
- UV and corrosion resistant
- High impact resistance
- Protection against condensate water due to BEL Air M40 ventilation elements





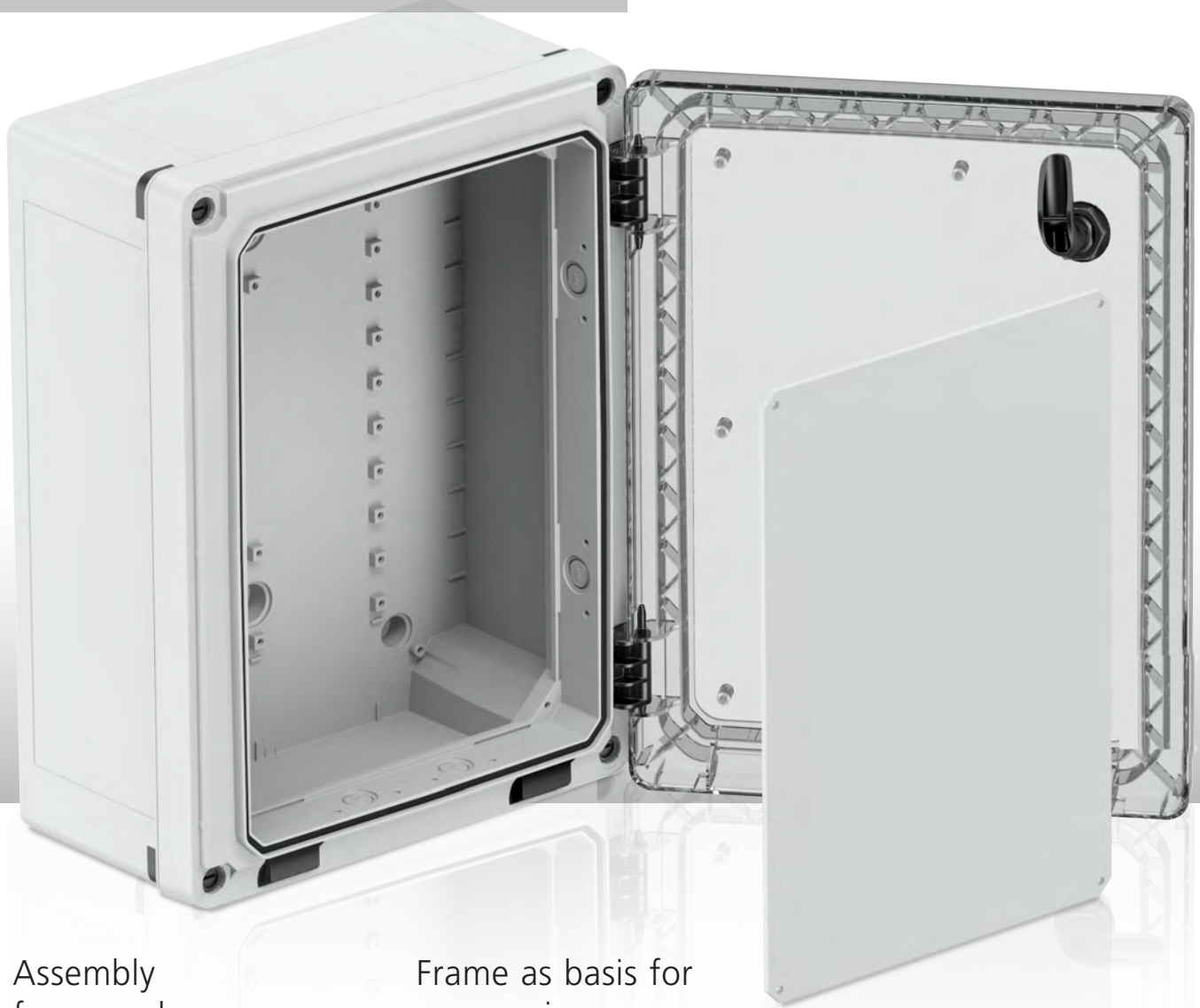
GEOS “drain protect” sealing principle

- Unique enclosure design with long-lasting protection against moisture ingress
- Diverts moisture, e.g. rain or snow, to the back of the enclosure
- Overlapping cover
- Drainage channels along the sides of the enclosure
- Elastomer seal
- Optimum protection of the seal against environmental influences
- Optimised for challenging outdoor applications
- Optimised for outdoor application by elastomer seal
 - no annoying adhesion of the seal
 - maintenance-free and easily replaceable

Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets | internal fit-out

FLEXIBLE



Assembly frame + door

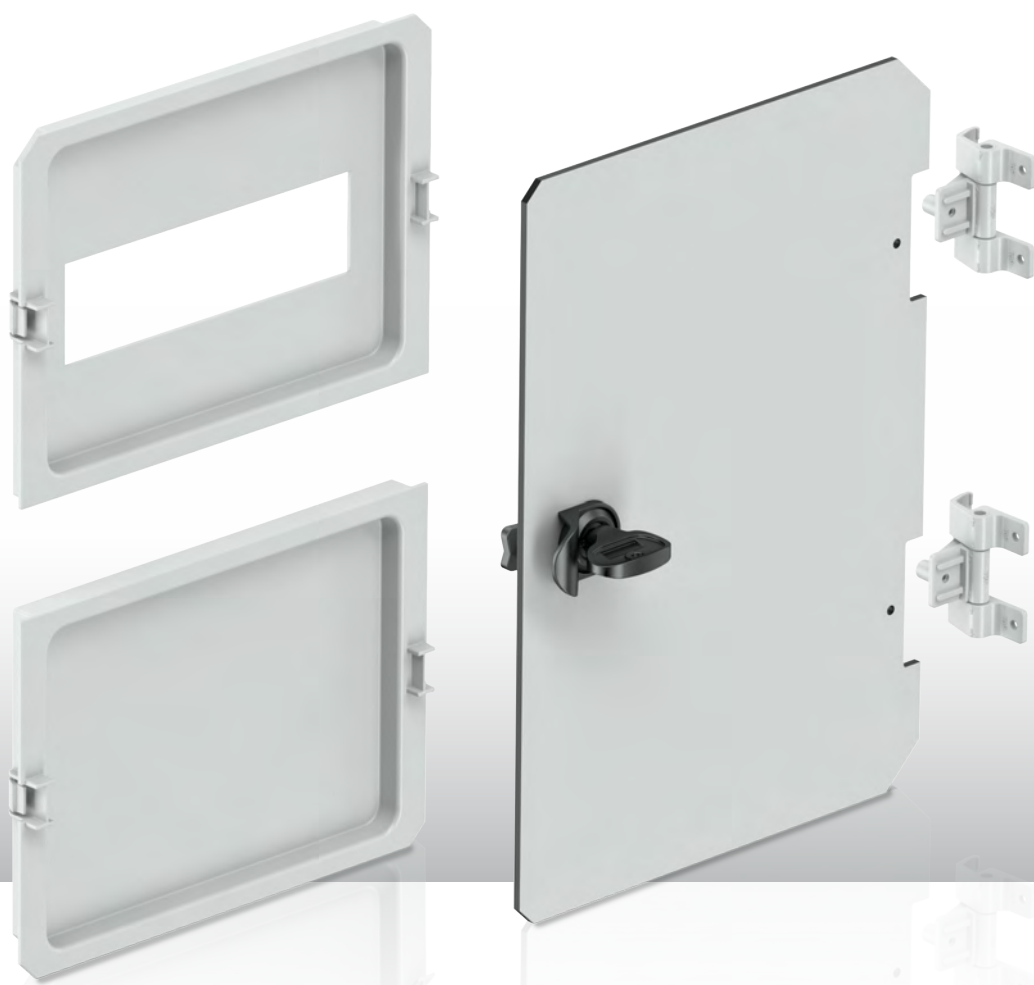
- Easy change of door fixation
right/left by turning of the frame
incl. door
- Effortless modification at any time
with embossing for knocking out
in the frame
- Can be processed easily and quickly
- Easy mounting and dismantling –
also after installation
- Easy dismantling of the door

Frame as basis for accessories

- Flexible use of enclosures
- Separation from equipment and
user interface with protection
against contact
- Individual internal fit-out, e.g. with
mounting plates, modules protected
against contact, internal doors
- Installation of serial mounting devices,
instruction and detection devices,
measuring devices, displays, etc.

Your GEOS control cabinets
and housings as desired!
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Assembly contact protection module

- Easy and fast assembly
- Tamper-proof
- Possibility to use as small distribution board
- Modular design possible
- Tool-free installation

Frames for individual customisation

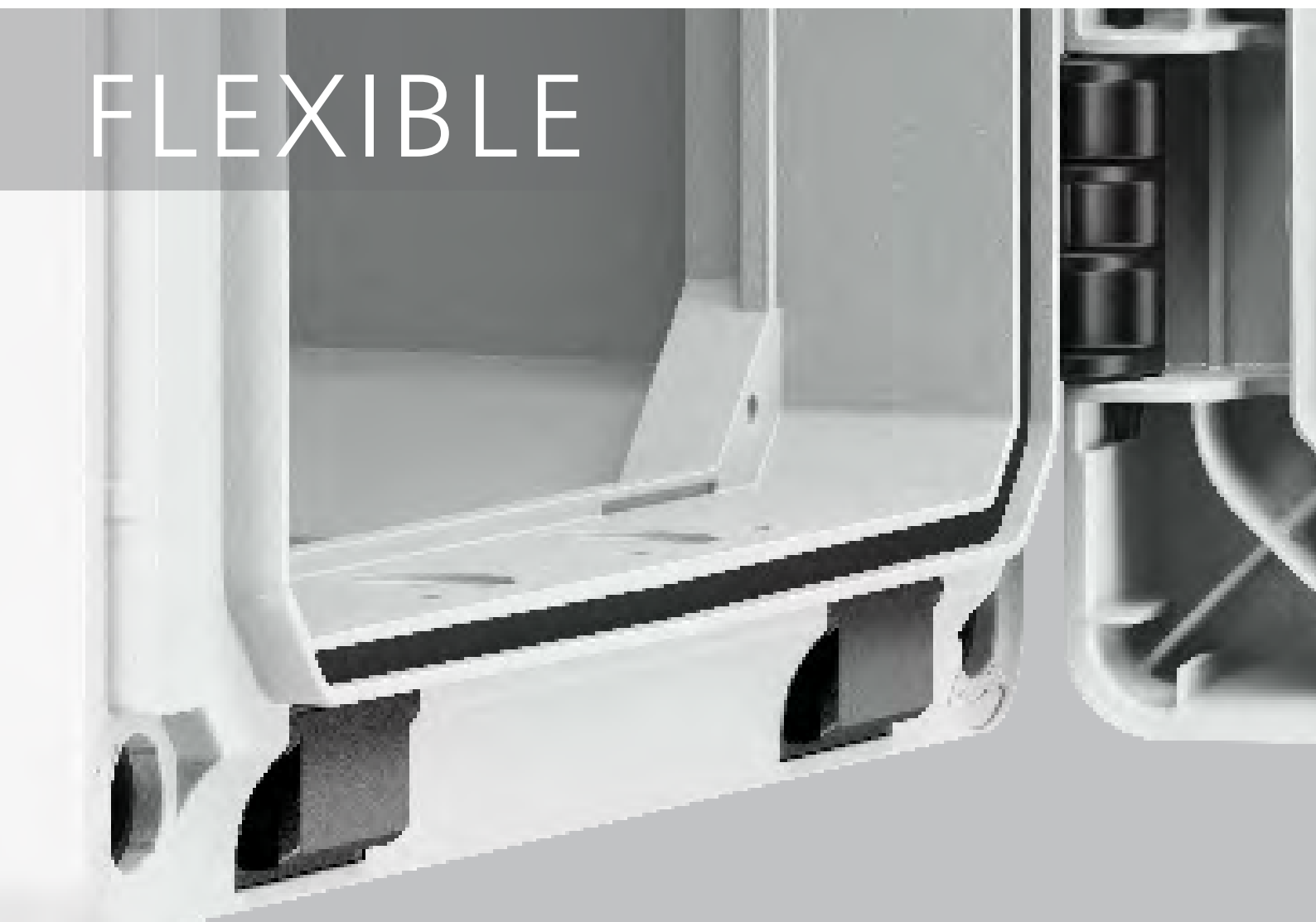
- No restriction due to accessories
- Flexible use of enclosures additional installation space in the frame, e.g. for light
- Application-optimised equipment of cabinets, e.g. with door retaining device, door contact, internal lighting, cable clips
- Easy to assemble



Industrial and Outdoor Enclosures

GEOS empty enclosures and cabinets | internal fit-out

FLEXIBLE



Cabinet door step

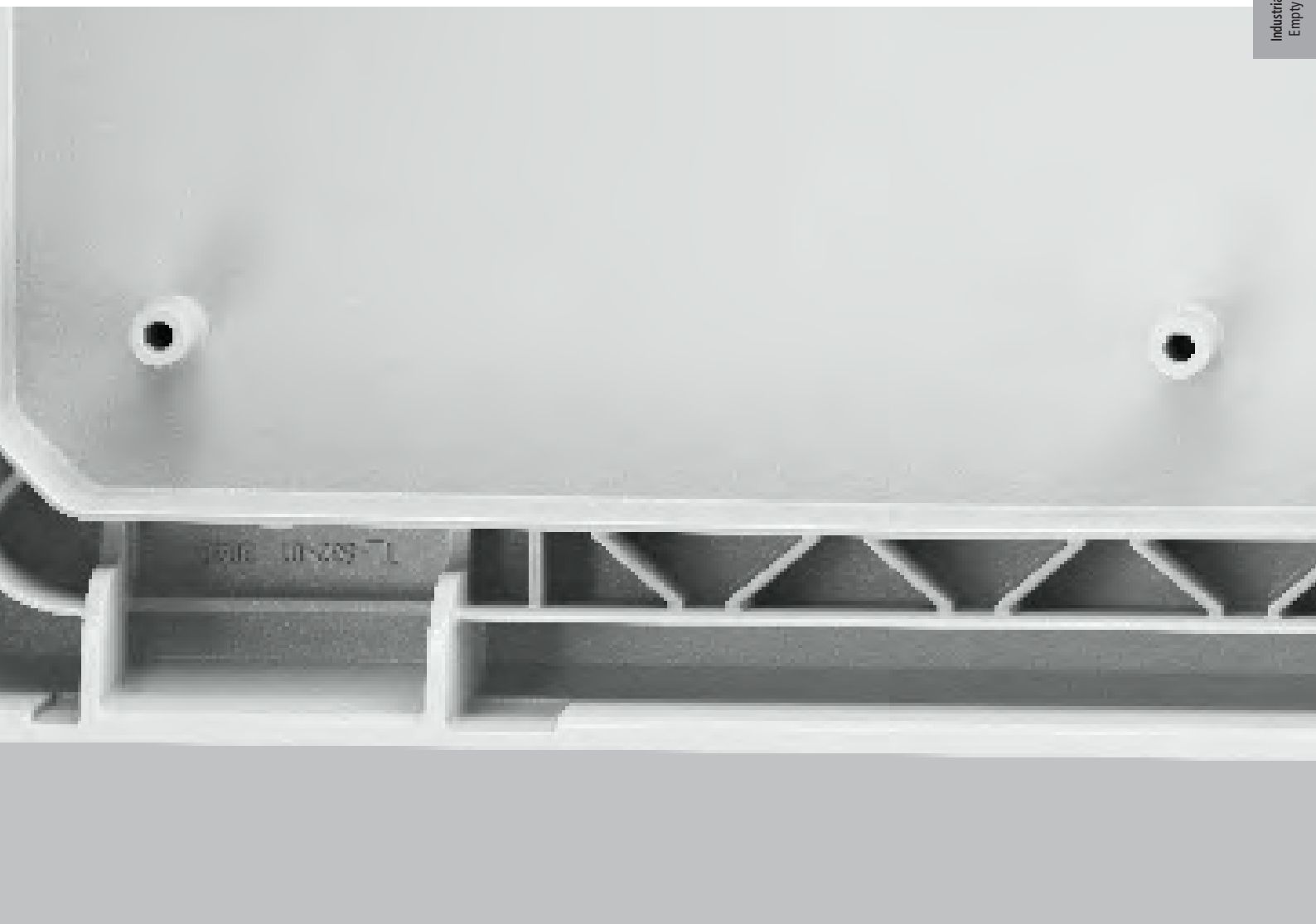
- It prevents the door from accidental slamming
- Fixation of the open door in two optional positions
- Can easily be mounted at any time

Door contact switch

- Integrated in the frame
- It does not require any space in the installation room
- Remote enquiry of opening state in sensitive installation environments

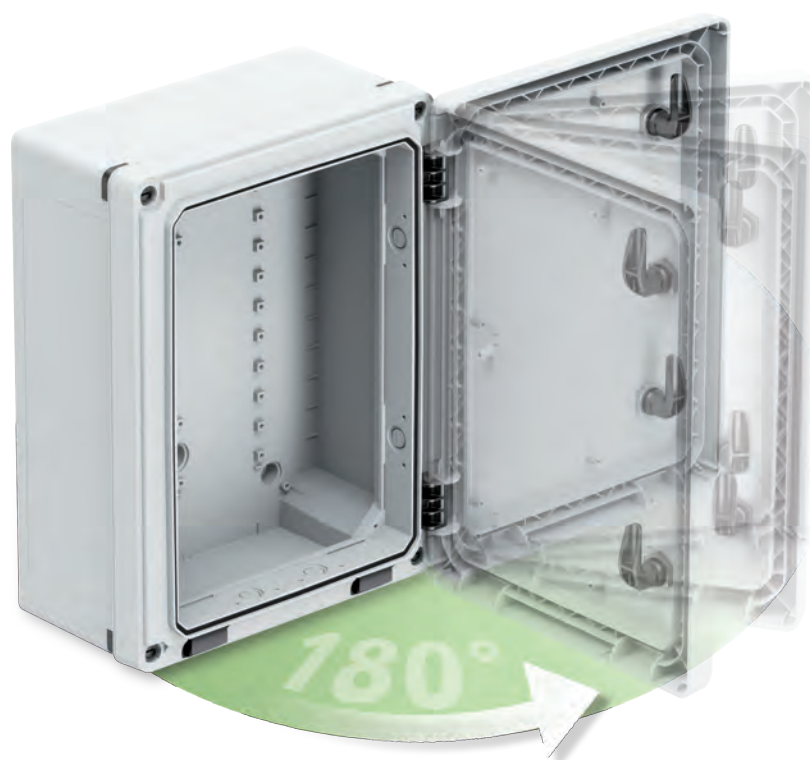
Internal lighting (LED)

- Integrated in the frame
- Easy to mount, pre-fabricated
- Shadow-free lighting of work area



Advantages - doors

- Can be opened quickly and easily and closed safely
- Good operability of components
- No restrictions for the assembly of internal fittings
- Doors with wide opening angle $> 180^\circ$
- Access to the interior space with standard locking system (3 mm - two-bit key)
- Alternative locking inserts available as accessories
- Doors are guided by frames to be solid



Industrial and Outdoor Enclosures

Overview GEOS cabinets

VARIETY



GEOS 3030

- Outside dimensions:
300 x 300 x 180 / 226 mm
- Installation height - Interior:
152 / 198 mm
- Functional surface - Cover:
234 x 234 mm
- Functional surface - Side:
212 x 102 / 148 mm
- Flexible assembly of the side walls
with sealing elements for cable entry

GEOS 3040

- Outside dimensions:
300 x 400 x 180 / 226 mm
- Installation height - Interior:
52 / 198 mm
- Functional surface - Cover:
234 x 334 mm
- Functional surface - Side:
212 x 102 / 148 mm
312 x 102 / 148 mm
- Optimised for installation of flange
plate and heavy plug-in connectors

GEOS 4050

- Outside dimensions:
400 x 500 x 226 mm
- Installation height - Interior:
152 / 198 mm
- Functional surface - Cover:
334 x 434 mm
- Functional surface - Side:
312 x 148 mm
2 surfaces, each 181 x 148 mm
- Suitable for installing the BEL Air M40
ventilation elements to prevent
condensate water

Industrial and Outdoor Enclosures

Overview GEOS empty enclosures



GEOS-L 3030-18-to
300 x 300 x 180 mm
Order-No.: 701 433 01

GEOS-L 3030-22-to
300 x 300 x 226 mm
Order-No.: 701 733 01

GEOS-L 3040-18-to
300 x 400 x 180 mm
Order-No.: 701 434 01

GEOS-L 3040-22-to
300 x 400 x 226 mm
Order-No.: 701 734 01

GEOS-L 4050-22-to
400 x 500 x 226 mm
Order-No.: 701 745 01



GEOS-L 3030-18-o
300 x 300 x 180 mm
Order-No.: 700 433 01

GEOS-L 3030-22-o
300 x 300 x 226 mm
Order-No.: 700 733 01

GEOS-L 3040-18-o
300 x 400 x 180 mm
Order-No.: 700 434 01

GEOS-L 3040-22-o
300 x 400 x 226 mm
Order-No.: 700 734 01

GEOS-L 4050-22-o
400 x 500 x 226 mm
Order-No.: 700 745 01



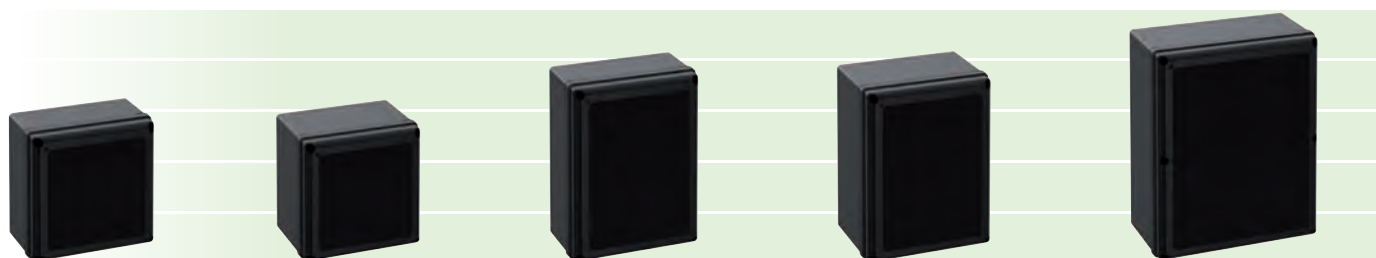
GEOS-L 3030-18-to-sw
300 x 300 x 180 mm
Order-No.: 741 433 01

GEOS-L 3030-22-to-sw
300 x 300 x 226 mm
Order-No.: 741 733 01

GEOS-L 3040-18-to-sw
300 x 400 x 180 mm
Order-No.: 741 434 01

GEOS-L 3040-22-to-sw
300 x 400 x 226 mm
Order-No.: 741 734 01

GEOS-L 4050-22-to-sw
400 x 500 x 226 mm
Order-No.: 741 745 01



GEOS-L 3030-18-o-sw
300 x 300 x 180 mm
Order-No.: 742 433 01

GEOS-L 3030-22-o-sw
300 x 300 x 226 mm
Order-No.: 742 733 01

GEOS-L 3040-18-o-sw
300 x 400 x 180 mm
Order-No.: 742 434 01

GEOS-L 3040-22-o-sw
300 x 400 x 226 mm
Order-No.: 742 734 01

GEOS-L 4050-22-o-sw
400 x 500 x 226 mm
Order-No.: 742 745 01

Industrial and Outdoor Enclosures

Overview GEOS cabinets



GEOS-S 3030-18-to
300 x 300 x 180 mm
Order-No.: 711 433 01



GEOS-S 3030-22-to
300 x 300 x 226 mm
Order-No.: 711 733 01



GEOS-S 3040-18-to
300 x 400 x 180 mm
Order-No.: 711 434 01



GEOS-S 3040-18-to/SH
300 x 400 x 180 mm
Order-No.: 721 734 01



GEOS-S 3040-22-to
300 x 400 x 226 mm
Order-No.: 711 734 01



GEOS-S 3040-22-to/SH
300 x 400 x 226 mm
Order-No.: 721 734 01



GEOS-S 3030-18-o
300 x 300 x 180 mm
Order-No.: 710 433 01



GEOS-S 3030-22-o
300 x 300 x 226 mm
Order-No.: 710 733 01



GEOS-S 3040-18-o
300 x 400 x 180 mm
Order-No.: 710 434 01



GEOS-S 3040-18-o/SH
300 x 400 x 180 mm
Order-No.: 720 434 01



GEOS-S 3040-22-o
300 x 400 x 226 mm
Order-No.: 710 734 01



GEOS-S 3040-22-o/SH
300 x 400 x 226 mm
Order-No.: 720 734 01



GEOS-S 3030-18-o/sw
300 x 300 x 180 mm
Order-No.: 750 433 01



GEOS-S 3030-22-o/sw
300 x 300 x 226 mm
Order-No.: 750 733 01



GEOS-S 3040-18-o/sw
300 x 400 x 180 mm
Order-No.: 750 434 01



GEOS-S 3040-18-o/SH/sw
300 x 400 x 180 mm
Order-No.: 760 434 01



GEOS-S 3040-22-o/sw
300 x 400 x 226 mm
Order-No.: 750 734 01



GEOS-S 3040-22-o/SH/sw
300 x 400 x 226 mm
Order-No.: 760 734 01



GEOS-S 3030-18-to/sw
300 x 300 x 180 mm
Order-No.: 751 433 01



GEOS-S 3030-22-to/sw
300 x 300 x 226 mm
Order-No.: 751 733 01



GEOS-S 3040-18-to/sw
300 x 400 x 180 mm
Order-No.: 751 434 01



GEOS-S 3040-18-to/SH/sw
300 x 400 x 180 mm
Order-No.: 761 434 01



GEOS-S 3040-22-to/sw
300 x 400 x 226 mm
Order-No.: 751 734 01



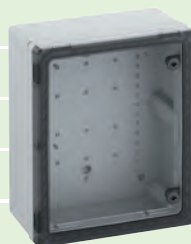
GEOS-S 3040-22-to/SH/sw
300 x 400 x 226 mm
Order-No.: 761 734 01



GEOS-S 4030-18-to
400 x 300 x 180 mm
Order-No.: 711 443 01



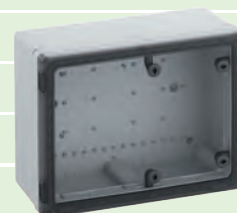
GEOS-S 4030-22-to
400 x 300 x 226 mm
Order-No.: 711 743 01



GEOS-S 4050-22-to
400 x 500 x 226 mm
Order-No.: 711 745 01



GEOS-S 4050-22-to/SH
400 x 500 x 226 mm
Order-No.: 721 745 01



GEOS-S 5040-22-to
500 x 400 x 226 mm
Order-No.: 711 754 01



GEOS-S 4030-18-o
400 x 300 x 180 mm
Order-No.: 710 443 01



GEOS-S 4030-22-o
400 x 300 x 226 mm
Order-No.: 710 743 01



GEOS-S 4050-22-o
400 x 500 x 226 mm
Order-No.: 710 745 01



GEOS-S 4050-22-o/SH
400 x 500 x 226 mm
Order-No.: 720 745 01



GEOS-S 5040-22-o
500 x 400 x 226 mm
Order-No.: 710 754 01



GEOS-S 4030-18-o/sw
400 x 300 x 180 mm
Order-No.: 750 443 01



GEOS-S 4030-22-o/sw
400 x 300 x 226 mm
Order-No.: 750 743 01



GEOS-S 4050-22-o/sw
400 x 500 x 226 mm
Order-No.: 750 745 01



GEOS-S 4050-22-o/SH/sw
400 x 500 x 226 mm
Order-No.: 760 745 01



GEOS-S 5040-22-o/sw
500 x 400 x 226 mm
Order-No.: 750 754 01



GEOS-S 4030-18-to/sw
400 x 300 x 180 mm
Order-No.: 751 443 01



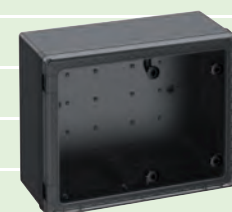
GEOS-S 4030-22-to/sw
400 x 300 x 226 mm
Order-No.: 751 743 01



GEOS-S 4050-22-to/sw
400 x 500 x 226 mm
Order-No.: 751 745 01



GEOS-S 4050-22-to/SH/sw
400 x 500 x 226 mm
Order-No.: 761 745 01



GEOS-S 5040-22-to/sw
500 x 400 x 226 mm
Order-No.: 751 754 01

Industrial and Outdoor Enclosures

GEOS | ventilation | protection against condensate water



The ventilation element - BEL Air

The BEL Air ventilation elements prevent condensation, while maintaining the high IP65 protection rating. Any condensate occurring is transported out of the enclosure immediately via air exchange. The continuous and high rate of air exchange allows the interior air to mix constantly with the environmental air and transports the moisture outwards.

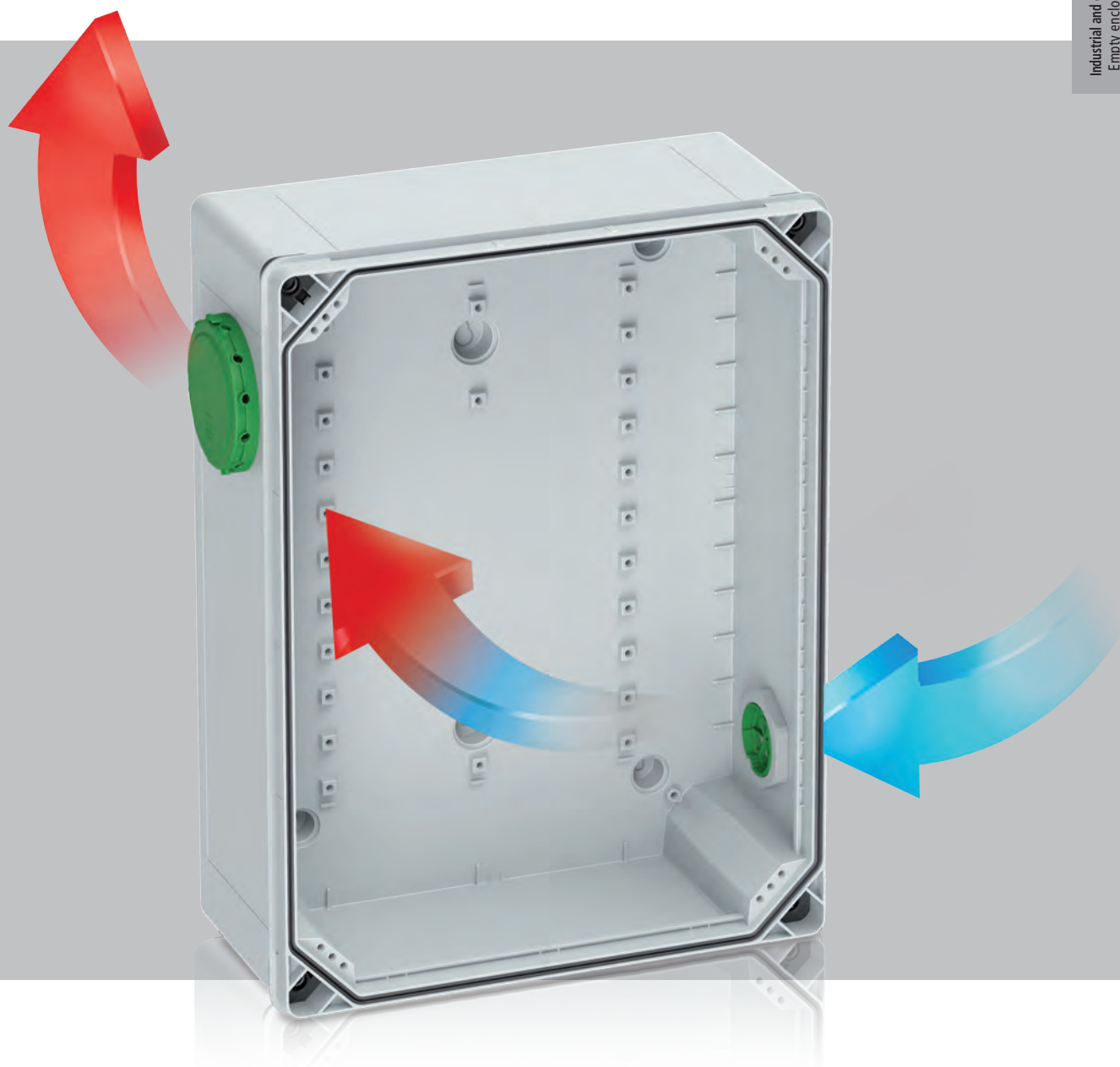
Air exchange also takes place in environments with almost constant air humidity and temperature, as the air in the interior of the enclosure heats up, due to the components. **Due to the permanent pressure equalisation, all the enclosure parts, such as the seal, are relieved of pressure permanently.**



IP65

IK08





Installation option

- M32/40 knockouts in the enclosure bottom
- The wall clearance is suitable for installing BEL Air M40 ventilation elements
- Optional mounting on the sidewalls of the enclosure

Advantages

- Prevention of condensation while maintaining the high IP 65 protection rating
- High air exchange rate
- 100% pressure equalisation
- 100% protection against foreign particles
- Maintenance-free

BEL Air M40

- Recommended quantity of ventilation elements
- GEOS 3030 1 set = 2 pieces
- GEOS 3040 1 set = 2 pieces
- GEOS 4050 2 sets = 4 pieces

Cabinets

GEOS



Cabinets

- Access to the interior space with standard locking system (3 mm - two-bit key)
- Optional alternative locking inserts available as accessories
- Doors are guided by frames to be solid
- Doors with wide opening angle > 180°
- Doors are rigidly mounted on the box
- No restrictions for the assembly of internal fittings
- Suitable for indoor and outdoor installation
- Optimised for rough outdoor applications

Variety

- 44 variants
- Horizontally or vertically format
- Transparent, grey or black doors
- 3 base sizes
- Up to 2 enclosure heights
- Locking system - cam lock or pivoted lever

Safety

- Tested according to IEC 61439
- Comprehensive certifications as per IEC 62208
 - UL 50*
 - UL 50E*
 - CSA 22.2*(*Excluding SH types)
- DNV approved (except GEOS with swivel lever)

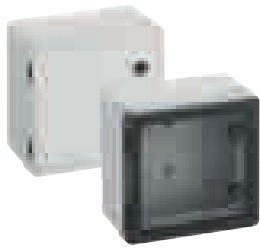


Industrial and Outdoor Enclosures GEOS

Cabinets

GEOS-S 3030-18

300 x 300 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, grey, similar to RAL 7035, door: Polycarbonate.
 Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 3030-18-o	Door, grey	180	71043301
GEOS-S 3030-18-to	Door, transparent	180	71143301

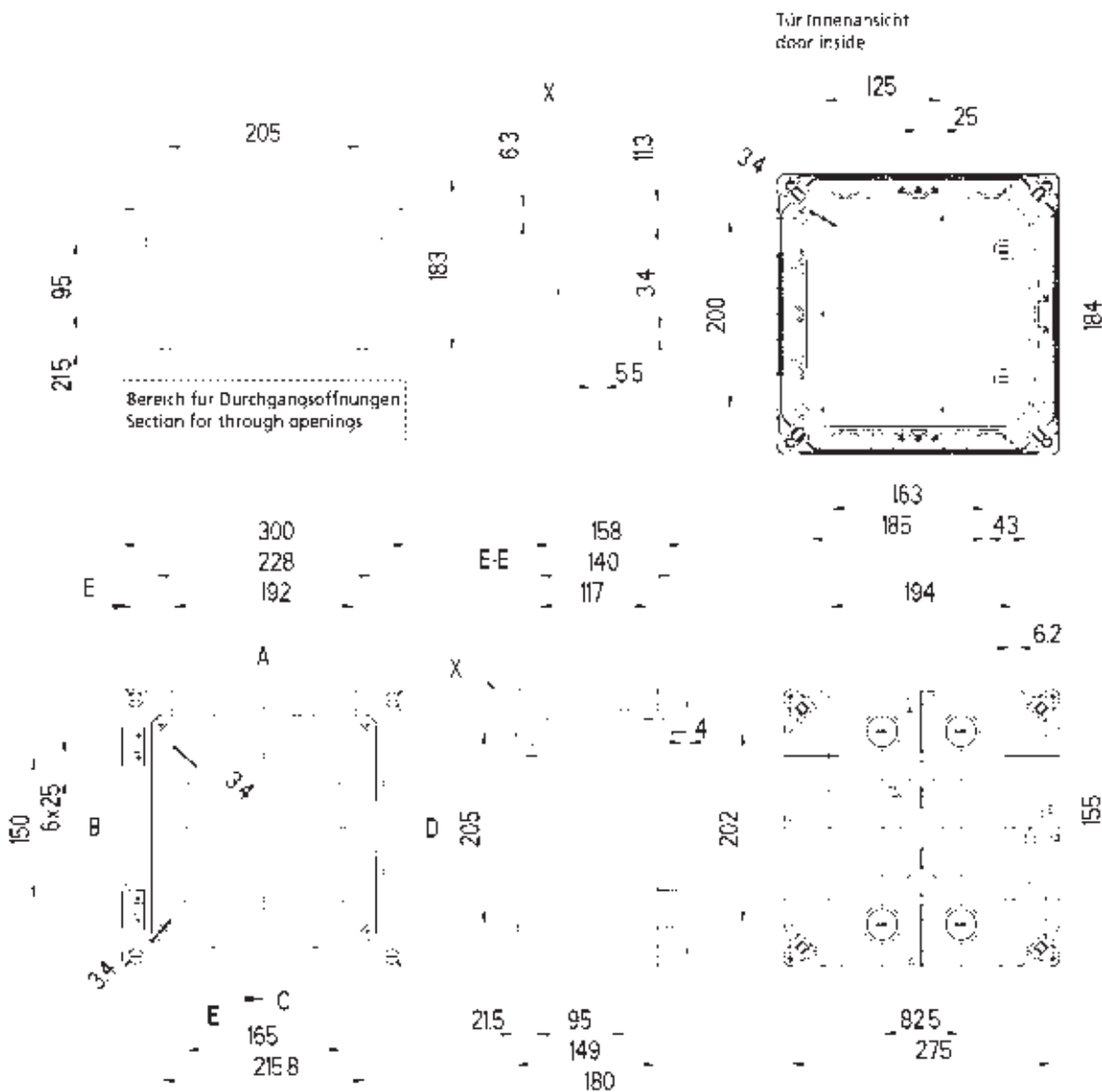
GEOS-S 3030-18/sw

300 x 300 mm



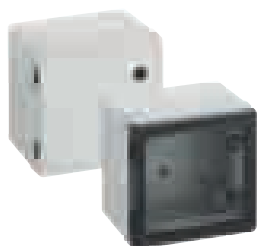
Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, black, similar to RAL 9005, door: Polycarbonate.
 Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 3030-18-o/sw NEW	Door, black	180	75043301
GEOS-S 3030-18-to/sw NEW	Door, transparent	180	75143301



Cabinets

300 x 300 mm



Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

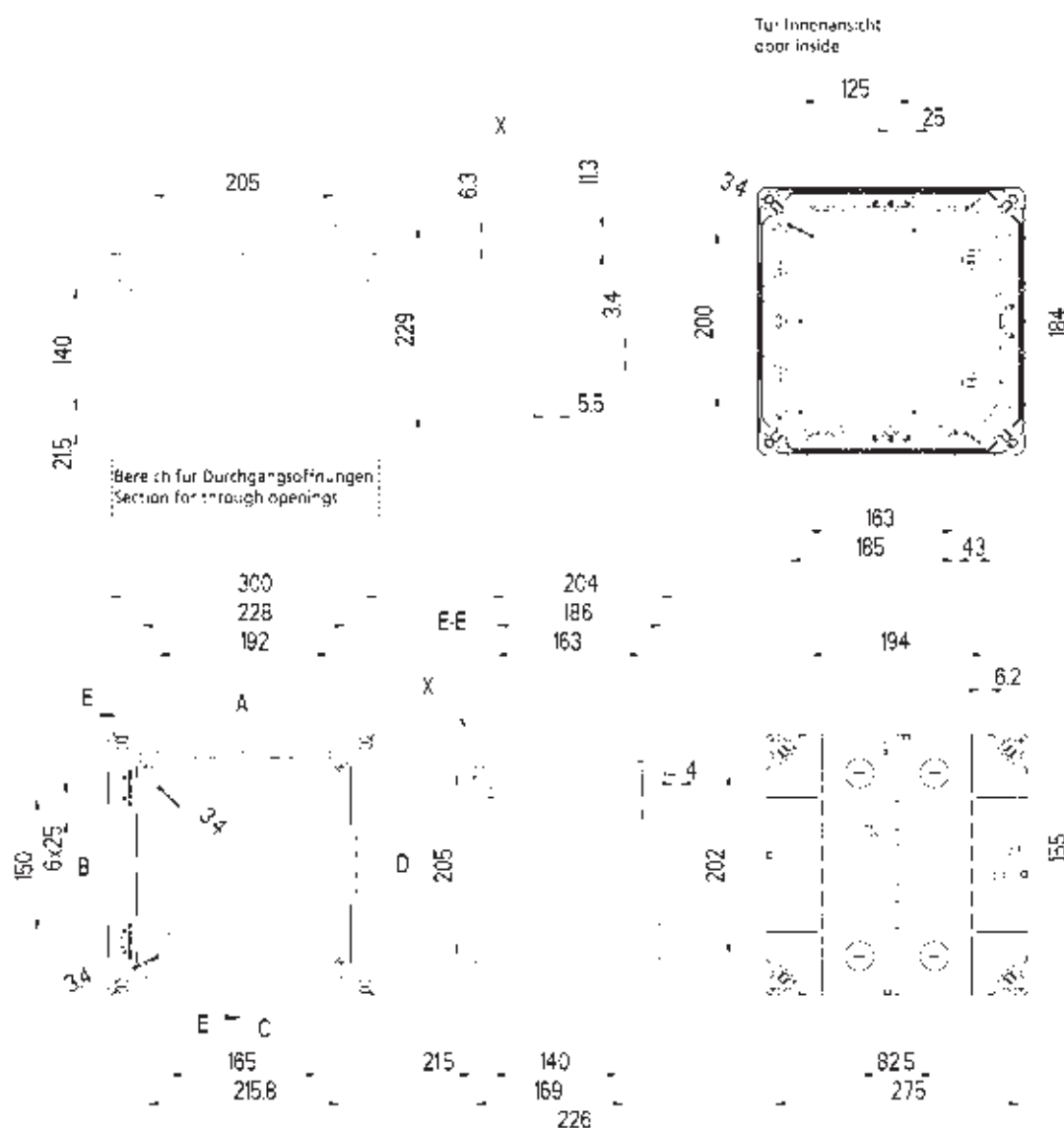
Description	Design	Height/mm	Order no.
GEOS-S 3030-22-o	Door, grey	226	71073301
GEOS-S 3030-22-to	Door, transparent	226	71173301

300 x 300 mm



Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 3030-22-o/sw NEW	Door, black	226	75073301
GEOS-S 3030-22-to/sw NEW	Door, transparent	226	75173301

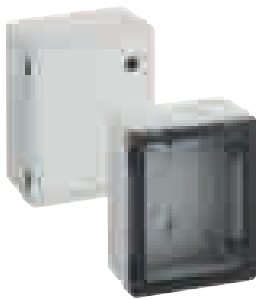


Industrial and Outdoor Enclosures GEOS

Cabinets

GEOS-S 3040-18

300 x 400 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, grey, similar to RAL 7035, door: Polycarbonate.
Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 3040-18-o	Door, grey	180	71043401
GEOS-S 3040-18-to	Door, transparent	180	71143401

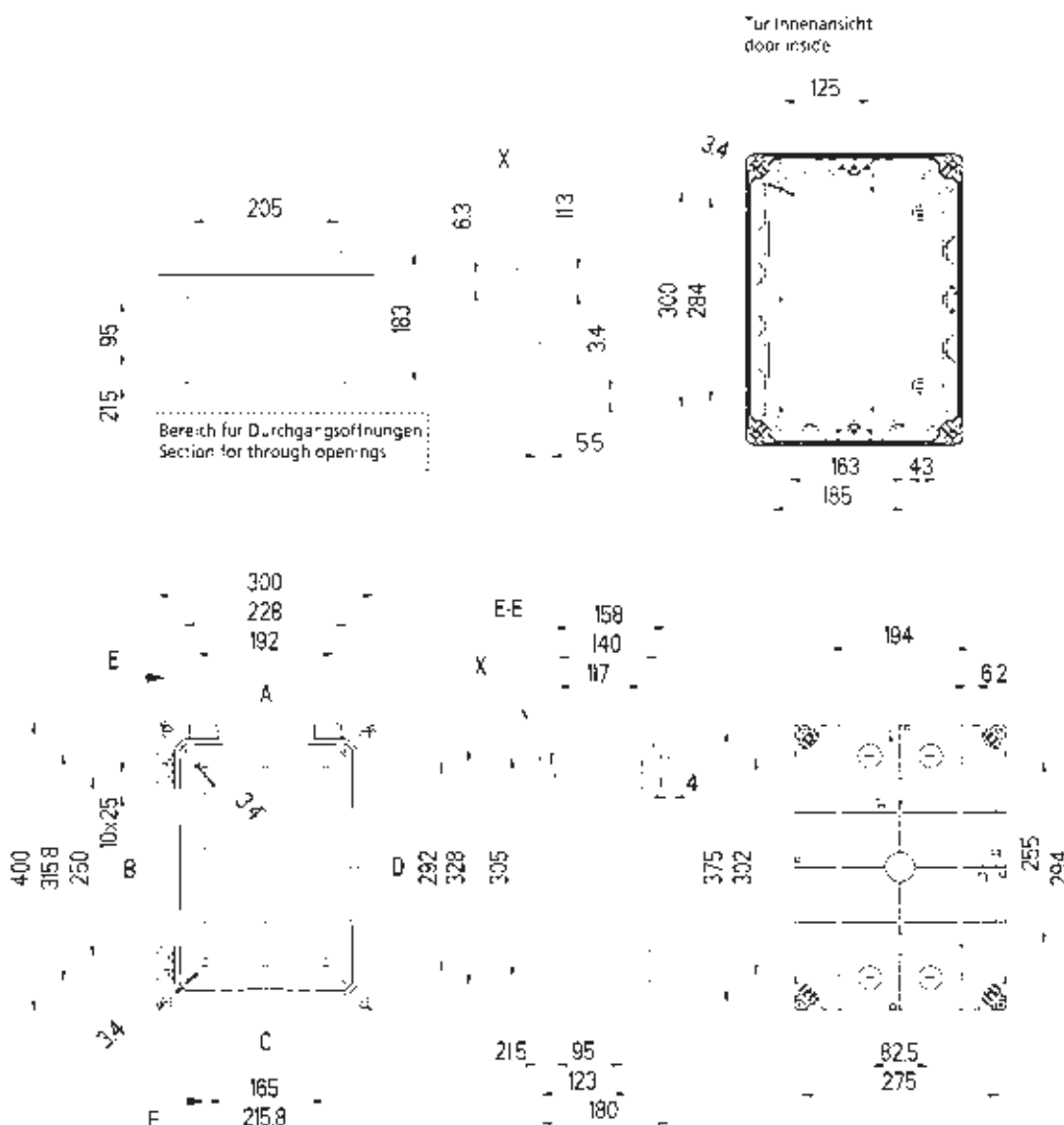
GEOS-S 3040-18/sw

300 x 400 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, black, similar to RAL 9005, door: Polycarbonate.
Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 3040-18-o/sw NEW	Door, black	180	75043401
GEOS-S 3040-18-to/sw NEW	Door, transparent	180	75143401

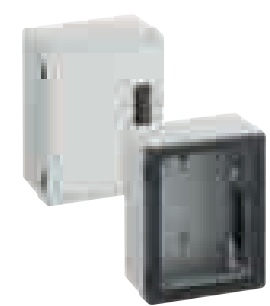


Industrial and Outdoor Enclosures GEOS

Cabinets

GEOS-S 3040-18/SH

300 x 400 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, grey, similar to RAL 7035, door: Polycarbonate.
Swivel lever for inserting profile-cylinders in accordance to DIN 18252

Description	Design	Height/mm	Order no.
GEOS-S 3040-18-o/SH	Door, grey	180	72043401
GEOS-S 3040-18-to/SH	Door, transparent	180	72143401

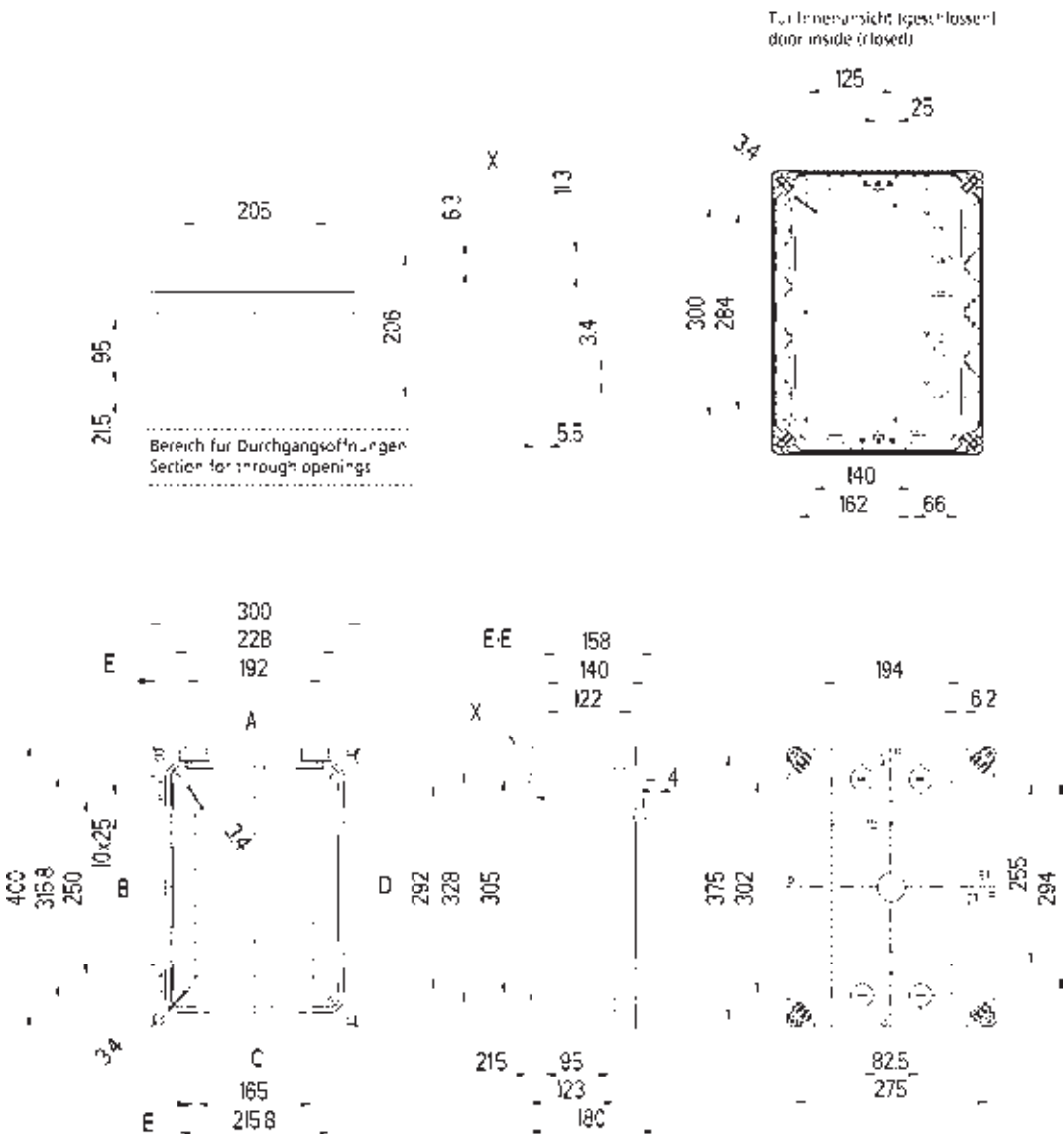
GEOS-S 3040-18/SH/sw

300 x 400 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, black, similar to RAL 9005, door: Polycarbonate.
Swivel lever for inserting profile-cylinders in accordance to DIN 18252

Description	Design	Height/mm	Order no.
GEOS-S 3040-18-o/SH/sw NEW	Door, black	180	76043401
GEOS-S 3040-18-to/SH/sw NEW	Door, transparent	180	76143401



Industrial and Outdoor Enclosures GEOS

Cabinets

GEOS-S 3040-22

300 x 400 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, grey, similar to RAL 7035, door: Polycarbonate.
Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 3040-22-o	Door, grey	226	71073401
GEOS-S 3040-22-to	Door, transparent	226	71173401

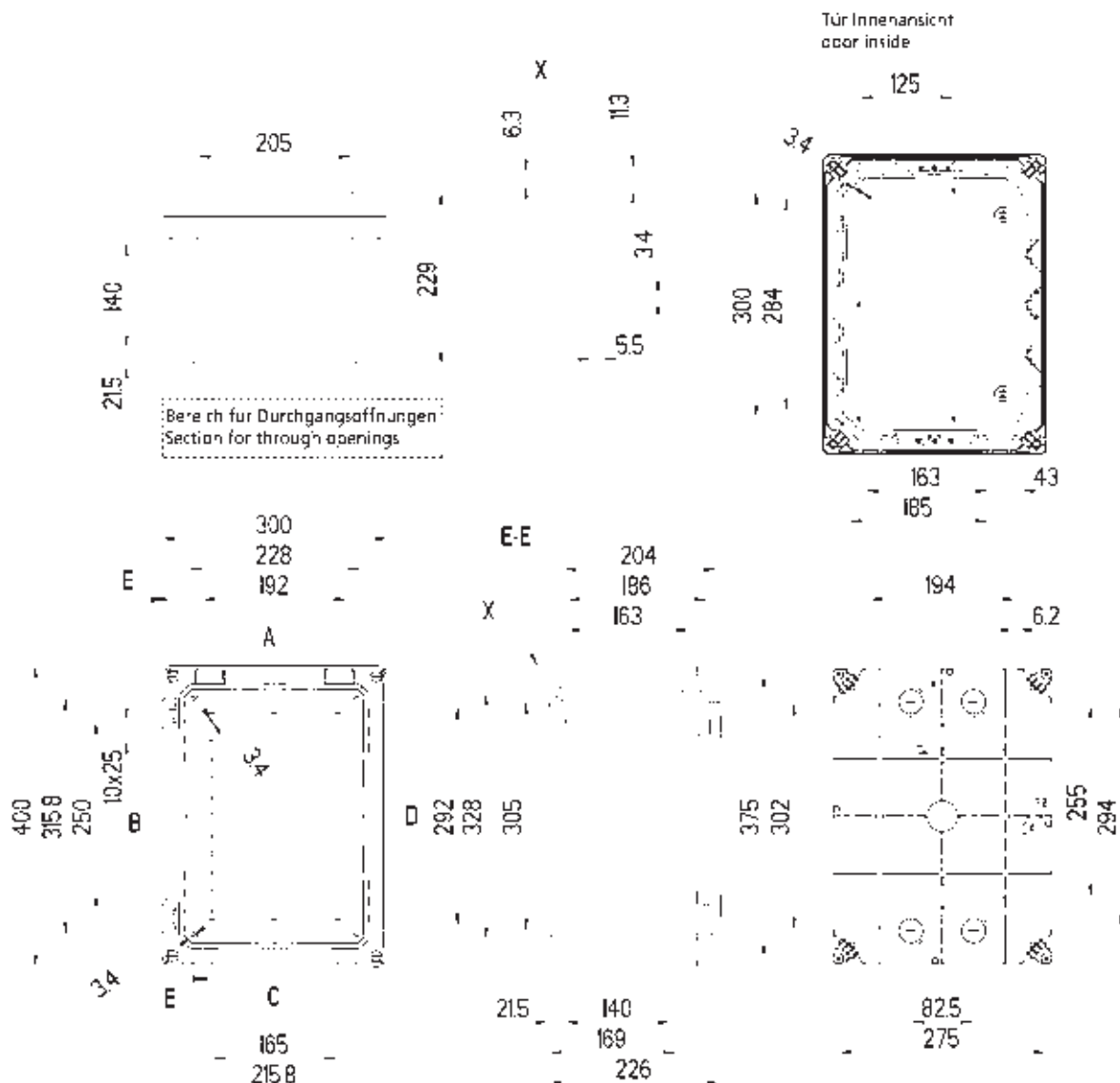
GEOS-S 3040-22/sw

300 x 400 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, black, similar to RAL 9005, door: Polycarbonate.
Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 3040-22-o/sw NEW	Door, black	226	75073401
GEOS-S 3040-22-to/sw NEW	Door, transparent	226	75173401



Industrial and Outdoor Enclosures GEOS

Cabinets

GEOS-S 3040-22/SH

300 x 400 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, grey, similar to RAL 7035, door: Polycarbonate.
Swivel lever for inserting profile-cylinders in accordance to DIN 18252

Description	Design	Height/mm	Order no.
GEOS-S 3040-22-o/SH	Door, grey	226	72073401
GEOS-S 3040-22-to/SH	Door, transparent	226	72173401

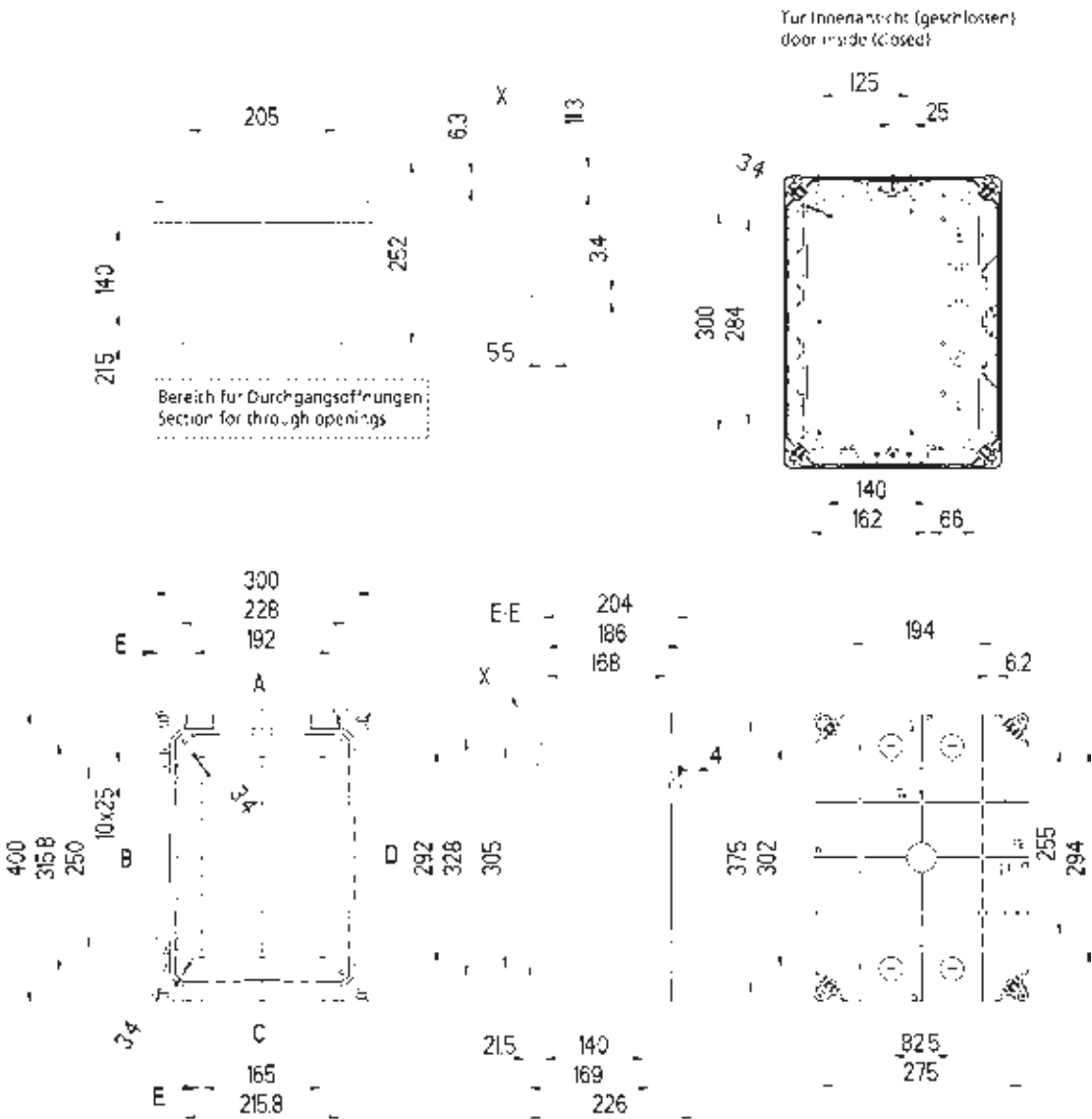
GEOS-S 3040-22/SH/sw

300 x 400 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, black, similar to RAL 9005, door: Polycarbonate.
Swivel lever for inserting profile-cylinders in accordance to DIN 18252

Description	Design	Height/mm	Order no.
GEOS-S 3040-22-o/SH/sw NEW	Door, black	226	76073401
GEOS-S 3040-22-to/SH/sw NEW	Door, transparent	226	76173401

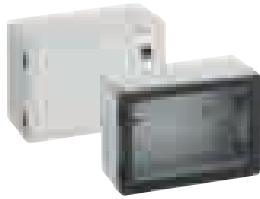


Industrial and Outdoor Enclosures GEOS

Cabinets

GEOS-S 4030-18

400 x 300 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, grey, similar to RAL 7035, door: Polycarbonate.
 Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 4030-18-o	Door, grey	180	71044301
GEOS-S 4030-18-to	Door, transparent	180	71144301

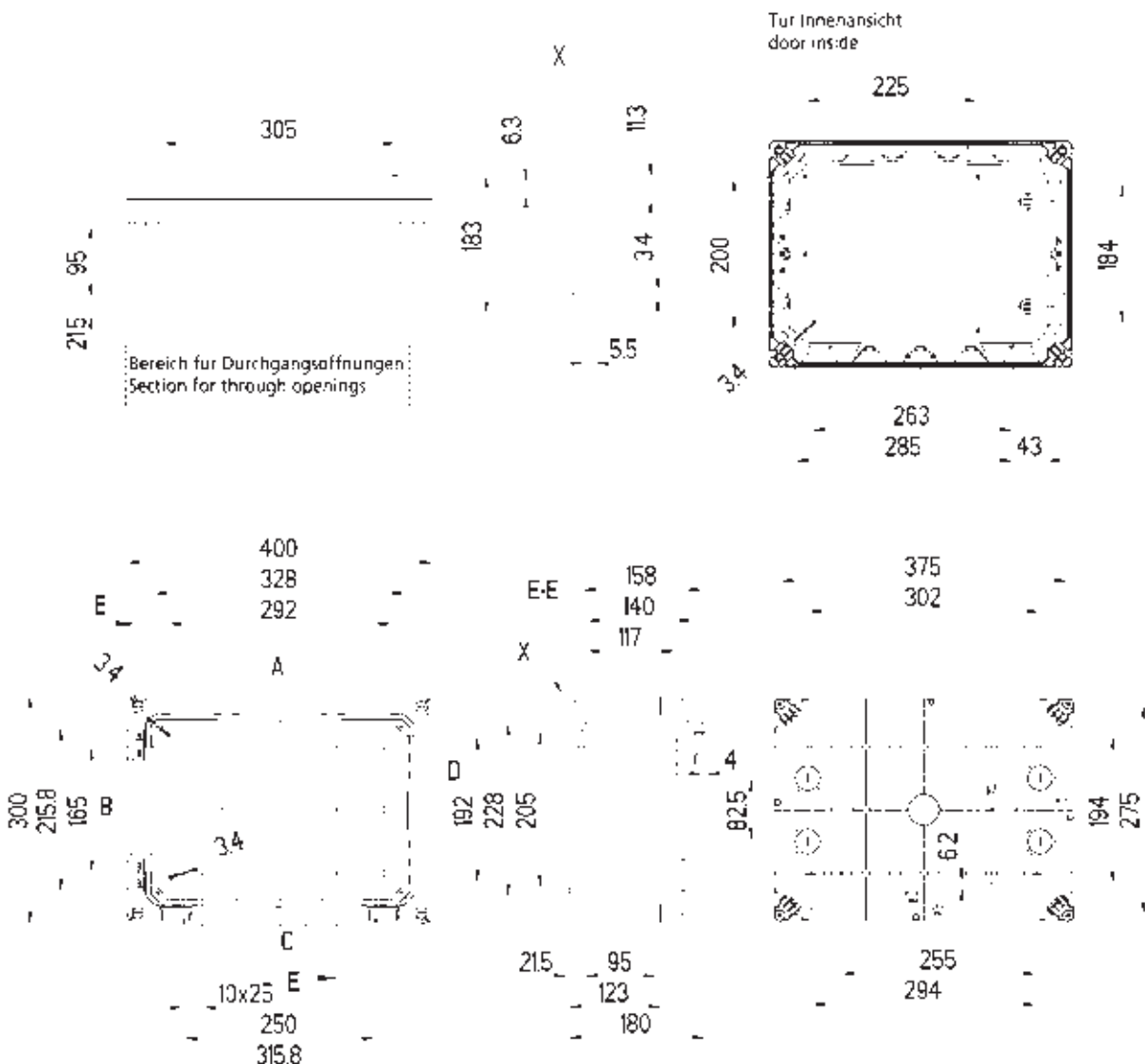
GEOS-S 4030-18/sw

400 x 300 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, black, similar to RAL 9005, door: Polycarbonate.
 Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 4030-18-o/sw NEW	Door, black	180	75044301
GEOS-S 4030-18-to/sw NEW	Door, transparent	180	75144301

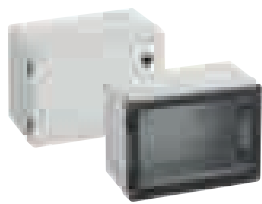


Industrial and Outdoor Enclosures GEOS

Cabinets

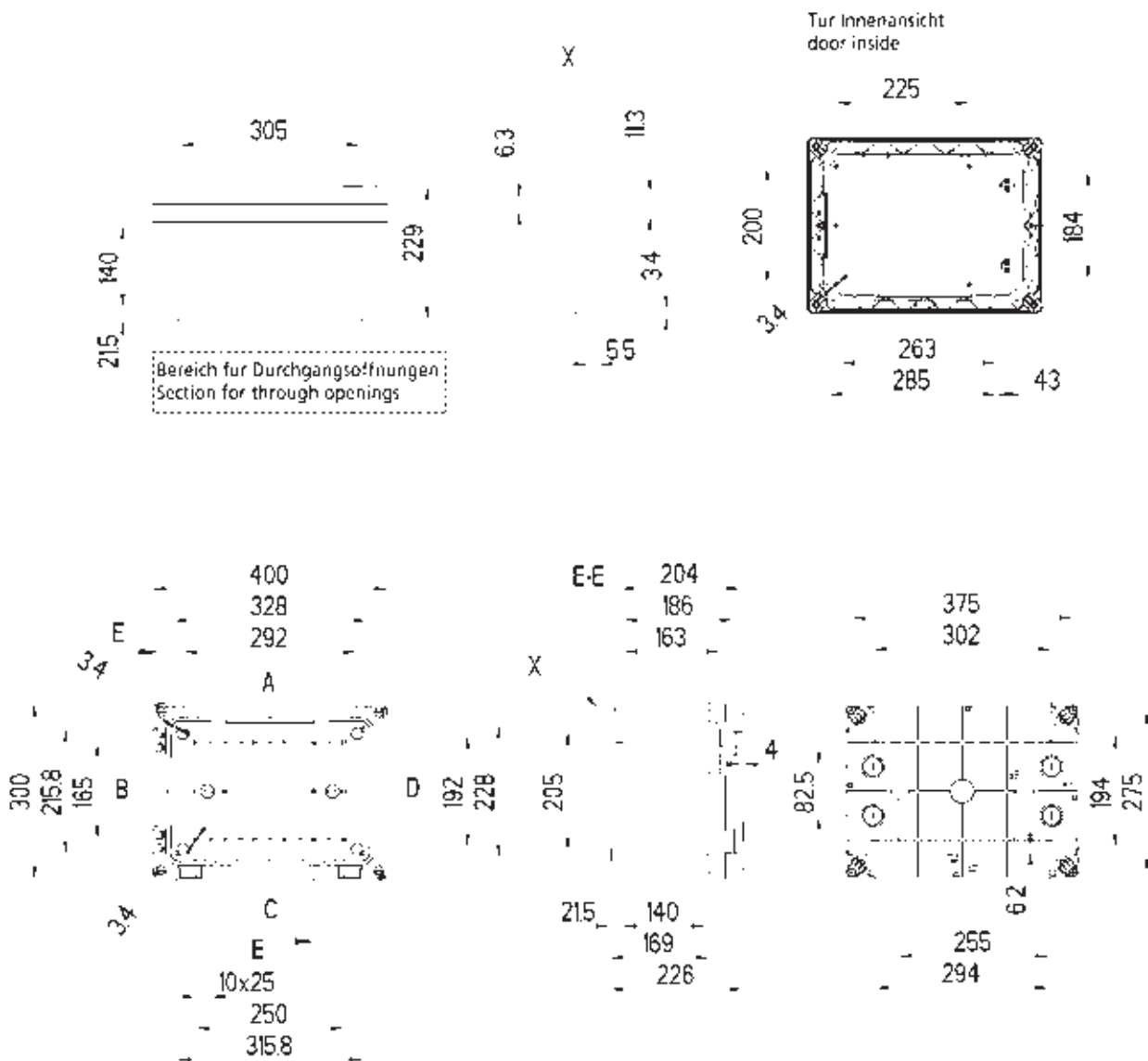
GEOS-S 4030-22

400 x 300 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, grey, similar to RAL 7035, door: Polycarbonate.
Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 4030-22-o	Door, grey	226	71074301
GEOS-S 4030-22-to	Door, transparent	226	71174301

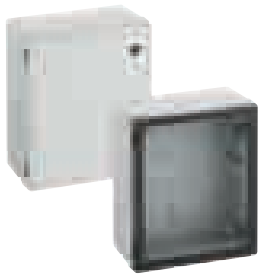


Industrial and Outdoor Enclosures GEOS

Cabinets

GEOS-S 4050-22

400 x 500 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, grey, similar to RAL 7035, door: Polycarbonate.
Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 4050-22-o	Door, grey	226	71074501
GEOS-S 4050-22-to	Door, transparent	226	71174501

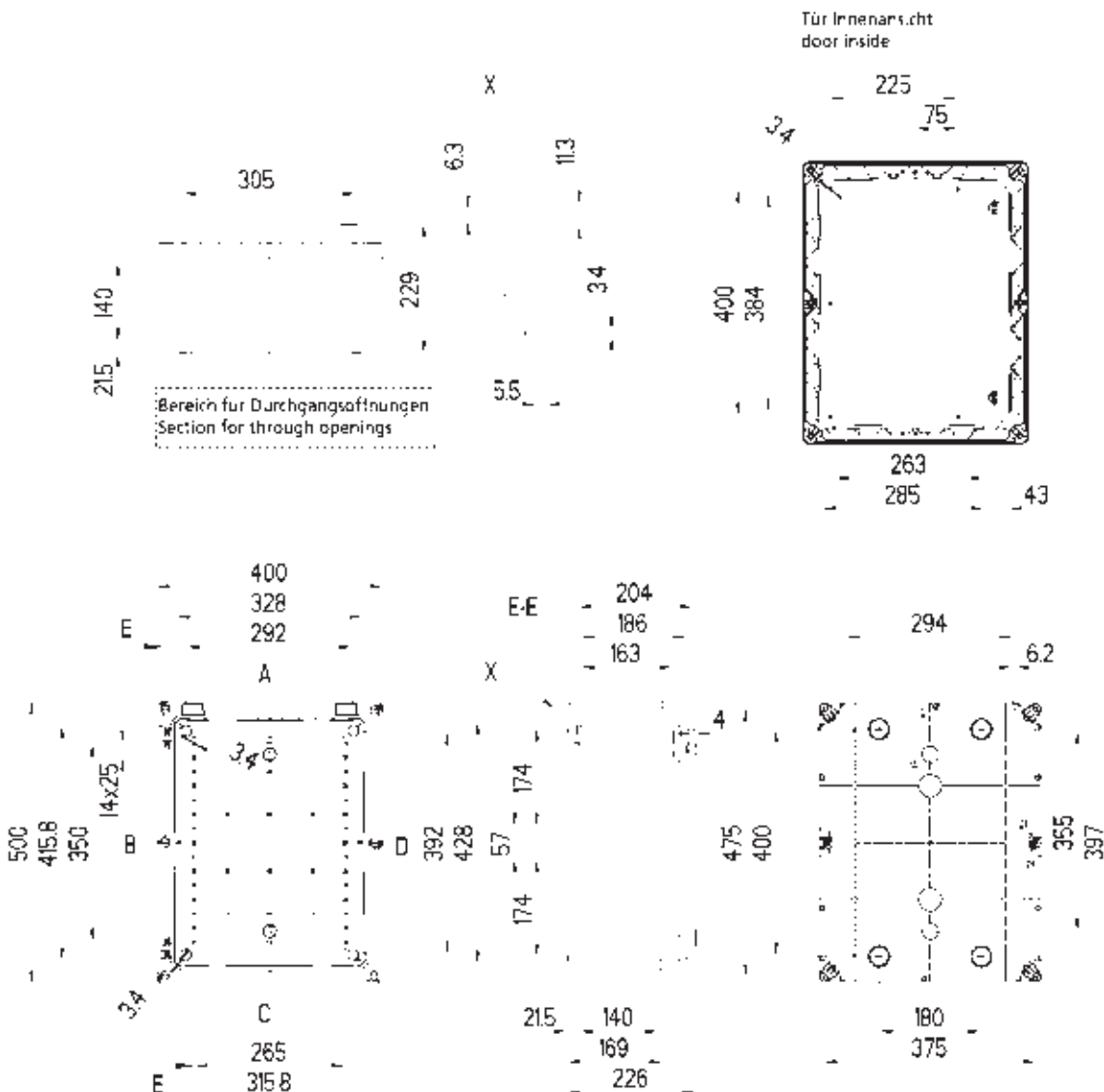
GEOS-S 4050-22/sw

400 x 500 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, black, similar to RAL 9005, door: Polycarbonate.
Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 4050-22-o/sw NEW	Door, black	226	75074501
GEOS-S 4050-22-to/sw NEW	Door, transparent	226	75174501



Cabinets

400 x 500 mm



Swivel lever for inserting profile-cylinders in accordance to DIN 18252

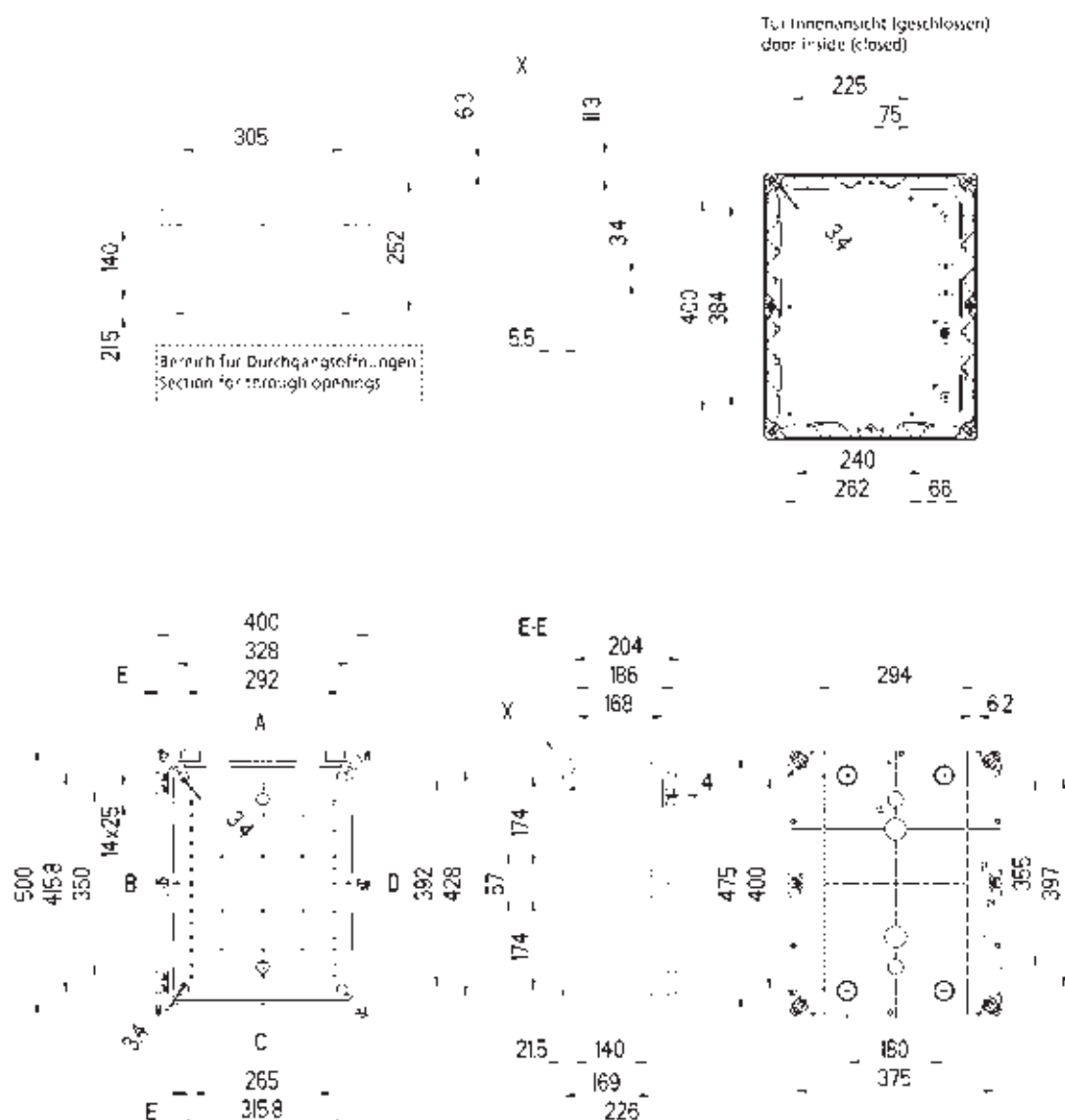
Description	Design	Height/mm	Order no.
GEOS-S 4050-22-o/SH	Door, grey	226	72074501
GEOS-S 4050-22-to/SH	Door, transparent	226	72174501

400 x 500 mm



Swivel lever for inserting profile-cylinders in accordance to DIN 18252

Description	Design	Height/mm	Order no.
GEOS-S 4050-22-o/SH/sw NEW	Door, black	226	76074501
GEOS-S 4050-22-to/SH/sw NEW	Door, transparent	226	76174501

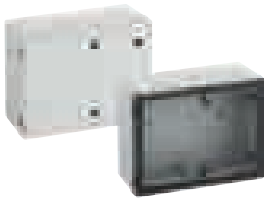


Industrial and Outdoor Enclosures GEOS

Cabinets

GEOS-S 5040-22

500 x 400 mm

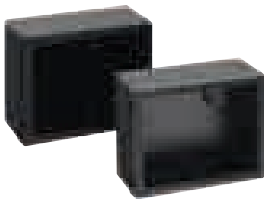


Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, grey, similar to RAL 7035, door: Polycarbonate.
Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 5040-22-o	Door, grey	226	71075401
GEOS-S 5040-22-to	Door, transparent	226	71175401

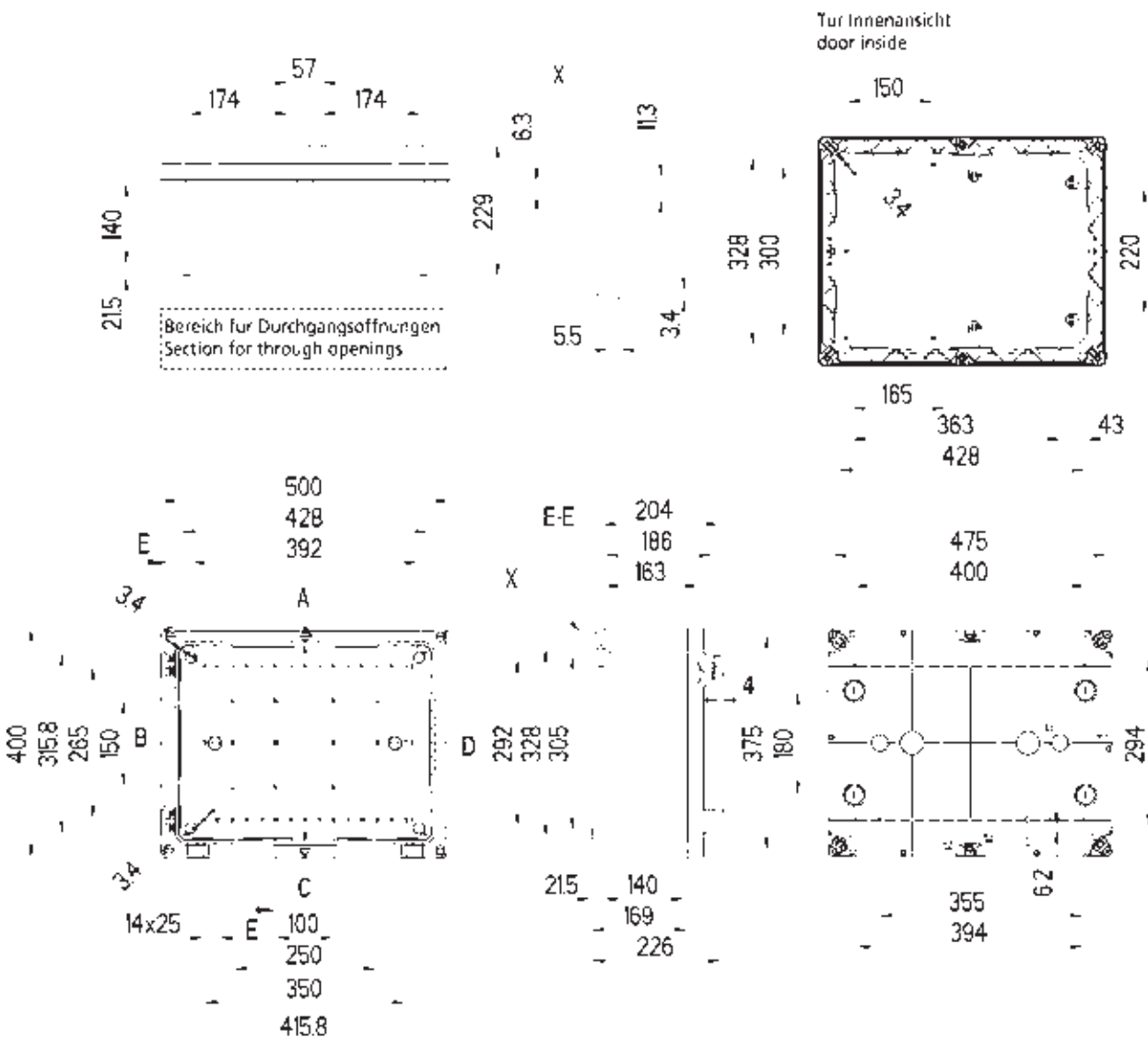
GEOS-S 5040-22/sw

500 x 400 mm



Cabinet - Industrial Quality, suitable for installation in harsh environments and in exposed outside areas, box and frame: glass-fibre reinforced polycarbonate, black, similar to RAL 9005, door: Polycarbonate.
Twist lock with 3mm double-bit insert (interchangeable) in accordance to DIN 43668

Description	Design	Height/mm	Order no.
GEOS-S 5040-22-o/sw NEW	Door, black	226	75075401
GEOS-S 5040-22-to/sw NEW	Door, transparent	226	75175401



Empty enclosures

GEOS



Empty enclosures

- Suitable for indoor and outdoor installation
- High impact resistance
- UV and corrosion resistant
- Various lid closures

Variety

- 20 variants
- 3 base sizes
- Up to 2 enclosure heights
- Covers and doors grey or transparent
- Now also black **NEW!**
enclosures and cabinets with black and transparent covers available

Safety

- Tested according to IEC 61439
- Comprehensive certifications as per IEC 62208
UL 50
UL 50E
CSA 22.2
- DNV approved
(except GEOS with swivel lever)



Industrial and Outdoor Enclosures GEOS

Empty Enclosures

GEOS-L 3030-18

300 x 300 mm



Empty enclosure - Industrial Quality -, suitable for installation in harsh environments and exposed outside areas, base: glass fibre reinforced polycarbonate, grey, similar to RAL 7035, cover: Polycarbonate

Description	Design	Height/mm	Order no.
GEOS-L 3030-18-o	Cover, grey	180	70043301
GEOS-L 3030-18-to	Cover, transparent	180	70143301

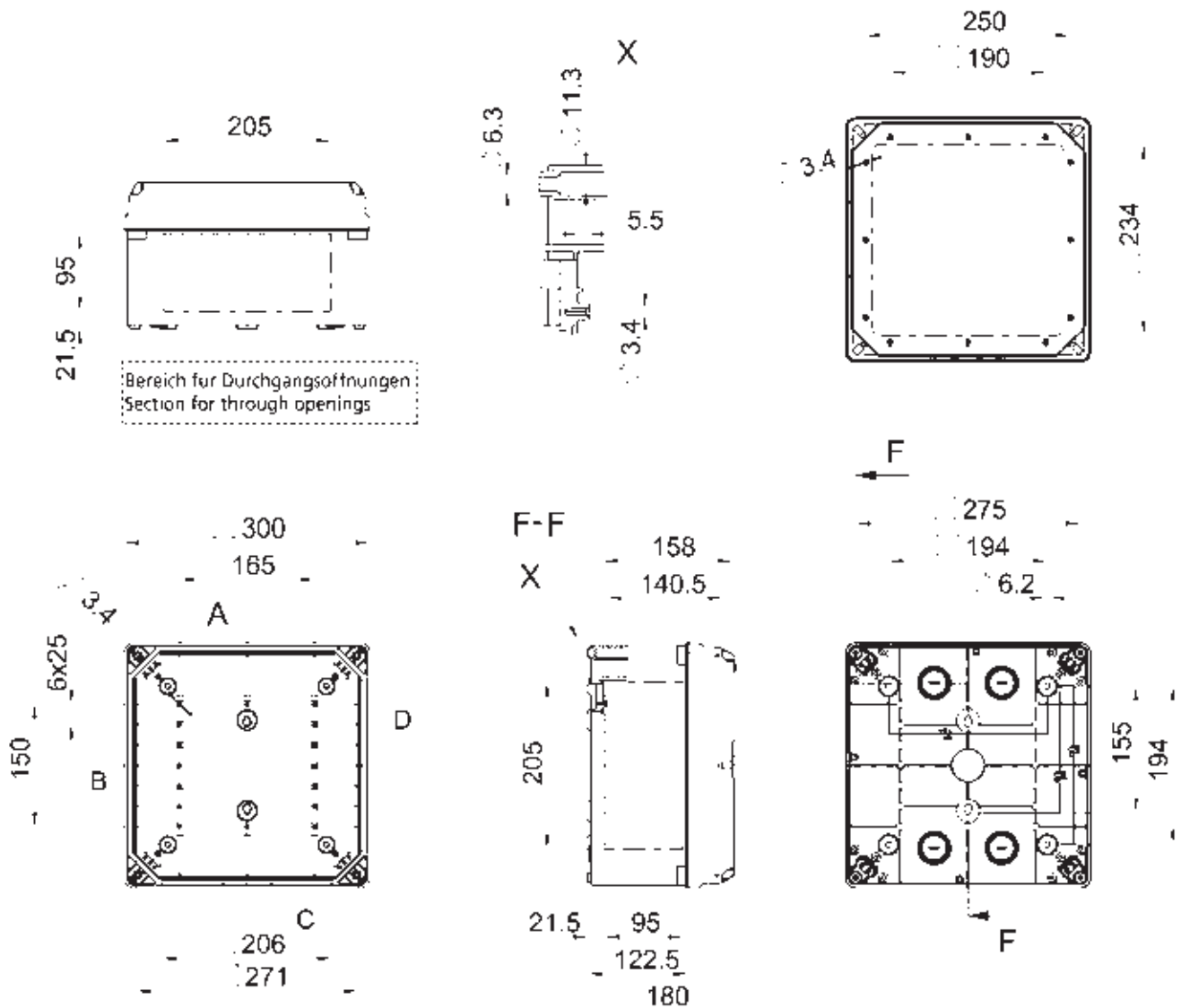
GEOS-L 3030-18/sw

300 x 300 mm



Empty enclosure - Industrial quality, suitable for installation in harsh environments and in unprotected outdoor areas, Box: fibreglass-reinforced polycarbonate, black, similar to RAL 9005, Cover: Polycarbonate

Description	Design	Height/mm	Order no.
GEOS-L 3030-18-o/sw NEW	Cover, black	180	74243301
GEOS-L 3030-18-to/sw NEW	Cover, transparent	180	74143301



Industrial and Outdoor Enclosures GEOS

Empty Enclosures

GEOS-L 3030-22

300 x 300 mm



Empty enclosure - Industrial Quality -, suitable for installation in harsh environments and exposed outside areas, base: glass fibre reinforced polycarbonate, grey, similar to RAL 7035, cover: Polycarbonate

Description	Design	Height/mm	Order no.
GEOS-L 3030-22-o	Cover, grey	226	70073301
GEOS-L 3030-22-to	Cover, transparent	226	70173301

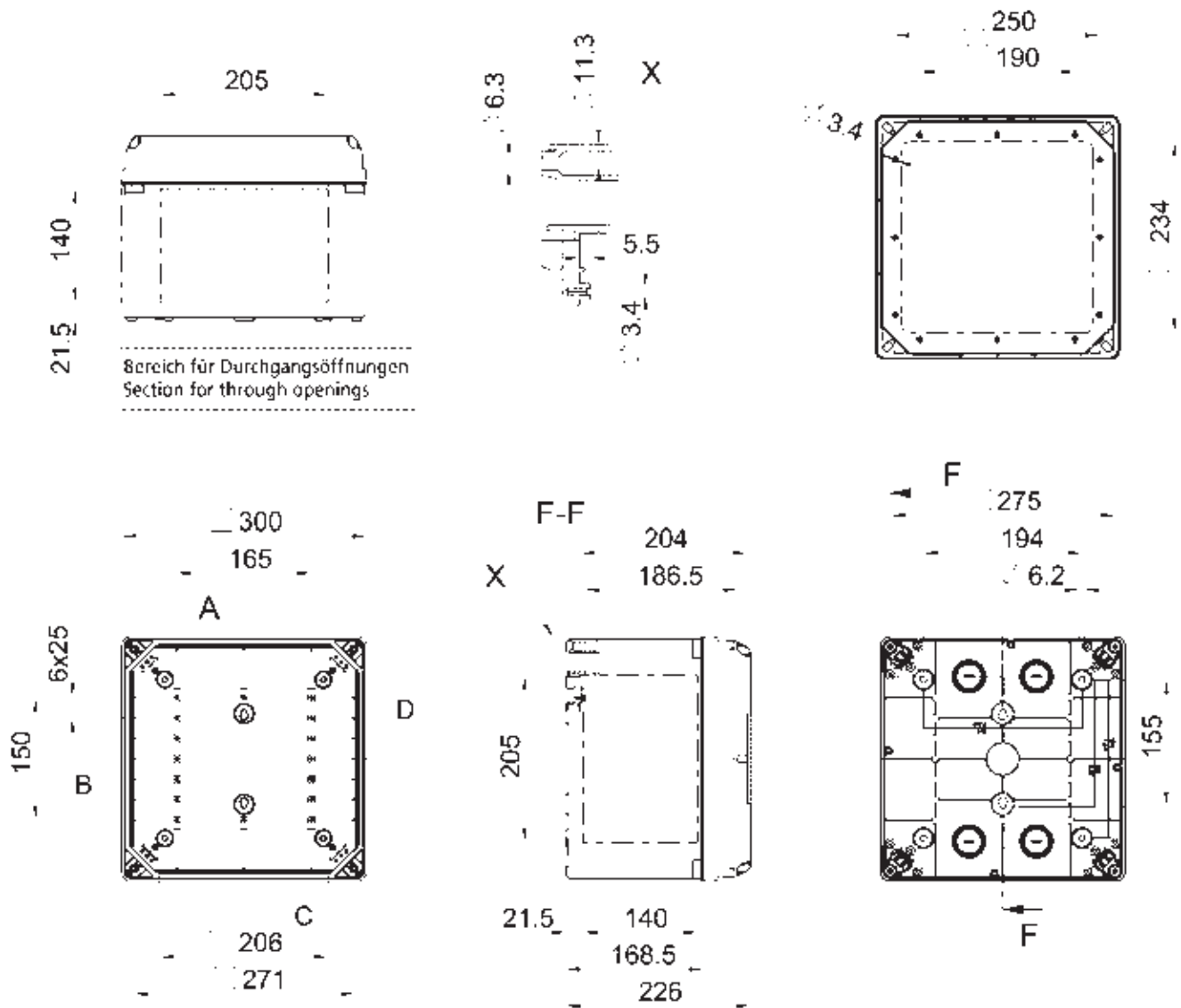
GEOS-L 3030-22/sw

300 x 300 mm



Empty enclosure - Industrial quality, suitable for installation in harsh environments and in unprotected outdoor areas, Box: fibreglass-reinforced polycarbonate, black, similar to RAL 9005, Cover: Polycarbonate

Description	Design	Height/mm	Order no.
GEOS-L 3030-22-o/sw NEW	Cover, black	226	74273301
GEOS-L 3030-22-to/sw NEW	Cover, transparent	226	74173301



Industrial and Outdoor Enclosures GEOS

Empty Enclosures

GEOS-L 3040-18

300 x 400 mm



Empty enclosure - Industrial Quality -, suitable for installation in harsh environments and exposed outside areas, base: glass fibre reinforced polycarbonate, grey, similar to RAL 7035, cover: Polycarbonate

Description	Design	Height/mm	Order no.
GEOS-L 3040-18-o	Cover, grey	180	70043401
GEOS-L 3040-18-to	Cover, transparent	180	70143401

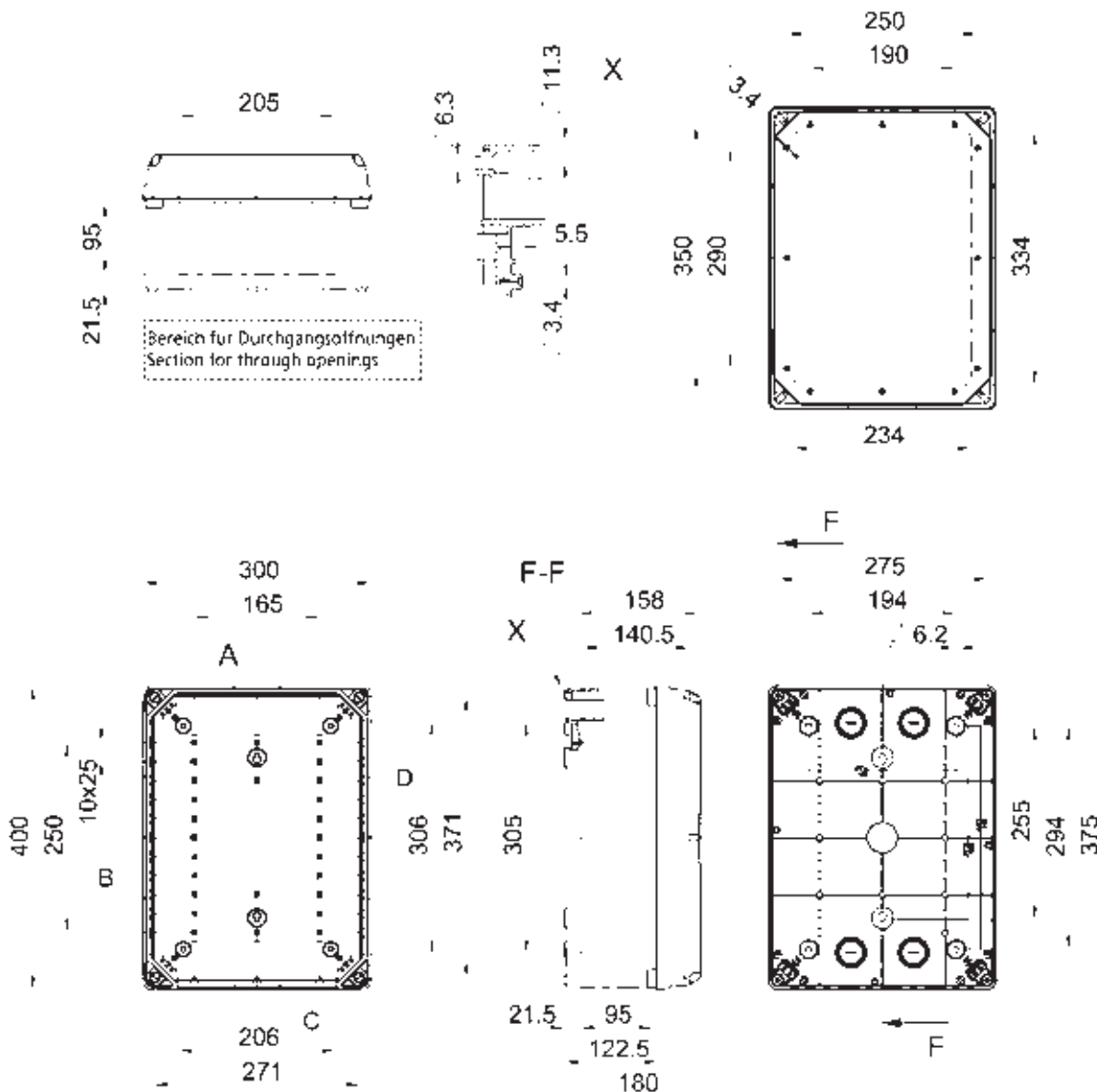
GEOS-L 3040-18/sw

300 x 400 mm



Empty enclosure - Industrial quality, suitable for installation in harsh environments and in unprotected outdoor areas, Box: fibreglass-reinforced polycarbonate, black, similar to RAL 9005, Cover: Polycarbonate

Description	Design	Height/mm	Order no.
GEOS-L 3040-18-o/sw NEW	Cover, black	180	74243401
GEOS-L 3040-18-to/sw NEW	Cover, transparent	180	74143401



Industrial and Outdoor Enclosures GEOS

Empty Enclosures

GEOS-L 3040-22

300 x 400 mm



Empty enclosure - Industrial Quality -, suitable for installation in harsh environments and exposed outside areas, base: glass fibre reinforced polycarbonate, grey, similar to RAL 7035, cover: Polycarbonate

Description	Design	Height/mm	Order no.
GEOS-L 3040-22-o	Cover, grey	226	70073401
GEOS-L 3040-22-to	Cover, transparent	226	70173401

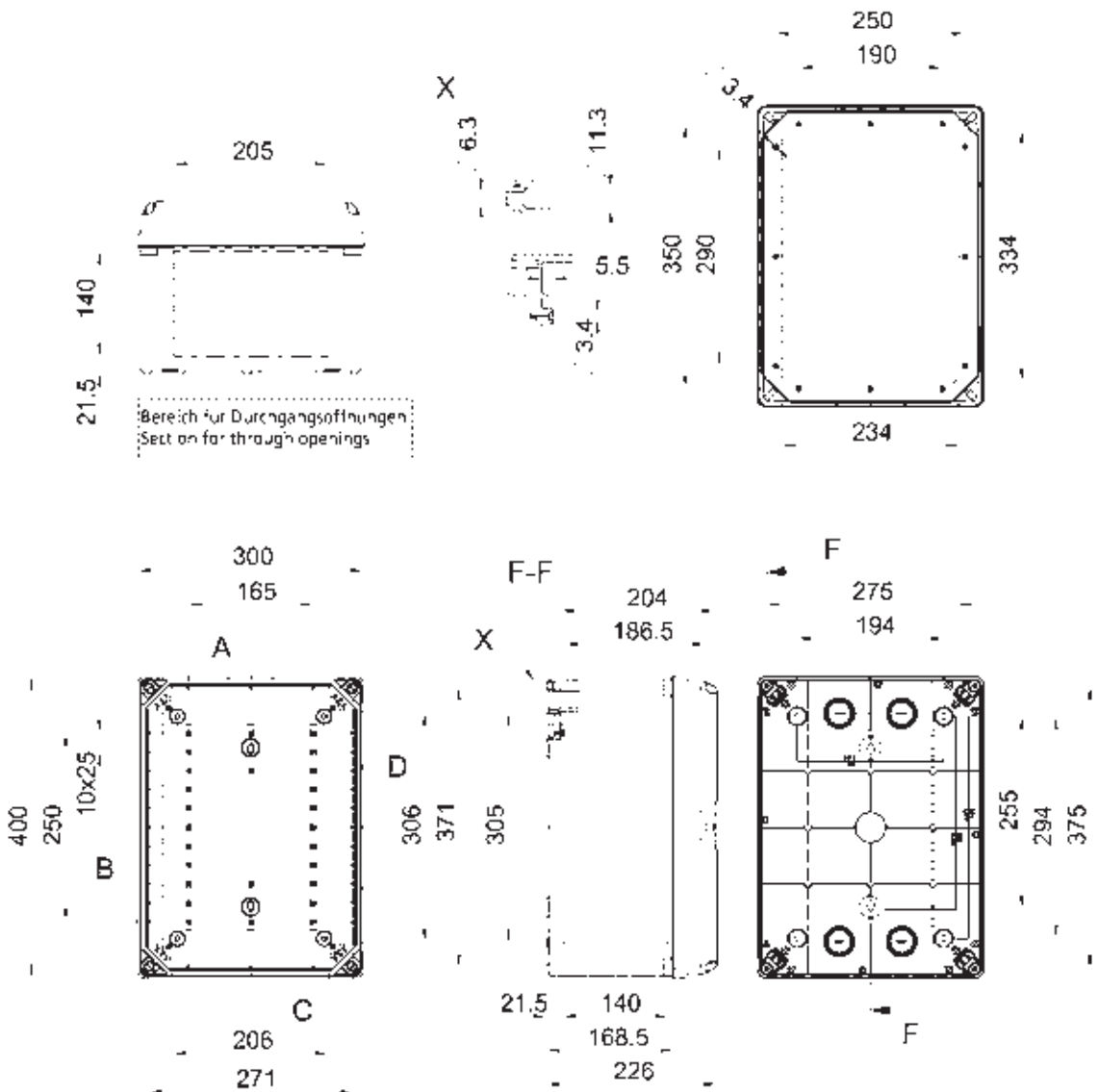
GEOS-L 3040-22/sw

300 x 400 mm



Empty enclosure - Industrial quality, suitable for installation in harsh environments and in unprotected outdoor areas, Box: fibreglass-reinforced polycarbonate, black, similar to RAL 9005, Cover: Polycarbonate

Description	Design	Height/mm	Order no.
GEOS-L 3040-22-o/sw NEW	Cover, black	226	74273401
GEOS-L 3040-22-to/sw NEW	Cover, transparent	226	74173401



Industrial and Outdoor Enclosures GEOS

Empty Enclosures

GEOS-L 4050-22

400 x 500 mm



Empty enclosure - Industrial Quality -, suitable for installation in harsh environments and exposed outside areas, base: glass fibre reinforced polycarbonate, grey, similar to RAL 7035, cover: Polycarbonate

Description	Design	Height/mm	Order no.
GEOS-L 4050-22-o	Cover, grey	226	70074501
GEOS-L 4050-22-to	Cover, transparent	226	70174501

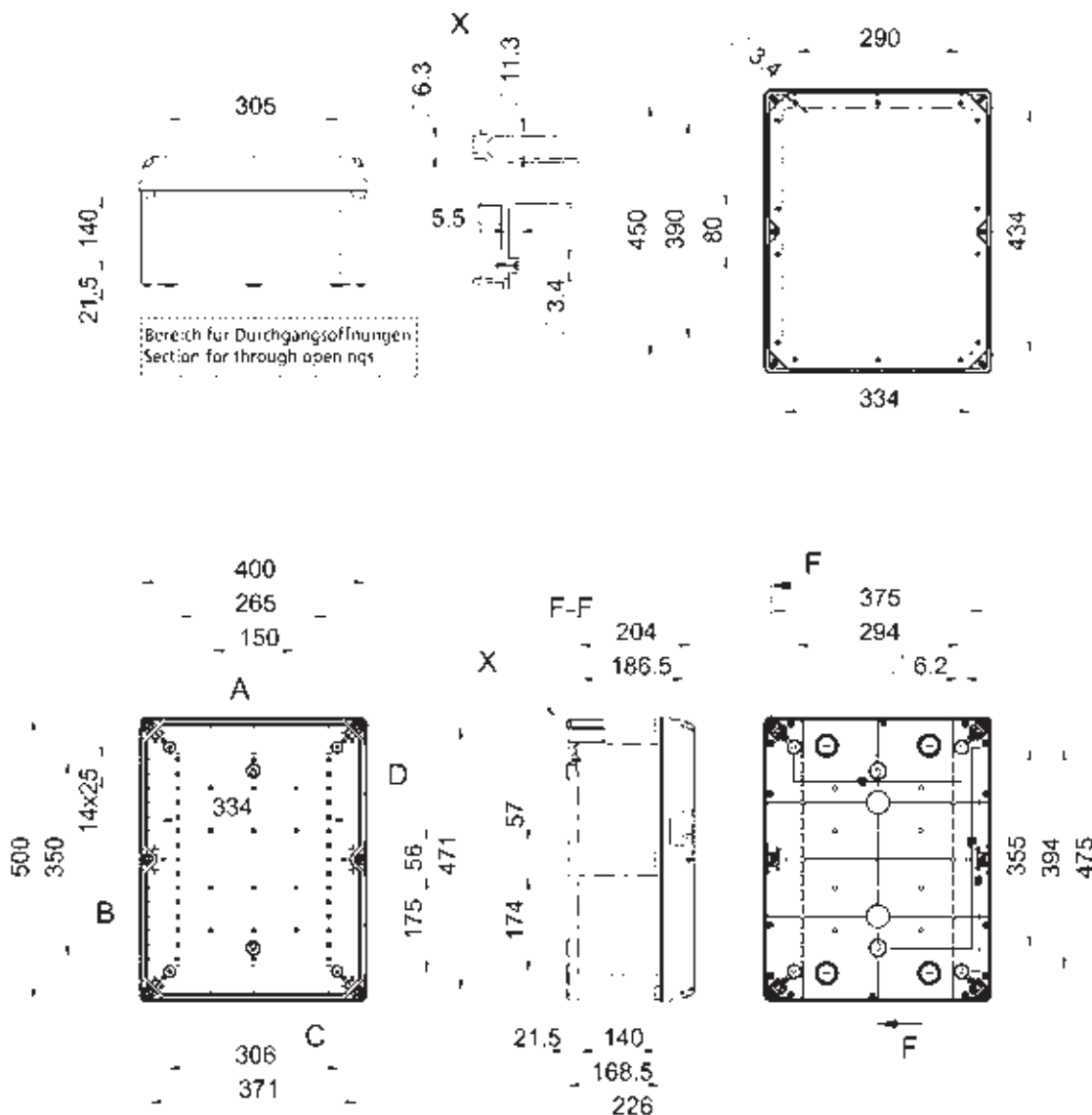
GEOS-L 4050-22/sw

400 x 500 mm



Empty enclosure - Industrial quality, suitable for installation in harsh environments and in unprotected outdoor areas, Box: fibreglass-reinforced polycarbonate, black, similar to RAL 9005, Cover: Polycarbonate

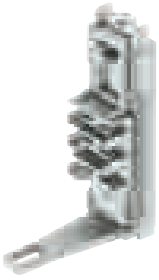
Description	Design	Height/mm	Order no.
GEOS-L 4050-22-o/sw NEW	Cover, black	226	74274501
GEOS-L 4050-22-to/sw NEW	Cover, transparent	226	74174501



Industrial and Outdoor Enclosures GEOS

GEOS Universal Accessories

Mounting holder 35/7.5



Mounting holder set, for tool-free mounting of standard rails 35 x 7.5 mm and mounting plates at various heights, set = 4 pcs.

Description	Order no.
GEOS MH-18 for GEOS-L/S 3030-18, GEOS-L/S 3040-18, GEOS-S 4030-18	72002201
GEOS MH-22 for GEOS-L/S 3030-22, GEOS-L/S 3040-22, GEOS-L/S 4050-22, GEOS-S 4030-22, GEOS-S 5040-22	72002301

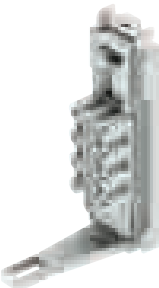
Mounting holder 35/15



Mounting holder set, for tool-free mounting of standard rails 35 x 15 mm and assembly plates at various heights, set = 4 pieces

Description	Order no.
GEOS MH-18 NS35/15 for GEOS-L/S 3030-18, GEOS-L/S 3040-18, GEOS-S 4030-18	72002401
GEOS MH-22 NS35/15 for GEOS-L/S 3030-22, GEOS-L/S 3040-22, GEOS-L/S 4050-22, GEOS-S 4030-22, GEOS-S 5040-22	72002501

Universal mounting holder



Universal mounting holder set, for mounting of standard rail GEOS NS 35-200 to 400 at various heights, assembly plate and additional fittings, set = 4 pieces

Description	Order no.
GEOS MHU-18 for GEOS-L/S 3030-18, GEOS-L/S 3040-18, GEOS-S 4030-18	72002601
GEOS MHU-22 for GEOS-L/S 3030-22, GEOS-L/S 3040-22, GEOS-L/S 4050-22, GEOS-S 4030-22, GEOS-S 5040-22	72002701

Standard rail



Standard rail in accordance with DIN EN 60715, 35 mm width, height 7.5 and 15 mm, including fixing screws, for floor mounting, optional assembly by means of assembly brackets at different heights possible

Description	Order no.
GEOS NS35-250 for GEOS-L/S 3030, GEOS-L/S 3040, GEOS-S 4030, length 250 mm, height 7.5 mm	72003101
GEOS NS35-350 for GEOS-L/S 3040, GEOS-L/S 4050, GEOS-S 5040, length 350 mm, height 7.5 mm	72003201
GEOS NS35-450 for GEOS-L/S 4050, GEOS-S 5040, length 450 mm, height 7.5 mm	72003301
GEOS NS35/15-250 for GEOS-L/S 3030, GEOS-L/S 3040, GEOS-S 4030, length 250 mm, height 15 mm	72003601
GEOS NS35/15-350 for GEOS-L/S 3040, GEOS-L/S 4050, GEOS-S 5040, length 350 mm, height 15 mm	72003701
GEOS NS35/15-450 for GEOS-L/S 4050, GEOS-S 5040, length 450 mm, height 15 mm	72003801

Industrial and Outdoor Enclosures GEOS

GEOS Universal Accessories

Standard rail



Standard rail in accordance to DIN EN 60715, width 35 mm at heights 7.5 and 15 mm, incl. fastening screws, for floor-mounting, GEOS 4050 (middle position), mounting using mounting holder in different heights not possible

Description	Order no.
GEOS NS35-327 Length 327 mm, Height 7.5 mm	72003401
GEOS NS35/15-327 Length 327 mm, Height 15 mm	72003901

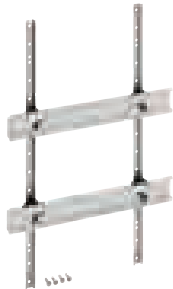
Universal mounting holder standard rail



Standard rail in accordance to DIN EN 60715, 35 mm wide, incl. fastening screws, for mounting on GEOS mounting holder MHU

Description	Order no.
GEOS NS35-200 for GEOS-L/S 3030, GEOS-L/S 3040, length 200 mm, height 7.5 mm	72008101
GEOS NS35-300 for GEOS-L/S 3040, GEOS-L/S 4050, length 300 mm, height 7.5 mm	72008201
GEOS NS35-400 for GEOS-L/S 4050, length 400 mm, height 7.5 mm	72008301

Carrying frame NS35



Support frame with standard rails width 35 mm, at heights 7.5 and 15 mm, including. fixing screws for floor mounting. Optional assembly with mounting brackets at different heights possible, no contact protection

Description	Order no.
GEOS TGS 3040-2 2-row, 12 modules, standard rails 35 x 7.5 mm, for assembly in GEOS-L/S 3040	72006201
GEOS TGS 4050-3 3-row, 18 modules, standard rails 35 x 7.5 mm, for mounting in GEOS-L and S 4050	72006401
GEOS TGS 4050-2 2-row, 21 modules, standard rails 35 x 7.5 mm, for mounting in GEOS-L 4050 and GEOS-S 5040	72006501
GEOS TGS NS35/15 3040-2 2-row, 12 modules, standard rails 35 x 15 mm, for mounting in GEOS-L and S 3040	72007201
GEOS TGS NS35/15 4050-3 3-row, 18 modules, standard rails 35 x 15 mm, for mounting in GEOS-L and S 4050	72007401
GEOS TGS NS35/15 4050-2 2-row, 21 modules, standard rails 35 x 15 mm, for mounting in GEOS-L 4050 and GEOS-S 5040	72007301

Assembly plate insulating material



Mounting plate made of insulating material, incl. fixing screws, for bottom mounting, optional mounting with mounting holder at various heights possible

Description	Dimensions/mm	Order no.
GEOS MPI-3030 for GEOS-L/S 3030-18 to 22	250 x 250 x 5	72000301
GEOS MPI-3040 for GEOS-L/S 3040-18 to 22, GEOS-S 4030-18 to 22	250 x 350 x 5	72000401
GEOS MPI-4050 for GEOS-L/S 4050-22, GEOS-S 5040-22	350 x 450 x 5	72000501

Industrial and Outdoor Enclosures GEOS

GEOS Universal Accessories

Assembly plate galvanized steel



Mounting plate made of galvanized steel, incl. fixing screws, for bottom mounting, optional mounting with mounting holder at various heights possible

Description	Dimensions/mm	Order no.
GEOS MPS-3030 for GEOS-L/S 3030-18 to 22	250 x 250 x 2	72001301
GEOS MPS-3040 for GEOS-L/S 3040-18 to 22, GEOS-S 4030-18 to 22	250 x 350 x 2	72001401
GEOS MPS-4050 for GEOS-L/S 4050-22, GEOS-S 5040-22	350 x 450 x 2	72001501

Industrial and Outdoor Enclosures GEOS

Cabinet Accessories GEOS

Cabinet installation board frame



Installation board made of insulating material for the frame of GEOS cabinets, incl. fixing screws, for individual use, e.g. for the installation of command and signalling devices, material thickness: 4 mm

Description	Dimensions/mm	Order no.
GEOS-S EPR 3030 for GEOS-S 3030-18 to 22	231 x 231 x 4	72201301
GEOS-S EPR 3040/4030 for GEOS-S 3040-18 to 22 and GEOS-S 4030-18 to 22	231 x 331 x 4	72201401
GEOS-S EPR 4050/5040 for GEOS-S 4050-22 and GEOS-S 5040-22	331 x 431 x 4	72201501

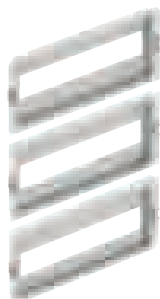
Transparent cabinet installation board frame



Installation board made of clear transparent polycarbonate for the frame of GEOS cabinets, incl. fixing screws, for individual use, e.g. to protect fixtures located in the cabinet while at the same time ensuring visibility, material thickness: 4 mm

Description	Dimensions/mm	Order no.
GEOS-S EPR-t 3030 for GEOS-S 3030-18 to 22	231 x 231 x 4	72210301
GEOS-S EPR-t 3040/4030 for GEOS-S 3040-18 to 22 and GEOS-S 4030-18 to 22	231 x 331 x 4	72210401
GEOS-S EPR-t 4050/5040 for GEOS-S 4050-22 and GEOS-S 5040-22	331 x 431 x 4	72210501

Cabinet accidental contact protection module



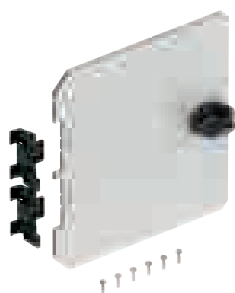
Contact protection modules for tool-free installation in the frame of GEOS cabinets, grey plastic similar to RAL 7035

Description	Order no.
GEOS-S BSM 3030-9 for GEOS-S 3030-18 to 22, 9 TE, single-row	72208301
GEOS-S BSM 3030 for GEOS-S 3030-18 to 22, smooth, without breakthroughs	72208401
GEOS-S BSM 3040-9 for GEOS-S 3040-18 to 22, 9 TE, single-row	72208701
GEOS-S BSM 3040 for GEOS-S 3040-18 to 22, smooth, without breakthroughs	72208801
GEOS-S BSM 4050-15 for GEOS-S 4050-22, 15 TE, single-row, mounting on top/bottom end	72209101
GEOS-S BSM 4050-15/MIT for GEOS-S 4050-22, 15 TE, single-row, mounting in middle	72209201
GEOS-S BSM 4050 for GEOS-S 4050-22, smooth, without breakthroughs	72209301
GEOS-S BSM 3040-9/2 for GEOS-S 3040-18 to 22, 18 TE, double-row. Set consisting of 2 x articles 72208701	72209701
GEOS-S BSM 4050-15/3 for GEOS-S 4050-22, 45 TE, triple-row. Set consisting of 2 x articles 72209101 and 1 x article 72209201	72209801

Industrial and Outdoor Enclosures GEOS

Cabinet Accessories GEOS

Cabinet inner door



Inner door made of insulating material for installation in GEOS cabinets, incl. fixing material and rotary twist lock with key, 3mm double bit, for individual use, e.g. for installation of displays, command and signalling devices, material thickness: 4 mm

Description	Order no.
GEOS-S IT 3030 for GEOS-S 3030	72200301
GEOS-S IT 3040 for GEOS-S 3040	72200401
GEOS-S IT 4030 for GEOS-S 4030	72200501
GEOS-S IT 4050 for GEOS-S 4050	72200601
GEOS-S IT 5040 for GEOS-S 5040	72200701

Cabinet interior lighting set



Interior lighting set for lighting the interior of GEOS-S-control cabinets, including door contact switch and mounting accessories.

Description	Order no.
GEOS-S IBS 3030 for GEOS-S 3030	72206301
GEOS-S IBS 3040/4030 for GEOS-S 3040/4030	72206401
GEOS-S IBS 4050/5040 for GEOS-S 4050/5040	72206501

Mains supply unit NT-35-24



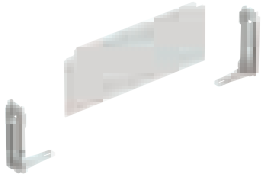
Mains supply unit for assembly on NS35 standard rail. Input voltage 85V to 264 V AC, output voltage 21.6 V -29 V DC. Output max. 15.2 W.

Description	Order no.
NT-35-24	72212001

Industrial and Outdoor Enclosures GEOS

Cabinet Accessories GEOS

Cabinet partition wall



Partition wall made of insulating material for cabinets incl. carriers, to divide the enclosure

Description	Order no.
GEOS-S TW 30-18 for GEOS-S 3030-18, GEOS-S 3040-18, GEOS-S 4030-18	72203201
GEOS-S TW 30-22 for GEOS-S 3030-22, GEOS-S 3040-22, GEOS-S 4030-22	72203301
GEOS-S TW 40-18 for GEOS-S 3040-18, GEOS-S 4030-18	72203401
GEOS-S TW 40-22 for GEOS-S 3040-22, GEOS-S 4030-22, GEOS-S 4050-22, GEOS-S 5040-22	72203501
GEOS-S TW 50-22 for GEOS-S 4050-22, GEOS-S 5040-22	72203601

Cabinet installation board door



Installation board made of insulating material for the door of GEOS cabinets, incl. fixing screws, for individual use, e.g. for installation of indicating elements and displays, material thickness: 4 mm

Description	Dimensions/mm	Order no.
GEOS-S EPT 3030 for GEOS-S 3030-18 to 22	150 x 225 x 4	72202301
GEOS-S EPT 3040 for GEOS-S 3040-18 to 22	150 x 325 x 4	72202401
GEOS-S EPT 4030 for GEOS-S 4030-18 to 22	250 x 225 x 4	72202501
GEOS-S EPT 4050 for GEOS-S 4050-22	250 x 425 x 4	72202601
GEOS-S EPT 5040 for GEOS-S 5040-22	175 x 325 x 4	72202701

Cabinet door stop



Door stop for fixing the open cabinet door in two possible positions

Description	Order no.
GEOS-S TFS for GEOS-S cabinets	72207001

Industrial and Outdoor Enclosures GEOS

Cabinet Accessories GEOS

Cabinet twist lock set



Twist lock set with key for installation in GEOS-S control cabinets, set = 2 pieces

Description	Order no.
GEOS-S DRS-DB/3 Double-bit 3 mm mandrel	72205001
GEOS-S DRS-DB/5 Double-bit 5 mm mandrel	72205101
GEOS-S DRS-VK/8 Square 8 mm	72205201
GEOS-S DRS-DK/8 Triangle 8 mm	72205301
GEOS-S DRS-KB Toggle handle	72205401
GEOS-S DRS-SZ Countersunk slot	72205501

Lock fittings



Profile-cylinders for GEOS-S cabinets with swivel lever

Description	Order no.
GEOS-S SGA-2 in accordance to DIN 18252, 8 x 45° adjustable, with three keys, different locking	72206901
GEOS-S SGA-DB/3 Double-bit 3 mm mandrel	72206001

Cabinet cover screws set



Cabinet cover screws set

Description	Order no.
GEOS-S 3030 S for cabinet GEOS-S 3030 as replacement need	72204001
GEOS-S 3040/4030 S for cabinet GEOS-S 3040 and GEOS-S 4030 as replacement need	72204101
GEOS-S 4050/5040 S for cabinet GEOS-S 4050 and GEOS-S 5040 as replacement need	72204201

Cabinet quick closing set



Cabinet quick closing set

Description	Order no.
GEOS-S 3030 SV for cabinet GEOS-S 3030 as replacement need	72204301
GEOS-S 3040/4030 SV for cabinet GEOS-S 3040 and GEOS-S 4030 as replacement need	72204401
GEOS-S 4050/5040 SV for cabinet GEOS-S 4050 and GEOS-S 5040 as replacement need	72204501

Industrial and Outdoor Enclosures GEOS

GEOS Empty Enclosure Accessories

Empty enclosure box installation board



Installation board made of insulating material for empty enclosure, incl. fixing screws, for individual use, e.g. for installation of command and signalling devices, material thickness: 4 mm

Description	Dimensions/mm	Order no.
GEOS-L EP-3030 for GEOS-L 3030-18 to 22	276 x 276 x 4	72101301
GEOS-L EP-3040 for GEOS-L 3040-18 to 22	276 x 376 x 4	72101401
GEOS-L EP-4050 for GEOS-L 4050-22	376 x 476 x 4	72101501

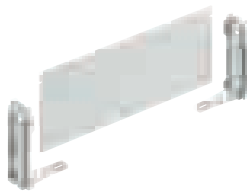
Empty enclosure cover installation board



Installation board made of insulating material for mounting on the inside of the cover of empty enclosures, incl. fixing screws, for individual use, e.g. for the installation of command and signalling devices, material thickness: 4 mm

Description	Dimensions/mm	Order no.
GEOS-L EPD-3030 for GEOS-L 3030-18 to 22	276 x 276 x 4	72101601
GEOS-L EPD-3040 for GEOS-L 3040-18 to 22	276 x 376 x 4	72101701
GEOS-L EPD-4050 for GEOS-L 4050-22	376 x 476 x 4	72101801

Empty enclosure partition wall



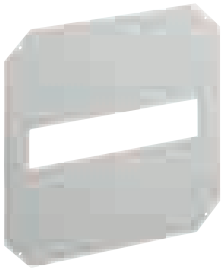
Partition wall made of insulating material for empty enclosure incl. carriers, to divide the enclosure

Description	site of encl./mm	Order no.
GEOS-L TW 30-18 for GEOS-L 3030-18, GEOS-L 3040-18	300	72103201
GEOS-L TW 30-22 for GEOS-L 3030-22, GEOS-L 3040-22	300	72103301
GEOS-L TW 40-18 for GEOS-L 3040-18	400	72103401
GEOS-L TW 40-22 for GEOS-L 3040-22, GEOS-L 4050-22	400	72103501
GEOS-L TW 50-22 for GEOS-L 4050-22	500	72103601

Industrial and Outdoor Enclosures GEOS

GEOS Empty Enclosure Accessories

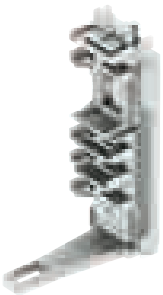
Empty enclosure contact protection cover



Protective cover for rail-mounted devices, incl. fixing screws, for mounting in GEOS-L empty enclosure

Description	Order no.
GEOS-L BSA 3030-1 1-row, 12 distribution units, for mounting in GEOS-L 3030 empty enclosure	72105101
GEOS-L BSA 3040-1 1-row, 18 distribution units, for mounting in GEOS-L 3040 empty enclosure	72105301
GEOS-L BSA 3040-2 2 row, 24 modules, for mounting in GEOS-L 3040 empty enclosure	72105201
GEOS-L BSA 4050-2 2 row, 42 modules, for mounting in GEOS-L 4050 empty enclosure	72105501
GEOS-L BSA 4050-3 3 row, 54 modules, for mounting in GEOS-L 4050 empty enclosure	72105401

High level mounting holder



Mounting holder set, for tool-free mounting of standard rails 35 x 7.5 mm and assembly plates at various heights, additional top position for mounting rail-mounted devices in conjunction with hinged windows in the cover of empty enclosures, set = 4 pieces

Description	Order no.
GEOS-L MHH-18 for GEOS-L 3030-18, GEOS-L 3040-18	72102201
GEOS-L MHH-22 for GEOS-L 3030-22, GEOS-L 3040-22, GEOS-L 4050-22	72102301

Empty enclosure cover retainer



Cover retainer made of stainless steel with fastening screws, mountable retroactively

Description	Order no.
GEOS-L DVS For cover locks with GEOS empty enclosures, prevents cover from falling down unintentionally, set = 2 pieces	72103701

Empty enclosure cover screws set



Empty enclosure cover screws set

Description	Order no.
GEOS-L DS for empty enclosure GEOS-L 3030/3040 as replacement need	72104001
GEOS-L 4050 DS for empty enclosure GEOS-L 4050 as replacement need	72104101

Industrial and Outdoor Enclosures GEOS

GEOS Empty Enclosure Accessories

Empty enclosure quick closing set



Empty enclosure quick closing set

Description	Order no.
GEOS-L SV for empty enclosure GEOS-L 3030/3040 as replacement need	72104201
GEOS-L 4050 SV for empty enclosure GEOS-L 4050 as replacement need	72104301

Empty enclosure cover special head screws set



Cover screws set with safety function for GEOS-L empty enclosure, 3030/3040, 8 mm triangular headform

Description	Order no.
GEOS-L DS/DK for empty enclosure GEOS-L 3030/3040	72104401
GEOS-L 4050 DS/DK for empty enclosure GEOS-L 4050	72104501

Industrial and Outdoor Enclosures GEOS

GEOS Fastening Material Accessories

External fixing lugs



Plastic outside fastening lip set, possible mounting angle of 0°, 45° or 90°, black, set = 4 pcs.

Description	Order no.
GEOS ABL-10 Wall distance 10 mm	72002001
GEOS ABL-40 Wall distance 40 mm	72002101

Stainless steel external fixing lug



External fixing lug set made of V4A stainless steel, mounting possible at an angle of 0° or 90°, set = 4 pieces

Description	Order no.
GEOS ABL-10/ES Wall distance 10 mm	72007501
GEOS ABL-40/ES Wall distance 40 mm	72007601

Mast clamp set



Mast clamp set made of hot-dip galvanized steel, set = 2 pieces

Description	Order no.
GEOS MSS-30 mounting on the 300mm enclosure side	72005001
GEOS MSS-40 mounting on the 400mm enclosure side	72005101
GEOS MSS-50 mounting on the 500mm enclosure side	72005201

Screw clamp set



Screw clamp set made of stainless steel V2A, in conjunction with mast clamp set GEOS MSS, set = 2 pieces

Description	Order no.
SRS 60-90 for mast diameters from 60 to 90mm	72004001
SRS 90-150 for mast diameters from 90 to 150mm	72004101
SRS 150-210 for mast diameters from 150 to 210mm	72004201

Industrial and Outdoor Enclosures GEOS

GEOS Fastening Material Accessories

Design plate



Design plate made of V2A stainless steel, 1 piece

Description	Order no.
GEOS DP-3030 for covering the rear side of GEOS 3030 enclosure when using the GEOS MSS mast clamp set	72013001
GEOS DP-3040 for covering the rear side of GEOS 3040 enclosure when using the GEOS MSS mast clamp set	72013101
GEOS DP-4050 for covering the rear side of GEOS 4050 enclosure when using the GEOS MSS mast clamp set	72013201

Mast clamp set



Stainless steel V4A mast clamp set, 1 piece

Description	Order no.
GEOS MBP-5040 for clamping of GEOS 5040 enclosure to mast in conjunction with SRS screw clamp sets	72099901

Industrial and Outdoor Enclosures GEOS

GEOS General Accessories

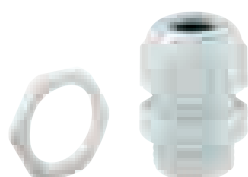
Ventilation element set



BEL Air ventilation element set, for preventing condensation build-up in enclosure, for vertical installation in enclosure walls and GFL combi flanges with corresponding knock-outs, at least two ventilation elements are required per enclosure

Description	Order no.
BEL Air M40 M40, set = 2 pcs., air exchange rate: 30 l / day / set	26344001

Cable gland, grey, with locknut, long thread



Cable gland, IP68 with strain relief, long connection thread, M_x 1.5 mm, with lock nut, polyamide, grey

Description	Sealing area/mm	Thread lenght/mm	Order no.
KVR M12 LG-MGM	2 - 6.5	12	22941201
KVR M16 LG-MGM	4 - 10.0	12	22941601
KVR M20 LG-MGM	6 - 12.0	15	22942001
KVR M25 LG-MGM	9 - 16	15	22942501
KVR M32 LG-MGM	11 - 21.0	15	22943201
KVR M40 LG-MGM	16 - 28.0	18	22944001
KVR M50 LG-MGM	21 - 34.5	18	22945001

Cable gland, black, with locknut, long thread



Cable gland, IP68, with strain relief, long thread, M_x 1.5 mm, with locknut, polyamide, black

Description	Sealing area/mm	Thread lenght/mm	Order no.
KVR M12 LG-MGM/sw	2 - 6.5	12	22901201
KVR M16 LG-MGM/sw	4 - 10.0	12	22901601
KVR M20 LG-MGM/sw	6 - 12	15	22902001
KVR M25 LG-MGM/sw	9 - 16	15	22902501
KVR M32 LG-MGM/sw	11 - 21	15	22903201
KVR M40 LG-MGM/sw	16 - 28	18	22904001
KVR M50 LG-MGM/sw	21 - 34.5	18	22905001

Cable gland grey, long thread



Cable gland, IP68, with strain relief, long thread, M_x 1.5 mm, without locknut, polyamide, grey

Description	Sealing area/mm	Thread lenght/mm	Order no.
KVR M12 LG	2 - 6.5	12	24841201
KVR M16 LG	4 - 10	12	24841601
KVR M20 LG	6 - 12	15	24842001
KVR M25 LG	9 - 16	15	24842501
KVR M32 LG	11 - 21	15	24843201
KVR M40 LG	16 - 28	18	24844001
KVR M50 LG	21 - 34.5	18	24845001
KVR M63	30 - 44.5	17	24746301

Industrial and Outdoor Enclosures GEOS

GEOS General Accessories

Locknut, polyamide, grey



Lock nut for metric twist nipple and cable glands, polyamide

Description	Order no.
GMU PA M12 Thread M12x1.5	20841201
GMU PA M16 Thread M16x1.5	20841601
GMU PA M20 Thread M20x1.5	20842001
GMU PA M25 Thread M25x1.5	20842501
GMU PA M32 Thread M32x1.5	20843201
GMU PA M40 Thread M40x1.5	20844001
GMU PA M50 Thread M50x1.5	20845001
GMU PA M63 Thread M63x1.5	20846301

AK3 KS M50



M50 combination cable gland for lateral connection of enclosures AK/AK-F 14/28/42/56/70 including Plus types as well as industrial and outdoor enclosures of the GEOS series

Description	Order no.
AK3 KS M50	73383001

Hole cutter



Hole cutter

Description	Order no.
LFR through opening: M16-32, drill hole: 16.5-32.5 mm	19599501

Industrial and Outdoor Enclosures GEOS

GEOS General Accessories

Hole cutter



Hole cutter for hand and column drilling machines, high-quality industrial design with carbide cutting plates for high cutting performance, with centre drill (exchangeable) and ejector spring

Description	Order no.
LFR M40 Hole cutter for hand and upright drills, high-quality industrial grade with hard metal inserts for high cutting performance, with centre drill (exchangeable) and ejector spring	19540001
LFR M50 Hole cutter for hand and upright drills, high-quality industrial grade with hard metal inserts for high cutting performance, with centre drill (exchangeable) and ejector spring	19550001
LFR M63 Hole cutter for hand and upright drills, high-quality industrial grade with hard metal inserts for high cutting performance, with centre drill (exchangeable) and ejector spring	19563001



Technical information

GEOS



Class of protection (IP-Code)
acc. to DIN EN 60529 (VDE 0470-1)



Class of protection (Type Rating) 4 X
UL certificated



Level of protection (IK code)
to mechanical impact acc. to
DIN EN 50102 (VDE 0470-100)



Protection class II operating materials
with protective insulation
acc. to DIN VDE 0100-410



Nominal AC voltage (AC voltage).
Highest permissible voltage on the
junction as per product standard



Maximum voltage DC (DC voltage)
as per product standard
(system voltage in the PV sector)



c UL us
(Underwriters Laboratories)
approved (American and
Canadian approval)



DLG Focus Test
for special innovations in machines
and technical products - predominantly
in agriculture and forestry applications



DNV
Approval for the maritime sector
(Shipbuilding, ports, etc.) according
to DNV guidelines



Halogen-free enclosure,
without halogens such as fluorine,
chlorine and bromine



Industrial quality

Technical information

GEOS

Overview about the ambient conditions and mechanical properties of the GEOS enclosure system.

Enclosures empty			Enclosure with fittings						
Ambient temperature Minimum value	Ambient temperature Maximum value	Ambient temperature Average value over 24 h	Ambient temperature Minimum value	Ambient temperature Maximum value	Ambient temperature Average value over 24 h	Max. relative humidity at 40 °C	Max. relative humidity at 25 °C (short-term)	Protection rating according to DIN EN 60529 / VDE 0470- 1 ¹⁾	Shock-proof as per DIN EN 50102 / DE 0470 Part 100
-35°C	80°C	60°C	-25°C	40°C	35°C	50%	95%	IP66/IP6/ IP69	IK09

Additional note: The specified temperatures may be limited by the installed devices.

¹⁾ When used with suitable connectors or cable glands.

Overview about the properties of the materials used in GEOS enclosure systems.

Material	Use in the products:	Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia, gaseous (DLG Focus Test)	Vegetable fats	Animal fats	Halogen-free	Free of heavy metals, PVC and silicone	Flammability according to DIN EN 60695 (VDE 0471) / UL94
Polycarbonate, glass-fibre reinforced	GEOS Enclosure	O	X	X	X	O	Ø	X	O	Ø	O	O	Ø	yes	yes	960°C / V-2 (5VA*)
Polycarbonate, transparent	GEOS Cover / Door transparent	O	X	X	X	Ø	Ø	X	O	Ø	O	O	O	yes	yes	850°C / V-2 (5VA*)
Polycarbonate, grey	GEOS Cover / Door grey	O	X	X	X	O	Ø	X	O	Ø	O	O	Ø	yes	yes	960°C / V-2 (5VA*)
Polyamide 6, glass fibre-reinforced	Screw fittings to IP 68, Cover screws	X	X	O	O	O	O	Ø	O	O	O	O	O	yes	yes	750°C / HB/V-2

O = resistant Ø = partially resistant X = not resistant

* 5 Inch (127 mm) Flame test according to UL 746 C (comparable with the requirements of UL 94, 5VA)

The materials used by Spelsberg were subjected to a weathering test according to DIN 53 387 (replaced by DIN EN ISO 4892-2), a 1000 hour test at the „State Examination Office“ in Dortmund. The materials used in IQ products showed good result here. The material also passed the UV resistance test according to UL 746 C, without any limitations.

When selecting the installation location, the climatic conditions and the occurrence of chemical influences should generally be examined in addition to the protection rating. Details of material properties and chemical resistance of the materials can be seen from the table, though these are simply guide values.

Technical information

GEOS

Power loss details
 for individually mounted GEOS enclosure

				ΔT= 10K	ΔT= 20K	ΔT= 30K	ΔT= 40K
Type	Mounting	Inner dimensions	Enclosure height	[W]			
GEOS-L/-S 3030-18		290 x 290 x 152,5 mm	50%	8,5	20,2	33,4	47,7
			75%	6,9	16,4	27,2	38,9
GEOS-L/-S 3030-22		290 x 290 x 198,5 mm	50%	10,5	24,9	41,2	59,0
			75%	8,6	20,3	33,6	48,1
GEOS-L/-S 3040-18	vertical	290 x 390 x 152,5 mm	50%	11,3	26,8	44,4	63,5
			75%	8,9	21,0	34,8	49,7
GEOS-L/-S 3040-22	Horizontal	290 x 390 x 198,5 mm	50%	12,9	30,6	50,7	72,6
			75%	10,1	24,0	39,7	56,8
GEOS-L 3040-18 GEOS-S 4030-18	vertical	290 x 390 x 152,5 mm	50%	11,1	26,4	43,6	62,4
			75%	9,4	22,3	37,0	52,9
GEOS-L 3040-22 GEOS-S 4030-22	vertical	290 x 390 x 198,5 mm	50%	12,7	30,0	49,8	71,2
			75%	10,8	25,5	42,2	60,3
GEOS-L/-S 4050-22	Horizontal	390 x 490 x 198,5 mm	50%	18,3	43,3	71,7	102,6
			75%	14,5	34,2	56,7	81,1
GEOS-L 4050-22 GEOS-S 5040-22	vertical	390 x 490 x 198,5 mm	50%	18,0	42,7	70,8	101,2
			75%	15,2	35,9	59,5	85,1

Permissible power loss P_{per} in watts per DIN VDE 0660-507 for individually-mounted empty installations with stipulated ΔT.
 Power loss at 50% of the enclosure height and [75%] of the enclosure height.

Outdoor installation

Installation in open - damp and wet areas and rooms

Basics

In general when selecting components, the manufacturer's specifications as to the product properties act only as a guide for the user. These properties should always be viewed in the context of the relevant installation requirements such as the installation regulations according to DIN VDE 0100-ff. Depending on the local circumstances, additional protective measures may have to be taken by the user. The individual factors are described in greater detail below.

There are many influencing factors in outdoor installations



Protection against UV radiation

UV radiation can cause severe structural damage, even destruction, in a wide variety of plastics. Products made from the material polystyrene (PS) should therefore not be used outdoors. Spelsberg developed the IQ series products for this installation scenario. Materials used in these products have high resistance against UV radiation. In weathering tests according to DIN 53-387 (replaced by DIN EN ISO 4892-2) these materials demonstrated good results. These materials passed the weathering tests according to UL 746 C also without any limitations.

Protection against high temperatures

Installed electrical appliances generate power loss during operation. The enclosures manufactured by Spelsberg are tested during the approval test for maximum power loss in the enclosure. Detailed tables on this topic are provided in the catalogue, taking into account the ambient temperature and type of installation.

Switchgear assemblies are designed for ambient temperatures of between -25 °C and +35 °C (24-hour average). A temporary increase in temperature to 40 °C is not a problem.

Even if, for example, iQ products from Spelsberg are suitable for temperatures of between -40 °C and +80 °C, the manufacturer's instructions and the requirements of the relevant product safety standards, such as line current, fault circuit breakers or fuses, should be checked when designing the enclosure.

Solar radiation or other heat sources can cause additional increases in the internal temperature which are not permitted and must therefore be avoided. Reliable operation of electrical equipment will no longer be under certain circumstances.

According to DIN VDE 0100-520,522.1.2 cable and conductor systems, including accessories, may only be installed or moved under ambient temperatures which are within the limit values specified by the manufacturer or in the relevant product standard.



Protection against chemical influences

For installations in areas with increased levels of hazardous substances in the environment, the suitability may be correspondingly reduced. Information is available in the table „Material Characteristics“. **IQ products are resistant to mineral oil, vegetable fats and animal fats.**

Technical information

GEOS

Outdoor installation

Installation in open - damp and wet areas and rooms

Protection against condensate water

The more tightly sealed the equipment, for example junction boxes or distribution boards, the bigger the likelihood of condensation forming. This is especially the case at locations, where highly fluctuating temperatures are expected. These effects are intensified by the power loss generated in the enclosures. Owing to the differences in temperature, a difference also arises in the pressure conditions, which causes the enclosure to draw in air when the temperature changes. The next time the temperature increases, the humidity in this air condenses on the cold surface of the enclosure, for example on the cover. This process is only reversible to a limited extent, so the water accumulates in the enclosure. Since this effect occurs regularly, even daily to an extent, a considerable volume of water may accumulate internally. If this enclosure has an increased protection rating, it will no longer discharge this water with the result that its seal actually has a negative impact. Thus, damage occurs.

According to DIN VDE 0100-520, precautions must be taken with respect to drainage of water if water accumulates or condensation can occur within cable and conductor systems. Spelsberg junction boxes in the various product groups have break-out condensation openings on the rear of the enclosure or mounting surfaces. These should be opened in such a way that in the installed state they are on the bottom side of the enclosure and have a wall clearance of 2 mm, so that any condensation may drain off. This only applies under the condition that no increased demands are imposed with respect to protection against accidental contact or foreign bodies (> IP2X or dust protection).

If requirements for contact protection or foreign body protection are also imposed on the enclosure, for example IP3X, we recommend use of Spelsberg ventilation seals. These seals come in the size M20, are fitted in the corresponding cable inlet openings on the bottom side and the side surfaces and offer splash water protection up to IPX4 when properly installed. We recommend an installation that allows the so-called „chimney effect“.



AK Air and BEL Air ventilation elements

The Air ventilation element prevents condensate water, while maintaining the high IP65 protection rating. Any condensate occurring is transported out of the enclosure immediately via air exchange. The continuous and high rate of air exchange allows the interior air to mix constantly with the environmental air and transports the moisture outwards. Air exchange also takes place in environments with almost constant air humidity and temperature, as the air in the interior of the enclosure heats up, e.g. due to the components.

Recommendation: At least one complete air exchange is provided per day via the BEL Air. With one set, this is achieved with an enclosure volume of up to 35 dm³. All enclosure parts, such as the seals, are permanently relieved of pressure through the constant pressure equalisation. The high air exchange rate guarantees a permanent exchange of the moist air with the surroundings. No appreciable pressure differences are required for this. However, with the pressure equalisation elements it is exactly these appreciable pressure differences that are required, at least temporarily, in order to achieve an air exchange. The Air ventilation elements therefore have a very large, open filter surface that guarantees a high air exchange without influencing the air flow. The constant pressure equalisation prevents pressure differences, thus ensuring that no mechanical forces can be exerted on the enclosure and seals.

DIN EN 61439-1

Section 8.2.2 of DIN EN 61439-1 concerns the protection against contact with live parts and the prevention of penetration of solid foreign objects and water. In addition, it is stated that closed switchgear assemblies must be protected from condensate inside the enclosure, without changing the type of protection.

Technical information

GEOS

Outdoor installation

Installation in open - damp and wet areas and rooms

Protection against plants and/or mould growth

The plastics used in electrical installation are organic materials. The risk of harm from plants, algae or mould must therefore be considered. According to DIN VDE 0100-520, 522.9.1, if experience or empirical evidence shows that plants and/or mould growth can cause damage, the cable and conductor system must be selected accordingly or special protective measures must be provided. Comment: A cable laying method that allows appropriate removal of such vegetation should be selected.

Notes for outdoor installation

The information on the type of protection and UV-resistance are often considered the only important aspects for outdoor installations. The protection rating tests carried out according to DIN EN 60529 are used as comparative tests and for classification of properties. The tests are limited to a few minutes and cannot emulate exposure to rain / snow or cleaning with water jets. In addition, the local conditions may differ so greatly that a general exposure test cannot be defined. However, in outdoor installations, other factors such as absolute temperature, frequency of temperature change, air humidity and chemical influences in particular play an important role. In addition to impairments through UV-effects, in outdoor installations damage is expected to arise predominantly as a result of chemical influences. So, the outside areas in the vicinity of filling stations, chemical facilities, landfill sites, compressors, sewerage treatment plants etc. should be subjected to particularly critical investigations beforehand. To increase the service life of the enclosure, it is advantageous to install the enclosure in an area that is protected from weather influences.

Industrial enclosure

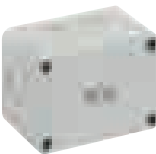


The right solution for every application

The empty enclosures from Spelsberg offer a wide variety of enclosure sizes and materials. However, should you not find exactly what you are looking for among the many variations of standard products, we would be pleased to design a product with you that is tailored precisely to your needs. Take advantage of the space available for this customisation.

Industrial Enclosures

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Empty enclosure

TK PS | TK PC | Case study



Protected outdoor areas



Ambic Equipment Limited | TK enclosures in agriculture

The enclosures which are certified for installation in ammonia-rich agricultural applications have been provided with CNC-machined entry points and customised mounting plates in order to speed up the manufacturing process.

The EasiDoser™ is a range of automated dosing and dilution systems which dispense and dose precise quantities of fluid for cleaning or disinfection purposes. The device has an LCD display and keypad on the front which makes set-up easy and is fully configurable, making the enclosure suitable for a wide range of applications.

The system is based on the combination of Ambic's tried and tested range of peristaltic RFE pumps for small and large volumes and a new microprocessor control system which was developed in-house.





The customer-specific entry solutions and the customised mounting plate facilitate installation and also help to maximise the reliability of the finished product.

Spelsberg understands the special demands of the farming and agricultural industry which is why most of its enclosures are certified in accordance with DLG standards (Deutsche Landwirtschafts-Gesellschaft - German Agricultural Society).

Empty enclosure

TK PS | TK PC



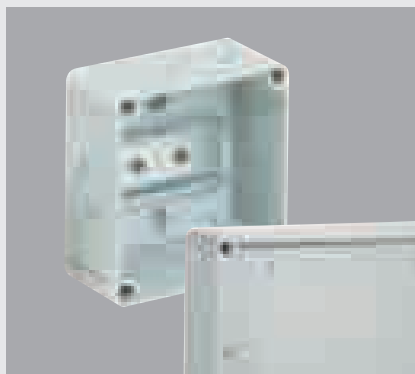
Properties

- 15 basic enclosures with up to three different cover heights
- Grey or transparent covers
- Plastic: choice of polystyrene (TK PS) or glass-fibre-reinforced polycarbonate (TK PC)
- Side walls smooth or with metric knockouts
- Modular tools:
Economical customisation





■ Individual choice of mounting



■ Standard rail / mounting plate



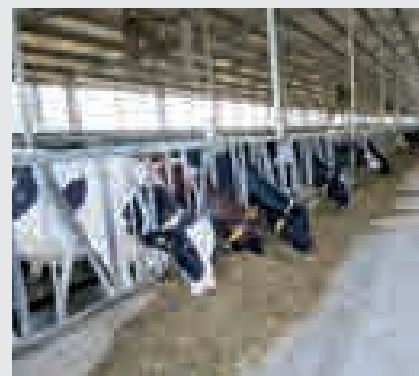
■ Knockout openings



■ External hinges



■ UL certified (TK PC)

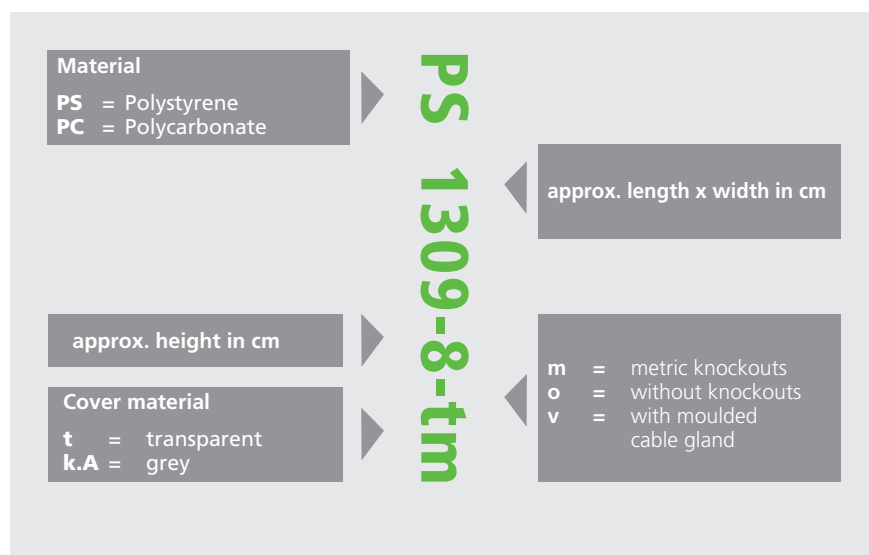


■ DLG certified (TK PC)



G. SPELSBERG
EMPTY ENCLOSURE SERIES TK PC
WITH ACCESSORIES
✓ Resistance to Ammonia
DLG Test Report 6399

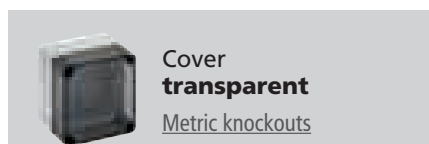
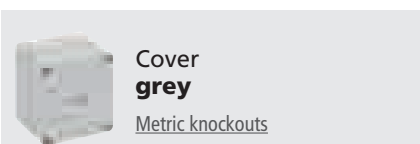
Example of TK designation scheme



Empty enclosure

TK PS | TK PC

 Cover grey Metric knockouts		 Cover transparent Metric knockouts		 Cover grey Without knockouts		 Cover transparent Without knockouts	
Enclosure type	Order-No.	Enclosure type	Order-No.	Enclosure type	Order-No.	Enclosure type	Order-No.
TK PS 77-6-m	105 401 01	TK PS 77-6-tm	106 001 01	TK PS 77-6-o	110 401 01	TK PS 77-6-to	111 001 01
TK PS 77-8-m	105 901 01	TK PS 77-8-tm	106 501 01	TK PS 77-8-o	110 901 01	TK PS 77-8-to	111 501 01
TK PS 97-6-m	105 402 01	TK PS 97-6-tm	106 002 01	TK PS 97-6-o	110 402 01	TK PS 97-6-to	111 002 01
TK PS 97-8-m	105 902 01	TK PS 97-8-tm	106 502 01	TK PS 97-8-o	110 902 01	TK PS 97-8-to	111 502 01
TK PS 99-6-m	105 403 01	TK PS 99-6-tm	106 003 01	TK PS 99-6-o	110 403 01	TK PS 99-6-to	111 003 01
TK PS 99-8-m	105 903 01	TK PS 99-8-tm	106 503 01	TK PS 99-8-o	110 903 01	TK PS 99-8-to	111 503 01
TK PS 1111-7-m	105 404 01	TK PS 1111-7-tm	106 004 01	TK PS 1111-7-o	110 404 01	TK PS 1111-7-to	111 004 01
TK PS 1111-9-m	105 904 01	TK PS 1111-9-tm	106 504 01	TK PS 1111-9-o	110 904 01	TK PS 1111-9-to	111 504 01
TK PS 1309-6-m	105 409 01	TK PS 1309-6-tm	106 009 01	TK PS 1309-6-o	110 409 01	TK PS 1309-6-to	111 009 01
TK PS 1309-8-m	105 909 01	TK PS 1309-8-tm	106 509 01	TK PS 1309-8-o	110 909 01	TK PS 1309-8-to	111 509 01
TK PS 1313-7-m	105 405 01	TK PS 1313-7-tm	106 005 01	TK PS 1313-7-o	110 405 01	TK PS 1313-7-to	111 005 01
TK PS 1313-10-m	105 905 01	TK PS 1313-10-tm	106 505 01	TK PS 1313-10-o	110 905 01	TK PS 1313-10-to	111 505 01
TK PS 1809-6-m	105 410 01	TK PS 1809-6-tm	106 010 01	TK PS 1809-6-o	110 410 01	TK PS 1809-6-to	111 010 01
TK PS 1809-8-m	105 910 01	TK PS 1809-8-tm	106 510 01	TK PS 1809-8-o	110 910 01	TK PS 1809-8-to	111 510 01
TK PS 1811-6f-m	105 414 01	TK PS 1811-6f-tm	106 014 01	TK PS 1811-6f-o	110 414 01	TK PS 1811-6f-to	111 014 01
TK PS 1811-8f-m	105 914 01	TK PS 1811-8f-tm	106 514 01	TK PS 1811-8f-o	110 914 01	TK PS 1811-8f-to	111 514 01
TK PS 1811-9-m	105 406 01	TK PS 1811-9-tm	106 006 01	TK PS 1811-9-o	110 406 01	TK PS 1811-9-to	111 006 01
TK PS 1811-11-m	105 906 01	TK PS 1811-11-tm	106 506 01	TK PS 1811-11-o	110 906 01	TK PS 1811-11-to	111 506 01
TK PS 1811-13f-m	104 414 01	TK PS 1811-13f-tm	107 014 01	TK PS 1811-13f-o	109 414 01	TK PS 1811-13f-to	112 014 01
TK PS 1811-16-m	104 406 01	TK PS 1811-16-tm	107 006 01	TK PS 1811-16-o	109 406 01	TK PS 1811-16-to	112 006 01
TK PS 1813-6f-m	105 415 01	TK PS 1813-6f-tm	106 015 01	TK PS 1813-6f-o	110 415 01	TK PS 1813-6f-to	111 015 01
TK PS 1813-8f-m	105 915 01	TK PS 1813-8f-tm	106 515 01	TK PS 1813-8f-o	110 915 01	TK PS 1813-8f-to	111 515 01
TK PS 1813-9-m	105 416 01	TK PS 1813-9-tm	106 016 01	TK PS 1813-9-o	110 416 01	TK PS 1813-9-to	111 016 01
TK PS 1813-11-m	105 916 01	TK PS 1813-11-tm	106 516 01	TK PS 1813-11-o	110 916 01	TK PS 1813-11-to	111 516 01
TK PS 1813-13f-m	104 415 01	TK PS 1813-13f-tm	107 015 01	TK PS 1813-13f-o	109 415 01	TK PS 1813-13f-to	112 015 01
TK PS 1813-16-m	104 416 01	TK PS 1813-16-tm	107 016 01	TK PS 1813-16-o	109 416 01	TK PS 1813-16-to	112 016 01
TK PS 1818-6f-m	105 413 01	TK PS 1818-6f-tm	106 013 01	TK PS 1818-6f-o	110 413 01	TK PS 1818-6f-to	111 013 01
TK PS 1818-8f-m	105 913 01	TK PS 1818-8f-tm	106 513 01	TK PS 1818-8f-o	110 913 01	TK PS 1818-8f-to	111 513 01
TK PS 1818-9-m	105 407 01	TK PS 1818-9-tm	106 007 01	TK PS 1818-9-o	110 407 01	TK PS 1818-9-to	111 007 01
TK PS 1818-11-m	105 907 01	TK PS 1818-11-tm	106 507 01	TK PS 1818-11-o	110 907 01	TK PS 1818-11-to	111 507 01
TK PS 1818-13f-m	104 413 01	TK PS 1818-13f-tm	107 013 01	TK PS 1818-13f-o	109 413 01	TK PS 1818-13f-to	112 013 01
TK PS 1818-16-m	104 407 01	TK PS 1818-16-tm	107 007 01	TK PS 1818-16-o	109 407 01	TK PS 1818-16-to	112 007 01
TK PS 2518-6f-m	105 411 01	TK PS 2518-6f-tm	106 011 01	TK PS 2518-6f-o	110 411 01	TK PS 2518-6f-to	111 011 01
TK PS 2518-8f-m	105 911 01	TK PS 2518-8f-tm	106 511 01	TK PS 2518-8f-o	110 911 01	TK PS 2518-8f-to	111 511 01
TK PS 2518-9-m	105 408 01	TK PS 2518-9-tm	106 008 01	TK PS 2518-9-o	110 408 01	TK PS 2518-9-to	111 008 01
TK PS 2518-11-m	105 908 01	TK PS 2518-11-tm	106 508 01	TK PS 2518-11-o	110 908 01	TK PS 2518-11-to	111 508 01
TK PS 2518-13f-m	104 411 01	TK PS 2518-13f-tm	107 011 01	TK PS 2518-13f-o	109 411 01	TK PS 2518-13f-to	112 011 01
TK PS 2518-16-m	104 408 01	TK PS 2518-16-tm	107 008 01	TK PS 2518-16-o	109 408 01	TK PS 2518-16-to	112 008 01
TK PS 3625-11-m	105 412 01	TK PS 3625-11-tm	106 012 01	TK PS 3625-11-o	110 412 01	TK PS 3625-11-to	111 012 01
TK PS 3625-16-m	105 912 01	TK PS 3625-16-tm	106 512 01	TK PS 3625-16-o	110 912 01	TK PS 3625-16-to	111 512 01



Enclosure type	Order-No.
TK PC 55-4-m	127 455 01
TK PC 75-4-m	127 475 01
TK PC 75-4-2v	128 475 01
TK PC 77-6-m	127 401 01
TK PC 77-8-m	127 901 01
TK PC 97-6-m	127 402 01
TK PC 97-8-m	127 902 01
TK PC 99-6-m	127 403 01
TK PC 99-8-m	127 903 01
TK PC 1005-4-m	127 480 01
TK PC 1005-4-o	120 480 01
TK PC 1111-7-m	127 404 01
TK PC 1111-9-m	127 904 01
TK PC 1309-6-m	127 409 01
TK PC 1309-8-m	127 909 01
TK PC 1313-7-m	127 405 01
TK PC 1313-10-m	127 905 01
TK PC 1809-6-m	127 410 01
TK PC 1809-8-m	127 910 01
TK PC 1811-6f-m	127 414 01
TK PC 1811-8f-m	127 914 01
TK PC 1811-9-m	127 406 01
TK PC 1811-11-m	127 906 01
TK PC 1811-13f-m	128 414 01
TK PC 1811-16-m	128 406 01
TK PC 1813-6f-m	127 415 01
TK PC 1813-8f-m	127 915 01
TK PC 1813-9-m	127 416 01
TK PC 1813-11-m	127 916 01
TK PC 1813-13f-m	128 415 01
TK PC 1813-16-m	128 416 01
TK PC 1818-6f-m	127 413 01
TK PC 1818-8f-m	127 913 01
TK PC 1818-9-m	127 407 01
TK PC 1818-11-m	127 907 01
TK PC 1818-13f-m	128 413 01
TK PC 1818-16-m	128 407 01
TK PC 2518-6f-m	127 411 01
TK PC 2518-8f-m	127 911 01
TK PC 2518-9-m	127 408 01
TK PC 2518-11-m	127 908 01
TK PC 2518-13f-m	128 411 01
TK PC 2518-16-m	128 408 01
TK PC 3625-11-m	127 412 01
TK PC 3625-16-m	127 912 01

Enclosure type	Order-No.
TK PC 55-4-tm	137 455 01
TK PC 75-4-tm	137 475 01
TK PC 75-4-2tv	138 475 01
TK PC 77-6-tm	137 001 01
TK PC 77-8-tm	137 501 01
TK PC 97-6-tm	137 002 01
TK PC 97-8-tm	137 502 01
TK PC 99-6-tm	137 003 01
TK PC 99-8-tm	137 503 01
TK PC 1005-4-tm	137 480 01
TK PC 1005-4-to	130 480 01
TK PC 1111-7-tm	137 004 01
TK PC 1111-9-tm	137 504 01
TK PC 1309-6-tm	137 009 01
TK PC 1309-8-tm	137 509 01
TK PC 1313-7-tm	137 005 01
TK PC 1313-10-tm	137 505 01
TK PC 1809-6-tm	137 010 01
TK PC 1809-8-tm	137 510 01
TK PC 1811-6f-tm	137 014 01
TK PC 1811-8f-tm	137 514 01
TK PC 1811-9-tm	137 006 01
TK PC 1811-11-tm	137 506 01
TK PC 1811-13f-tm	138 014 01
TK PC 1811-16-tm	138 006 01
TK PC 1813-6f-tm	137 015 01
TK PC 1813-8f-tm	137 515 01
TK PC 1813-9-tm	137 016 01
TK PC 1813-11-tm	137 516 01
TK PC 1813-13f-tm	138 015 01
TK PC 1813-16-tm	138 016 01
TK PC 1818-6f-tm	137 013 01
TK PC 1818-8f-tm	137 513 01
TK PC 1818-9-tm	137 007 01
TK PC 1818-11-tm	137 507 01
TK PC 1818-13f-tm	138 013 01
TK PC 1818-16-tm	138 007 01
TK PC 2518-6f-tm	137 011 01
TK PC 2518-8f-tm	137 511 01
TK PC 2518-9-tm	137 008 01
TK PC 2518-11-tm	137 508 01
TK PC 2518-13f-tm	138 011 01
TK PC 2518-16-tm	138 008 01
TK PC 3625-11-tm	137 012 01
TK PC 3625-16-tm	137 512 01

52 x 50 x 35 mm
65 x 50 x 35 mm
65 x 50 x 35 mm
65 x 65 x 57 mm
65 x 65 x 81 mm
94 x 65 x 57 mm
94 x 65 x 81 mm
94 x 94 x 57 mm
94 x 94 x 81 mm
100 x 52 x 37 mm
100 x 52 x 37 mm
110 x 110 x 66 mm
110 x 110 x 90 mm
130 x 94 x 57 mm
130 x 94 x 81 mm
130 x 130 x 75 mm
130 x 130 x 99 mm
180 x 94 x 57 mm
180 x 94 x 81 mm
180 x 110 x 63 mm
180 x 110 x 84 mm
180 x 110 x 90 mm
180 x 110 x 111 mm
180 x 110 x 137 mm
180 x 110 x 165 mm
180 x 130 x 63 mm
180 x 130 x 84 mm
180 x 130 x 90 mm
180 x 130 x 111 mm
180 x 130 x 137 mm
180 x 130 x 165 mm
182 x 180 x 63 mm
182 x 180 x 84 mm
182 x 180 x 90 mm
182 x 180 x 111 mm
182 x 180 x 137 mm
182 x 180 x 165 mm
254 x 180 x 63 mm
254 x 180 x 84 mm
254 x 180 x 90 mm
254 x 180 x 111 mm
254 x 180 x 137 mm
254 x 180 x 165 mm
361 x 254 x 111 mm
361 x 254 x 165 mm

Industrial Enclosures TK PS | TK PC

TK 55

TK PC 55

52 x 50 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), U_i=690V AC, U_i=1000V DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 55-4-m	grey	metric	35	12745501
TK PC 55-4-o	grey	none	35	12045501
TK PC 55-4-tm	transparent	metric	35	13745501
TK PC 55-4-to	transparent	none	35	13045501

TK PC 55 with cable gland

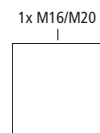
52 x 50 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), DNV (Class: Ships and Offshore Installations), U_i=690V AC, U_i=1000V DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 55-4-v	grey	1x KVR	35	12945501
TK PC 55-4-tv	transparent	1x KVR	35	13945501

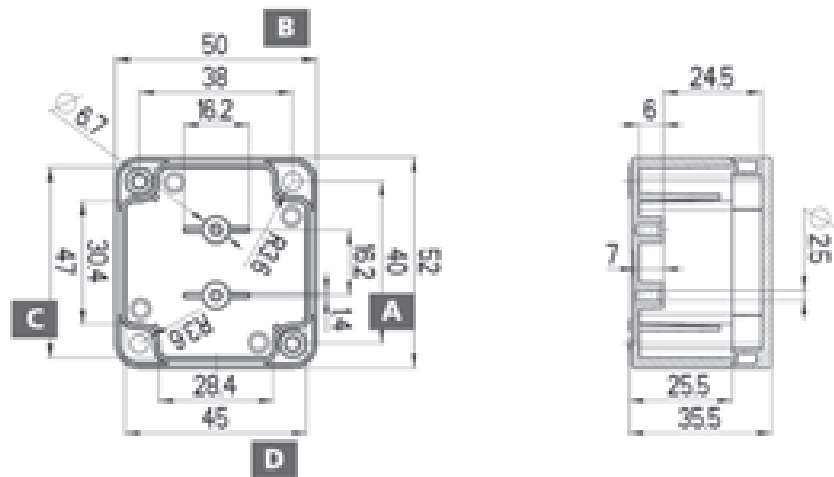
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	1	1	-	-	-	-	-
B/D	1	1	-	-	-	-	-



Industrial Enclosures TK PS | TK PC

TK 75

TK PC 75

65 x 50 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 75-4-m	grey	metric	35	12747501
TK PC 75-4-o	grey	none	35	12047501
TK PC 75-4-tm	transparent	metric	35	13747501
TK PC 75-4-to	transparent	none	35	13047501

TK PC 75 with cable gland

65 x 50 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 75-4-v	grey	1x KVR	35	12947501
TK PC 75-4-tv	transparent	1x KVR	35	13947501
TK PC 75-4-2v	grey	2x KVR	35	12847501
TK PC 75-4-2tv	transparent	2x KVR	35	13847501

With knockouts

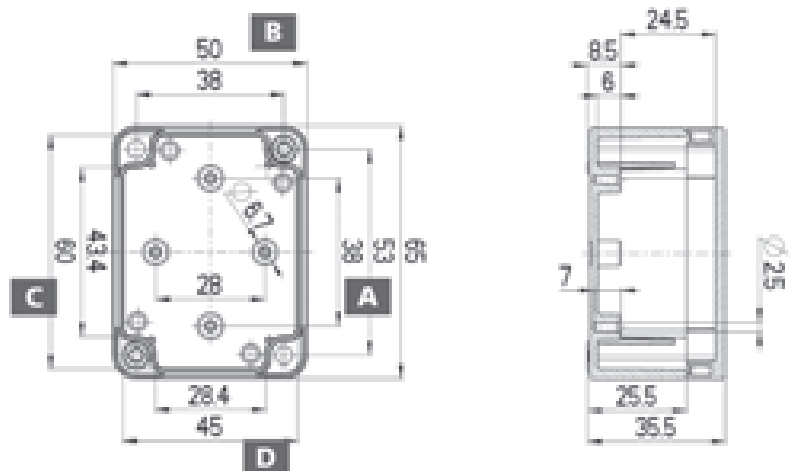
1x M16/M20



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	2	1	-	-	-	-	-
B/D	1	1	-	-	-	-	-



Industrial Enclosures TK PS | TK PC

TK 77

TK PS 7765 x 65 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 77-6-m	grey	metric	57	10540101
TK PS 77-8-m	grey	metric	81	10590101
TK PS 77-6-o	grey	none	57	11040101
TK PS 77-8-o	grey	none	81	11090101
TK PS 77-6-tm	transparent	metric	57	10600101
TK PS 77-8-tm	transparent	metric	81	10650101
TK PS 77-6-to	transparent	none	57	11100101
TK PS 77-8-to	transparent	none	81	11150101

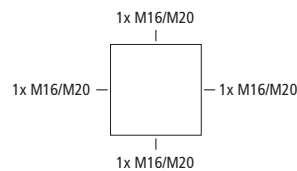
TK PC 7765 x 65 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 77-6-m	grey	metric	57	12740101
TK PC 77-8-m	grey	metric	81	12790101
TK PC 77-6-tm	transparent	metric	57	13700101
TK PC 77-8-tm	transparent	metric	81	13750101

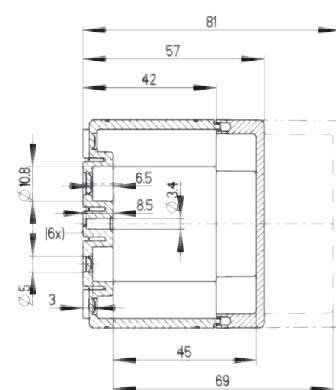
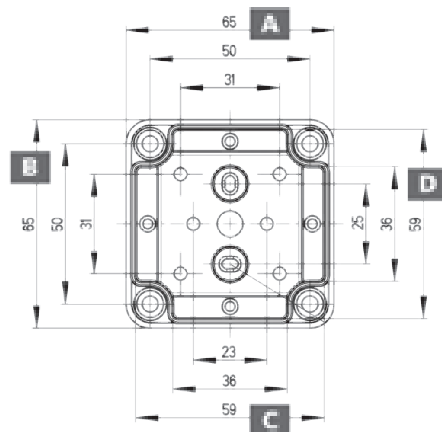
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	2	1	1	-	-	-	-
B/D	2	1	1	-	-	-	-



Industrial Enclosures TK PS | TK PC

TK 97

TK PS 97

94 x 65 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 97-6-m	grey	metric	57	10540201
TK PS 97-8-m	grey	metric	81	10590201
TK PS 97-6-o	grey	none	57	11040201
TK PS 97-8-o	grey	none	81	11090201
TK PS 97-6-tm	transparent	metric	57	10600201
TK PS 97-8-tm	transparent	metric	81	10650201
TK PS 97-6-to	transparent	none	57	11100201
TK PS 97-8-to	transparent	none	81	11150201

Industrial enclosures
Empty enclosures

TK PC 97

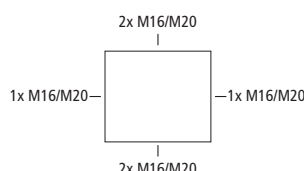
94 x 65 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 97-6-m	grey	metric	57	12740201
TK PC 97-8-m	grey	metric	81	12790201
TK PC 97-6-tm	transparent	metric	57	13700201
TK PC 97-8-tm	transparent	metric	81	13750201

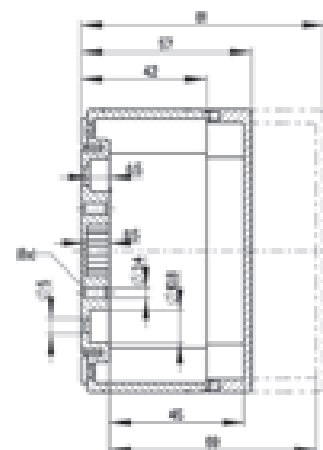
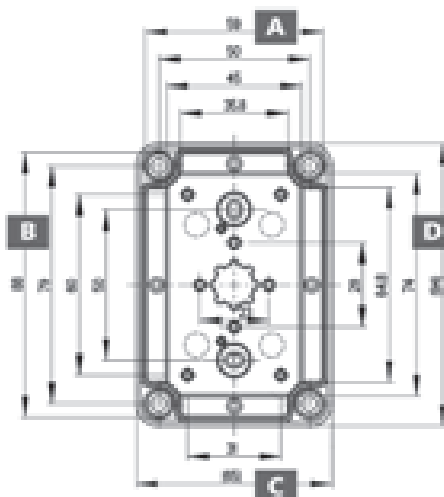
With knockouts



Without knockouts

Max. possible through openings per box side

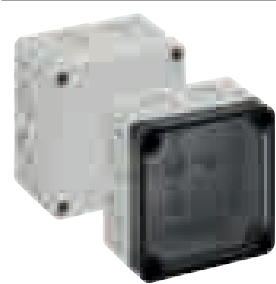
M	12	16	20	25	32	40	50
A/C	2	1	1	1	-	-	-
B/D	3	2	2	1	-	-	-



Industrial Enclosures TK PS | TK PC

TK 99

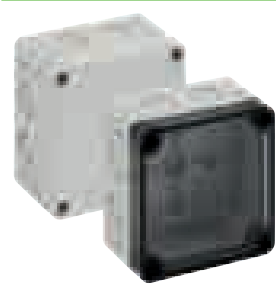
TK PC 9994 x 94 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 99-6-m	grey	metric	57	12740301
TK PC 99-8-m	grey	metric	81	12790301
TK PC 99-6-tm	transparent	metric	57	13700301
TK PC 99-8-tm	transparent	metric	81	13750301

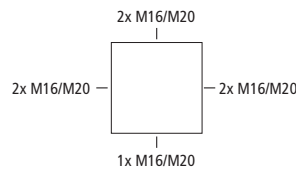
TK PS 9994 x 94 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 99-6-m	grey	metric	57	10540301
TK PS 99-8-m	grey	metric	81	10590301
TK PS 99-6-o	grey	none	57	11040301
TK PS 99-8-o	grey	none	81	11090301
TK PS 99-6-tm	transparent	metric	57	10600301
TK PS 99-8-tm	transparent	metric	81	10650301
TK PS 99-6-to	transparent	none	57	11100301
TK PS 99-8-to	transparent	none	81	11150301

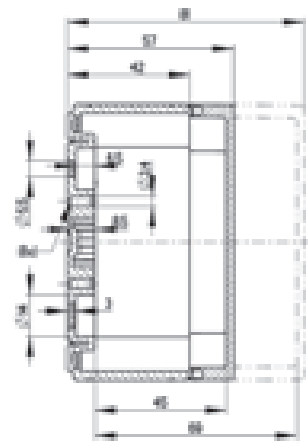
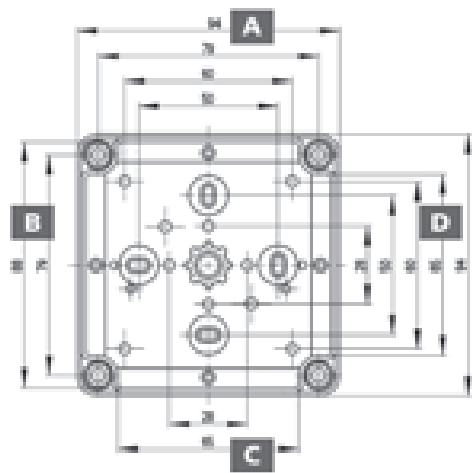
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	3	2	2	-	-	-	-
B/D	3	2	2	-	-	-	-



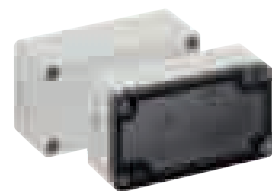
Current prices can be found on our website: www.spelsberg.com

Industrial Enclosures TK PS | TK PC

TK 1005

TK PC 1005

100 x 52 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1005-4-m	grey	metric	37	12748001
TK PC 1005-4-o	grey	none	37	12048001
TK PC 1005-4-tm	transparent	metric	37	13748001
TK PC 1005-4-to	transparent	none	37	13048001

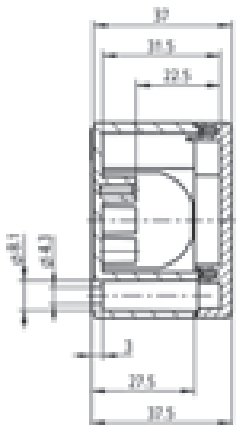
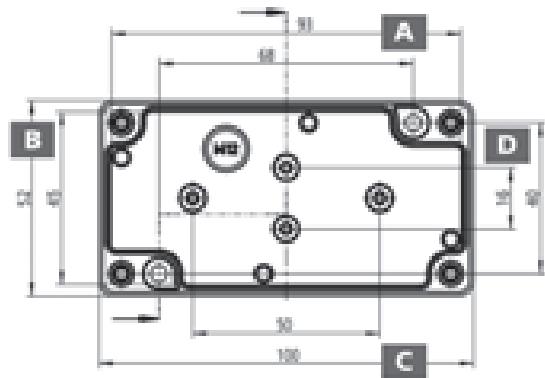
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	2	2	-	-	-	-	-
B/D	1	1	-	-	-	-	-

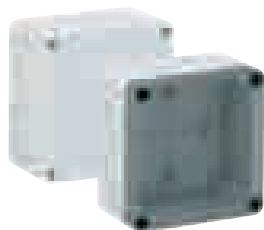


Industrial Enclosures TK PS | TK PC

TK 1111

TK PS 1111

110 x 110 mm

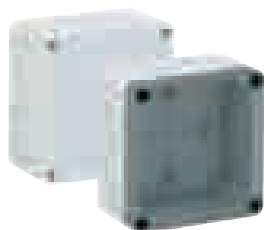


Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1111-7-m	grey	metric	66	10540401
TK PS 1111-9-m	grey	metric	90	10590401
TK PS 1111-7-o	grey	none	66	11040401
TK PS 1111-9-o	grey	none	90	11090401
TK PS 1111-7-tm	transparent	metric	66	10600401
TK PS 1111-9-tm	transparent	metric	90	10650401
TK PS 1111-7-to	transparent	none	66	11100401
TK PS 1111-9-to	transparent	none	90	11150401

TK PC 1111

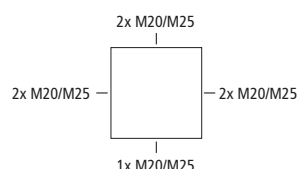
110 x 110 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1111-7-m	grey	metric	66	12740401
TK PC 1111-9-m	grey	metric	90	12790401
TK PC 1111-7-tm	transparent	metric	66	13700401
TK PC 1111-9-tm	transparent	metric	90	13750401

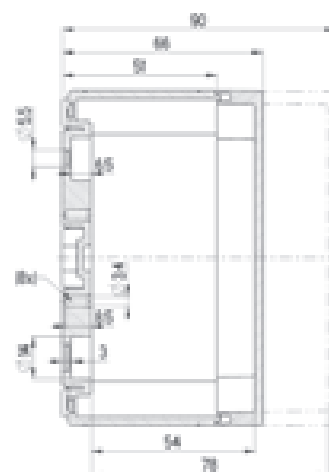
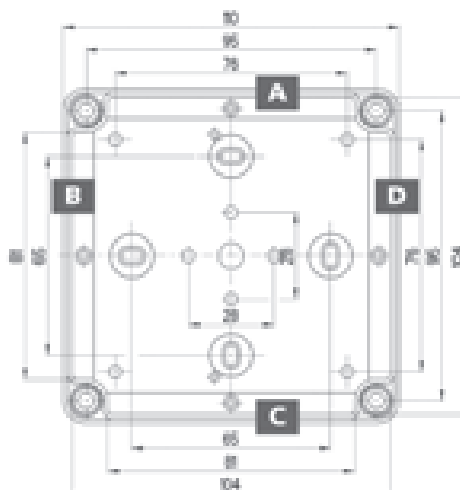
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	8	4	2	2	-	-	-
B/D	8	4	2	2	-	-	-



Current prices can be found on our website: www.spelsberg.com

Industrial Enclosures TK PS | TK PC

TK 1309

TK PS 1309

130 x 94 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1309-6-m	grey	metric	57	10540901
TK PS 1309-8-m	grey	metric	81	10590901
TK PS 1309-6-o	grey	none	57	11040901
TK PS 1309-8-o	grey	none	81	11090901
TK PS 1309-6-tm	transparent	metric	57	10600901
TK PS 1309-8-tm	transparent	metric	81	10650901
TK PS 1309-6-to	transparent	none	57	11100901
TK PS 1309-8-to	transparent	none	81	11150901

TK PC 1309

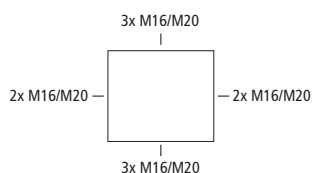
130 x 94 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1309-6-m	grey	metric	57	12740901
TK PC 1309-8-m	grey	metric	81	12790901
TK PC 1309-6-tm	transparent	metric	57	13700901
TK PC 1309-8-tm	transparent	metric	81	13750901

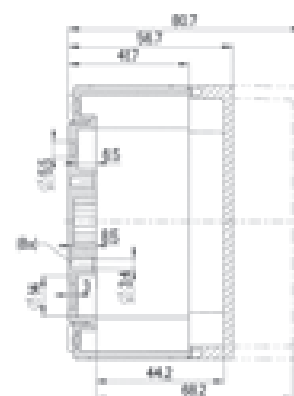
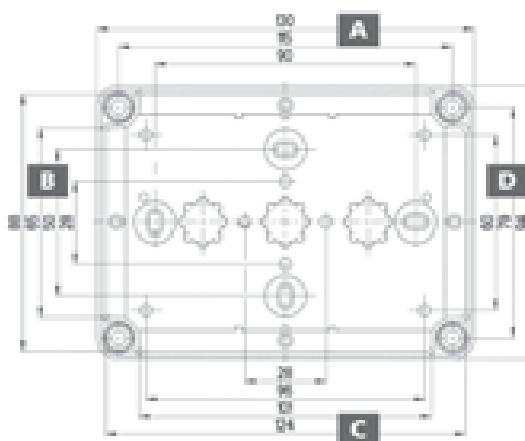
With knockouts



Without knockouts

Max. possible through openings per box side

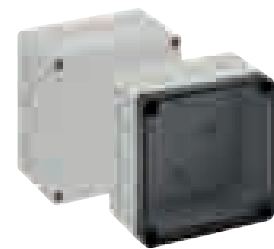
M	12	16	20	25	32	40	50
A/C	5	4	3	2	—	—	—
B/D	3	2	2	1	—	—	—



Industrial Enclosures TK PS | TK PC

TK 1313

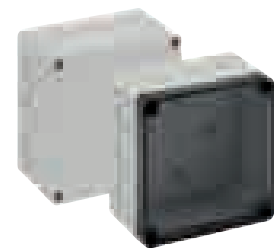
TK PS 1313130 x 130 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1313-7-m	grey	metric	75	10540501
TK PS 1313-10-m	grey	metric	99	10590501
TK PS 1313-7-o	grey	none	75	11040501
TK PS 1313-10-o	grey	none	99	11090501
TK PS 1313-7-tm	transparent	metric	75	10600501
TK PS 1313-10-tm	transparent	metric	99	10650501
TK PS 1313-7-to	transparent	none	75	11100501
TK PS 1313-10-to	transparent	none	99	11150501

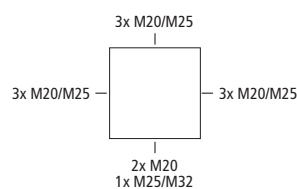
TK PC 1313130 x 130 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1313-7-m	grey	metric	75	12740501
TK PC 1313-10-m	grey	metric	99	12790501
TK PC 1313-7-tm	transparent	metric	75	13700501
TK PC 1313-10-tm	transparent	metric	99	13750501

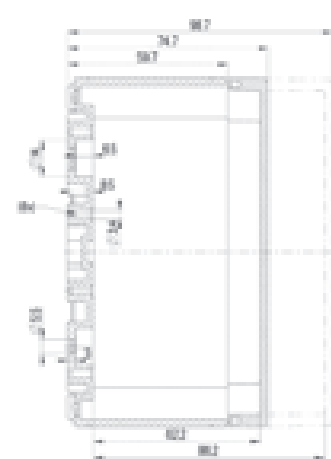
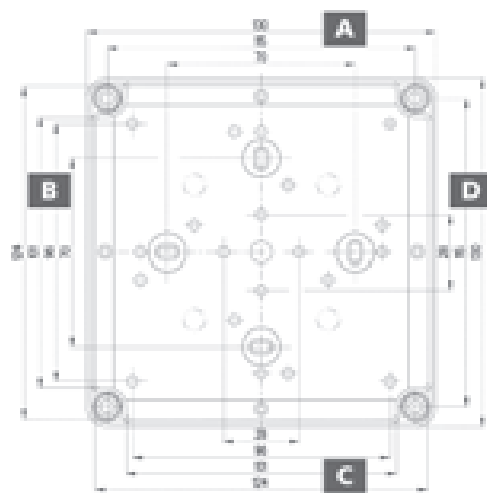
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	10	6	3	3	2	-	-
B/D	10	6	3	3	2	-	-

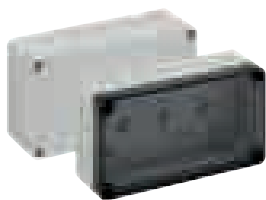


Industrial Enclosures TK PS | TK PC

TK 1809

TK PS 1809

180 x 94 mm



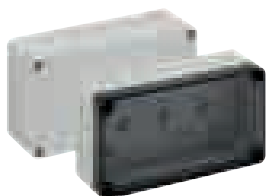
Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1809-6-m	grey	metric	57	10541001
TK PS 1809-8-m	grey	metric	81	10591001
TK PS 1809-6-o	grey	none	57	11041001
TK PS 1809-8-o	grey	none	81	11091001
TK PS 1809-6-tm	transparent	metric	57	10601001
TK PS 1809-8-tm	transparent	metric	81	10651001
TK PS 1809-6-to	transparent	none	57	11101001
TK PS 1809-8-to	transparent	none	81	11151001

Industrial enclosures
Empty enclosures

TK PC 1809

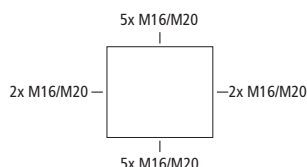
180 x 94 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1809-6-m	grey	metric	57	12741001
TK PC 1809-8-m	grey	metric	81	12791001
TK PC 1809-6-tm	transparent	metric	57	13701001
TK PC 1809-8-tm	transparent	metric	81	13751001

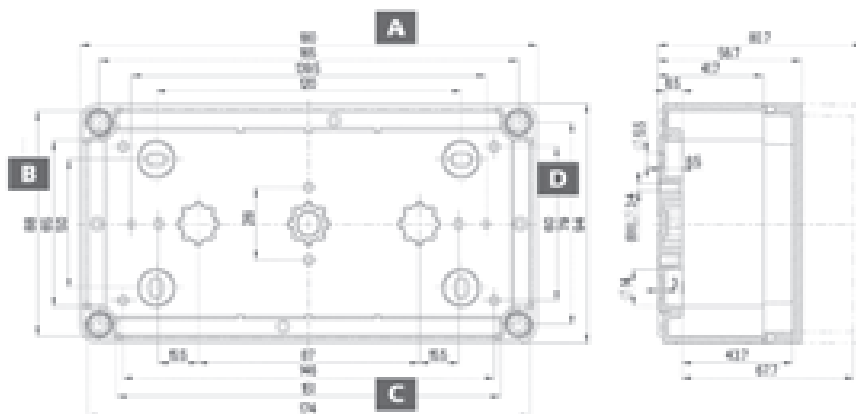
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	8	6	5	4	—	—	—
B/D	3	2	2	1	—	—	—



Industrial Enclosures TK PS | TK PC

TK 1811 Flat

TK PS 1811 flat

180 x 110 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1811-6f-m	grey	metric	63	10541401
TK PS 1811-8f-m	grey	metric	84	10591401
TK PS 1811-13f-m	grey	metric	137	10441401
TK PS 1811-6f-o	grey	none	63	11041401
TK PS 1811-8f-o	grey	none	84	11091401
TK PS 1811-13f-o	grey	none	137	10941401
TK PS 1811-6f-tm	transparent	metric	63	10601401
TK PS 1811-8f-tm	transparent	metric	84	10651401
TK PS 1811-13f-tm	transparent	metric	137	10701401
TK PS 1811-6f-to	transparent	none	63	11101401
TK PS 1811-8f-to	transparent	none	84	11151401
TK PS 1811-13f-to	transparent	none	137	11201401

TK PC 1811 flat

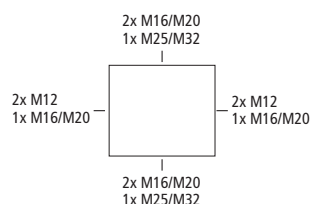
180 x 110 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1811-6f-m	grey	metric	63	12741401
TK PC 1811-8f-m	grey	metric	84	12791401
TK PC 1811-13f-m	grey	metric	137	12841401
TK PC 1811-6f-tm	transparent	metric	63	13701401
TK PC 1811-8f-tm	transparent	metric	84	13751401
TK PC 1811-13f-tm	transparent	metric	137	13801401

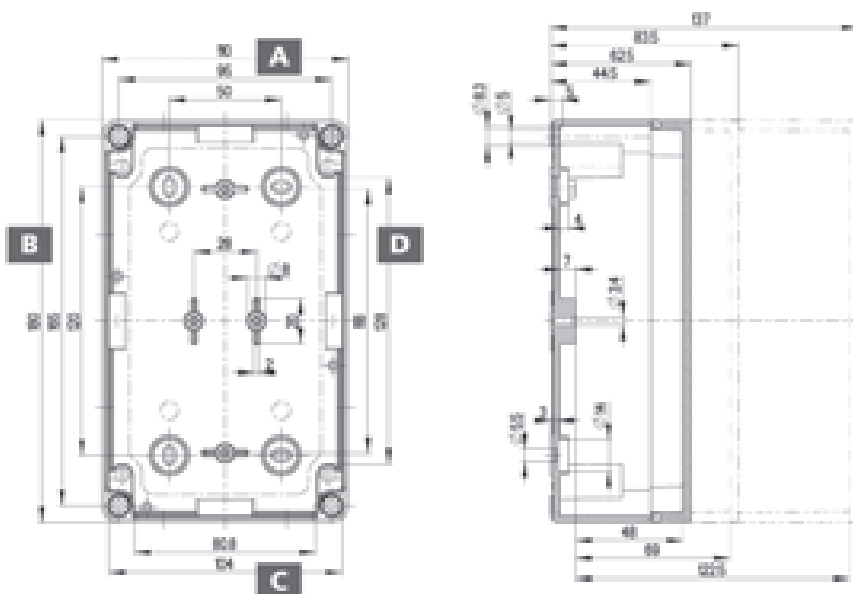
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	4	3	2	2	1	-	-
B/D	8	4	4	3	2	-	-



Industrial Enclosures TK PS | TK PC

TK 1811

TK PS 1811

180 x 110 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1811-9-m	grey	metric	90	10540601
TK PS 1811-11-m	grey	metric	111	10590601
TK PS 1811-16-m	grey	metric	165	10440601
TK PS 1811-9-o	grey	none	90	11040601
TK PS 1811-11-o	grey	none	111	11090601
TK PS 1811-16-o	grey	none	165	10940601
TK PS 1811-9-tm	transparent	metric	90	10600601
TK PS 1811-11-tm	transparent	metric	111	10650601
TK PS 1811-16-tm	transparent	metric	165	10700601
TK PS 1811-9-to	transparent	none	90	11100601
TK PS 1811-11-to	transparent	none	111	11150601
TK PS 1811-16-to	transparent	none	165	11200601

Industrial enclosures
Empty enclosures

TK PC 1811

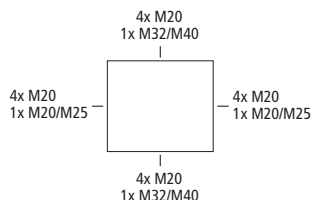
180 x 110 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1811-9-m	grey	metric	90	12740601
TK PC 1811-11-m	grey	metric	111	12790601
TK PC 1811-16-m	grey	metric	165	12840601
TK PC 1811-9-tm	transparent	metric	90	13700601
TK PC 1811-11-tm	transparent	metric	111	13750601
TK PC 1811-16-tm	transparent	metric	165	13800601

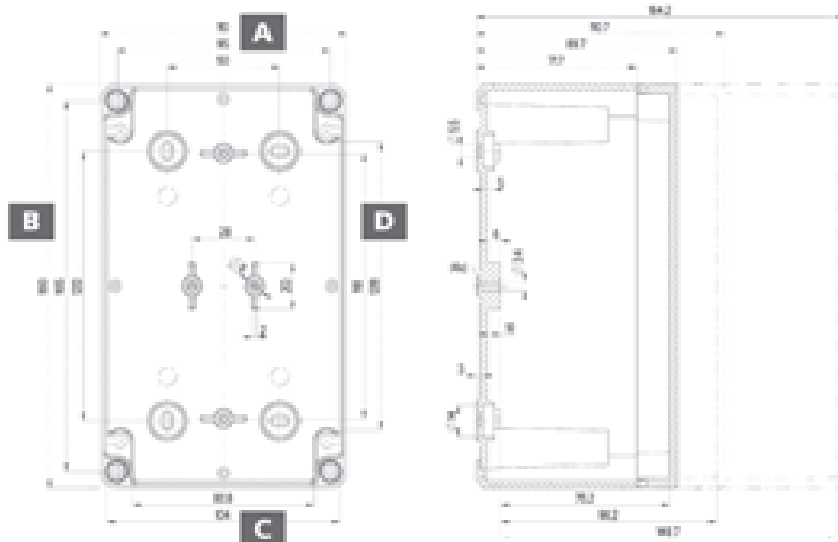
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	12	6	5	3	1	1	1
B/D	20	10	8	5	3	2	1



Industrial Enclosures TK PS | TK PC

TK 1813 Flat

TK PS 1813 flat

180 x 130 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1813-6f-m	grey	metric	63	10541501
TK PS 1813-8f-m	grey	metric	84	10591501
TK PS 1813-13f-m	grey	metric	137	10441501
TK PS 1813-6f-o	grey	none	63	11041501
TK PS 1813-8f-o	grey	none	84	11091501
TK PS 1813-13f-o	grey	none	137	10941501
TK PS 1813-6f-tm	transparent	metric	63	10601501
TK PS 1813-8f-tm	transparent	metric	84	10651501
TK PS 1813-13f-tm	transparent	metric	137	10701501
TK PS 1813-6f-to	transparent	none	63	11101501
TK PS 1813-8f-to	transparent	none	84	11151501
TK PS 1813-13f-to	transparent	none	137	11201501

TK PC 1813 flat

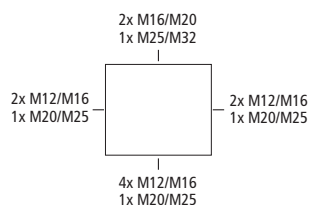
180 x 130 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1813-6f-m	grey	metric	63	12741501
TK PC 1813-13f-m	grey	metric	137	12841501
TK PC 1813-8f-m	grey	metric	84	12791501
TK PC 1813-6f-tm	transparent	metric	63	13701501
TK PC 1813-8f-tm	transparent	metric	84	13751501
TK PC 1813-13f-tm	transparent	metric	137	13801501

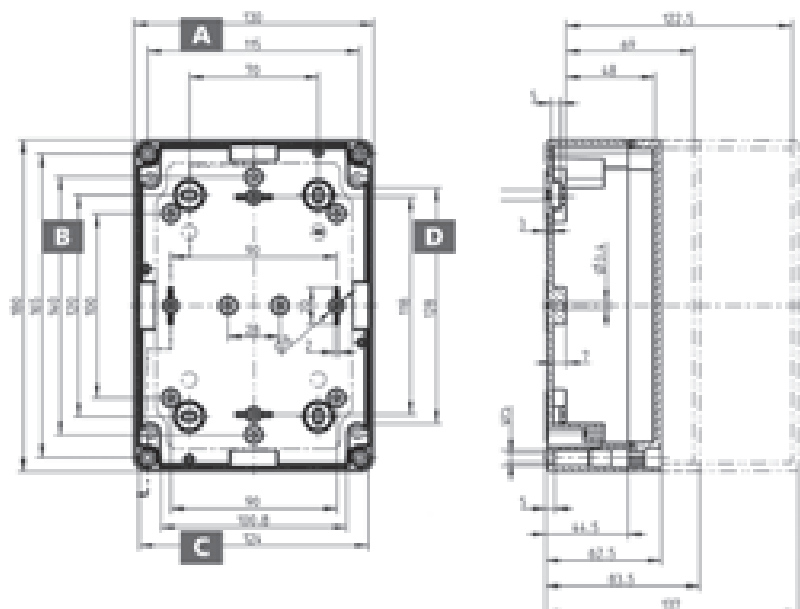
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	10	4	3	2	1	-	-
B/D	12	5	4	4	1	-	-

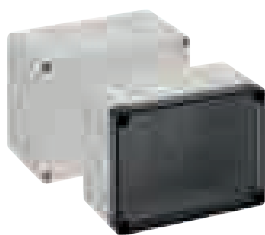


Industrial Enclosures TK PS | TK PC

TK 1813

TK PS 1813

180 x 130 mm

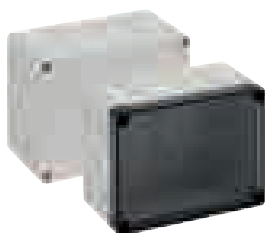


Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1813-9-m	grey	metric	90	10541601
TK PS 1813-16-o	grey	none	165	10941601
TK PS 1813-11-o	grey	none	111	11091601
TK PS 1813-9-o	grey	none	90	11041601
TK PS 1813-16-m	grey	metric	165	10441601
TK PS 1813-11-m	grey	metric	111	10591601
TK PS 1813-9-tm	transparent	metric	90	10601601
TK PS 1813-11-to	transparent	none	111	11151601
TK PS 1813-16-to	transparent	none	165	11201601
TK PS 1813-9-to	transparent	none	90	11101601
TK PS 1813-11-tm	transparent	metric	111	10651601
TK PS 1813-16-tm	transparent	metric	165	10701601

TK PC 1813

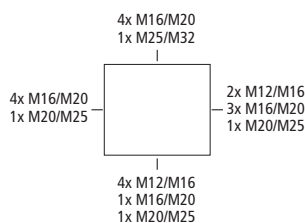
180 x 130 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1813-9-m	grey	metric	90	12741601
TK PC 1813-16-m	grey	metric	165	12841601
TK PC 1813-11-m	grey	metric	111	12791601
TK PC 1813-9-tm	transparent	metric	90	13701601
TK PC 1813-16-tm	transparent	metric	165	13801601
TK PC 1813-11-tm	transparent	metric	111	13751601

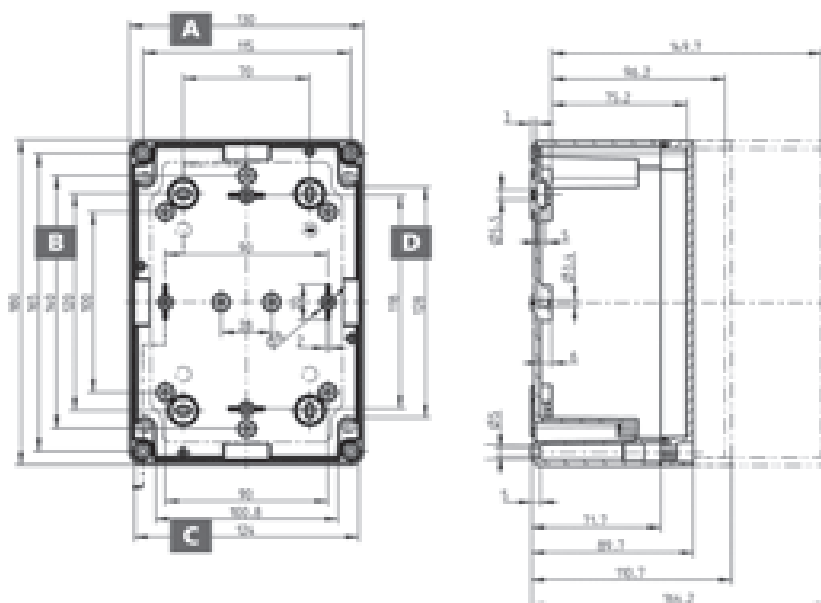
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	15	8	8	3	2	1	1
B/D	20	10	8	5	3	2	1



Industrial Enclosures TK PS | TK PC

TK 1818 Flat

TK PS 1818 flat

182 x 180 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1818-6f-m	grey	metric	63	10541301
TK PS 1818-8f-m	grey	metric	84	10591301
TK PS 1818-13f-m	grey	metric	137	10441301
TK PS 1818-6f-o	grey	none	63	11041301
TK PS 1818-8f-o	grey	none	84	11091301
TK PS 1818-13f-o	grey	none	137	10941301
TK PS 1818-6f-tm	transparent	metric	63	10601301
TK PS 1818-8f-tm	transparent	metric	84	10651301
TK PS 1818-13f-tm	transparent	metric	137	10701301
TK PS 1818-6f-to	transparent	none	63	11101301
TK PS 1818-8f-to	transparent	none	84	11151301
TK PS 1818-13f-to	transparent	none	137	11201301

TK PC 1818 flat

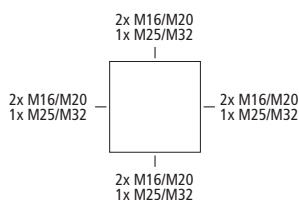
182 x 180 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1818-6f-m	grey	metric	63	12741301
TK PC 1818-8f-m	grey	metric	84	12791301
TK PC 1818-13f-m	grey	metric	137	12841301
TK PC 1818-6f-tm	transparent	metric	63	13701301
TK PC 1818-8f-tm	transparent	metric	84	13751301
TK PC 1818-13f-tm	transparent	metric	137	13801301

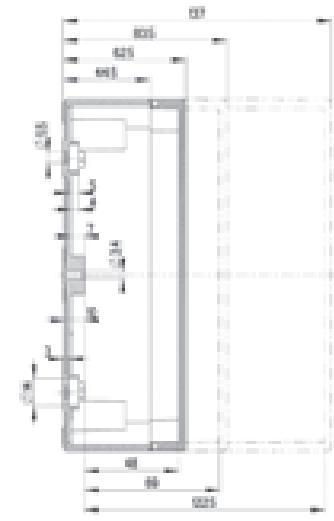
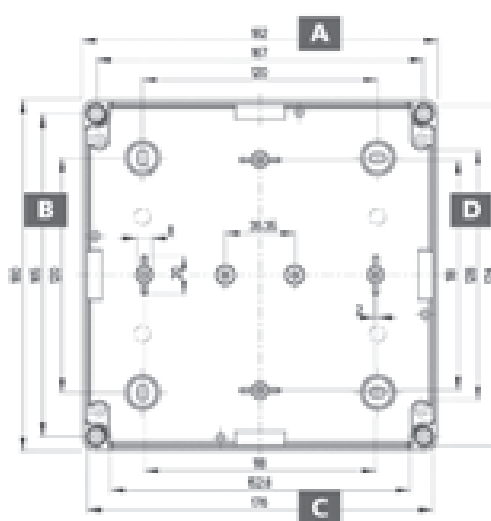
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	12	6	4	3	1	-	-
B/D	12	6	4	3	1	-	-



Industrial Enclosures TK PS | TK PC

TK 1818

TK PS 1818

182 x 180 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 1818-9-m	grey	metric	90	10540701
TK PS 1818-11-m	grey	metric	111	10590701
TK PS 1818-16-m	grey	metric	165	10440701
TK PS 1818-9-o	grey	none	90	11040701
TK PS 1818-11-o	grey	none	111	11090701
TK PS 1818-16-o	grey	none	165	10940701
TK PS 1818-9-tm	transparent	metric	90	10600701
TK PS 1818-11-tm	transparent	metric	111	10650701
TK PS 1818-16-tm	transparent	metric	165	10700701
TK PS 1818-9-to	transparent	none	90	11100701
TK PS 1818-11-to	transparent	none	111	11150701
TK PS 1818-16-to	transparent	none	165	11200701

Industrial enclosures
Empty enclosures

TK PC 1818

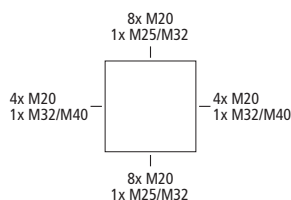
182 x 180 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 1818-9-m	grey	metric	90	12740701
TK PC 1818-11-m	grey	metric	111	12790701
TK PC 1818-16-m	grey	metric	165	12840701
TK PC 1818-9-tm	transparent	metric	90	13700701
TK PC 1818-11-tm	transparent	metric	111	13750701
TK PC 1818-16-tm	transparent	metric	165	13800701

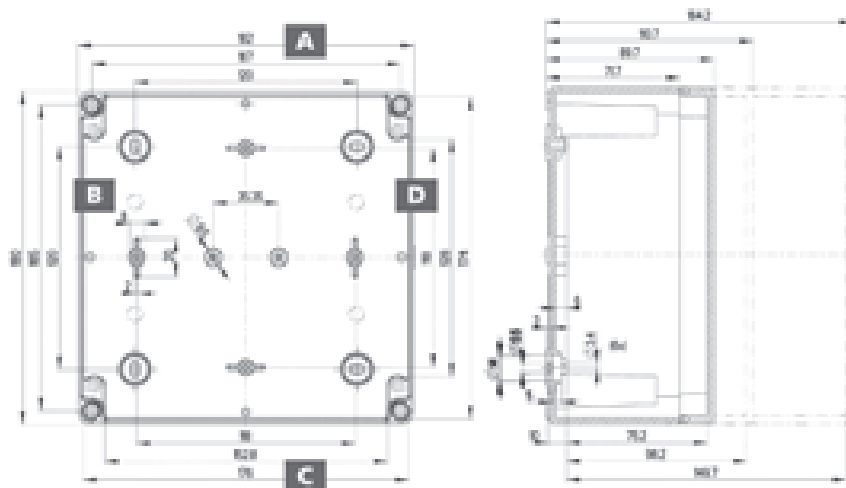
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	23	12	10	5	3	3	2
B/D	20	10	8	5	3	2	1



Industrial Enclosures TK PS | TK PC

TK 2518 Flat

TK PS 2518 flat

254 x 180 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 2518-6f-m	grey	metric	63	10541101
TK PS 2518-8f-m	grey	metric	84	10591101
TK PS 2518-13f-m	grey	metric	137	10441101
TK PS 2518-6f-o	grey	none	63	11041101
TK PS 2518-8f-o	grey	none	84	11091101
TK PS 2518-13f-o	grey	none	137	10941101
TK PS 2518-6f-tm	transparent	metric	63	10601101
TK PS 2518-8f-tm	transparent	metric	84	10651101
TK PS 2518-13f-tm	transparent	metric	137	10701101
TK PS 2518-6f-to	transparent	none	63	11101101
TK PS 2518-8f-to	transparent	none	84	11151101
TK PS 2518-13f-to	transparent	none	137	11201101

TK PC 2518 flat

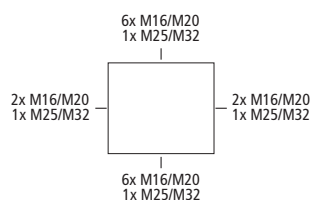
254 x 180 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 2518-6f-m	grey	metric	63	12741101
TK PC 2518-8f-m	grey	metric	84	12791101
TK PC 2518-13f-m	grey	metric	137	12841101
TK PC 2518-6f-tm	transparent	metric	63	13701101
TK PC 2518-8f-tm	transparent	metric	84	13751101
TK PC 2518-13f-tm	transparent	metric	137	13801101

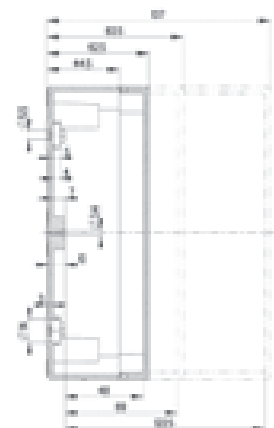
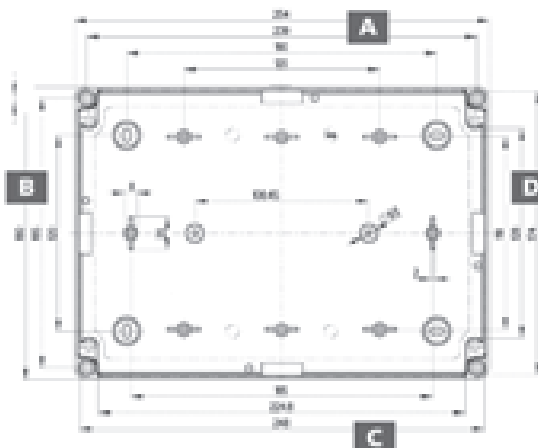
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	22	10	7	6	1	-	-
B/D	12	5	4	3	1	-	-



Industrial Enclosures TK PS | TK PC

TK 2518

TK PS 2518

254 x 180 mm



Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 2518-9-m	grey	metric	90	10540801
TK PS 2518-11-m	grey	metric	111	10590801
TK PS 2518-16-m	grey	metric	165	10440801
TK PS 2518-9-o	grey	none	90	11040801
TK PS 2518-11-o	grey	none	111	11090801
TK PS 2518-16-o	grey	none	165	10940801
TK PS 2518-9-tm	transparent	metric	90	10600801
TK PS 2518-11-tm	transparent	metric	111	10650801
TK PS 2518-16-tm	transparent	metric	165	10700801
TK PS 2518-9-to	transparent	none	90	11100801
TK PS 2518-11-to	transparent	none	111	11150801
TK PS 2518-16-to	transparent	none	165	11200801

TK PC 2518

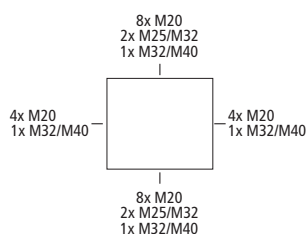
254 x 180 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 2518-9-m	grey	metric	90	12740801
TK PC 2518-11-m	grey	metric	111	12790801
TK PC 2518-16-m	grey	metric	165	12840801
TK PC 2518-9-tm	transparent	metric	90	13700801
TK PC 2518-11-tm	transparent	metric	111	13750801
TK PC 2518-16-tm	transparent	metric	165	13800801

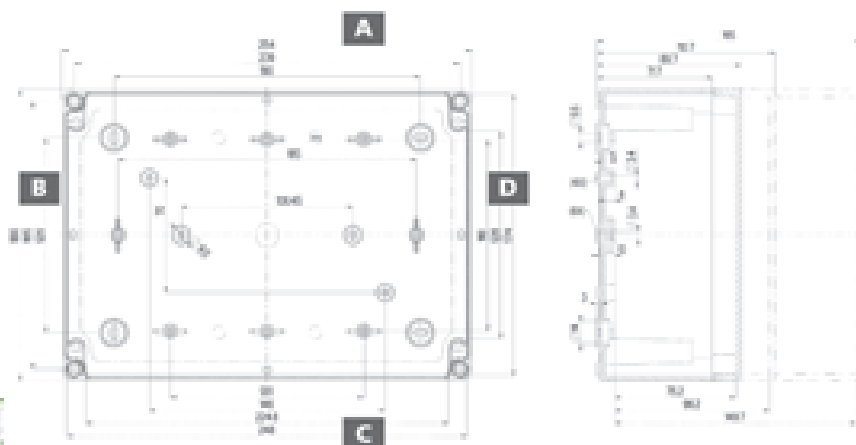
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	33	18	14	11	5	4	3
B/D	20	10	8	5	3	2	1



Industrial Enclosures TK PS | TK PC

TK 3625

TK PS 3625

361 x 254 mm

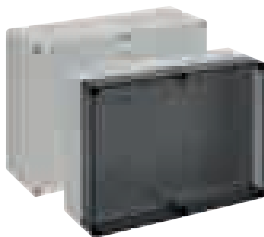


Empty enclosure, with protection class IP66, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Description	Cover	Knockouts	Height/mm	Order no.
TK PS 3625-11-m	grey	metric	111	10541201
TK PS 3625-16-m	grey	metric	165	10591201
TK PS 3625-11-o	grey	none	111	11041201
TK PS 3625-16-o	grey	none	165	11091201
TK PS 3625-11-tm	transparent	metric	111	10601201
TK PS 3625-16-tm	transparent	metric	165	10651201
TK PS 3625-11-to	transparent	none	111	11101201
TK PS 3625-16-to	transparent	none	165	11151201

TK PC 3625

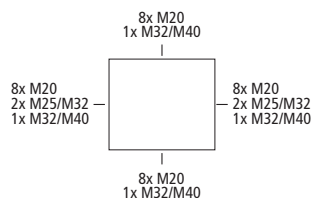
361 x 254 mm



Empty enclosure, with protection class IP66, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), DNV (Class: Ships and Offshore Installations), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
TK PC 3625-11-m	grey	metric	111	12741201
TK PC 3625-16-m	grey	metric	165	12791201
TK PC 3625-11-tm	transparent	metric	111	13701201
TK PC 3625-16-tm	transparent	metric	165	13751201

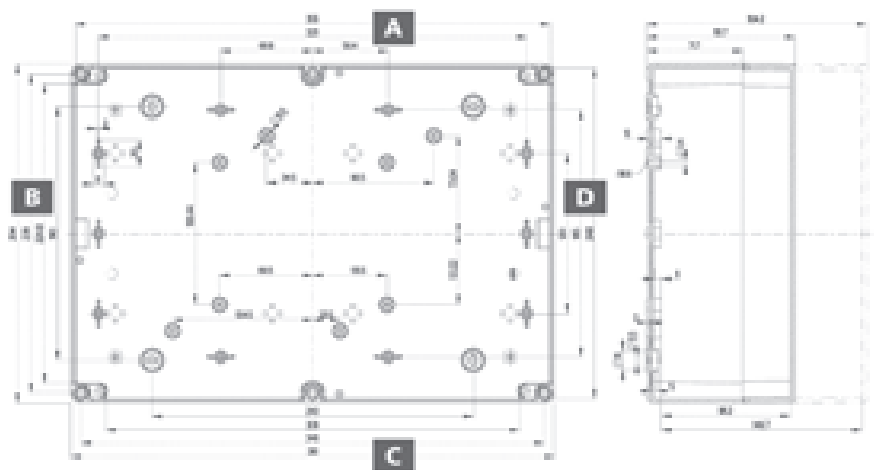
With knockouts



Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	42	24	16	14	8	4	4
B/D	33	18	14	11	5	4	3



Current prices can be found on our website: www.spelsberg.com

Industrial Enclosures TK PS | TK PC

TK PS | TK PC Accessories

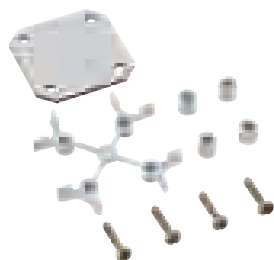
Assembly plate, plastic TK 55 - 75



Assembly plate made from plastic (polycarbonate) with assembly plate bracket for assembly without tools, 2 mm thick, grey

Description	Order no.
TK MPI-55 for TK PC 55, kit = 5 pieces	19505501
TK MPI-75 for TK PC 75, kit = 5 pieces	19507501

Assembly plate insulating material for TK and ALS series



Assembly plate in melamine-clad insulating material, 2.5 mm thick, incl. fixing screws and spacers, grey

Description	Dimensions/mm	Order no.
TK MPI-77 TK PS/PC 77 + ALS 99	45 x 45 x 2,5	19500101
TK MPI-97 TK PS/PC 97	74 x 45 x 2,5	19500201
TK MPI-99 TK PS/PC 99 + ALS 1212	74 x 74 x 2,5	19500301
TK MPI-1111 TK PS/PC 1111 + ALS 1414	90 x 90 x 2,5	19500401
TK MPI-1309 TK PS/PC 1309	110 x 74 x 2,5	19500901
TK MPI-1313 TK PS/PC 1313 + ALS 1515	110 x 110 x 2,5	19500501
TK MPI-1809 TK PS/PC 1809	160 x 74 x 2,5	19501001

Assembly plate insulating material for TK and ALS series



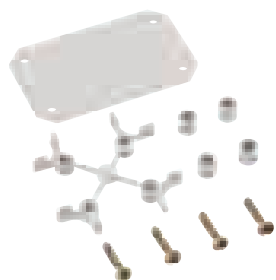
Assembly plate in melamine-clad insulating material, 2.5 mm thick, incl. fixing screws, grey

Description	Dimensions/mm	Order no.
TK MPI-1811 TK PS/PC 1811 + ALS 2011	150 x 90 x 2,5	19500601
TK MPI-1813 TK PS/PC 1813	100 x 146 x 2,5	19501101
TK MPI-1818 TK PS/PC 1818 + ALS 2020	150 x 150 x 2,5	19500701
TK MPI-2518 TK PS/PC 2518 + ALS 2720	150 x 220 x 2,5	19500801
TK MPI-3625 TK PS/PC 3625 + ALS 3927	331 x 220 x 2,5	19501201

Industrial Enclosures TK PS | TK PC

TK PS | TK PC Accessories

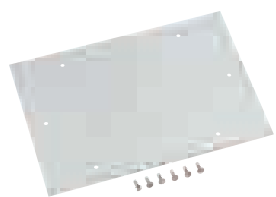
Assembly plate, steel plate for TK and ALS series



Assembly plate in galvanized steel melamine-clad insulating material, 2 mm thick, incl. fixing screws, grey

Description	Dimensions/mm	Order no.
TK MPS-77 TK PS/PC 77 + ALS 99	45 x 45 x 2	19700101
TK MPS-97 TK PS/PC 97	45 x 74 x 2	19700201
TK MPS-99 TK PS/PC 99 + ALS 1212	74 x 74 x 2	19700301
TK MPS-1111 TK PS/PC 1111 + ALS 1414	90 x 90 x 2	19700401
TK MPS-1309 TK PS/PC 1309	74 x 110 x 2	19700901
TK MPS-1313 TK PS/PC 1313 + ALS 1515	110 x 110 x 2	19700501
TK MPS-1809 TK PS/PC 1809	74 x 160 x 2	19701001

Assembly plate, steel plate for TK and ALS series



Assembly plate, galvanized steel sheet, 2 mm thick, incl. fixing screws

Description	Dimensions/mm	Order no.
TK MPS-1811 TK PS/PC 1811 + ALS 2011	90 x 150 x 2	19700601
TK MPS-1813 TK PS/PC 1813	100 x 146 x 2	19701101
TK MPS-1818 TK PS/PC 1818 + ALS 2020	150 x 150 x 2	19700701
TK MPS-2518 TK PS/PC 2518 + ALS 2720	150 x 220 x 2	19700801
TK MPS-3625 TK PS/PC 3625 + ALS 3927	220 x 331 x 2	19701201

Standard rail NS 35 for TK and ALS series



Standard rail acc. to DIN EN 60715, 35 x 7.5 mm, incl. fixing screws

Description	Order no.
NS 35-144 TK PS/PC 1809/1811/1813/1818/2518 + ALS 2011/2020	19814401
NS 35-171 TK PS/PC 1818, TK PS/PC 2518, HP 190	19817101
NS 35-216 TK PS/PC 2518/3625 + ALS 2720/3927	19821601
NS 35-336 TK PS/PC 3625 + ALS 3927	19833601

Current prices can be found on our website: www.spelsberg.com

Industrial Enclosures TK PS | TK PC

TK PS | TK PC Accessories

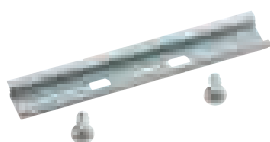
Standard rail NS 35 for TK, ALS and Abox series



Standard rail acc. to DIN EN 60715, 35 x 7.5 mm, incl. fixing screws

Description	Order no.
NS 35-81 for TK 1111, TK 1309, TK 1313, TK 1809, TK 1811, ALS 1414/, ALS 1515, ALS 2011 and Abox/Abox-i 060, length 81 mm	19808101
NS 35-106 for TK 1309, TK 1313, ALS 1414, ALS 1515 and Abox/Abox-i 100, length 106 mm	19810601
NS35-144/2 for Abox/Abox-i 160 and Abox/Abox-i 250, length 144 mm	89401601
NS35-216/2 für Abox/Abox-i 250, Abox/Abox-i 350, Länge 218,5 mm	89403501

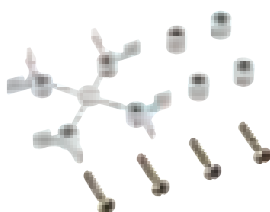
Standard rail TS 15 for TK and ALS series



Standard rail acc. to DIN EN 60715, 15 x 5, width 15 mm,
incl. fixing screws

Description	Order no.
TS 15-49,5 for TK 77, TK 97 and ALS 99, length 49.5 mm	19704901
TS 15-80 for TK 97, TK 99, TK 1111, TK 1309, TK 1313, TK 1809, TK 1811, ALS 1212, ALS 1414, ALS 1515 and ALS 2011, length 80 mm	19708001
TS 15-92 for TK 1111, TK 1309, TK 1313, TK 1809, TK 1811, ALS 1414, ALS 1515 and ALS 2011, length 92 mm	19709201
TS 15-111 for TK 1309, TK 1313 and ALS 1515, length 111 mm	19711101
TS 15-154 for TK 1809, TK 1811, TK 1813, TK 1818, TK 2518, ALS 2020 und ALS 2720, length 154 mm	19715401

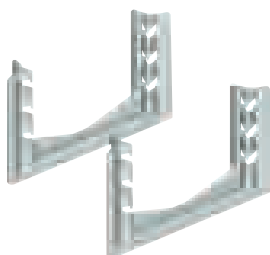
Spacing set



Spacer kit TK DST for creating a space between enclosure bottom and conductor or mounting
plate 4 pieces spacing 6 mm, 4 pieces spacing 8 mm, incl. fixing screws for TK PS/PC

Description	Order no.
TK DST grey, kit = 4 pieces	19410001

Mounting / PCB holder



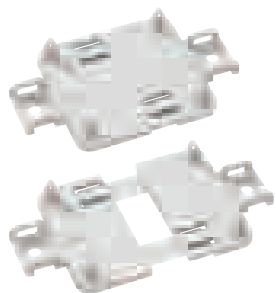
Mounting/PCB holder made of plastic,
suitable for assembly without tools in TK PC 55 and TK PC 75

Description	Order no.
TK MLH-55/75 Set = 25 pairs	19411001

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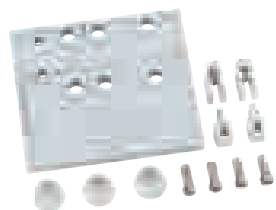
External fixing plate



External mounting plate made of plastic, for TK PC 55 and TK PC 75

Description	Order no.
TK ABP-55/75 Set = 10 pcs.	19400201

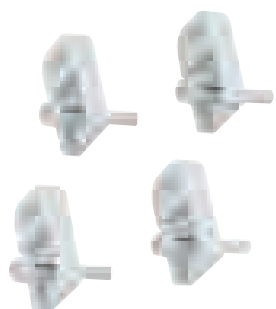
External hinge set



External hinge set for retrofitting the enclosure cover to hinged door, incl. 2 hinges, fixing screws, cover plugs and drilling template

Description	Order no.
ASS-kl External hinge set small, TK PS/PC 77 bis TK PS/PC 1809	19000201

External fixing lug set



External fixing lugs set made of plastic, for all TK PS/PC, RK enclosures, from TK PS/PC 77

Description	Order no.
TK ABL Set = 4 pcs.	19400101

Padlock set



Padlock kit for upgrading the enclosure cover to lockable hinged door, incl. padlock, 2 hinges, fixing screws, cover plugs and drilling template

Description	Order no.
VSG from TK PS/PC 1811 onwards and AKL/AKi 1	19010001

Mounting material



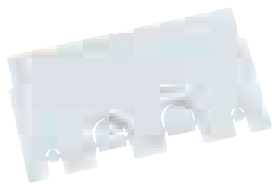
Manual activation attachment consisting of plastic for snapping onto the standard lid screw for TK PS/PC 77 and higher (except TK 1005)

Description	Order no.
HBA Set = 4 pcs.	19000101

Industrial Enclosures TK PS | TK PC

TK PS | TK PC Accessories

TK partition wall



Divider made of plastic, suitable for the separation of two electric circuits

Description

TK TW-n

for TK PS/PC 1309-6 and TK PS/PC 1809-6

Order no.

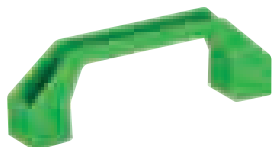
19600901

TK TW-h

for TK PS/PC 1309-8 and TK PS/PC 1809-8

19690901

Handle



Handle made of plastic, for mobile use of housing, screw spacing 120 mm

Description

TG 2

with self-cutting screws

Order no.

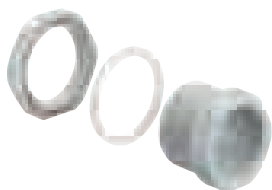
19180501

TG 1

with screws M6 and nuts made of plastic

19180001

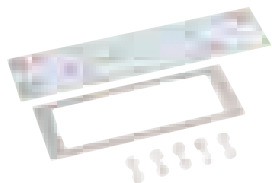
Combi set



Combination set for connecting enclosures with metric entries, polystyrene, grey, complete with locknut and partition seal

Description	Wall thickness	Thread lenght/mm	Order no.
KS M20	2 x 3,0	12	19202001
KS M25	2 x 3,0	12	19202501
KS M25-gro	2 x 8,0	22	19202601
KS M32	2 x 3,5	14	19203201

Combi set



Combi set for combining enclosures from TK PS/PC 1811 (except for flat design), complete with screws and nuts made from plastic, intermediate sealing and drilling template

Description	Order no.
TK KS GRO	19201801

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TK cover screw with special head



Cover screw set (set = 12 pieces) with T40 inner hexagon socket head to prevent unauthorised opening of the enclosure, can also be sealed, special screwdriver TK SDR T40 (19501801) required, can be used from TK PS/PC 77 (except TK 1005)

Description	Order no.
TK DS-ku/g/T40 grey cover screw for all grey covers in product groups TK 77-6 / 97-6 / 99-6 / 1111-7 / 1309-6 / 1313-7 / 1809-6 / 1811-6f / 1811-9 / 1813-6f / 1813-9 / 1818-6f / 1818-9 / 2518-6f / 2518-9	19001401
TK DS-ku/sw/T40 black cover screw for all transparent covers in product groups TK 77-6 / 97-6 / 99-6 / 1111-7 / 1309-6 / 1313-7 / 1809-6 / 1811-6f / 1811-9 / 1813-6f / 1813-9 / 1818-6f / 1818-9 / 2518-6f / 2518-9	19001501
TK DS-lg/g/T40 grey cover screw for all grey covers in product groups TK 77-8 / 97-8 / 99-8 / 1111-9 / -1309-8 / 1313-10 / 1809-8 / 1811-8f / 1811-11 / 1811-13f / 1811-16 / 1813-8f / 1813-11 / 1813-13f / 1813-16 / 1818-8f / 1818-11 / 1818-13f / 1818-16 / 2518-8f / 2518-11 / 2518-13f / 2518-16 / 3625-11 / 3625-16	19001601
TK DS-lg/sw/T40 black cover screw for all transparent covers in product groups TK 77-8 / 97-8 / 99-8 / 1111-9 / -1309-8 / 1313-10 / 1809-8 / 1811-8f / 1811-11 / 1811-13f / 1811-16 / 1813-8f / 1813-11 / 1813-13f / 1813-16 / 1818-8f / 1818-11 / 1818-13f / 1818-16 / 2518-8f / 2518-11 / 2518-13f / 2518-16 / 3625-11 / 3625-16	19001701

Installation screw



Self-cutting screw, for mounting assembly parts in TK PC 55 / 75 / 1005

Description	Order no.
TK ES-55/75/1005	19020001

TK cover screw



Cover screw as additional screw, from TK PS/PC 77

Description	Order no.
TK DS-ku/g grey cover screw for all grey covers in product groups TK 77-6 / 97-6 / 99-6 / 1111-7 / 1309-6 / 1313-7 / 1809-6 / 1811-6f / 1811-9 / 1813-6f / 1813-9 / 1818-6f / 1818-9 / 2518-6f / 2518-9	19001001
TK DS-ku/sw black cover screw for all transparent covers in product groups TK 77-6 / 97-6 / 99-6 / 1111-7 / 1309-6 / 1313-7 / 1809-6 / 1811-6f / 1811-9 / 1813-6f / 1813-9 / 1818-6f / 1818-9 / 2518-6f / 2518-9	19001201
TK DS-lg/g grey cover screw for all grey covers in product groups TK 77-8 / 97-8 / 99-8 / 1111-9 / -1309-8 / 1313-10 / 1809-8 / 1811-8f / 1811-11 / 1811-13f / 1811-16 / 1813-8f / 1813-11 / 1813-13f / 1813-16 / 1818-8f / 1818-11 / 1818-13f / 1818-16 / 2518-8f / 2518-11 / 2518-13f / 2518-16 / 3625-11 / 3625-16	19001101
TK DS-lg/sw black cover screw for all transparent covers in product groups TK 77-8 / 97-8 / 99-8 / 1111-9 / -1309-8 / 1313-10 / 1809-8 / 1811-8f / 1811-11 / 1811-13f / 1811-16 / 1813-8f / 1813-11 / 1813-13f / 1813-16 / 1818-8f / 1818-11 / 1818-13f / 1818-16 / 2518-8f / 2518-11 / 2518-13f / 2518-16 / 3625-11 / 3625-16	19001301

Industrial Enclosures TK PS | TK PC

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Hole cutter



Hole cutter

Description	Order no.
LFR through opening: M16-32, drill hole: 16.5-32.5 mm	19599501

Technical information

TK PS | TK PC



Class of protection (IP-Code)
acc. to DIN EN 60529 (VDE 0470-1)



Level of protection (IK code)
to mechanical impact acc. to
DIN EN 50102 (VDE 0470-100)



Protection class II operating materials
with protective insulation
acc. to DIN VDE 0100-410



Nominal AC voltage (AC voltage).
Highest permissible voltage on the
junction as per product standard



Maximum voltage DC (DC voltage)
as per product standard
(system voltage in the PV sector)



c UL us
(Underwriters Laboratories)
approved (American and
Canadian approval)



DNV
Approval for the maritime sector
(Shipbuilding, ports, etc.) according
to DNV guidelines



DLG Focus Test
for special innovations in machines
and technical products - predominantly
in agriculture and forestry applications



Halogen-free enclosure,
without halogens such as fluorine,
chlorine and bromine



Industrial quality

Overview of the ambient conditions and mechanical properties of the Spelsberg products	Ambient temperature Minimum value	Ambient temperature Maximum value	Ambient temperature Average value over 24 h	Max. relative humidity at 40 °C	Max. relative humidity at 25 °C (short-term)	Protection rating according to DIN EN 60529 / VDE 0470-1 ¹⁾	Shock-proof as per DIN EN 50102 / DE 0470 Part 100
TK PS (polystyrene) enclosure system	-25°C	40°C	35°C	50%	95%	IP66	IK07
TK PC (polycarbonate) housing system	-35°C	80°C	60°C	50%	95%	IP66	IK08

Additional note: The specified temperatures may be limited by the installed devices.

¹⁾ When used with suitable connectors or cable glands.

Overview of the Properties of the materials used in the Spelsberg installations systems		Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia, gaseous (DLG Focus Test)	Vegetable fats	Animal fats	Halogen-free	Free from heavy metals, PVC and silicone	Flammability according to DIN EN 60695 (VDE 0471) / UL94
Material	Use in the products:															
Polystyrene, impact proof	TK PS	O	Ø	O	O	O	X	X	O	X	not speci- fied	O	X	yes	yes	650°C / HB
Polycarbonate, glass-fibre reinforced	TK PC	O	X	X	X	O	Ø	X	O	Ø	O	O	Ø	yes	yes	960°C / V-2 (5VA*)
Polycarbonate, transparent	Cover TK PS / TK PC	O	X	X	X	Ø	Ø	X	O	Ø	O	O	O	yes	yes	850°C / V-2

* 5 Inch (127 mm) Flame test according to UL 746 C (comparable with the requirements of UL 94, 5VA)

The materials used by Spelsberg were subjected to a weathering test according to DIN 53 387 (replaced by DIN EN ISO 4892-2), a 1000 hour test at the "State Examination Office" in Dortmund. The materials used in IQ products showed good result here. The material also passed the UV resistance test according to UL 746 C, without any limitations.

The materials used by Spelsberg were subjected to a weathering test according to DIN 53 387 (replaced by DIN EN ISO 4892-2), a 1000 hour test at the "State Examination Office" in Dortmund. The materials used in IQ products showed good result here. The material also passed the UV resistance test according to UL 746 C, without any limitations.

Technical information

TK PS | TK PC

Power loss details for individually mounted TK empty enclosure	Horizontal installation				Vertical installation			
	[W]				[W]			
	$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$	$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$
TK 55-4	0,4	1,0	1,7	2,4	0,4	1,0	1,7	2,4
	[0,4]	[0,8]	[1,4]	[2,0]	[0,3]	[0,8]	[1,4]	[2,0]
TK 75-2	0,5	1,2	1,9	2,8	0,5	1,2	2,0	2,8
	[0,4]	[1,0]	[1,6]	[2,3]	[0,4]	[0,9]	[1,6]	[2,2]
TK 75-4	0,5	1,2	1,9	2,8	0,5	1,2	2,0	2,8
	[0,4]	[1,0]	[1,6]	[2,3]	[0,4]	[0,9]	[1,6]	[2,2]
TK 77-6	0,8	1,8	3,0	4,3	0,8	1,8	3,0	4,3
	[0,6]	[1,5]	[2,5]	[3,5]	[0,6]	[1,5]	[2,5]	[3,5]
TK 77-8	1,0	2,3	3,8	5,5	1,0	2,3	3,8	5,5
	[0,8]	[1,9]	[3,1]	[4,5]	[0,8]	[1,9]	[3,1]	[4,5]
TK 97-6	1,0	2,3	3,8	5,5	1,0	2,4	3,9	5,6
	[0,8]	[2,0]	[3,3]	[4,7]	[0,8]	[1,8]	[3,0]	[4,3]
TK 97-8	1,2	2,9	4,7	6,8	1,2	2,9	4,9	7,0
	[1,0]	[2,4]	[4,0]	[5,8]	[1,0]	[2,3]	[3,8]	[5,4]
TK 99-6	1,2	2,9	4,8	6,9	1,2	2,9	4,8	6,9
	[1,0]	[2,4]	[4,0]	[5,7]	[1,0]	[2,4]	[4,0]	[5,7]
TK 99-8	1,5	3,6	5,9	8,5	1,5	3,6	5,9	8,5
	[1,2]	[2,9]	[4,8]	[6,9]	[1,2]	[2,9]	[4,8]	[6,9]
TK 1005-4	0,7	1,7	2,8	4,0	0,7	1,8	2,9	4,1
	[0,6]	[1,5]	[2,5]	[3,5]	[0,6]	[1,3]	[2,2]	[3,1]
TK 1111-7	1,6	3,9	6,4	9,2	1,6	3,9	6,4	9,2
	[1,3]	[3,2]	[5,2]	[7,5]	[1,3]	[3,2]	[5,2]	[7,5]
TK 1111-9	2,0	4,6	7,7	11,0	2,0	4,6	7,7	11,0
	[1,6]	[3,8]	[6,3]	[9,0]	[1,6]	[3,8]	[6,3]	[9,0]
TK 1309-6	1,5	3,6	6,0	8,6	1,6	3,7	6,1	8,7
	[1,3]	[3,1]	[5,1]	[7,3]	[1,2]	[2,9]	[4,8]	[6,8]
TK 1309-8	1,8	4,4	7,2	10,3	1,9	4,5	7,4	10,6
	[1,6]	[3,7]	[6,2]	[8,8]	[1,5]	[3,5]	[5,8]	[8,3]
TK 1313-7	2,2	5,2	8,6	12,3	2,2	5,2	8,6	12,3
	[1,8]	[4,2]	[7,0]	[10,0]	[1,8]	[4,2]	[7,0]	[10,0]
TK 1313-10	2,6	6,0	10,0	14,3	2,6	6,0	10,0	14,3
	[2,1]	[4,9]	[8,2]	[11,7]	[2,1]	[4,9]	[8,2]	[11,7]
TK 1809-6	1,9	4,6	7,5	10,8	2,0	4,7	7,8	11,2
	[1,7]	[4,0]	[6,7]	[9,5]	[1,5]	[3,6]	[5,9]	[8,4]
TK1809-8	2,3	5,4	9,0	12,9	2,4	5,7	9,4	13,4
	[2,0]	[4,8]	[8,0]	[11,4]	[1,8]	[4,3]	[7,1]	[10,1]
TK 1811-6f	2,2	5,3	8,8	12,5	2,3	5,4	9,0	12,9
	[1,9]	[4,6]	[7,6]	[10,9]	[1,8]	[4,2]	[6,9]	[9,9]
TK 1811-8f	2,6	6,1	10,1	14,4	2,7	6,3	10,4	14,9
	[2,2]	[5,3]	[8,8]	[12,5]	[2,0]	[4,8]	[8,0]	[11,4]
TK 1811-13f	3,4	8,1	13,4	19,2	3,6	8,4	14,0	20,0
	[3,0]	[7,0]	[11,7]	[16,7]	[2,7]	[6,5]	[10,7]	[15,3]
TK 1811-9	2,7	6,3	10,5	15,0	2,8	6,5	10,8	15,5
	[2,3]	[5,5]	[9,1]	[13,0]	[2,1]	[5,0]	[8,3]	[11,9]
TK 1811-11	3,0	7,1	11,8	16,9	3,1	7,4	12,3	17,5
	[2,6]	[6,2]	[10,3]	[14,7]	[2,4]	[5,7]	[9,4]	[13,4]
TK 1811-16	3,9	9,2	15,2	21,7	4,0	9,5	15,8	22,6
	[3,4]	[8,0]	[13,2]	[18,8]	[3,1]	[7,3]	[12,1]	[17,3]

Permissible power loss P_{per} in Watts per DIN VDE 0660-507 for **individually-mounted empty installations** at specified ΔT .
Power loss at 50% of the enclosure height and [75%] of the enclosure height.

Power loss details for individually mounted TK empty enclosure	Horizontal installation				Vertical installation			
	[W]				[W]			
Type	$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$	$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$
TK 1813-9	3,0	7,0	11,7	16,7	3,0	7,2	11,9	17,0
	[2,5]	[6,0]	[9,9]	[14,2]	[2,4]	[5,6]	[9,3]	[13,3]
TK 1813-11	3,3	7,9	13,1	18,7	3,4	8,1	13,4	19,1
	[2,8]	[6,7]	[11,1]	[15,9]	[2,7]	[6,3]	[10,4]	[14,9]
TK 1813-16	4,3	10,1	16,7	23,9	4,4	10,3	17,1	24,5
	[3,6]	[8,6]	[14,2]	[20,3]	[3,4]	[8,1]	[13,4]	[19,1]
TK 1813-6f	2,5	5,9	9,8	14,0	2,5	6,0	10,0	14,3
	[2,1]	[5,0]	[8,3]	[11,9]	[2,0]	[4,7]	[7,8]	[11,1]
TK 1813-8f	2,9	6,8	11,2	16,1	2,9	6,9	11,5	16,4
	[2,4]	[5,8]	[9,6]	[13,7]	[2,3]	[5,4]	[9,0]	[12,8]
TK 1813-13f	3,8	8,9	14,8	21,2	3,9	9,2	15,2	21,7
	[3,2]	[7,6]	[12,6]	[18,0]	[3,0]	[7,2]	[11,9]	[17,0]
TK 1818-6f	3,2	7,5	12,5	17,8	3,2	7,5	12,5	17,8
	[2,6]	[6,1]	[10,2]	[14,6]	[2,6]	[6,1]	[10,2]	[14,5]
TK 1818-8f	3,6	8,5	14,2	20,2	3,6	8,6	14,2	20,3
	[2,9]	[7,0]	[11,6]	[16,5]	[2,9]	[7,0]	[11,5]	[16,5]
TK 1818-13f	4,7	11,1	18,3	26,2	4,7	11,1	18,3	26,2
	[3,8]	[9,0]	[15,0]	[21,4]	[3,8]	[9,0]	[14,9]	[21,4]
TK 1818-9	3,7	8,8	14,6	20,9	3,7	8,8	14,6	20,9
	[3,0]	[7,2]	[11,9]	[17,1]	[3,0]	[7,2]	[11,9]	[17,0]
TK 1818-11	4,2	9,8	16,3	23,3	4,2	9,8	16,3	23,3
	[3,4]	[8,0]	[13,3]	[19,0]	[3,4]	[8,0]	[13,3]	[19,0]
TK 1818-16	5,2	12,4	20,5	29,3	5,2	12,4	20,5	29,4
	[4,3]	[10,1]	[16,7]	[23,9]	[4,3]	[10,1]	[16,7]	[23,9]
TK 2518-6f	4,0	9,6	15,8	22,7	4,1	9,7	16,1	23,0
	[3,4]	[8,2]	[13,5]	[19,3]	[3,2]	[7,6]	[12,5]	[17,9]
TK 2518-8f	4,5	10,7	17,8	25,4	4,6	10,9	18,1	25,9
	[3,9]	[9,2]	[15,2]	[21,7]	[3,6]	[8,5]	[14,1]	[20,2]
TK 2518-13f	5,8	13,6	22,6	32,3	5,9	14,0	23,1	33,1
	[4,9]	[11,6]	[19,3]	[27,6]	[4,6]	[10,9]	[18,0]	[25,8]
TK 2518-9	4,7	11,1	18,3	26,2	4,8	11,3	18,7	26,7
	[4,0]	[9,4]	[15,6]	[22,4]	[3,7]	[8,8]	[14,5]	[20,8]
TK 2518-11	5,2	12,2	20,2	29,0	5,3	12,5	20,7	29,6
	[4,4]	[10,4]	[17,3]	[24,7]	[4,1]	[9,7]	[16,1]	[23,0]
TK 2518-16	6,4	15,2	25,1	35,9	6,6	15,5	25,7	36,8
	[5,5]	[12,9]	[21,4]	[30,6]	[5,1]	[12,1]	[20,0]	[28,7]
TK 3625-11	8,4	19,8	32,8	46,9	8,5	20,2	33,4	47,7
	[7,1]	[16,9]	[28,0]	[40,0]	[6,6]	[15,7]	[26,0]	[37,1]
TK 3625-16	10,0	23,8	39,4	56,3	10,3	24,3	40,3	57,6
	[8,6]	[20,3]	[33,6]	[48,1]	[8,0]	[18,9]	[31,3]	[44,8]

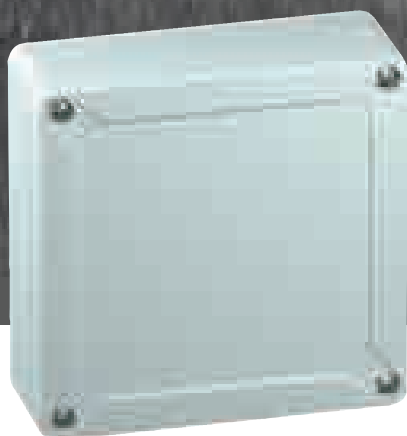
Permissible power loss P_{per} in Watts per DIN VDE 0660-507 for **individually-mounted empty installations** at specified ΔT .
Power loss at 50% of the enclosure height and [75%] of the enclosure height.

Empty enclosure

TG ABS | TG PC | Case study



Unprotected outdoor areas



Samuel James | TG enclosures on the right track

Samuel James is one of the largest manufacturers and suppliers of points heating systems for the UK rail network, helping to ensure that the transport infrastructure doesn't freeze in cold weather. When designing any external electrical application, one of the first and most vital considerations is the choice of housing. Apart from the obvious considerations such as e.g. the level of protection and the ability to withstand significant temperature fluctuations, it is important

to think about the location of the product and any possible hazards that it could be exposed to during its service life.

All Samuel James products come with a guaranteed service life of 25 years so it is important for the enclosures in which they are installed not to corrode or become weakened in the harsh environment. Spelsberg's heavy-duty GRP enclosures provide effective protection against corrosion for electrical and electronic control systems in the harsh

and abrasive trackside environments. The material provides a high level of robustness with minimum thickness so that maximum internal space is made available for installation while still ensuring protection against external influences such as e.g. stone chippings. After the enclosures were subjected to rigorous tests, it was found that the robust GRP and polycarbonate construction provided better protection against impacts compared with conventional metal





enclosures. They also provide IP68 protection, are resistant to the corrosive effect of brake dust, exhaust fumes and the weather and ensure excellent electrical insulation which in turn improves safety for the maintenance team. Doors can be mounted left- or right-handed and the hinges enable the door to be opened 240 degrees for easy access to the control cabinets. An integrated drip shield directs liquids away from the door cover

in external environments while options include key locks for security and a stylised glazed door, facilitating visual inspection of the components inside. CNC machining of plastic enclosures can be carried out without any problems and all enclosures are supplied fully assembled with pre-drilled entry points and hinged covers for easy on-site access. Spelsberg's GRP and polycarbonate enclosures are available in a wide range of standard sizes which can then be

quickly adapted to customers' specific requirements and assembled in large or small order quantities. Entry points can be sealed using traditional IP68 dome-topped cable glands or quick-acting grommets which provide IP67 seals and can be installed in less than a minute.

Empty enclosure

TG ABS | TG PC



Properties

- 9 basic enclosures in various heights
- High-quality design with a stylish high-gloss appearance
- Grey or transparent covers
- Plastic, choice of ABS (TG ABS) or polycarbonate (TG PC)
- Smooth side walls for added flexibility
- Attachment points in the usual positions
- Time-saving stainless steel snap lock
- Cover screws available on request

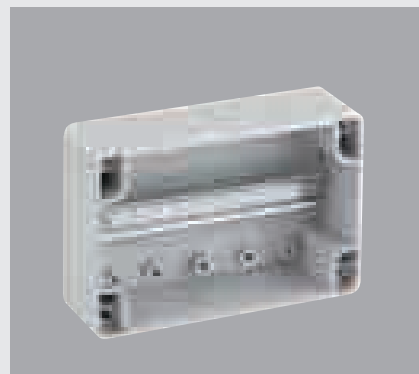




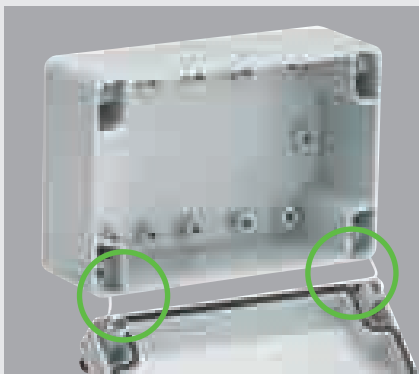
■ Quick release



■ Individual choice of attachments



■ Standard rail



■ Cover retainer



■ Recess in cover facilitates placement of decals or membrane keypads



■ DLG certified (TG PC)

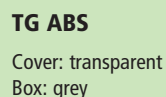
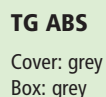


**G. SPELSBERG
EMPTY ENCLOSURE SERIES TG PC
WITH ACCESSORIES**

✓ **Resistance to Ammonia**
DLG Test Report 6400



TG ABS | TG PC



Enclosure type	Order-No.
TG ABS 88-6-to	101 003 01
TG ABS 88-9-to	101 503 01
TG ABS 1208-6-to	101 004 01
TG ABS 1208-9-to	101 504 01
TG ABS 1212-6-to	101 005 01
TG ABS 1212-9-to	101 505 01
TG ABS 1608-6-to	101 006 01
TG ABS 1608-9-to	101 506 01
TG ABS 1612-9-to	101 007 01
TG ABS 2012-8-to	101 008 01
TG ABS 2012-9-to	101 508 01
TG ABS 2015-8-to	101 009 01
TG ABS 2516-9-to	101 012 01
TG ABS 2516-12-to	101 512 01
TG ABS 3023-9-to	101 013 01
TG ABS 3023-11-to	101 513 01



TG PC

Cover: grey
Box: grey

Enclosure type	Order-No.
TG PC 88-6-o	200 403 01
TG PC 88-9-o	200 903 01
TG PC 1208-6-o	200 404 01
TG PC 1208-9-o	200 904 01
TG PC 1212-6-o	200 405 01
TG PC 1212-9-o	200 905 01
TG PC 1608-6-o	200 406 01
TG PC 1608-9-o	200 906 01
TG PC 1612-9-o	200 407 01
TG PC 2012-8-o	200 408 01
TG PC 2012-9-o	200 908 01
TG PC 2015-8-o	200 409 01
TG PC 2516-9-o	200 412 01
TG PC 2516-12-o	200 912 01
TG PC 3023-9-o	200 413 01
TG PC 3023-11-o	200 913 01



TG PC

Cover: transparent
Box: grey

Enclosure type	Order-No.
TG PC 88-6-to	201 003 01
TG PC 88-9-to	201 503 01
TG PC 1208-6-to	201 004 01
TG PC 1208-9-to	201 504 01
TG PC 1212-6-to	201 005 01
TG PC 1212-9-to	201 505 01
TG PC 1608-6-to	201 006 01
TG PC 1608-9-to	201 506 01
TG PC 1612-9-to	201 007 01
TG PC 2012-8-to	201 008 01
TG PC 2012-9-to	201 508 01
TG PC 2015-8-to	201 009 01
TG PC 2516-9-to	201 012 01
TG PC 2516-12-to	201 512 01
TG PC 3023-9-to	201 013 01
TG PC 3023-11-to	201 513 01

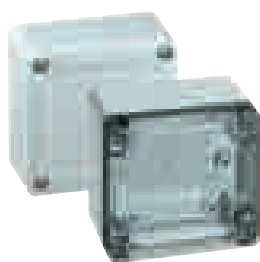


Dimensions
in millimeter

84 x 82 x 55 mm
84 x 82 x 85 mm
122 x 82 x 55 mm
122 x 82 x 85 mm
124 x 122 x 55 mm
124 x 122 x 85 mm
162 x 82 x 55 mm
162 x 82 x 85 mm
162 x 122 x 90 mm
202 x 122 x 75 mm
202 x 122 x 90 mm
202 x 152 x 75 mm
252 x 162 x 90 mm
252 x 162 x 120 mm
302 x 232 x 90 mm
302 x 232 x 110 mm

TG 88-6

84 x 82 mm

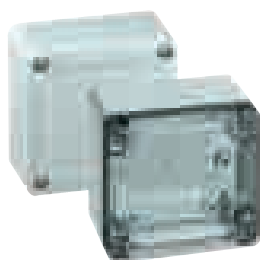


Accessories supplied:

Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 88-6-o	grey	none	55	10040301
TG ABS 88-6-to	transparent	none	55	10100301

84 x 82 mm



Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:

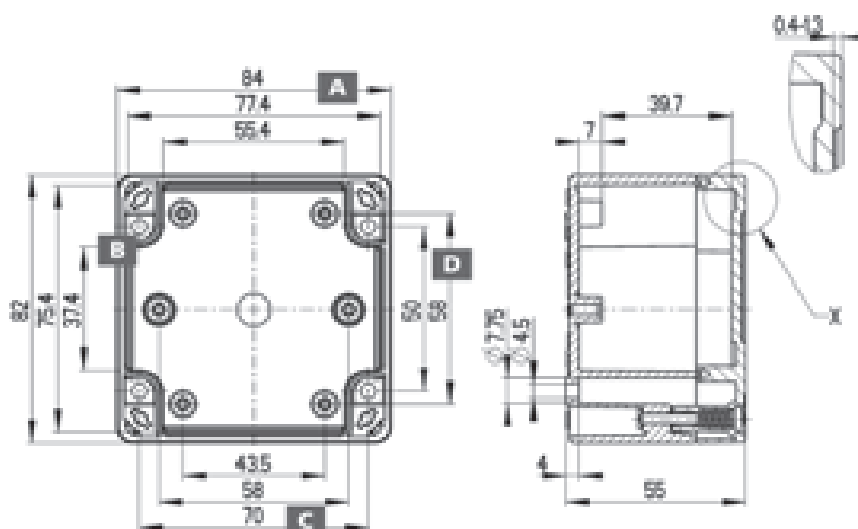
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 88-6-o	grey	none	55	20040301
TG PC 88-6-to	transparent	none	55	20100301

Without knockouts

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	3	2	1	-	-	-	-
B/D	2	2	1	-	-	-	-

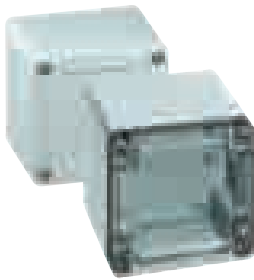


Industrial Enclosures TG ABS | TG PC

TG 88-9

TG ABS 88-9

84 x 82 mm



Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

Accessories supplied:

Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 88-9-o	grey	none	85	10090301
TG ABS 88-9-to	transparent	none	85	10150301

TG PC 88-9

84 x 82 mm



Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:

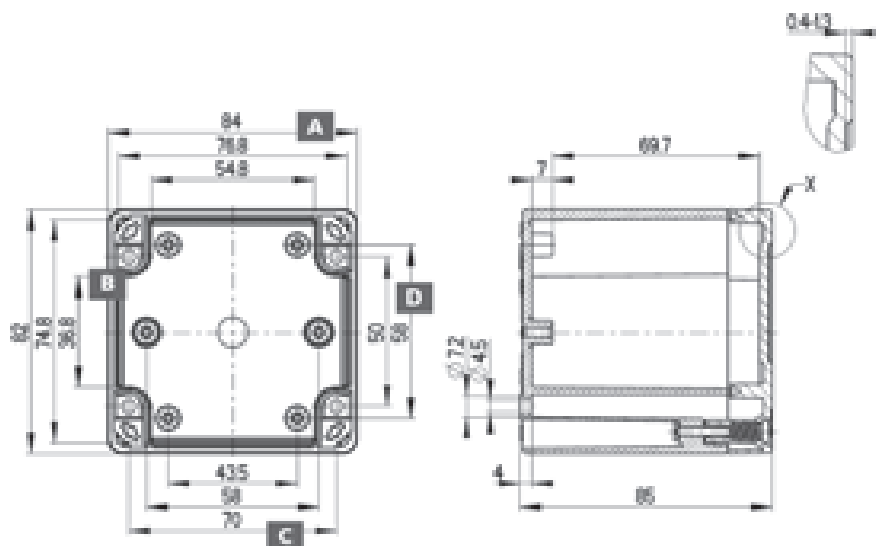
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 88-9-o	grey	none	85	20090301
TG PC 88-9-to	transparent	none	85	20150301

Without knockouts

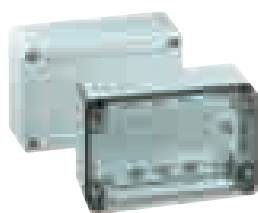
Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	6	4	2	1	1	-	-
B/D	4	2	2	1	-	-	-



TG 1208-6

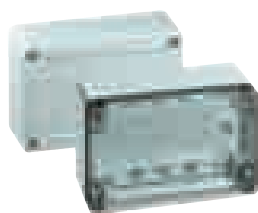
122 x 82 mm



Accessories supplied:

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 1208-6-o	grey	none	55	10040401
TG ABS 1208-6-to	transparent	none	55	10100401

122 x 82 mm

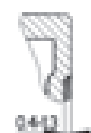
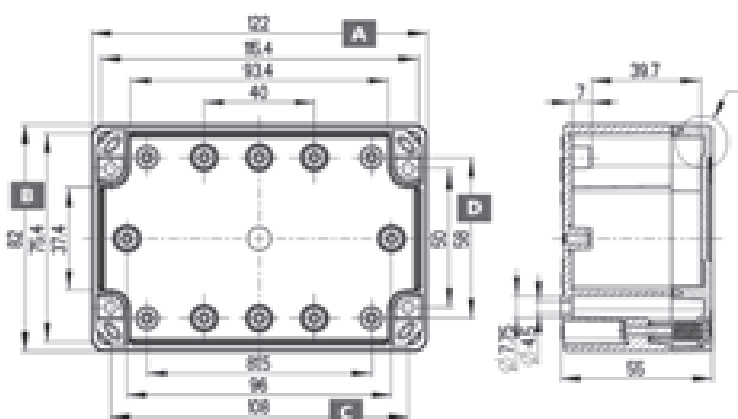


Accessories supplied:

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 1208-6-o	grey	none	55	20040401
TG PC 1208-6-to	transparent	none	55	20100401

Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	5	3	2	2	-	-	-
B/D	2	1	-	-	-	-	-

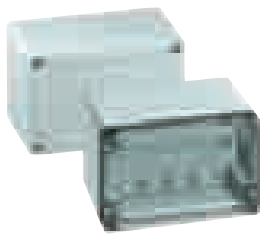


Industrial Enclosures TG ABS | TG PC

TG 1208-9

TG ABS 1208-9

122 x 82 mm



Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

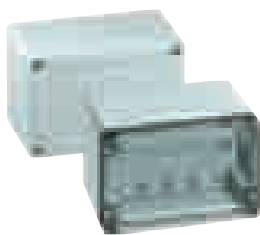
Accessories supplied:

Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 1208-9-o	grey	none	85	10090401
TG ABS 1208-9-to	transparent	none	85	10150401

TG PC 1208-9

122 x 82 mm



Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:

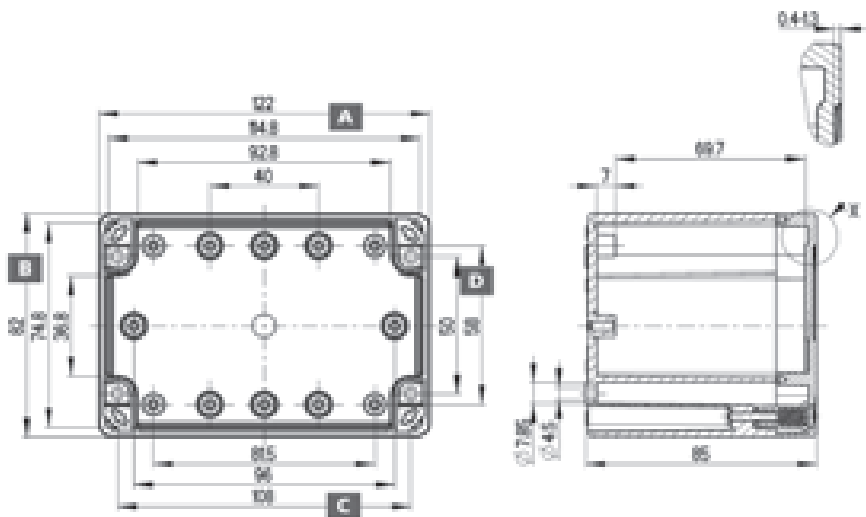
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 1208-9-o	grey	none	85	20090401
TG PC 1208-9-to	transparent	none	85	20150401

Without knockouts

Max. possible through openings per box side

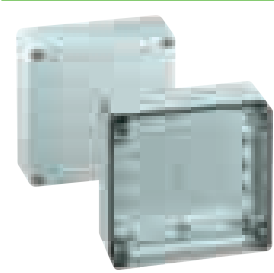
M	12	16	20	25	32	40	50
A/C	12	6	6	3	2	1	-
B/D	4	2	1	1	-	-	-



Industrial Enclosures TG ABS | TG PC

TG 1212-6

TG ABS 1212-6124 x 122 mm

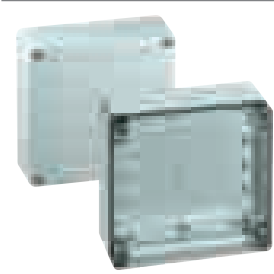


Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 1212-6-o	grey	none	55	10040501
TG ABS 1212-6-to	transparent	none	55	10100501

TG PC 1212-6124 x 122 mm



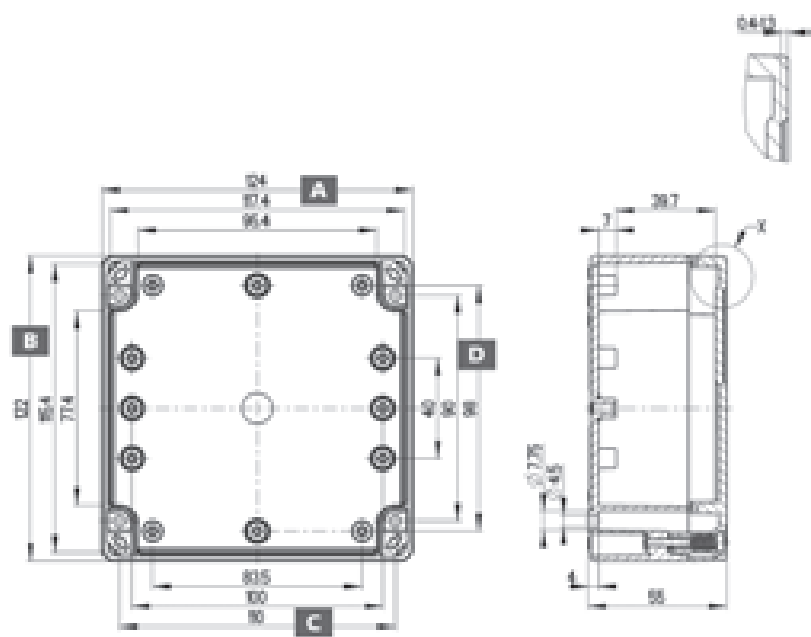
Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 1212-6-o	grey	none	55	20040501
TG PC 1212-6-to	transparent	none	55	20100501

Without knockouts
Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	6	3	3	2	—	—	—
B/D	5	3	2	2	—	—	—

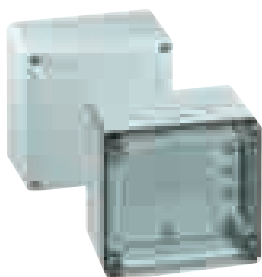


Industrial Enclosures TG ABS | TG PC

TG 1212-9

TG ABS 1212-9

124 x 122 mm



Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

Accessories supplied:

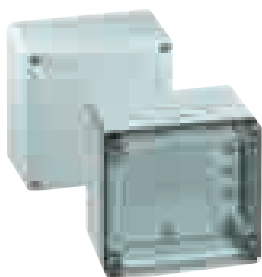
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 1212-9-o	grey	none	85	10090501
TG ABS 1212-9-to	transparent	none	85	10150501

Industrial enclosures
Empty enclosures

TG PC 1212-9

124 x 122 mm



Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

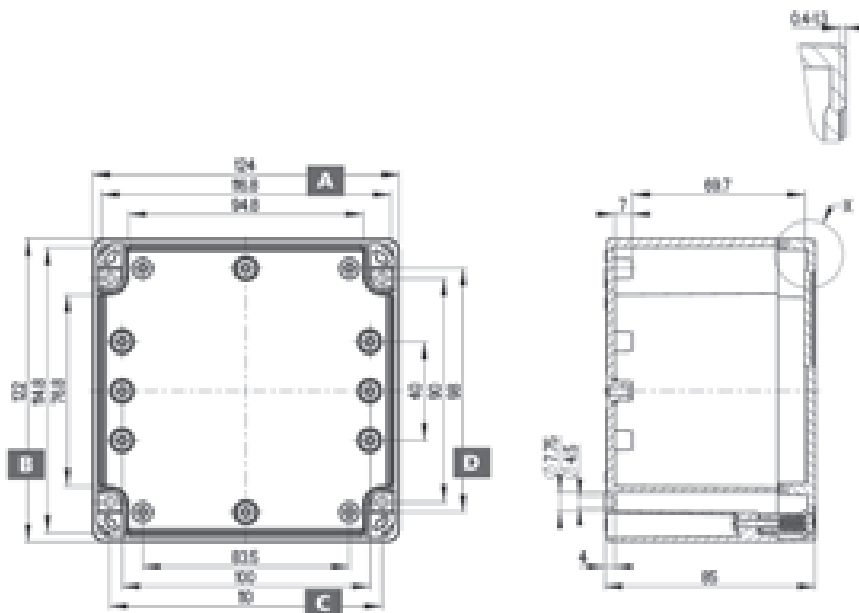
Accessories supplied:

Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 1212-9-o	grey	none	85	20090501
TG PC 1212-9-to	transparent	none	85	20150501

Without knockouts
Max. possible through openings per box side

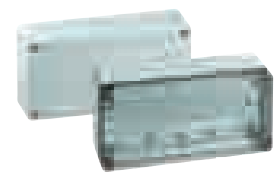
M	12	16	20	25	32	40	50
A/C	12	6	6	3	2	1	1
B/D	9	6	4	2	1	1	-



Industrial Enclosures TG ABS | TG PC

TG 1608-6

TG ABS 1608-6162 x 82 mm

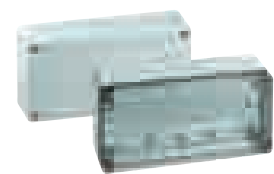


Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 1608-6-o	grey	none	55	10040601
TG ABS 1608-6-to	transparent	none	55	10100601

TG PC 1608-6162 x 82 mm



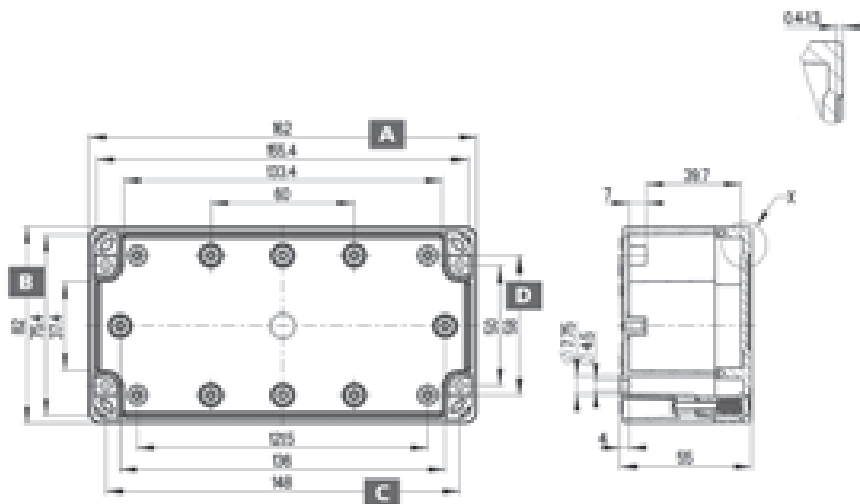
Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 1608-6-o	grey	none	55	20040601
TG PC 1608-6-to	transparent	none	55	20100601

Without knockouts
Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	9	5	4	-	-	-	-
B/D	2	1	1	-	-	-	-

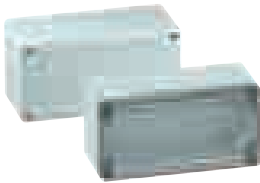


Industrial Enclosures TG ABS | TG PC

TG 1608-9

TG ABS 1608-9

162 x 82 mm



Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

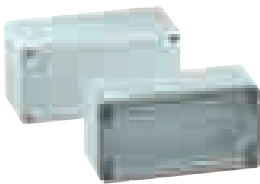
Accessories supplied:

Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 1608-9-o	grey	none	85	10090601
TG ABS 1608-9-to	transparent	none	85	10150601

TG PC 1608-9

162 x 82 mm



Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:

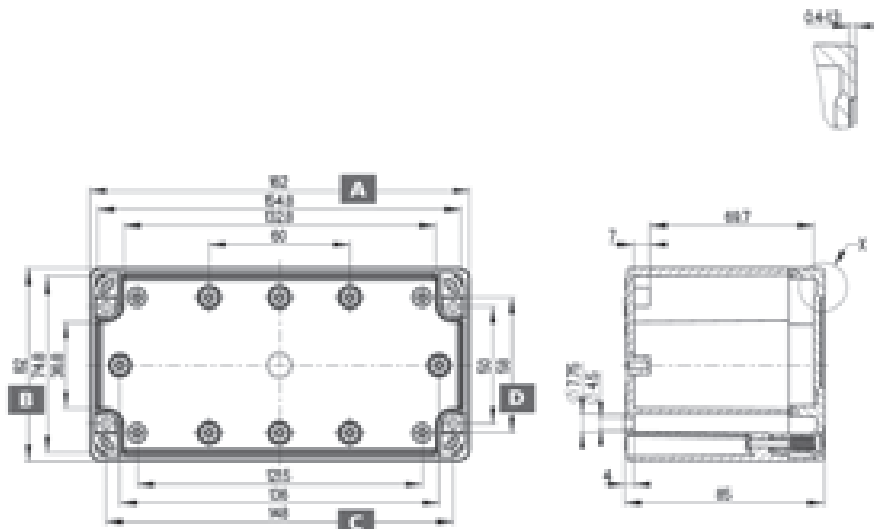
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 1608-9-o	grey	none	85	20090601
TG PC 1608-9-to	transparent	none	85	20150601

Without knockouts

Max. possible through openings per box side

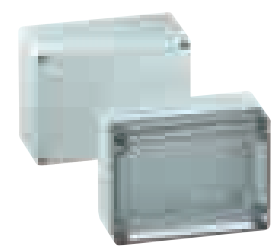
M	12	16	20	25	32	40	50
A/C	18	10	8	4	3	2	2
B/D	4	2	2	1	-	-	-



Industrial Enclosures TG ABS | TG PC

TG 1612-9

TG ABS 1612-9162 x 122 mm

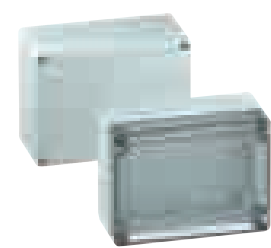


Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 1612-9-o	grey	none	90	10040701
TG ABS 1612-9-to	transparent	none	90	10100701

TG PC 1612-9162 x 122 mm



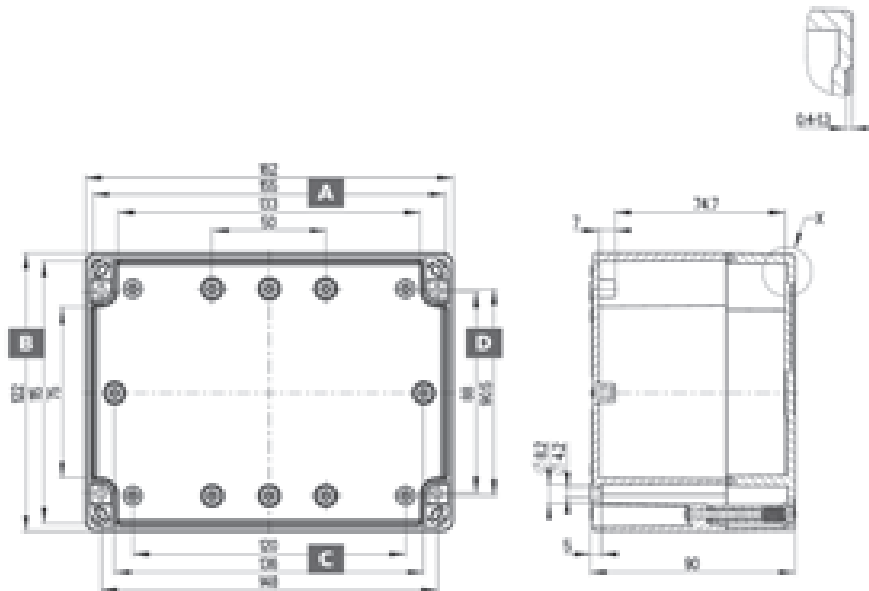
Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 1612-9-o	grey	none	90	20040701
TG PC 1612-9-to	transparent	none	90	20100701

Without knockouts
Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	9	5	4	-	-	-	-
B/D	2	1	1	-	-	-	-

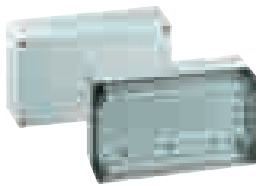


Industrial Enclosures TG ABS | TG PC

TG 2012-8

TG ABS 2012-8

202 x 122 mm



Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

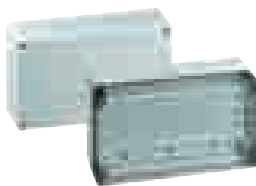
Accessories supplied:

Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 2012-8-o	grey	none	75	10040801
TG ABS 2012-8-to	transparent	none	75	10100801

TG PC 2012-8

202 x 122 mm



Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:

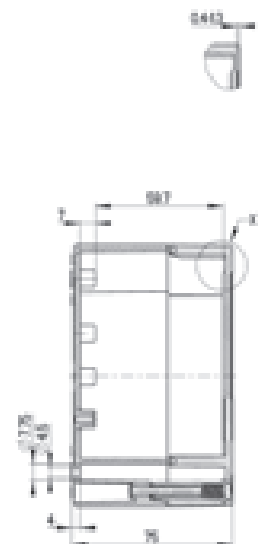
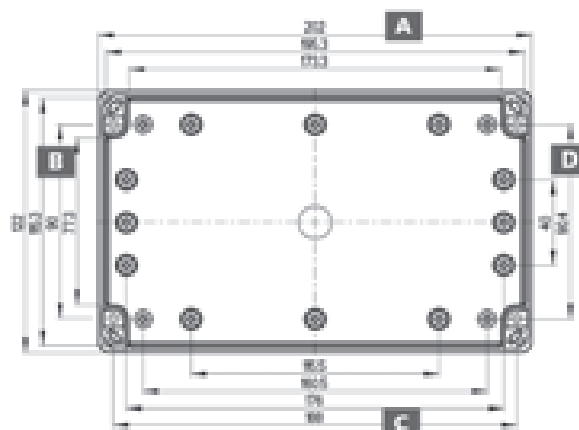
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 2012-8-o	grey	none	75	20040801
TG PC 2012-8-to	transparent	none	75	20100801

Without knockouts

Max. possible through openings per box side

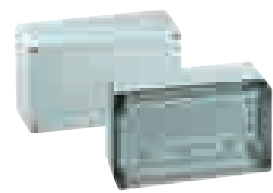
M	12	16	20	25	32	40	50
A/C	16	8	5	4	—	—	—
B/D	6	3	2	2	—	—	—



Industrial Enclosures TG ABS | TG PC

TG 2012-9

TG ABS 2012-9202 x 122 mm

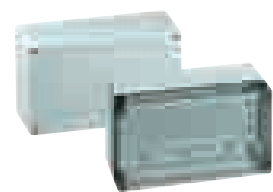


Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 2012-9-o	grey	none	90	10090801
TG ABS 2012-9-to	transparent	none	90	10150801

TG PC 2012-9202 x 122 mm



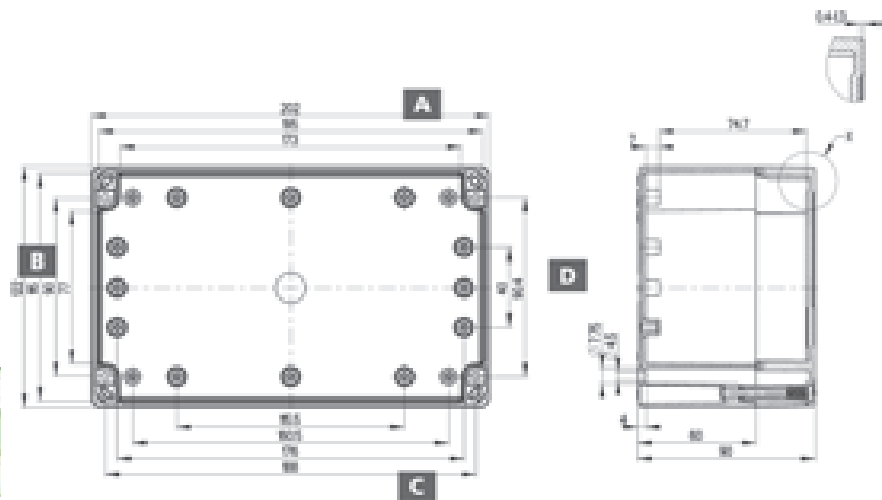
Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 2012-9-o	grey	none	90	20090801
TG PC 2012-9-to	transparent	none	90	20150801

Without knockouts
Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	16	12	5	4	3	-	-
B/D	6	3	3	2	1	-	-

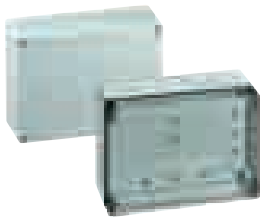


Industrial Enclosures TG ABS | TG PC

TG 2015-9

TG ABS 2015-9

202 x 152 mm



Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

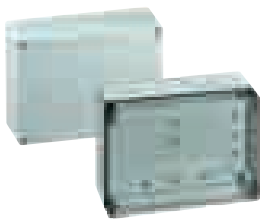
Accessories supplied:

Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 2015-9-o	grey	none	90	10040901
TG ABS 2015-9-to	transparent	none	90	10100901

TG PC 2015-9

202 x 152 mm



Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:

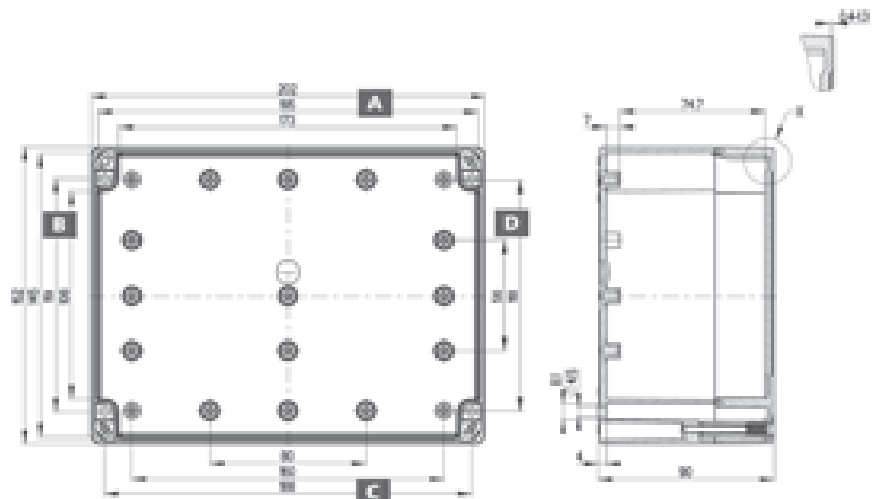
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 2015-9-o	grey	none	90	20040901
TG PC 2015-9-to	transparent	none	90	20100901

Without knockouts

Max. possible through openings per box side

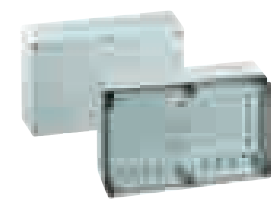
M	12	16	20	25	32	40	50
A/C	16	12	5	4	3	-	-
B/D	10	8	4	3	2	-	-



Industrial Enclosures TG ABS | TG PC

TG 2516-9

TG ABS 2516-9252 x 162 mm

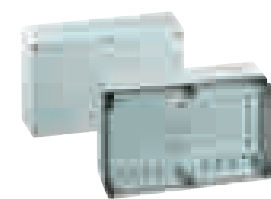


Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 2516-9-o	grey	none	90	10041201
TG ABS 2516-9-to	transparent	none	90	10101201

TG PC 2516-9252 x 162 mm



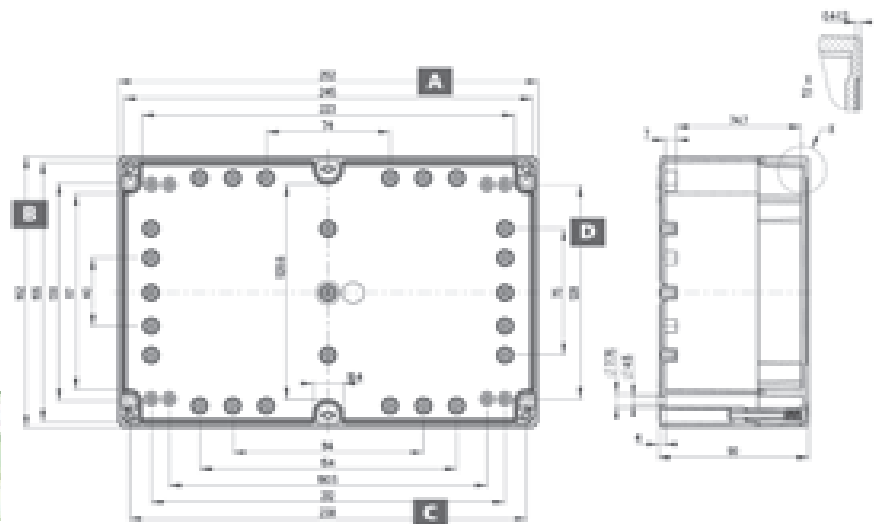
Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 2516-9-o	grey	none	90	20041201
TG PC 2516-9-to	transparent	none	90	20101201

Without knockouts
Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	20	12	6	4	4	2	-
B/D	10	8	3	3	2	2	-

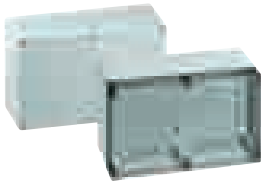


Industrial Enclosures TG ABS | TG PC

TG 2516-12

TG ABS 2516-12

252 x 162 mm



Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

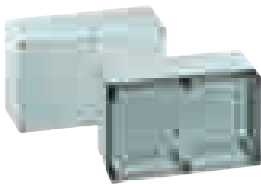
Accessories supplied:

Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 2516-12-o	grey	none	120	10091201
TG ABS 2516-12-to	transparent	none	120	10151201

TG PC 2516-12

252 x 162 mm



Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:

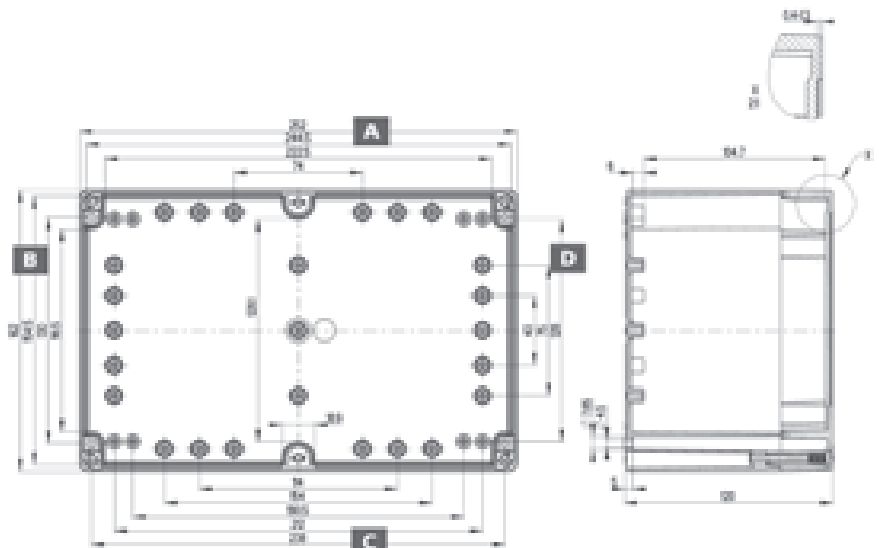
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 2516-12-o	grey	none	120	20091201
TG PC 2516-12-to	transparent	none	120	20151201

Without knockouts

Max. possible through openings per box side

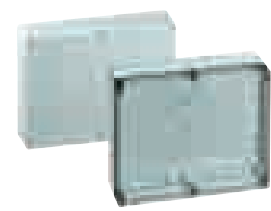
M	12	16	20	25	32	40	50
A/C	40	18	12	8	6	2	2
B/D	20	12	8	6	3	2	1



Industrial Enclosures TG ABS | TG PC

TG 3023-9

TG ABS 3023-9302 x 232 mm

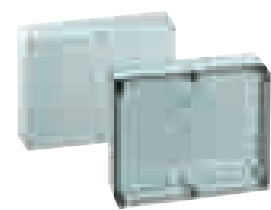


Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 3023-9-o	grey	none	90	10041301
TG ABS 3023-9-to	transparent	none	90	10101301

TG PC 3023-9302 x 232 mm



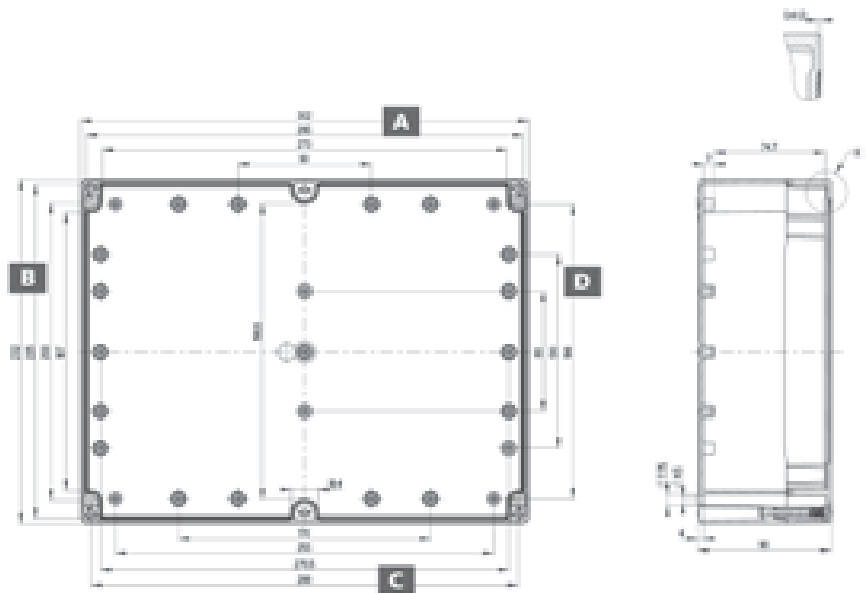
Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 3023-9-o	grey	none	90	20041301
TG PC 3023-9-to	transparent	none	90	20101301

Without knockouts
Max. possible through openings per box side

M	12	16	20	25	32	40	50
A/C	24	16	8	6	4	4	-
B/D	18	14	6	5	4	2	-

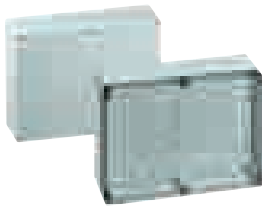


Industrial Enclosures TG ABS | TG PC

TG 3023-11

TG ABS 3023-11

302 x 232 mm



Empty enclosure, with protection class IP66/IP67, ABS, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard installations indoors, with quick release

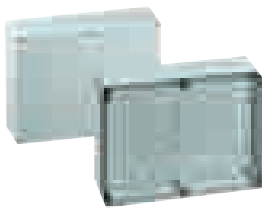
Accessories supplied:

Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG ABS 3023-11-o	grey	none	110	10091301
TG ABS 3023-11-to	transparent	none	110	10151301

TG PC 3023-11

302 x 232 mm



Empty enclosure, with protection class IP66/IP67, Polycarbonate, certified according to DLG (Ammonia resistance), UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial environments and protected outside areas, with quick release

Accessories supplied:

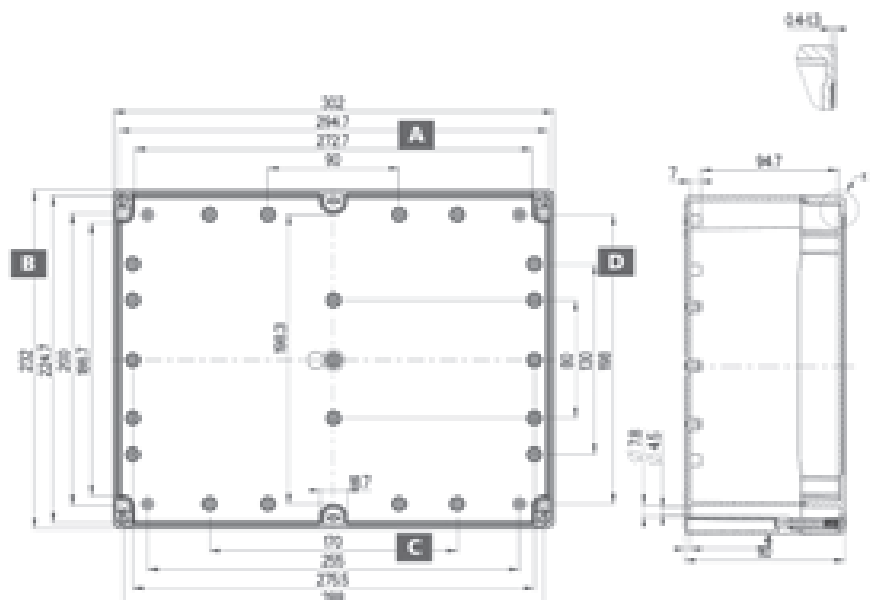
Cover retainer, 4 fastening screws for accessories

Description	Cover	Knockouts	Height/mm	Order no.
TG PC 3023-11-o	grey	none	110	20091301
TG PC 3023-11-to	transparent	none	110	20151301

Without knockouts

Max. possible through openings per box side

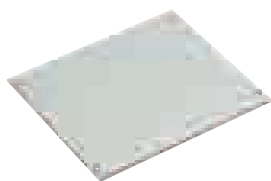
M	12	16	20	25	32	40	50
A/C	36	26	16	12	8	4	2
B/D	27	20	12	9	4	3	2



Industrial Enclosures TG ABS | TG PC

TG ABS / TG PC Accessories

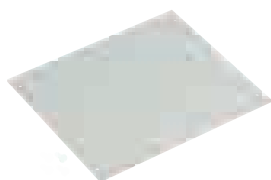
Assembly plate insulating material for TG series



Assembly plate in melamine-clad insulating material, 2.5 mm thick, grey

Description	Dimensions/mm	Order no.
TG MPI-88	53 x 73 x 2,5	18600301
TG MPI-1208	73 x 91 x 2,5	18600401
TG MPI-1212	93 x 113 x 2,5	18600501
TG MPI-1608	73 x 131 x 2,5	18600601
TG MPI-1612	113 x 131 x 2,5	18600701
TG MPI-2012	113 x 171 x 2,5	18600801
TG MPI-2015	143 x 171 x 2,5	18600901
TG MPI-2516	152 x 220 x 2,5	18601201
TG MPI-3023	222 x 270 x 2,5	18601301

Assembly plate, steel plate for TG series



Assembly plate, galvanized steel sheet, 2 mm thick

Description	Dimensions/mm	Order no.
TG MPS-88	53 x 73 x 2	18700301
TG MPS-1208	73 x 91 x 2	18700401
TG MPS-1212	93 x 113 x 2	18700501
TG MPS-1608	73 x 131 x 2	18700601
TG MPS-1612	113 x 131 x 2	18700701
TG MPS-2012	113 x 171 x 2	18700801
TG MPS-2015	143 x 171 x 2	18700901
TG MPS-2516	152 x 220 x 2	18701201
TG MPS-3023	222 x 270 x 2	18701301

Standard rail NS 35 for TG series



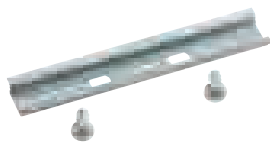
Standard rail acc. to DIN EN 60715, 35 x 7.5mm

Description	Order no.
NS 35-66 for TG 88, length 66 mm	19806801
NS 35-104 for TG 1208, length 104 mm	19810701
NS 35-108 for TG 1212, length 108 mm	19811001
NS 35-144/2 for TG 1608 and TG 1612, length 144 mm	19814601
NS 35-184 for TG 2012, length 184 mm	19818601
NS 35-168 for TG 2015, length 168 mm	19817001
NS 35-220 for TG 2516, length 220 mm	19822201
NS 35-283,5 for TG 3023, length 283.5 mm	19828501

Industrial Enclosures TG ABS | TG PC

TG ABS / TG PC Accessories

Standard rail TS 15 for TG series



Standard rail according to DIN EN 60715, 15 x 5

Description	Order no.
TS 15-66 for TG 88, length 66 mm	19706901
TS 15-104 for TG 1208, length 104 mm	19710701
TS 15-108 for TG 1212, length 108 mm	19711001
TS 15-144 for TG 1608 and TG 1612, length 144 mm	19714601
TS 15-184 for TG 2012, length 184 mm	19718601
TS 15-168 for TG 2015, length 168 mm	19717001
TS 15-220 for TG 2516, length 220 mm	19722201
TS 15-283,5 for TG 3023, length 283.5 mm	19728501

Interior hinge set



Interior hinge set for retrofitting the housing cover to a hinged door, incl. 2 hinges, fixing screws and drilling template

Description	Order no.
TG ISS for TG 1612, TG 2012, TG 2015, TG 2516, TG 3023	18200101

External fixing lug set



External fixing lugs set, made of plastic

Description	Order no.
TG ABL for all TG enclosures, Set = 4 pcs.	18200201

Sealing kit



Sealing kit

Description	Order no.
TG PST1 for TG PC 88, TG PC 1208, TG PC 1212, TG PC 1608	18200401
TG PST2 for TG PC 1612, TG PC 2012, TG PC 2015, TG PC 2516, TG PC 3023	18200501

Industrial Enclosures TG ABS | TG PC

TG ABS / TG PC Accessories

Cover retainer



spare cover retainer, Set = 10 pcs.



Description	Order no.
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TG DVS-42	18200601
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for TG 88, TG 1208, TG 1212, TG 1608	
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TG DVS-57	18200701
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for TG 1612, TG 2012, TG 2015, TG 2516, TG 3023	
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Hole cutter



Hole cutter

Description	Order no.
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LFR	19599501
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through opening: M16-32, drill hole: 16.5-32.5 mm	
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Technical information

TG ABS | TG PC

IP66

Class of protection (IP-Code)
acc. to DIN EN 60529 (VDE 0470-1)

IK07

Level of protection (IK code)
to mechanical impact acc. to
DIN EN 50102 (VDE 0470-100)



Protection class II
operating materials with protective
insulation acc. to DIN VDE 0100-410

690V
AC

Nominal AC voltage (AC voltage)
Highest permissible voltage on the
junction as per product standard

1000V
DC

Maximum voltage DC (DC voltage)
as per product standard
(system voltage in the PV sector)



c UL us (Underwriters Laboratories)
approved (American and
Canadian approval)



Halogen-free enclosure,
without halogens such as fluorine,
chlorine and bromine



Industrial quality



DLG Focus Test
for special innovations in machines
and technical products - predominantly
in agriculture and forestry applications

Piktograms | Empty enclosure TG ABS / TG PC



**Standard
quality**



**Industrial
quality**

Overview of the ambient conditions and mechanical properties of the Spelsberg products	Ambient temperature Minimum value	Ambient temperature Maximum value	Ambient temperature Average value over 24 h	Max. relative humidity at 40 °C	Max. relative humidity at 25 °C (short-term)	Protection rating according to DIN EN 60529 / VDE 0470-1 ¹⁾	Shock-proof as per DIN EN 50102 / DE 0470 Part 100
TG ABS empty enclosure	-25°C	40°C	35°C	50%	95%	IP66/ IP67	IK07
TG-PC (polycarbonate)	-35°C	80°C	60°C	50%	95%	IP66/ IP67	IK08

Additional note: The specified temperatures may be limited by the installed devices.

¹⁾When used with suitable connectors or cable glands.

Overview of the Properties of the materials used in the Spelsberg installations systems		Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia, gaseous (DLG Focus Test)	Vegetable fats	Animal fats	Halogen-free	Free from heavy metals, PVC and silicone	Flammability according to DIN EN 60695 (VDE 0471) / UL94
Material	Use in															
ABS (Acrylonitrile-Butadiene-Styrene)	TG-ABS	O	Ø	O	O	O	X	X	O	O	k.A.	Ø	Ø	yes	yes	650°C / HB
Polycarbonate	TG-PC	O	X	X	X	O	Ø	X	O	Ø	O	O	Ø	yes	yes	960°C / V-2 (5VA*)
Polycarbonate, transparent	TG-ABS / TG-PC cover	O	X	X	X	Ø	Ø	X	O	Ø	O	O	O	yes	yes	850°C / V-2

* 5 Inch (127 mm) Flame test according to UL 746 C (comparable with the requirements of UL 94, 5VA)

The materials used by Spelsberg were subjected to a weathering test according to DIN 53 387 (replaced by DIN EN ISO 4892-2), a 1000 hour test at the „State Examination Office“ in Dortmund. The materials used in IQ products showed good results. The material also passed the UV resistance test according to UL 746 C, without any limitations.

When selecting the installation location, the climatic conditions and the occurrence of chemical influences should generally be examined in addition to the protection Details of material properties and chemical resistance of the materials can be seen from the table, **though these are simply guide values.**

Power loss details for individually mounted TG empty enclosure		Horizontal installation				Vertical installation			
		[W]				[W]			
		ΔT= 10K	ΔT= 20K	ΔT= 30K	ΔT= 40K	ΔT= 10K	ΔT= 20K	ΔT= 30K	ΔT= 40K
TG 88-6		1,0	2,4	4,0	5,8	1,0	2,4	4,1	5,8
		[0,8]	[2,0]	[3,3]	[4,7]	[0,8]	[2,0]	[3,3]	[4,7]
TG 88-9		1,3	3,2	5,3	7,5	1,3	3,2	5,3	7,5
		[1,1]	[2,6]	[4,3]	[6,1]	[1,1]	[2,6]	[4,3]	[6,1]
TG 1208-6		1,3	3,1	5,2	7,4	1,3	3,2	5,3	7,6
		[1,1]	[2,7]	[4,4]	[6,3]	[1,0]	[2,5]	[4,1]	[5,8]
TG 1208-9		1,7	4,0	6,6	9,4	1,7	4,1	6,8	9,7
		[1,4]	[3,4]	[5,6]	[8,1]	[1,3]	[3,2]	[5,2]	[7,5]
TG 1212-6		1,7	4,1	6,8	9,8	1,7	4,1	6,8	9,8
		[1,4]	[3,4]	[5,6]	[8,0]	[1,4]	[3,4]	[5,6]	[8,0]
TG 1212-9		2,2	5,2	8,5	12,2	2,2	5,2	8,6	12,2
		[1,8]	[4,2]	[7,0]	[10,0]	[1,8]	[4,2]	[7,0]	[9,9]
TG 1608-6		1,6	3,8	6,3	9,0	1,7	4,0	6,6	9,4
		[1,4]	[3,4]	[5,6]	[8,0]	[1,3]	[3,0]	[4,9]	[7,1]
TG 1608-9		2,0	4,8	7,9	11,4	2,1	5,0	8,3	11,9
		[1,8]	[4,2]	[7,0]	[10,1]	[1,6]	[3,8]	[6,3]	[9,0]
TG 1612-9		2,7	6,3	10,4	14,9	2,7	6,4	10,6	15,2
		[2,3]	[5,3]	[8,8]	[12,6]	[2,1]	[5,0]	[8,3]	[11,9]
TG 2012-8		2,8	6,7	11,0	15,8	2,9	6,9	11,4	16,3
		[2,4]	[5,8]	[9,6]	[13,7]	[2,2]	[5,3]	[8,7]	[12,4]
TG 2012-9		3,1	7,3	12,1	17,3	3,2	7,6	12,5	17,9
		[2,7]	[6,4]	[10,5]	[15,0]	[2,4]	[5,8]	[9,6]	[13,7]
TG 2015-9		3,6	8,4	14,0	20,0	3,6	8,6	14,2	20,3
		[3,0]	[7,1]	[11,8]	[16,9]	[2,8]	[6,7]	[11,1]	[15,9]
TG 2516-9		4,3	10,3	17,0	24,3	4,4	10,5	17,4	24,9
		[3,7]	[8,8]	[14,6]	[21,0]	[3,4]	[8,1]	[13,4]	[19,2]
TG 2516-12		5,0	11,8	19,6	28,0	5,1	12,2	20,2	28,8
		[4,3]	[10,2]	[16,9]	[24,2]	[4,0]	[9,4]	[15,5]	[22,2]
TG 3023-9		6,3	15,0	24,8	35,5	6,4	15,2	25,1	35,9
		[5,3]	[12,6]	[20,9]	[29,9]	[5,0]	[11,9]	[19,8]	[28,3]
TG 3023-11		6,9	16,3	27,0	38,6	7,0	16,5	27,4	39,2
		[5,8]	[13,8]	[22,8]	[32,6]	[5,5]	[13,0]	[21,5]	[30,8]

Permissible power loss P_{per} in Watts per DIN VDE 0660-507 for **individually-mounted empty installations** at specified ΔT.

Power loss at 50% of the enclosure height and [75%] of the enclosure height.

Empty enclosure

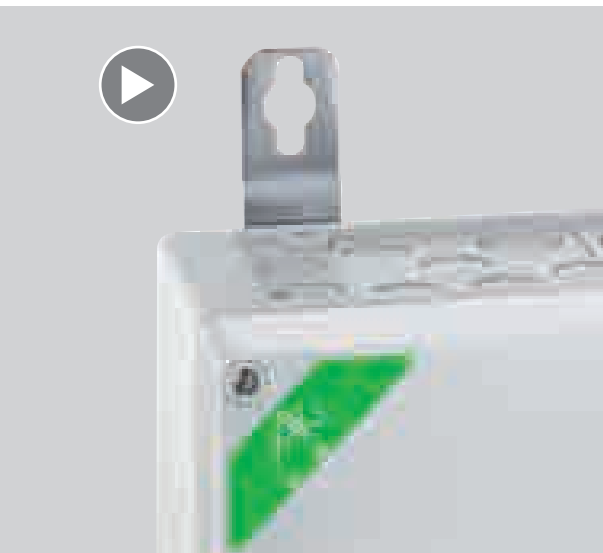
AKL | AKi-L



- 4 basic enclosures up to 600 x 300 mm, with two different cover heights
- Box: choice of polystyrene (AKL) or glass-fibre-reinforced polycarbonate (AKi), grey, similar to RAL 7035
- Cover: grey (polystyrene or polycarbonate) or transparent (polycarbonate)
- Side walls with metric knockouts
- Can be combined up to protection class IP 65

IP65	IK07		690V AC	1000V DC	
IP65	IK08		690V AC	1000V DC	

 Industrial quality



Advantages

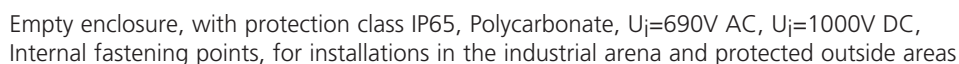
- External fixing lugs
- External hinges
- Easy combination

AKL / AKi 1

300 x 150 mm

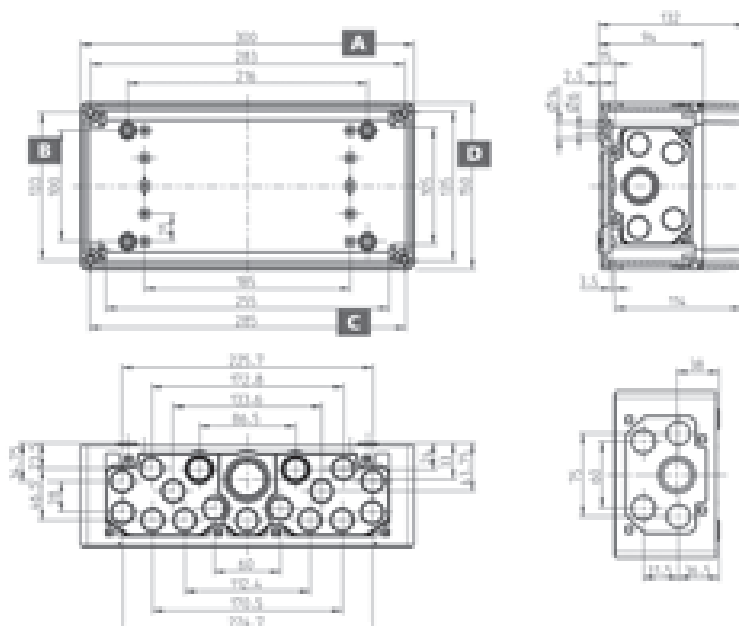
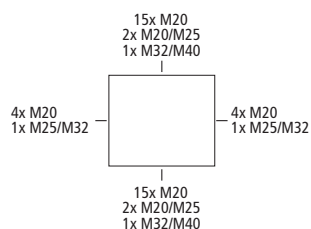


10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm, 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm, 2 Double-membrane seal M32 sealing area 14 - 21 mm, 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm

AKi 1

10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm, 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm, 2 Double-membrane seal M32 sealing area 14 - 21 mm, 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm

With knockouts



Industrial Enclosures AKL | AKi

AKL / AKi 2

AKL 2

300 x 300 mm



Empty enclosure, with protection class IP65, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Accessories supplied:

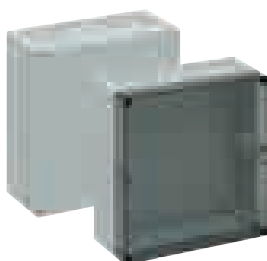
10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm, 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm, 2 Double-membrane seal M32 sealing area 14 - 21 mm, 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm

Description	Cover	Knockouts	Height/mm	Order no.
AKL 2-g	grey	metric	132	74040201
AKL 2-gh	grey	metric	209	74290201
AKL 2-t	transparent	metric	132	74400201
AKL 2-th	transparent	metric	209	74690201

Industrial enclosures
Empty enclosures

AKi 2

300 x 300 mm



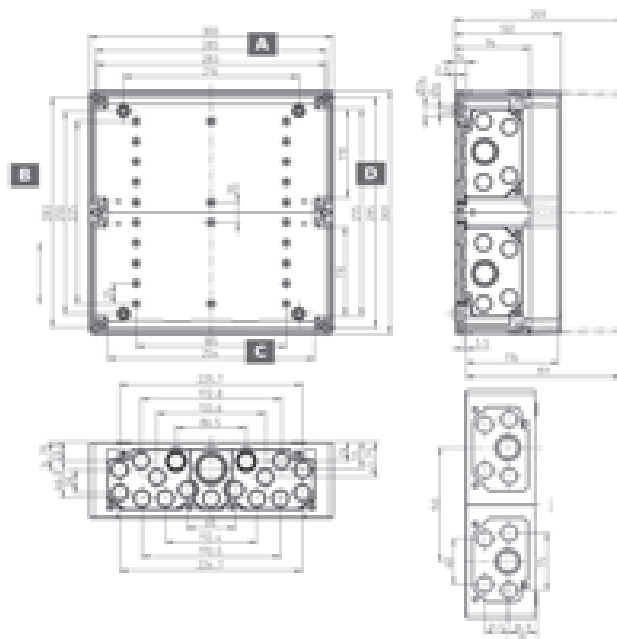
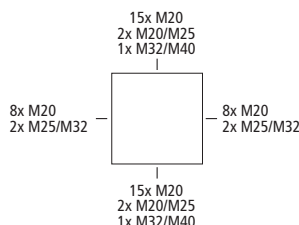
Empty enclosure, with protection class IP65, Polycarbonate, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm, 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm, 2 Double-membrane seal M32 sealing area 14 - 21 mm, 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm

Description	Cover	Knockouts	Height/mm	Order no.
AKi 2-g	grey	metric	132	74140201
AKi 2-gh	grey	metric	209	74390201
AKi 2-t	transparent	metric	132	74500201
AKi 2-th	transparent	metric	209	74790201

With knockouts

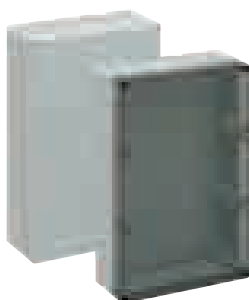


Industrial Enclosures AKL | AKi

AKL / AKi 3

AKL 3

300 x 450 mm



Empty enclosure, with protection class IP65, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

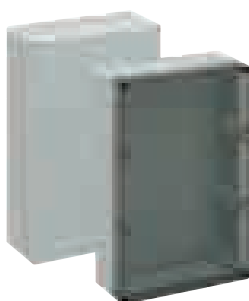
Accessories supplied:

10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm, 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm, 2 Double-membrane seal M32 sealing area 14 - 21 mm, 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm

Description	Cover	Knockouts	Height/mm	Order no.
AKL 3-g	grey	metric	132	74040301
AKL 3-gh	grey	metric	209	74290301
AKL 3-t	transparent	metric	132	74400301
AKL 3-th	transparent	metric	209	74690301

AKi 3

300 x 450 mm



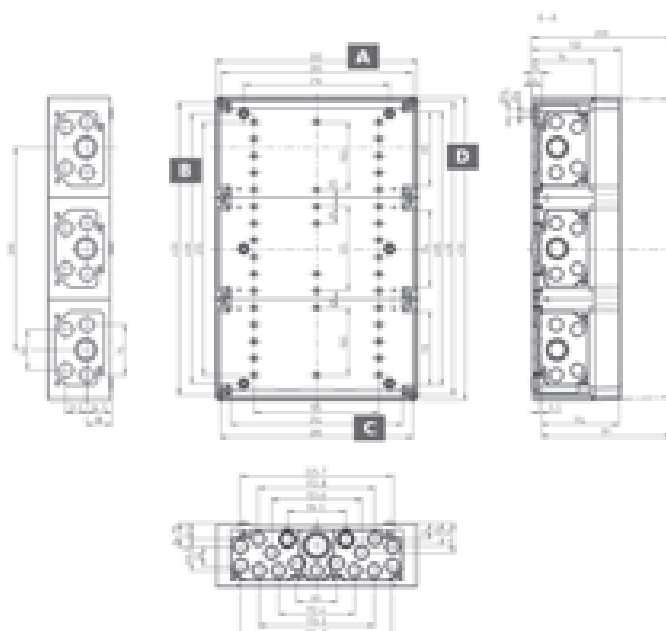
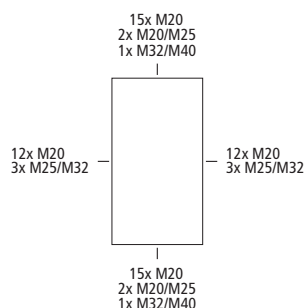
Empty enclosure, with protection class IP65, Polycarbonate, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm, 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm, 2 Double-membrane seal M32 sealing area 14 - 21 mm, 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm

Description	Cover	Knockouts	Height/mm	Order no.
AKi 3-g	grey	metric	132	74140301
AKi 3-gh	grey	metric	209	74390301
AKi 3-t	transparent	metric	132	74500301
AKi 3-th	transparent	metric	209	74790301

With knockouts



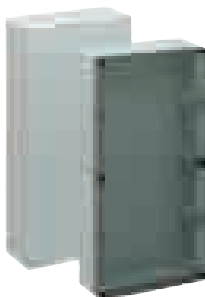
Current prices can be found on our website: www.spelsberg.com

Industrial Enclosures AKL | AKi

AKL / AKi 4

AKL 4

300 x 600 mm



Empty enclosure, with protection class IP65, Polystyrene, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for standard indoor installations

Accessories supplied:

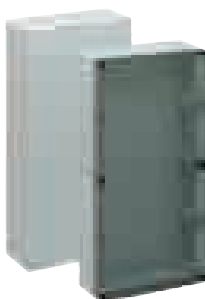
10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm, 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm, 2 Double-membrane seal M32 sealing area 14 - 21 mm, 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm

Description	Cover	Knockouts	Height/mm	Order no.
AKL 4-g	grey	metric	132	74040401
AKL 4-gh	grey	metric	209	74290401
AKL 4-t	transparent	metric	132	74400401
AKL 4-th	transparent	metric	209	74690401

Industrial enclosures
Empty enclosures

AKi 4

300 x 600 mm



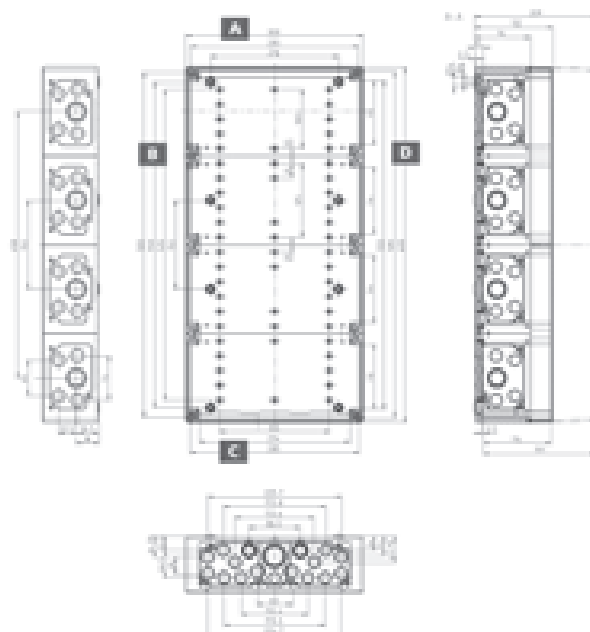
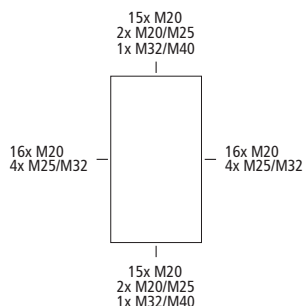
Empty enclosure, with protection class IP65, Polycarbonate, $U_i=690V$ AC, $U_i=1000V$ DC, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm, 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm, 2 Double-membrane seal M32 sealing area 14 - 21 mm, 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm

Description	Cover	Knockouts	Height/mm	Order no.
AKi 4-g	grey	metric	132	74140401
AKi 4-gh	grey	metric	209	74390401
AKi 4-t	transparent	metric	132	74500401
AKi 4-th	transparent	metric	209	74790401

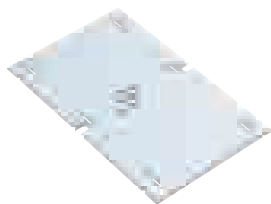
With knockouts



Industrial Enclosures AKL | AKi

AKL / AKi-L Accessories

Assembly plate insulating material for AKL/AKi series



Assembly plate in melamine-clad insulating material, 4 mm thick, incl. fixing screws, grey

Description	Dimensions/mm	Order no.
AK MPI 1 AKL / AKi 1-4	240 x 112 x 4	79500101
AK MPI 2 AKL / AKi 2-4	240 x 240 x 4	79500201
AK MPI 3 AKL/AKi 3-4, Abox 700	240 x 390 x 4	79500301
AK MPI 4 AKL / AKi 4	240 x 540 x 4	79500401

Assembly plate, steel plate for AKL/AKi series



Assembly plate, galvanized steel sheet, 2 mm thick, incl. fixing screws

Description	Dimensions/mm	Order no.
AK MPS 2	240 x 240 x 2	79501201
AK MPS 3	240 x 390 x 2	79501301
AK MPS 4	240 x 540 x 2	79501401

Standard rail NS 35 for AK series



Standard rail acc. to DIN EN 60715, 35 x 7.5mm

Description	Order no.
AK NS35-250 from 300 x 300 mm, length 250 mm, including spacers	56273501
NS35-216/3 universal floor fixing, with fixing screws, length 216 mm	79503001
NS 35-406 universal floor fixing, incl. fixing screws, length 406 mm	79504501
AK NS35-556 universal floor fixing, incl. fixing screws, length 556 mm	79506001

Support NS



Carrier for standard rails acc. to DIN EN 60715, 35 x 7.5 mm, set = 10 pcs.

Description	Height/mm	Order no.
TR NS35-20	20.2	79502001
TR NS35-34	34.5	79503401
TR NS35-42	42.5	79504201
TR NS35-58	58.5	79505801
TR NS35-64	64	79506401
TR NS35-91	91	79509101

Industrial Enclosures AKL | AKi

AKL / AKi-L Accessories

Support NS fastening screws



Fixing screws for 1 TR NS35-xx, set of 30 pieces

Description

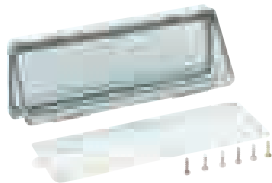
SR NS35

Fixing screws for 1 support set TR NS35/xx

Order no.

79541301

K 12 hinged window



Hinged window, for fitting to enclosure cover, for maximum 12 modules à 17.5 mm, with transparent hinged window, frame with sealing on both sides, with drilling template and fixing screws

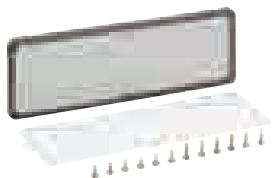
Description

KF 12

Order no.

56741201

SF 12 inspection window



Inspection window, for fitting to enclosure cover, transparent inspection glass, with drilling template and fixing screws

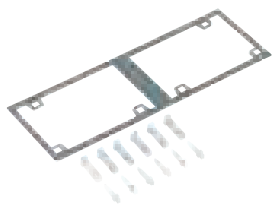
Description

SF 12

Order no.

56801201

AK combi set



Combi set, for horizontal or vertical combination of all AK enclosures (until 04/15) and AKi enclosures from 300 x 150 mm, complete with wedge connectors and intermediate sealing for 150 and 300 mm enclosure sides, each 300 mm = 1 combi set

Description

AK KS-IP65

Order no.

79100101

AK combi set



Combi set without intermediate enclosure seal, for horizontal or vertical combination of all AK enclosures (until 04/15) and AKi enclosures from 300 x 150 mm, 1 set = 10 wedge connectors

Description

AK KS-IP30

Order no.

59110001

Industrial Enclosures AKL | AKi

AKL / AKi-L Accessories

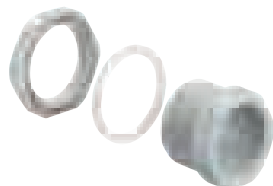
Combi connector



Combination socket for connecting enclosures, polyethylene, grey, for wall thickness 1.5 - 4.0 mm

Description	Order no.
KST M32 Length 25 mm, for vertical and horizontal connection of AK/AKi 24 distribution boards, ZKi meter housings and AKL/AKi 1-4 empty enclosures, for vertical connection of AK/AKi 09/12 distribution boards, as well as TK empty enclosures with M32 knock-outs	19303201
KST M25-33 Length 33 mm, for vertical connection of AK 14 - 56, AK/AKi 24 distribution boards, ZKi meter enclosures and AKL/AKi 1 - 4 empty enclosures, as well as for horizontal connection of AK 28 - 56 distribution boards	19302601
KST M25-17 Length 17 mm, for vertical connection of AK/AKi 03 - 12 distribution boards, AKL / AKi 1-4, as well as TK and SVi enclosures with M25 knock-outs	19302501

Combi set



Combination set for connecting enclosures with metric entries, polystyrene, grey, complete with locknut and partition seal

Description	Wall thickness	Thread lenght/mm	Order no.
KS M20	2 x 3,0	12	19202001
KS M25	2 x 3,0	12	19202501
KS M25-gro	2 x 8,0	22	19202601
KS M32	2 x 3,5	14	19203201

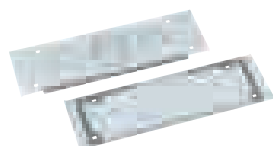
AK mounting flange



Enclosure wall, for installation in the components of the AK enclosure system (until 04/15) for 300 mm wide end walls, with cable covers as standard

Description	Order no.
AK ABF 1 with knockouts, 2 x M32 / M40 / M50, 1 x M40 / M50 / M63	79504801
AK ABF 2 Smooth for self-drilling	79505001

AKi mounting flange



Enclosure wall, for attachment to components of AKi enclosure system to 300 mm wide sides, with cable covers as standard

Description	Order no.
AKi ABF 1 with knockouts, 2 x M32 / M40 / M50, 1 x M40 / M50 / M63	79605101
AKi ABF 2 Smooth for self-drilling	79605001

Industrial Enclosures AKL | AKi

AKL / AKi-L Accessories

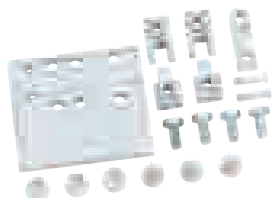
Padlock set



Padlock kit for upgrading the enclosure cover to lockable hinged door, incl. padlock, 2 hinges, fixing screws, cover plugs and drilling template

Description	Order no.
VSG from TK PS/PC 1811 onwards and AKL/AKi 1	19010001

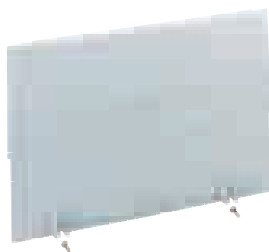
Hinge set



External hinge set for retrofitting the enclosure cover to hinged door, incl. 2 hinges, fixing screws, cover plugs and drilling template

Description	Order no.
ASS-gro External hinge set large, from TK PS/PC 1811 and from AKL/AKi 1	19000501

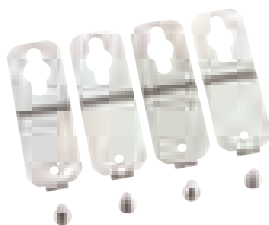
AK partition wall



Partition wall, for installation in the components of the AK enclosure system, from AK 28 / AKL 2 / AKi 2, universal application for various enclosure heights, with break-out openings, grey

Description	Order no.
AK TW	79791001

AK external fixing lugs



External fixing lugs, for mounting separate enclosures or small units on flat wall surfaces, can be fixed to the box base at an angle of 0°, 45°, or 90°, wall gap 7 mm, material stainless steel, suitable for all AK enclosures from 300 mm front,

Description	Order no.
AK ABL-ES Set = 4 pcs.	79300401

Z wall profile



Z-wall profile, length 2 m, with 8 M6 cylinder screws and 8 captive push nuts, wall clearance 70 mm, material: galvanised steel

Description	Order no.
ZPR	07080001

Technical information

AKL | AKi-L

IP65

Class of protection (IP-Code)
acc. to DIN EN 60529 (VDE 0470-1)

IK07

Level of protection (IK code)
to mechanical impact acc. to
DIN EN 50102 (VDE 0470-100)



Protection class II
operating materials with protective
insulation acc. to DIN VDE 0100-410

690V
AC

Nominal AC voltage (AC voltage)
Highest permissible voltage on the
junction as per product standard

1000V
DC

Maximum voltage DC (DC voltage)
as per product standard
(system voltage in the PV sector)



Halogen-free enclosure,
without halogens such as fluorine,
chlorine and bromine



Industrial quality

Piktograms | Empty enclosure AKL / AKi-L



Standard
quality



Industrial
quality

Overview of the ambient conditions and mechanical properties of the Spelsberg products	Ambient temperature Minimum value	Ambient temperature Maximum value	Ambient temperature Average value over 24 h	Max. relative humidity at 40 °C	Max. relative humidity at 25 °C (short-term)	Protection rating according to DIN EN 60529 / VDE 0470-1 ¹⁾	Shock-proof as per DIN EN 50102 / DE 0470 Part 100
AKL Empty enclosure	-25°C	40°C	35°C	50%	95%	IP65	IK07
AKi Empty enclosure	-35°C	80°C	60°C	50%	95%	IP65	IK08

Additional note: The specified temperatures may be limited by the installed devices.

¹⁾ When used with suitable connectors or cable screw couplings.

²⁾ Has passed the flame test of UL 746C as V-2 material.

Overview of the Properties of the materials used in the Spelsberg installations systems		Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia, gaseous (DLG Focus Test)	Vegetable fats	Animal fats	Halogen-free	Free from heavy metals, PVC and silicone	Flammability according to DIN EN 60695 (VDE 0471) / UL94
Material	Use in the products:															
Polystyrene, impact proof	AKL	O	Ø	O	O	O	X	X	O	X	k.A.	O	X	yes	yes	650°C / HB
Polycarbonate, glass-fibre reinforced	AKi-L	O	X	X	X	O	Ø	X	O	Ø	O	O	Ø	yes	yes	960°C / V-2 (5VA*)
Polycarbonate, transparent	Cover AKL / AKi-L	O	X	X	X	Ø	Ø	X	O	Ø	O	O	O	yes	yes	850°C / V-2
Polyamide 6, glass-fibre reinforced	Cover screws	X	X	O	O	O	O	Ø	O	O	O	O	O	yes	yes	750°C / HB/V-2

* 5 Inch (127 mm) Flame test according to UL 746 C (comparable with the requirements of UL 94, 5VA)

The materials used by Spelsberg were subjected to a weathering test according to DIN 53 387 (replaced by DIN EN ISO 4892-2), a 1000 hour test at the „State Examination Office“ in Dortmund. The materials used in IQ products showed good result here. The material also passed the UV resistance test according to UL 746 C, without any limitations.

When selecting the installation location, the climatic conditions and the occurrence of chemical influences should generally be examined in addition to the protection rating. Details of material properties and chemical resistance of the materials can be seen from the table, though these are simply guide values.

Power loss details for individually mounted AKL- / AKi empty enclosure		Horizontal installation				Vertical installation			
		[W]				[W]			
Type		ΔT= 10K	ΔT= 20K	ΔT= 30K	ΔT= 40K	ΔT= 10K	ΔT= 20K	ΔT= 30K	ΔT= 40K
AKL 1-g/t / AKi 1-g/t		5,7	13,4	22,2	31,7	5,9	14,0	23,2	33,2
		[5,0]	[11,9]	[19,7]	[28,2]	[4,5]	[10,6]	[17,5]	[25,0]
AKL 2-g/t / AKi 2-g/t		8,9	21,1	35,0	50,1	8,9	21,1	35,0	50,1
		[7,3]	[17,2]	[28,5]	[40,8]	[7,3]	[17,2]	[28,5]	[40,8]
AKL 2-g/t-h / AKi 2-g/t-h		11,3	26,8	44,3	63,4	11,3	26,8	44,3	63,4
		[9,2]	[21,8]	[36,1]	[51,7]	[9,2]	[21,8]	[36,1]	[51,7]
AKL 3-g/t / AKi 3-g/t		11,8	28,0	46,4	66,4	12,1	28,6	47,4	67,8
		[10,2]	[24,1]	[39,9]	[57,0]	[9,3]	[22,1]	[36,6]	[52,4]
AKL 3-g/t-h / AKi 3-g/t-h		14,7	34,7	57,5	82,3	15,1	35,7	59,0	84,4
		[12,6]	[29,8]	[49,4]	[70,7]	[11,6]	[27,5]	[45,6]	[65,2]
AKL 4-g/t / AKi 4-g/t		14,7	34,8	57,6	82,4	15,2	35,9	59,5	85,1
		[13,0]	[30,9]	[51,1]	[73,1]	[11,4]	[27,1]	[44,8]	[64,1]
AKL 4-g/t-h / AKi 4-g/t-h		18,0	42,5	70,4	100,8	18,7	44,4	73,5	105,1
		[15,9]	[37,7]	[62,5]	[89,4]	[14,1]	[33,4]	[55,3]	[79,1]

Permissible power loss P_{per} in Watt as per DIN VDE 0660-507 for **individually surface-mounted installation small-scale distributors** and **surface-mounted empty enclosures** at specified ΔT. Power loss at 50% of the enclosure height and [75%] of the enclosure height.

Technical information

AKL | AKi-L

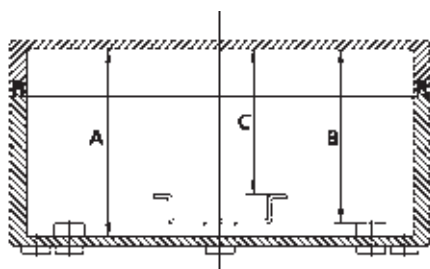
Power loss details for interconnected AKL / AKi empty enclosures	Horizontal installation				Vertical installation			
	[W]				[W]			
Type	$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$	$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$
AKL 1-g/t / AKi 1-g/t	4,2	9,9	16,3	23,4	4,4	10,4	17,2	24,5
	[3,7]	[8,8]	[14,5]	[20,7]	[3,3]	[7,8]	[12,9]	[18,5]
AKL 2-g/t / AKi 2-g/t	7,0	16,5	27,4	39,1	7,0	16,5	27,4	39,1
	[5,7]	[13,5]	[22,3]	[31,9]	[5,7]	[13,5]	[22,3]	[31,9]
AKL 2-g/t-h / AKi 2-g/t-h	8,3	19,6	32,4	46,4	8,3	19,6	32,4	46,4
	[6,7]	[16,0]	[26,4]	[37,8]	[6,7]	[16,0]	[26,4]	[37,8]
AKL 3-g/t / AKi 3-g/t	9,5	22,5	37,2	53,2	9,7	22,9	38,0	54,3
	[8,2]	[19,3]	[32,0]	[45,7]	[7,5]	[17,7]	[29,3]	[42,0]
AKL 3-g/t-h / AKi 3-g/t-h	11,0	26,1	43,2	61,8	11,3	26,8	44,4	63,4
	[9,5]	[22,4]	[37,1]	[53,1]	[8,7]	[20,7]	[34,3]	[49,0]
AKL 4-g/t / AKi 4-g/t	12,0	28,3	46,9	67,0	12,3	29,2	48,3	69,1
	[10,6]	[25,1]	[41,6]	[59,5]	[9,3]	[22,0]	[36,4]	[52,0]
AKL 4-g/t-h / AKi 4-g/t-h	13,7	32,4	53,7	76,8	14,3	33,8	56,0	80,1
	[12,2]	[28,8]	[47,7]	[68,2]	[10,8]	[25,5]	[42,2]	[60,3]

Permissible power loss P_{per} in Watt as per DIN VDE 0660-507 for **surface-mounted interconnected empty enclosures** at specified ΔT .
Power loss at 50% of the enclosure height and [75%] of the enclosure height.



Installation dimensions of the Spelsberg installation products

Clear installation height of important article series



	A	B	C
AKL- / AKi Empty enclosures	[mm]	[mm]	[mm]
AKL 1 up to 4 / AKi 1 up to 4	117,5	114	106,5
AKL 2-h up to 4-h / AKi 2-h up to 4-h	194,5	191	183,5

Empty enclosure

ALS

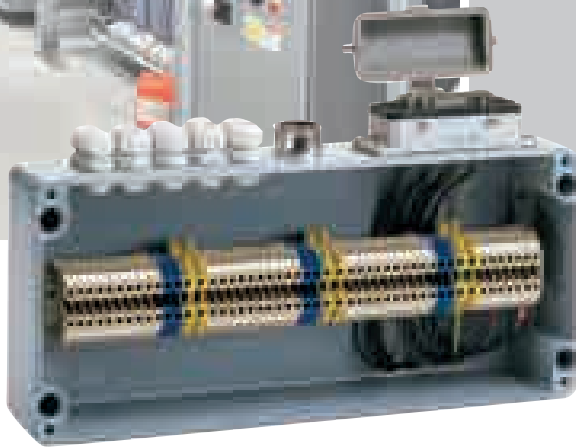


- 8 enclosure sizes up to 388 x 270 mm
- Powder coating to prevent corrosion
- Colour: silver grey, similar to RAL 7001
- Material: Aluminium die-cast
- Effective protection against electromagnetic interference (EMI) and electrostatic discharges (ESD)
- Compatible with TK built-in parts such as mounting plates or standard rails
- High resistance to chemicals
- Special designs on customer request



Empty enclosure

AL



Industrial enclosures
Empty enclosures

Advantages

- 16 standard enclosure sizes up to 330 x 230 mm
- Powder coating to prevent corrosion
- Colour: silver grey, similar to RAL 7001
- Material: Aluminium die-cast
- Effective protection against electromagnetic interference (EMI) and electrostatic discharges (ESD)
- An even higher level of protection can be achieved by using conductive seals (available on request) between the components of the enclosure
- High resistance to chemicals
- Special designs on customer request
- External fixing lugs
- External hinge

Aluminium Industrial Enclosures

ALS

ALS 99-6

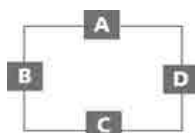
89 x 89 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, certified according to UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), for installations in the industrial arena and protected outside areas

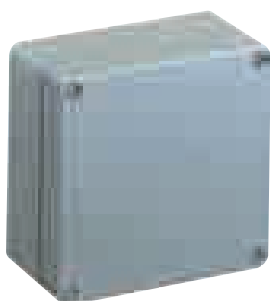
Description	Cover	Knockouts	Height/mm	Order no.
ALS 99-6	silver-grey	none	64	15100101

M	12	16	20	25	32	40	50
A/C	2	1	1	-	-	-	-
B/D	1	1	1	-	-	-	-



ALS 1212-6

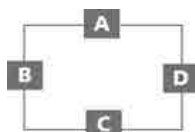
119 x 119 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, certified according to UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), for installations in the industrial arena and protected outside areas

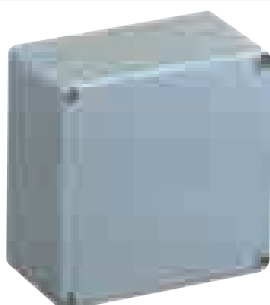
Description	Cover	Knockouts	Height/mm	Order no.
ALS 1212-6	silver-grey	none	64	15100301

M	12	16	20	25	32	40	50
A/C	6	3	2	1	-	-	-
B/D	3	1	1	1	-	-	-



ALS 1414-7

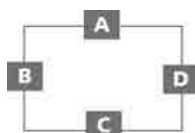
139 x 139 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, certified according to UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
ALS 1414-7	silver-grey	none	73	15100401

M	12	16	20	25	32	40	50
A/C	8	3	3	2	1	-	-
B/D	6	5	2	1	1	-	-

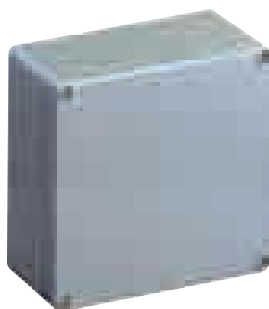


Aluminium Industrial Enclosures

ALS

ALS 1515-8

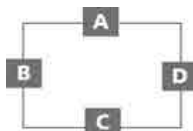
154 x 154 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, certified according to UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), for installations in the industrial arena and protected outside areas

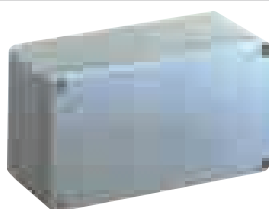
Description	Cover	Knockouts	Height/mm	Order no.
ALS 1515-8	silver-grey	none	81	15100501

M	12	16	20	25	32	40	50
A/C	10	6	5	3	2	-	-
B/D	8	5	3	2	1	-	-



ALS 2011-9

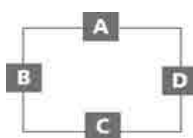
199 x 114 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, certified according to UL (UL 508 & CSA C22.2 No. 14-13, UL 50 & CSA 22.2 No. 94.1-7 & UL 50E & CSA C22.2 No. 94.2-7), for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
ALS 2011-9	silver-grey	none	95	15100601

M	12	16	20	25	32	40	50
A/C	21	10	8	6	3	2	2
B/D	6	3	2	1	1	-	-



ALS 2020-9

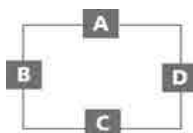
199 x 199 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, certified according to UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), for installations in the industrial arena and protected outside areas

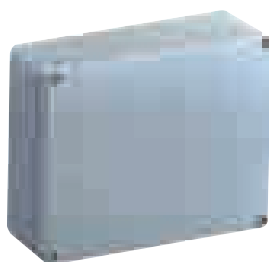
Description	Cover	Knockouts	Height/mm	Order no.
ALS 2020-9	silver-grey	none	95	15100701

M	12	16	20	25	32	40	50
A/C	21	14	8	8	3	2	2
B/D	18	9	8	6	1	2	-



ALS 2720-9

273 x 205 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, certified according to UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
ALS 2720-9	silver-grey	none	95	15100801

M	12	16	20	25	32	40	50
A/C	33	18	14	12	5	4	3
B/D	18	10	8	6	3	2	1

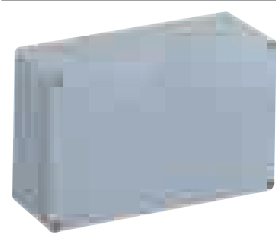


Aluminium Industrial Enclosures

ALS

ALS 3927-12

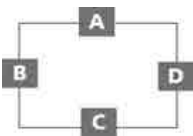
388 x 270 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, certified according to UL (UL 50 & CSA 22.2 No. 94.1-07, UL 50E & CSA C22.2 No. 94.2-07), for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
ALS 3927-12	silver-grey	none	117	15101201

M	12	16	20	25	32	40	50
A/C	48	35	22	17	8	6	4
B/D	27	18	12	9	4	3	2



Aluminium Industrial Enclosures

AL

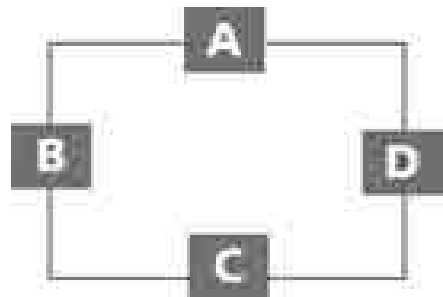
AL 55-3

50 x 45 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

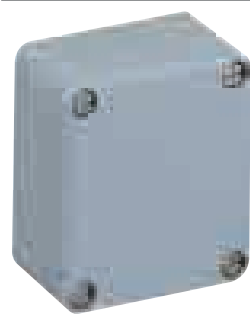
Description	Cover	Knockouts	Height/mm	Order no.
AL 55-3	silver-grey	none	30	15000101



M	12	16	20	25	32	40	50
A/C	1						
B/D	1						

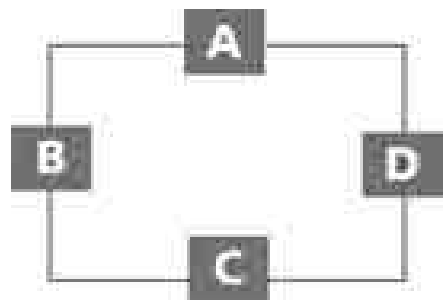
AL 66-3

64 x 58 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 66-3	silver-grey	none	34	15000201



M	12	16	20	25	32	40	50
A/C	2						
B/D	1						

Aluminium Industrial Enclosures

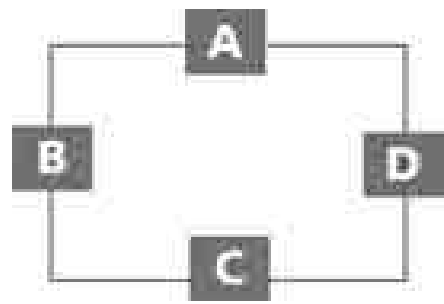
AL

AL 88-680 x 75 mm



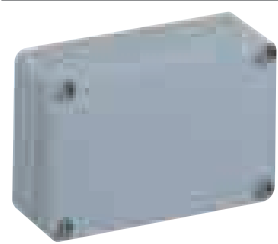
Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 88-6	silver-grey	none	57	15000501



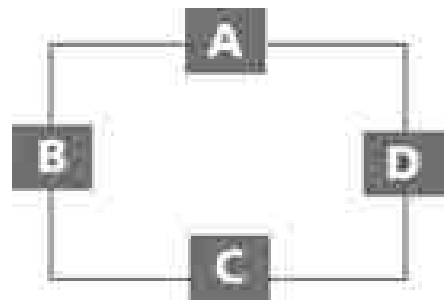
M	12	16	20	25	32	40	50
A/C	4	2	1	-	-	-	-
B/D	4	2	1	-	-	-	-

AL 1006-398 x 64 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 1006-3	silver-grey	none	34	15000301

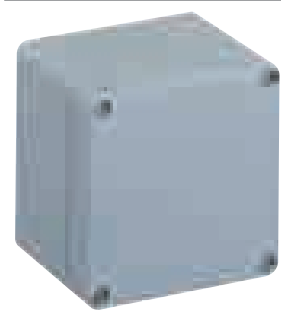


M	12	16	20	25	32	40	50
A/C	4	-	-	-	-	-	-
B/D	1	-	-	-	-	-	-

Aluminium Industrial Enclosures

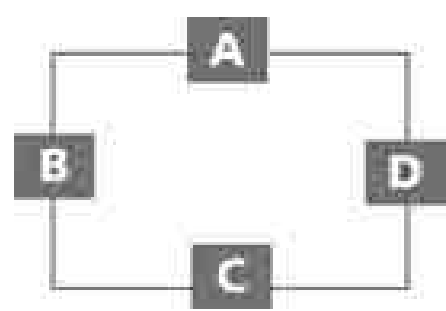
AL

AL 1010-8100 x 100 mm



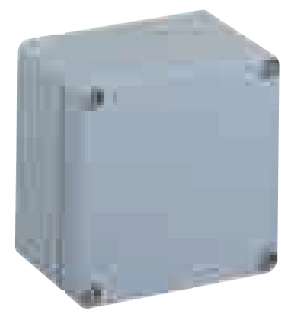
Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 1010-8	silver-grey	none	81	15000801



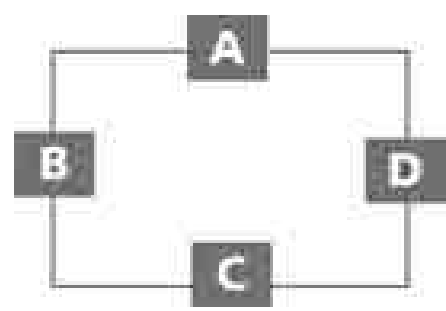
M	12	16	20	25	32	40	50
A/C	9	5	4	2	1	-	-
B/D	6	4	2	1	-	-	-

AL 1212-8122 x 120 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 1212-8	silver-grey	none	81	15000901



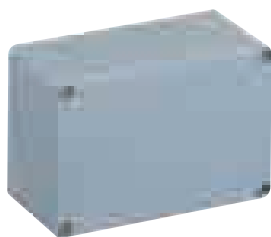
M	12	16	20	25	32	40	50
A/C	10	6	5	2	2	-	-
B/D	8	4	2	1	1	-	-

Aluminium Industrial Enclosures

AL

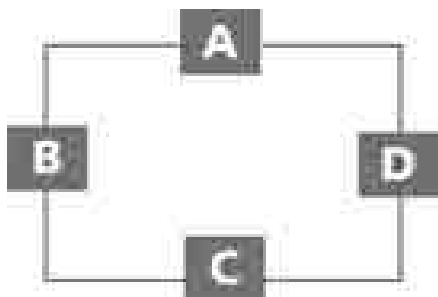
AL 1308-6

125 x 80 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

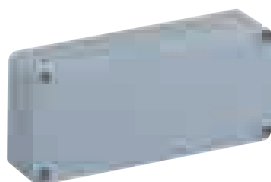
Description	Cover	Knockouts	Height/mm	Order no.
AL 1308-6	silver-grey	none	57	15000601



M	12	16	20	25	32	40	50
A/C	10	4	3	-	-	-	-
B/D	3	3	1	-	-	-	-

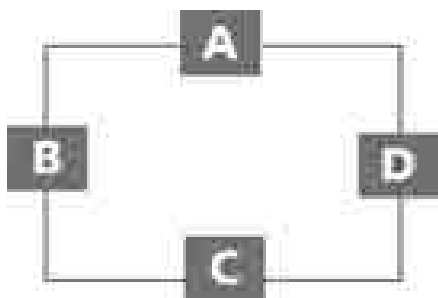
AL 1506-3

150 x 64 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 1506-3	silver-grey	none	34	15000401



M	12	16	20	25	32	40	50
A/C	6	-	-	-	-	-	-
B/D	1	-	-	-	-	-	-

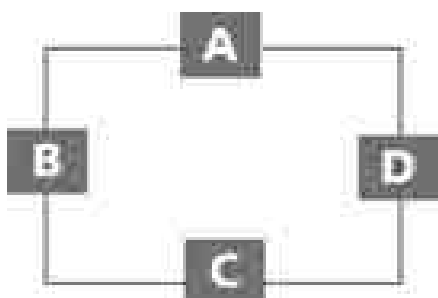
AL 1616-9

160 x 160 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 1616-9	silver-grey	none	91	15001101



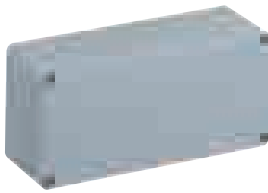
M	12	16	20	25	32	40	50
A/C	21	10	8	4	2	2	1
B/D	12	6	5	2	2	1	-

Aluminium Industrial Enclosures

AL

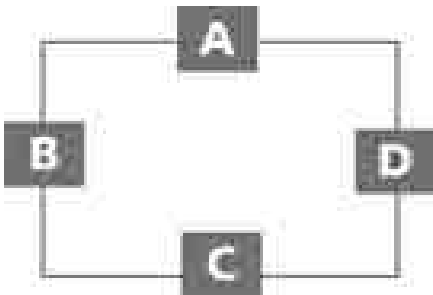
AL 1808-6

175 x 80 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

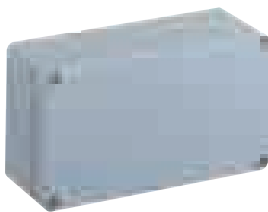
Description	Cover	Knockouts	Height/mm	Order no.
AL 1808-6	silver-grey	none	57	15000701



M	12	16	20	25	32	40	50
A/C	14	7	5	-	-	-	-
B/D	2	3	2	-	-	-	-

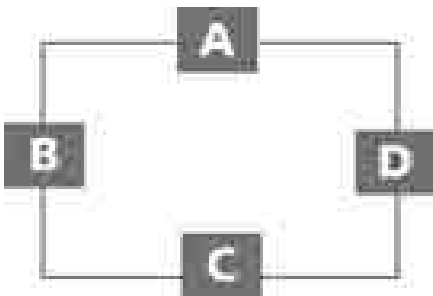
AL 2212-8

220 x 120 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 2212-8	silver-grey	none	81	15001001



M	12	16	20	25	32	40	50
A/C	22	14	11	5	3	-	-
B/D	8	4	2	1	1	-	-

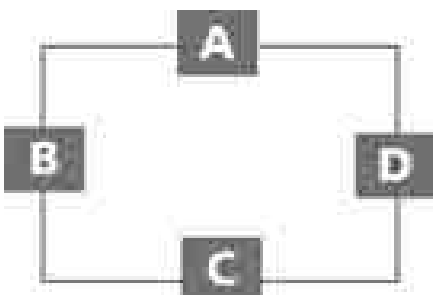
AL 2320-11

230 x 200 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 2320-11	silver-grey	none	111	15001401

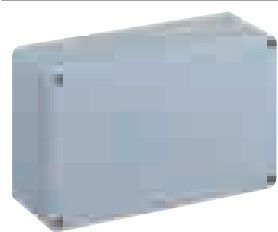


M	12	16	20	25	32	40	50
A/C	32	18	10	8	3	2	2
B/D	36	21	10	8	4	3	2

Aluminium Industrial Enclosures

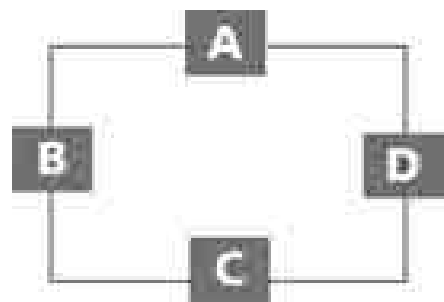
AL

AL 2616-9260 x 160 mm



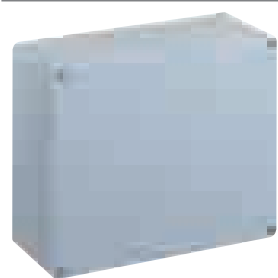
Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 2616-9	silver-grey	none	91	15001201



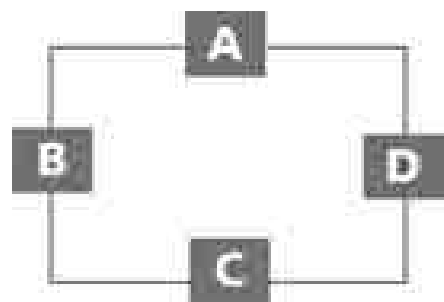
M	12	16	20	25	32	40	50
A/C	36	18	14	7	4	3	3
B/D	12	6	5	2	2	2	2

AL 2823-11280 x 230 mm



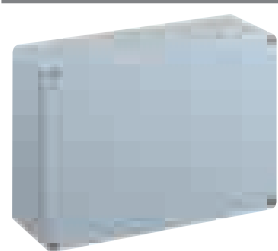
Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 2823-11	silver-grey	none	111	15001501



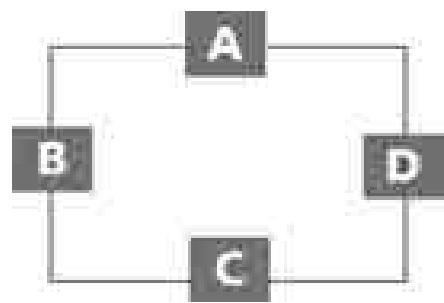
M	12	16	20	25	32	40	50
A/C	52	30	16	12	6	4	3
B/D	32	18	10	8	4	2	2

AL 3323-11330 x 230 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 3323-11	silver-grey	none	111	15001601



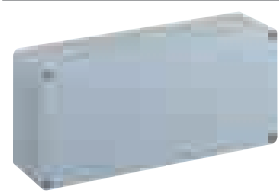
M	12	16	20	25	32	40	50
A/C	64	36	20	14	7	5	4
B/D	32	18	10	8	4	2	2

Aluminium Industrial Enclosures

AL

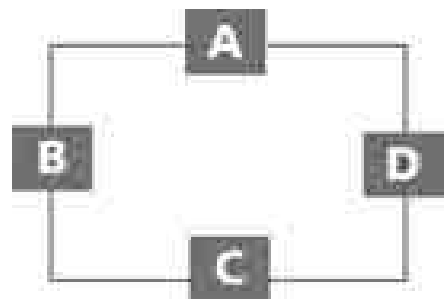
AL 3616-9

360 x 160 mm



Empty enclosure, with protection class IP66, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description	Cover	Knockouts	Height/mm	Order no.
AL 3616-9	silver-grey	none	90	15001301



M	12	16	20	25	32	40	50
A/C	54	28	20	10	6	5	4
B/D	12	6	5	2	2	1	1

Aluminium Industrial Enclosures

ALS / AL Accessories

Assembly plate, steel plate for AL series



Assembly plate, galvanized steel sheet, 1.5 mm thick

Description	Dimensions/mm	Order no.
AL MPS-88	64 x 69 x 1,5	15500501
AL MPS-1010	88 x 88 x 1,5	15500801
AL MPS-1212	107 x 109 x 1,5	15500901
AL MPS-1308	69 x 114 x 1,5	15500601
AL MPS-1616	143 x 145 x 1,5	15501101
AL MPS-1808	69 x 164 x 1,5	15500701
AL MPS-2212	107 x 207 x 1,5	15501001
AL MPS-2320	184 x 213 x 1,5	15501401
AL MPS-2616	143 x 244 x 1,5	15501201
AL MPS-2823	214 x 264 x 1,5	15501501
AL MPS-3323	213 x 314 x 1,5	15501601
AL MPS-3616	143 x 345 x 1,5	15501301

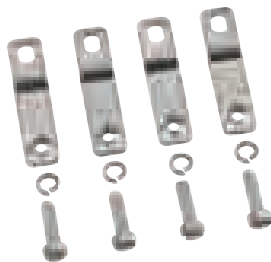
Standard rail NS 35 for AL series



Standard rail acc. to DIN EN 60715, 35 x 7.5mm

Description	Order no.
AL NS35-110 Enclosure type AL 1212	16200901
AL NS35-145 Enclosure type AL 1616	16201101
AL NS35-186 Enclosure type AL 2320	16201401
AL NS35-208 Enclosure type AL 2212	16201001
AL NS35-245 Enclosure type AL 2616	16201201
AL NS35-266 Enclosure type AL 2823	16201501
AL NS35-316 Enclosure type AL 3323	16201601
AL NS35-345 Enclosure type AL 3616	16201301

External fixing lugs



External fixing lugs

Description	Order no.
AL ALS-kl for AL/ALR 88, 1006, 1010, 1308, 1506, 1808, for ALS 99/1212	15400401
AL ALS-gro for AL/ALR 1212, 1616, 2212, 2320, 2616, 2823, 3323, 3616, for ALS 1414, 1515, 2011, 2020, 2720, 3927	15400601

Aluminium Industrial Enclosures

ALS / AL Accessories

External hinge set



For converting the enclosure cover into a hinged door. Incl. 2 hinges, fastening screws and drilling template

Description

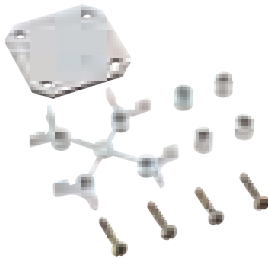
AL ASS

for AL/ALR 1010, 1212, 1616, 2212, 2320, 2616, 2823, 3323, 3616, for ALS 1515, 2011, 2020, 2720, 3927

Order no.

15421001

Assembly plate insulating material for TK and ALS series



Assembly plate in melamine-clad insulating material, 2.5 mm thick, incl. fixing screws and spacers, grey

Description

TK MPI-77

TK PS/PC 77 + ALS 99

Dimensions/mm

45 x 45 x 2,5

Order no.

19500101

TK MPI-97

TK PS/PC 97

74 x 45 x 2,5

19500201

TK MPI-99

TK PS/PC 99 + ALS 1212

74 x 74 x 2,5

19500301

TK MPI-1111

TK PS/PC 1111 + ALS 1414

90 x 90 x 2,5

19500401

TK MPI-1309

TK PS/PC 1309

110 x 74 x 2,5

19500901

TK MPI-1313

TK PS/PC 1313 + ALS 1515

110 x 110 x 2,5

19500501

TK MPI-1809

TK PS/PC 1809

160 x 74 x 2,5

19501001

Assembly plate insulating material for TK and ALS series



Assembly plate in melamine-clad insulating material, 2.5 mm thick, incl. fixing screws, grey

Description

TK MPI-1811

TK PS/PC 1811 + ALS 2011

Dimensions/mm

150 x 90 x 2,5

Order no.

19500601

TK MPI-1813

TK PS/PC 1813

100 x 146 x 2,5

19501101

TK MPI-1818

TK PS/PC 1818 + ALS 2020

150 x 150 x 2,5

19500701

TK MPI-2518

TK PS/PC 2518 + ALS 2720

150 x 220 x 2,5

19500801

TK MPI-3625

TK PS/PC 3625 + ALS 3927

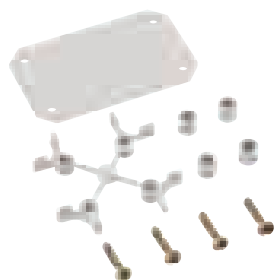
331 x 220 x 2,5

19501201

Aluminium Industrial Enclosures

ALS / AL Accessories

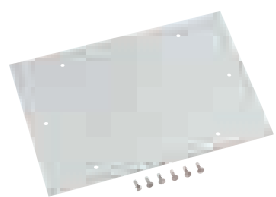
Assembly plate, steel plate for TK and ALS series



Assembly plate in galvanized steel melamine-clad insulating material, 2 mm thick, incl. fixing screws, grey

Description	Dimensions/mm	Order no.
TK MPS-77 TK PS/PC 77 + ALS 99	45 x 45 x 2	19700101
TK MPS-97 TK PS/PC 97	45 x 74 x 2	19700201
TK MPS-99 TK PS/PC 99 + ALS 1212	74 x 74 x 2	19700301
TK MPS-1111 TK PS/PC 1111 + ALS 1414	90 x 90 x 2	19700401
TK MPS-1309 TK PS/PC 1309	74 x 110 x 2	19700901
TK MPS-1313 TK PS/PC 1313 + ALS 1515	110 x 110 x 2	19700501
TK MPS-1809 TK PS/PC 1809	74 x 160 x 2	19701001

Assembly plate, steel plate for TK and ALS series



Assembly plate, galvanized steel sheet, 2 mm thick, incl. fixing screws

Description	Dimensions/mm	Order no.
TK MPS-1811 TK PS/PC 1811 + ALS 2011	90 x 150 x 2	19700601
TK MPS-1813 TK PS/PC 1813	100 x 146 x 2	19701101
TK MPS-1818 TK PS/PC 1818 + ALS 2020	150 x 150 x 2	19700701
TK MPS-2518 TK PS/PC 2518 + ALS 2720	150 x 220 x 2	19700801
TK MPS-3625 TK PS/PC 3625 + ALS 3927	220 x 331 x 2	19701201

Standard rail NS 35 for TK and ALS series



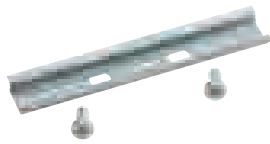
Standard rail acc. to DIN EN 60715, 35 x 7.5 mm, incl. fixing screws

Description	Order no.
NS 35-144 TK PS/PC 1809/1811/1813/1818/2518 + ALS 2011/2020	19814401
NS 35-171 TK PS/PC 1818, TK PS/PC 2518, HP 190	19817101
NS 35-216 TK PS/PC 2518/3625 + ALS 2720/3927	19821601
NS 35-336 TK PS/PC 3625 + ALS 3927	19833601

Aluminium Industrial Enclosures

ALS / AL Accessories

Standard rail TS 15 for TK and ALS series



Standard rail acc. to DIN EN 60715, 15 x 5, width 15 mm, incl. fixing screws

Description	Order no.
TS 15-49,5 for TK 77, TK 97 and ALS 99, length 49.5 mm	19704901
TS 15-80 for TK 97, TK 99, TK 1111, TK 1309, TK 1313, TK 1809, TK 1811, ALS 1212, ALS 1414, ALS 1515 and ALS 2011, length 80 mm	19708001
TS 15-92 for TK 1111, TK 1309, TK 1313, TK 1809, TK 1811, ALS 1414, ALS 1515 and ALS 2011, length 92 mm	19709201
TS 15-111 for TK 1309, TK 1313 and ALS 1515, length 111 mm	19711101
TS 15-154 for TK 1809, TK 1811, TK 1813, TK 1818, TK 2518, ALS 2020 und ALS 2720, length 154 mm	19715401

Ventilation plug



Ventilation Plug, IP44, with labyrinth seal to avoid condensation formation in enclosures, flow rate 100 l/min. at 0.1 bar overpressure, thermoplastic elastomer, recommended for insertion on the left and right enclosure sides in different heights (see Technical Appendix - protection against condensate water), for wall thicknesses 1.5 - 4.5 mm

Description	for wall thickness	Order no.
BST M20 Grey	4,5 - 1,5	26242001
BST M20/sw Black	4,5 - 1,5	26202001

Double membrane seals, grey



Double membrane seals, IP66, with two sealing membranes, closed, thermoplastic elastomer (TPE), for wall thicknesses 1.5 - 4.5 mm, grey

Description	Sealing area/mm	Order no.
DMS M16	5 - 9	26041601
DMS M20	7 - 12	26042001
DMS M25	9 - 16	26042501
DMS M32	14 - 21	26043201
DMS M40	19 - 28	26044001

Aluminium Industrial Enclosures

ALS / AL Accessories

Cable gland, grey



Cable gland, IP68, with strain relief, polyamide, M_ x 1.5 mm, without locknut, grey

Description	Sealing area/mm	Thread lenght/mm	Order no.
KVR M12	2 - 6.5	8	24741201
KVR M16	4 - 10	8	24741601
KVR M20	6 - 12	9	24742001
KVR M20-GDB	7 - 14	9	24742101
KVR M25	9 - 16	11	24742501
KVR M32	11 - 21	11	24743201
KVR M40	16 - 28	11	24744001
KVR M50	21 - 34.5	13	24745001

Attachment bushes, grey



Attachment bushes, IP54, with open sealing membrane, thermoplastic elastomer (TPE), for wall thicknesses of 1.5 - 4.0 mm, grey

Description	Sealing area/mm	Order no.
AST M16	6 - 10	23041601
AST M20	8 - 13.5	23042001
AST M25	9 - 18.5	23042501
AST M32	13 - 23	23043201
AST M40	17 - 30	23044001



Technical information

ALS | AL



Class of protection (IP-Code)
acc. to DIN EN 60529 (VDE 0470-1)



Level of protection (IK code)
to mechanical impact acc. to
DIN EN 50102 (VDE 0470-100)



Equipment of **protection class I**
as per EN 61140 (VDE 140-1)



Halogen-free enclosure,
without halogens such as fluorine,
chlorine and bromine



Industrial quality



c UL us
(Underwriters Laboratories)
approved (American and
Canadian approval)

Piktograms | Empty enclosure ALS / AL



**Industrial
quality**

Overview of the ambient conditions and mechanical properties of the els products	Ambient temperature Minimum value	Ambient temperature Maximum value	Ambient temperature Average value over 24 h	Max. relative humidity at 40 °C	Max. relative humidity at 25 °C (short-term)	Protection rating according to DIN EN 60529 / VDE 0470-1 ¹⁾	Shock-proof as per DIN EN 50102 / DE 0470 Part 100
AL / ALS aluminium enclosure	-35°C	75°C	60°C	50%	95%	IP66	IK09

Additional note: The specified temperatures may be limited by the installed devices.

¹⁾ When used with suitable connectors or cable glands.

Technical information

ALS | AL

Overview of the Properties of the materials used in the els installations systems		Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia, gaseous (DLG Focus Test)	Vegetable fats	Animal fats	Halogen-free	Free from heavy metals, PVC and silicone	Flammability according to DIN EN 60695 (VDE 0471) / UL94
Material	Use in products:															
Aluminium	AL, ALS	O	Ø	O	O	O	O	O	O	O	k.A.	O	O	ja	ja	---

The materials used by Spelsberg were subjected to a weathering test according to DIN 53 387 (replaced by DIN EN ISO 4892-2), a 1000 hour test at the "State Examination Office" in Dortmund. The materials used in IQ products showed good result here. The material also passed the UV resistance test according to UL 746 C, without any limitations.

When selecting the installation location, the climatic conditions and the occurrence of chemical influences should generally be examined in addition to the protection rating. Details of material properties and chemical resistance of the materials can be seen from the table, **though these are simply guide values.**

Power loss details for individually mounted ALS empty enclosure		Horizontal installation				Vertical installation			
		[W]				[W]			
		$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$	$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$
ALS 99-6		1,2	2,9	4,8	6,9	1,2	2,9	4,8	6,9
		[1,0]	[2,4]	[3,9]	[5,6]	[1,0]	[2,4]	[3,9]	[5,6]
ALS 1212-6		1,8	4,2	7,0	10,1	1,8	4,2	7,0	10,1
		[1,5]	[3,5]	[5,7]	[8,2]	[1,5]	[3,5]	[5,7]	[8,2]
ALS 1414-7		2,4	5,6	9,2	13,2	2,4	5,6	9,2	13,2
		[1,9]	[4,6]	[7,5]	[10,8]	[1,9]	[4,6]	[7,5]	[10,8]
ALS 1515-8		2,9	6,8	11,2	16,0	2,9	6,8	11,2	16,0
		[2,3]	[5,5]	[9,1]	[13,0]	[2,3]	[5,5]	[9,1]	[13,0]
ALS 2011-9		3,0	7,1	11,8	16,9	3,1	7,4	12,3	17,6
		[2,6]	[6,2]	[10,3]	[14,8]	[2,4]	[5,6]	[9,3]	[13,3]
ALS 2020-9		4,4	10,3	17,1	24,4	4,4	10,3	17,1	24,4
		[3,6]	[8,4]	[13,9]	[19,9]	[3,6]	[8,4]	[13,9]	[19,9]
ALS 2720-9		5,5	13,1	21,6	30,9	5,6	13,3	22,0	31,4
		[4,7]	[11,1]	[18,3]	[26,2]	[4,4]	[10,4]	[17,2]	[24,6]
ALS 3927-12		9,4	22,2	36,8	52,7	9,6	22,7	37,5	53,7
		[8,0]	[19,0]	[31,5]	[45,0]	[7,4]	[17,6]	[29,1]	[41,7]

Permissible power loss P_{per} in Watts per DIN VDE 0660-507 for **individually-mounted empty installations** at specified ΔT .
Power loss at 50% of the enclosure height and [75%] of the enclosure height.

Technical information

ALS | AL

Power loss details for individually mounted AL empty enclosure	Horizontal installation				Vertical installation			
	[W]				[W]			
Typ	$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$	$\Delta T = 10K$	$\Delta T = 20K$	$\Delta T = 30K$	$\Delta T = 40K$
AL 55-3	0,4	0,8	1,4	2,0	0,4	0,9	1,4	2,0
	[0,3]	[0,7]	[1,2]	[1,7]	[0,3]	[0,7]	[1,1]	[1,6]
AL 66-3	0,5	1,3	2,1	3,0	0,5	1,3	2,1	3,0
	[0,4]	[1,0]	[1,7]	[2,5]	[0,4]	[1,0]	[1,7]	[2,4]
AL 88-6	1,0	2,3	3,8	5,4	1,0	2,3	3,8	5,4
	[0,8]	[1,9]	[3,1]	[4,4]	[0,8]	[1,9]	[3,1]	[4,4]
AL 1006-3	0,8	1,8	3,0	4,3	0,8	1,8	3,0	4,4
	[0,7]	[1,5]	[2,6]	[3,7]	[0,6]	[1,4]	[2,3]	[3,4]
AL 1010-8	1,6	3,9	6,4	9,2	1,6	3,9	6,4	9,2
	[1,3]	[3,2]	[5,2]	[7,5]	[1,3]	[3,2]	[5,2]	[7,5]
AL 1212-8	2,1	4,9	8,1	11,6	2,1	4,9	8,2	11,7
	[1,7]	[4,0]	[6,7]	[9,5]	[1,7]	[4,0]	[6,6]	[9,5]
AL 1308-6	1,3	3,2	5,3	7,5	1,4	3,3	5,4	7,7
	[1,2]	[2,7]	[4,5]	[6,5]	[1,1]	[2,5]	[4,2]	[5,9]
AL 1506-3	1,0	2,5	4,1	5,8	1,1	2,6	4,3	6,1
	[0,9]	[2,2]	[3,7]	[5,3]	[0,8]	[1,9]	[3,2]	[4,6]
AL 1616-9	3,2	7,5	12,5	17,9	3,2	7,5	12,5	17,9
	[2,6]	[6,1]	[10,2]	[14,6]	[2,6]	[6,1]	[10,2]	[14,6]
AL 1808-6	1,7	4,0	6,7	9,5	1,8	4,2	7,0	10,0
	[1,5]	[3,6]	[6,0]	[8,5]	[1,3]	[3,2]	[5,2]	[7,5]
AL 2212-8	3,1	7,3	12,1	17,2	3,2	7,6	12,5	17,9
	[2,7]	[6,4]	[10,6]	[15,2]	[2,4]	[5,7]	[9,5]	[13,5]
AL 2320-11	5,2	12,3	20,3	29,1	5,2	12,4	20,5	29,3
	[4,3]	[10,2]	[16,9]	[24,2]	[4,2]	[9,9]	[16,4]	[23,5]
AL 2616-9	4,4	10,5	17,3	24,7	4,5	10,7	17,8	25,5
	[3,8]	[9,1]	[15,0]	[21,5]	[3,5]	[8,2]	[13,6]	[19,5]
AL 2823-11	6,5	15,4	25,6	36,6	6,6	15,6	25,9	37,0
	[5,5]	[12,9]	[21,4]	[30,6]	[5,2]	[12,4]	[20,5]	[29,3]
AL 3323-11	7,3	17,3	28,7	41,0	7,5	17,7	29,2	41,8
	[6,2]	[14,8]	[24,5]	[35,0]	[5,8]	[13,7]	[22,7]	[32,5]
AL 3616-9	5,6	13,2	21,9	31,3	5,8	13,8	22,9	32,7
	[5,0]	[11,9]	[19,7]	[28,1]	[4,4]	[10,4]	[17,2]	[24,5]

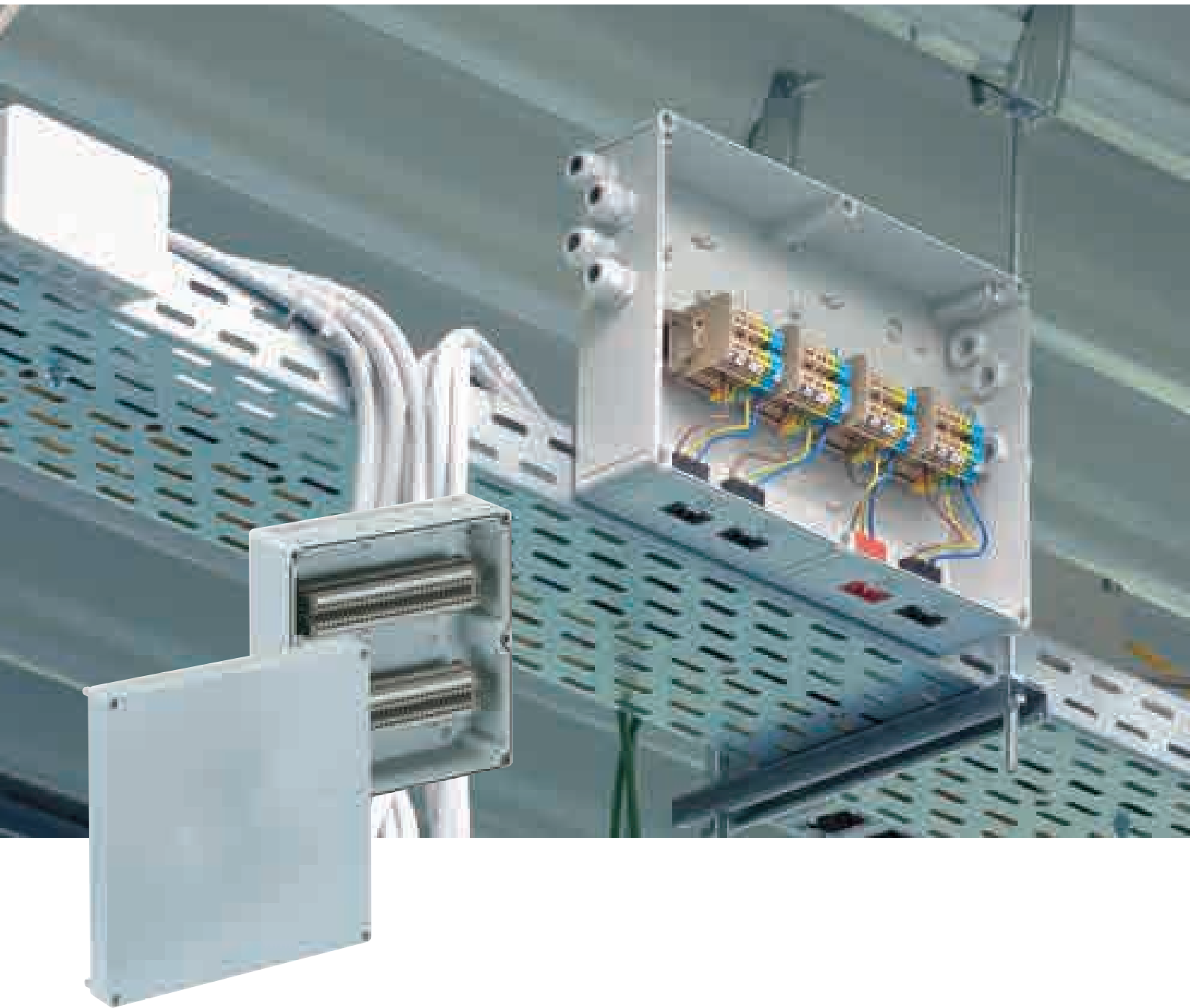
Permissible power loss P_{per} in Watts per DIN VDE 0660-507 for **individually-mounted empty installations** at specified ΔT .

Power loss at 50% of the enclosure height and [75%] of the enclosure height.



Terminal Block Enclosures

RK Compact | RKKi | RK | RKi | ALR



Empty or fully fitted, compact or with plenty of space for up to 136 terminals - RK terminal block enclosures from Spelsberg offer space for a variety of solutions for every installation.

Special solutions on request.

Terminal Block Enclosures

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	Types	Series	Page
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Technical Information		Terminal block enclosure	

Terminal Block Enclosures

RK Compact | RKi Compact

RKK 4/05

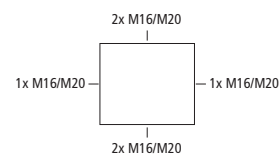
94 x 65 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

3 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKK 4/05-5x4²

equipped with 5-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

60540401

RKKi 4/05

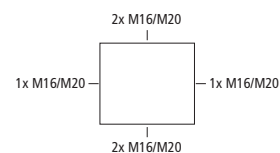
94 x 65 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

3 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKKi 4/05-5x4²

equipped with 5-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

63540401

RKK 4/07

RKK 4/08

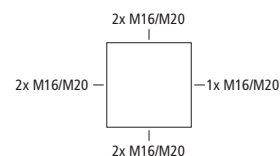
94 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

4 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKK 4/07-7x4²

equipped with 7-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

60040701

RKK 4/08-8x4²

equipped with 8-pole terminal block 4mm² (Contaclip BKA 4 type)

60640401

Terminal Block Enclosures

RK Compact | RKi Compact

RKKi 4/07 RKKi 4/08

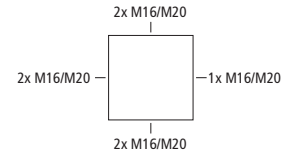
94 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

4 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Industrial enclosures
Terminal block enclosures

Description	Order no.
RKKi 4/07-7x4² equipped with 7-pole terminal block 4mm² (Contaclip BKA 4 type)	63040701
RKKi 4/08-8x4² equipped with 8-pole terminal block 4mm² (Contaclip BKA 4 type)	63640401

RKK 4/10

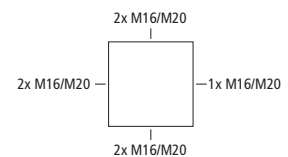
94 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

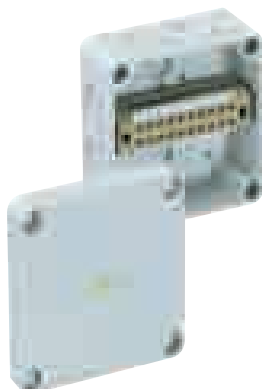
4 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description	Order no.
RKK 4/10-10x4² equipped with 10-pole terminal block 4mm² (Contaclip BKA 4 type)	60740401

RKKi 4/10

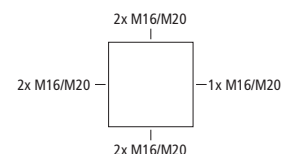
94 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

4 attachment bushes IP54 M20 seal range 8 - 13,5 mm



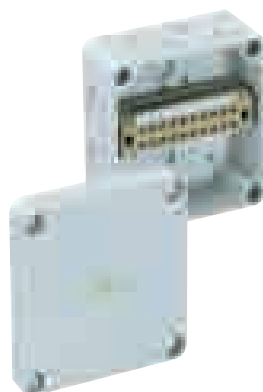
Description	Order no.
RKKi 4/10-10x4² equipped with 10-pole terminal block 4mm² (Contaclip BKA 4 type)	63740401

Terminal Block Enclosures

RK Compact | RKi Compact

RKK 4/12

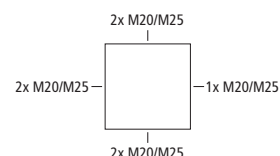
110 x 110 x 66 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², Ui=400V AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

4 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKK 4/12-12x4²

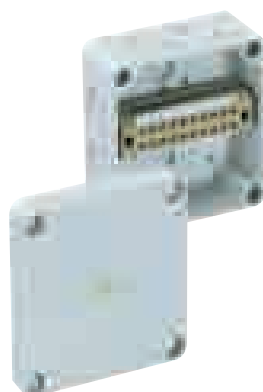
equipped with 12-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

61040401

RKKi 4/12

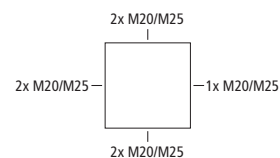
110 x 110 x 66 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², Ui=400V AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

4 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKKi 4/12-12x4²

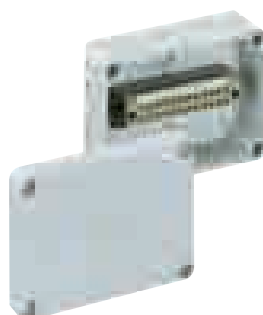
equipped with 12-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

63040401

RKK 4/12 XL

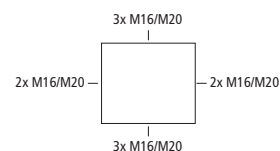
130 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², Ui=400V AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

6 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKK 4/12 XL-12x4²

equipped with 12-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

60041201

Terminal Block Enclosures

RK Compact | RKi Compact

RKKi 4/12 XL

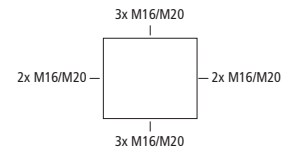
130 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

6 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKKi 4/12 XL-12x4²

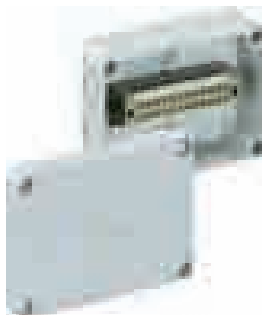
equipped with 12-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

63041201

RKK 4/15

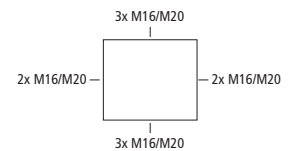
130 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

6 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKK 4/15-15x4²

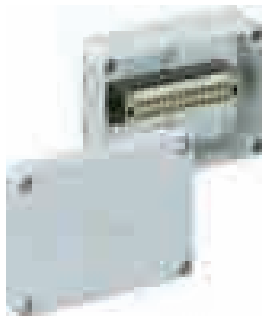
equipped with 15-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

61240401

RKKi 4/15

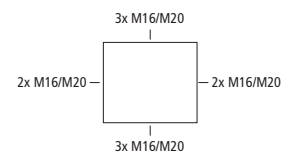
130 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

6 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKKi 4/15-15x4²

equipped with 15-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

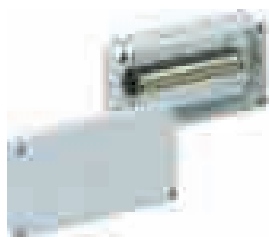
63240401

Terminal Block Enclosures

RK Compact | RKi Compact

RKK 4/18

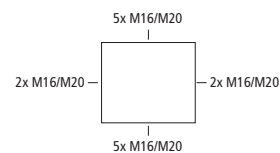
180 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

8 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKK 4/18-18x4²

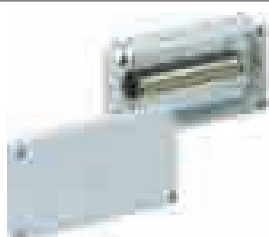
equipped with 18-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

60041801

RKKi 4/18

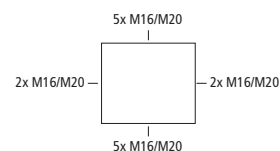
180 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

8 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKKi 4/18-18x4²

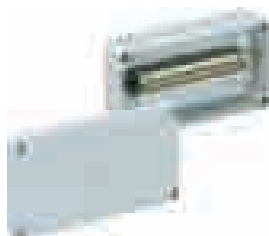
equipped with 18-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

63041801

RKK 4/22

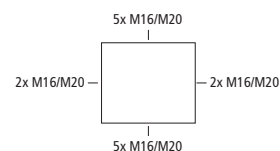
180 x 94 x 57 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

8 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description

RKK 4/22-22x4²

equipped with 22-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

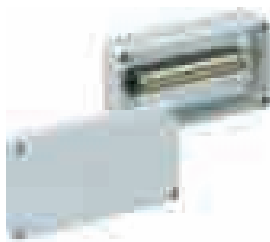
61440401

Terminal Block Enclosures

RK Compact | RKi Compact

RKKi 4/22

180 x 94 x 57 mm



IP54
IP66

4²

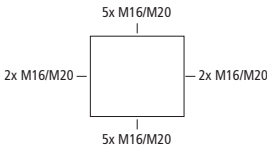
IK08

400V
AC

iQ

Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², Ui=400V AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:
8 attachment bushes IP54 M20 seal range 8 - 13,5 mm



Description	Order no.
RKKi 4/22-22x4² equipped with 22-pole terminal block 4mm ² (Contaclip BKA 4 type)	63440401

Terminal Block Enclosures

RK | RKi

RK 4/07

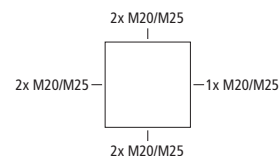
110 x 110 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², U_i=400V AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

4 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
1 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm



Description

RK 4/07-L

without terminals, with mounting rail NS35

Order no.

61990701

RK 4/07-7x4²

equipped with 7 screw terminals 4mm³, (type Weidmüller WDU 4)

61500701

RK 4/07 SL-7x4²

equipped with 7 screwless terminals 4mm³, (type Weidmüller ZDU 4)

61000701

RKi 4/07

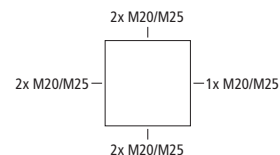
110 x 110 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², U_i=400V AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

4 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
1 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm



Description

RKi 4/07-L

without terminals, with mounting rail NS35

Order no.

63990701

RKi 4/07-7x4²

equipped with 7 screw terminals 4mm³, (type Weidmüller WDU 4)

63500701

RKi 4/07 SL-7x4²

equipped with 7 screwless terminals 4mm³, (type Weidmüller ZDU 4)

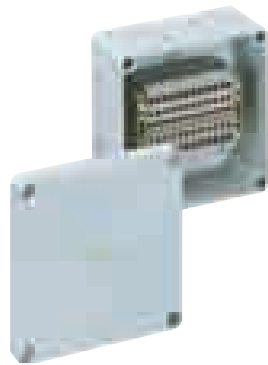
63000701

Terminal Block Enclosures

RK | RKi

RK 4/12

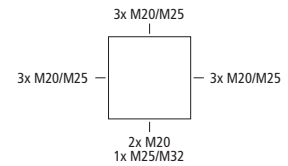
130 x 130 x 75 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

4 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
1 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm



Description	Order no.
RK 4/12-L without terminals, with NS35 mounting rail	61390601
RK 4/12-12x4² equipped with 12 screw terminals 4mm³, (type Weidmüller WDU 4)	61501201
RK 4/12 SL-12x4² equipped with 12 screwless terminals 4mm³, (type Weidmüller ZDU 4)	61001201

RKi 4/12

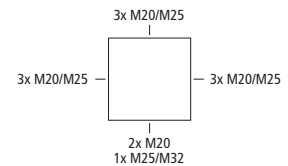
130 x 130 x 75 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

4 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
1 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm



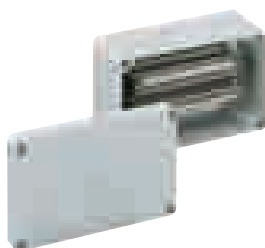
Description	Order no.
RKi 4/12-L without terminals, with mounting rail NS35	63390601
RKi 4/12-12x4² equipped with 12 screw terminals 4mm³, (type Weidmüller WDU 4)	63501201
RKi 4/12 SL-12x4² equipped with 12 screwless terminals 4mm³, (type Weidmüller ZDU 4)	63001201

Terminal Block Enclosures

RK | RKi

RK 4/18 K

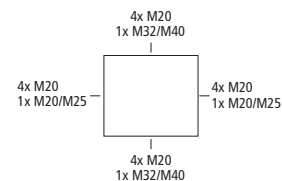
180 x 110 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

8 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
2 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
1 Attachment bushes IP54 M32 sealing area 13 - 23 mm



Description

RK 4/18 K-L

without terminals, with mounting rail NS35

Order no.

61591201

RK 4/18 K-18x4²

equipped with 18 screw terminals 4mm³, (type Weidmüller WDU 4)

61501801

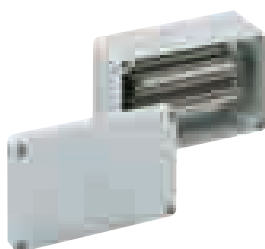
RK 4/18 KSL-18x4²

equipped with 18 screwless terminals 4mm³, (type Weidmüller ZDU 4)

61001801

RKi 4/18 K

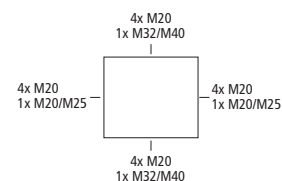
180 x 110 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

8 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm, 2
Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
1 Attachment bushes IP54 M32 sealing area 13 - 23 mm



Description

RKi 4/18 K-L

without terminals, with mounting rail NS35

Order no.

63591201

RKi 4/18 KSL-18x4²

equipped with 18 screwless terminals 4mm³, (type Weidmüller ZDU 4)

63001801

RKi 4/18 K-18x4²

equipped with 18 screw terminals 4mm³, (type Weidmüller WDU 4)

63501801

Terminal Block Enclosures

RK | RKi

RK 4/18

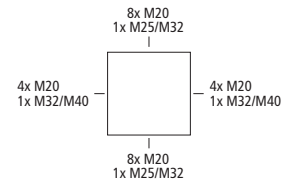
182 x 180 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

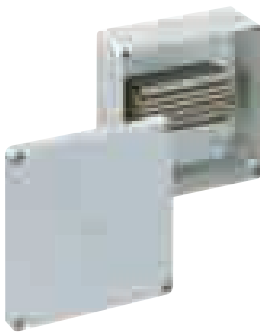
8 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
2 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
1 Attachment bushes IP54 M32 sealing area 13 - 23 mm



Description	Order no.
RK 4/18-L without terminals, with mounting rail NS35	61691201
RK 4/18-18x4² equipped with 18 screw terminals 4mm³, (type Weidmüller WDU 4)	61501901
RK 4/18 SL-18x4² equipped with 18 screwless terminals 4mm³, (type Weidmüller ZDU 4)	61001901

RKi 4/18

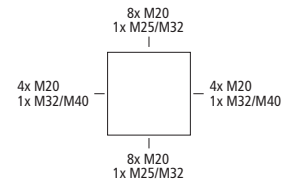
182 x 180 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

8 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
2 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
1 Attachment bushes IP54 M32 sealing area 13 - 23 mm



Description	Order no.
RKi 4/18-L without terminals, with mounting rail NS35	63691201
RKi 4/18-18x4² equipped with 18 screw terminals 4mm³, (type Weidmüller WDU 4)	63501901
RKi 4/18 SL-18x4² equipped with 18 screwless terminals 4mm³, (type Weidmüller ZDU 4)	63001901

Terminal Block Enclosures

RK | RKi

RK 4/25

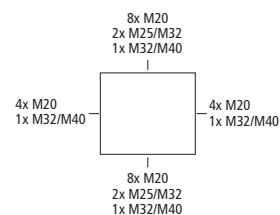
254 x 180 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

8 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
2 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
1 Attachment bushes IP54 M32 sealing area 13 - 23 mm



Description

RK 4/25-L

without terminals, with mounting rail NS35

Order no.

62591601

RK 4/25-25x4²

equipped with 25 screw terminals 4mm³, (type Weidmüller WDU 4)

61502501

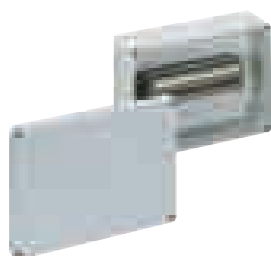
RK 4/25 SL-25x4²

equipped with 25 screwless terminals 4mm³, (type Weidmüller ZDU 4)

61002501

RKi 4/25

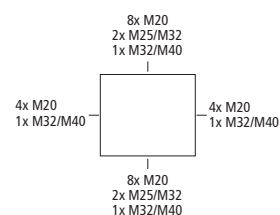
254 x 180 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

8 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
2 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
1 Attachment bushes IP54 M32 sealing area 13 - 23 mm



Description

RKi 4/25-L

without terminals, with mounting rail NS35

Order no.

63591601

RKi 4/25-25x4²

equipped with 25 screw terminals 4mm³, (type Weidmüller WDU 4)

63502501

RKi 4/25 SL-25x4²

equipped with 25 screwless terminals 4mm³, (type Weidmüller ZDU 4)

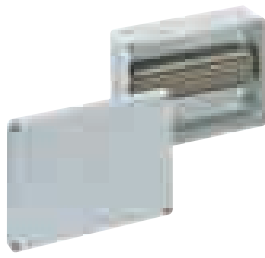
63002501

Terminal Block Enclosures

RK | RKi

RK 4/34

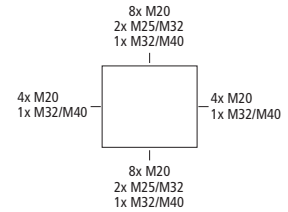
254 x 180 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

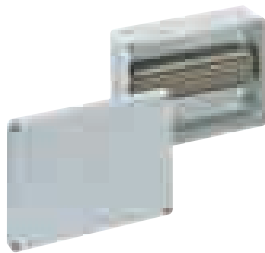
8 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
2 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
1 Attachment bushes IP54 M32 sealing area 13 - 23 mm



Description	Order no.
RK 4/34-L without terminals, with mounting rail NS35	62591701
RK 4/34-34x4² with 34 screw terminals 4mm³, (type Weidmüller WDU 4)	61503401
RK 4/34 SL-34x4² equipped with 34 screwless terminals 4mm³, (type Weidmüller ZDU 4)	61003401

RKi 4/34

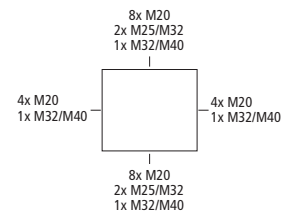
254 x 180 x 90 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

8 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
2 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
1 Attachment bushes IP54 M32 sealing area 13 - 23 mm



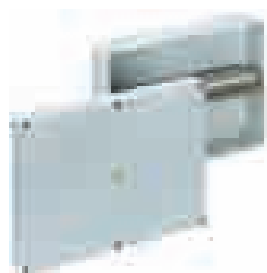
Description	Order no.
RKi 4/34-L without terminals, with mounting rail NS35	63591701
RKi 4/34-34x4² with 34 screw terminals 4mm³, (type Weidmüller WDU 4)	63503401
RKi 4/34 SL-34x4² equipped with 34 screwless terminals 4mm³, (type Weidmüller ZDU 4)	63003401

Terminal Block Enclosures

RK | RKi

RK 4/50

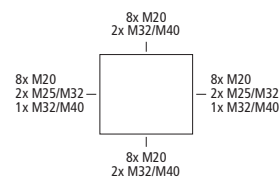
360 x 254 x 111 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

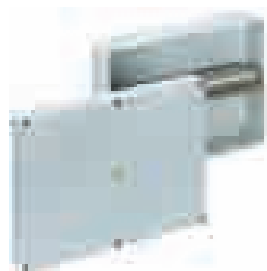
18 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
4 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
2 Attachment bushes IP54 M32 sealing area 13 - 23 mm,
1 Attachment bushes IP54 M40 sealing area 17 - 30 mm



Description	Order no.
RK 4/50-L without terminals, with mounting rail NS35	61695001
RK 4/50-50x4² equipped with 50 screw terminals 4mm³, (type Weidmüller WDU 4)	61505001
RK 4/50 SL-50x4² equipped with 50 screwless terminals 4mm³, (type Weidmüller ZDU 4)	61005001

RKi 4/50

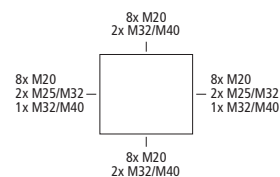
360 x 254 x 111 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

18 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
4 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
2 Attachment bushes IP54 M32 sealing area 13 - 23 mm,
1 Attachment bushes IP54 M40 sealing area 17 - 30 mm



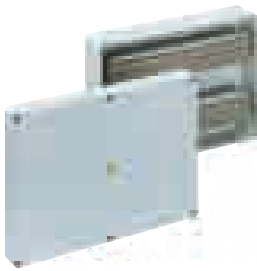
Description	Order no.
RKi 4/50-L without terminals, with mounting rail NS35	63695001
RKi 4/50-50x4² equipped with 50 screw terminals 4mm³, (type Weidmüller WDU 4)	63505001
RKi 4/50 SL-50x4² equipped with 50 screwless terminals 4mm³, (type Weidmüller ZDU 4)	63005001

Terminal Block Enclosures

RK | RKi

RK 4/100

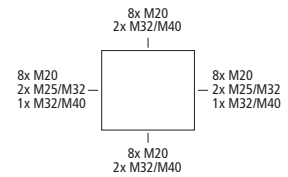
360 x 254 x 111 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

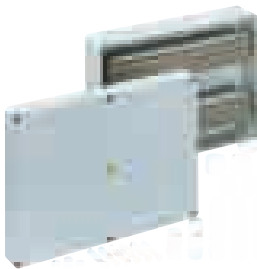
18 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
4 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
2 Attachment bushes IP54 M32 sealing area 13 - 23 mm,
1 Attachment bushes IP54 M40 sealing area 17 - 30 mm



Description	Order no.
RK 4/100-L without terminals, with mounting rails NS35	62692201
RK 4/100-100x4² equipped with 100 screw terminals 4mm³, (type Weidmüller WDU 4)	61510001
RK 4/100 SL-100x4² equipped with 100 screwless terminals 4mm³, (type Weidmüller ZDU 4)	61010001

RKi 4/100

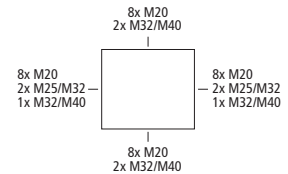
360 x 254 x 111 mm



Terminal block enclosure, with protection class IP54/IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

18 Attachment bushes IP54 M20 sealing area 8 - 13,5 mm,
4 Attachment bushes IP54 M25 sealing area 9 - 18,5 mm,
2 Attachment bushes IP54 M32 sealing area 13 - 23 mm,
1 Attachment bushes IP54 M40 sealing area 17 - 30 mm



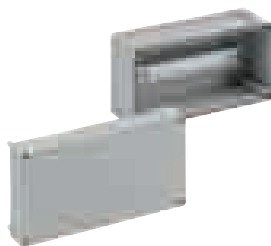
Description	Order no.
RKi 4/100-L without terminals, with mounting rails NS35	63692201
RKi 4/100-100x4² equipped with 100 screw terminals 4mm³, (type Weidmüller WDU 4)	63510001
RKi 4/100 SL-100x4² equipped with 100 screwless terminals 4mm³, (type Weidmüller ZDU 4)	63010001

Terminal Block Enclosures

RKA | AKi-R

RKA 4/34

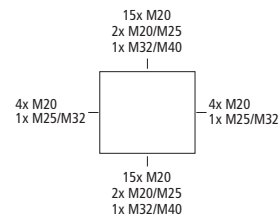
300 x 150 x 132 mm



Terminal block enclosure, with protection class IP65, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

- 10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm,
- 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm,
- 2 Double-membrane seal M32 sealing area 14 - 21 mm,
- 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm



Description

RKA 4/34-L

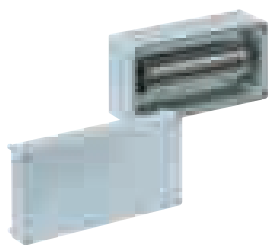
without terminals, with mounting rail NS35

Order no.

62990101

AKi-R 4/34

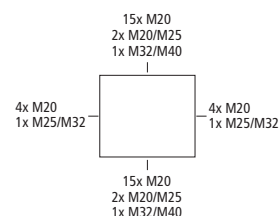
300 x 150 x 132 mm



Terminal block enclosure, with protection class IP65, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

- 10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm,
- 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm,
- 2 Double-membrane seal M32 sealing area 14 - 21 mm,
- 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm



Description

AKi-R 4/34-L

without terminals, with mounting rail NS35

Order no.

74190101

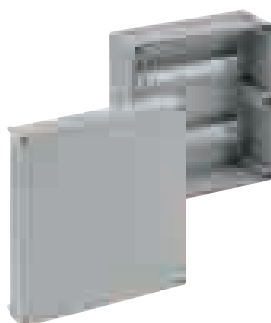
AKi-R 4/34-SL

equipped with 34 screwless terminals 4mm³, (type Weidmüller ZDU 4)

74303401

RKA 4/68

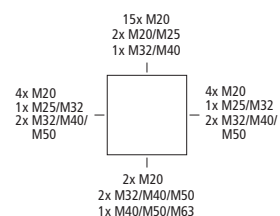
300 x 300 x 132 mm



Terminal block enclosure, with protection class IP65, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

- 10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm,
- 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm,
- 2 Double-membrane seal M32 sealing area 14 - 21 mm,
- 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm



Description

RKA 4/68-L

without terminals, with mounting rails NS35

Order no.

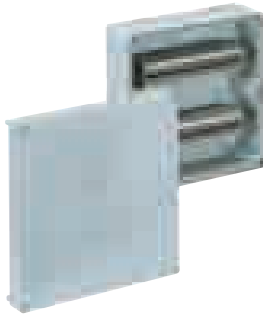
62990201

Terminal Block Enclosures

RKA | AKi-R

AKi-R 4/68

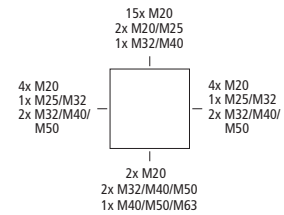
300 x 300 x 132 mm



Terminal block enclosure, with protection class IP65, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

- 10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm,
- 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm,
- 2 Double-membrane seal M32 sealing area 14 - 21 mm,
- 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm



Industrial enclosures
Terminal block enclosures

Description

AKi-R 4/68-L

without terminals, with mounting rails NS35

Order no.

74190201

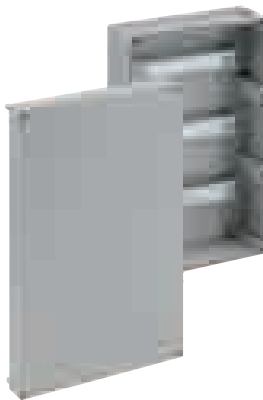
AKi-R 4/68-SL

equipped with 68 screwless terminals 4mm³, (type Weidmüller ZDU 4)

74306801

RKA 4/102

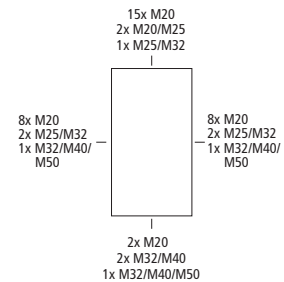
300 x 450 x 132 mm



Terminal block enclosure, with protection class IP65, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

- 10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm,
- 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm,
- 2 Double-membrane seal M32 sealing area 14 - 21 mm,
- 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm



Description

RKA 4/102-L

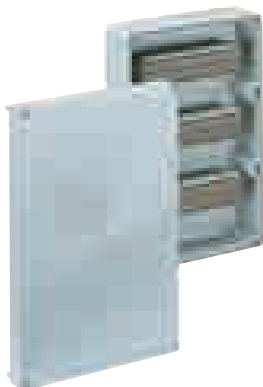
without terminals, with mounting rails NS35

Order no.

62990301

AKi-R 4/102

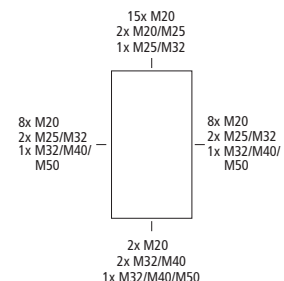
300 x 450 x 132 mm



Terminal block enclosure, with protection class IP65, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

- 10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm,
- 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm,
- 2 Double-membrane seal M32 sealing area 14 - 21 mm,
- 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm



Description

AKi-R 4/102-L

without terminals, with mounting rails NS35

Order no.

74190301

AKi-R 4/102-SL

equipped with 102 screwless terminals 4mm³, (type Weidmüller ZDU 4)

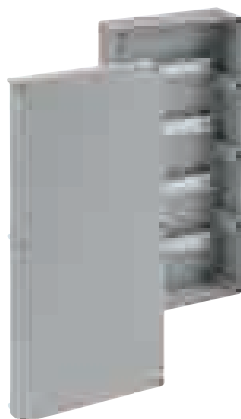
74310201

Terminal Block Enclosures

RKA | AKi-R

RKA 4/136

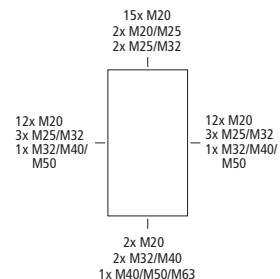
300 x 600 x 132 mm



Terminal block enclosure, with protection class IP65, Nominal cross-section 4 mm², $U_i=400V$ AC, Polystyrene, Internal fastening points, for standard indoor installations

Accessories supplied:

- 10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm,
- 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm,
- 2 Double-membrane seal M32 sealing area 14 - 21 mm,
- 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm



Description

RKA 4/136-L

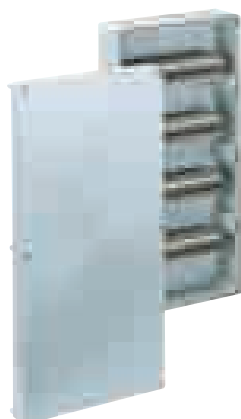
without terminals, with mounting rails NS35

Order no.

62990401

AKi-R 4/136

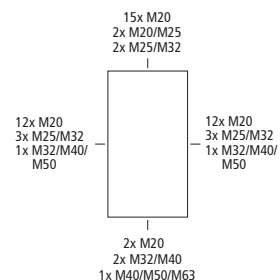
300 x 600 x 132 mm



Terminal block enclosure, with protection class IP65, Nominal cross-section 4 mm², $U_i=400V$ AC, Polycarbonate, Internal fastening points, for installations in the industrial arena and protected outside areas

Accessories supplied:

- 10 Double-membrane seal IP66 M20 sealing area 7 - 12 mm,
- 2 Double-membrane seals IP66 M25 sealing area 9 - 16 mm,
- 2 Double-membrane seal M32 sealing area 14 - 21 mm,
- 1 Double-membrane seal IP66 M40 sealing area 19 - 28 mm



Description

AKi-R 4/136-L

without terminals, with mounting rails NS35

Order no.

74190401

AKi-R 4/136-SL

equipped with 136 screwless terminals 4mm³, (type Weidmüller ZDU 4)

74313601

Terminal Block Enclosures

ALR

ALR 88-4

75 x 80 x 57 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², Ui=400V AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

ALR 88-4²
equipped with 5-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

16040501

ALR 1308-4

125 x 80 x 57 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², Ui=400V AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

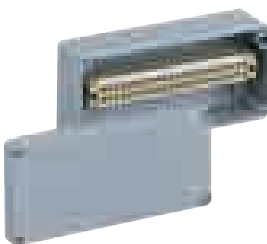
ALR 1308-4²
equipped with 12-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

16040601

ALR 1808-4

175 x 80 x 57 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², Ui=400V AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

ALR 1808-4²
equipped with 22-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

16040701

Terminal Block Enclosures

ALR

ALR 1010-4

100 x 100 x 81 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

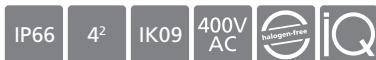
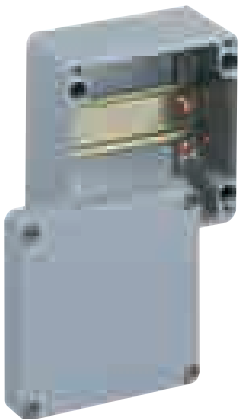
ALR 1010-4²
equipped with 10-pole terminal block 4mm² (Contaclip BKA 4 type)

Order no.

16040801

ALR 1212

122 x 120 x 81 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

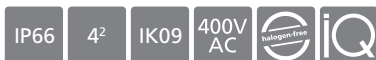
ALR 1212-L
without terminals, with mounting rail NS35

Order no.

16090901

ALR 2212

220 x 120 x 81 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

ALR 2212-L
without terminals, with mounting rail NS35

ALR 2212-4²
equipped with 30-pole terminal block 4mm² (Contaclip RK 2.5-4 type)

Order no.

16091001

16041001

Terminal Block Enclosures

ALR

ALR 1616

160 x 160 x 91 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², Ui=400V AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

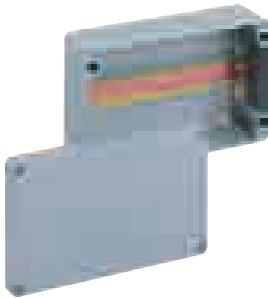
ALR 1616-L
without terminals, with mounting rail NS35

Order no.

16091101

ALR 2616

260 x 160 x 91 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², Ui=400V AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

ALR 2616-L
without terminals, with mounting rail NS35

Order no.

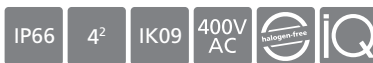
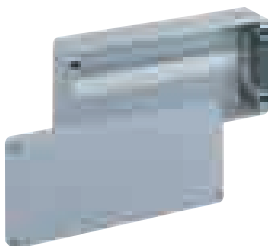
16091201

ALR 2616-4²
equipped with 36-pole terminal block 4mm² (Contaclip RK 2.5-4 type)

16041201

ALR 3616

360 x 160 x 91 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², Ui=400V AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

ALR 3616-L
without terminals, with mounting rail NS35

Order no.

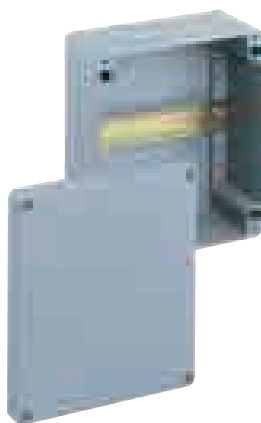
16091301

Terminal Block Enclosures

ALR

ALR 2320

230 x 200 x 111 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

ALR 2320-L

without terminals, with mounting rail NS35

Order no.

16091401

ALR 2823

280 x 230 x 111 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

ALR 2823-L

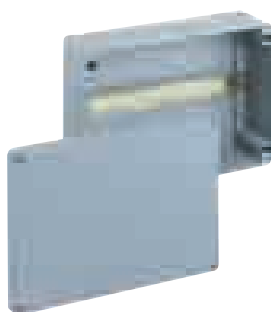
without terminals, with mounting rail NS35

Order no.

16091501

ALR 3323

330 x 230 x 111 mm



Terminal block enclosure, with protection class IP66, Nominal cross-section 4 mm², $U_i=400V$ AC, Aluminium, powder-coated painting, Internal fastening points, for installations in the industrial arena and protected outside areas

Description

ALR 3323-L

without terminals, with mounting rail NS35

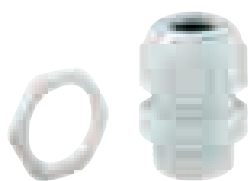
Order no.

16091601

Terminal Block Enclosures

RK Accessories

Cable gland, grey, with locknut



Cable gland, IP68, with strain relief, polyamide, M_x 1.5 mm, with locknut, grey

Description	Sealing area/mm	Thread lenght/mm	Order no.
KVR M12-MGM	2 - 6.5	8	22741201
KVR M16-MGM	4 - 10.0	8	22741601
KVR M20-MGM	6 - 12.0	9	22742001
KVR M20-GDB/MGM	7 - 14.0	9	22742101
KVR M25-MGM	9 - 16,0	11	22742501
KVR M32-MGM	11 - 21.0	11	22743201
KVR M40-MGM	16 - 28.0	11	22744001
KVR M50-MGM	21 - 34.5	13	22745001
KVR M63-MGM	30 - 44.5	17	22746301

Double membrane seals, grey



Double membrane seals, IP66, with two sealing membranes, closed, thermoplastic elastomer (TPE), for wall thicknesses 1.5 - 4.5 mm, grey

Description	Sealing area/mm	Order no.
DMS M16	5 - 9	26041601
DMS M20	7 - 12	26042001
DMS M25	9 - 16	26042501
DMS M32	14 - 21	26043201
DMS M40	19 - 28	26044001

Attachment bushes, grey



Attachment bushes, IP54, with open sealing membrane, thermoplastic elastomer (TPE), for wall thicknesses of 1.5 - 4.0 mm, grey

Description	Sealing area/mm	Order no.
AST M16	6 - 10	23041601
AST M20	8 - 13.5	23042001
AST M25	9 - 18.5	23042501
AST M32	13 - 23	23043201
AST M40	17 - 30	23044001



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Technical information

Industrial quality

Industrial quality stands for products designed for special requirements and use in demanding environments. Such categories include installations in wet rooms and outdoors as well as on combustible surfaces or in locations that are subject to fire hazards. Enclosures used in such environments must all have one thing in common

Resilience
Safety
Ruggedness
Longevity



Products with this symbol indicate at a glance boxes and enclosures for applications with particularly stringent requirements with respect to material that has been tested as flame resistant and self-extinguishing in accordance with VDE 0471/EN60695/UL94 and consequently offers added security.

The **Abox-i**, **Abox-i SL**, **AKi**, **TK-PC**, **TG-PC**, **GEOS**, **WKE**, **ZVi**, **SVi** and **ZKi** series, made from high-quality technical plastics, satisfy the strictest material requirements.

Common features of all products featuring the iQ symbol:

- Operating temperature from -35°C to 80°C
- Resistant petrol, petroleum, fats, diesel fuel, turpentine and to a limited extent, acids and alcohol
- Protection rating up to IP68
- UV- and weather-resistant
- Flame-resistant and self-extinguishing up to 960°C as per VDE 0471 / EN 60695 / UL94
- Impact-resistant and shatterproof under mechanical stress up to IK09
- Free of halogens, heavy metals, PVC and silicone



Technical information

Definition of Terms as per DIN EN 61439-1

Rated voltage U_n

The manufacturer's specified maximum nominal AC voltage (effective value) or DC voltage for which the main circuits of the switchgear assembly are designed.

Rated operating voltage U_e

The manufacturer's specified voltage value which, combined with the rated current, determines the usage.

Rated insulation voltage U_i

Withstand voltage (effective value), which is specified by the manufacturer for a device or a part thereof and which specifies the defined (long-term) endurance of its associated insulation.

Rated surge voltage U_{imp}

The value of an impulse voltage specified by the manufacturer, which specifies the defined endurance of the insulation with respect to transient overvoltages.

Rated current I_n

The manufacturer's stated current value, which takes into account the ratings of the equipment and their location and use and which can be fulfilled without exceeding the specified temperature limits of the various parts of the switchgear assembly under specified conditions.

Short-circuit current I_c

Overcurrent that occurs in the case of a short circuit due to an error or an incorrect connection in an electrical circuit.

Prospective short-circuit current I_{cp}

Current that flows in a circuit due to a short circuit caused by a conductor of negligible impedance in the immediate vicinity of the terminals of the switchgear assembly.

Rated surge current resistance I_{pk}

The largest instantaneous value of the short-circuit current specified by the manufacturer, which will be sustained under the specified conditions.

Rated short-term current resistance I_{cw}

The effective value of the short-time current specified by the manufacturer, indicated as current and time, which can be fulfilled under specified conditions without damage.

Rated conditional short-circuit current I_{cc}

The value of the prospective short-circuit current specified by the manufacturer, which can be withstood by a circuit protected by a short-circuit protection device (SCPD1)) during the total break time (duration of current flow) of the device under specified conditions.

Rated load factor $RDF2)$

The manufacturer's specified percentage of the rated current, with which the outflow of a switchgear assembly can be loaded continuously and simultaneously taking into account the mutual thermal influences.

¹⁾ SCPD = **S**hort **C**ircuit **P**rotection **D**evice

²⁾ RDF = **R**ated **D**iversity **F**actor

Technical information

Assembly and Installation Notes

1. Mounting of junction boxes on wood and other combustible materials

According to the **VdS Directive 2023**, electrical connections and conductor connections may only be installed, in the case of mounting on flammable supports, with terminals in suitable electrical installation enclosures and boxes, as outlined by **DIN VDE 0606** and **DIN EN 60670**. This is because the enclosures are closed towards the mounting surface and also because of the strict safety requirements of the standard with respect to fire resistance.

Examples: Entire wooden buildings, buildings with wooden construction elements, wooden construction materials or other flammable materials, cavity walls constructed from flammable materials, but also synthetic heat- and sound-insulation materials.

All Spelsberg installation system products meet these requirements.



2. Halogen-free installation materials

Because of the reduction in toxic materials released in the case of fire, DIN VDE 0100-718 provides for some deviations (simplifications) from the prescribed installation methods, however, with respect to the use of halogen-free conductors. These deviations are of a highly specialised nature and are therefore not described in detail here. However, the Building Regulations of the various Federal States and other regulations for installations in public areas (rescue routes, lifts) increasingly require the use of halogen-free installation systems. In such situations, the use of high-grade, halogen-free materials is definitely advisable. The reason for this is the improved level of protection of people and materials in the case of fire, since halogen-free materials produce less smoke in the case of fire, the proportion of toxic combustion gases is reduced to a minimum and no corrosive gases are released, which can react with extinguishing agents to form hydrochloric acid. Material damage to buildings and their contents is thereby reduced.

Spelsberg offers completely halogen-free Spelsberg installation systems for these areas.



Technical information

Assembly and Installation Notes

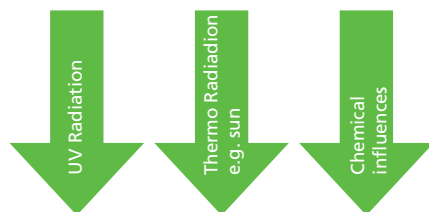
3. Outdoor installation – Damp and wet areas and rooms

3.1 Basics

In general when selecting components, the manufacturer's instructions as to the product properties simply act as a guide for the user. These properties should always be viewed in the context of the relevant installation requirements such as the installation regulations according to DIN VDE 0100-ff.

Depending on the local circumstances, additional protective measures may have to be fulfilled by the user. The individual factors are described in greater detail below.

There are many influencing factors for outdoor installations!



3.2 Protection against UV radiation

UV radiation can cause severe structural damage or even destruction in a wide variety of plastics. Products made from the material polystyrene (PS) must therefore not be used outdoors. Spelsberg developed the IQ series products for this scenario. A material is used for these products that has a high resistance to UV radiation. In a weathering test according to DIN 53 387 (replaced by DIN EN ISO 4892-2), this material produced optimum results in a 1000-hour test. This material also passed a weathering test according to UL 746 C, without any limitations.

3.3 Protection against high temperatures

Installed electrical appliances generate power loss during operation. The enclosures manufactured by Spelsberg are tested during the approval test for the maximum power loss in the enclosure. Detailed tables on this topic are provided in the catalogue, taking account of the ambient temperature and the installation type.

Switchgear assemblies are designed for ambient temperatures of between -25°C and +35°C (24-hour average). A temporary increase in temperature to 40°C is not a problem.

Even if, for example, iQ products from Spelsberg are suitable for temperatures of between -40°C and +80°C, the manufacturer's instructions and the requirements of the relevant product safety standards must be checked for installed devices such as line protection, fault-current circuit breakers or fuses when designing the housing. Solar radiation or other heat sources can cause additional increases in the internal temperature which are not permitted and must therefore be avoided. Reliable operation of electrical equipment no longer be guaranteed under certain circumstances.



DIN VDE 0100-520 (VDE 0100-520):

522.1.2 cable and conductor systems including accessories may only be installed or moved under ambient temperatures which are within the limit values specified by the manufacturer or in the relevant product standard.

3.4 Protection against chemical influences

For installations in areas with increased levels of hazardous substances in the environment, the suitability may be correspondingly reduced. Information is available in the table „Material characteristics“. **iQ products are resistant to mineral oil, vegetable fats and animal fats.**

Technical information

Assembly and Installation Notes

3.5 Protection against condensation

The more tightly sealed the equipment, for example junction boxes or distributor housings, the greater the likelihood of condensation forming. This is especially the case at locations where highly fluctuating temperatures are to be expected. These effects are intensified by the power loss generated in the enclosures.

Owing to the differences in temperature, a difference also arises in the pressure conditions, which causes the enclosure to draw in air when the temperature changes. The next time the temperature increases, the humidity in this air condenses on the cold surface of the housing, for example on the lid. This process is only reversible to a limited extent, so the water accumulates in the housing. Since this effect occurs regularly, even daily to an extent, a considerable volume of water may accumulate internally. If this housing has an increased protection rating, it no longer discharges this water with the result that its seal actually has a negative impact. Damage will result.

Under **DIN VDE 0100-520** precautions must be taken with respect to drainage of water if water accumulates or condensation can occur within cable and conductor systems.

Spelsberg junction boxes in the various product groups have break-out condensation openings on the rear housing or mounting surfaces. These should be opened in such a way that when installed they are on the underside of the housing so that any condensation can drain off.

This only applies under the condition that no increased demands are imposed with respect to protection against accidental contact or foreign bodies (> IP2X or dust protection).

If requirements for contact protection or foreign body protection are also imposed on the housing, for example IP3X, we recommend use of air ventilation seals. These seals come in the size M20, are fitted in the corresponding cable inlet openings on the underside and the side surfaces and offer splash water protection up to IPX4 when properly installed. We recommend an installation that offers a so-called chimney effect.



AK Air and BEL Air ventilation elements

The Air ventilation elements prevent condensation, whilst maintaining the high IP65 protection rating. Any condensate occurring is transported out of the enclosure immediately via air exchange. The continuous and high rate of air exchange allows the interior air to mix constantly with the environmental air and transports the moisture outwards. Air exchange also takes place in environments with almost constant air humidity and temperature, as the air in the interior of the housing heats up, e.g. due to the components.

Recommendation: At least one complete air exchange is provided per day via the BEL Air. With one set, this is achieved with a housing volume of up to 35 dm³.

All housing parts, such as the seals, are permanently relieved of pressure through the constant pressure equalisation. The high air exchange rate guarantees a permanent exchange of the moist air with the surroundings. No appreciable pressure differences are required for this. However, with the pressure equalisation elements it is exactly these appreciable pressure differences that are required, at least temporarily, in order to implement an air exchange. The Air ventilation elements therefore have a very large, open filter surface that guarantees a high air exchange without influencing the air flow. The constant pressure equalisation prevents pressure differences thus ensuring that no mechanical forces can be exerted on the housing and seals.

Section 8.2.2 **DIN EN 61439-1** concerns the protection against contact with live parts and the prevention of penetration of solid foreign objects and water. In addition, closed switchgear assemblies must be protected from condensate inside the housing without changing the type of protection.

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Assembly and Installation Notes

3.6 Protection against rain / snow (precipitation)

The protection rating tests carried out under DIN EN 60529 are used as comparative tests and for classification of properties. The tests are limited to a few minutes and cannot emulate exposure to rain / snow or cleaning with water jets. In addition, the local conditions may differ so greatly that a general exposure test cannot be defined. The installation regulations for the respective installation situation must be taken into account for this reason.

DIN VDE 0100-520, 522.3.1 Cable and conductor systems must be selected and installed such that damage cannot be caused by condensation or ingress of water.



Installation only in protected outdoor areas!

Please note that in the case of installations under solar fields, the joints between modules must not be above the housings, or the housings must also be covered by a protective shelter.

3.7 Protection against retained water (frost)

Water frequently accumulates on surfaces and in recesses in installations that are not protected against precipitation. If this collected water cannot drain off unhindered, it will accumulate. In the event of low temperatures, this water can freeze and cause unpermitted mechanical strains on the enclosure. This can cause damage to the enclosure. **Therefore, before starting the installation make sure that the enclosures are protected by roofing.**

This roof construction may

- already be present in existing structures
- be set up by the user
- be supplied in the form of accessory products from the Spelsberg range.

3.8 Protection against plants and/or mould growth

The plastics used in electrical installation are organic materials. The risk of harm from plants, algae or mould must therefore be considered. **DIN VDE 0100-520, 522.9.1** If experience or empirical evidence shows that plants and / or mould growth can cause damage, the cable and conductor system must be selected accordingly or special protection measures must be provided.

Comment: A laying method that allows corresponding removal of such vegetation must be selected (see Section 529).

Conclusion:

Taking account of the aforementioned parameters, a protected installation is absolutely mandatory for outdoor use and is also described extensively in the installation standards. This is the only way to ensure safe operation of the protective devices.

Supplementary information on outdoor installation – UV-resistance:

The information on the type of protection and UV-resistance is often considered the only characteristics for outdoor installations. However, other factors such as absolute temperature, frequency of temperature change, humidity and chemical influences in particular play an important role with outdoor installations. In addition to impairments through UV-effects, in outdoor installations damage is expected to arise predominantly as a result of chemical influences. So, the outside areas in the vicinity of filling stations, chemical facilities, landfill sites, compressors, sewerage treatment plants etc. should be subjected to particularly critical investigations beforehand.

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Assembly and Installation Notes

4. Installing cables in concrete

The commonly-used NYM sheathed cables may be installed in concrete, with the exception of concrete which is stamped or vibrated during pouring. According to VDE 0276, high-voltage NYY cables may, however, be used without restriction in concrete. However, in comparison with NYM, a considerably larger minimum bending radius must be complied with.

Spelsberg recommends laying the cables within protective conduits. The enclosures include appropriate holding fixtures.



5. Protection classes of electrical equipment

This classification is not for the purpose of describing the safety level of the equipment but is simply a statement of the measures with which this safety level can be achieved.

Protection Class I equipment is that in which protection against electric shock is not just provided by the basic insulation. Additional protection is provided by the fact that parts are connected to the earth lead of the fixed installation so that in case of failure of the basic insulation no voltage can remain.

Protection Class II equipment is that in which protection against electric shock is not just provided by the basic insulation but also by additional safety measures, such as double insulation or reinforced insulation. There is no possibility of connecting an earth lead. In the enclosures of **protection class II**, it is not allowed to lead conductive parts (e.g. fixing screws) through the double or reinforced insulation, through which a potential can be transferred. Enclosures of **protection class II** do not have a connecting possibility for an earthing conductor. **Protection Class III** equipment is that in which protection against electric shock is based on a protective low voltage (SELV¹⁾) and in which voltages that are higher than the protective low voltage cannot be produced.

All Spelsberg empty enclosures made from plastic comply with **Class II** protection requirements. Metal enclosures, or metal-coated housings are intended for connection of an earth lead and comply with **Class I** protection requirements.

¹⁾ SELV = (Safety Extra Low Voltage)



Protection class I

(only symbolises the earthing, protection class I itself does not have a symbol)



Protection class II



Protection class III

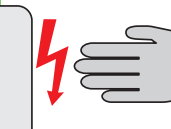
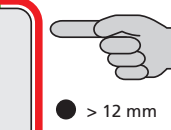
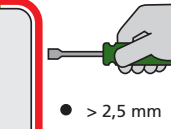
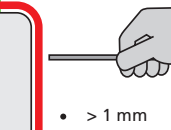
According to DIN EN 61140 (VDE 0140-1) equipment is classified into protection classes according to its construction.

Technical information

Assembly and Installation Notes

6. Protection types according to DIN EN 60529 (VDE 0470-1)

The appropriate degree of protection is demonstrated in our in-house test laboratory. The tests are performed according to DIN EN 60670-1, DIN EN 61439-1 and DIN EN 62208 (depending on type). **The first digit of the IP Code** for the level of protection against contact with dangerous parts and the ingress of solid bodies.

	IP	Protection level	Definition
	0x	No contact protection, no protection against solid foreign bodies	
	1x	Protection against large area contact (with the hand), protection against foreign bodies > 50 mm Ø	The object probe, a sphere 50 mm in diameter, must not fully penetrate
	2x	Protection against contact with the fingers, protection against foreign bodies > 12 mm Ø	The object probe, a sphere 12.5 mm in diameter, must not fully penetrate
	3x	Protection against contact with tools, wires etc. > 2.5 mm Ø, protection against foreign bodies > 2.5 mm Ø	The object probe, a sphere 2.5 mm in diameter, must not penetrate at all
	4x	Protection against contact with tools, wires etc. > 1 mm Ø, protection against foreign bodies > 1 mm Ø	The object probe, a sphere 1.0 mm in diameter, must not penetrate at all
	5x	Contact protection, protection against dust deposits on the inside	The ingress of dust is not totally prevented, but dust must not penetrate in a quantity to interfere with satisfactory operation of the devices
	6x	Full contact protection, protection against ingress of dust	No penetration of dust

Spelsberg-products with NEMA protection class

Els-products	Nema
TK PC-o	4X, 12
TK PC-m	4X, 12K
TG PC-o	12*

* on request TG PC-o in Nema 4X, 12 design

Comparison table between IP code and NEMA types

IEC 60529	Nema 250													IEC 60529
Contact / Dust	1	2	3	3R	3S	4	4X	5	6	6P	12	12K	13	Water
														x8
														x7
														x6
6x														x5
5x														x4
4x														x3
3x														x2
2x														x1
1x														x0
0x														
IP	21	22	55	24	55	66	66	53	67	68	54	54	54	

Interpretationrule

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The second digit of the IP code stands for the level of protection against the harmful ingress of water.



	IP	Protection level	Definition
	x0	no protection	
	x1	Protection against vertically falling dripping water	Vertically falling drops shall have no harmful effects
	x2	Protection against vertically falling water drops when the enclosure is tilted up to 15°	Vertically falling drops must not have any harmful effects when the enclosure is tilted up to 15° on either side of the vertical
	x3	Protection against falling spray water if angled up to 60° from the vertical	Water sprayed at an angle of up to 60° on either side of the vertical shall have no harmful effects
	x4	Protection against splash water from all directions	Water splashed on the enclosure from any direction shall have no harmful effects
	x5	Protection against jet water from all directions	Water directed at the enclosure from any direction in a jet shall have no harmful effects
	x6	Protection against heavy jet water	Water directed at the enclosure from every direction in a powerful jet shall have no harmful effects
	x7	Protection against temporary immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water
	x8	Protection against effects of long-term immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water
	x9	Protection against heavy jet water (high pressure) with high temperature	Water directed at the enclosure from every direction in a powerful jet shall have no harmful effects

Technical information

Assembly and Installation Notes

7. Protection against mechanical stress, IK code

According to DIN EN 50102 (VDE 0470-100) «Protection types from enclosures for electrical operating media (equipment) against external mechanical damage (IK code)», the degree of protection provided by an enclosure against mechanical damage is indicated by an IK code. The IK codes allocated to the individual stress energy values are given in the adjacent table.

The data on the IK values of the individual els products is given in the tables of the technical information in each product group chapter.

IK-Code	stress energy [J]
IK00	---
IK01	0,15
IK02	0,2
IK03	0,35
IK04	0,5
IK05	0,7
IK06	1
IK07	2
IK08	5
IK09	10
IK10	20

8. PE/N disconnection terminal

The **DIN VDE 0100-718** requires that the distributors of power supply are designed in a way that the insulation resistance of all conductors can easily be measured against earth of each individual outgoing circuit.

For electrical circuits with conductor cross sections below 10 mm², this measurement must be possible without disconnecting the neu-

tral wire, e.g. by installation of neutral wire disconnect terminals. Additionally, **DIN EN 61439-1** (VDE 0660-600-1) requires that neutral and neutral wire terminals must be arranged near the belonging phase conductors. Due to the extended connection space there is enough space available for the installation of commercial disconnect terminal blocks.

Overview of cable entries and the associated sealing ranges

					
Gland size	Cable gland IP68		Double-membrane seal IP66	Stepped nipple IP55	Attachment bush IP54
	Sealing range [mm]	Rated torque [Nm]	Sealing range [mm]	Sealing range [mm]	Sealing range [mm]
M12	2 – 6,5	2	---	---	---
M16	4 – 10	2,5	5 – 9	---	6 – 10
M20	6 – 12	4	7 – 12	5 – 16	8 – 13,5
M20	7 – 14	4	---	---	---
M25	9 – 16	6	9 – 16	5 – 21	9 – 18,5
M32	11 – 21	7	14 – 21	13 – 26,5	13 – 23
M32/4	---	---	4 x 3,5 – 6	---	---
M40	16 – 28	7,5	19 – 28	13 – 24	17 – 30
M40/4	---	---	4 x 6 – 9"	---	---
M50	21 – 34,5	8	---	---	---
M63	32 – 44,5	9	---	---	---

Technical information

Assembly and Installation Notes

Outside diameter of average cable cross-sections

Cable cross section mm²	NYM mm Ø	NYY NYCWY" mm Ø	„NYCY mm Ø
1 x 4	8	9	-
1 x 6	8,5	10	-
1 x 10	9,5	10,5	-
1 x 16	11	12	-
1 x 25	-	14	-
1 x 32	-	15	-
1 x 50	-	16,5	-
1 x 70	-	18	-
1 x 95	-	20	-
1 x 120	-	21	-
1 x 150	-	23	-
1 x 185	-	25	-
1 x 240	-	28	-
1 x 300	-	30	-
2 x 1,5	10	12	13
2 x 2,5	11	13	14
2 x 4	12	15	16
2 x 6	14	16	17
2 x 10	17	18	18
2 x 16	20	20	21
2 x 25	24	-	-
2 x 35	27	-	-
3 x 1,5	10,5	12,5	13
3 x 2,5	11	13	14
3 x 4	13	16	16
3 x 6	15	17	17
3 x 10	18	19	18
3 x 16	20	21	21
3 x 25	26	25	-
3 x 35	28	-	-
3 x 25/16	-	26,5	27
3 x 35/35	-	28	27
3 x 50/25	-	32	32
3 x 70/35	-	32-35	36
3 x 95/50	-	37-41	40
3 x 120/70	-	42	43
3 x 150/70	-	46	47
3 x 185/95	-	52	48-54
3 x 240/120	-	57-62	60
3 x 300/150	63-68	-	

Cable cross section mm²	NYM mm Ø	NYY NYCWY" mm Ø	„NYCY mm Ø
4 x 1,5	11	13,5	14
4 x 2,5	12,5	14,5	15
4 x 4	14,5	17,5	17
4 x 6	16,5	18	18
4 x 10	18,5	20	20
4 x 16	23,5	23	23
4 x 25	28,5	28	28
4 x 35	32	26-30	29
4 x 50	-	30-33	34
4 x 70	-	34-40	37
4 x 95	-	38-44	42
4 x 120	-	42-58	47
4 x 150	-	46-52	52
4 x 185	-	53-58	60
4 x 240	-	59-71	70
4 x 25/16	-	-	30
4 x 35/16	-	-	30
4 x 50/25	-	-	36,5
4 x 70/35	-	-	40
4 x 95/50	-	-	44,5
4 x 120/70	-	-	48,5
4 x 150/70	-	-	53
5 x 1,5	12	15	15
5 x 2,5	13,5	16	17
5 x 4	15,5	16,5	18
5 x 6	18	19	20
5 x 10	20	21	-
5 x 16	26	24	-
5 x 25	31,5	-	-
7 x 1,5	13	16	-
7 x 2,5	14,5	16,5	-
19 x 1,5	-	22	-
24 x 1,5	-	25	-

Technical information

Overview of the Installation Areas and the recommended els Installation Systems

	Red Range / HP Junction boxes	Abox Junction boxes	Abox-i Junction boxes	WK Junction boxes	TG / TK-PC Empty enclosures	TG-ABS / TK-PS Empty enclosures	RK / RKA Terminal block housings	RKi Terminal Block Housings	AK Compact Small distribution boards 3-24 modules / AK Empty enclosures	AK Air Small distribution boards / AKi Empty enclosures	STV / STG Socket combinations	ZKi Meter housings	HW Cavity wall installation system	IBT / IBTronic Concrete installation system	GEOS Industrial and Outdoor Enclosures
Protection against direct contact (basic protection) according to DIN VDE 0100-410	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Rooms with bathtubs or showers according to DIN VDE 0100-701	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Covered swimming pools and outdoor swimming pools according to DIN VDE 0100-702			●				●			●	●	●			●
Agricultural and horticultural estates according to DIN VDE 0100-705		●	●	●	●		●	●	●	●	●	●			●
Electrical equipment at camping and caravan sites and similar areas according to DIN VDE 0100-708	●	●	●		●	●	●	●	●	●	●	●			●
Electrical equipment for pleasure craft or houseboat marinas and similar areas according to DIN VDE 0100-709 Electrical equipment for caravans and motor caravans according to DIN VDE 0100-721			●		●			●		●	●	●	●		●
Photovoltaic systems according to DIN VDE 0100-712					●		●	●		●		●			●
Electrical equipment in furniture according to DIN VDE 0100-713													●		
● Damp and wet environments and rooms ▲ Protected outdoor installations ■ Unprotected outdoor installations according to DIN VDE 0100-737	●	●	● ▲ ■ ¹⁾	●	● ▲	●	●	● ▲	●	● ▲	● ▲	● ▲			● ▲ ■
Temporary electrical equipment, for example at fairgrounds, amusement parks and circuses according to DIN VDE 0100-740	●	●	●		●	●	●	●	●	●	●	●			●

¹⁾ only applies for Abox XT series (casting resin technique)

Additional information for outdoor installations, UV resistance:

Statements regarding the protection rating and UV resistance are often seen as the only criteria for outdoor installation. However, other factors such as temperature, frequency of temperature change, air humidity and particularly chemical influences also play a significant role for outdoor installations.

In addition to the effects of UV, chemical influences can be expected to be the main source of damage for outdoor installations. From the outset, outdoor areas of filling stations, chemical works, waste disposal sites, compressors, sewage works etc, should be examined particularly carefully.

Technical information

Overview Installation Areas

Protection against direct contact (basic protection) under standard conditions according to DIN VDE 0100-410

Important protection requirements:

Live parts (AC voltages higher than 50 V and DC voltages higher than 120 V) must be enclosed or mounted behind covers which at least conform to protection rating IP2X. Horizontal upper surfaces of covers or enclosures that are easily accessible must at least conform to protection rating IP4X. Covers and enclosures must be securely fixed and have sufficient strength and durability to maintain the required protection class and sufficient distance from the live components under the conditions and external influences to be expected under normal operation. The covers must only be able to be removed using tools.

All Spelsberg products meet these requirements.



Example: Living rooms, hotel rooms, attics, heated and ventilated cellars

Rooms with bathtub or shower per DIN VDE 0100-701

Important protection requirements:

The following switchgear, controllers and installation devices are permitted in these areas:

Area 0 - None.

Area 1 - Junction boxes and terminal boxes for the supply of electrical consumers that are permitted in zones 0 and 1 per 701.55.
- Installation devices, including sockets for power circuits that are protected through low voltage by means of SELV¹ or PELV² with a nominal voltage that does not exceed 25 VAC or 60 VDC. The current source must be installed outside area 0 or 1

Area 2 - Installation devices, with the exception of sockets.
- Installation devices, including sockets for power circuits that are protected through low voltage by means of SELV¹ or PELV². The current source must be installed outside area 0 or 1.
- Shaver points per DIN EN 61558-2-5 (VDE 0570-2-5).
- Installation devices, including sockets for signalling and communications equipment assuming that such equipment is protected through low voltage by means of SELV¹ or PELV².

Electrical equipment must have the following type of protection as a minimum:

In area 0: IPX7;

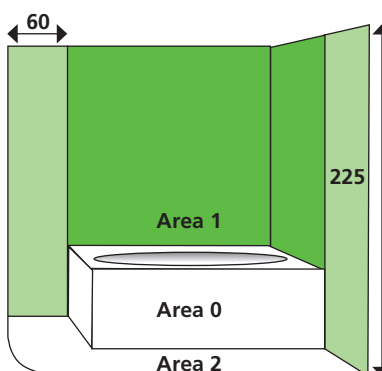
In area 1: IPX4;

In area 2: IPX4.

The requirements do not apply to shaver points per DIN EN 61558-2-5 (VDE 0570-2-5), that are installed in area 2 and that are unlikely to be hit by direct spray whilst showering. Electrical equipment that is exposed to water jets, e.g. for cleaning purposes in public baths, must comply with protection type IPX5 as a minimum when installed in areas 1 and 2.

Particularly suitable: Abox-i, AK, AKi and GTi housing systems.

- 1) SELV = Safety Extra Low Voltage
2) PELV = Protective Extra Low Voltage



Technical information

Overview Installation Areas

Swimming pool basins and other basins according to DIN VDE 0100-702

Important protection requirements:

- When using SELV¹, protection from direct contact must be ensured, regardless of the voltage level, though:
- Coverings or enclosures of protection type IP2X or IPXXB (protected against access by fingers) as a minimum, or
- Insulation that can withstand a test voltage of 500 VAC for a minimum of one minute.
- Electrical equipment must comply with the following types of protection as a minimum:

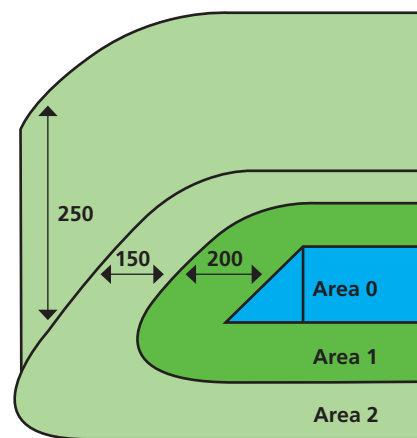
Area	Outdoors, for cleaning work with water jet	Outdoors, without water jet	Indoors, for cleaning work with water jet	Indoors, without water jet
0	IPX5/IPX8	IPX8	IPX5/IPX8	IPX8
1	IPX5	IPX4	IPX5	IPX4
2	IPX5	IPX4	IPX5	IPX2

- It is not permitted to install junction boxes in area 0.
- In area 1, only junction boxes for electrical circuits with protection through low voltage by means of SELV¹ are permitted.

Particularly suitable:

Abox-i, the STV range as well as the AK, AKi, GTi, TK-PC, TG-PC and GEOS housing systems.

1) SELV = Safety Extra Low Voltage



Agricultural and horticultural estates according to DIN VDE 0100-705

Important protection requirements:

The following shut-off equipment should be provided in circuits, regardless of which systems, depending on the type of earth connection:

In end circuits with sockets, a fault-current circuit breaker (RCD²) with a trip current = 30 mA

In all other circuits, excluding those that supply distributors, fault-current circuit breakers (RCD²) with a trip current = 300 mA.

Fault-current circuit breakers (RCD²) with a trip current = 300 mA must be set up for fire protection. The fault-current circuit breakers (RCD²) must disconnect all live conductors. In cases where improved maintenance of supply is required, these fault-current circuit breakers (RCD²) must comply with design type S or disconnect with a time delay.

In areas where there is a risk of fire, conductors for low-voltage circuits must either be supplied with covers or sheathing with protection rating IPXXD or IP4X or be supplied with sheathing made from insulating material in addition to their basic protection insulation.

Particularly suitable: STV, Abox-i, the AK Air, AKi-, GTi-, TK-PC, TG-PC and GEOS housing system.

2) RCD = Residual Current Device

Note:

For installations in areas with increased levels of air contamination, the suitability may be correspondingly limited.

The following products have passed the DLG Focus Test „Resistance to ammonia“:

- Abox – i
- TK – PC
- TG – PC
- GEOS
- AK Air

Small distribution boards
(14-70 distribution units)



Example:

Stables, henhouses, pig-fattening units, incubation rooms and hatcheries, rooms for fodder preparation, hay-lofts, storage areas for straw, fertilizer and cereals

Technical information

Overview Installation Areas

Damp and wet areas and rooms and systems installed outdoors per DIN VDE 0100-737

Important protection requirements:

In damp and wet areas and rooms, the electrical equipment must be protected from dripping water (protection type IPX1) as a minimum.

- In areas and rooms where water will be jetted and where electrical equipment will not normally be directly jetted for cleaning purposes, the equipment must be protected from splashed water (protection type IPX4) as a minimum.
- In areas and rooms where water will be jetted, electrical equipment that is directly exposed to the water stream must have a type of water protection appropriate to the type of water jet exposure or must have an additional protective measure that does not impair the operation of the equipment protected by it.

Note: The scope of protection afforded by protection type IPX5 does not permit the cleaning of the equipment with pressurised water, e.g. spraying with a water hose or with high pressure cleaners.

- Metal parts exposed to corrosive vapours or mists must be protected against corrosion, e.g. through protective coatings or by using corrosion-proof materials.



Examples:

Commercial kitchens, unheated and unventilated cellar, laundry rooms, cold rooms, a wine cellar, greenhouses, laundry

Systems installed outdoors

Important protection requirements:

In protected outdoor systems, the equipment must be protected from dripping water (protection type IPX1) as a minimum.

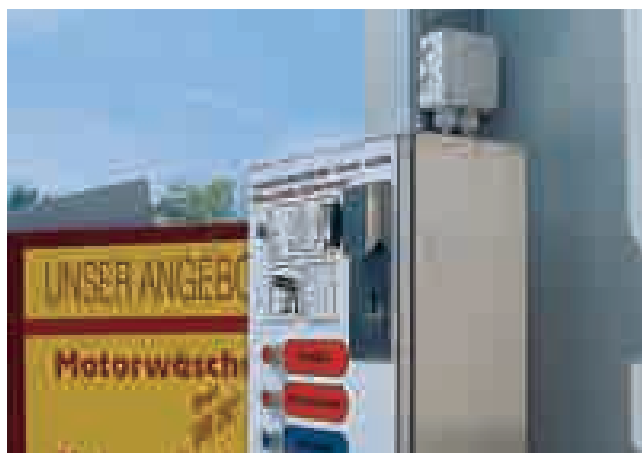
In unprotected outdoor systems, the equipment must be protected from sprayed water (protection type IPX3) as a minimum.

The requirements for protection through automatic shutoff of the power supply for

- sockets in outdoor installations and
- sockets intended for the occasional supply of outdoor portable equipment, are contained in DIN VDE 0100-470 (VDE 0100 part 470):1996-02

Particularly suitable:

Abox-i, AK-, AKi, GTi, STV/STG, TG-PC, TK-PC and GEOS enclosure system. In unprotected outdoor areas: Abox XT
In addition, ventilation and/or drainage is essential!



Examples of unprotected outdoor installations:

Streets, paths and plazas, courtyards, passages and gardens, on construction sites, railway platforms, ramps and roofs, on cranes, construction machinery, filling stations and walls of buildings and external walls

Examples of protected outdoor installations:

Systems in covered railway platforms, in entrance gates and covered filling stations, on houses with sufficient roof projection, with additional weather protection

Technical information

Overview Installation Areas

Electrical systems on caravan pitches, camping pitches and similar areas per DIN VDE 0100-708

Important protection requirements:

- The use of equipment with protection class 0 is not permitted.
- Equipment on a caravan pitch must have a protection type of IPX4 as a minimum in order to protect it from splashed water.

Note: If the electrical equipment will be sprayed during the washing process with high pressure cleaners etc., protection type IPX5 must be selected for the equipment itself or the use of an additional protective housing should be considered.

- Equipment that will be erected on a caravan/tent pitch must have or be provided with a protection type of IP4X as a minimum in order to protect it from penetration of very small objects.
- Equipment that will be erected on a caravan pitch must be protected against mechanical stresses.

The protection is achieved through one or more of the following measures: The position or location of the equipment must be selected such that damage due to any reasonably foreseeable event is avoided; provision of local or general mechanical protection; electrical equipment must be erected in compliance with a minimum protection against external mechanical stresses per IK07.

Particularly suitable: Abox-i, RKi, AK Air, AKi, GTi, GEOS enclosure systems and the STV range.



Electrical systems for caravans and motorhomes per DIN VDE 0100-721

Important protection requirements:

- The nominal AC power supply for the caravan system must not exceed 230 V in the case of single-phase power or 400 V in the case of 3-phase power. The nominal DC power supply for the caravan system must not exceed 48V.
- Where accessories are sited in a position where moisture may be present, the accessory must be constructed or enclosed such that a protection class of no less than IP44 is achieved.



Technical information

Overview Installation Areas

Electrical systems for water sport vehicles or houseboats, marinas and similar areas per DIN VDE0100-709

Important protection requirements:

- In marinas, equipment erected at or above a landing stage, launching point, pier or pontoon must be selected in accordance with the external influences that may occur, as follows:
Splashed water (AD4): IPX4
Water jet (AD5): IPX5
Waves (AD6): IPX6
- Equipment that will be erected at or above a landing stage, launching point, pier or pontoon must be selected with a protection class of at least IP4X in order to prevent penetration by very small foreign objects (AE3).
- Equipment that will be erected at or above a landing stage, launching point, pier or pontoon must be suitable for exposure to corrosive atmospheres or contaminated substances (AF21). AF31 should be used if exposure to hydrocarbons is possible.

Primarily electrical systems erected, for example at fairgrounds, amusement parks and circuses per DIN VDE 0100-740

Important protection requirements:

- The nominal supply voltage shall not exceed 230/400 VAC or 440 VDC.
- Regardless of the number of current sources for power supply, outer conductors and neutral conductors for the various current sources shall not be connected to one another after the feed point. The instructions from the DSO² shall be complied with.
- All final circuits for lights, sockets up to 32 A rated current and portable equipment that is connected via flexible cable or wiring with a current load capacity up to 32 A, must be additionally protected with residual current devices (RCD³) with a rated fault current = 30 mA.
- Each separated electrical system and each distribution circuit that supplies an outdoor system, must be equipped with its own, easily accessible and correctly identifiable disconnection device.
- Switchgear and controllers shall only be installed in boxes that can be opened exclusively with keys or tools. Exceptions to this are parts that are intended to be operated by electrical lay-persons.
- Electrical equipment must comply with protection type IP44 as a minimum.

- Each electrical system must have its own easily-accessible device for disconnection and switching and to provide over-current protection.

- Enclosures that contain rectifiers and transformers must be reasonably ventilated and the openings must not be covered during operation.
- Equipment that will be erected at or above a landing stage, launching point, pier or pontoon must be protected against mechanical stresses (medium mechanical stresses AG2). The protection must be achieved through one or more of the following requirements:
- The position or location of the equipment must be selected such that damage due to any reasonably foreseeable event is avoided
- Provision of local or general mechanical protection
- Equipment erected in compliance with a minimum protection against external mechanical stresses per IK07

Particularly suitable after the feed point:

Abox-i, Abox XT, AK Air, AKi, GTi, TK-PC, TG-PC, GEOS, STV and the STG-series.

- 1) Abbreviation for the classification of external influences per DIN VDE 0100-510, table ZA.1

Particularly suitable: Red Range, Abox, Abox-i, RK, RKA, AK, AKi, GTi, GEOS and the STV range.

- 2) DSO = Distribution System Operator
- 3) RCD = Residual Current Device



Technical information

Overview Installation Areas

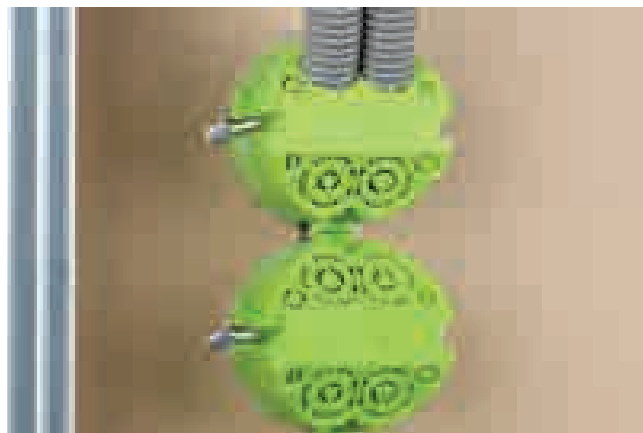
Electrical systems in furniture and similar furnishings DIN VDE 0100-724

Important protection requirements:

- Electrical installation equipment for flush-mounting must be inserted in flush mounted wall-boxes. Flush-mounted wall-boxes must be installed in a way that they are protected from damages.
- **NOTE:**
This can be done by means of installation in accessible cavities, in recesses or through additional mechanical protection, for example.
- VDE 0100-520 applies with further amendments:
- The use of flexible cables is required if it is connected by plugs and sockets or installation connectors and for lines within furniture that could be exposed to movements.
- Rigid lines are to be used for the connection of pieces of furniture to the electrical systems if they are connected with permanent cable and conductor systems.

- Cables must be protected against damages in an appropriate way. Damages of cables must be prevented by avoiding squeezing or laying them over sharp edges.

Particularly suitable: The cavity wall socket range HW



Photovoltaic systems per DIN VDE 0100-712

Important protection requirements:

The peripherals for photovoltaic systems are generally installed outdoors. For this reason, the following important protection requirements apply:

- External influences that are to be expected such as wind, ice formation, temperature and solar radiation must be taken into account.
- The heat arising from direct solar radiation in photovoltaic systems must be reliably dissipated.
- All terminal boxes (PV generator terminal boxes and PV sub-array terminal boxes) must be equipped with a warning that active components in the terminal boxes may still be live after being separated from the PV inverter.
- The requirements for switching off the PV system for maintenance work are contained in VDE 0100-712, section 53.

Particularly suitable:

RK-PV, AK Air, AKi, GTi, TK-PC, TG-PC and GEOS

In addition, ventilation and/or drainage is essential!!



Technical information

Tests and Test Methods according to IEC-/EN-Standard

Tests and test methods according to IEC-/EN-Standard

The mentioned tests are based on the following standards:

DIN EN 60670-1 (VDE 0606-1),

DIN EN 61439-1 (VDE 0660-600-1),

DIN EN 62208 (VDE 0660-511)

with all associated amendments and extensions.

DIN EN 60670-1, VDE 0606-1

This standard applies for sockets, enclosures and enclosure parts for electrical installation equipment with a rated voltage of less than 1000 VAC and 1500 VDC, which are intended for household and similar fixed electrical installations both indoors and outdoors. (DIN EN 60670-1, 1 Application Area)

DIN EN 61439-1, VDE 0660-600-1

This standard defines terms and specifies the operating conditions, construction requirements, technical characteristics and requirements for certification of low-voltage switch gear assemblies whose rated voltage is below 1000 VAC and 1500 VDC and which are movable or fixed. (DIN EN 61439-1, 1 Application Area)

DIN EN 62208, VDE 0660-511

This standard applies for empty enclosures, as supplied by the manufacturer before any equipment is installed by the manufacturer of the switchgear assembly. (DIN EN 62208, 1 Application Area)

Note: Our in-house testing laboratory is certified according to

- **UL (Underwriters Laboratories)**
- **VDE**

The tests described below are carried out, documented, analysed and evaluated there.



Proof of mechanical structure

DIN EN 60670-1

Lids, covers or cover plates or parts thereof

DIN EN 61439-1

Design verification of switchgear assemblies

DIN EN 62208

Type testing of empty enclosures

Proof of non-removable lids

DIN EN 60670-1:

The forces are applied perpendicular to the mounting surface, at the middle of the lid, gradually increasing for one minute

Proof of removable lids DIN EN 60670-1:

The forces are applied ten times, gradually increasing, to the device to remove the lid. The equipment under test shall be free of damage afterwards

Proof of resistance to ingress of solid foreign bodies

DIN EN 60670-1:

DIN EN 62208:

The equipment under test is set up as in normal use and any existing cable inlets are fitted with cables. Protection is achieved if the probe cannot penetrate into the tested equipment (IP4X).

For protection level IP5X, no part of the inner surface may be covered by dust from the outside. For protection level IP6X, no dust may penetrate the into the tested equipment. (See IP code)

Technical information

Tests and Test Methods according to IEC-/EN-Standard

Proof of resistance against harmful ingress of water

DIN EN 60670-1:

DIN EN 61439-1:

DIN EN 62208:

The equipment under test is set up as in normal use and any existing cable inlets are fitted with cables. The equipment under test has amounts of water applied in accordance with its protection rating (see IP code). The ingress of water is detected by lining the interior of the equipment under test with absorbent paper. The indicator paper is examined immediately after the test.



Proof of the strength of materials and parts

DIN EN 60670-1:

Mechanical strength of boxes and enclosures

DIN EN 61439-1:

Corrosion resistance of switchgear assemblies

DIN EN 62208:

Corrosion resistance of empty enclosures



Proof of resistance against heat

DIN EN 60670-1:

A steel ball with a 5-mm diameter is pressed down on the surface of the box or enclosure with a force of 20 ± 2 N. This formation is set up in a heating cabinet and left there for an hour at a temperature of $70 \pm 2^\circ\text{C}$. After the time has elapsed, the equipment under test must be cooled to room temperature within 10 seconds by immersing it in a water tank. Proof is furnished if the diameter of the impression left behind by the sphere is not larger than 2 mm.

Proof of durability of plastics against excessive heat and fire

DIN EN 60670-1:

DIN EN 61439-1:

DIN EN 62208:

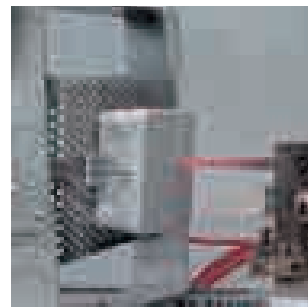
The resistance is determined by the glow wire test. The equipment under test is brought into contact with the hot filament for 30 seconds. The temperature amounts to:

$960 \pm 15^\circ\text{C}$ for parts containing live components,

$850 \pm 15^\circ\text{C}$ for cavity wall parts,

$650 \pm 15^\circ\text{C}$ for all others.

The test is passed if the enclosure does not burn or glow or if the flames and the glow extinguish independently 30 seconds after removal of the glow wire. The tissue paper spread below the test set must not be ignited by falling parts.



Start der Prüfung



Ende der Prüfung

Technical information

Tests and Test Methods according to IEC-/EN-Standard

Proof of electrical stability

DIN EN 60670-1:

Insulation resistance and electric strength of boxes and enclosures

DIN EN 61439-1:

Protection against electric shock and continuity of earth leads in switchgear assemblies

DIN EN 62208:

Proof of insulation resistance of empty enclosures



Proof of protection against electric shock

DIN EN 61439-1:

DIN EN 62208:

The test must demonstrate that all conductive parts of the device are effectively connected to the external earth lead. A resistance meter must be used here, which can supply at least 10 A. The test must result in a circuit resistance of $\leq 0,1 \Omega$.



Proof of electric strength

DIN EN 60670-1:

The test voltage is applied between two metal foils as for proof of insulation resistance. The test starts with about half the specified voltage and then increases rapidly to full voltage. The test is passed if no breakdown or flashover occurs.

Rated insulation voltage [V]	Test voltage [V]	Test voltage protection class II [V]
130	1250	1875
> 130 and ≤ 250	2000	3000
> 250 and ≤ 450	2500	3750
> 450 and ≤ 750	3000	4500
> 750	3500	5250

DIN EN 61439-1:

The test voltage is applied

- between the connected poles of the main circuit and the earthed enclosure
- between the unconnected poles of the main circuit
- between the control and auxiliary circuit and the main circuit as well as the earthed enclosure.

In order to furnish proof, the overcurrent relay must not trigger and there should be no breakdown.

Rated insulation voltage (phase-to-phase) [V]	Insulation test voltage (AC) [V]	Insulation test voltage (DC) [V]
$U_i \leq 60$	1000	1415
$60 < U_i \leq 300$	1500	2120
$300 < U_i \leq 690$	1890	2670
$690 < U_i \leq 800$	2000	2830
$800 < U_i \leq 1000$	2200	3110
$1000 < U_i \leq 1500$	2700	3820

Rated isolation voltage Auxiliary circuits (Ladder against ladder) [V]	Insulation test voltage (AC) [V]	Isolation test voltage (DC) [V]
$U_i \leq 12$	250	355
$12 < U_i \leq 60$	500	710
$60 < U_i$	see table Main circuits	see table Main circuits

Technical information

Tests and Test Methods according to IEC-/EN-Standard

Proof of clearances and creepage distances and distances through casting compound

DIN EN 60670-22:

DIN EN 61439-1:

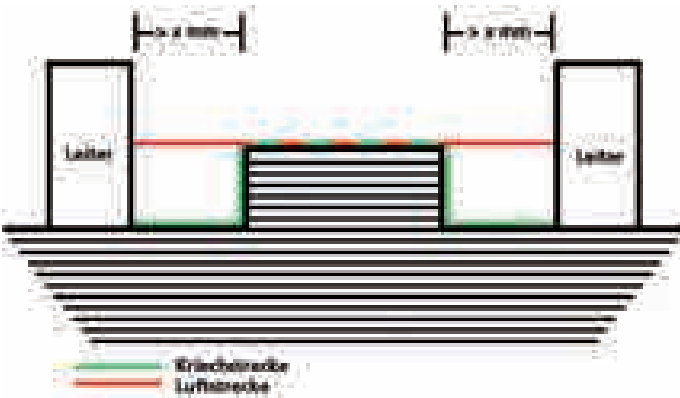
The intervals may not be less than described in table 21 and are measured between live parts of different polarity, live parts and metal caps or sockets without insulation and live parts and the base mounting surface.

Rated insulation voltage [V]	Creepage distances, clearances and distances through casting compound [mm]
≤ 130	1,5
> 130 and ≤ 250	3
> 250 and ≤ 450	4
> 450 and ≤ 750	6
> 750	8

The distance x must be between 0.25 mm and 2.5 mm depending on the degree of contamination (see the table below), otherwise it may not be used to extend the creepage. In this case, the creepage distance would be equal to the clearance, based on the example in the figure above (DIN EN 61439-1, Appendix F).

Degree of contamination	Smallest width x of grooves [mm]
1	0,25
2	1
3	1,5
4	2,5

The clearances and creepage distances are evaluated as follows:



Technical information

Tests and Test Methods according to UL – Underwriters Laboratories

Tests and test methods UL – Underwriters Laboratories



**Underwriters
Laboratories**

The tests referred to are based on the following standards

UL 94

UL 50

UL 746C

with all associated amendments and extensions.

UL 94

“Tests for Flammability of Plastic Materials for Parts in Devices and Applications”

This regulation describes the test for evaluating and classifying the flammability of plastics.

UL 50 / UL 50E

“Standard for electrical equipment intended to be installed and used in non-hazardous locations”

This regulation sets standards for electrical appliances that are not intended for use in areas subject to explosion hazards.

UL 746C

“Standard for safety for polymeric materials – use in electrical equipment evaluations”

This regulation sets standards for materials made of polymer, for use in electrical equipment.

Test of proof against mechanical stress

UL 746C

In order to prove protection against mechanical stress, impact stress must be applied to the equipment under test. Equipment intended for outdoor use is cooled for three hours in a cold chamber at $-35 \pm 2^{\circ}\text{C}$ and then mounted on a rigid frame appropriate to its planned use. In the cold state, a single blow is applied with a steel ball of 50.8 mm (2 inches) in diameter and weighing 0.535 kg (1.18 pounds) to the surface being tested.

In order to furnish proof, the equipment under test must be free of any damage that may interfere with its proper use. Furthermore, the intended protection rating must not be changed negatively.



The splinters are ice residue from the cooling process at -35°C .

Technical information

Tests and Test Methods according to UL – Underwriters Laboratories

Tests for Flammability of Plastic Materials for Parts in Devices and Applications

UL 94

The test is conducted with an open flame. Depending on the classification, the flame has a power of 50 watts (20 mm high flame) or 500 watts (125 mm high flame). The ignition source acts on the test object for 30 s in the case of the horizontal burning test (HB), twice for 10 s with the vertical burn test (V) and five times for 5 s with the 5V test and is then removed again. The burning time and also the fragmentation of burning parts in the case of V-tests are assessed. A cotton ball placed under the test set must not ignite.

Classifications:

A material sample (thickness <3 mm) is placed horizontally above a 50 W flame 20 mm high.

Classification	Conditions
HB	Self-extinguishing
HB75	Burning < 75 mm/min.
HB45	Burning < 40 mm/min.

A material sample is placed vertically above a 50 W flame with a height of 20 mm.

Classification	Conditions
V-2	Self-extinguishing up to 30 s following removal of the flame, burning drops permitted
V-1	Self-extinguishing up to 30 s following removal of the flame, no burning drops permitted
V-0	Self-extinguishing up to 10 s following removal of the flame, no burning drops permitted

A material sample is placed vertically above a 500 W flame with a height of 125 mm ± 10 mm.

Classification	Conditions
5VB	Self-extinguishing, no burning drops, burn holes are permitted
5VA	Self-extinguishing, no burning drops, burn holes are not permitted

Note:

In accordance with UL50, an end product made of insulating material must pass the UL 746C, Chapter 17 „Flammability - 127 mm (5 inch) flame“ flame test. It is therefore possible that an end product manufactured from material with a material qualification lower than 5VA, can achieve certification/qualification to UL 50.



Technical information

Conformity to Specifications and Standards

The development, testing and production per national regulations, European standards and special approvals document the high safety standard of els brand products.

Quality management system per **DIN EN ISO 9001**

„Register number: QM_UM 00905 DMSZ

from the VDE testing and certification institute“

DIN VDE 60670

Boxes and enclosures for electrical accessories for household and similar fixed electrical installations

Part 1: General requirements

Part 21: Special requirements for boxes and enclosures with hanging fasteners

Part 22: Special requirements for junction boxes

Part 23: Special requirements for underfloor boxes

Part 24: Special requirements on enclosures for the installation of protective equipment and similar energy-consuming devices

DIN EN 60999 (VDE 0609)

Connection materials (electrical copper conductors) safety requirements for screw terminal points and screw-less terminal points

Part 1: General requirements and special requirements for clamping points for conductors with a cross-section of 0.2 mm² up to and including 35 mm²

DIN EN 60998 (VDE 0613)

Connection materials for low voltage circuits for households and similar purposes

Part 1: Allgemeine Anforderungen

Part 2-1: Special requirements for connection materials as independent equipment with screw terminals

Part 2-2: Special requirements for connection materials as independent equipment with screw-less clamping points

DIN EN 60947-7-1 (VDE 0611 part 1)

Low voltage switchgear

Part 7-1: Auxiliary devices – terminal blocks – for copper conductors

DIN VDE 0603

Meter support positions AC 400 V

Part 1: General requirements

Part 2-1: Meter support positions for direct measurement up to 63 A

Part 2-2: Meter support positions for semi-direct measurements (Transducer measurement) up to 1 000 A

Part 3-2: Fastening and contacting component (BKE) for electronic house service meters (eHZ) for the application in meter support positions

Part 3-1: Main cable junction terminal (HLAK)

Part 3-3: Screwless terminal for meter (ZSK)

DIN EN 62208 (VDE 0660-511)

Empty enclosures for low-voltage switchgear combinations, general requirements

DIN EN 61439 (VDE 0660-600)

Low-voltage switchgear combinations

Part 1: General predefinitions

Part 2: Energy switchgear assemblies (PSC)

Part 3: Installation distributor for operation by laypeople (DBO)

DIN EN 61439-7 (VDE 0660-600-7)

Switchgear assemblies for certain applications e.g. marinas, campsites, marketplaces, charging stations for electric vehicles



Technical information

Test Report - Handover to end-user



Extract from the determination of inspection intervals from the DGUV regulation 3 (formerly BGV A3):

Electrical systems and stationary equipment:

Inspection interval 4 years

Portable electrical equipment:

Guide value 6 months, 3 months on construction sites

Fault current, differential current and fault voltage circuit breakers:

6 months in stationary systems,
every working day in non-stationary systems

Acceptance by the end customer and handover of fully functional system

An acceptance procedure and handover to the end customer is carried out at the conclusion of the commissioning. The order is completed with the issue of the associated final documentation, test logs and handover reports. It is advisable to generate a handover report and a test log. There is a template from the ZVEH available for this.

Inspection intervals

The operator shall ensure that the electrical system and equipment is checked to ensure that it is in a proper condition:

1. Prior to initial commissioning and after any change or repair work, before the recommissioning by an electrician or under the guidance and supervision of an electrician.
2. At defined intervals. The intervals are to be set such that defects that would normally be expected to arise are detected in good time.

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Sorted by product description

[illegible]

General Terms and Conditions

1. For all deliveries

– including deliveries from our agents' stocks – the following terms shall be applied:

- 1.1 the "Warranty regulations of manufacturers of installation devices and installation systems"
- 1.2 "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry for Commercial Transactions between Businesses" in the version as amended by Zentralverband der Elektrotechnik und Elektronikindustrie (ZVEI) e.V.", the German Electrical and Electronic Manufacturers' Association
- 1.3 in addition, the following paragraphs 2 to 12. We will happily send you the above mentioned norms, delivery terms and clauses, if required. The documents can also be downloaded from our web site (www.spelsberg.de). We hereby reject the conditions of purchase of our customer unless they are explicitly acknowledged by us. Our terms will be acknowledged will be considered the sole binding legal foundation when delivery is taken of objects supplied by. Order confirmations will only be sent if requested expressly.

2. Small orders

for less than 100 euro will not be granted any discount but invoiced gross for net.

3. Sea- proof packing

Will be supplementary invoiced only in case of packing in containers.

4. Delivery freight prepaid

(freight paid, packing included) will be carried out within the territory of Germany for a net order value of more than 1,000 euro. Haulage payable at destination shall be borne by the receiver of the goods.

5. Dispatch

will always be carried out at receiver's risk, even in case of agreed delivery freight prepaid.

6. Suitability and nature of goods

Any indication and information concerning suitability, nature and application of goods shall not discharge our customer from their own controls and tests. The customer processing our goods shall assume liability for dispositions prescribed by law, public agencies and electric supply companies.

7. Claims

shall only be acknowledged within 8 days of the receipt of the consignment. On receipt of the goods, the person delivering the goods must confirm any visible damage to goods in transit on the relevant delivery notes.

8. Return of goods

shall be rejected unless we have given our prior acceptance. In case of non-compliance the company /person returning the goods shall assume liability for any costs and disadvantages.

9. Our payment terms

are within 10 days less 3 % cash discount or net within 30 days. If the customer is in arrears of payment, we are entitled to claim interest in the amount of the current base interest. Should the customer's solvency be doubted, in particular in case of payment in arrears, we are entitled, subject to all other claims, to demand payment in advance or guarantees or revoke already granted credit terms.

10. Place of performance

for delivery, payment and other contractual performances of both parties is Schalksmühle. Place of jurisdiction is Lüdenscheid. German law governs the relationship between the contracting parties.

11. Data protection

We are entitled to use data arising from the business relationship with our customers, regardless their origin, within the meaning of the BDSG (the German Federal Data Protection Act).

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Protection and functionality in any situation

Spelsberg industrial enclosures featuring offer high-quality, reliable components for machine enclosures. In excess of 1,000 different enclosure models offer a choice of surface and customisable solutions for a diverse range of industrial applications. Each is produced with custom and sophisticated joint windows.

In addition to specific applications, it knows, however, in a world of rapid innovation, only the enclosure can still stand out. The shape of the enclosure and material together with the size, with features, security, security and resistance from your industrial machine, ensuring 24/7 availability and in addition, durable, consistent long-term protection.

Spelsberg enclosures are made of heavy-duty materials, which are suitable for all environments. They are designed for the enclosure and provide the correct level of protection and resistance. This is achieved by the combination of a steel frame, a large amount of protection, custom components designed to withstand the demands of your business and a wide range of accessories for long-term operation.

The enclosure technology and variety of the enclosure enclosures are designed to the following examples of applications for industrial technology and integrated custom solutions page.



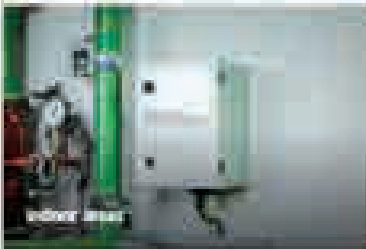
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