



safe.inspiring.green.

INDUSTRIAL SOLUTIONS



When you turn to Spelsberg, you are choosing a partner who is always a step ahead thanks to several decades of experience with state-of-the-art technology. High quality, refined products and a strong focus on customers provide everyone involved with maximum assurance. This does not just apply to functions for components. All process steps from consultation and quote preparation to delivery and service guarantee that our customers feel like they're in good hands with us.

In the process, we keep everyone in mind: the assembler who installs our products quickly and easily and our partners in retail, for whom ordering and stocking of products

are made easy with modular designs and accompanying accessories. The enthusiasm and knowledge of our employees are the essential key to our success. Consequently, unique, high-quality products and tailored solutions are only possible with the commitment and passion of our staff.

Our customers value us as a serious supplier with a comprehensive catalogues and finely tuned systems. We are expert consultants for demanding questions regarding the enclosures. We develop, test and produce tailor-made, comprehensive solutions - but we also make small adjustments according to customer wishes.

Spelsberg is represented by partners and subsidiaries in more than **60 countries**. Additionally we have now **9 subsidiaries**.

Spelsberg-els-UK Ltd. / Great Britain

Unit 1B, Queensway Business Park
Hadley Park West
Telford Shropshire, TF1 6AL
Phone: +44 (0) 1952 605849
E-Mail: info@spelsberg.co.uk
Web: www.spelsberg.co.uk

Spelsberg S.L. / Spain

C/ Ajedrea nº 20, Nave E-21
Pol. Empresarium 3 (Magnus)
50720 – La Cartuja Baja, Zaragoza
Phone: +34 976 797959
E-Mail: info@spelsberg.es
Web: www.spelsberg.es



Spelsberg Norge AS / Norway

Gotaasalleen 9
2050 Jessheim
Phone: +47 992 52 751
E-Mail: info@spelsberg.no
Web: www.spelsberg.no

Spelsberg A/S / Denmark

Slipshavnsvej 12
5800 Nyborg
Phone: +45 63 110003
E-Mail: info@spelsberg.dk
Web: www.spelsberg.dk

Spelsberg Belgium BV / Belgium

36 Tiensesteenweg
3000 Leuven
Phone: +32 2 4867575
E-Mail: info@spelsberg.be
Web: www.spelsberg.be

Spelsberg spol. s r.o. / Czech Republic

Elektroinstalacní materiál
Věštinská 1611/19
15000 Praha 5 - Radotín
Phone: +420 257 313188
E-Mail: info@spelsberg.cz
Web: www.spelsberg.cz

Spelsberg AB / Sweden

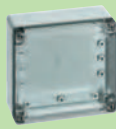
Gustavsviksvägen 7
702 30 Örebro
Phone: +46 70 508 47 47
E-Mail: info@spelsberg.se
Web: www.spelsberg.se

Spelsberg B.V. / Netherlands

De Hammen 22
5371 MK Ravenstein
Phone: +31 (0) 486 820 998
E-Mail: info@spelsberg.nl
Web: www.spelsberg.nl

Spelsberg Oy / Finland

Äyritie 12 B
01510 Vantaa
Phone: +358 9 4789 2255
E-Mail: info@spelsberg.fi
Web: www.spelsberg.fi

	Industrial enclosure				Industrial- / outdoor- enclosure	Terminal block housing
Series	TK-PS	TK-PC	TG-ABS	TG-PC	GEOS	RK1 /RKKi
						
Dimension min. (mm)	65 x 65 x 57	50 x 52 x 35	84 x 82 x 55	84 x 82 x 55	300 x 300 x 180	94 x 65 x 57
Dimension max. (mm)	360 x 254 x 165	360 x 254 x 165	302 x 232 x 120	302 x 232 x 120	400 x 500 x 226	300 x 600 x 120
Material	Polystyrene	Polycarbonate	ABS	Polycarbonate	Polycarbonate	Polycarbonate
IP protection	IP 66	IP 66	IP 66 / IP 67	IP 66 / IP 67	IP 66 / IP 67	IP 66 / IP 65
IK value	IK 07	IK 08	IK 07	IK 08	IK 09	IK 08
UL certification		☑		☑	☑	
Page	20 - 27	20 - 27	28 - 33	28 - 33	34 - 45	46 - 47

lock js	Industrial enclosure Aluminium		Industrial enclosure Polystyrene / Polycarbonate	Distribution boards	Junction boxes Industry	Junction boxes Outdoor
PC	ALS	AL	AKL / AKi-L	AK Air	Abox-i	Abox XT
						
57	89 x 89 x 64	50 x 45 x 30	150 x 300 x 132	315 x 300 x 155	82 x 82 x 51	80 x 80 x 52
x 132	388 x 270 x 117	330 x 230 x 111	300 x 600 x 209	315 x 750 x 155	250 x 250 x 115	140 x 140 x 79
ate	Aluminium	Aluminium	Polystyrene / Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate
/ IP 54	IP 66	IP 66	IP 65	IP 65	IP 65	IP 68
	IK 09	IK 09	IK 07 / IK 08	IK 08	IK 08	IK 08
47	48 - 51	49 - 51	52-55	56-63	64-69	65-69

ABS = Acrylnitril-Butadien-Styrol *Protected outdoor installation

Technical information
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Customers who purchase products from Spelsberg receive brand-name quality that is developed, manufactured and tested in Germany. In addition to our headquarters in Schalksmühle, we have a production facility in Buttstädt, Thuringia. Spelsberg is also represented by a dense network of company-owned subsidiaries and sales offices worldwide.

Schalksmühle – where it all began! Spelsberg is still headquartered in the city where the first insulating tubes were developed and manufactured in 1904. The company grew continuously and increasingly expanded its production facilities until it outgrew the city centre. As a result, the company relocated to an industrial area in the 1990s, where the new administrative and production centre were built.

The managing directors work here, development testing and assembly are also carried out here. Whether you're looking for sales, purchasing, prototyping or the laboratory, all expertise is close to hand at the head office. This is the driving force behind the innovative power and short reaction times. Therefore, it is only natural to always remain a step ahead of the sector.

SPELSBERG | SCHALKSMÜHLE

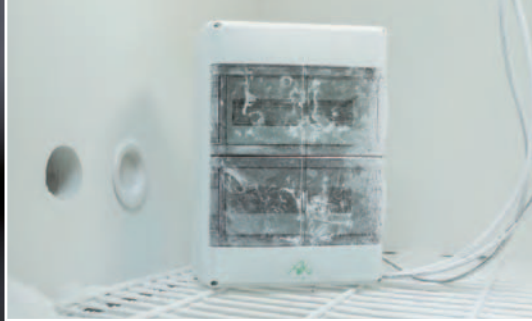


Buttstädt – the plastics centre

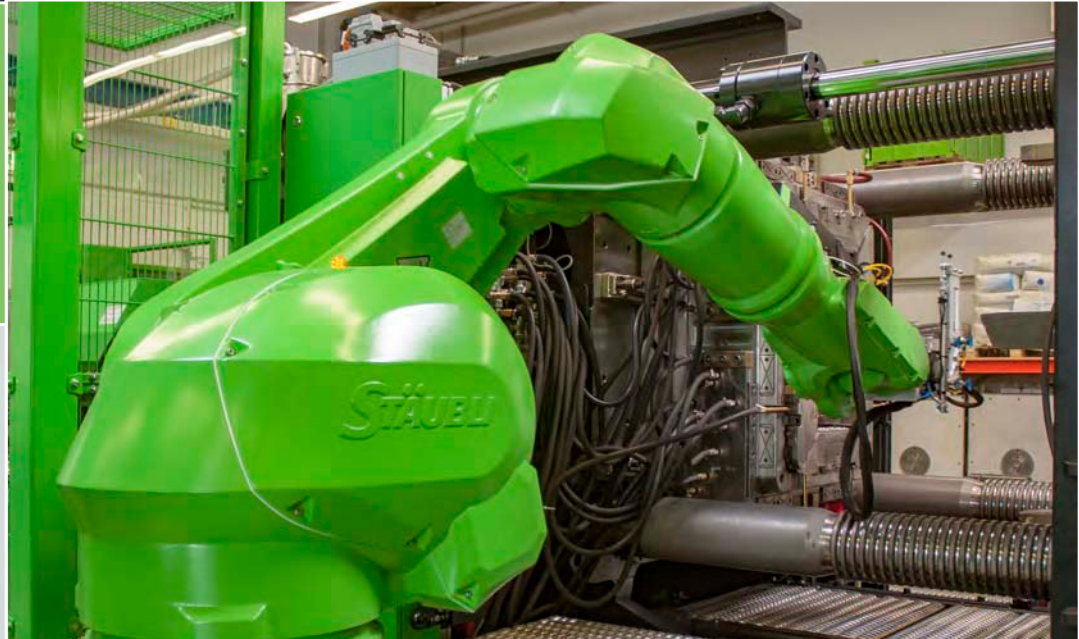
The 100 million plastic parts produced by Spelsberg each year do not originate from Schalksmühle alone. The company has also had a production location in Buttstädt, Thuringia since the 1990s, where the high-quality enclosures are manufactured in series production.

Whether it's a two-component injection mould, seal foam or a custom mix of materials, Buttstädt also provides the expected variety and quality with state-of-the-art machinery and a large supply of tools.

A flow pattern simulation helps to continuously optimise the processes and to ensure the best results right from the start in new designs.



Testing and
certification
in accordance with
VDE and UL are
carried out in our
in-house laboratory



Safe and reliable!
Initial sampling
within 48 hours

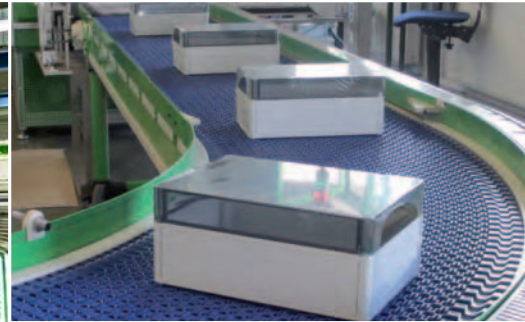


Flexible assembly and manufacturing automation with more than 1,000 production orders and almost 50,000 material movements per week enables large quantities and also one-piece lot sizes to be produced. One-piece flow assembly conveyors enable up to 6 different assembly tasks to be completed one after the other without an intermediate buffer.

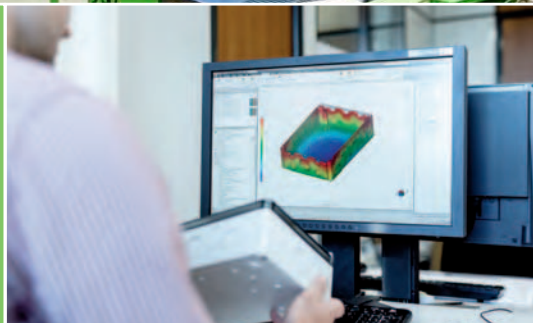
SPECIAL AND LARGE ORDERS |



More than 300,000 parts per day leave our two production locations in North Rhine-Westphalia and Thuringia



Modern machinery:
90 casting machines
with a clamping force
of 25 t to 900 t



Spelsberg supplies many components optionally pre-assembled, partially wired or already complete. Depending on the requirements in question, they are then fitted with electronic modules, optical components, control elements or communication modules.

This enables us to offer a wide range of enclosures and enclosure systems for different industrial sectors. The Spelsberg products are used in the measurement, control, regulation and telecommunications technology sectors among others.

Furthermore, we supply renowned customers in the mechanical and plant engineering, light and electrical engineering, sanitary and infrastructure sectors.



UL impact testing



IK impact testing



Air conditioning cabinets

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 100 million injection-moulded parts that we produce each year.

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



TEST AND CERTIFICATION CENTRE |



**In-house
test laboratory**

**The most modern
technology**

VDE + UL audited



Dust protection



Water protection testing



Cover tensile testing

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 inspections for the international use of series products and special solutions to be conducted in-house.

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.

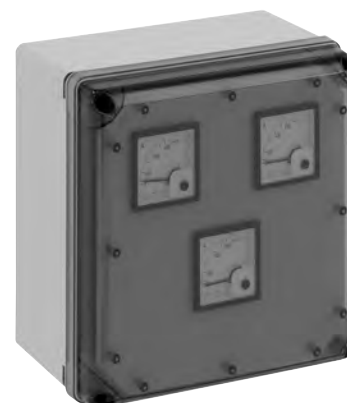
The test laboratory is equipped to state-of-the-art standards and is subject to ongoing further development. UL and VDE conduct an annual audit as part of the Client Test Data Program to assure that work continues to be carried out at a consistently high standard.



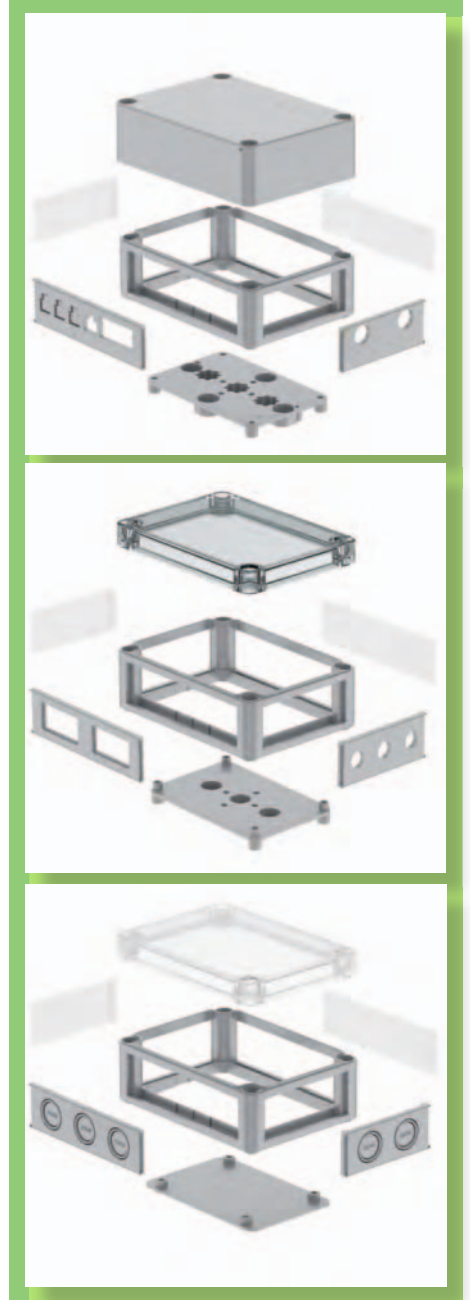
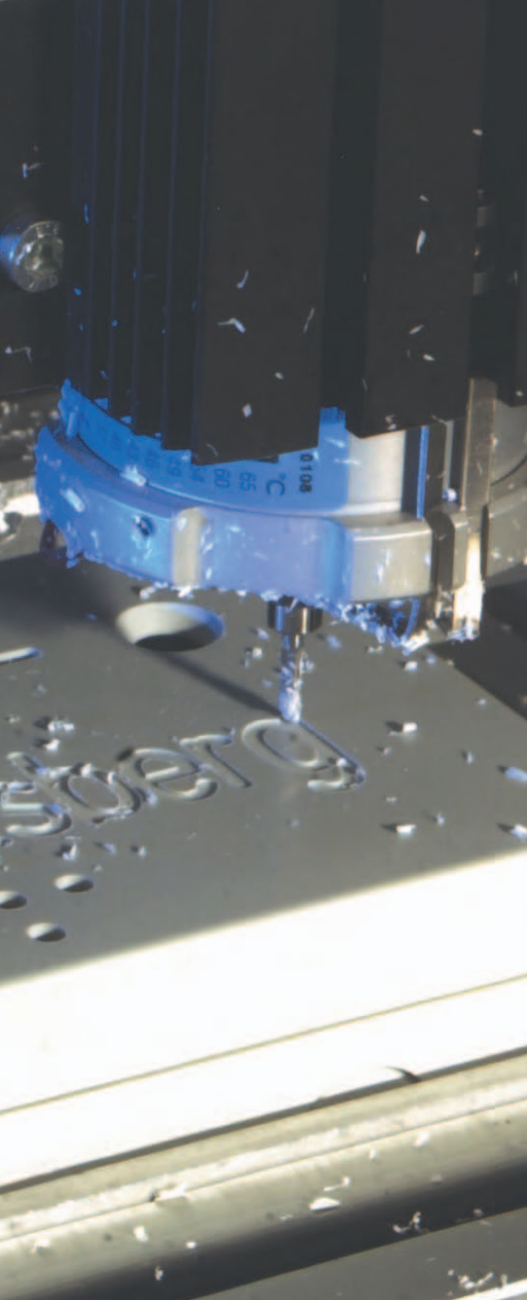
Ruggedness, reliability and flexibility – these are the things that Spelsberg's industrial products stand for. The company has marked its specially developed housings, distributors and junction boxes with its iQ seal for industrial quality. This seal guarantees the best material characteristics, certified safety and optimum functionality and durability under extreme conditions.

Fibreglass-reinforced polycarbonate ensures that the industrial products are even tougher than Spelsberg's popular standard products. Neither heat nor cold nor moisture can harm them, and they also resist UV radiation, oils, greases and mechanical stress.

With these characteristics, they reliably protect the electrical installation in machinery and industrial facilities from lubricants, shocks and impacts.



CUSTOM SOLUTIONS | IN INDUSTRIAL QUALITY



Individual service

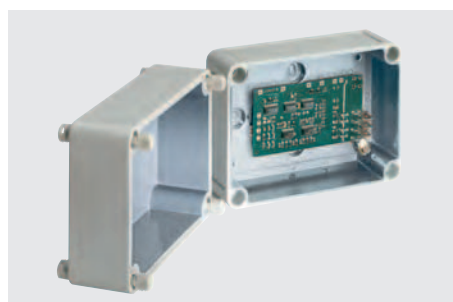
- Clearance holes
- Thread
- Engravings



CNC controlled mill center

Individual service

- Individual fixing points
(ultrasonic welding)
- EMV coating



EMV coating

The modular tool concept

- Clearance holes
- Pre-embossed knock-out openings
- Fixing points
- Embossing



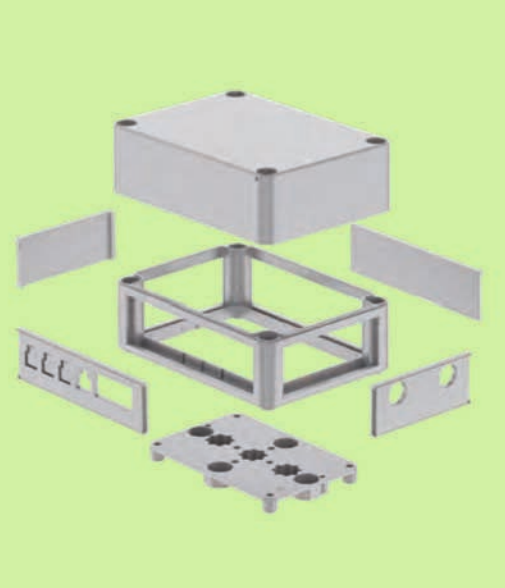
Customized solution



CNC-controlled milling centres



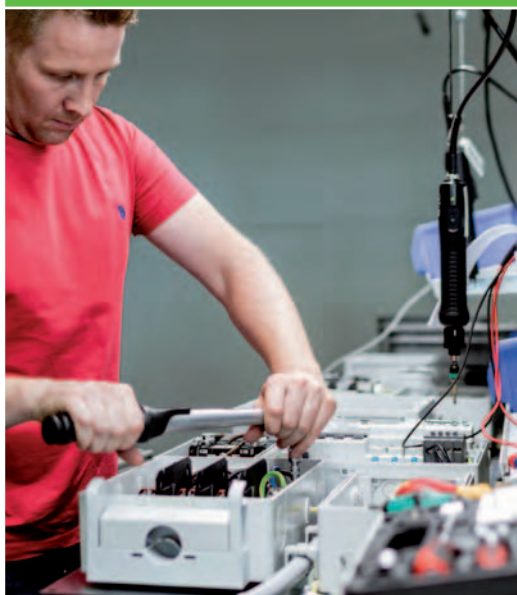
EMC coatings



Modular tools:



Pad printing



Wiring / testing



Special assembly

Machining service

- Openings
- Threads
- Engravings
- Individual fastening points (Ultrasonic welding)
- EMC coatings

Modular tools:

- Openings
- Pre-embossing
- Fastening points
- Embossing

Print Service

- Design foils
- Membrane keyboards
- Screen printing, pad printing, digital printing and laser printing
- Hot stamping

Assembly Service

- Pick-and-place (PCB's)
- Wiring
- Checking

Packaging Service

- Production-oriented
 - loose and separated articles
- Ready for despatch
 - assembled articles, shrink-wrapped and labeled individually



Design films



Hot embossing



Laser printing



Special accessories, e.g. mast clamp brackets



Special colours



Latches

Special Accessories

- Clamp holder
- Pole-clamp
- Snap fit
- Printed circuit board (PCB) holder

Special Colors

- Handling:
Pigmented or coated
- RAL, HKS and Pantone colors
are possible

Materials

- Same enclosure sizes are available
in different qualities / materials
- Always matching the requirements
on site

Standard-quality

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

Industrial quality:

For highest material requisition

- Polycarbonate, glas-fibre reinforced,
UL certified (for American and
Canadian market)
- Aluminium (on request with
American and Canadian certification)



1) Consultation / support



2) Project management



3) Development / construction



7) Testing / certification



The many processes in a company line up like the individual links of a chain. Just one strong connection of the individual components gives the chain as a whole its stability. Each chain link makes one significant contribution to success.

That's why we at Spelsberg attach great importance to every small part of our process chain, and with modern processes, state-of-the-art plant technology and highly qualified employees, ensure that everything is right in the end.

In order to not leave anything to chance, we bundle all the know-how we need for the development and production of our premium housings in-house.

UNPRECEDENTED COMPETENCE CHAIN |



4) Prototyping



5) Tool design



6) Tool production



8) Manufacturing



9) Enclosure production



10) Delivery

Whether toolmaking, prototyping or printing: only those who do everything themselves have all the parameters under control. Precisely because every day thousands of die-casting parts come from fully automated production, we afford ourselves manufacturing in which we can react quickly to customer requests.

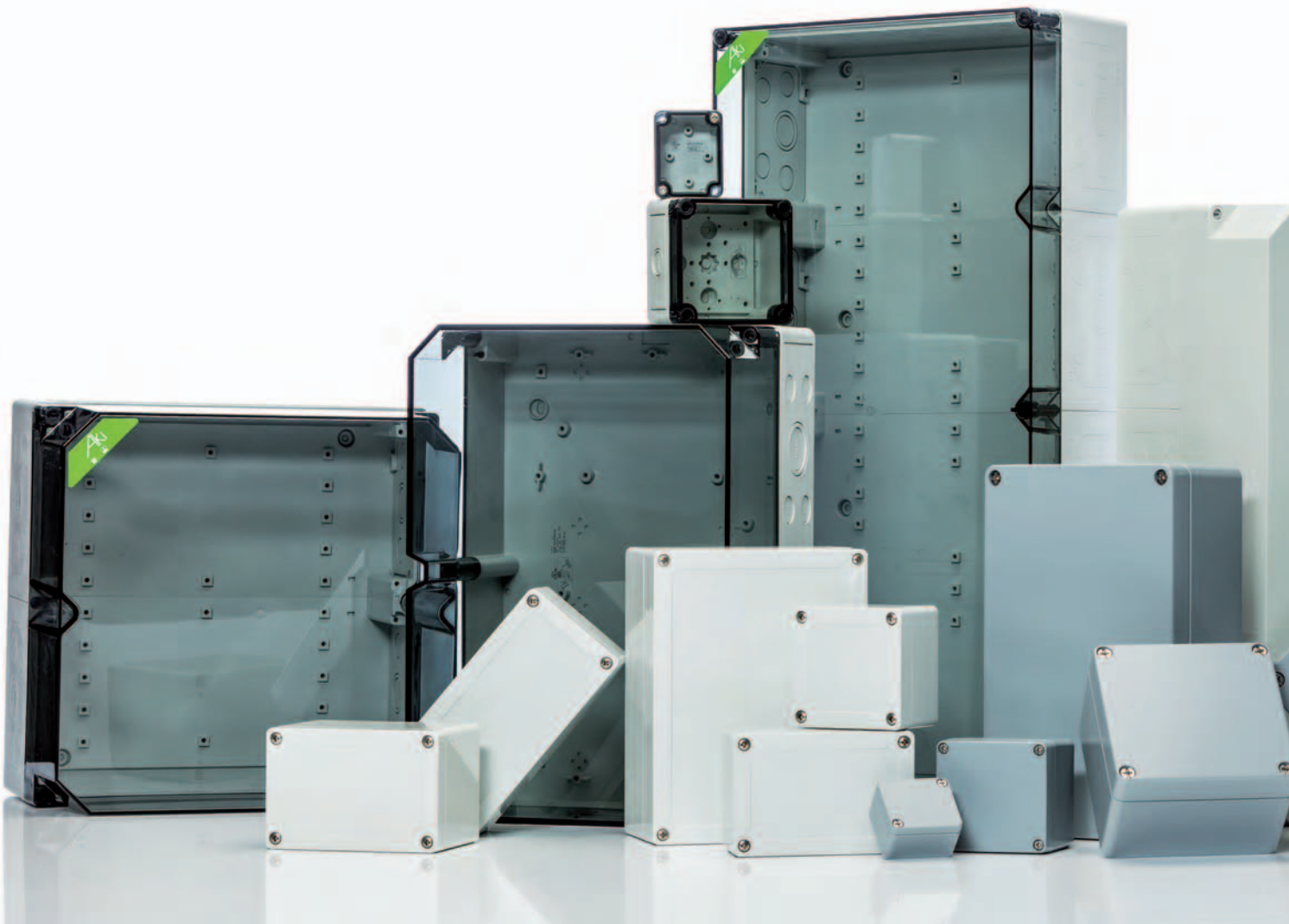
Although we have more than 5000 products in our product range, we have greatly expanded the areas of service and customising in recent years in order to be able to meet individual requirements even better and faster.

This is how we have established ourselves in the industry as an experienced guidebook that solves housing challenges with a lot of experience and passion.

Like the links of a chain, our departments interlock and work together in close consultation with the customer to develop both quick and creative solutions.

From consulting to development and production to testing and certification, we offer everything our customers need.

FOR A TAILORED CUSTOMER EXPERIENCE |

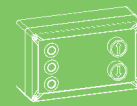


Regardless of whether you produce products for industrial purposes or you are searching for solutions for industrial or systems engineering in your company, we have the right product for every situation. We currently offer more than 1,000 different enclosure variants for industrial applications.

We can supply you with these with different dimensions, with pre-cut openings and suitable accessories. Our products for industrial applications meet the highest standards. Enclosure systems made of glass-fibre reinforced polycarbonate withstand the harsh conditions of your

production without problems and ensure a smooth process. Humidity, cold or heat can have just as little effect on the products as UV radiation, oils, greases or mechanical strains. We confirm this with the seal of "iQ – industrial quality".

THE RIGHT ENCLOSURE FOR EVERY APPLICATION |



**More than
1,000 different
enclosure variants**

**All enclosures
are customisable**

**CAD data
can be
viewed online**

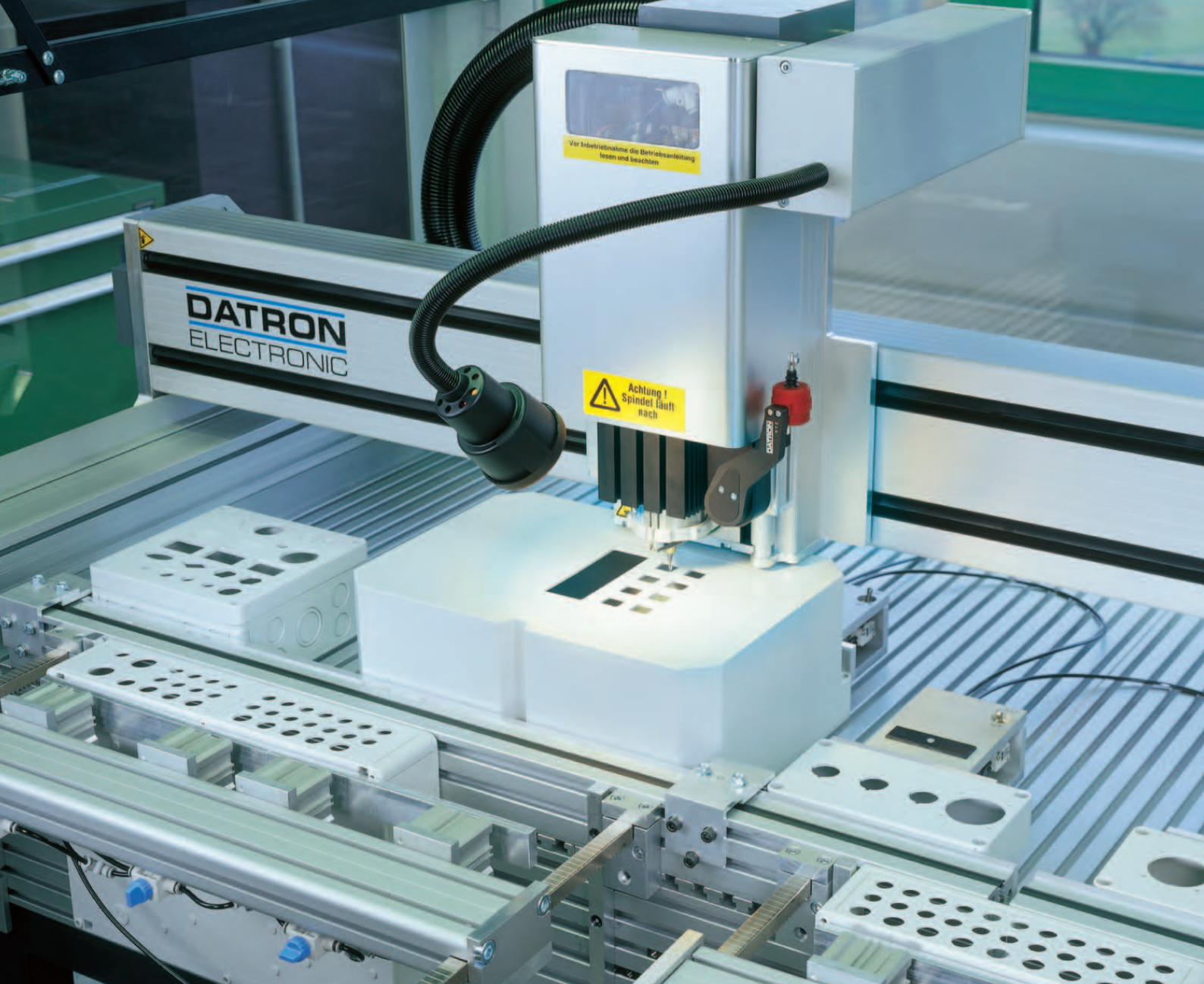


- Up to IP 67, type rating 4x
- From 50 x 50 x 30 mm to 440 x 640 x 179 mm

- Made of ABS, polystyrene, polycarbonate or aluminium
- Mechanical processing
- Printing
- Assembly service

- With and without cutouts / entry points
- Comprehensive accessories
- Special colours





- 15 basic enclosures with up to three different cover heights
- Cover grey or transparent
- Plastic: choice of polystyrene (TK PS) or glass-fibre-reinforced
- Side walls smooth or with metric knockouts

- Modular tools:
Economical customisation
- TK-PC enclosure, serially with cULus approval
- Extensive accessories

- Resistance to cowshed air from at least 20 years
- Resistance against ammonia



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



EMPTY ENCLOSURES | TK PS/TK PC



Individual fixing choice



Din rail / Mounting plate



TK PC Empty enclosure



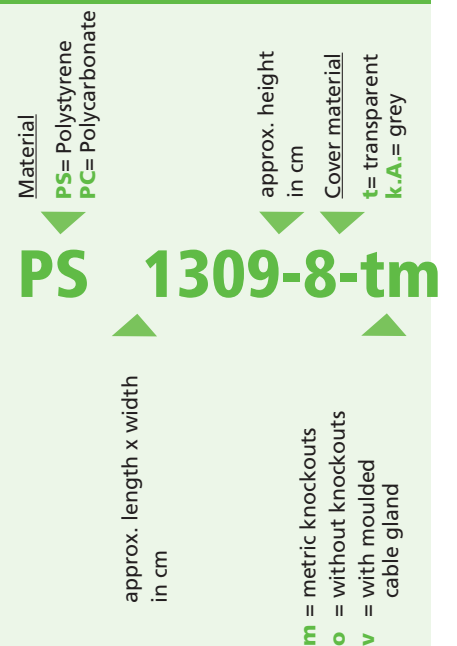
Knockouts

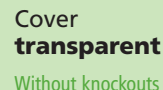
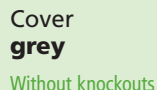
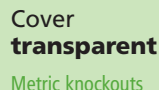
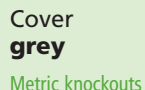


External hinges



Example of TK designation scheme

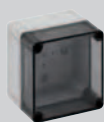




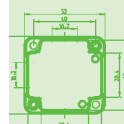
Enclosure	Order-No.
TK PS 77-6-to	111 001 01
TK PS 77-8-to	111 501 01
TK PS 97-6-to	111 002 01
TK PS 97-8-to	111 502 01
TK PS 99-6-to	111 003 01
TK PS 99-8-to	111 503 01
TK PS 1111-7-to	111 004 01
TK PS 1111-9-to	111 504 01
TK PS 1309-6-to	111 009 01
TK PS 1309-8-to	111 509 01
TK PS 1313-7-to	111 005 01
TK PS 1313-10-to	111 505 01
TK PS 1809-6-to	111 010 01
TK PS 1809-8-to	111 510 01
TK PS 1811-6f-to	111 014 01
TK PS 1811-8f-to	111 514 01
TK PS 1811-9-to	111 006 01
TK PS 1811-11-to	111 506 01
TK PS 1811-13f-to	112 014 01
TK PS 1811-16-to	112 006 01
TK PS 1813-6f-to	111 015 01
TK PS 1813-8f-to	111 515 01
TK PS 1813-9-to	111 016 01
TK PS 1813-11-to	111 516 01
TK PS 1813-13f-to	112 015 01
TK PS 1813-16-to	112 016 01
TK PS 1818-6f-to	111 013 01
TK PS 1818-8f-to	111 513 01
TK PS 1818-9-to	111 007 01
TK PS 1818-11-to	111 507 01
TK PS 1818-13f-to	112 013 01
TK PS 1818-16-to	112 007 01
TK PS 2518-6f-to	111 011 01
TK PS 2518-8f-to	111 511 01
TK PS 2518-9-to	111 008 01
TK PS 2518-11-to	111 508 01
TK PS 2518-13f-to	112 011 01
TK PS 2518-16-to	112 008 01
TK PS 3625-11-to	111 012 01
TK PS 3625-16-to	111 512 01



**Cover
grey**
Metric Knockouts



**Cover
transparent**
Metric Knockouts



**Dimensions
in millimeter**

Enclosure	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	Order-No.
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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
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TK PC 1813-9-tm	137 016 01
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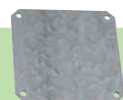
52 x 50 x 35
65 x 50 x 35
65 x 50 x 35
65 x 65 x 57
65 x 65 x 81
94 x 65 x 57
94 x 65 x 81
94 x 94 x 57
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100 x 52 x 37
100 x 52 x 37
110 x 110 x 66
110 x 110 x 90
130 x 94 x 57
130 x 94 x 81
130 x 130 x 75
130 x 130 x 99
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254 x 180 x 165
361 x 254 x 111
361 x 254 x 165



Mounting plate Insulating material

Product	Enclosure	Order-No.	Dimensions (mm)
TK MPI-77	TK PS/PC 77	195 001 01	45 x 45 x 2,5
TK MPI-97	TK PS/PC 97	195 002 01	74 x 45 x 2,5
TK MPI-99	TK PS/PC 99	195 003 01	74 x 74 x 2,5
TK MPI-1111	TK PS/PC 1111	195 004 01	90 x 90 x 2,5
TK MPI-1309	TK PS/PC 1309	195 009 01	110 x 74 x 2,5
TK MPI-1313	TK PS/PC 1313	195 005 01	110 x 110 x 2,5
TK MPI-1809	TK PS/PC 1809	195 010 01	160 x 74 x 2,5

Mounting plate made from insulating material, incl. fixing screws and spacers



Mounting plate Stainless steel

Product	Enclosure	Order-No.	Dimensions (mm)
TK MPS-77	TK PS/PC 77	197 001 01	45 x 45 x 2,5
TK MPS-97	TK PS/PC 97	197 002 01	74 x 45 x 2,5
TK MPS-99	TK PS/PC 99	197 003 01	74 x 74 x 2,5
TK MPS-1111	TK PS/PC 1111	197 004 01	90 x 90 x 2,5
TK MPS-1309	TK PS/PC 1309	197 009 01	110 x 74 x 2,5
TK MPS-1313	TK PS/PC 1313	197 005 01	110 x 110 x 2,5
TK MPS-1809	TK PS/PC 1809	197 010 01	160 x 74 x 2,5

Mounting plate made from steel galvanized, incl. fixing screws and spacers



Mounting plate Insulating material

Product	Enclosure	Order-No.	Dimensions (mm)
TK MPI-1811	TK PS/PC 1811	195 006 01	150 x 90 x 2,5
TK MPI-1813	TK PS/PC 1813	195 011 01	100 x 146 x 2,5
TK MPI-1818	TK PS/PC 1818	195 007 01	150 x 150 x 2,5
TK MPI-2518	TK PS/PC 2518	195 008 01	220 x 150 x 2,5
TK MPI-3625	TK PS/PC 3625	195 012 01	331 x 220 x 2,5

Mounting plate made from insulating material, incl. fixing screws



Mounting plate Stainless steel

Product	Enclosure	Order-No.	Dimensions (mm)
TK MPS-1811	TK PS/PC 1811	197 006 01	150 x 90 x 2
TK MPS-1813	TK PS/PC 1813	197 011 01	146 x 100 x 2
TK MPS-1818	TK PS/PC 1818	197 007 01	150 x 150 x 2
TK MPS-2518	TK PS/PC 2518	197 008 01	220 x 150 x 2
TK MPS-3625	TK PS/PC 3625	197 012 01	331 x 220 x 2

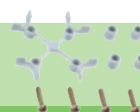
Mounting plate made from steel galvanized, incl. fixing screws



Mounting plate Insulating material

Product	Enclosure	Order-No.	Dimensions (mm)
TK MPI-55	TK PC 55	195 055 01	46 x 44 x 2
TK MPI-75	TK PC 75	195 075 01	59 x 44 x 2

Mounting plate made from insulating material with mounting plate bracket for assembly without tools, set of 5 pieces



Spacing kit

Product	Order-No.
TK DST	194 100 01

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



DIN RAIL NS 35

Product	Enclosure	Order-No.
NS 35-81	TK PS/PC 1111/1309/1313/1809/1811	198 081 01
NS 35-106	TK PS/PC 1309/1313	198 106 01
NS 35-144	TK PS/PC 1809/1811/1813/1818/2518	198 144 01
NS 35-216	TK PS/PC 2518/3625	198 216 01
NS 35-336	TK PS/PC 3625	198 336 01

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



DIN RAIL TS 15

Product	Enclosure	Order-No.
TS 15-49,5	TK PS/PC 77/97	197 049 01
TS 15-80	TK PS/PC 97/99/1111/1309/1313/1809/1811	197 080 01
TS 15-92	TK PS/PC 1111/1309/1313/1809/1811	197 092 01
TS 15-111	TK PS/PC 1309/1313	197 111 01
TS 15-154	TK PS/PC 1809/1811/1813/1818/2518	197 154 01

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



Mounting / PCB holder



Product

Order-No.

TK MLH-55/75 (Set=25 pairs)

194 110 01

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



External fixing plate



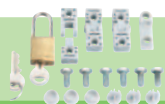
Product

Order-No.

TK ABP-55/75 (Set=10 pieces)

194 002 01

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



Padlock kit

Product

Order-No.

VSG (from TK PS/PC 1811 and AKL/AKi 1)

190 100 01

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



Partition wall

Product

Order-No.

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

196 009 01

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

196 009 01

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



Combi set

Product

for wall thickness

Thread length

Order-No.

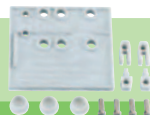
KS M20 2x 3,0 mm 12 mm 192 020 01

KS M25-gro 2x 8,0 mm 22 mm 192 026 01

KS M25 2x 3,0 mm 12 mm 192 025 01

KS M32 2x 3,5 mm 14 mm 192 032 01

Combi set, for side connection of enclosures with metric entries, complete with lock nuts and intermediate wall seal inserts



External hinge set



Product

Order-No.

ASS-kl (TK PS/PC 77 to TK PS/PC 1809)

190 002 01

ASS-gro (TK PS/PC 1811 and from AKL/AKi1)

190 005 01

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



External fixing lugs kit



Product

Order-No.

TK ABL

194 001 01

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



Mounting material HBA



Product

Order-No.

HBA (Set= 4 pieces)

190 001 01

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



Handle

Product

Order-No.

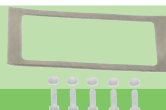
TG2 with self-cutting screws

191 805 01

TG1 with screws M6 and nuts made of plastic

191 800 01

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



Combi set

Product

Order-No.

TK KS GRO

192 018 01

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

 Screwdriver	
Product	Order-No.
TK SDR T40	195 018 01
Special screwdriver for actuating the TK lid screw	

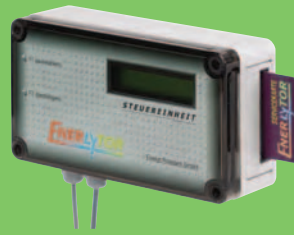
 Installation screw	
Product	Order-No.
TK ES-55/75/1005	190 200 01
Self-cutting screw, for mounting assembly parts in TK PC 55 / 75 / 1005	

 Lid screw			
Product	for cover	color	Order-No.
TK DS-ku/g	flat	grey	190 010 01
TK DS-ku/sw	flat	black	190 012 01
TK DS-lg/g	high	grey	190 011 01
TK DS-lg/sw	flat	black	190 013 01
Cover screw as additional screw, from TK PS/PC 77			

 Lid screw			
Product	for cover	color	Order-No.
TK DS-ku/g/T40	flat	grey	190 014 01
TK DS-ku/sw/T40	flat	black	190 015 01
TK DS-lg/g/T40	high	grey	190 016 01
TK DS-lg/sw/T40	high	black	190 017 01
Cover screw with special head prevents opening by unauthorised persons, can be sealed additionally, special screwdriver required, set=12 pieces, for TK PS/PC 77 and higher (except TK 1005)			

 Stepped drill	
Product	Order-No.
LFR	195 995 01
through opening: M16-32, drill hole: 16.5-32.5 mm	
Hole cutter	



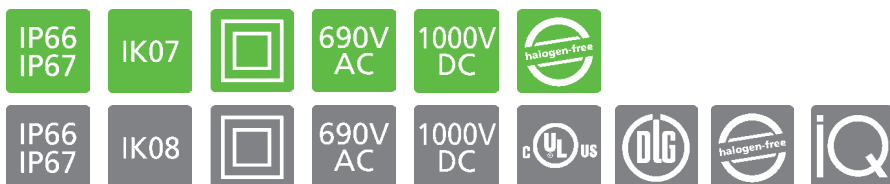


TK PS/TK PC IN APPLICATION



- 9 basic enclosures of various heights
- High-quality design with a stylish high-gloss appearance
- Cover grey or transparent
- Material: optionally ABS (TG ABS) or polycarbonate (TG PC)

- Smooth side walls for added flexibility
- Fixing cams in usual market positions
- Time saved by quick-release
- Cover screws on request



EMPTY ENCLOSURES | TG ABS/TG PC



Quick release



Individual choice of fixation



Din rail



Integrated lid retainer



Functionell design



**TG ABS**

Cover: Grey
Box: Grey

Enclosure	Order-No.:
TG ABS 88-6-o	100 403 01
TG ABS 88-9-o	100 903 01
TG ABS 1208-6-o	100 404 01
TG ABS 1208-9-o	100 904 01
TG ABS 1212-6-o	100 405 01
TG ABS 1212-9-o	100 905 01
TG ABS 1608-6-o	100 406 01
TG ABS 1608-9-o	100 906 01
TG ABS 1612-9-o	100 407 01
TG ABS 2012-8-o	100 408 01
TG ABS 2012-9-o	100 908 01
TG ABS 2015-8-o	100 409 01
TG ABS 2516-9-o	100 412 01
TG ABS 2516-12-o	100 912 01
TG ABS 3023-9-o	100 413 01
TG ABS 3023-11-o	100 913 01

**TG ABS**

Cover: Transparent
Box: Grey

Enclosure	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

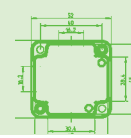
Enclosure	Order-No.:
TG PC 88-6-o	200 403 01
TG PC 88-9-o	200 903 01
TG PC 1208-6-o	200 404 01
TG PC 1208-9-o	200 904 01
TG PC 1212-6-o	200 405 01
TG PC 1212-9-o	200 905 01
TG PC 1608-6-o	200 406 01
TG PC 1608-9-o	200 906 01
TG PC 1612-9-o	200 407 01
TG PC 2012-8-o	200 408 01
TG PC 2012-9-o	200 908 01
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

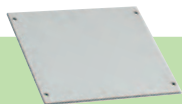
Cover: Transparent
Box: Grey

Enclosure	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



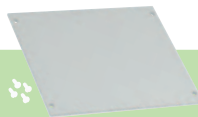
**Dimension
in millimeter**

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



Mounting plate Insulating material

Product	Enclosure	Order-No.:	Dimensions (mm)
TG MPI-88	TG 88	186 003 01	73 x 53 x 2,5
TG MPI-1208	TG 1208	186 004 01	91 x 73 x 2,5
TG MPI-1212	TG 1212	186 005 01	113 x 93 x 2,5
TG MPI-1608	TG 1608	186 006 01	131 x 73 x 2,5
TG MPI-1612	TG 1612	186 007 01	131 x 113 x 2,5
TG MPI-2012	TG 2012	186 008 01	171 x 113 x 2,5
TG MPI-2015	TG 2015	186 009 01	171 x 143 x 2,5
TG MPI-2516	TG 2516	186 012 01	220 x 152 x 2,5
TG MPI-3023	TG 3023	186 013 01	270 x 220 x 2,5



Mounting plate Stainless steel

Product	Enclosure	Order-No.:	Dimensions (mm)
TG MPS-88	TG 88	187 003 01	73 x 53 x 2
TG MPS-1208	TG 1208	187 004 01	91 x 73 x 2
TG MPS-1212	TG 1212	187 005 01	113 x 93 x 2
TG MPS-1608	TG 1608	187 006 01	131 x 73 x 2
TG MPS-1612	TG 1612	187 007 01	131 x 113 x 2
TG MPS-2012	TG 2012	187 008 01	171 x 113 x 2
TG MPS-2015	TG 2015	187 009 01	171 x 143 x 2
TG MPS-2516	TG 2516	187 012 01	220 x 152 x 2
TG MPS-3023	TG 3023	187 013 01	270 x 220 x 2



Standard rail NS 35

Product	Enclosure	Order-No.:
NS 35-66	TG 88	198 068 01
NS 35-104	TG 1208	198 107 01
NS 35-108	TG 1212	198 110 01
NS 35-144/2	TG 1608, TG 1612	198 146 01
NS 35-184	TG 2012	198 186 01
NS 35-168	TG 2015	198 170 01
NS 35-220	TG 2516	198 222 01
NS 35-283,5	TG 3023	198 285 01

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



Standard rail TS 35

Product	Enclosure	Order-No.:
TS 15-66	TG 88	197 069 01
TS 15-104	TG 1208	197 107 01
TS 15-108	TG 1212	197 110 01
TS 15-144	TG 1608, TG 1612	197 146 01
TS 15-184	TG 2012	197 186 01
TS 15-168	TG 2015	197 170 01
TS 15-220	TG 2516	197 222 01
TS 15-283,5	TG 3023	197 285 01

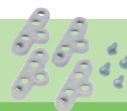
Standard rail according to DIN EN 60715, 15 x 5 width



Interior hinge set



Product	Order-No.
TG ISS für TG 1612, TG 2012, TG 2015, TG 2516, TG 3023	182 001 01
Interior hinge set for retrofitting the housing cover to a hinged door, incl. 2 hinges, fixing screws and drilling template	



External fixing lugs kit

Product	Order-No.
TG ABL for all TG Enclosures, Set = 4 pieces	182 002 01
External fixing lugs set, made of plastic	



TG PST1



Product	Order-No.
TG PST1 for TG 88, TG 1208, TG 1212, TG 1608	182 004 01
TG PST2 for TG 1612, TG 2012, TG 2015, TG 2516, TG 3023	182 005 01



Sealing set

Product	Order-No.
TG DVS-42 (Set =10 pieces) for TG 88, TG 1208, TG 1212, TG 1608	182 006 01
TG DVS-57 (Set =10 pieces) for TG 1612, TG 2012, TG 2015, TG 2516, TG 3023	182 007 01



	
Hole cutter	
Product	Order-No.
LFR through opening: M16-32, drill hole: 16.5-32.5 mm	195 995 01



TG ABS/TG PC IN APPLICATION

NEW!



GEOS INDUSTRIAL AND OUTDOOR ENCLOSURES |
PERFECT SOLUTION FOR HARSH CONDITIONS



GEOS - Industrial and Outdoor Enclosure

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 guarantee 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 enclosure. Certifications for the most varied applications give the user confidence at all times.





GEOS Safety

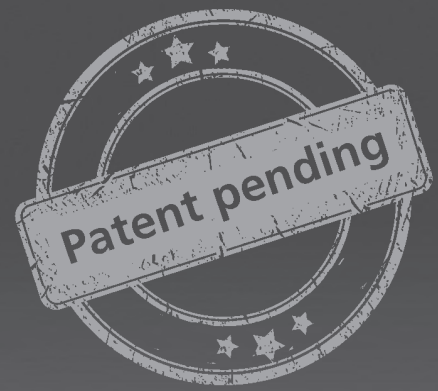
- Empty enclosures tested according to **IEC 61439** with comprehensive certifications according to
UL 50
UL 50E
CSA 22.2
- UV and corrosion resistant
- High impact resistance

GEOS Variety

- 3 Base sizes
- 2 Enclosure heights
- Grey or transparent cover
- Different cover closure systems
- 10 Variants

GEOS Application

- Control, energy and communications technology
- Faster, cleaner, and easier to process than polyester or steel enclosures
- Suitable for indoor and outdoor installation
- Optimised for industrial and outdoor applications



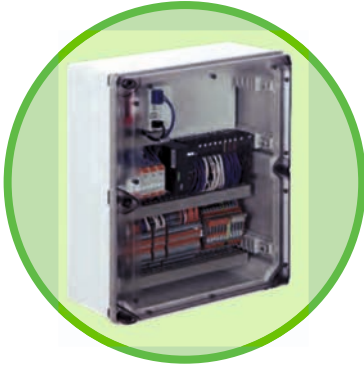
GEOS Sealing principle

- Unique enclosure design with lasting protection against moisture ingress
- Diverts moisture, e.g. rain or snow, to the backside of the enclosure
- Overlapping cover
- Drainage channels along the sides of the enclosure
- Elastomer seal
- Optimum protection of the seal against environmental influences
- Unrestricted use in the most varied environments
- Optimised for outdoor applications



All-round protection through "Drain Protect"

- ✦ Lasting protection against moisture



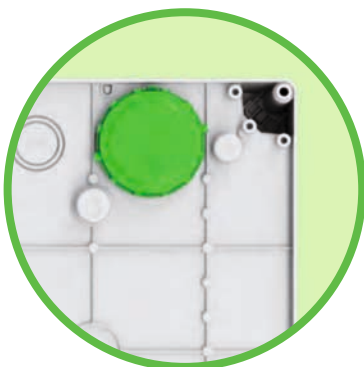
Customised solutions

- ✦ Drilling and milling
- ✦ Customised printing
- ✦ Wiring
- ✦ Customised packaging



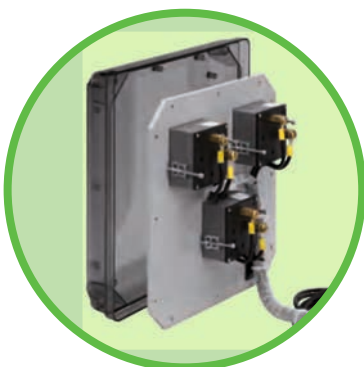
Optimised box dimensions

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



Protection against condensate water

- ✦ Preparation for BEL Air M40 ventilation elements IP65 protection class



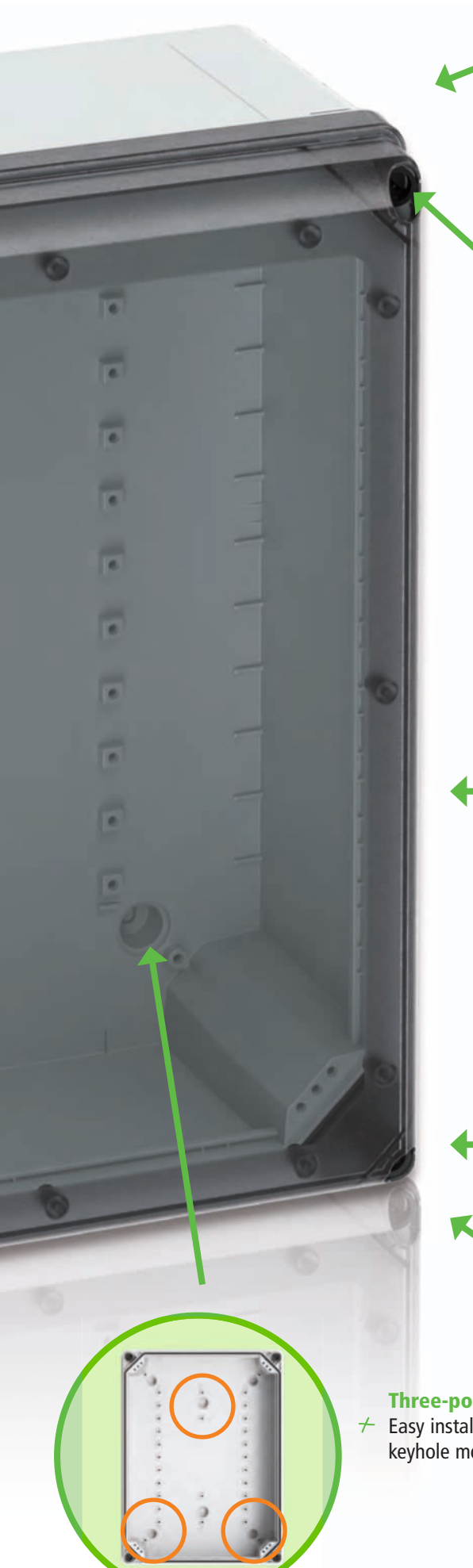
Mounting plug in the cover

- ✦ Base for installing components, e.g. PCB and mounting plates, standard rails, support systems



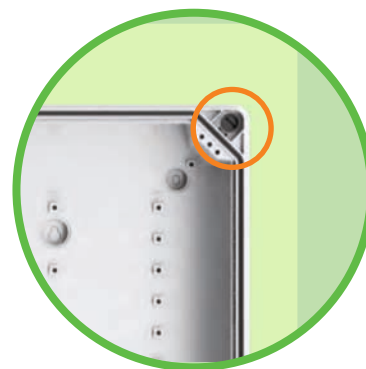
Lockable with lead seal

- ✦ Protects against unauthorised access



Varied closure systems

- ✦ Free choice between screw closure and quick-release closure



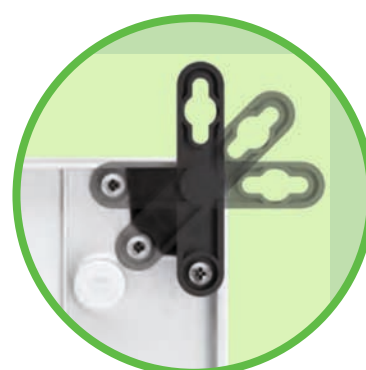
Mounting outside the sealing area

- ✦ UL-compliant installation
- ✦ Installation of preassembled enclosure



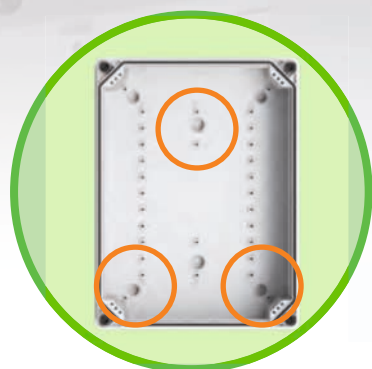
Plastic enclosure

- ✦ For fast and easy machining with low weight
- ✦ Extremely durable: No corrosion after mechanical processing



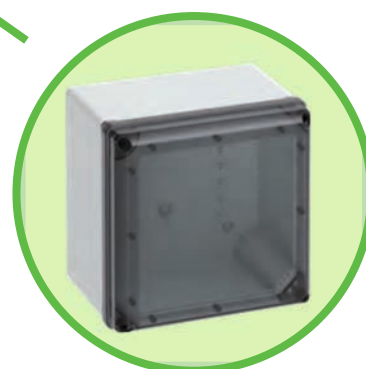
Optional external fastening

- ✦ Installation of assembled enclosures
- ✦ Available in 2 heights (10 mm or 40 mm)
- ✦ Clearance from wall for optimum laying of cables



Three-point mounting

- ✦ Easy installation via keyhole mounting



Cover variants

- ✦ Grey or transparent
- ✦ Suitable for 1,000 V AC / 1.500 DC without additional measures



Cover: Grey
Box: Grey



Cover: Transparent
Box: Grey

Enclosure	Order-No.	Enclosure	Order-No.
GEOS-L 3030-18-o	700 433 01	GEOS-L 3030-18-to	701 433 01
GEOS-L 3030-22-o	700 733 01	GEOS-L 3030-22-to	701 733 01
GEOS-L 3040-18-o	700 434 01	GEOS-L 3040-18-to	701 434 01
GEOS-L 3040-22-o	700 734 01	GEOS-L 3040-22-to	701 734 01
GEOS-L 4050-22-o	700 745 01	GEOS-L 4050-22-to	701 745 01

Enclosure height:

18 = 180 mm

22 = 226 mm

GEOS - L - 3040 - 18 - to

Enclosure size

3030 = 300 x 300 mm

3040 = 300 x 400 mm

4050 = 400 x 500 mm

Cover:

o = smooth side walls,
grey cover

to = smooth side walls,
transparent cover



Mounting plate
Insulating material

Product	Enclosure	Order-No.	Dimensions (mm)
GEOS MPI-3030	GEOS 3030-18 /-22	720 003 01	250 x 250 x 5
GEOS MPI-3040	GEOS 3040-18 /-22	720 004 01	250 x 350 x 5
GEOS MPI-4050	GEOS 4050-22	720 005 01	350 x 450 x 5

Mounting plate made from insulating material, incl. fixing screws, for bottom mounting



Mounting plate
Stainless steel

Product	Enclosure	Order-No.	Dimensions (mm)
GEOS MPS-3030	GEOS 3030-18 /-22	720 013 01	250 x 250 x 2
GEOS MPS-3040	GEOS 3040-18 /-22	720 014 01	250 x 350 x 2
GEOS MPS-4050	GEOS 4050-22	720 015 01	350 x 450 x 2

Mounting plate made of sheet steel, incl. fixing screws, for bottom mounting



Mounting plate
Insulating material

Product	Enclosure	Order-No.	Dimensions (mm)
GEOS-L EP-3030	GEOS-L 3030-18 /-22	721 013 01	276 x 276 x 4
GEOS-L EP-3040	GEOS-L 3040-18 /-22	721 014 01	276 x 376 x 4
GEOS-L EP-4050	GEOS-L 4050-22	721 015 01	376 x 476 x 4

Mounting plate made from insulating material, incl. fixing screws



Mounting holder
Set= 4 pieces

Product	Enclosure	Order-No.	Number mounting heights
GEOS MH-18	GEOS 3030-18 GEOS 3040-18	720 022 01	3
GEOS MH-22	GEOS 3030-22 GEOS 3040-22 GEOS 4050-22	720 023 01	6

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



Standard rail

Product	Enclosure	Dimension	Order-No.
GEOS NS 35-250	300 mm	250 mm	720 031 01
GEOS NS 35-350	400 mm	350 mm	720 032 01
GEOS NS 35-450	500 mm	450 mm	720 033 01

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



Standard rail

Product	Enclosure	Dimension	Order-No.
GEOS NS 35-327	400 mm	327 mm	720 034 01

Standard rail acc. to DIN EN 60715, 35 x 7.5 mm, incl. fixing screws, for bottom mounting, GEOS 4050 (central position)



Carrying frame 2

Product	Enclosure side	TE	Order-No.
GEOS TGS 3040-2	400 mm	2 x 12	720 062 01
GEOS TGS 4050-3	500 mm	3 x 18	720 064 01
GEOS TGS 4050-2	400 mm	2 x 21	720 065 01

Carrying frame with standard rails 35 mm



Shock protection

Product	Enclosure side	TE	Order-No.
GEOS-L BSA 3030-1	300 mm	1 x 12	721 051 01
GEOS-L BSA 3040-2	300 mm	2 x 12	721 052 01
GEOS-L BSA 3040-1	400 mm	1 x 18	721 053 01
GEOS-L BSA 4050-3	400 mm	3 x 18	721 054 01
GEOS-L BSA 4050-2	500 mm	2 x 21	721 055 01

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

 Partition wall Plastic, incl. support			
Product	Enclosure side	Enclosure	Order-No.
GEOS-L TW 30-18	300 mm	GEOS-L 3030-18 GEOS-L 3040-18	721 032 01
GEOS-L TW 30-22	300 mm	GEOS-L 3030-22 GEOS-L 3040-22	721 033 01
GEOS-L TW 40-18	400 mm	GEOS-L 3040-18	721 034 01
GEOS-L TW 40-22	400 mm	GEOS-L 3040-22 GEOS-L 4050-22	721 035 01
GEOS-L TW 50-22	500 mm	GEOS-L 4050-22	721 036 01

 Design plate Stainless steel V2A			
Product	Dimensions (mm)	Enclosure	Order-No.
GEOS DP-3030	293 x 293 x 2 mm	GEOS 3030-18/-22	720 130 01
GEOS DP-3040	293 x 393 x 2 mm	GEOS 3040-18/-22	720 131 01
GEOS DP-4050	393 x 493 x 2 mm	GEOS 4050-22	720 132 01

 Cover screw set		
Product	Enclosure	Order-No.
GEOS-L DS	GEOS-L 3030/3040	721 040 01
As replacement need		

 Cover screw set		
Product	Enclosure	Order-No.
GEOS-L 4050 DS	GEOS-L 4050	721 041 01
As replacement need		

 Cover screw set		
Product	Enclosure	Order-No.
GEOS-L SV	GEOS-L 3030/3040	721 042 01
Cover screw set for empty enclosure GEOS-L 3030/3040 as replacement need		

 Cover screw set		
Product	Enclosure	Order-No.
GEOS-L 4050 SV	GEOS-L 4050	721 043 01
Cover screw set for empty enclosure GEOS-L 3030/3040 as replacement need		

 External fixing lugs		
Product	Wall clearance	Order-No.
GEOS ABL-10	10 mm	720 020 01
GEOS ABL-40	40 mm	720 021 01

 Screw clamp set		
Product	Mast diameters	Order-No.
SRS 60-90	60 - 90 mm	720 040 01
SRS 90-150	90 - 150 mm	720 041 01
SRS 150-210	150 - 210 mm	720 042 01

 Mast clamp set		
Product	Enclosure side	Order-No.
GEOS MSS-30	300 mm	720 050 01
GEOS MSS-40	400 mm	720 051 01
GEOS MSS-50	500 mm	720 052 01

 Ventilation elements - Set	
Product	Order-No.
BEL Air M40	263 440 01

 Hole cutter	
Product	Order-Nr.
LFR M40	195 400 01
LFR M50	195 500 01
LFR M63	195 630 01

 Hole cutter	
Product	Order-Nr.
LFR	195 995 01

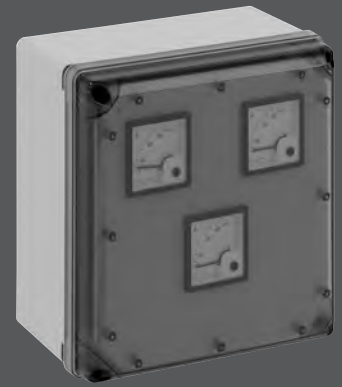
 Cable screw couplings			
Product	Thread length/ mm	Sealing area/ mm	Order-No.
KVR M12 LG	12	2 - 6,5	248 412 01
KVR M16 LG	12	4 - 10,0	248 416 01
KVR M20 LG	15	6 - 12,0	248 420 01
KVR M25 LG	15	9 - 16,0	248 425 01
KVR M32 LG	15	11 - 21,0	248 432 01
KVR M40 LG	15	16 - 28,0	248 440 01
KVR M50 LG	18	21 - 34,5	248 450 01
KVR M63	17	30 - 44,5	247 463 01
Cable screw couplings with strain relief, M_ x 1.5 mm, without lock nut, polyamide, grey			

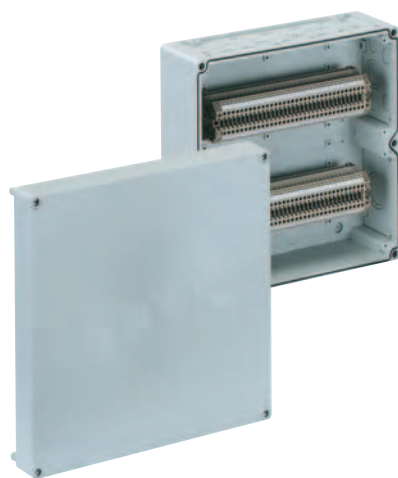
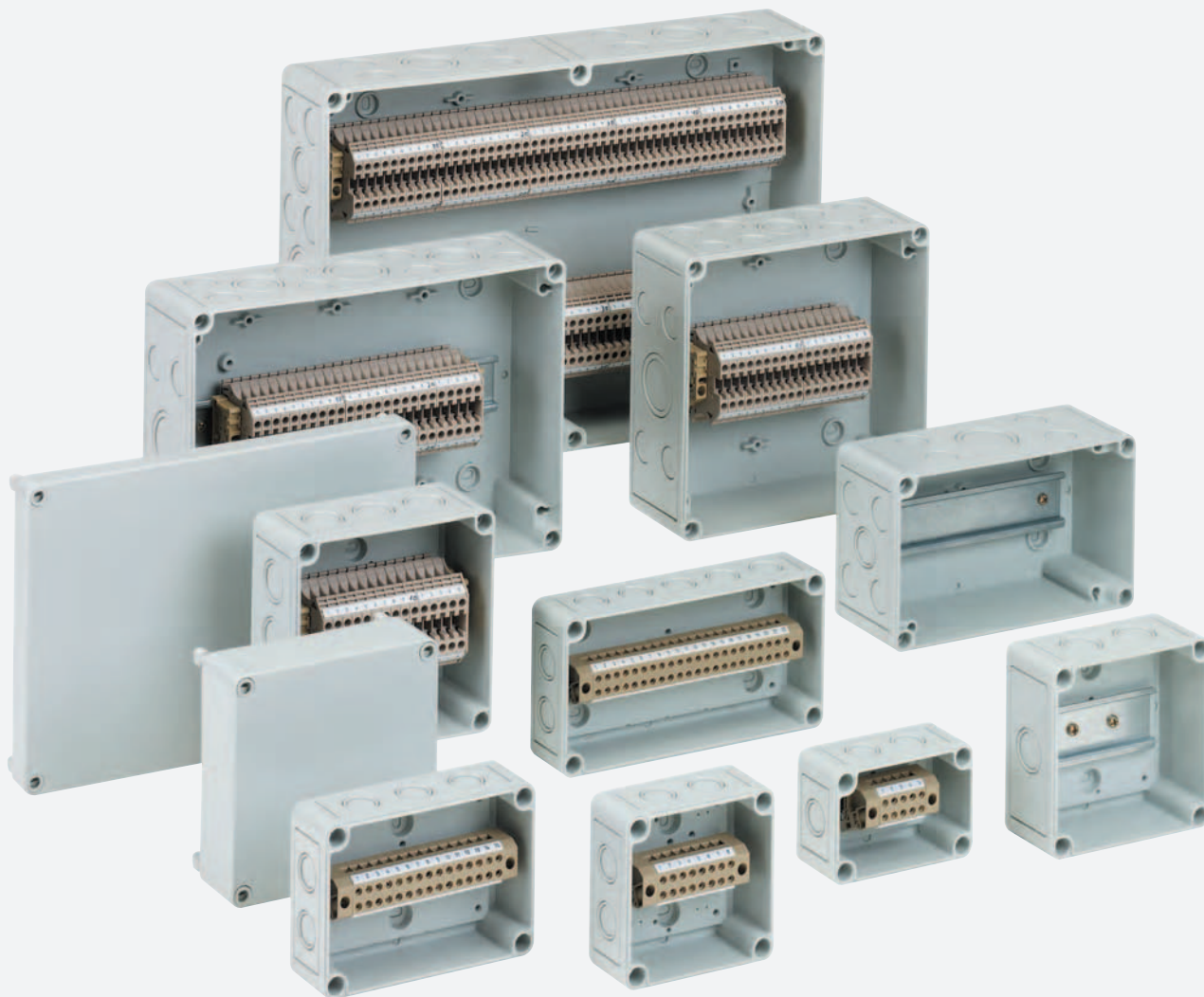
 Cable screw couplings			
Produkt	Thread length/mm	Sealing area/ mm	Order-No.
KVR M12 LG - MGM	12	2 - 6,5	229 412 01
KVR M16 LG - MGM	12	4 - 10,0	229 416 01
KVR M20 LG - MGM	15	6 - 12,0	229 420 01
KVR M25 LG - MGM	15	9 - 16,0	229 425 01
KVR M32 LG - MGM	15	11 - 21,0	229 432 01
KVR M40 LG - MGM	15	16 - 28,0	229 440 01
KVR M50 LG - MGM	18	21 - 34,5	229 450 01
KVR M63 - MGM	17	30 - 44,5	227 463 01
Cable screw couplings with strain relief, M_ x 1.5 mm, with lock nut, polyamide, grey			

 Cable screw couplings			
Produkt	Thread length/mm	Sealing area/ mm	Order-No.
KVR M12 LG - MGM/sw	12	2 - 6,5	229 012 01
KVR M16 LG - MGM/sw	12	4 - 10,0	229 016 01
KVR M20 LG - MGM/sw	15	6 - 12,0	229 020 01
KVR M25 LG - MGM/sw	15	9 - 16,0	229 025 01
KVR M32 LG - MGM/sw	15	11 - 21,0	229 032 01
KVR M40 LG - MGM/sw	15	16 - 28,0	229 040 01
KVR M50 LG - MGM/sw	18	21 - 34,5	229 050 01
Cable screw couplings with strain relief, M_ x 1.5 mm, with lock nut, polyamide, black			

 Lock nut		
Product	Thread length/ mm	Order-No.
GMU PA M12	M12 x 1,5	208 412 01
GMU PA M16	M16 x 1,5	208 416 01
GMU PA M20	M20 x 1,5	208 420 01
GMU PA M25	M25 x 1,5	208 425 01
GMU PA M32	M32 x 1,5	208 432 01
GMU PA M40	M40 x 1,5	208 440 01
GMU PA M50	M50 x 1,5	208 450 01
GMU PA M63	M63 x 1,5	208 463 01
Lock nut for metric twist nipples and cable screw couplings, polyamide, grey		







- Empty or assembled
- Compact design or with plenty of space with up to 136 terminals
- RK terminal block housings offer plenty of room for multiple solutions

All Terminal block housing can be deliver in polycarbonate.

Special solutions on request!

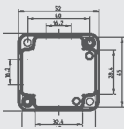
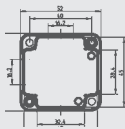


Attachment bushes

Product	Sealing area/ mm	Order-No.
AST M16	6 - 10	230 416 01
AST M20	8 - 13,5	230 420 01
AST M25	9 - 18,5	230 425 01
AST M32	13 - 23	230 432 01
AST M40	17 - 30	230 440 01

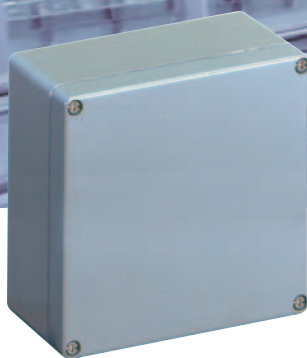


TERMINAL BLOCK HOUSINGS |

							
RKKi		Dimensions in millimeter		RKi		Dimensions in millimeter	
Enclosure	Order-No.			Enclosure	Order-No.		
RKKi 4/05-5x4 ²	635 404 01	94 x 65 x 57		RKi 4/07-L	639 907 01	110 x 110 x 90	
RKKi 4/07-7x4 ²	630 407 01	94 x 94 x 57		RKi 4/07-7x4 ²	635 007 01	110 x 110 x 90	
RKKi 4/08-8x4 ²	636 404 01	94 x 94 x 57		RKi 4/07 SL-7x4 ²	630 007 01	110 x 110 x 90	
RKKi 4/10-10x4 ²	637 404 01	94 x 94 x 57		RKi 4/12-L	633 906 01	130 x 130 x 75	
RKKi 4/12-12x4 ²	630 404 01	110 x 110 x 57		RKi 4/12-12x4 ²	635 012 01	130 x 130 x 75	
RKKi 4/12 XL-12x4 ²	630 412 01	130 x 94 x 57		RKi 4/12 SL-12x4 ²	630 012 01	130 x 130 x 75	
RKKi 4/15-15x4 ²	632 404 01	130 x 94 x 57		RKi 4/18 K-L	635 912 01	180 x 110 x 90	
RKKi 4/18-18x4 ²	630 418 01	180 x 94 x 57		RKi 4/18 KSL-18x4 ²	630 018 01	180 x 110 x 90	
RKKi 4/22-22x4 ²	634 404 01	180 x 94 x 57		RKi 4/18 K-18x4 ²	635 018 01	180 x 110 x 90	
				RKi 4/18-L	636 912 01	182 x 180 x 90	
				RKi 4/18-18x4 ²	635 019 01	182 x 180 x 90	
				RKi 4/18 SL-18x4 ²	630 019 01	182 x 180 x 90	
				RKi 4/25-L	635 916 01	254 x 180 x 90	
				RKi 4/25-25x4 ²	635 025 01	254 x 180 x 90	
				RKi 4/25 SL-25x4 ²	630 025 01	254 x 180 x 90	
				RKi 4/34-L	635 917 01	254 x 180 x 90	
				RKi 4/34-34x4 ²	635 034 01	254 x 180 x 90	
				RKi 4/34 SL-34x4 ²	630 034 01	254 x 180 x 90	
				RKi 4/50-L	636 950 01	360 x 254 x 111	
				RKi 4/50-50x4 ²	635 050 01	360 x 254 x 111	
				RKi 4/50 SL-50x4 ²	630 050 01	360 x 254 x 111	
				RKi 4/100-L	636 922 01	360 x 254 x 111	
				RKi 4/100-100x4 ²	635 100 01	360 x 254 x 111	
				RKi 4/100 SL-100x4 ²	630 100 01	360 x 254 x 111	

			
Cable gland			
Product	Thread length/ mm	Sealing area/ mm	Order-No.
KVR M12-MGM	8	2 - 6,5	227 412 01
KVR M16-MGM	8	4 - 10,0	227 416 01
KVR M20-MGM	9	6 - 12,0	227 420 01
KVR M20-GDB/MGM	9	7 - 14,0	227 421 01
KVR M25-MGM	11	9 - 16,0	227 425 01
KVR M32-MGM	11	11 - 21,0	227 432 01
KVR M40-MGM	11	16 - 28,0	227 440 01
KVR M50-MGM	13	21 - 34,5	227 450 01
KVR M63-MGM	17	30 - 44,5	227 463 01
Cable gland with strain relief, polyamide, M ₂ x 1.5 mm, with lock nut			

		
Double-membrane seals		
Product	Sealing area/ mm	Order-No.
DMS M16	5 - 9	260 416 01
DMS M20	7 - 12	260 420 01
DMS M25	9 - 16	260 425 01
DMS M32	14 - 21	260 432 01
DMS M40	19 - 28	260 440 01



- 8 enclosure sizes
up to 388 x 270 mm
- With powder coating to prevent corrosion
- Colour: silver grey, similar to RAL 7001
- Material: Aluminium
- Effective protection against electromagnetic interference (EMI) and electrostatic discharges (ESD)
- Compatible with TK components such as mounting plates or standard rails
- High level of chemical resistance
- Special solutions on request!

IP66

IK09



Industrial
quality

EMPTY ENCLOSURES | ALS



- 16 standard enclosure sizes up to 330 x 230 mm
- With powder coating to prevent corrosion
- Colour: silver grey, similar to RAL 7001
- Material: Aluminium
- Effective protection against electromagnetic interference (EMI) and electrostatic discharges (ESD)

- An even higher level of protection can be achieved by using conductive sealings (available on request) between the components of the enclosure
- High level of chemical resistance
- Special solutions on request!

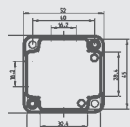


EMPTY ENCLOSURES | AL



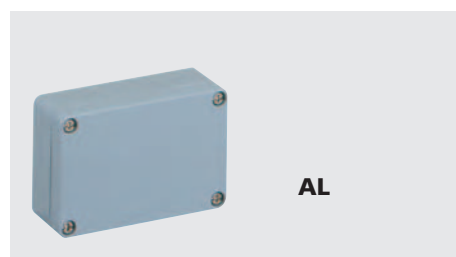


ALS

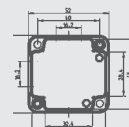


**Dimensions
in millimeter**

Enclosure	Order-No.	
ALS 99-6	151 001 01	89 x 89 x 64
ALS 1212-6	151 003 01	119 x 119 x 64
ALS 1414-7	151 004 01	139 x 139 x 73
ALS 1515-8	151 005 01	154 x 154 x 81
ALS 2011-9	151 006 01	199 x 114 x 95
ALS 2020-9	151 007 01	199 x 199 x 95
ALS 2720-9	151 008 01	273 x 205 x 95
ALS 3927-12	151 012 01	388 x 270 x 117



AL

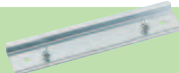


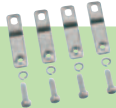
**Dimensions
in millimeter**

Enclosure	Order-No.	
AL 55-3	150 001 01	50 x 45 x 30
AL 66-3	150 002 01	64 x 58 x 34
AL 88-6	150 005 01	80 x 75 x 57
AL 1006-3	150 003 01	90 x 64 x 34
AL 1010-8	150 008 01	100 x 100 x 81
AL 1212-8	150 009 01	122 x 120 x 81
AL 1308-6	150 006 01	125 x 80 x 57
AL 1506-3	150 004 01	150 x 64 x 34
AL 1616-9	150 011 01	160 x 160 x 91
AL 1808-6	150 007 01	175 x 80 x 57
AL 2212-8	150 010 01	220 x 120 x 81
AL 2320-11	150 014 01	230 x 200 x 111
AL 2616-9	150 012 01	260 x 160 x 91
AL 2823-11	150 015 01	280 x 230 x 111
AL 3323-11	150 016 01	330 x 230 x 111
AL 3616-9	150 013 01	360 x 160 x 90

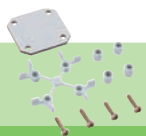
 Mounting plate Stainless steel			
Product	Enclosure	Order-No.	Dimensions in (mm)
AL MPS-88	AL 88	155 005 01	64 x 69 x 1,5
AL MPS-1010	AL 1010	155 008 01	88 x 88 x 1,5
AL MPS-1212	AL 1212	155 009 01	107 x 109 x 1,5
AL MPS-1308	AL 1308	155 006 01	69 x 114 x 1,5
AL MPS-1616	AL 1616	155 011 01	143 x 145 x 1,5
AL MPS-1808	AL 1808	155 007 01	69 x 164 x 1,5
AL MPS-2212	AL 2212	155 010 01	107 x 207 x 1,5
AL MPS-2330	AL 2320	155 014 01	184 x 213 x 1,5
AL MPS-2616	AL 2616	155 012 01	143 x 244 x 1,5
AL MPS-2823	AL 2823	155 015 01	214 x 264 x 1,5
AL MPS-3323	AL 3323	155 016 01	213 x 314 x 1,5
AL MPS-3616	AL 3616	155 013 01	143 x 345 x 1,5

 External hinge set		
Product	Enclosure	Order-No.
AL ASS	AL/ALR 1010, 1212, 1616, 2212, 2320, 2616, 2823, 3323, 3616 ALS 1515, 2011, 2020, 2720, 2927	154 210 01
For retrofitting the enclosure cover to hinged door. Incl. 2 hinges, fixing screws, masking-off strips and drilling template		

 Din Rail NS 35			
Produkt	Enclosure	Lenght	Order-No.
AL NS 35-110	AL 1212	110 mm	162 009 01
AL NS 35-145	AL 1616	145 mm	162 011 01
AL NS 35-186	AL 2320	186 mm	162 014 01
AL NS 35-208	AL 2212	208 mm	162 010 01
AL NS 35-245	AL 1616	245 mm	162 012 01
AL NS 35-266	AL 2823	266 mm	162 015 01
AL NS 35-316	AL 3323	316 mm	162 016 01
AL NS 35-345	AL 3616	345 mm	162 013 01
Standard rail acc. to DIN EN 60715, 35 x 7,5 mm, 35 mm			

 External attachment set		
Product	Enclosure	Order-No.
AL ALS-kl	AL/ALR 88, 1006, 1010, 1308, 1506, 1808 ALS 99/1212	154 004 01
AL ALS-gr	AL/ALR 1212, 1616, 2212, 2320, 2616, 2823, 3323, 3616 ALS 1414, 1515, 2011, 2020, 2720, 3927	154 006 01

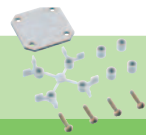
EMPTY ENCLOSURES | ACCESSORIES ALS/AL



Mounting plate Insulating material

Product	Enclosure	Order-No.	Dimensions (mm)
TK MPI-77	ALS 99	195 001 01	45 x 45 x 2,5
TK MPI-99	ALS 1212	195 003 01	74 x 74 x 2,5
TK MPI-1111	ALS 1414	195 004 01	90 x 90 x 2,5
TK MPI-1313	ALS 1515	195 005 01	110 x 110 x 2,5

Mounting plate made from insulating material, incl. fixing screws and spacers



Mounting plate Steel

Product	Enclosure	Order-No.	Dimensions (mm)
TK MPS-77	ALS 99	197 001 01	45 x 45 x 2,5
TK MPS-99	ALS 1212	197 003 01	74 x 74 x 2,5
TK MPS-1111	ALS 1414	197 004 01	90 x 90 x 2,5
TK MPS-1313	ALS 1515	197 005 01	110 x 110 x 2,5

Mounting plate made from steel galvanized, incl. fixing screws and spacers



Standard rail NS 35

Product	Enclosure	Order-No.
NS 35-81	ALS 1414/1515/2011	198 081 01
NS 35-106	ALS 1414/1515	198 106 01
NS 35-144	ALS 2011/2020	198 144 01
NS 35-216	ALS 2720/3927	198 216 01
NS 35-336	ALS 3927	198 336 01

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



Ventilation seal

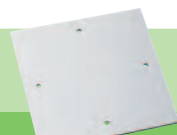
Product	Colour	Order-No.
BST M20	grey	262 420 01
BST M20/sw	black	262 020 01



Cable gland

Product	Thread length/ mm	Sealing area/mm	Order-No.
KVR M12	8	2 - 6,5	247 412 01
KVR M16	8	4 - 10,0	247 416 01
KVR M20	9	6 - 12,0	247 420 01
KVR M20-GDB	9	7 - 14,0	247 421 01
KVR M25	11	9 - 16	247 425 01
KVR M32	11	11 - 21,0	247 432 01
KVR M40	11	16 - 28,0	247 440 01
KVR M50	13	21 - 34,5	247 450 01
KVR M63	17	30 - 44,5	247 463 01

Cable gland with strain relief, polyamide, M_x x 1.5 mm, without lock nut



Mounting plate Insulating material

Product	Enclosure	Order-No.	Dimensions (mm)
TK MPI-1811	ALS 2011	195 006 01	150 x 90 x 2,5
TK MPI-1818	ALS 2020	195 007 01	150 x 150 x 2,5
TK MPI-2518	ALS 2720	195 008 01	220 x 150 x 2,5
TK MPI-3625	ALS 3927	195 012 01	331 x 220 x 2,5

Mounting plate made from insulating material, incl. fixing screws



Mounting plate Steel

Product	Enclosure	Order-No.	Dimensions (mm)
TK MPS-1811	ALS 2011	197 006 01	150 x 90 x 2
TK MPS-1818	ALS 2020	197 007 01	150 x 150 x 2
TK MPS-2518	ALS 2720	197 008 01	220 x 150 x 2
TK MPS-3625	ALS 3927	197 012 01	331 x 220 x 2

Mounting plate made from steel galvanized, incl. fixing screws



Standard rail TS 15

Product	Enclosure	Order-No.
TS 15-49,5	ALS 99	197 049 01
TS 15-80	ALS 1212/1414/1515/2011	197 080 01
TS 15-92	ALS 1414/1515/2011	197 092 01
TS 15-111	ALS 1414/1515	197 111 01
TS 15-154	ALS 2020/2720	197 154 01

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



Double-membrane seals

Product	Sealing area/ mm	Order-No.
DMS M16	5 - 9	260 416 01
DMS M20	7 - 12	260 420 01
DMS M25	9 - 16	260 425 01
DMS M32	14 - 21	260 432 01
DMS M40	19 - 28	260 440 01



Attachment bushes

Product	Sealing area/ mm	Order-No.
AST M16	6 - 10	230 416 01
AST M20	8 - 13,5	230 420 01
AST M25	9 - 18,5	230 425 01
AST M32	13 - 23	230 432 01
AST M40	17 - 30	230 440 01

Attachment bushes with open sealing membrane, no lock nuts required



- 4 basic enclosures up to 600 x 300 mm and two different cover heights
- Box: optionally polystyrene (AKL) or glass-fibre-reinforced polycarbonate (AKi-L) similar to RAL 7035
- Cover: grey or transparent
- Side walls with pre-embossed metric knock-out openings
- Combinable up to protection class IP 65



Industrial
quality

EMPTY ENCLOSURES | AKL/AKi-L

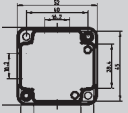


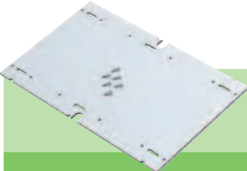
External fixing lugs kit ►

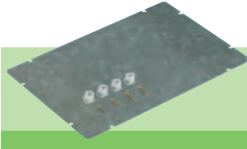


External hinges ►



 AKL Cover: Grey, Polystyrene Box: Grey, Polystyrene		 AKL Cover: Transparent, Polycarbonate Box: Grey, Polystyrene		 AKi-L Cover: Grey Polycarbonate Box: Grey Polycarbonate		 AKi-L Cover: Transparent, Polycarbonate Box: Grey Polycarbonate		Dimensions in millimeter 
Enclosure	Order-No.	Enclosure	Order-No.	Enclosure	Order-No.	Enclosure	Order-Nr.	
AKL 1-g	740 401 01	AKL 1-t	744 001 01	AKi 1-g	741 401 01	AKi 1-t	745 001 01	300 x 150 x 132
AKL 2-g	740 402 01	AKL 2-t	744 002 01	AKi 2-g	741 402 01	AKi 2-t	745 002 01	300 x 300 x 132
AKL 2-gh	742 902 01	AKL 2-th	746 902 01	AKi 2-gh	743 902 01	AKi 2-th	747 902 01	300 x 300 x 209
AKL 3-g	740 403 01	AKL 3-t	744 003 01	AKi 3-g	741 403 01	AKi 3-t	745 003 01	300 x 450 x 132
AKL 3-gh	742 903 01	AKL 3-th	746 903 01	AKi 3-gh	743 903 01	AKi 3-th	747 903 01	300 x 450 x 209
AKL 4-g	740 404 01	AKL 4-t	744 004 01	AKi 4-g	741 401 01	AKi 4-t	745 004 01	300 x 600 x 132
AKL 4-gh	742 904 01	AKL 4-th	746 904 01	AKi 4-gh	743 904 01	AKi 4-th	747 904 01	300 x 600 x 209

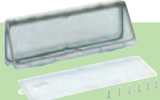
 Mounting plate Insulation material			
Product	Enclosure	Order-No.	Dimensions (mm)
AK MPI 1	AKL/AKi 1-4	795 001 01	240 x 112 x 4
AK MPI 2	AKL/AKi 2-4	795 002 01	240 x 240 x 4
AK MPI 3	AKL/AKi 3-4	795 003 01	240 x 390 x 4
AK MPI 4	AKL/AKi 4	795 004 01	240 x 540 x 4
Mounting plate made from insulating material, incl. fixing screws			

 Mounting plate Stainless steel			
Product	Enclosure	Order-No.	Dimensions (mm)
AK MPS 2	AKL/AKi 2-4	795 012 01	240 x 240 x 2
AK MPS 3	AKL/AKi 3-4	795 013 01	240 x 390 x 2
AK MPS 4	AKL/AKi 4	795 014 01	240 x 540 x 2
Mounting plate made from steel galvanized, incl. fixing screws			

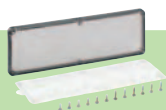
 Standard rail NS 35			
Product	Enclosure	Length	Order-No.
AL NS 35-250	AKL/AKi-L	250 mm	162 009 01
AL NS 35-216/3	AKL/AKi-L	216 mm	162 011 01
AL NS 35-406	AKL/AKi-L	406 mm	162 014 01
AL NS 35-556	AKL/AKi-L	556 mm	162 010 01
Standard rail acc. to DIN EN 60715, 35 x 7.5, width 35 mm			

 Standard support rails		
Product	Height (mm)	Order-No.
TR NS35-20	20	795 020 01
TR NS35-34	34,5	795 034 01
TR NS35-42	42,5	795 042 01
TR NS35-58	58,5	795 058 01
TR NS35-64	64	795 064 01
TR NS35-91	91	795 091 01
Carrier for standard rails acc. to DIN EN 60715, 35 x 7.5 mm, Set = 10 pcs.		

 Screw set	
Product	Order-No.
SR NS35	795 413 01
Fixing screws for 1 TR NS35-xx, set of 30 pieces	

 KF 12 Hinged window		
Product	Order-No.	Dimensions (mm)
KF 12	567 412 01	228 x 80
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		

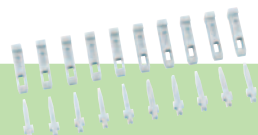
EMPTY ENCLOSURES | AKL/AKi-L



SF 12 Inspection window

Product	Order-No.	Dimensions (mm)
SF 12	568 012 01	228 x 80

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



AK Combi set

Product	Order-No.
AK KS-IP30	591 100 01

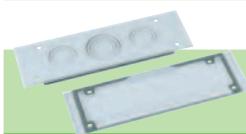
Combi set without intermediate enclosure seal, for horizontal or vertical combination of all AK enclosures (until 04/15) and AKi enclosures from 300 x 150 mm, 1 set = 10 wedge connectors



Combi set

Product	for wall thickness/mm	thread length/mm	Order-No.
KS M20	2 - 3,0	12	192 020 01
KS M25	2 - 3,0	12	192 025 01
KS M25-gro	2 - 8,0	22	192 026 01
KS M32	2 - 3,5	14	192 032 01

Combi set, for side connection of enclosures with metric entries, complete with lock nuts and intermediate wall seal inserts



AKi Anbauflansch

Product	Pre-embossings	Order-No.
AKi ABF 1	2 x M32/M40/M50 1 x M40/M50/M63	796 051 01
AKi ABF 2	smooth for self-drilling	796 050 01

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



Enclosure wall

Product	Order-No.
AK TW	797 910 01

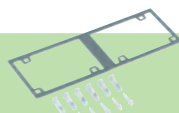
Partition wall, for installation in the components of the AK enclosure system, from AK 28 / AKL 2 / AKi 2, universal application for various enclosure heights, with break-out openings, grey



Z-wall profile

Product	Order-No.
ZPR	070 800 01

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



Combi set

Product	Order-No.
AK KS-IP65	791 001 01

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



Combi connector

Product	for wall thickness/mm	Order-No.
KST M32	1,5 - 4,0	193 032 01
KST M25-33	1,5 - 4,0	193 026 01
KST M25-17	1,5 - 4,0	193 025 01

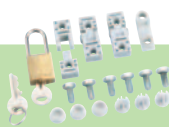
Combi connector, for connecting enclosures, thermoplastic, for wall thickness 1.5 - 4.0 mm



AK Enclosure wall

Product	Knockouts	Order-No.
AK ABF 1	2 x M32/M40/M50 1 x M40/M50/M63	795 048 01
AK ABF 2	smooth for self-drilling	795 050 01

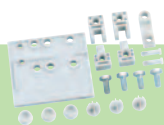
Enclosure wall, for installation in the components of the AK enclosure system (until 04/15) for 300 mm wide end walls, with cable covers as standard



Padlock kit

Product	Enclosure	Order-No.
VSG	from AKL/AKi 1	190 100 01

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



External hinge set

Product	Enclosure	Order-No.
ASS-gro	ab AKL/AKi 1	190 005 01

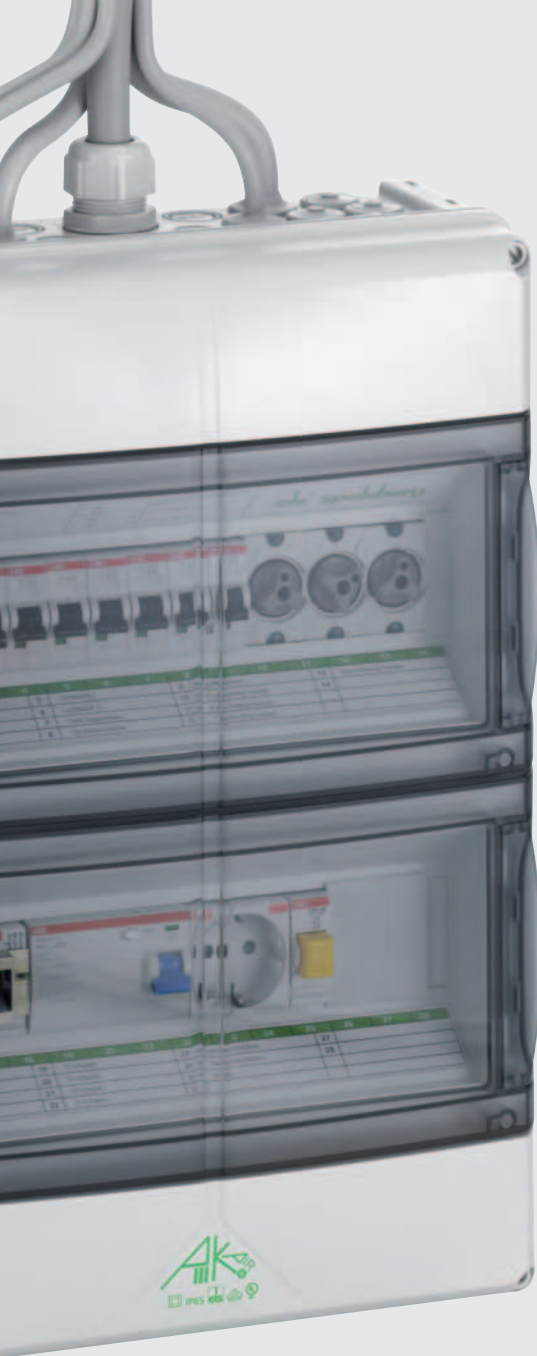
External hinge set for retrofitting the enclosure cover to hinged door, incl. 2 hinges, fixing screws, cover plugs and drilling template



AK External fixing lugs

Product	Order-No.
AK ABL-ES	793 004 01

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



Integrated Air ventilation elements



Prevention of condensate water in preservation of protection class IP65

Height-adjustable mounting rail



For serial installation devices sizes 1 to 3 and special designs

Metric knock-outs



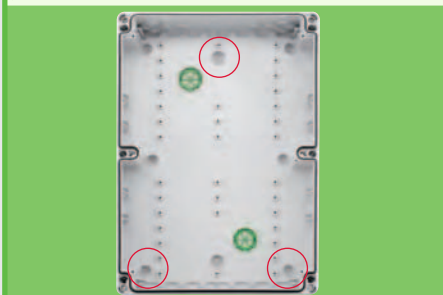
A number of knock-outs enable **variable cable entries**

150 mm rail spacing



Offers plenty of space for wiring

Three-point installation



Easy installation via keyhole mounting

Optimised hinged window



With ergonomically shaped grips for simple opening and replacement of door end stop

- One distributor for all applications
- With integrated air ventilation elements for preventing condensation

- Suitable for indoor and outdoor installation
- 14 units per row
- 1 to 5 rows

- VDE-certificated
- DLG-certificated



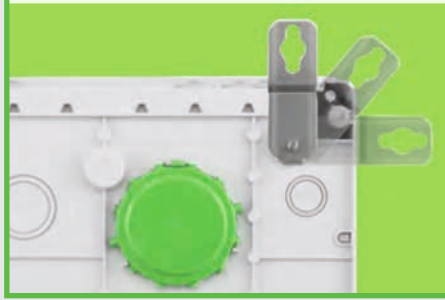
DISTRIBUTION BOARDS | AK AIR

Labelling for installation dimensions



Engraved dimensions simplify installation

Optional exterior installation



Installation via **external fixing lugs**

Free of halogen, PVC and silicone



Highly flame-retardant

Combinable



Easily lateral combination via optional **M50 combination connectors**

Lateral knock-outs M40/M50



Option for Schuko sockets

Indoor and outdoor installation



One distribution board for every application

New installation option



Installation outside of sealing area suitable for systems featuring a maximum measured insulation voltage of 1,000V AC / 1,500V DC

Lid able to be lead-sealed



Protects against unauthorised access

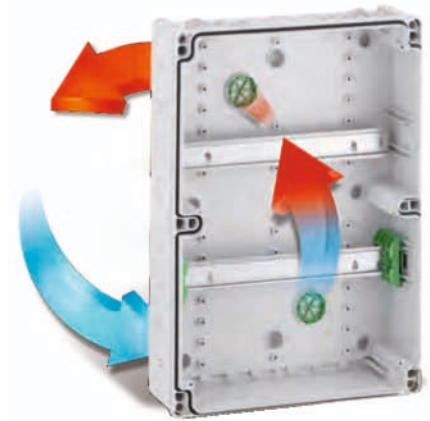
DLG focus test: Ammonia resistance



Resistance against stable air for minimum 20 years

Advantages of Air ventilation elements

- Prevention of condensate water in preservation of high protection class IP65
- High air exchange rate
- 100% pressure compensation
- 100% foreign object protection
- Maintenance-free

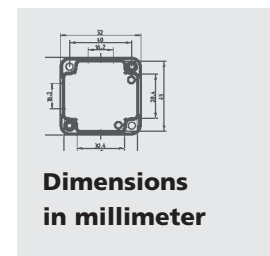




Enclosure	TE	Order-No.
AK 14	14 TE	733 414 01
AK 28	28 TE	733 428 01
AK 42	42 TE	733 442 01
AK 56	56 TE	733 456 01
AK 70	70 TE	733 470 01
AK 14 Plus	14 TE	733 614 01
AK 28 Plus	28 TE	733 628 01
AK 42 Plus	42 TE	733 642 01



Enclosure	TE	Order-No.
AK-F 14	14 TE	733 514 01
AK-F 28	28 TE	733 528 01
AK-F 42	42 TE	733 542 01
AK-F 56	56 TE	733 556 01
.....		
AK-F 14 Plus	14 TE	733 714 01
AK-F 28 Plus	28 TE	733 728 01
AK-F 42 Plus	42 TE	733 742 01



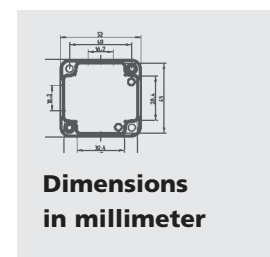
300 x 315 x 155
450 x 315 x 155
600 x 315 x 155
750 x 315 x 155
1050 x 315 x 155
450 x 315 x 155
600 x 315 x 155
750 x 315 x 155



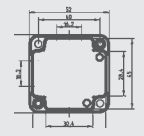
Enclosure	TE	Order-No.
AK 14 UL	14 TE	733 414 52
AK 28 UL	28 TE	733 428 52
AK 42 UL	42 TE	733 442 52
AK 56 UL	56 TE	733 456 52
AK 14 Plus UL	14 TE	733 614 52
AK 28 Plus UL	28 TE	733 628 52
AK 42 Plus UL	42 TE	733 642 52



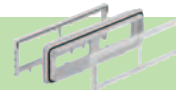
Enclosure	TE	Order-No.
AK-F 14 UL	14 TE	733 514 52
AK-F 28 UL	28 TE	733 528 52
AK-F 42 UL	42 TE	733 542 52
AK-F 56 UL	56 TE	733 556 52
AK-F 14 Plus UL	14 TE	733 714 52
AK-F 28 Plus UL	28 TE	733 728 52
AK-F 42 Plus UL	42 TE	733 742 52



300 x 315 x 155
450 x 315 x 155
600 x 315 x 155
750 x 315 x 155
450 x 315 x 155
600 x 315 x 155
750 x 315 x 155

AK 14 L 		AK-F 14 L 		AK-F/DMS 14 L 		 Dimensions in millimeter
Enclosure	Order-No.	Enclosure	Order-No.	Enclosure	Order-No.	
AK 14 L-g	733 410 01	AK-F 14 L-g	733 510 01	AK-F/DMS 14 L-g	733 310 01	315 x 300 x 147
AK 14 L-t	733 411 01	AK-F 14 L-t	733 511 01	AK-F/DMS 14 L-t	733 311 01	315 x 300 x 147

 Combination cable gland M50	
Product	Order-No.
AK3 KS M50	733 830 01
Combination cable glands M50 for the lateral connection of housings AK/AK-F 14/28/42/56/70, as well as Plus types	

 Flange for AK-F	
Product	Order-No.
AK3 KFL	733 829 01
Combination flange incl. flange connector for the front connection of AK-F housings	

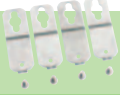
 Schuko mounting socket	
Product	Order-No.
AK3 STD Schuko® mounting socket	733 834 01
AK3 SDP Belgian / French standard	733 836 01
Mounting socket 16 A, for the lateral assembly on housings AK/AK-F 14/28/42/56/70, as well as Plus types	

 Flange for AK-F		
Product	Knock-outs	Order-No.
AK3 FL00	without	733 820 01
AK3 FL01	1 x M50/M40, 2 x M40/32, 2 x M20	733 821 01
AK3 FL02	5 x M25/M20, 4 x M20, 2 x M16	733 822 01
AK3 FL13	with insert via double membrane seals DMS M32 and opening for flange types FL13 as per standard SEN 28 09 01	733 828 01
Enclosure wall including flange connector for sealing the face of AK-F enclosures		

 Cable cover	
Product	Order-No.
AK3 KBL	733 831 01
Cable cover for the attachment to AK/AK-F 14/28/42/56/70 housings, as well as Plus types, Can be retroactively mounted on the end	

 Partition wall	
Product	Order-No.
AK3 TW	733 832 01
Divider made of plastic, suitable for the interior subdivision of AK/AK-F 14/28/42/56 housings	

 Mounting plate Insulating material	
Product	Order-No.
AK3 MPI 14 L for AK 14 L addition and empty enclosure	733 838 01
AK3 MPI With opening for AIR ventilation element, for Plus range	733 835 01
Mounting plate made from insulating material, incl. fixing screws	

 External fixing lugs	
Product	Order-No.
AK3 ABL-ES	733 833 01

 AK3 Hinged window	
Product	Order-No.
AK3 KF	733 801 01
AK3 hinged window as a replacement part for all AK/AK-F 14/28/42/56, as well as Plus types, incl. hinge and handle	

 PE/N Terminal rails			
Product	Number of poles	Clamping range	Order-No.
AK 03 PEN-S	2 x 4-poles	1x16 / 3x6 mm ²	790 204 01
AK 05 PEN-S	2 x 5-poles	2x16 / 3x6 mm ²	790 205 01
AK 09 PEN-S	2 x 7-poles	2x16 / 5x6 mm ²	790 207 01
AK 12 PEN-S	2 x 12-poles	2x16 / 10x6 mm ²	790 211 01
AK 24 PEN-S	2 x 16-poles	2x16 / 14x6 mm ²	790 218 01
AK 14/28 PEN-S	2 x 17-poles	1x25 / 4x16 / 12x6 mm ²	790 217 01
AK 42 PEN-S	2 x 25-poles	1x25 / 6x16 / 18x6 mm ²	790 225 01

 Plug clamps	
Product	Order-No.
KLS L 1/14-SL, grey	790 320 01
KLS N 1/14-SL, blue	790 321 01
KLS PE 1/14-SL, green	790 322 01

 External hinge	
Product	Order-No.
AK3 AS only for AK 14 L - addition and empty enclosure	733 837 01

 Standard rail 35 x 7,5 mm	
Product	Order-No.
AK3 NS35-14 für 14 TE	733 812 01
AK3 NS35-275 Länge 275 mm	733 813 01

 Terminal rails	
Product	Order-No.
AK 14 PEN-SL	790 317 01
Single-stage PE/N terminal rail with each, 3 screwable clamping points, 2.5 mm ² - 16 mm ² and, 14 screwless terminal points, 1.5 - 4 mm ² , incl. adapters for installation in AK and AK-F distribution boards and Plus types with Air technology	
AK 28 PEN-SL	790 327 01
Two-row PE/N terminal rail each with, 6 screwable clamping points, 2.5 mm ² - 16 mm ² and, 21 / 2 x 14 screwless clamping points 1.5 mm ² - 4 mm ² , incl. adapters for installation in AK and AK-F distribution boards and Plus types with Air technology	
AK N-SL	790 318 01
Single-stage N terminal rail, with 4 screwable clamping points 2.5 mm ² - 16 mm ² , and 28 screwless clamping points 1.5 mm ² - 4 mm ² , Following removal of the cross-connection, distribution into, 2 N potentials each with 3 screwable terminal points, 2.5 mm ² - 16 mm ² and 14 screwless, Terminal points 1.5 mm ² - 4 mm ² , incl. adapters for installation in AK and AK-F distribution boards and Plus types with Air technology	

 Lock fittings	
Product	Order-No.
AK SGA-1 Identical locks	706 102 01
AK SGA-2 Different closures, max. 10 different closures possible	706 902 01

ACCESSORIES | DISTRIBUTION BOARDS

 Combi connector		
Product	Length/mm	Order-No.
KST M32	25	193 032 01
KST M25-33	33	193 026 01
KST M25-17	17	193 025 01
Combi connector, for connecting enclosures, thermoplastic, for wall thickness 1.5 - 4.0 mm		

 Masking off strips	
Product	Order-No.
AK AS-v Width 108 mm for 6 distribution units	799 012 01
AK AS-v Width 216 mm for 12 distribution units, lockable	799 013 01
AK AS UL Width 108 mm for 6 distribution units	799 012 52
Masking off strips, to close off unused circuit-breaker positions, detachable, Grey	

 Cable gland			
Product	Tread length/ mm	Sealing area/ mm	Order-No.
KVR M12-MGM	8	2 - 6,5	227 412 01
KVR M16-MGM	8	4 - 10,0	227 416 01
KVR M20-MGM	9	6 - 12,0	227 420 01
KVR M20-GDB/MGM	9	7 - 14,0	227 421 01
KVR M25-MGM	11	9 - 16	227 425 01
KVR M32-MGM	11	11 - 21,0	227 432 01
KVR M40-MGM	11	16 - 28,0	227 440 01
KVR M50-MGM	13	21 - 34,5	227 450 01
KVR M63-MGM	17	30 - 44,5	227 463 01
Cable gland with strain relief, polyamide, M_ x 1.5 mm, with lock nut			

 Combi set			
Product	Wall thickness/mm	Thread length/mm	Order-No.
KS M20	2 - 3,0	12	192 020 01
KS M25	2 - 3,0	12	192 025 01
KS M25-gro	2 - 8,0	22	192 026 01
KS M32	2 - 3,5	14	192 032 01
Combi set, for side connection of enclosures with metric entries, complete with lock nuts and intermediate wall seal inserts			

 Ventilation seal		
Product	Colour	Order-No.
BST M20	grey	262 420 01
BST M20/sw	black	262 020 01

 Double-membrane seals		
Product	Sealing area/ mm	Order-No.
DMS M16	5 - 9	260 416 01
DMS M20	7 - 12	260 420 01
DMS M25	9 - 16	260 425 01
DMS M32	14 - 21	260 432 01
DMS M40	19 - 28	260 440 01



DISTRIBUTION BOARDS | IN APPLICATION

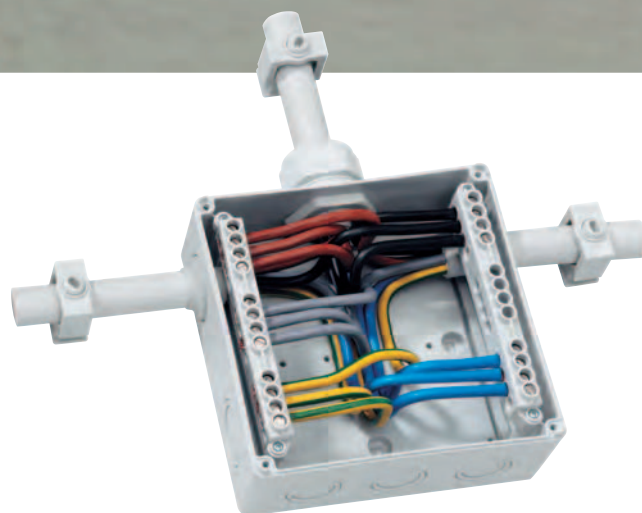




**G. SPELSBERG
JUNCTION BOX SERIES ABOX-I
WITH ACCESSORIES**

✓ **Resistance to Ammonia**
DLG Test Report 6398

- Weather resistant with and without terminals from 1,5 bis 240 mm²
- Impact-resistant and shatterproof (e.g. in sports halls)
- With red cover for identifying circuits for safety lighting
- Also suitable for use under extreme conditions



Industrial
quality

JUNCTION BOXES | Abox-i



- Simple reinstallation as the cast resin is easy to remove
- Testing in accordance with DIN EN 60 529, IP 68, 168 h to a water depth of 15 metres
- Testing in accordance with DIN VDE 0278-623, sleeve tests up to 0.6 / 1 kV
- For cable cross-sections of 1.5 to 10 mm²
- Impact-resistant and shatterproof, flame retardant
- UV- and weather-resistant

Applications & use

- Areas subject to flooding
- Washing systems
- Tunnels
- Port facilities

The **Abox XT** series can defy even the presence of standing water in extreme cases



JUNCTION BOXES | Abox XT



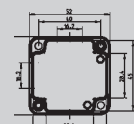
Abox-i m	Typ	Order-No.	Typ	Order-No.	Typ	Order-No.
	Abox-i m 025-L	496 902 01	Abox-i m 025-2,5 ²	496 402 01	Abox-i m 025-L/sw	498 902 01
	Abox-i m 025 AB-L	499 902 01	Abox-i m 025 AB-2,5 ²	499 402 01	Abox-i m 025 AB-L/sw	499 903 01
	Abox-i m 040-L	501 904 01	Abox-i m 040-4 ²	501 404 01	Abox-i m 040-L/sw	502 904 01
	Abox-i m 040 AB-L	503 904 01	Abox-i m 040 AB-4 ²	503 404 01	Abox-i m 040 AB-L/sw	503 905 01



Abox-i	Typ	Order-No.	Typ	Order-No.	Typ	Order-No.
	Abox-i 025-L	490 902 01	Abox-i 025-2,5 ²	490 402 01	Abox-i 025-L/sw	491 902 01
	Abox-i 025 AB-L	494 902 01	Abox-i 025 AB-2,5 ²	494 402 01	Abox-i 025 AB-L/sw	491 903 01
	Abox-i 040-L	490 904 01	Abox-i 040-4 ²	490 404 01	Abox-i 040-L/sw	491 904 01
	Abox-i 040 AB-L	494 904 01	Abox-i 040 AB-4 ²	494 404 01	Abox-i 040 AB-L/sw	491 905 01
	Abox-i 060-L	490 906 01	Abox-i 060-6 ²	490 406 01	Abox-i 060-L/sw	491 906 01
	Abox-i 100-L	490 910 01	Abox-i 100-10 ²	490 410 01	Abox-i 100-L/sw	491 910 01
	Abox-i 160-L	490 916 01	Abox-i 160-16 ²	490 416 01	Abox-i 160-L/sw	491 916 01
	Abox-i 250-L	490 925 01	Abox-i 250-25 ²	490 425 01		
	Abox-i 350-L		Abox-i 350-35 ²	490 435 01	Abox-i 350-L/sw	491 935 01

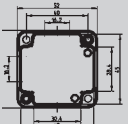


Dimensions in Millimeter

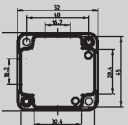


Abox XT	Typ	Terminal	Order-No.	
	Abox XT 025-2,5 ²	Grey, with screw terminal, 5-pole - 2.5 mm ² (4 x 1.5 ² / 4 x 2.5 ²)	492 402 01	80 x 80 x 52
	Abox XT 040-4 ²	Grey, with screw terminal, 5-pole - 2.5/4 mm ² (4 x 1.5 ² / 4 x 2.5 ² / 3 x 4 ²)	492 404 01	93 x 93 x 55
	Abox XT 060-6 ²	Grey, with high-set screw terminal, 5-pole - 6 mm ² (4 x 2.5 ² / 4 x 4 ² / 3 x 6 ²)	492 406 01	100 x 100 x 67
	Abox XT 100-10 ²	Grey, with high-set screw terminal, 5-pole - 10 mm ² (4 x 4 ² / 4 x 6 ² / 4 x 10 ²)	492 410 01	140 x 140 x 79

JUNCTION BOXES | Abox-i m/Abox-i/Abox XT/Abox-i SL

						Dimensions in Millimeter 
Typ	Order-No.	Typ	Order-No.	Typ	Order-No.	
Abox-i m 025-2,5²/sw	498 402 01	Abox-i m 025 SB-L	496 702 01	Abox-i m 025-L/w	489 902 01	
		Abox-i m 025 AB SB-L	499 702 01	Abox-i m 025 AB-L/w	489 903 01	
Abox-i m 040-4²/sw	502 404 01	Abox-i m 040 SB-L	501 704 01	Abox-i m 040-L/w	504 904 01	82 x 82 x 52
		Abox-i m 040 AB SB-L	503 704 01	Abox-i m 040 AB-L/w	504 905 01	82 x 82 x 52
						94 x 94 x 57
						94 x 94 x 57

				Dimensions in Millimeter
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						Dimensions in Millimeter 
Abox-i SL		Typ	Terminal	Order-No.		
		Abox-i SL- 2,5/4²	Grey, with 5-pole high-set screwless terminal, max. cross-section acc. DIN EN 60998:4 mm², for current carrying capacity of 24 A, cross sections that can be clamped per pole: 3 x 0.2 up to 4 mm² rigid and 3 x 0.14 up to 4.0 mm² flexible	490 806 01		



Abox-i m / Abox-i / Abox XT terminals

Product	Terminals	Order-Nr.
Abox 025/040 KLS-2,5 ² /4 ²	5-poles - 2,5/4 mm ²	840 004 01
Abox 060 KLS-6 ²	5-poles - 6 mm ²	840 006 01
Abox 100 KLS-10 ²	5-poles - 10 mm ²	840 010 01
Abox 160 KLS-16 ²	5-poles - 16 mm ²	840 016 01
Abox 250/350 KLS-25 ² /35 ²	5-poles - 35 mm ²	840 035 01
Abox 700 KLS-70 ²	1-poles olig - 70 mm ²	840 070 01
AKL 125	1-poles - 150 mm ²	076 125 01
AKL 140	1-poles - 240 mm ²	076 140 01

Connecting terminal acc. to DIN EN 60998 (VDE 0613), U_i=690V



Standard rail NS 35

Product	Enclosure	Order-No.
NS 35-81	Abox-i 060	198 081 01
NS 35-106	Abox-i 100	198 106 01
NS 35-144/2	Abox-i 160 Abox-i 250	894 016 01
NS 35-216/2	Abox-i 250 Abox-i 350	894 035 01

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



Attachment bushes

Product	Sealing area	Order-No.
AST M16	6 - 10	230 416 01
AST M20	8 - 13,5	230 420 01
AST M25	9 - 18,5	230 425 01
AST M32	13 - 23	230 432 01
AST M40	17 - 30	230 440 01

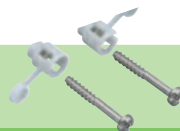
Attachment bushes with open sealing membrane, no lock nuts required



Cable gland

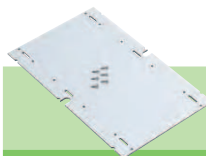
Produkt	Thread length/ mm	Sealing area/ mm	Order-No.
KVR M12-MGM	8	2 - 6,5	227 412 01
KVR M16-MGM	8	4 - 10,0	227 416 01
KVR M20-MGM	9	6 - 12,0	227 420 01
KVR M20-GDB/MGM	9	7 - 14,0	227 421 01
KVR M25-MGM	11	9 - 16	227 425 01
KVR M32-MGM	11	11 - 21,0	227 432 01
KVR M40-MGM	11	16 - 28,0	227 440 01
KVR M50-MGM	13	21 - 34,5	227 450 01
KVR M63-MGM	17	30 - 44,5	227 463 01

Cable gland with strain relief, polyamide, M_x 1.5 mm, with lock nut



Abox PST

Product	Enclosure	Order-No.
Abox PST	For junction boxes Abox/Abox-i 025 to 100, (from Abox/Abox-i 160, contained as standard in the delivery)	890 010 01
Sealing kit		



Mounting plate Insulating material

Product	Enclosure	Order-No.
Abox 060 MPI	Abox-i 060	895 006 01
Abox 100 MPI	Abox-i 100	895 010 01
Abox 160 MPI	Abox-i 160	895 016 01
Abox 250 MPI	Abox-i 250	895 025 01
Abox 350 MPI	Abox-i 350	895 035 01

Mounting plate made from insulating material, incl. fixing screws



Mounting plate

Product	Order-No.
MPS-KRI	194 101 01

Mounting plate made of sheet steel, incl. fixing screws, for mounting on Stago/van Geel cable tray, for mouting of Abox junction boxes, fastening space of up to 130 mm



Double-membrane seals

Product	Sealing area/ mm	Order-No.
DMS M16	5 - 9	260 416 01
DMS M20	7 - 12	260 420 01
DMS M25	9 - 16	260 425 01
DMS M32	14 - 21	260 432 01
DMS M40	19 - 28	260 440 01

Double membrane seals with two sealing membranes, closed, f. wall thicknesses 1.5 - 4.5 mm, thermoplastic elastomer, grey



Sealing plugs

Product	Sealing area/mm	Order-No.
VST M16	6 - 10	231 416 01
VST M20	8 - 13,5	231 420 01
VST M25	9 - 16	231 425 01
VST M32	13 - 23	231 432 01
VST M40	17 - 30	231 440 01

Blanking plug with closed sealing membrane, thermoplastic elastomer (TPE), no lock nuts required



ABOX | IN APPLICATION

BEGA



BERNDT|CONTEC
Messen - Regeln - Überwachen



ERCO



GIRA



REFERENCES | PROJECTS (EXAMPLES)

RWE Tower Dortmund
Central station (Hauptbahnhof) Berlin
Airport Düsseldorf
Airport Frankfurt
Allianz Arena Munich
Signal Iduna Park Dortmund
Limbecker Platz Essen
Bonnenfantentmuseum Maastricht



HOFFMEISTER



Kelvion



Gubristunnel Switzerland
Hotel Radisson Cologne
Fraunhofer Institut Aachen
Schiphol airport Amsterdam
Henninger tower Frankfurt
Gotthard Tunnel Switzerland
Tunnel Blonden Belgium
Tunnel Liefkeshoek Belgium
Globe Arena Hotel Stockholm

Ford plant Cologne
Hospitaal AZ Zeno Knokke-Heist
Kiev Metro Ukraine
Dechenhöhle Iserlohn
Vodafone Düsseldorf
Film and television university
Potsdam-Babelsberg
Humboldt-Forum Berliner Schloss Berlin
Lidl supermarkets Fellbach

Hotel Ibis Bialystok Poland
Turow power plant Poland
Gallerian shopping centre Stockholm

	Enclosure without fittings			Enclosure with fittings			Maximum relative humidity at 40°C	Maximum relative humidity at 25°C (short-term)	Protection rating according to 60529 / VDE 0470-1	Shock-proof as per DIN EN 50102 / DE 0470 Part 100
	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				
Rote Reihe / HP Junction boxes	-25°C	40°C	35°C	-25°C	35°C	25°C	50%	95%	IP55	IK07
Abox Junction boxes	-25°C	40°C	35°C	-25°C	35°C	25°C	50%	95%	IP65	IK07
Abox-i Junction boxes	-35°C	80°C	60°C	-25°C	35°C	25°C	50%	95%	IP65	IK08
WK Junction boxes	-25°C	40°C	35°C	-25°C	35°C	25°C	50%	95%	IP54	IK05
WKE 2-5 Junction boxes	-25°C	40°C	35°C	-25°C	35°C	25°C	50%	95%	IP65	IK05
WKE 200-400 Junction boxes	-25°C	40°C	35°C	-25°C	35°C	25°C	50%	95%	IP66	IK08
WKE 54 Junction boxes	-25°C	40°C	35°C	-25°C	35°C	25°C	50%	95%	IP67	IK07
WKE AK Enclosure systems	-25°C	40°C	35°C	-25°C	35°C	25°C	50%	95%	IP54	IK10
RK / RKA Terminal block enclosure	-25°C	40°C	35°C	-25°C	35°C	25°C	50%	95%	IP65	IK07
AL / ALR / ALS Aluminium enclosure	-35°C	75°C	60°C	-25°C	40°C	35°C	50%	95%	IP66	IK09
IBT / IBTronic Concrete installation system	-25°C	40°C	35°C	-25°C	35°C	25°C	50%	k.A.	IP30	k.A.
AK Kompakt Distribution boards	-25°C	40°C	35°C	-25°C	40°C	35°C	50%	95%	IP65	IK07
AKi Kompakt Distribution boards	-35°C	80°C	60°C	-25°C	40°C	35°C	50%	95%	IP65	IK08
AK Air Distribution boards	-35°C	80°C	60°C	-25°C	40°C	35°C	50%	95%	IP65	IK08
AKL Empty enclosure	-25°C	40°C	35°C	-25°C	40°C	35°C	50%	95%	IP65	IK07
AKi Empty enclosure	-35°C	80°C	60°C	-25°C	40°C	35°C	50%	95%	IP65	IK08
SVi Enclosure	-35°C	80°C	60°C	-25°C	40°C	35°C	50%	95%	IP65 ⁴⁾	IK07
STV / STG Socket combination	-35°C	80°C	60°C	-25°C	40°C	35°C	50%	95%	IP44 ²⁾	IK08
GTi Enclosure system	-35°C	80°C	60°C	-25°C	40°C	35°C	50%	95%	IP65	IK08
TK-PS (Polystyrene) Enclosure system	-25°C	40°C	35°C	-25°C	40°C	35°C	50%	95%	IP66	IK07
TK-PC (Polycarbonate) ³⁾ Enclosure system	-35°C	80°C	60°C	-25°C	40°C	35°C	50%	95%	IP66	IK08
TG ABS Enclosure system	-25°C	40°C	35°C	-25°C	40°C	35°C	50%	95%	IP66/ IP67	IK07
TG-PC (Polycarbonate) ³⁾ Enclosure system	-35°C	80°C	60°C	-25°C	40°C	35°C	50%	95%	IP66/ IP67	IK08
HW Cavity wall box	-25°C	40°C	35°C	-25°C	40°C	35°C	50%	k.A.	IP30	k.A.
KD Channel installation box	-25°C	40°C	35°C	-25°C	40°C	35°C	50%	k.A.	IP20	k.A.

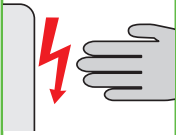
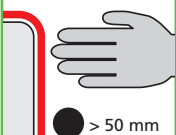
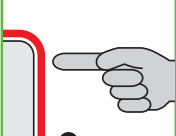
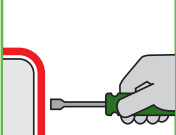
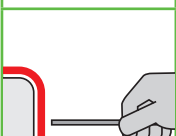
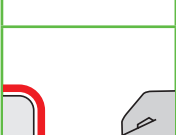
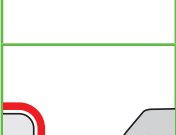
Additional note: The specified temperatures may be limited by the installed devices.

Use in the products		Weak acids	Strong acids	Weak bases	Strong bases	Alcohol	Petrol	Benzene	Mineral oil	Diesel	Ammonia, gaseous (DLG Fokustest)	Vegetable fats	Animal fats	Halogen free	Free of halogens, heavy metals, PVC and silicone	Flammability acc. to DIN EN 60695 (VDE 0471) / UL94
Material																
Polystyrene, shock-proof	AK system, Abox, RK / RKA, TK-PS	O	Ø	O	O	O	X	X	O	X	k.A.	O	X	ja	ja	650°C / HB
ABS (Acrylonitrile-Butadiene-Styrene)	TG-ABS	O	Ø	O	O	O	X	X	O	O	k.A.	Ø	Ø	ja	ja	650°C / HB
Polycarbonate, glass fibre-reinforced	Abox-i ¹ , STV/STG, AK, GTi-system, AKi, TK-PC, ZKi, ZVi, SVi	O	X	X	X	O	Ø	X	O	Ø	O	O	Ø	ja	ja	960°C / V-2 (5VA*)
Polycarbonate	TG-PC, AK	O	X	X	X	O	Ø	X	O	Ø	O	O	Ø	ja	ja	960°C / V-2 (5VA*)
Polycarbonate, transparent	Hinged lid AK II small-scale distributor and STV, lid AKL, AKi, GTi, TK-PC	O	X	X	X	Ø	Ø	X	O	Ø	O	O	O	ja	ja	850°C / V-2
Polyethylene	Attachment bushes, twist nipple, Red Range (bottom section)	O	O	O	O	O	Ø	X	O	X	k.A.	O	O	ja	ja	650°C / HB
Polyurethane	All types with foamed lid seal	Ø	Ø	Ø	Ø	Ø	Ø	Ø	X	Ø	O	O	O	ja	ja	650°C / ---
Aluminium	AL, ALR, ALS	O	Ø	O	O	O	O	O	O	O	k.A.	O	O	ja	ja	---
Duroplastic	WK series integrated terminal block except for 4 mm ²	X	X	Ø	X	O	O	O	O	O	k.A.	O	O	ja	ja	960°C / V-0
Polyamide 6, glass fibre-reinforced	Screw fittings to IP 68	X	X	O	O	O	O	Ø	O	O	O	O	O	ja	ja	750°C / HB/V-2
Thermoplastic elastomer	Double-membrane glands, inlet membranes (Abox 025 / 040, 2K-12)	O	Ø	O	Ø	O	Ø	Ø	Ø	Ø	O	O	O	ja	ja	750°C / HB

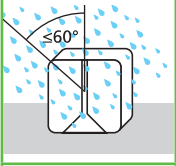
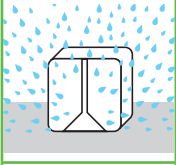
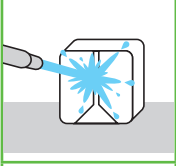
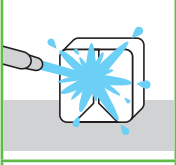
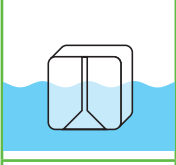
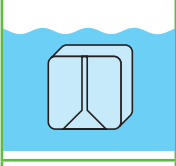
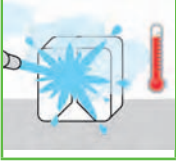
1) From Abox-i 60 burning behavior according to DIN EN 60695: 960 ° C.
Abox-i 25 and 40 burning behavior according to DIN EN 60695: 650 ° C.

O = resistant Ø = partially resistant X = not resistant

OVERVIEW OF THE PROPERTIES OF MATERIALS USED IN THE ELS INSTALLATION SYSTEMS |

	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

PROTECTION TYPES ACCORDING TO EN 60529 (VDE 0470-1)

	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 any direction in a 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 the ingress of water in case of high pressure	Water directed at the enclosure from any direction in a jet under increased pressure shall have no harmful effects

The second digit of the IP code describes the protection of the housing against the harmful ingress of water.



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Günther Spelsberg GmbH + Co. KG

Headquarter

Im Gewerbepark 1, D-58579 Schalksmühle
Postfach 15 20, D-58571 Schalksmühle
Phone: +49 (0) 23 55 / 8 92-0
Fax: +49 (0) 23 55 / 8 92-299
E-Mail: info@spelsberg.de
Internet: www.spelsberg.de

Buttstädt factory

Vor dem Lohe 3, D-99628 Buttstädt
Postfach 30, D-99627 Buttstädt
Phone: +49 (0) 3 63 73 / 98-400
Fax: +49 (0) 3 63 73 / 98-499